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MONTHLY EM&A REPORT

April 2016

Client : Civil Engineering and Development Department, HKSAR

Contract No. : KLN/2015/07

Contract Name : Environmental Monitoring Works for Contract KL/2014/03 – Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway

Report No. : 0405/15/ED/0426B

EP-337/2009 New Distributor Roads Serving the Planned Kai Tak Development Area

EP-339/2009/A Decommissioning of the Remaining Parts (Ex-GFS Building, Radar Station and Hong Kong Aviation Club) of the former Kai Tak Airport

EP-451/2013 Trunk Road T2

Prepared by : Alfred Y. S. Lam

Reviewed by : Cyrus C. Y. Lai

Certified by : _____
Colin K. L. Yung
Environmental Team Leader
MateriaLab Consultants Limit

RAMBOLL ENVIRON

Ref.: CEDKTDS3EM00_0_0067L.16

13 May 2016

By Post and Email

Hyder-Meinhardt Joint Venture
20/F., AXA Tower,
Landmark East,
100 How Ming Street,
Kwun Tong,
Kowloon, Hong Kong

Attention: Mr. Wong W K, Chris

Dear Mr. Wong,

Re: Contract No. KL/2014/03 – Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway
Monthly EM&A Report for April 2016

Reference is made to the Environmental Team's submission of the Monthly EM&A Report for April 2016 (Report No. 0405/15/ED/0426B) we received by e-mail on 13 May 2016.

Please be informed that we have no adverse comment on the captioned report. We hereby verify the captioned submission according to Condition 3.3 of EP-337/2009, Condition 3.3 of EP-339/2009/A and Condition 3.4 of EP-451/2013.

Thank you for your attention. Please do not hesitate to contact us should you have any queries.

Yours sincerely,
For and on behalf of
Ramboll Environ Hong Kong Limited

F. C. Tsang
Independent Environmental Checker

c.c.	CEDD	Attn.:	Ms. Amy Chu	Fax: 2369 4980
	MateriaLab	Attn.:	Mr. Colin K. L. Yung	Fax: 2450 8032
	CRBC	Attn.:	Mr. Arnold Chan	Fax: 2283 1689

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EXECUTIVE SUMMARY

i. The Civil Engineering and Development Department HKSAR has appointed MateriaLab Consultants Limited (MCL) to undertake the Environmental Team services for the Project and implement the EM&A works.

ii. This Monthly EM&A report presents the environmental monitoring and audit works for the period between 1 April 2016 and 30 April 2016. As informed by the Contractor, major activities in the reporting month were:

- Carrying out ground investigation and pre-drilling;
- Construction of guide walls and D-walls at Zone 1;
- Construction of H piles at Zone 1;
- Construction of hoarding along Shing Fung Road & Shing Cheong Road;
- Construction of garden at Portion WA1;
- Construction of temporary manhole at Zone 1 as discharge point;
- Implementation of Temporary Traffic Arrangement (TTA) along Cheung Yip Street and Shing Cheong Road;
- Setting up wheel washing bay near portion E; and
- Setting up waste water treatment system at Zone 1.

Breaches of the Action and Limit Levels

iii. No Action / Limit Level exceedance was recorded for 24-hr TSP and construction noise at KTD1a, KTD2a and KER1a in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

iv. No environmental complaint and no notification of summons and successful prosecution were received in the reporting month.

Reporting Changes

v. There was no reporting change in the reporting month.

Future Key Issues

vi. The key issues to be considered in the coming reporting month include:

Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, water quality, waste management and landscape and visual impact.

1. INTRODUCTION

1.1 Background

1.1.1 The Kai Tak Development is located in the south-eastern part of Kowloon Peninsula of the HKSAR, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling.

1.1.2 Contract No. KL/2014/03 is the works package to construct an approximately 420m long supporting underground structure (SUS) underneath Shing Cheong Road and Cheung Yip Street. The EM&A programme under this Contract is governed by three EPs (EP-337/2009, EP-339/2009/A and EP-451/2013) and two EM&A Manuals (AEIAR-130/2009 and AEIAR-174/2013). The Works to be executed under this Contract and corresponding EPs include but not be limited to the following main items:

EP-451/2013 – Trunk Road T2

(i) Construction of approximately 420m long supporting underground structure (SUS) including diaphragm walls, barrettes, piled foundation, top and bottom slabs, end wall and adits underneath Shing Cheong Road and Cheung Yip Street;

EP-337/2009 – New Distributor Roads Serving the Planned Kai Tak Development

(ii) Widening and re-alignment of Cheung Yip Street of approximately 330m long and associated footpaths;
(iii) Demolition, reconstruction and widening of Shing Cheong Road of approximately 410m long and associated footpaths;
(iv) Construction of drainage outfall and modification of existing seawall;
(v) Construction of ancillary works including surface drainage, sewerage, water, fire fighting, street lighting, street furniture, road marking, road signage, utilities and services, irrigation and landscape works.

EP-339/2009/A – Decommissioning of the Remaining Parts (Ex-GFS Building, Radar Station and Hong Kong Aviation Club) of the former Kai Tak Airport

(vi) Demolition of RADAR Tower and guard house;

Other works not covered by any EP

(vii) Construction of two subways between Phase II of New Acute Hospital (Site A) and Hong Kong Children's Hospital (Site C), and between Phase I of New Acute Hospital (Site B) and Site C;
(viii) Construction of District Cooling System (DCS) along Cheung Yip Street and Shing Cheong Road

1.1.3 The location and boundary of the site is shown in **Figure 1**.

1.1.4 This Monthly EM&A report is required under EP-337/2009 Condition 3.3, EP-339/2009/A Condition 3.3 and EP-451/2013 Condition 3.4. It is to report the results and findings of the EM&A programme required in the EM&A Manuals.

1.1.5 This is the second monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project within the period between 1 April 2016 and 30 April 2016.

1.2 Project Organization

1.2.1 The project proponent was the Civil Engineering and Development Department, HKSAR (CEDD). Hyder Meinhardt Joint Venture (HMJV) was commissioned by CEDD as the Engineer for the Project. Ramboll Environ Hong Kong Limited was commissioned as the Independent Environmental Checker (IEC). China Road and Bridge Corporation (Hong Kong) (CRBC) was appointed as the main contractor for the construction works under the contract KL/2014/03. MateriaLab Consultants Limited (MCL) was appointed as the Environmental Team (ET) by CEDD to implement the EM&A programme for the Project.

1.2.2 The organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarized in **Table 1.1**.

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
Project Proponent (CEDD)	Co-ordinator	Ms. Amy Chu	3106 3172	2369 4980
Engineer's Representative (HMJV)	Chief Resident Engineer	Mr. W. K., Chris Wong	2911 2233	2805 5028
IEC (Ramboll Environ Hong Kong Limited)	Independent Environmental Checker	Mr. F. C. Tsang	3465 2888	3465 2899
Main Contractor (CRBC)	Site Agent	Mr. Chan See Wai, Arnold	9380 4110	2283 1689
	Environmental Officer	Mr. Wong Tan Tat	9492 5918	2283 1689
ET (MCL)	Environmental Team Leader	Mr. Colin Yung	3565 4114	3565 4160

1.3 Construction Programme and Activities

1.3.1 The construction of the Project commenced in February 2016 and is expected to complete in 2020. The construction programme is shown in **Appendix A**.

1.3.2 A summary of the major construction activities undertaken in the reporting month were:

- Carrying out ground investigation and pre-drilling;
- Construction of guide walls and D-walls at Zone 1;
- Construction of H piles at Zone 1;
- Construction of hoarding along Shing Fung Road & Shing Cheong Road;
- Construction of garden at Portion WA1;
- Construction of temporary manhole at Zone 1 as discharge point;
- Implementation of Temporary Traffic Arrangement (TTA) along Cheung Yip Street and Shing Cheong Road;
- Setting up wheel washing bay near portion E; and
- Setting up waste water treatment system at Zone 1.

1.4 Inter-relationship with the environmental protection/ mitigation measures with the construction programme

1.4.1 According to the construction activities in the construction programme mentioned in Section 1.3.2, the following environmental protection/ mitigation measures including Air Quality Impact,

Construction Noise Impact, Water Quality Impact, Chemical and Waste Management, Landscape and Visual Impact shall be implemented:

- Sufficient watering of the works site with the active dust emitting activities;
- Limitation of the speed for vehicles on unpaved site roads;
- Properly cover or enclosure of the stockpiles and dusty materials;
- Good site practices on loading dusty materials;
- Providing sufficient vehicles washing facilities at every vehicle exit point;
- Good maintenance to the plant and equipment;
- Use of quieter plant and Quality Powered Mechanical Equipment (QPME);
- Use of acoustic fabric and noise barrier;
- Using the approved Non-road Mobile Machineries (NRMMs);
- Proper storage and handling of chemical;
- Appropriate desilting, oil interceptors or sedimentation devices provided on site for treatment before discharge;
- Onsite waste sorting and implementation of trip ticket system;
- Training of the site personnel in proper waste management and chemical waste handling procedures;
- Proper storage of the construction materials;
- Erection of decorative screen hoarding;
- Strictly following the Environmental Permits and Licenses;
- Provide sufficient mitigation measures as recommended in Approved EIA Reports

1.5 Status of Environmental Licences, Notifications and Permits

1.5.1 A summary of the relevant environmental licenses, permits and/or notifications on environmental protection for this Contract is presented in **Table 1.2**.

Table 1.2 Relevant Environmental Licenses, Permits and/or Notifications

Environmental License / Permit / Notification	Reference Number	Valid From	Valid Till
Environmental Permit	EP-337/2009 EP-339/2009/A EP-451/2013	23 April 2009 18 June 2009 19 September 2009	Not Applicable Not Applicable Not Applicable
Notification pursuant to Air Pollution (Construction Dust) Regulation	395601	16 November 2015	Not Applicable
Billing Account for Waste Disposal	A/C No.: 7023814	30 November 2015	Not Applicable
Construction Noise Permit	GW-RE0070-16	11 February 2016	7 May 2016
*Construction Noise Permit	GW-RE0213-16	21 March 2016	17 April 2016
Construction Noise Permit	GW-RE0354-16	18 April 2016	17 October 2016
Wastewater Discharge License	WT00023125-2015	6 January 2016	31 January 2021
Chemical Waste Producer License	5213-247-C1232-12	23 November 2015	Not Applicable

Note:
CNP, GW-RE0213-16 was replaced by GW-RE0354-16 from 18 April 2016 to 17 October 2016.

2. AIR QUALITY

2.1 Monitoring Requirement

In accordance with the approved EM&A Manuals, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required. Impact 24-hour TSP monitoring should be carried out at least once every 6 days. In case of complaints, 1-hour TSP monitoring should be carried out at least 3 times per 6 days when the highest dust impacts are likely to occur. The Action and Limit Levels of the air quality monitoring are given in **Appendix C**.

2.2 Monitoring Equipment

The 24-hour TSP air quality monitoring was performed using High Volume Air Samplers (HVS) located at each of the designated monitoring station. Portable TSP Monitors would be used in case of complaints for 1-hour TSP monitoring.

Table 2.1 summarizes the equipment used in air quality monitoring.

Table 2.1 Air Quality Monitoring Equipment

Item	Brand	Model	Equipment	Serial Number
1	Tisch	TE-5170 (TSP)	High Volume Sampler	
		TE-300-310X	- Mass Flow Controller	2037
		TE-5005X	- Blower Motor Assembly	3482
		TE-5007X	- Mechanical Timer	4488
		TE-5009X	- Continuous Flow Recorder	4371
2	Tisch	TE-5170 (TSP)	High Volume Sampler	
		TE-300-310X	- Mass Flow Controller	2364
		TE-5005X	- Blower Motor Assembly	3478
		TE-5007X	- Mechanical Timer	4492
		TE-5009X	- Continuous Flow Recorder	4377
3	Tisch	TE-5170 (TSP)	High Volume Sampler	
		TE-300-310X	- Mass Flow Controller	2618
		TE-5005X	- Blower Motor Assembly	3838
		G3031	- Mechanical Timer	2251
		G1051	- Continuous Flow Recorder	2307
4	Tisch	TE-5025A	HVS Sampler Calibrator	0438320 / 2154
				0428320 / 2456
5	*Sibata	Model LD-3B	Sibata Portable TSP Monitors	NA

Note:
No complaint of air quality was received. Therefore, no impact 1-hour TSP monitoring was conducted.

2.3 Monitoring Methodology

2.3.1 24-hour TSP air quality monitoring

HVS Installation

The following guidelines were adopted during the installation of HVS:

- Sufficient support is provided to secure the samplers against gusty wind.
- No two samplers are placed less than 2 meters apart.

- The distance between the sampler and an obstacle, such as buildings, is at least twice the height that the obstacle protrudes above the sampler.
- A minimum of 2 meters of separation from walls, parapets and penthouses is required for rooftop samples.
- A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
- No furnaces or incineration flues are nearby.
- Airflow around the samplers is unrestricted.
- The samplers are more than 20 meters from the drip line.
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

Filters Preparation

Fiberglass filters (provided by the HOKLAS accredited laboratory) shall be used (Note: these filters have a collection efficiency of larger than 99% for particles of 0.3 μm diameter). A HOKLAS accredited laboratory (ALS Technichem (HK) Pty Ltd.) is responsible for the preparation of 24-hr conditioned and pre-weighed filter papers for monitoring team.

All filters are equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature is around 25°C and not variable by more than ±3°C; the relative humidity (RH) is < 50% and not variable by more than ±5%. A convenient working RH is 40%.

Operating / Analytical Procedures

Operating / analytical procedures for the air quality monitoring are highlighted as follows:

- Prior to the commencement of the dust sampling, the flow rate of the HVS are properly set (between 1.1 m^3/min. and 1.4 m^3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50. The flow rate shall be indicated on the flow rate chart.
- The power supply shall be checked to ensure the samplers worked properly.
- On sampling, the samplers shall be operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air quality monitoring station.
- The filter holding frame is then removed by loosening the four nuts and carefully a weighted and conditioned filter is centered with the stamped number upwards, on a supporting screen.
- The filter shall be aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame is tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The shelter lid shall be closed and secured with the aluminum strip.
- The timer is then programmed. Information shall be recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- After sampling, the filter shall be removed and sent to laboratory for weighing. The elapsed time is also recorded.
- Before weighing, all filters are equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%. Weighing results are returned to MCL for further analysis of TSP concentrations collected by each filter.

2.3.2 1-hour TSP air quality monitoring

Operating / Analytical Procedures

The measuring procedures of the 1-hr dust meter are in accordance with the Manufacturer's instruction Manual as follows:

- Pull up the air sampling inlet cover
- Change the Mode 0 to BG once
- Push Start/Stop switch once
- Turn the knob to SENSI.ADJ and press it
- Push Start/Stop switch once
- Return the knob to the position MEASURE slowly
- Push the timer set switch to set measuring time
- Remove the cap and make a measurement

2.4 Maintenance / Calibration

2.4.1 24-hour TSP air quality monitoring

The following maintenance / calibration are required for the HVS:

- The high volume motors and their accessories are properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking are made to ensure that the equipments and necessary power supply are in good working condition.
- All HVS shall be calibrated (five point calibration) using Calibration Kit upon installation and thereafter in every 3 months.
- A copy of the calibration certificates for the HVS and calibrator are provided in **Appendix D**.

2.4.2 1-hour TSP air quality monitoring

The portable TSP monitor should be calibrated at 1 year intervals

2.5 Monitoring Locations

2.5.1 According to the EM&A Manual, three air quality monitoring locations, namely KTD1, KTD2 and KER1, are covered by this Contract within the South Apron Area of Former Kai Tak Airport. The other two air quality monitoring locations, which are identified in Cha Kwo Ling area, are farther than 500m away from the site boundary and thus not covered by this Contract. The monitoring works in Cha Kwo Ling area are covered by other Contract(s) respectively.

2.5.2 According to the approved alternative baseline air quality and noise monitoring locations (EPD reference: EP2/K19/A/21 Pt.5), the original monitoring locations (KTD1, KTD2 and KER1) are proposed to be replaced by alternative monitoring locations (KTD1a, KTD2a and KER1a) for air quality monitoring, they are summarized in **Table 2.2** and shown in **Figure 2**.

Table 2.2 Location of Air Quality Monitoring Station

Monitoring Station	Location
KTD1a	Centre of Excellence in Paediatrics (Children's Hospital)
KTD2a	G/IC Zone next to Kwun Tong Bypass (Future Hospital at Site 3C1)
KER1a	Site Boundary at Cheung Yip Street

2.6 Results and Observations

2.6.1 The schedule of air quality monitoring in reporting month is provided in **Appendix E**.

2.6.2 No Action / Limit Level exceedance was recorded for 24-hr TSP at KTD1a, KTD2a and KER1a in the reporting month.

2.6.3 No complaint of air quality was received. Therefore, no impact 1-hour TSP monitoring was conducted in the reporting month.

2.6.4 During the reporting month, major dust sources including loading and unloading of C&D wastes, vehicles movement were observed in the site. Non-project related construction activities at the nearby construction site and road traffic along Shing Cheong Road, Cheung Yip Street and the Kwun Tong By-pass were observed. The above factors may affect the monitoring results.

2.6.5 The weather conditions during the monitoring are provided in **Appendix K**.

2.6.6 The monitoring data of 24-hr TSP are summarized in **Table 2.3**. Detailed monitoring data are presented in **Appendix F**.

Table 2.3 Summary of 24-hr TSP Monitoring Results

Parameter	Monitoring Station	Average (µg/m^3)	Range (µg/ m^3)	Action Level (µg/ m^3)	Limit Level (µg/ m^3)
24-hr TSP in µg/m^3	KTD1a	79	61 – 105	177	260
	KTD2a	86	39 – 138	157	
	KER1a	62	38 – 83	172	

2.6.7 The Event and Action Plan for air quality is given in **Appendix H**.

2.7 Comparison of 24-hr TSP Monitoring Results with EIA Predictions

2.7.1 The monitoring data of 24-hr TSP was compared with the EIA predictions as summarized in **Table 2.4**.

Table 2.4 Comparison of 24-hr TSP data with EIA predictions

Monitoring Station	Receiver Reference	Predicted Maximum 24-hour TSP Concentration ($\mu g/m^3$)	24-hour TSP concentration in April 2016 ($\mu g/ m^3$)	Average 24-hour TSP concentration in April 2016 ($\mu g/ m^3$)
KTD1a	KTD3	126	61 – 105	79
KTD2a	-	-	39 – 138	86
KER1a	KTD6	169	38 – 83	62

Note:
For KTD2a, there was no receiver reference in the EIA report, EIAR-174/2013.
Predicted Maximum TSP Concentration extracted from Table 4.14 of EIA Report, EIAR-174/2013.

2.7.2 The 24-hour TSP monitoring results were well below the Predicted Maximum 24-hr TSP concentration in the approved Environmental Impact Assessment (EIA) Report and no Action / Limit Level exceedance was recorded in the reporting period.

3. NOISE

3.1 Monitoring Requirement

In accordance with the approved EM&A Manuals, Leq (30min) monitoring is conducted for at least once a week during the construction phase between 0700 and 1900 on normal weekdays at the designated monitoring locations.

3.2 Monitoring Equipment

The sound level meter used in noise monitoring will comply with the International Electrotechnical Commission Publication (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications as referred to in the Technical Memorandum issued under the Noise Control Ordinance (NCO).

Sound level calibrator will be used for the on-site calibration of the meter. This calibrator complies with the IEC Publication 942 (1988) Class 1 and ANSI S1.40 - 1984. Noise measurements were only accepted to be valid if the calibration levels from before and after the measurement agree to within 1.0dB.

Measurements shall be recorded to the nearest 0.1dB. This noise monitors are programmed to measure A-weighted equivalent continuous sound pressure level at 30-minute intervals between 0700 and 1900 on normal weekdays at least once a week when construction activities are underway.

Table 3.1 summarizes the noise monitoring equipment model being used for this project.

Table 3.1 Noise Monitoring Equipment

Item	Brand	Model	Equipment	Serial Number
1	Casella	CEL-63X Series	Integrating Sound Level Meter	2451028
2	Casella	CEL-63X Series	Integrating Sound Level Meter	2451091
3	Casella	CEL-63X Series	Integrating Sound Level Meter	3756084
4	Casella	CEL-120/1	Calibrator	5230736
5	Casella	CEL-120/1	Calibrator	5230758
6	Casella	CEL-120/1	Calibrator	5230950
7	Smart Sensor	AR816+	Wind Speed Anemometer	NA

3.3 Monitoring Parameters and Frequency

Table 3.2 presents the noise monitoring parameters and frequencies.

Table 3.2 Monitoring Parameters and Frequencies of Noise Monitoring

Parameter	Frequency and Period
LAeq **(30min)** L10 and L90 will be recorded for reference	At each station at 0700-1900 hours on normal weekdays at a frequency of once a week

3.4 Monitoring Methodology

The monitoring procedures are as follows:

- The monitoring station is set at a point 1m from the exterior of the sensitive receivers building façade and set at a position 1.2m above the ground.
- The battery condition is checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time are set as follows:
  - frequency weighting : A
  - time weighting : Fast
  - measurement time : Weekly 30 minutes between 0700-1900 on normal weekdays
- Prior to and after noise measurement, the meter shall be calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement will be considered invalid and repeat of noise measurement is required after re-calibration or repair of the equipment.
- Noise monitoring should be cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
- Noise measurement should be paused during periods of high intrusive noise if possible and observation shall be recorded when intrusive noise is not avoided.
- At the end of the monitoring period, the Leq, L10 and L90 are recorded. In addition, site conditions and noise sources are recorded on a standard record sheet.

3.5 Maintenance / Calibration

Maintenance and Calibration procedures are as follows:

- The microphone head of the sound level meter and calibrator should be cleaned with a soft cloth at quarterly intervals.
- The sound level meter and calibrator should be calibrated annually by a HOKLAS laboratory.
- Relevant calibration certificates are provided in **Appendix D**.

3.6 Monitoring Locations

3.6.1 According to the EM&A Manual, three noise monitoring locations, namely KTD1, KTD2 and KER1, are covered by this Contract within the South Apron Area of Former Kai Tak Airport. The other two noise quality monitoring locations, which are identified in Cha Kwo Ling area, are farther than 300m away from the site boundary and thus not covered by this Contract. The monitoring works in Cha Kwo Ling area are covered by other Contract(s) respectively.

3.6.2 According to the approved alternative baseline air quality and noise monitoring locations (EPD reference: EP2/K19/A/21 Pt.5), the original monitoring locations (KTD1, KTD2 and KER1) are proposed to be replaced by alternative monitoring locations (KTD1a, KTD2a and KER1a) for noise monitoring, they are summarized in **Table 3.3** and shown in **Figure 2**.

Table 3.3 Location of Noise Quality Monitoring Station

Monitoring Station	Location
KTD1a	Centre of Excellence in Paediatrics (Children's Hospital)
KTD2a	G/IC Zone next to Kwun Tong Bypass (Future Hospital at Site 3C1)
KER1a	Site Boundary at Cheung Yip Street

3.7 Results and Observations

3.7.1 The schedule of noise monitoring in reporting month is provided in **Appendix E**.

3.7.2 During the monitoring month, at KTD1a, non-project related construction activities at the nearby construction site and road traffic along Shing Cheong Road were observed in the surroundings. At KTD2a, road traffic along the Kwun Tong By-pass was observed. At KER1a, road traffic along Cheung Yip Street was observed. Major noise sources including noise emission from plant & PME and some other construction activities, travel of vehicles, loading and unloading of C&D waste were observed in the site. The above factors may affect the monitoring results.

3.7.3 No raining and wind with speed over 5 m/s was observed during noise monitoring according to the onsite observation. The weather conditions during the monitoring month are provided in **Appendix K**.

3.7.4 The noise monitoring data are summarized in **Table 3.4**. Detailed monitoring data are presented in **Appendix G**.

Table 3.4 Summary of Noise Impact Monitoring Results

Time Period	Leq $_{(30min)}$ dB(A) (Range)			Action Level (µg/ m^3)	Limit Level (µg/ m^3)
	Noise Monitoring Stations				
	KTD1a	KTD2a	KER1a		
0700-1900 hrs on normal weekdays	66 - 71	56 - 64	60 - 74	When one documented complaint is received	75 dB(A)

Note:
KTD1a: Façade Measurement
KTD2a & KER1a: Free-field measurement (+3dB(A) correction has been applied)

3.7.5 No Action / Limit Level exceedance was recorded for construction noise in the reporting month.

3.7.6 The Action and Limit Levels for noise impact monitoring have been set are presented in **Appendix C**.

3.7.7 The Event and Action Plan for noise is given in **Appendix H**.

3.8 Comparison of Noise Monitoring Results with EIA Predictions

3.8.1 The noise monitoring data was compared with the EIA predictions as summarized in **Table 3.5**.

Table 3.5 Comparison of Noise Monitoring data with EIA predictions

Monitoring Station	Receiver Reference	Maximum Predicted Mitigated Construction Noise Level, dB(A)	Leq $_{(30min)}$ dB(A) in April 2016
KTD1a	KTD1	74	66 - 71
KTD2a	KTD2	75	56 - 64
KER1a	KER1	75	60 - 74

Note:
Maximum Predicted Mitigated Construction Noise Level extracted from Table 5.13 of EIA Report, EIAR-174/2013.

3.8.2 The impact noise monitoring results in the reporting month were below the Maximum Predicted Mitigated Construction Noise Level in the approved Environmental Impact Assessment (EIA) Report and no Action / Limit Level exceedance was recorded in the reporting period.

4. LANDSCAPE AND VISUAL

4.1 Audit Requirements

4.1.1 As per the Trunk Road T2 EM&A Manual, the landscape and visual mitigation measures during the construction phase shall be audited by a Registered Landscape Architect, as a member of the Environmental Team, at least once every two weeks to ensure compliance with the intended aims of the measures.

4.1.2 According to the Kai Tak Development EM&A Manual, measures to mitigate landscape and visual impacts during construction should be checked to ensure compliance with the intended aims of the measures. The progress of the engineering works shall be regularly reviewed onsite to identify the earliest practical opportunities for the landscape works to be undertaken. The ET shall report on the Contractor's compliance on a weekly basis.

4.2 Results and Observations

4.2.1 To monitor and audit the implementation of landscape and visual mitigation measures, 4 weekly Landscape and Visual Site audits were carried out on 7, 14, 21 and 28 April 2016 and 2 of them, 14 and 21 April 2016 were carried out by a Registered Landscape Architect. The weekly Landscape and Visual Impact reports were counter-signed by IEC as according to the requirement of EM&A Manual (AEIAR-130/2009).

4.2.2 No non-compliance of the landscape and visual impact was recorded in the reporting month.

4.2.3 Should non-compliance of the landscape and visual impact occur, action in accordance to the event action plan presented in **Appendix H** shall be carried out.

5. WASTE MANAGEMENT

5.1 Audit Requirements

5.1.1 The effective management of waste arising during the construction phase will be monitored through the site audit programme. Regular audits and site inspections should be carried out to ensure that the recommended good site practices and other mitigation measures are implemented by the Contractor.

5.1.2 The audit should look at all aspects of on-site waste management practices including the waste generation, storage, recycling, transport and disposal. The aims of waste audit are:

- to ensure the waste arising from the works are handled, stored, collected, transferred and disposed of in an environmentally acceptable manner;
- verify the implementation status and evaluate the effectiveness of the mitigation measures; and
- to encourage the reuse and recycling of material.

5.2 Results and Observations

5.2.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.

5.2.2 The amount of wastes generated by the site activities in the reporting month is shown in **Appendix I**.

5.2.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.

5.2.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

6. SITE INSPECTION

6.1 Site Inspection

6.1.1 Site inspections were carried out weekly to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix J**.

6.1.2 In the reporting month, 4 site inspections were carried out on 7, 14, 21 and 28 April 2016. Two of them, held on 14 and 21 April 2016 were the joint inspections with the IEC, ER, the Contractor and the ET.

6.1.3 No outstanding issues were reported during the reporting month. Details of observations recorded during the site inspections are summarized in **Appendix M**.

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

7. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

7.1 Environmental Exceedance

7.1.1 No Action / Limit Level exceedance was recorded for 24-hr TSP and construction noise at KTD1a, KTD2a and KER1a in the reporting month.

7.2 Complaints, Notification of Summons and Prosecution

7.2.1 No complaint, inspection notice, notification of summons or prosecution was received in this reporting month. Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in **Appendix L**.

8. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

8.1 Implementation Status

8.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and the EM&A Manuals. The implementation status of the mitigation measures during the reporting month is summarized in **Appendix J**. Status of required submission under the EP during the reporting period is summarized in **Table 8.1**.

Table 8.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
EP-337/2009		
Condition 2.3	Management Organization of Main Construction Companies	18/12/2015
Condition 2.4	Design Drawing of the Project	18/12/2015
Condition 2.11	Landscape Mitigation Plan(s)	18/12/2015
Condition 3.3	Monthly EM&A Report (March 2016)	15/4/2016
EP-339/2009/A		
Condition 2.4	Management Organization of Main Construction Companies	18/12/2015
Condition 2.5	Design Drawing of the Project	18/12/2015
Condition 3.3	Monthly EM&A Report (March 2016)	15/4/2016
EP-451/2013		
Condition 2.3	Management Organization of Main Construction Companies	18/12/2015
Condition 2.4	Design Drawing of the Project	18/12/2015
Condition 2.5	Landscape Mitigation Plan(s)	18/12/2015
Condition 2.10	Supplementary Contamination Assessment Report	18/12/2015
Condition 3.3	Baseline Monitoring Report	12/2/2016
Condition 3.4	Monthly EM&A Report (March 2016)	15/4/2016

9. FUTURE KEY ISSUES

9.1 Construction Programme for the Next Two Months

- Carrying out ground investigation and pre-drilling;
- Implementation of Temporary Traffic Arrangement (TTA);
- Temporary diversion of existing Underground Utility (UU);
- Setting up temporary barging point;
- Erection of scaffolding and demolition of Radar Tower;
- Demolition of foundation at Zone 4;
- Setting up waste water treatment system at Zone 4;
- Setting up stockpiling area at Portion I and K;
- Construction of subway B;
- Carrying out piling works at Zone 1 and 2; and
- Construction of guide walls and D-walls at Zone 2.

9.2 Key Issues for the Coming Month

9.2.1 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, water quality, waste management and landscape and visual impact.

9.3 Monitoring Schedules for the Next Three Months

9.3.1 The tentative schedules for environmental monitoring in the coming three months are provided in **Appendix E**.

10. CONCLUSIONS

10.1.1 24-hour TSP impact monitoring and construction noise monitoring were carried out in the reporting month, no Action / Limit Level exceedance was recorded during the period.

10.1.2 No complaint of air quality was received. Therefore, no impact 1-hour TSP monitoring was conducted in the reporting month.

10.1.3 Four no. of environmental site inspections were carried out in April 2016. Recommendations on mitigation measures on air quality, water quality, noise, waste management and landscape and visual impact were given to the Contractor for remediating the deficiencies identified during the site inspections.

10.1.4 Four weekly Landscape and Visual Site audits were carried out on 7, 14, 21 and 28 April 2016 and 2 of them, 14 and 21 April 2016 were carried out by a Registered Landscape Architect in the reporting month. The weekly Landscape and Visual Impact reports were counter-signed by IEC as according to the requirement of EM&A Manual (AEIAR-130/2009). No non-compliance of the landscape and visual impact was recorded in the reporting month.

10.1.5 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

10.2 Comment and Recommendations

10.2.1 The recommended environmental mitigation measures, as proposed in the EIA reports and EM&A Manuals shall be effectively implemented to minimize the potential environmental impacts from the Project. The EM&A programme would effectively monitor the environmental impacts generated from the construction activities and ensure the proper implementation of mitigation measures.

10.2.2 According to the environmental audit performed in the reporting month, the following recommendations were made:

Air Quality Impact
- Fugitive dust preventive measures shall be implemented.

Construction Noise Impact
- Effective noise mitigation measures shall be implemented to minimize construction noise impact

Water Quality Impact
- Implement effective/preventive measures to prevent accumulation of stagnant water.

Chemical and Waste Management
- Chemical and Waste Management shall be provided properly.

Landscape and Visual Impact
- No specific observation was identified in the reporting month.

Permit / Licenses
- No specific observation was identified in the reporting month.

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Figure 1

Project General Layout

LEGENDS:

- SITE BOUNDARY
- HOSPITAL SITE BOUNDARY
- PROPOSED SUPPORTING UNDERGROUND STRUCTURE
- PROPOSED SUBWAYS
- PROPOSED ROADWORKS
- PROPOSED DISTRICT COOLING SYSTEM
- DEMOLITION OF RADAR TOWER

PROPOSED NEW ACUTE HOSPITAL (PHASE II)

PROPOSED NEW ACUTE HOSPITAL (PHASE I)

HONG KONG CHILDREN'S HOSPITAL (HKCH)

PUBLIC WORKS CENTRAL LABORATARY BUILDING

Proposed Fire Station cum Ambulance Facility

WANG CHU ROAD

TSUNG YIP STREET

KAI HING ROAD

LAM CHAK STREET

KAI TAK BRIDGE

Road

Seawall

小港 CREEK

KEY PLAN

Rev.	Date	Drawn	Description	Checked	Approved

Hyder-Meinhardt JV

CLIENT

土木工程拓展署
Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

PROJECT

CONTRACT NO. KL/2014/03
KAI TAK DEVELOPMENT - STAGE 3
INFRASTRUCTURE WORKS FOR DEVELOPMENTS AT THE SOUTHERN PART OF THE FORMER RUNWAY

TITLE

GENERAL LAYOUT PLAN

DESIGNED			ENG. CHECK		
DRAWN			COORDINATION		
DWG. CHECK			APPROVED		

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Drawing No.

FIGURE 1.0

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Figure 2

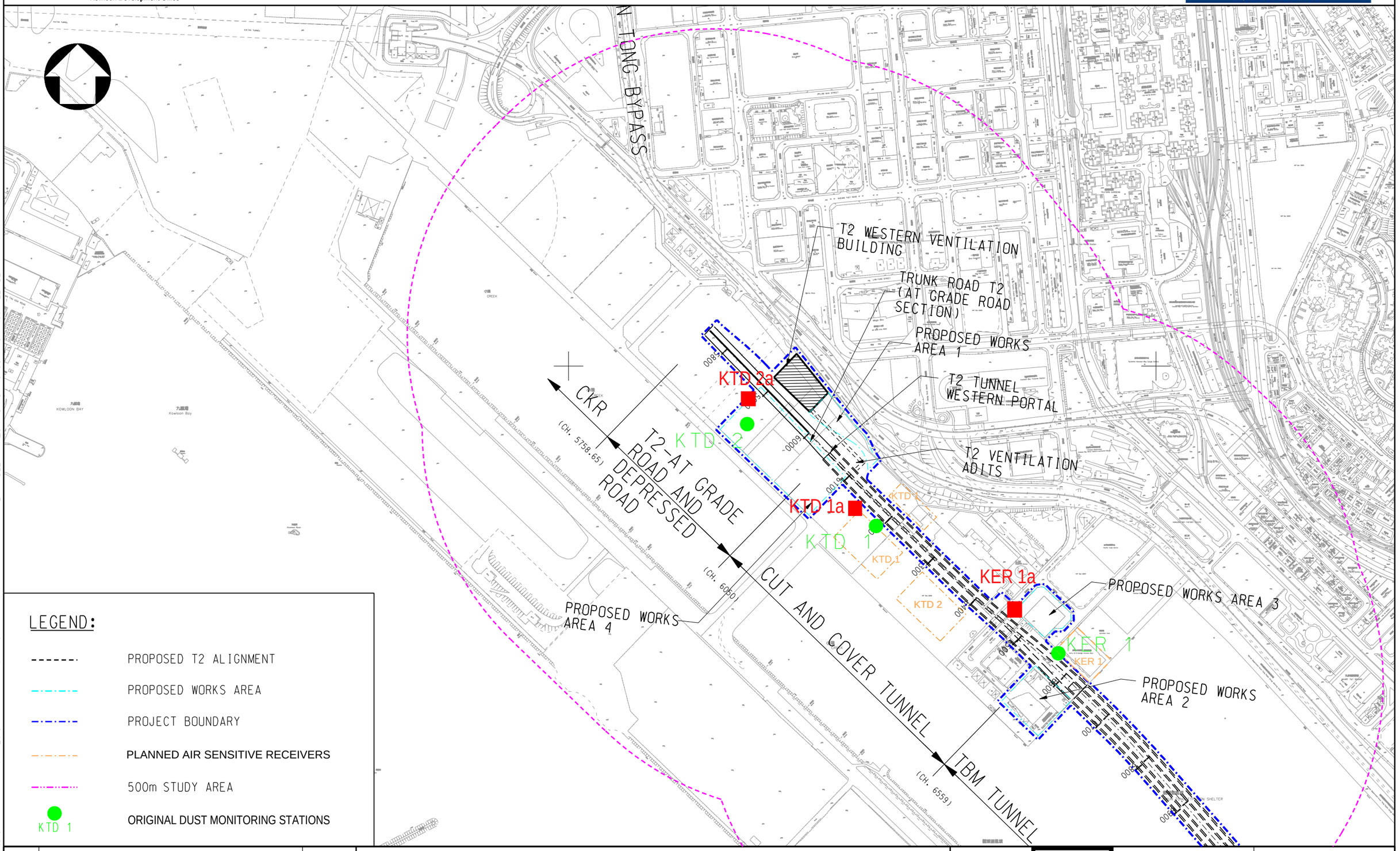
Air and Noise Monitoring Locations

土木工程拓展署
Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

CEDD

AGREEMENT NO. CE 38/2008(HY)
KAI TAK DEVELOPMENT - TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH APRON - INVESTIGATION, DESIGN AND CONSTRUCTION

Hyder MEINHARDT
Hyder-Meinhardt JV



LEGEND:

- PROPOSED T2 ALIGNMENT
- PROPOSED WORKS AREA
- PROJECT BOUNDARY
- PLANNED AIR SENSITIVE RECEIVERS
- 500m STUDY AREA
- KTD 1 — ORIGINAL DUST MONITORING STATIONS
- KTD 1a — PROPOSED DUST MONITORING STATIONS

Rev.	Description	Date

Drawing title

IDENTIFIED DUST MONITORING STATIONS AT SOUTH APRON OF FORMER KAI TAK AIRPORT

Original Size: A3

Scale: 1 : 6000 | Date: 30/01/2012

File name

Drawing No. FIGURE 2.1a (revised)

Rev. --

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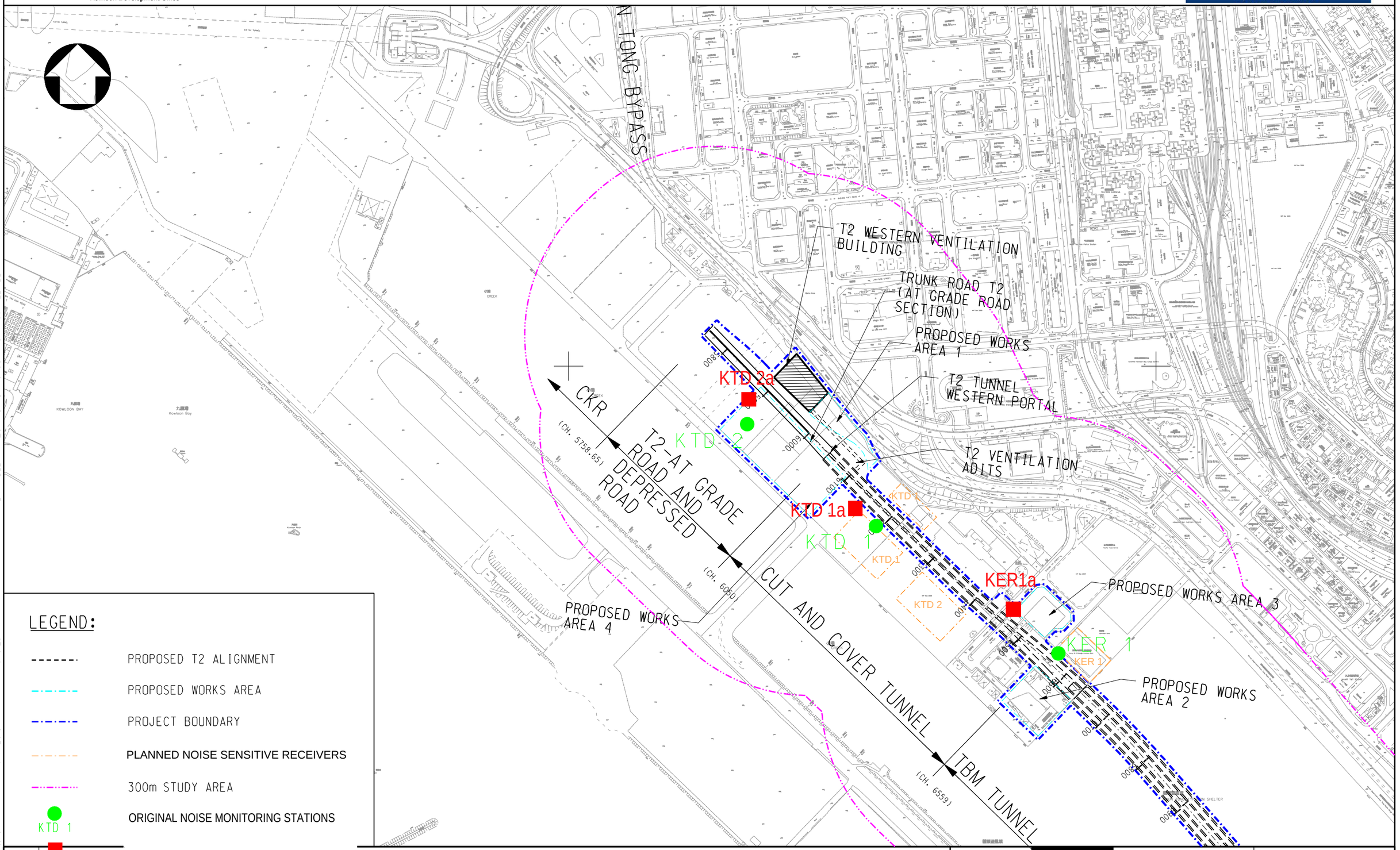
土木工程拓展署
Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

AGREEMENT NO. CE 38/2008(HY)
KAI TAK DEVELOPMENT - TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH APRON - INVESTIGATION, DESIGN AND CONSTRUCTION

Hyder-Meinhardt JV



LEGEND:

- PROPOSED T2 ALIGNMENT
- PROPOSED WORKS AREA
- PROJECT BOUNDARY
- PLANNED NOISE SENSITIVE RECEIVERS
- 300m STUDY AREA
- KTD 1 — ORIGINAL NOISE MONITORING STATIONS
- KTD 1a — PROPOSED NOISE MONITORING STATIONS

Rev.	Description	Date

Drawing title

IDENTIFIED NOISE MONITORING STATIONS AT SOUTH APRON OF FORMER KAI TAK AIRPORT

Original Size: A3

Scale: 1 : 6000 | Date: 30/01/2012

File name

Drawing No.: FIGURE 3.1a (revised)

Rev.: --

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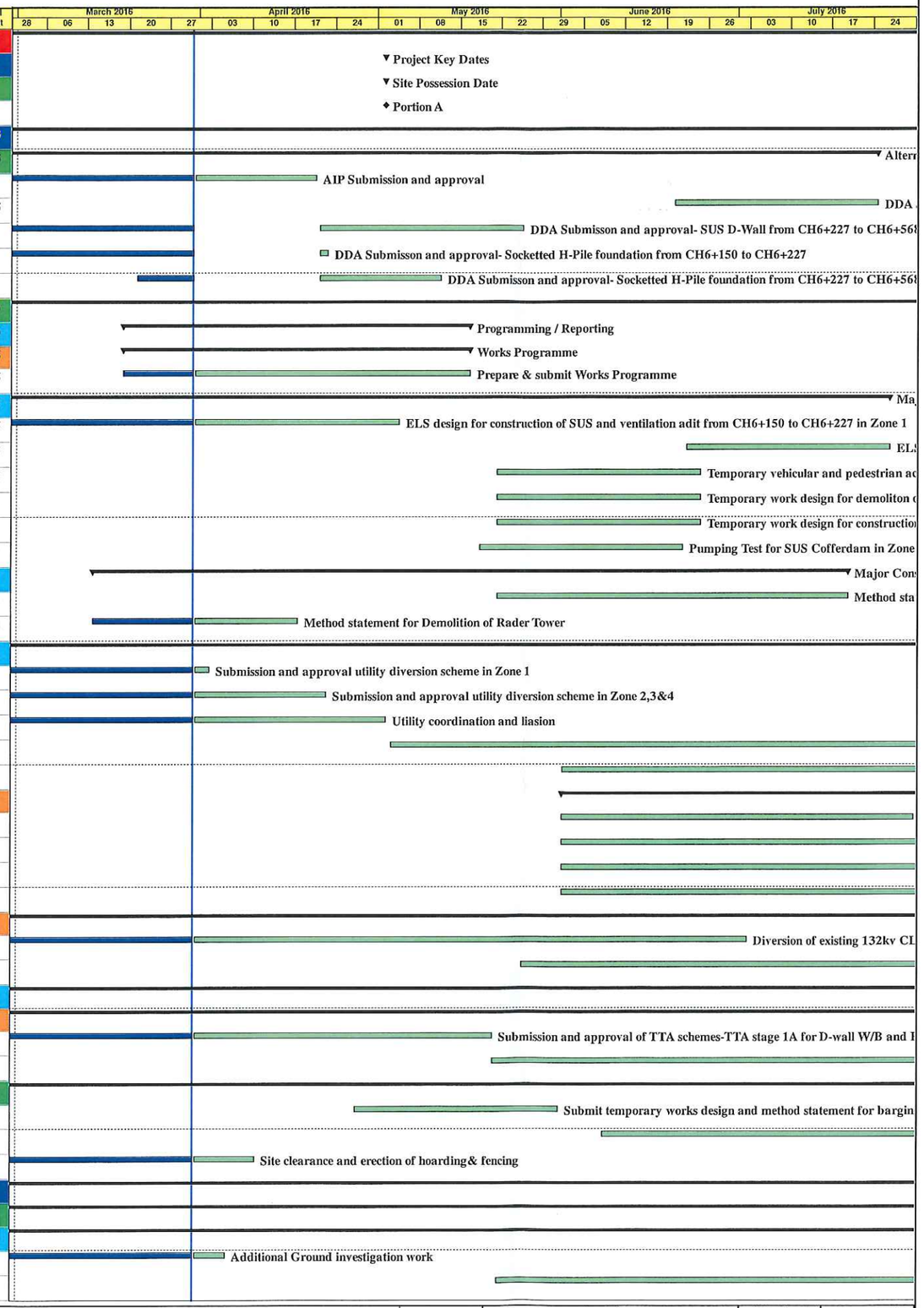
Appendix A

Construction Programme

KL/2014/03 Kai Tak Development-Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway

Activity ID	Activity Name	Original Duration	Start	Finish	Predecessors	Total Float
KL/2014/03-Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway		1294	23-Nov-15 A	12-Jun-19		8
Project Key Dates		0	02-May-16	02-May-16		0
Site Possession Date		0	02-May-16	02-May-16		0
K-PK-SPD-100	Portion A	0	02-May-16*		K-PK-PCC-100	0
Preliminaries, Alternative Design,Submission and Approval		317	23-Nov-15 A	27-Oct-16		553
Alternative Design for Supporting Underground Structure(SUS)		210	24-Dec-15 A	24-Jul-16		115
K-PA-ADS-100	AIP Submission and approval	35	24-Dec-15 A	20-Apr-16	K-PA-ADS-090	39
K-PA-ADS-110	DDA Submisson and approval- Tunnle box from CH6+150 to CH6+227	35	20-Jun-16	24-Jul-16	K-PA-ADS-100	115
K-PA-ADS-115	DDA Submisson and approval- SUS D-Wall from CH6+227 to CH6+568	35	26-Feb-16 A	25-May-16	K-PA-ADS-100	41
K-PA-ADS-125	DDA Submisson and approval- Socketted H-Pile foundation from CH6+150 to CH6+227	35	19-Jan-16 A	22-Apr-16	K-PA-ADS-100	65
K-PA-ADS-130	DDA Submisson and approval- Socketted H-Pile foundation from CH6+227 to CH6+568	35	21-Mar-16 A	11-May-16	K-PA-ADS-125	90
General Submission Under PS		264	23-Nov-15 A	27-Oct-16		553
Programming / Reporting		60	19-Mar-16 A	16-May-16		156
Works Programme		60	19-Mar-16 A	16-May-16		156
K-PA-GSP-420	Prepare & submit Works Programme	60	19-Mar-16 A	16-May-16	K-PA-GSP-410	156
Major Temporary Works Design		70	07-Jan-16 A	26-Jul-16		645
K-PA-GSP-680	ELS design for construction of SUS and ventilation adit from CH6+150 to CH6+227 in Zone 1	35	07-Jan-16 A	04-May-16	K-PA-GSP-665, 1	196
K-PA-GSP-686	ELS design for construction of subway B (Bay 3&4)	35	22-Jun-16	26-Jul-16	K-PA-GSP-885	645
K-PA-GSP-687	Temporary vehicular and pedestrian access for HKCH	35	21-May-16	24-Jun-16	K-PK-SPD-260, 1	145
K-PA-GSP-694	Temporary work design for demoliton of the existing radar tower	35	21-May-16	24-Jun-16	K-PK-PCC-100	241
K-PA-GSP-835	Temporary work design for construction of subway structure	35	21-May-16	24-Jun-16	K-PK-PCC-100	27
K-PA-GSP-885	Pumping Test for SUS Cofferdam in Zone 2 to 4	35	18-May-16	21-Jun-16	K-PA-GSP-875	247
Major Construction Works Method Statement		111	14-Mar-16 A	19-Jul-16		121
K-PA-GSP-714	Method statement of Excavation and ELS	60	21-May-16	19-Jul-16	K-PK-PCC-100	120
K-PA-GSP-732	Method statement for Demolition of Rader Tower	60	14-Mar-16 A	17-Apr-16	K-PK-SPD-230	214
Temporary Utility Diversion/ Relocation		223	23-Nov-15 A	27-Oct-16		19
K-PA-GSP-666	Submission and approval utility diversion scheme in Zone 1	30	12-Jan-16 A	02-Apr-16	K-PK-PCC-100	2
K-PA-GSP-667	Submission and approval utility diversion scheme in Zone 2,3&4	45	25-Jan-16 A	22-Apr-16	K-PA-GSP-665	52
K-PA-GSP-668	Utility coordination and liasion	90	09-Dec-15 A	02-May-16	K-PA-GSP-666, 1	19
K-PA-GSP-860	Temporary utility diversion work in Zone 1	105	03-May-16	15-Aug-16	K-PA-GSP-666	2
K-PA-GSP-865	Temporary utility diversion work in Zone 2,3&4	120	01-Jun-16	29-Sep-16	K-PA-GSP-860, 1	47
Utility Diversion Works		90	01-Jun-16	15-Sep-16		4
K-PA-GSP-861	Laying DN600 MS fresh watermain at Zone 1	50	01-Jun-16	30-Jul-16	K-PA-GSP-860	4
K-PA-GSP-866	Laying DN300 D.I fresh watermain at Zone 4	90	01-Jun-16	15-Sep-16	K-PA-GSP-861	4
K-PA-GSP-867	Laying DN250 D.I salt watermain at Zone 4	90	01-Jun-16	15-Sep-16	K-PA-GSP-861, 1	4
K-PA-GSP-868	Construction of 900 covered rectangular channel (E/B) at Zone 3 & 4	75	01-Jun-16	29-Aug-16	K-PA-GSP-861	19
Utility Works by Others		223	23-Nov-15 A	27-Oct-16		19
K-1A-UDN-120	Diversion of existing 132kv CLP cable at Cheung Yip Street by others	223	23-Nov-15 A	02-Jul-16	K-PK-PCC-100	50
K-PA-GSP-845	Utility laying for HGC,HKBN,CT,PCCW,NWT,TGT,MP&LPB by others	155	25-May-16	27-Oct-16	K-PA-GSP-667, 1	19
Temporary Traffic Management		130	22-Feb-16 A	18-Aug-16		49
Temp Traffic Arrangement		130	22-Feb-16 A	18-Aug-16		49
K-PA-GSP-805	Submission and approval of TTA schemes-TTA stage 1A for D-wall W/B and End wall	90	22-Feb-16 A	20-May-16	K-PA-GSP-800	49
K-PA-GSP-810	Submission and approval of TTA schemes-TTA stage 2 for D-wall W/B at Zone 2	90	20-May-16	18-Aug-16	K-PA-GSP-805, 1	49
Prelimiaries		169	23-Nov-15 A	15-Sep-16		62
K-DR-PRE-140	Submit temporary works design and method statement for barging point	35	27-Apr-16	31-May-16	K-DR-PRE-135	62
K-DR-PRE-145	Set up temporary barging point	100	08-Jun-16	15-Sep-16	K-PK-SPD-220, 1	62
K-DR-PRE-170	Site clearance and erection of hoarding& fencing	70	23-Nov-15 A	10-Apr-16	K-PK-PCC-100	70
Section 1A of the Works -Construction of Supporting Underground Structure(Alternative Design)		182	15-Dec-15 A	07-Nov-16		79
SUS and Ventilation Adits from CH6+150 to CH6+224 in Zone 1		151	15-Dec-15 A	29-Sep-16		32
Preparation Works		151	15-Dec-15 A	29-Sep-16		32
K-1A-SV1-007	Additional Ground investigation work	60	15-Dec-15 A	05-Apr-16	K-PA-GSP-665	55
K-1A-SV1-008	Fabrication and delivery of ELS strut/waling	110	21-May-16	29-Sep-16	K-PA-ADS-100	32

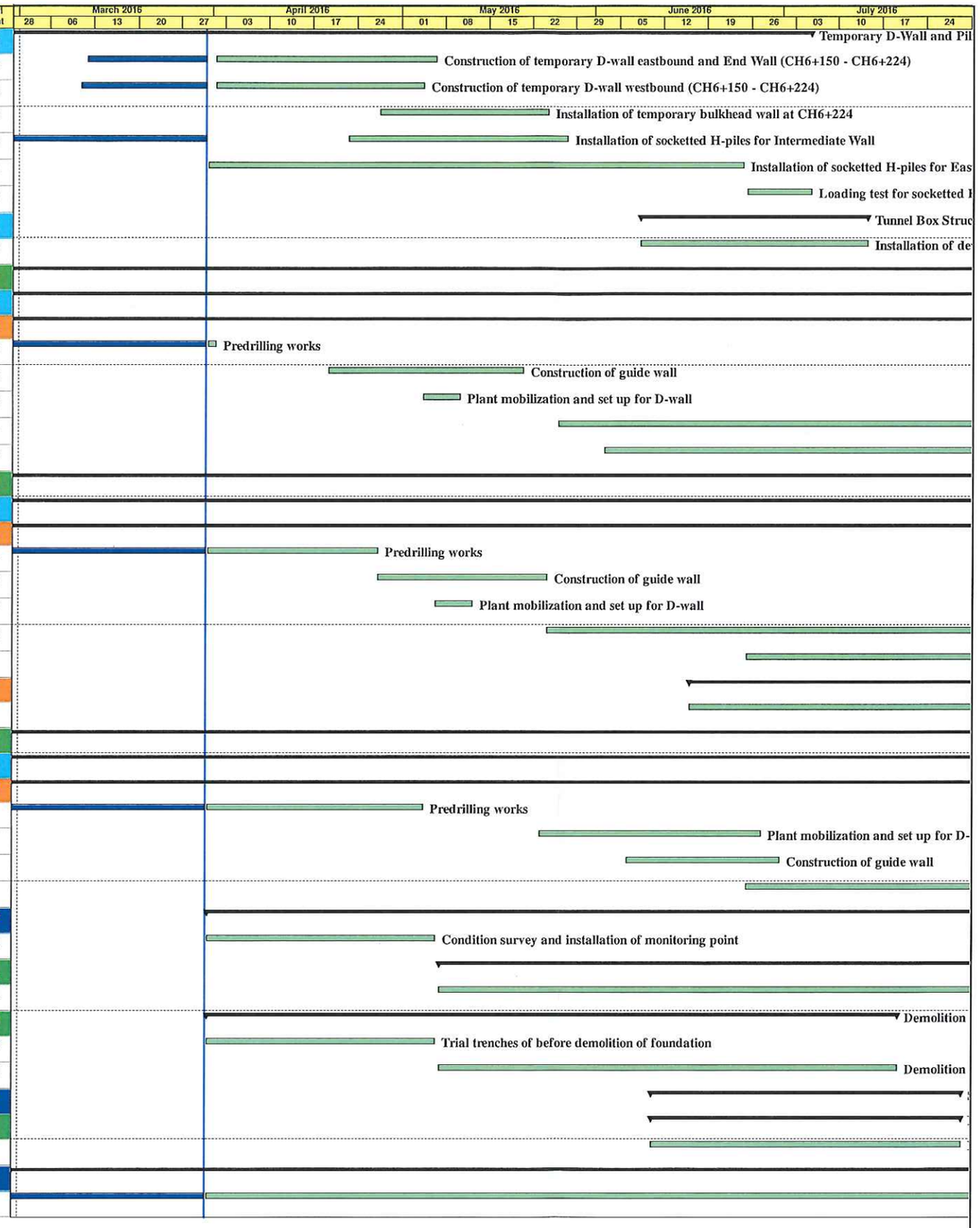


Remaining Level of Effort
Actual Work
Remaining Work
Critical Remaining Work

3 MRP (April to June)

Date	Revision	Checked	Approved
31-Mar-16	2		

Activity ID	Activity Name	Original Duration	Start	Finish	Predecessors	Total Float
Temporary D-Wall and Piling Works		106	26-Feb-16 A	05-Jul-16		65
K-1A-SV1-120	Construction of temporary D-wall eastbound and End Wall (CH6+150 - CH6+224)	80	12-Mar-16 A	06-May-16	K-1A-SV1-110, K	55
K-1A-SV1-130	Construction of temporary D-wall westbound (CH6+150 - CH6+224)	65	11-Mar-16 A	04-May-16	K-1A-SV1-120	63
K-1A-SV1-135	Installation of temporary bulkhead wall at CH6+224	21	27-Apr-16	24-May-16	K-1A-SV1-120	55
K-1A-SV1-140	Installation of socketted H-piles for Intermediate Wall	70	26-Feb-16 A	27-May-16	K-PA-ADS-125, I	52
K-1A-SV1-340	Installation of socketted H-piles for Eastbound and Westbound	70	31-Mar-16	24-Jun-16	K-PA-GSP-713, I	31
K-1A-SV1-462	Loading test for socketted H-Piles	8	25-Jun-16	05-Jul-16	K-1A-SV1-140, K	65
Tunnel Box Structure		30	08-Jun-16	14-Jul-16		43
K-1A-SV1-200	Installation of dewatering well,observation well and recharging well in Zone 1	30	08-Jun-16	14-Jul-16	K-1A-SV1-340, K	43
SUS and Ventilation Adits from CH6+224 to CH6+348 in Zone 2		164	18-Feb-16 A	17-Oct-16		56
D-Wall and Piling Works		164	18-Feb-16 A	17-Oct-16		56
E/B D-Wall and Socketted H-Piles(CH6+224 to CH6+348) in TTA Stage 1		164	18-Feb-16 A	17-Oct-16		56
K-1A-SV2-110	Predrilling works	32	18-Feb-16 A	01-Apr-16	K-1A-SV1-100, K	55
K-1A-SV2-125	Construction of guide wall	25	19-Apr-16	20-May-16	K-PA-GSP-712, I	55
K-1A-SV2-128	Plant mobilization and set up for D-wall	5	04-May-16	10-May-16	K-1A-SV2-110, K	63
K-1A-SV2-130	Construction of D-wall eastbound(CH6+254 to CH6+348)	72	26-May-16	19-Aug-16	K-1A-SV2-128, K	51
K-1A-SV2-300	Installation of socketted H-piles (CH6+227 to CH6+348)	112	02-Jun-16	17-Oct-16	K-PA-ADS-130, I	56
SUS Structure from CH6+348 to 6+467 in Zone 3		182	19-Feb-16 A	07-Nov-16		54
D-Wall and Piling Works		182	19-Feb-16 A	07-Nov-16		54
E/B D-Wall and Socketted H-Piles in TTA Stage 1		182	19-Feb-16 A	07-Nov-16		54
K-1A-SV3-130	Predrilling works	74	19-Feb-16 A	27-Apr-16	K-PA-GSP-665, I	74
K-1A-SV3-132	Construction of guide wall	21	27-Apr-16	24-May-16	K-1A-SV3-130	131
K-1A-SV3-133	Plant mobilization and set up for D-wall	5	06-May-16	12-May-16	K-1A-SV3-130, K	66
K-1A-SV3-136	Construction of D-wall eastbound(CH6+348 to CH6+467)	62	24-May-16	06-Aug-16	K-1A-SV3-132, K	131
K-1A-SV3-150	Installation of socketted H-piles (CH6+348 to CH6+467)	112	25-Jun-16	07-Nov-16	K-1A-SV1-140, K	31
W/B D-Wall in TTA Stage 1A		80	16-Jun-16	19-Sep-16		2
K-1A-SV3-320	Construction of temporary diversion road for TTA stage 1A	80	16-Jun-16	19-Sep-16	K-PA-GSP-860	2
SUS Structure from CH6+467 to 6+568 in Zone 4		182	18-Jan-16 A	07-Nov-16		79
D-Wall and Piling Works		182	18-Jan-16 A	07-Nov-16		79
E/B D-Wall and Socketted H-Piles in TTA Stage 1		182	18-Jan-16 A	07-Nov-16		79
K-1A-SV3-100	Predrilling works	35	18-Jan-16 A	04-May-16	K-PK-SPD-200, I	3
K-1A-SV3-110	Plant mobilization and set up for D-wall	30	23-May-16	27-Jun-16	K-1A-SV3-100	3
K-1A-SV3-120	Construction of guide wall	21	06-Jun-16	30-Jun-16	K-PA-GSP-712, I	3
K-1A-SV3-152	Installation of socketted H-piles(CH6+467 to CH6+550)	112	25-Jun-16	07-Nov-16	K-1A-SV3-150	79
Section 2 of the Works-Demolition of Radar Tower and Guard House		105	31-Mar-16	05-Aug-16		329
K-02-DRG-110	Condition survey and installation of monitoring point	30	31-Mar-16	06-May-16	K-PK-SPD-230	161
Demolition of Radar Tower		75	07-May-16	05-Aug-16		161
K-02-DRT-110	Erection of temporary scaffolding/proping	75	07-May-16	05-Aug-16	K-02-DRG-110, I	161
Demolition of Guard House		90	31-Mar-16	19-Jul-16		344
K-02-DGH-130	Trial trenches of before demolition of foundation	30	31-Mar-16	06-May-16	K-PA-GSP-734	344
K-02-DGH-135	Demolition of foundation of ex-GFS building	60	07-May-16	19-Jul-16	K-PA-GSP-734, I	344
Section 4B of the Works- Construction of Subway B(Subject to Excision)		42	10-Jun-16	29-Jul-16		22
Bay 1&2		42	10-Jun-16	29-Jul-16		22
K-4B-BAY-200	ELS for Bay 1&2	42	10-Jun-16	29-Jul-16	K-4B-BAY-100, I	22
Section 7 of the Works-Preservation and Protection of Existing Trees		1200	29-Feb-16 A	12-Jun-19		8
K-07-001-001	Section 7 of the Works-Preservation and Protection of Existing Trees	1200	29-Feb-16 A	12-Jun-19	K-DR-PRE-175,	8



Remaining Level of Effort
Actual Work
Remaining Work
Critical Remaining Work

3 MRP (April to June)

Date	Revision	Checked	Approved
31-Mar-16	2		

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Appendix B

Project Organization Chart

MATERIALAB CONSULTANTS LIMITED
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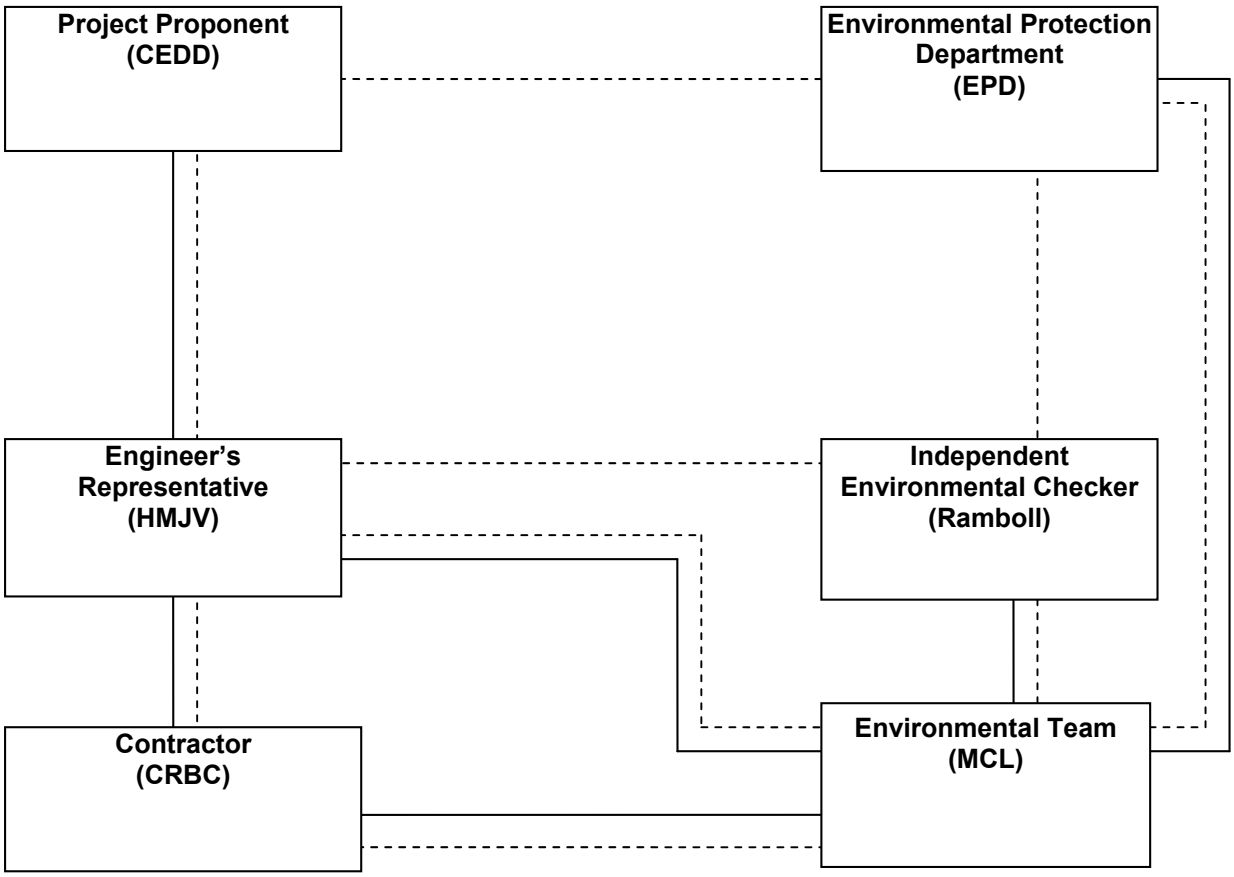

Legend:
Line of Reporting
Line of Communication

MATERIALAB CONSULTANTS LIMITED
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Appendix C

Action and Limit Levels for Air Quality and Noise

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Action and Limit Levels for 24-hr TSP and 1-hr TSP

Parameter	Monitoring Station	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/ m^3$)
24-hr TSP ($\mu g/m^3$)	KTD1a	177	260
	KTD2a	157	
	KER1a	172	
*1-hr TSP ($\mu g/m^3$)	KTD1a	285	500
	KTD2a	279	
	KER1a	295	

Note:
1-hr TSP monitoring should be required in case of complaints.

Action and Limit Levels for Construction Noise, Leq (30min), dB(A)

Time Period	Location	Action	Limit
0700-1900 hrs on normal weekdays	KTD1a KTD2a KER1a	When one documented complaint is received	75 dB(A)

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Appendix D

Calibration Certificates of Monitoring Equipment

TISCH Environmental

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VILLAGE OF CLEVES, OH
45002
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877.263.7610 TOLL FREE
513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Feb 02, 2015 Rootsmeter S/N 0438320 Ta (K) - 292
Operator Tisch Orifice I.D. - 2154 Pa (mm) - 754.38

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4720	3.2	2.00
2	NA	NA	1.00	1.0450	6.4	4.00
3	NA	NA	1.00	0.9320	7.9	5.00
4	NA	NA	1.00	0.8900	8.8	5.50
5	NA	NA	1.00	0.7330	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0087	0.6852	1.4234		0.9957	0.6764	0.8799
1.0044	0.9612	2.0130		0.9915	0.9488	1.2443
1.0023	1.0754	2.2506		0.9894	1.0616	1.3912
1.0012	1.1249	2.3604		0.9883	1.1105	1.4591
0.9959	1.3587	2.8468		0.9831	1.3412	1.7597
Qstd slope (m) =		2.11451		Qa slope (m) =		1.32407
intercept (b) =		-0.02267		intercept (b) =		-0.01402
coefficient (r) =		0.99995		coefficient (r) =		0.99995
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

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MaterialLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Date of Calibration: 19-Jan-16
Location : KTD1a
Next Calibration Date: 18-Apr-16
Technician: Jimmy Lui

Brand: Tisch
Model: TE-5170 S/N: 3478

CONDITIONS

Sea Level Pressure (hPa):	1020.1	Corrected Pressure (mm Hg):	765
Temperature (°C):	18	Temperature (K):	291

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.11451
Model:	TE-5025A	Qstd Intercept:	-0.02267
Calibration Date:	2-Feb-15	Expiry Date:	2-Feb-16
S/N:	2154		

CALIBRATIONS

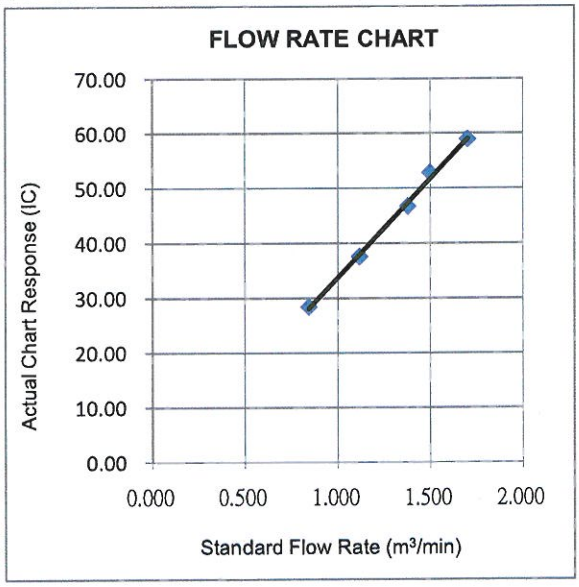
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	8.00	-4.40	12.400	1.701	58.00	58.89	Slope =	36.0577
13	6.30	-3.30	9.600	1.498	52.00	52.79	Intercept =	-2.2566
10	5.80	-2.30	8.100	1.377	46.00	46.70	Corr. coeff.	0.9984
7	4.40	-0.90	5.300	1.116	37.00	37.57		
5	3.30	0.30	3.000	0.842	28.00	28.43		

Calculations:

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]
Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)
m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



Report Date: 19th January,2016

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MateriaLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Date of Calibration: 19-Jan-16
Location : KTD2a
Next Calibration Date: 18-Apr-16
Technician: Jimmy Lui

Brand: Tisch
Model: TE-5170 S/N: 3838

CONDITIONS

Sea Level Pressure (hPa):	1020.1	Corrected Pressure (mm Hg):	765
Temperature (°C):	18	Temperature (K):	291

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.11451
Model:	TE-5025A	Qstd Intercept:	-0.02267
Calibration Date:	2-Feb-15	Expiry Date:	2-Feb-16
S/N:	2154		

CALIBRATIONS

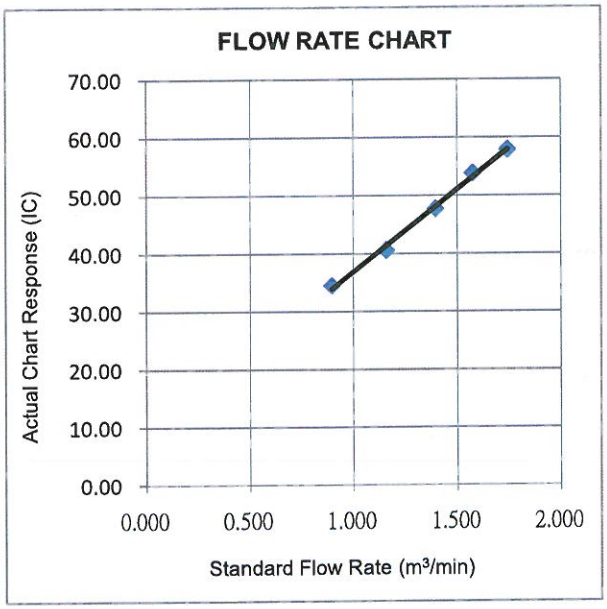
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	8.30	-4.70	13.000	1.742	57.00	57.87	Slope =	28.3252
13	7.10	-3.50	10.600	1.574	53.00	53.81	Intercept =	8.5930
10	5.90	-2.40	8.300	1.394	47.00	47.72	Corr. coeff.	0.9981
7	4.60	-1.10	5.700	1.157	40.00	40.61		
5	3.50	0.10	3.400	0.896	34.00	34.52		

Calculations:

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]
Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)
m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



Report Date: 19th January, 2016

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MaterialLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Location : KER1a
Date of Calibration: 19-Jan-16
Next Calibration Date: 18-Apr-16
Technician: Jimmy Lui

Brand: Tisch
Model: TE-5170 S/N: 3482

CONDITIONS

Sea Level Pressure (hPa):	1020.1	Corrected Pressure (mm Hg):	765
Temperature (°C):	18	Temperature (K):	291

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.11451
Model:	TE-5025A	Qstd Intercept:	-0.02267
Calibration Date:	2-Feb-15	Expiry Date:	2-Feb-16
S/N:	2154		

CALIBRATIONS

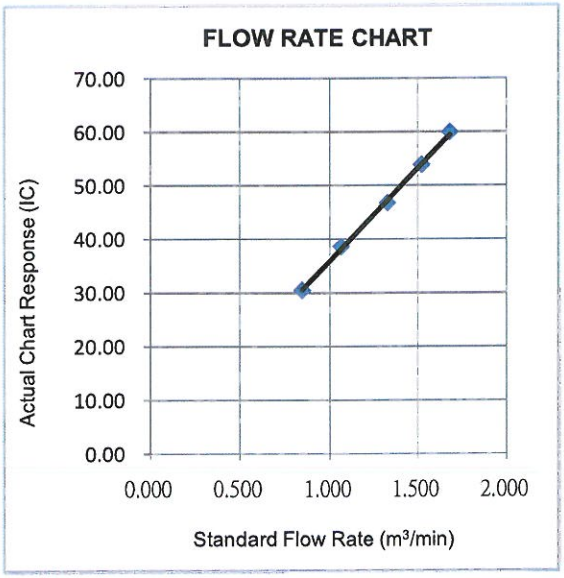
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	7.80	-4.30	12.100	1.681	59.00	59.90	Slope =	34.6096
13	6.60	-3.30	9.900	1.521	53.00	53.81	Intercept =	1.3613
10	5.50	-2.00	7.500	1.326	46.00	46.70	Corr. coeff.	0.9994
7	4.10	-0.70	4.800	1.063	38.00	38.58		
5	3.20	0.20	3.000	0.842	30.00	30.46		

Calculations:

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]
Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)
m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



Report Date: 19th January,2016

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TISCH Environmental

TISCH ENVIRONMENTAL, INC.
145 SOUTH MIAMI AVE
VILLAGE OF CLEVES, OH
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513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jan 14, 2016 Rootsmeter S/N 0438320 Ta (K) - 292
Operator Tisch Orifice I.D. - 2456 Pa (mm) - 748.03

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4420	3.2	2.00
2	NA	NA	1.00	1.0220	6.4	4.00
3	NA	NA	1.00	0.9130	7.9	5.00
4	NA	NA	1.00	0.8670	8.8	5.50
5	NA	NA	1.00	0.7170	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0002	0.6936	1.4174		0.9957	0.6905	0.8836
0.9959	0.9745	2.0045		0.9915	0.9701	1.2496
0.9938	1.0885	2.2411		0.9893	1.0836	1.3971
0.9926	1.1449	2.3504		0.9882	1.1398	1.4653
0.9874	1.3771	2.8347		0.9830	1.3710	1.7672
Qstd slope (m) =		2.07173		Qa slope (m) =		1.29728
intercept (b) =		-0.01761		intercept (b) =		-0.01098
coefficient (r) =		0.99996		coefficient (r) =		0.99996
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

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MaterialLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Date of Calibration: 18-Apr-16
Location : KTD1a
Next Calibration Date: 17-Jul-16
Technician: Jimmy Lui

Brand: Tisch
Model: TE-5170 S/N: 3478

CONDITIONS

Sea Level Pressure (hPa):	1001.4	Corrected Pressure (mm Hg):	761
Temperature (°C):	23	Temperature (K):	297

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.07173
Model:	TE-5025A	Qstd Intercept:	-0.01761
Calibration Date:	14-Jan-16	Expiry Date:	14-Jan-17
S/N:	2456		

CALIBRATIONS

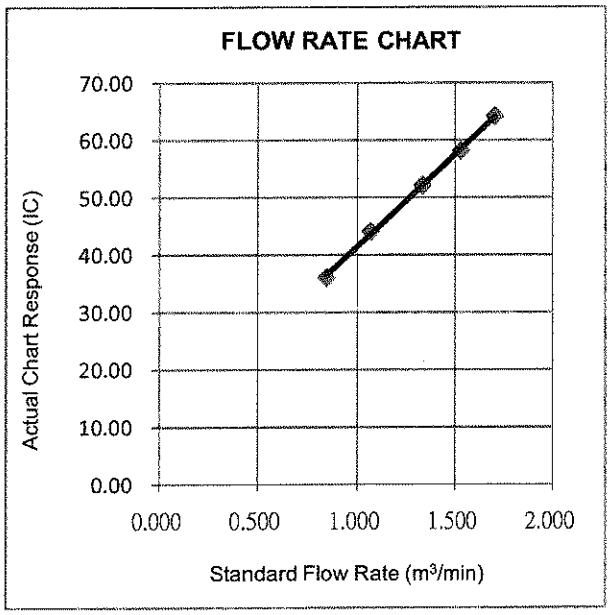
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	7.50	-4.80	12.300	1.705	64.00	64.15	Slope =	32.1712
13	6.40	-3.50	9.900	1.531	58.00	58.14	Intercept =	9.1954
10	5.10	-2.40	7.500	1.333	52.00	52.12	Corr. coeff.:	0.9995
7	3.80	-1.00	4.800	1.068	44.00	44.10		
5	2.90	-0.10	3.000	0.846	36.00	36.08		

Calculations:

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]
Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)
m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



Report Date: 18th April,2016

CHOI KAM HO
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MaterialLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Date of Calibration: 18-Apr-16
Location : KTD2a
Next Calibration Date: 17-Jul-16
Technician: Jimmy Lui

Brand: Tisch
Model: TE-5170 S/N: 3838

CONDITIONS

Sea Level Pressure (hPa):	1001.4	Corrected Pressure (mm Hg):	761
Temperature (°C):	23	Temperature (K):	297

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.07173
Model:	TE-5025A	Qstd Intercept:	-0.01761
Calibration Date:	14-Jan-16	Expiry Date:	14-Jan-17
S/N:	2456		

CALIBRATIONS

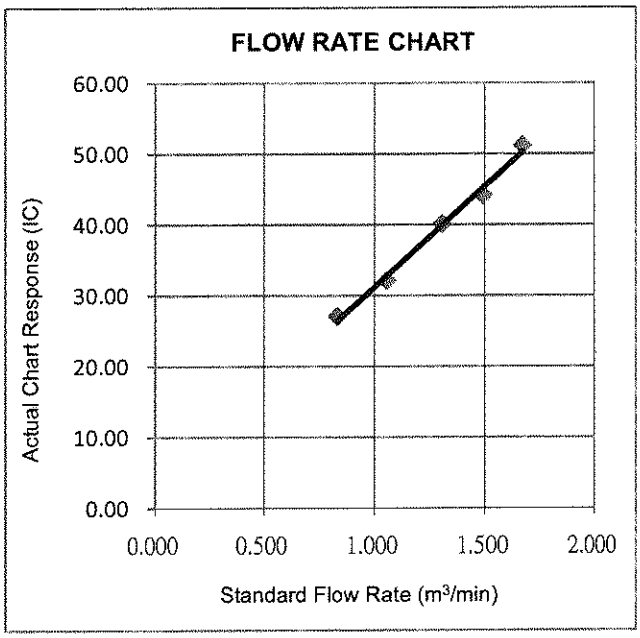
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	7.20	-4.60	11.800	1.670	51.00	51.12	Slope =	28.4227
13	6.00	-3.40	9.400	1.492	44.00	44.10	Intercept =	2.7436
10	4.90	-2.30	7.200	1.307	40.00	40.09	Corr. coeff.=	0.9960
7	3.70	-1.00	4.700	1.057	32.00	32.07		
5	2.80	-0.10	2.900	0.832	27.00	27.06		

Calculations:

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]
Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)
m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



CHOI KAM HO
Project Consultant

Report Date: 18th April, 2016

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MaterialLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Date of Calibration: 18-Apr-16
Location : KER1a
Next Calibration Date: 17-Jul-16
Brand: Tisch
Technician: Jimmy Lui
Model: TE-5170 S/N: 3482

CONDITIONS

Sea Level Pressure (hPa):	1001.4	Corrected Pressure (mm Hg):	761
Temperature (°C):	23	Temperature (K):	297

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.07173
Model:	TE-5025A	Qstd Intercept:	-0.01761
Calibration Date:	14-Jan-16	Expiry Date:	14-Jan-17
S/N:	2456		

CALIBRATIONS

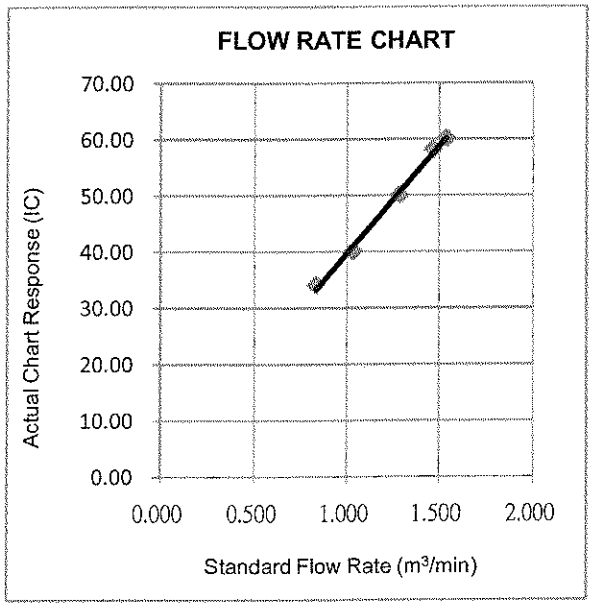
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	12.00	2.00	10.000	1.538	60.00	60.14	Slope =	38.0025
13	11.40	2.30	9.100	1.468	58.00	58.14	Intercept =	1.6770
10	10.50	3.50	7.000	1.289	50.00	50.12	Corr. coeff.	0.9979
7	9.00	4.50	4.500	1.035	40.00	40.09		
5	8.20	5.30	2.900	0.832	34.00	34.08		

Calculations:

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]
Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)
m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



Report Date: 18th April,2016

CHOI KAM HO
Project Consultant

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
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Tuen Mun, N.T.,
Hong Kong.

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Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.materialab.com

MateriaLab

Report no.: 161966CA160797

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client : MateriaLab Consultants Ltd.

Address : Room 723 & 725, 7F., Block B Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Chung, N.T.

Project : Calibration Services

Client Supplied Information

Details of Unit Under Test, UUT

Description	:	Sound Calibrator
Manufacturer	:	Casella (Model no. CEL-120/1)
Serial No.	:	5230736
Next Calibration Date	:	20-Apr-2017
Specification Limit	:	±0.5dB

Laboratory Information

Description : Reference Sound Level Meter

Equipment ID. : R-119-1

Date of Calibration : 21-Apr-2016 Ambient Temperature : 21 °C

Calibration Location : Calibration Laboratory of MateriaLab

Method Used : By direct comparison

Calibration Results :

Parameters (Setting of UUT)	Mean of Measured value	Specification Limit(dB)
94dB	93.9 dB	±0.5dB
114dB	114.1 dB	

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. The equipment does comply with specification limit.

Checked by : _____ Date : 22-4-2016 Certified by : _____ Date : 22 APR 2016

CA-R-297 (22/07/2009)

Kwok Chi Wa (Assistant Manager)

** End of Report **

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.materialab.com

MateriaLab

Report no.: 940891CA160281

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Client Supplied Information

Details of Unit Under Test, UUT

Description	:	Sound Calibrator
Manufacturer	:	Casella (Model no. CEL-120/1)
Serial No.	:	5230758
Next Calibration Date	:	05-Feb-2017
Specification Limit	:	±0.5dB

Laboratory Information

Description	:	Reference Sound level meter
Equipment ID.	:	R-119-1
Date of Calibration :	06-Feb-2016	Ambient Temperature : 21 °C
Calibration Location :	Calibration Laboratory of MateriaLab	
Method Used	:	By direct comparison

Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)
94dB	0.1 dB	±0.5dB
114dB	-0.1 dB	

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. The equipment does comply with the specification limit.

Checked by : _____ Date : 16-2-2016 Certified by : _____ Date : 15 FEB 2016

CA-R-297 (22/07/2009)

Kwok Chi Wa (Assistant Manager)

** End of Report **

华南国家计量测试中心
广东省计量科学研究院
SOUTH CHINA NATIONAL CENTER OF METROLOGY
GUANGDONG INSTITUTE OF METROLOGY

CNAS L0730

校 准 证 书
CALIBRATION CERTIFICATE

证书编号 Certificate No.: SSD201504447

委托方 Client: MateriaLab Consultants Limited

委托方地址 Add. of Client: Fugro Development Centre, 5 Lok Yi Street, Tai Lam, Tuen Mun, N T., Hong Kong

计量器具名称 Description: Sound Level Calibrator

型号规格 Model/Type: CEL-120/1

制造厂 Manufacturer: CASELLA

出厂编号 Serial No.: 5230950

设备编号 Equipment No.: ———

接收日期 Date of Receipt: 2015年 07 月 27 日 (Y M D)

结论 Conclusion: 符合JJG 176-2005中1级技术要求

校准日期 Date of Calibration: 2015年 07 月 28 日 (Y M D)

批准人 Approved Signatory: 李敏汉

核验 Checked by: 陈迪理

校准 Calibrated by: 何卓斌

证书专用章 Stamp

本中心地址：中国广州市广园中路松柏东街30号 邮政编码：510405
电话：(8620)86594172 传真：(8620)86590743 投诉电话：(8620)26296063 E-mail: scm@scm.com.cn
Add: No.30, Songbaidong Street, Guangyuanzhong Road, Guangzhou, P. R. China
Post Code: 510405 Tel: (8620)86594172 Fax: (8620)86590743 Complaint Tel: (8620)26296063
证书真伪查询：www.scm.com.cn; www.mtpsp.com Certificate AuthenticityIdentify: www.scm.com.cn; www.mtpsp.com

说　明

证书编号 SSD201504447
Certificate No.

DIRECTIONS

1. 本中心是国家质量监督检验检疫总局在华南地区设立的国家法定计量检定机构，计量授权证书号是：（国）法计（2012）01043号、（国）法计（2012）01032号。本中心质量管理体系符合ISO/IEC 17025:2005标准的要求。
This laboratory is the National Legal Metrological Verification Institution in southern China set up by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ) under authorization certificates No.(2012)01043 & (2012)01032. The quality system is in accordance with ISO/IEC 17025:2005.

2. 本中心所出具的数据均可溯源至国家计量基准和国际单位制(SI)。
All data issued by this laboratory are traceable to national primary standards and International System of Units (SI).

3. 本次校准的技术依据：
Reference documents for the calibration:
JJG 176-2005 声校准器检定规程　V.R. of Sound Calibrators

4. 本次校准所使用的主要计量标准器具：
Major standards of measurement used in the calibration:

设备名称/型号 Name of Equipment /Model	编号 Serial No.	证书号/有效期 Certificate No. /Due Date	计量特性 Metrological Characteristic
测量放大器 Measuring Amplifier /2636	2160821	SSD201500612 /2016-01-27	1 级 Grade 1
声校准器 Sound Calibrator /4231	2713562	SSD201503065 /2016-05-25	1 级 Grade 1

5. 校准地点、环境条件：
Place and environmental conditions of the calibration:
地点 Place　声学/振动实验室 Acoustics/Vibration Lab.　温度 Temperature　(23±3) ℃　相对湿度 R.H.　(50～60) %

6. 被校准仪器限制使用条件：
Limiting condition of the instrument calibrated:
——

注：1. 本证书校准结果只与受校准仪器有关。
2. 未经本机构书面批准，不得部分复制此证书。
Note: 1. The results relate only to the items calibrated.
2. This certificate shall not be reproduced except in full, without the written approval of our laboratory.

校准结果
RESULTS OF CALIBRATION

证书编号： SSD201504447 原始记录编号： 2201504447 第 3 页，共 4 页
Certification No. Record No. Page of

1 外观： 合格

Apparent inspection: Pass

2 声压级（dB）：见表1

Sound Pressure Level: Showed in table 1

表1 Table 1

标称值（dB）Nominal Value	实测值（dB）Measured Value	允差（dB）Tolerance	结论 Conclusion	稳定度（dB）Stabilization	稳定度允差（dB）Stabilization Tolerance	结论 Conclusion
94	93.93	±0.40	合格(Pass)	0.01	≤0.10	合格(Pass)
114	113.93	±0.40	合格(Pass)	0.01	≤0.10	合格(Pass)

3 频率：见表2

Frequency: Showed in table 2

表2 Table 2

标称值（Hz）Nominal Value	实测值（Hz）Measured Value	允差（%）Tolerance	结论 Conclusion
1000	1000.0	±1.0	合格(Pass)

4 总失真： 见表3

Total harmonic distortion: Showed in table 3

表3 Table 3

频率（Hz）Frequency	声压级（dB）Sound Pressure Level	总失真（%）Total Harmonic Distortion	允差（%）Tolerance	结论 Conclusion
1000	94	0.1	≤3	合格(Pass)
1000	114	0.2	≤3	合格(Pass)

校准结果
RESULTS OF CALIBRATION

证书编号： SSD201504447 原始记录编号： 2201504447 第 4 页，共 4 页
Certification No. Record No. Page of

说明(Note)：

1 测量结果扩展不确定度：

Expanded uncertainty of measurement:

声压级：U=0.15 dB，k=2

Sound Pressure Level Calibration

频率：U_{rel}=0.1 %，k=2

Frequency

失真度：U_{rel}=1.4 %，k=2

Harmonic distortion

（依据JJF 1059.1-2012 测量不确定度评定与表示）

(According to JJF 1059.1-2012 Evaluation and Expression of Uncertainty in Measurement)

2 建议校准周期不超过1年。

The interval of calibration advised within one year.

CASELLA

Certificate of Conformity and Calibration

Instrument Model:-	**CEL-633A**		
Serial Number	2451028		
Firmware revision	V129-09		
Microphone Type:-	**CEL-251**	**Preamplifier Type:-**	**CEL-495**
Serial Number	1163	Serial Number	002850
Instrument Class/Type:-	**1**		

Applicable standards:-

IEC 61672: 2002 / EN 60651 (Electroacoustics - Sound Level Meters)
IEC 60651 1979 (Sound Level Meters), ANSI S1.4: 1983 (Specifications For Sound Level Meters)

Note:- The test sequences performed in this report are in accordance with the current Sound level meter *Standard - IEC61672. The combination of tests performed are considered to confirm the products electro-acoustic performance to all applicable standards including superceeded Sound Level Meter Standards - IEC60651 and IEC60804.*

Test Conditions:-	21.3 °C	**Test Engineer:-**	Millie Duncan
	45.1 %RH	**Date of Issue:-**	October 26, 2015
	1008.8 mBar		

Declaration of conformity:-

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications. Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2008 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

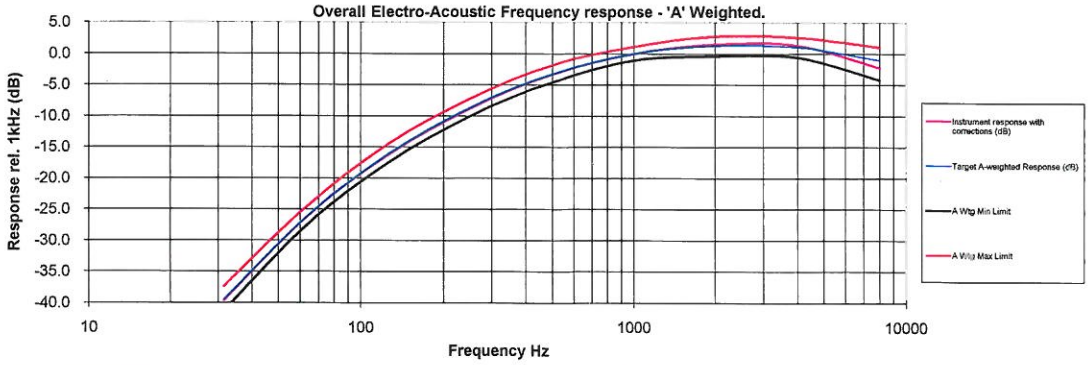
Test Summary:-

Self Generated Noise Test	**All Tests Pass**
Electrical Signal Test Of Frequency Weightings	**All Tests Pass**
Frequency & Time Weightings At 1 kHz	**All Tests Pass**
Level Linearity On The Reference Level Range	**All Tests Pass**
Toneburst Response Test	**All Tests Pass**
C-peak Sound Levels	**All Tests Pass**
Overload Indication	**All Tests Pass**
Acoustic Tests	**All Tests Pass**

Combined Electro-Acoustic Frequency Response - A Weighted

Combined Electro-Acoustic Frequency Response - A Weighted (IEC 61672-3:2006)

The following A-Weighted frequency response graph shows this instruments overall frequency response based upon the application of multi-frequency pressure field calibrations. The microphones Pressure to Free field correction coefficients are applied to pressure response. Reference level taken at 1kHz.



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E-mail: info@casellausa.com
Web: www.casellausa.com

CASELLA

Certificate of Conformity and Calibration

Instrument Model:-	**CEL-633A**		
Serial Number	2451091		
Firmware revision	V129-09		
Microphone Type:-	**CEL-251**	**Preamplifier Type:-**	**CEL-495**
Serial Number	1207	Serial Number	002752
Instrument Class/Type:-	**1**		

Applicable standards:-

IEC 61672: 2002 / EN 60651 (Electroacoustics - Sound Level Meters)
IEC 60651 1979 (Sound Level Meters), ANSI S1.4: 1983 (Specifications For Sound Level Meters)

Note:- The test sequences performed in this report are in accordance with the current Sound level meter *Standard - IEC61672. The combination of tests performed are considered to confirm the products electro-acoustic performance to all applicable standards including superceeded Sound Level Meter Standards - IEC60651 and IEC60804.*

Test Conditions:-	21.4 °C	**Test Engineer:-**	Millie Duncan
	45.5 %RH	**Date of Issue:-**	October 26, 2015
	1008.6 mBar		

Declaration of conformity:-

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications. Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2008 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

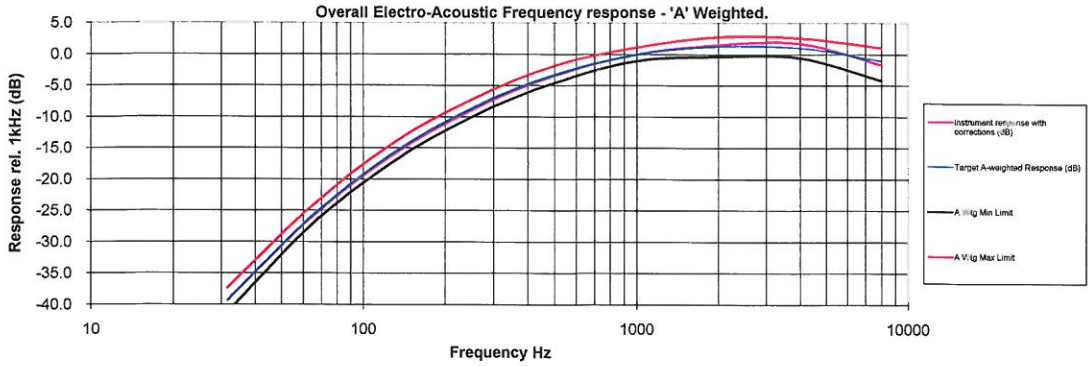
Test Summary:-

Self Generated Noise Test	**All Tests Pass**
Electrical Signal Test Of Frequency Weightings	**All Tests Pass**
Frequency & Time Weightings At 1 kHz	**All Tests Pass**
Level Linearity On The Reference Level Range	**All Tests Pass**
Toneburst Response Test	**All Tests Pass**
C-peak Sound Levels	**All Tests Pass**
Overload Indication	**All Tests Pass**
Acoustic Tests	**All Tests Pass**

Combined Electro-Acoustic Frequency Response - A Weighted

Combined Electro-Acoustic Frequency Response - A Weighted (IEC 61672-3:2006)

The following A-Weighted frequency response graph shows this instruments overall frequency response based upon the application of multi-frequency pressure field calibrations. The microphones Pressure to Free field correction coefficients are applied to pressure response. Reference level taken at 1kHz.



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E-mail: info@casellausa.com
Web: www.casellausa.com

CASELLA

Certificate of Conformity and Calibration

Instrument Model:-	**CEL-633A**		
Serial Number	3756084		
Firmware revision	V129-09		
Microphone Type:-	**CEL-251**	**Preamplifier Type:-**	**CEL-495**
Serial Number	1257	Serial Number	003538
Instrument Class/Type:-	**1**		

Applicable standards:-

IEC 61672: 2002 / EN 60651 (Electroacoustics - Sound Level Meters)
IEC 60651 1979 (Sound Level Meters), ANSI S1.4: 1983 (Specifications For Sound Level Meters)

Note:- The test sequences performed in this report are in accordance with the current Sound level meter *Standard - IEC61672. The combination of tests performed are considered to confirm the products electro-acoustic performance to all applicable standards including superceeded Sound Level Meter Standards - IEC60651 and IEC60804.*

Test Conditions:-	25 °C	**Test Engineer:-**	Millie Duncan
	52 %RH	**Date of Issue:-**	February 2, 2016
	1010 mBar		

Declaration of conformity:-

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications. Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2008 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

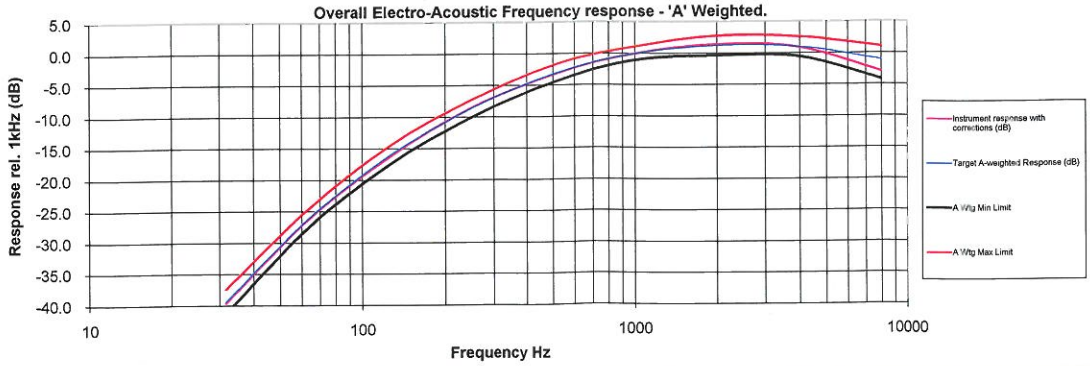
Test Summary:-

Self Generated Noise Test	**All Tests Pass**
Electrical Signal Test Of Frequency Weightings	**All Tests Pass**
Frequency & Time Weightings At 1 kHz	**All Tests Pass**
Level Linearity On The Reference Level Range	**All Tests Pass**
Toneburst Response Test	**All Tests Pass**
C-peak Sound Levels	**All Tests Pass**
Overload Indication	**All Tests Pass**
Acoustic Tests	**All Tests Pass**

Combined Electro-Acoustic Frequency Response - A Weighted

Combined Electro-Acoustic Frequency Response - A Weighted (IEC 61672-3:2006)

The following A-Weighted frequency response graph shows this instruments overall frequency response based upon the application of multi-frequency pressure field calibrations. The microphones Pressure to Free field correction coefficients are applied to pressure response. Reference level taken at 1kHz.



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Fax : (852)-24508032
Email : mcl@fugro.com.hk

Appendix E

Environmental Monitoring Schedule

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1-15 Kwai Fung Crescent, Kwai Fong,
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Tel : (852)-24508238
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Email : mcl@fugro.com.hk

Project: **KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway**

Impact Monitoring Schedule (April 2016)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
					1 April 2016	2
3	4	5 TSP Monitoring Noise Monitoring	6 Additional 24-hours TSP Monitoring at KTD 2a	7	8	9
10	11 TSP Monitoring Noise Monitoring	12	13	14	15	16 TSP Monitoring Noise Monitoring
17	18	19	20	21	22 TSP Monitoring Noise Monitoring	23
24	25	26	27	28 TSP Monitoring Noise Monitoring	29	30

Remarks

1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition
2. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2a: G/IC Zone next to Kwun Tong Bypass (Future at Site 3C1), KER1a: Site Boundary at Cheung Yip Street
3. TSP Monitoring: 24-hours TSP Monitoring per 6 days, and 3 x 1-hour TSP Monitoring per 6 days (as required in case of complaints). No complaint of air quality was received. Therefore only 24-hours TSP Monitoring was conducted.
4. Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.
5. Additional 24-hours TSP Monitoring at KTD 2a on 6 April 2016 due to the exceedance found on 30 March 2016.

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Fax : (852)-24508032
Email : mcl@fugro.com.hk

Project: **KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway**

Impact Monitoring Schedule (May 2016)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
1 May 2016	2	3	4 TSP Monitoring Noise Monitoring	5	6	7
8	9	10 TSP Monitoring Noise Monitoring	11	12	13	14
15	16 TSP Monitoring Noise Monitoring	17	18	19	20	21 TSP Monitoring Noise Monitoring
22	23	24	25	26	27 TSP Monitoring Noise Monitoring	28
29	30	31				

Remarks

1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition
2. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2a: G/IC Zone next to Kwun Tong Bypass (Future at Site 3C1), KER1a: Site Boundary at Cheung Yip Street
3. TSP Monitoring: 24-hours TSP Monitoring per 6 days, and 3 x 1-hour TSP Monitoring per 6 days (as required in case of complaints)
4. Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.

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Project: **KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway**

Impact Monitoring Schedule (June 2016)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
			1 June 2016	2 TSP Monitoring Noise Monitoring	3	4
5	6	7	8 TSP Monitoring Noise Monitoring	9	10	11
12	13	14 TSP Monitoring Noise Monitoring	15	16	17	18
19	20 TSP Monitoring Noise Monitoring	21	22	23	24	25 TSP Monitoring Noise Monitoring
26	27	28	29	30 TSP Monitoring Noise Monitoring		

Remarks

1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition
2. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2a: G/IC Zone next to Kwun Tong Bypass (Future at Site 3C1), KER1a: Site Boundary at Cheung Yip Street
3. TSP Monitoring: 24-hours TSP Monitoring per 6 days, and 3 x 1-hour TSP Monitoring per 6 days (as required in case of complaints)
4. Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.

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Project: **KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway**

Impact Monitoring Schedule (July 2016)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
					1 July 2016	2
3	4	5	6 TSP Monitoring Noise Monitoring	7	8	9
10	11	12 TSP Monitoring Noise Monitoring	13	14	15	16
17	18 TSP Monitoring Noise Monitoring	19	20	21	22	23 TSP Monitoring Noise Monitoring
24	25	26	27	28	29 TSP Monitoring Noise Monitoring	30
31						

Remarks

1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition
2. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2a: G/IC Zone next to Kwun Tong Bypass (Future at Site 3C1), KER1a: Site Boundary at Cheung Yip Street
3. TSP Monitoring: 24-hours TSP Monitoring per 6 days, and 3 x 1-hour TSP Monitoring per 6 days (as required in case of complaints)
4. Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.

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MateriaLab

Appendix F

Air Quality Monitoring Data

24-hour TSP Monitoring Result for
Kai Tak Development - Stage 3 Infrastructure Works for
Developments at the Southern Part of the Former Runway

KTD1a - Centre of Excellence in Paediatrics (Children's Hospital)

Start Date	Weather Condition	Air Temperature (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Sampling Time(hrs)	Flow Rate (m^3/min.)		Average flow (m^3/min.)	Total volume ($m^{3)}$	Conc. (ug/m^3)	Action Level	Limit Level
				Initial	Final			Initial	Final				(ug/m^3)	(ug/m^3)
5-Apr-16	Fine	295.3	760.0	2.6646	2.8546	0.1900	24	1.51	1.50	1.51	2195.1	87		
11-Apr-16	Cloudy	294.5	757.6	2.9000	3.0381	0.1381	24	1.51	1.50	1.51	2248.2	61		
16-Apr-16	Fine	297.7	757.9	2.9150	3.1735	0.2585	24	1.67	1.67	1.67	2471.5	105	177	260
22-Apr-16	Cloudy	296.7	758.1	2.9091	3.0580	0.1489	24	1.70	1.70	1.70	2407.7	62		
28-Apr-16	Fine	299.0	757.9	2.8899	3.0421	0.1522	24	1.25	1.26	1.25	1889.0	81		
											Min	61		
											Max	105		
											Average	79		

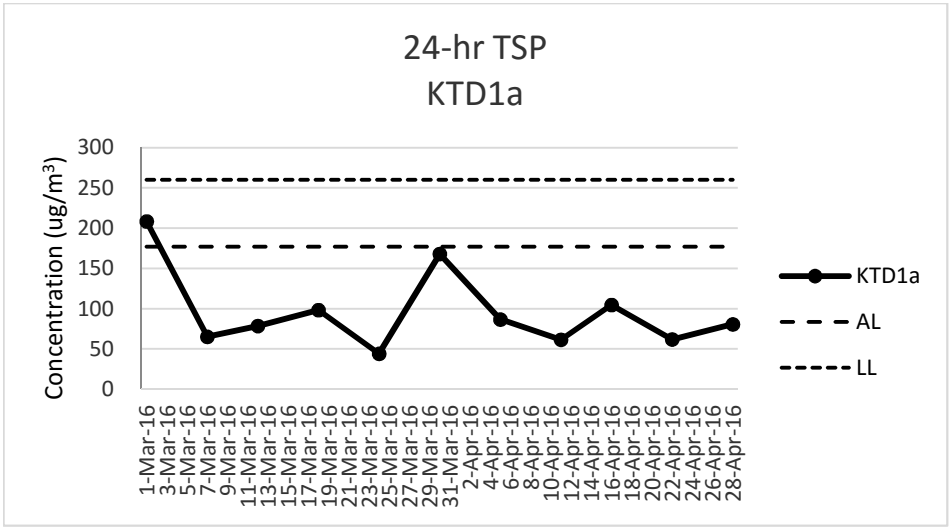
KTD2a - G/IC Zone next to Kwun Tong Bypass (Future Hospital at Site 3C1)

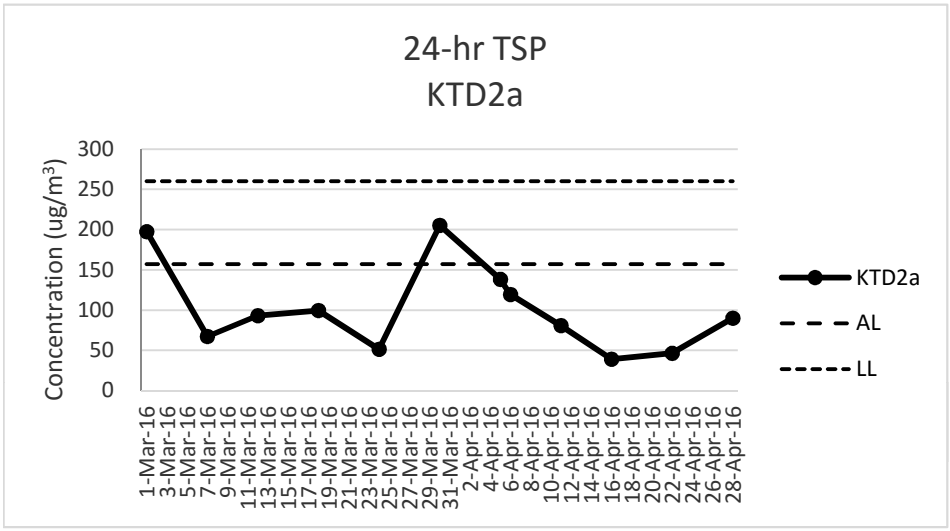
Start Date	Weather Condition	Air Temperature (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Sampling Time(hrs)	Flow Rate (m^3/min.)		Average flow (m^3/min.)	Total volume ($m^{3)}$	Conc. (ug/m^3)	Action Level	Limit Level
				Initial	Final			Initial	Final				(ug/m^3)	(ug/m^3)
5-Apr-16	Fine	295.3	760.0	2.6813	2.9592	0.2779	24	1.40	1.39	1.40	2008.9	138		
6-Apr-16	Fine	296.1	760.0	2.8833	3.0805	0.1972	24	1.15	1.14	1.15	1650.8	119		
11-Apr-16	Cloudy	294.5	757.6	2.8772	3.0478	0.1706	24	1.47	1.46	1.47	2110.6	81	157	260
16-Apr-16	Fine	297.7	757.9	2.9005	2.9789	0.0784	24	1.39	1.39	1.39	2002.3	39		
22-Apr-16	Cloudy	296.7	758.1	2.8795	2.9822	0.1027	24	1.53	1.53	1.53	2208.0	47		
28-Apr-16	Fine	299.0	757.9	2.6880	2.9001	0.2121	24	1.63	1.64	1.64	2355.0	90		
Note											Min	39		
Additional Monitoring was conducted on 6 April 2016 due to the exceedance found on 30 March 2016 at KTD 2a											Max	138		
											Average	86		

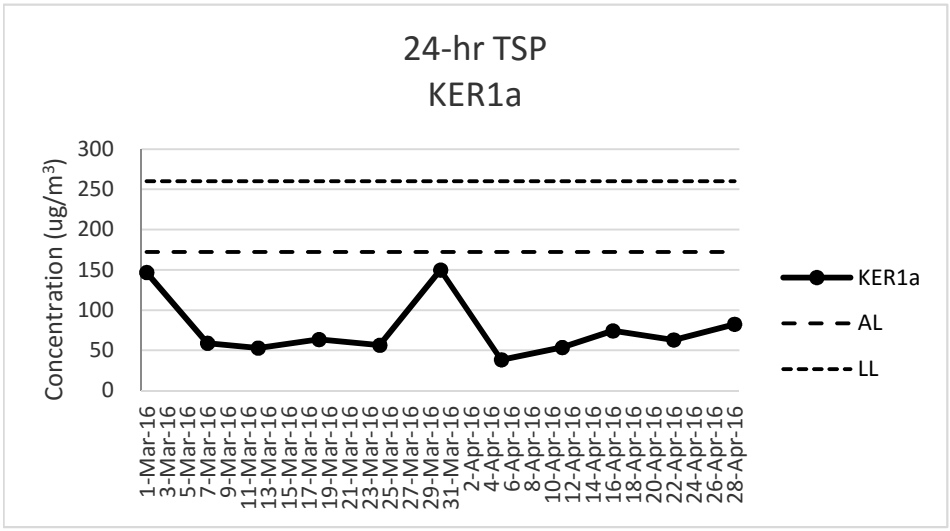
KER1a - Site Boundary at Cheung Yip Street

Start Date	Weather Condition	Air Temperature (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Sampling Time(hrs)	Flow Rate (m^3/min.)		Average flow (m^3/min.)	Total volume ($m^{3)}$	Conc. (ug/m^3)	Action Level	Limit Level
				Initial	Final			Initial	Final				(ug/m^3)	(ug/m^3)
5-Apr-16	Fine	295.3	760.0	2.6661	2.7305	0.0644	24	1.12	1.12	1.12	1678.6	38		
11-Apr-16	Cloudy	294.5	757.6	2.8936	2.9820	0.0884	24	1.12	1.12	1.12	1648.2	54		
16-Apr-16	Fine	297.7	757.9	2.8884	3.0355	0.1471	24	1.35	1.35	1.35	1981.6	74	172	260
22-Apr-16	Cloudy	296.7	758.1	2.8952	3.0155	0.1203	24	1.35	1.35	1.35	1908.3	63		
28-Apr-16	Fine	299.0	757.9	2.8473	3.0086	0.1613	24	1.40	1.41	1.40	1954.9	83		
											Min	38		
											Max	83		
											Average	62		

Note:
Underline: Exceedance of Action Level
Underline and Bold: Exceedance of Limit Level







Note:

1) The major activities being carried out on site during the reporting period can be referred to Section 1.3.2.
2) The weather conditions during the reporting period can be referred to Appendix K.
3) Any other factors which might affect the monitoing results can be referred to Section 2.6.4.
4) QA/QC results, calibration results and detection limits can be referred to Appendix D.

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Appendix G

Noise Monitoring Data

Noise Impact Monitoring Result for
Kai Tak Development - Stage 3 Infrastructure Works for
Developments at the Southern Part of the Former Runway

KTD 1a: Centre of Excellence in Paediatrics (Children's Hospital)

Date	Start Time	Leq 30min dB(A)	Wind Speed (m/s)	Weather
5-Apr-16	9:32	68	1.2	Fine
11-Apr-16	11:28	69	3.2	Cloudy
16-Apr-16	10:44	71	1.0	Fine
22-Apr-16	11:48	66	0.9	Cloudy
28-Apr-16	10:30	69	0.2	Cloudy
	Max	71		
	Min	66		
	Limit Level	**75**		

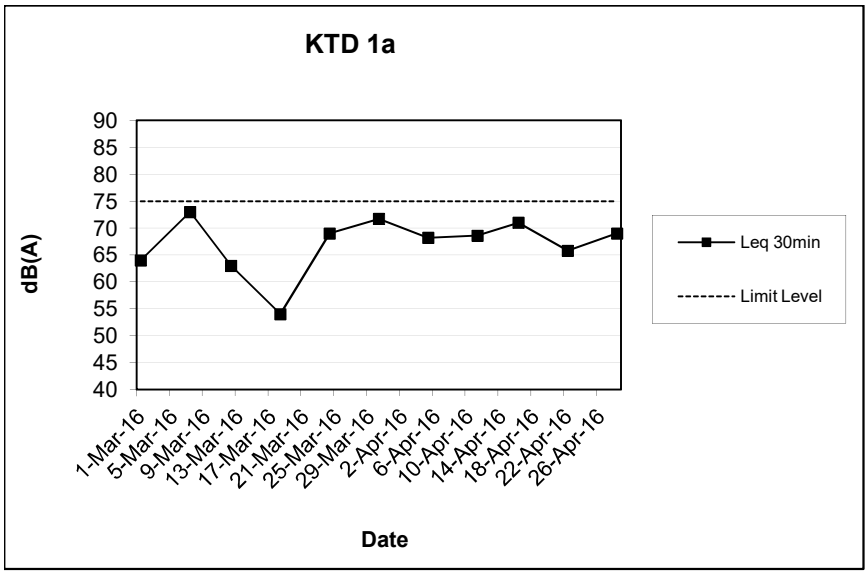
KTD 2a: G/IC Zone next to Kwun Tong Bypass (Future Hospital at Site 3C1)

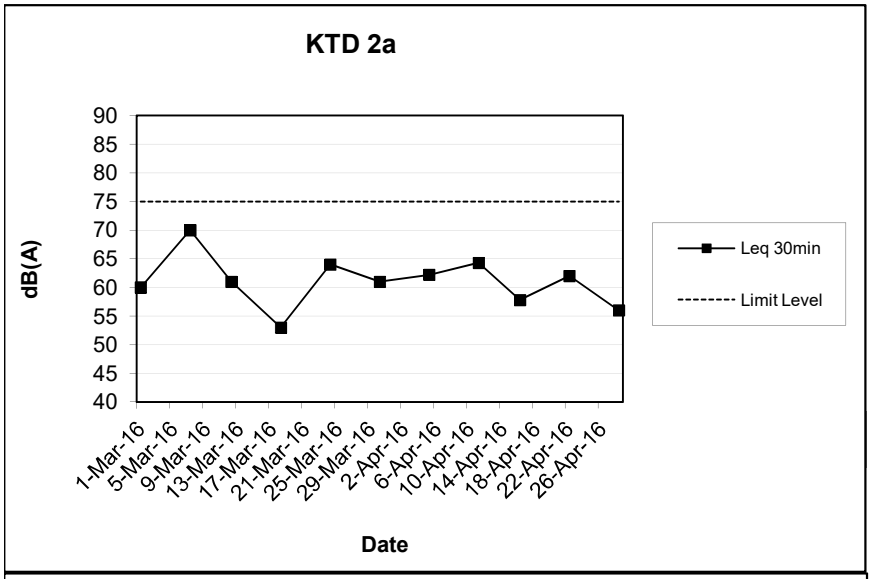
Date	Start Time	Leq 30min dB(A)	Wind Speed (m/s)	Weather
5-Apr-16	10:09	62	2.3	Fine
11-Apr-16	10:41	64	2.8	Cloudy
16-Apr-16	11:28	58	1.4	Fine
22-Apr-16	12:31	62	2.2	Cloudy
28-Apr-16	11:13	56	1.1	Cloudy
	Max	64		
	Min	56		
	Limit Level	**75**		

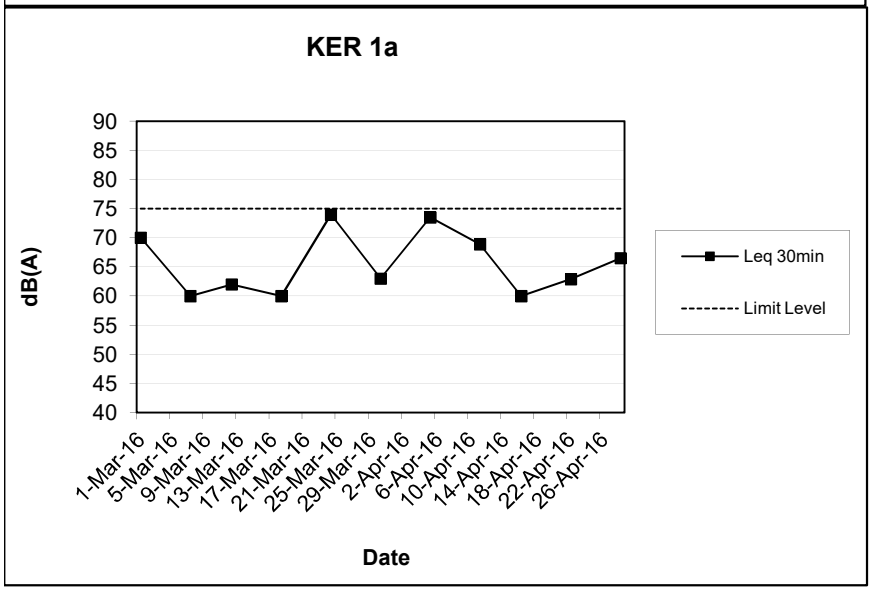
KER 1a: Site Boundary at Cheung Yip Street

Date	Start Time	Leq 30min dB(A)	Wind Speed (m/s)	Weather
5-Apr-16	8:45	74	1.5	Fine
11-Apr-16	12:05	69	2.7	Cloudy
16-Apr-16	10:04	60	1.5	Fine
22-Apr-16	13:08	63	2.2	Cloudy
28-Apr-16	9:47	67	0.8	Cloudy
	Max	74		
	Min	60		
	Limit Level	**75**		

Note:
KTD1a: Façade Measurement
KTD2a & KER1a: Free-field measurement (+3dB(A) correction has been applied)
No raining or wind with speed over 5 m/s was observed during noise monitoring according to the onsite observation.







Note:
1) The major activities being carried out on site during the reporting period can be referred to Section 1.3.2.
2) The weather conditions during the reporting period can be referred to Appendix K.
3) Any other factors which might affect the monitoing results can be referred to Section 3.7.2.
4) QA/QC results, calibration results and detection limits can be referred to Appendix D.

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Appendix H

Events and Action Plan

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Event and Action Plan for Construction Dust Monitoring

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

EVENT	ACTION			
	ET	IEC	ER	Contractor
	discuss the remedial action to be taken. 7. Assess the effectiveness of the Contractor's remedial action and keep the IEC, EPD and ER informed of the results. 8. If exceedance stops, cease additional monitoring		continues, consider what portion of works is responsible and instruct the Contractor to stop that portion of works until the exceedance is abated.	determined by the ER until the exceedance is abated.

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Event and Action Plan for Noise Impact

EVENT	ACTION			
	ET	IEC	ER	Contractor
Action Level	1. Notify the IEC, ER and Contractor. 2. Carry out investigation. 3. Report the results of investigation to the IEC and Contractor. 4. Discuss jointly with the ER and Contractor and formulate remedial measures. 5. Increase the monitoring frequency to check the mitigation effectiveness	1. Review the monitoring data submitted by the ET. 2. Review the construction methods and proposed redial measures by the Contractor, and advise the ET and ER if the proposed remedial measures would be sufficient	1. Notify the Contractor. 2. Require the Contractor to propose remedial measures for implementation if required.	1. Submit noise mitigation proposals to the ER and copy to the IEC and ET. 2. Implement noise mitigation proposals.
Limit Level	1. Notify the IEC, ER and Contractor. 2. Identify sources. 3. Repeat measurements to confirm findings. 4. Carry out analysis of the Contractor's working procedures with the ER and Contractor to determine possible mitigations to be implemented. 5. Record the causes and action taken for the exceedances. 6. Increase the monitoring frequency. 7. Assess the effectiveness of the Contractor's remedial action with the ER and keep the IEC informed of the results. **8.** If exceedance stops, cease additional monitoring	1. Discuss amongst the ER, ET and Contractor on the potential remedial action. 2. Review the Contractor's remedial action whenever necessary to assure their effectiveness and advise the ER accordingly. **3.** Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problems. 4. Ensure remedial measures are properly implemented. **5.** If exceedance continues, consider what portion of work is responsible and instruct the Contractor to stop that portion of works until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial action to the ER and copy to the ET and IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problems still not under control. **5.** Stop the relevant portion of works as determined by the ER until the exceedance is abated.

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Event and Action Plan for Landscape and Visual Impact

EVENT	ACTION			
	ET	IEC	ER	Contractor
Non-conformity on one occasion	1. Identify Source 2. Inform the IEC and the ER 3. Discuss remedial actions with the IEC, the ER and the Contractor 4. Monitor remedial actions until rectification has been completed	1. Check report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 5. Check implementation of remedial measures.	1. Notify Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1. Identify Source 2. Inform the IEC and the ER 3. Increase monitoring frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If exceedance stops, cease additional monitoring	1. Check monitoring report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures.	1. Notify the Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake any necessary replacement

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Appendix I

Waste Flow Table

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Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (Inert C&D)	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
2016 Jan	0.159	0.101	0.058	Nil	Nil	Nil	Nil	0.023	0.00002	0.0158	0.0335
2016 Feb	0.291	0.050	0.241	Nil	Nil	Nil	1.34	0.023	0.00002	0.0158	0.0335
2016 Mar	2.7389	0.0407	0.0662	Nil	2.632	Nil	5.92	0.023	0.00002	0.0158	0.0571
2016 Apr	4.1718	0.0578	0.462	Nil	3.652	Nil	12.5	0.023	0.00002	0.0158	0.0426B
2016 May											
2016 June											
2016 July											
2016 Aug											
2016 Sept											
2016 Oct											
2016 Nov											
2016 Dec											
Total	7.3607	0.2495	0.8272	Nil	6.284	Nil	19.76	0.092	0.00008	0.0632	0.1667

Note:
1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.

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Appendix J

Environmental Mitigation Implementation Schedule (EMIS)

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
Air Quality Measures					
New Distributor Roads Serving the Planned KTD					
AEIAR-130/2009 S3.2	AEIAR 130/2009 EM&A Manual S2.2	8 times daily watering of the work site with active dust emitting activities.	Contractor	All relevant worksites	Implemented
Decommissioning of the Radar Station of the former Kai Tak Airport					
AEIAR-130/2009 S5.2.19	AEIAR 130/2009 EM&A Manual S4.2.4	The excavation area should be limited to as small in size as possible and backfilled with clean and/or treated soil shortly after excavation work. The exposed excavated area should be covered by the tarpaulin during night time. The top layer soils should be sprayed with fine misting of water immediately before the excavation.	Contractor	All relevant worksites	Not Applicable
Trunk Road T2					
AEIAR-174/2013 S4.9.2.1	AEIAR-174/2013 EM&A Manual S2.3.1.1	Watering of the construction areas 12 times per day to reduce dust emissions by 91.7%, with reference to the “Control of Open Fugitive Dust Sources” (USEPA AP-42). The amount of water to be applied would be 0.91L/m2 for the respective watering frequency.	Contractor	All relevant worksites	Implemented
		Dust enclosures with watering would be provided along the loading ramps and conveyor belts for unloading the C&D materials to the barge for dust suppression.	Contractor	All relevant worksites	Not Applicable
		8 km per hour is the recommended limit of the speed for vehicles on unpaved site roads.	Contractor	All relevant worksites	Implemented
		Good Site Practices			
AEIAR-130/2009	AEIAR 130/2009	Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should	Contractor	All relevant	Implemented

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
S3.2, S5.2.19, AEIAR-174/2013 S4.9.2.2	EM&A Manual S2.2, S4.2, AEIAR-174/2013 EM&A Manual S2.3.1.2	be fully covered by impermeable sheeting to reduce dust emission.		worksites	
		Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. Use of frequent watering for particularly dusty construction areas and areas close to ASRs.	Contractor	All relevant worksites	Partially Implemented
		Misting for the dusty material should be carried out before being loaded into the vehicle. Any vehicle with an open load carrying area should have properly fitted side and tail boards.	Contractor	All relevant worksites	Implemented
		Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.	Contractor	All relevant worksites	Implemented
		Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation.	Contractor	All relevant worksites	Implemented
		The vehicles should be restricted to maximum speed of 10 km per hour. Confined haulage and delivery vehicle to designated roadways insider the site. Onsite unpaved roads should be compacted and kept free of lose materials.	Contractor	All relevant worksites	Implemented
		Vehicle washing facilities should be provided at every vehicle exit point. Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites. The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	Contractor	All relevant worksites	Implemented
		Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	Contractor	All relevant worksites	Partially Implemented
		Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.	Contractor	All relevant worksites	Implemented

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed.	Contractor	All relevant worksites	Implemented
		Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system.	Contractor	All relevant worksites	Implemented
		Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.	Contractor	All relevant worksites	Implemented
		Open stockpiles shall be avoided or covered. Prevent placing dusty material storage piles near ASRs.	Contractor	All relevant worksites	Implemented
		Routing of vehicles and position of construction plant should be at the maximum possible distance from ASRs.	Contractor	All relevant worksites	Not Applicable
		<u>Dark smoke</u>			
		Dark smoke emission shall be control in accordance with the Air Pollution Control (Smoke) Regulation and ETWB TCW 19/2005.	Contractor	All relevant worksites	Implemented
		Plant and equipment should be well maintained to prevent dark smoke emission.	Contractor	All relevant worksites	Implemented
<u>Noise Measures</u>					
Trunk Road T2					
AEIAR-174/2013 S5.9.2.1	AEIAR-174/2013 EM&A Manual S3.4.1.1	The use of quieter plant, including Quality Powered Mechanical Equipment (QPME) is specified for the list of equipment: • Concrete lorry mixer • Dump Truck, 5.5 tonne < gross vehicle weight <= 38 tonne • Generator, Super Silenced, 70 dB(A) at 7m	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		• Poker, vibratory, Hand-held (electric) • Water Pump, Submersible (Electric) • Mobile Crane - KOBELCO CKS900 • Excavator, wheeled/tracked - HYUNDAI R80CR-9			
		Use of temporary or fixed noise barriers with a surface density of at least 10kg/m^2 to screen noise from movable and stationary plant.	Contractor	All relevant worksites	Not Applicable
		Use of enclosures with covers at top and three sides and a surface density of at least 10kg/m^2 to screen noise from generally static noisy plant such as air compressors.	Contractor	All relevant worksites	Not Applicable
		Use of acoustic fabric for the silent piling system, drill rigs, rock drills etc.	Contractor	All relevant worksites	Partially Implemented
		<u>Good Site Practices</u>			
AEIAR-130/2009 S3.3, S5.3.10, AEIAR-174/2013 S5.9.2.1	AEIAR 130/2009 EM&A Manual S2.3, S4.3.2, AEIAR-174/2013 EM&A Manual S3.4.1.1	Only well-maintained plant should be operated on-site and plant shall be serviced regularly during the construction/ decommissioning program.	Contractor	All relevant worksites	Implemented
		Silencers or mufflers on construction equipment should be utilized and shall be properly maintained during the construction/ decommissioning program.	Contractor	All relevant worksites	Not Applicable
		Mobile plant, if any, should be sited as far away from NSRs as possible.	Contractor	All relevant worksites	Implemented
		Machines and plant (such as trucks) that may be in intermittent use shall be shut down between works periods or should be throttled down to a minimum.	Contractor	All relevant worksites	Implemented
		Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.	Contractor	All relevant worksites	Implemented
		Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction/ decommissioning activities.	Contractor	All relevant worksites	Implemented

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		Use of site hoarding as a noise barrier to screen noise at low level NSRs.	Contractor	All relevant worksites	Implemented
		For the use of hand held percussive breakers (with mass of above 10kg) and portable air compressors (supply air at 500 kPa or above), the noise level of such PME shall comply with a stringent noise emission standard and a noise emission label shall be obtained from the DEP before use at any time in construction site.	Contractor	All relevant worksites	Implemented
		Quiet powered mechanical equipment (PME) shall be used for the construction of the Project.	Contractor	All relevant worksites	Implemented
		Full enclosures shall be used to screen noise from relatively static PMEs (including air compressor, bar bender, concrete pump, generator and water pump) from sensitive receiver(s).	Contractor	All relevant worksites	Not Applicable
		Movable cantilevered noise barriers shall be used to screen noise from mobile PMEs (including asphalt paver, breaker, excavator and hand-held breaker) from sensitive receiver(s). These movable cantilevered noise barriers shall be located close to the mobile PMEs and shall be moved/adjusted iteratively in step with each movement of the corresponding mobile PMEs in order to maximize their noise reduction effects.	Contractor	All relevant worksites	Not Applicable
		Only approved or exempted Non-road Mobile Machineries (NRMMs) including regulated machines and non-road vechicles with proper labels are allowed to be used in specified activities on-site.	Contractor	All relevant worksites	Implemented
<u>Water Quality Measures</u>					
Trunk Road T2					
		<u>Accidental Spillage</u>			
AEIAR-174/2013 S6.4.8.5	AEIAR-174/2013 EM&A Manual S4.2.1.1	All bentonite slurry should be stored in a container that resistant to corrosion, maintained in good conditions and securely closed; The container should be labelled in English and Chinese and note that the container is for storage of bentonite slurry only.	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		The storage container should be placed on an area of impermeable flooring and bunded with capacity to accommodate 110% of the volume of the container size or 20% by volume stored in the area and enclosed with at least 3 sides.	Contractor	All relevant worksites	Implemented
		The storage container should be sufficiently covered to prevent rainfall entering the container or bunded area (water collected within the bund must be tested and disposed of as chemical waste, if necessary). An emergency clean up kit shall be readily available where bentonite fluid will be stored or used.	Contractor	All relevant worksites	Implemented
		The handling and disposal of bentonite slurries should be undertaken in accordance within ProPECC PN 1/94. Surplus bentonite slurries used in construction works shall be reconditioned and reused wherever practicable. Residual bentonite slurry shall be disposed of from the site as soon as possible as stipulated in Clause 8.56 of the General Specification for Civil Engineering Works. The Contractor should explore alternative disposal outlets for the residual bentonite slurry (dewatered bentonite slurry to be disposed to a public filling area and liquid bentonite slurry, if mixed with inert fill material, to be disposed to a public filling area) and disposal at landfill should be the last resort.	Contractor	All relevant worksites	Implemented
AEIAR-174/2013 S6.4.8.8	AEIAR-174/2013 EM&A Manual S4.2.1.1	In order to protect against impacts to the surrounding marine waters of the KTTS and Victoria Harbour in the event of an accidental spillage of fuel or oil, the Contractor will be required to prepare a spill response plan to the satisfaction of AFCD, EPD, FSD, Police, TD and WSD to define procedures for the control, containment and clean-up of any spillage that could occur on the construction site.	Contractor	All relevant worksites	Implemented
		<u>Dredging, Reclamation and Filling</u>			
		No dredging, reclamation or filling in the marine environment shall be carried out.	Contractor	All relevant worksites	Implemented
Decommissioning of the Radar Station of the former Kai Tak Airport					
		<u>Building Demolition</u>			

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
AEIAR-130/2009 S5.4	AEIAR 130/2009 EM&A Manual S4.4	The site practices outlined in ProPECC PN 1/94 “Construction Site Drainage” should be followed as far as practicable in order to minimise surface runoff and the chance of erosion.	Contractor	All relevant worksites	Not Applicable
		There is a need to apply to EPD for a discharge licence under the WPCO for discharging effluent from the construction site. The discharge quality is required to meet the requirements specified in the discharge licence. All the runoff, wastewater or extracted groundwater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. It is anticipated that the wastewater generated from the works areas would be of small quantity. Monitoring of the treated effluent quality from the works areas should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD.	Contractor	All relevant worksites	Implemented
		<u>General Construction Works</u>			
		<u>Construction Runoff</u>			
AEIAR-130/2009 S3.4, S5.4/ AEIAR-174/2013 S6.4.8.1	AEIAR 130/2009 EM&A Manual S2.4, S4.4/ AEIAR-174/2013 EM&A Manual S4.2.1.1	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include the use of sediment traps and adequate maintenance of drainage systems to prevent flooding and overflow.	Contractor	All relevant worksites	Implemented
		Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	Contractor	All relevant worksites	Implemented
		Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the	Contractor	All relevant worksites	Implemented

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.			
		Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	Contractor	All relevant worksites	Implemented
		Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	Contractor	All relevant worksites	Implemented
		Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.	Contractor	All relevant worksites	Implemented
		Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events.	Contractor	All relevant worksites	Not Applicable
		Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	Contractor	All relevant worksites	Not Applicable
		An adequately designed and located wheel washing bay should be provided at every site exit, and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	Contractor	All relevant worksites	Implemented
		<u>Drainage</u>			

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea.	Contractor	All relevant worksites	Implemented
		All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	Contractor	All relevant worksites	Implemented
		<u>Stormwater Discharges</u>			
		Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes.	Contractor	All relevant worksites	Not Applicable
		<u>Sewage Effluent</u>			
		Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	Contractor	All relevant worksites	Implemented
		<u>Debris and Litter</u>			
		In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised and that disposal of any solid materials, litter or wastes to marine waters does not occur. Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering into the adjacent harbour waters. Stockpiles of cement and other	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		construction materials should be kept covered when not being used.			
		<u>Accidental Spillage</u>			
		Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to the nearby harbour waters, all fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour WCZ. The bund should be drained of rainwater after a rain event.	Contractor	All relevant worksites	Implemented
		<u>Waste Management Measures</u>			
		<u>Waste Management Plan</u>			
AEIAR-174/2013 S11.4.8.1	AEIAR-174/2013 EM&A Manual S9.2.1.2	Contractor should be requested to submit an outline Waste Management Plan (WMP) prior to the commencement of construction work, in accordance with the ETWB TC(W) No.19/2005 so as to provide an overall framework of waste management and reduction.	Contractor	All relevant worksites	Implemented
		<u>Good Site Practices</u>			
AEIAR-130/2009 S3.5, S5.5	AEIAR 130/2009 EM&A Manual S2.5, S4.5	Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.	Contractor	All relevant worksites	Implemented
		Training of site personnel in proper waste management and chemical waste handling procedures.	Contractor	All relevant worksites	Implemented
		Provision of sufficient waste disposal points and regular collection for disposal.	Contractor	All relevant worksites	Partially Implemented
		Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).	Contractor	All relevant worksites	Implemented
		<u>Waste Reduction Measures</u>			
		Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals.	Contractor	All relevant worksites	Not Applicable
		Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.	Contractor	All relevant worksites	Implemented
		Encourage collection of aluminum cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force.	Contractor	All relevant worksites	Implemented
		Any unused chemicals or those with remaining functional capacity should be recycled.	Contractor	All relevant worksites	Implemented
		Proper storage and site practices to minimize the potential for damage or contamination of construction materials.	Contractor	All relevant worksites	Implemented
		<u>Construction and Demolition Materials</u>			
		Where it is unavoidable to have transient stockpiles of C&D material within the work site pending collection for disposal, the transient stockpiles shall be located away from waterfront or storm drains as far as possible.	Contractor	All relevant worksites	Implemented
		Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric.	Contractor	All relevant worksites	Implemented
		Skip hoist for material transport should be totally enclosed by impervious sheeting.	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site.	Contractor	All relevant worksites	Implemented
		The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	Contractor	All relevant worksites	Implemented
		The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle.	Contractor	All relevant worksites	Implemented
		All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet.	Contractor	All relevant worksites	Partially Implemented
		The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading.	Contractor	All relevant worksites	Implemented
		When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 “Trip Ticket System for Disposal of Construction and Demolition Materials” should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.	Contractor	All relevant worksites	Implemented
		<u>Chemical Waste</u>			
		After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Contractor	All relevant worksites	Implemented

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		General Refuse			
		General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem.	Contractor	All relevant worksites	Partially Implemented
Land Contamination Measures					
		For any excavation works conducted at Radar Station			
AEIAR-130/2009 S3.6.57	AEIAR 130/2009 EM&A Manual S4.6	As the risk due to dermal contact with groundwater by site workers is uncertain, it is recommended that personnel protective equipment (PPE) be used by site workers as a mitigation measure.	Contractor	All relevant worksites	Not Applicable
Landscape and Visual Impact					
New Distributor Roads Serving the Planned KTD					
		Construction Phase			
AEIAR-130/2009 S3.8.12	AEIAR 130/2009 EM&A Manual S2.8	All existing trees should be carefully protected during construction.	Contractor	All relevant worksites	Not Applicable
		Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work.	Contractor	All relevant worksites	Not Applicable
		Control of night-time lighting.	Contractor	All relevant worksites	Not Applicable

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		Erection of decorative screen hoarding.	Contractor	All relevant worksites	Implemented
Trunk Road T2					
		Construction Phase			
AEIAR-174/2013 S9.9.1.1	AEIAR-174/2013 EM&A Manual S7.2.1.2	All works shall be carefully designed to minimize impacts on existing landscape resources and visually sensitive receivers. Existing trees within works area shall be retained and protected.	Contractor	All relevant worksites	Not Applicable
		Existing trees of good quality and condition that are unavoidably affected by the works should be transplanted.	Contractor	All relevant worksites	Not Applicable
		Large temporary stockpiles of excavated material shall be covered with unobtrusive sheeting to prevent dust and dirt spreading to adjacent landscape areas and vegetation, and to create a neat and tidy visual appearance.	Contractor	All relevant worksites	Implemented
		Construction plant and building material shall be orderly and carefully stored in order to create a neat and tidy visual appearance.	Contractor	All relevant worksites	Implemented
		Erection of decorative screen hoarding should be designed to be compatible with the existing urban context.	Contractor	All relevant worksites	Implemented
		All lighting in construction site shall be carefully controlled to minimize light pollution and night-time glare to nearby residences and GIC user. The contractor shall consider other security measures, which shall minimize the visual impacts.	Contractor	All relevant worksites	Not Applicable
General Condition					
		The Permit Holder shall display conspicuously a copy of this Permit on the Project site(s) at all vehicular site entrances/exits or at a convenient location for public's information at all times. The Permit Holder shall ensure that the most updated information about the Permit, including any amended Permit, is displayed at such locations. If the Permit Holder surrenders a part or the whole of the Permit, the notice he sends to the Director shall also be displayed at the same	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		locations as the original Permit. The suspended, varied or cancelled Permit shall be removed from display at the Project site(s).			

Implementation status: Implemented / Partially Implemented / Not Implemented / Not Applicable

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Appendix K

Weather and Meteorological Conditions during Reporting Month

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Date	Mean Pressure (hPa)	Air Temperature			Mean Relative Humidity (%)	Total Rainfall (mm)
		Maximum (deg. C)	Mean (deg. C)	Minimum (deg. C)		
April 2016						
1	1014.5	25.3	21.9	19.9	86	0
2	1015.6	23.8	21.3	19.8	90	Trace
3	1014.6	26.5	23	21	87	0
4	1012.5	28.1	23.6	20.7	88	4.3
5	1013.3	24.4	22.3	20.7	91	Trace
6	1013.3	26.5	23.1	21.5	91	0
7	1013.2	26.9	23.9	22.4	91	0
8	1013.3	27.9	25.3	23.2	87	Trace
9	1011.6	27.5	25.7	24.4	86	Trace
10	1009.2	26.3	23.3	21.3	92	22.1
11	1010.1	22.8	21.5	20.1	91	0.4
12	1009.1	21.3	20.3	19.9	94	11.4
13	1005.5	25.1	21.8	20.9	98	76.4
14	1008.5	25.2	23.1	21.6	98	0.7
15	1011.4	23.5	21.1	20.6	97	3.4
16	1010.5	28.1	24.7	20.6	89	Trace
17	1010.9	27.5	25.9	24.1	90	Trace
18	1014.4	26.7	23.1	20.1	87	23.7
19	1017.4	21.8	20.5	20.1	86	Trace
20	1014.6	22.9	21.6	20.2	88	Trace
21	1012.5	28.4	24.6	22	87	Trace
22	1010.7	26.1	23.7	21	90	8.3
23	1008.2	27.7	24.9	22.6	88	2.8
24	1008.7	26.1	24.4	23.2	93	41.4
25	1009.8	28.4	26	23.9	90	12.4
26	1009.5	28.5	27.2	26	86	Trace
27	1008.2	29.1	26.8	25.4	85	0.9
28	1010.4	28.2	26	24.7	84	1.7
29	1013.9	26.3	24.1	22.9	76	Trace
30	1012.2	23.4	22.5	20.8	80	1.5

Source: Hong Kong Observatory – Hong Kong Observatory

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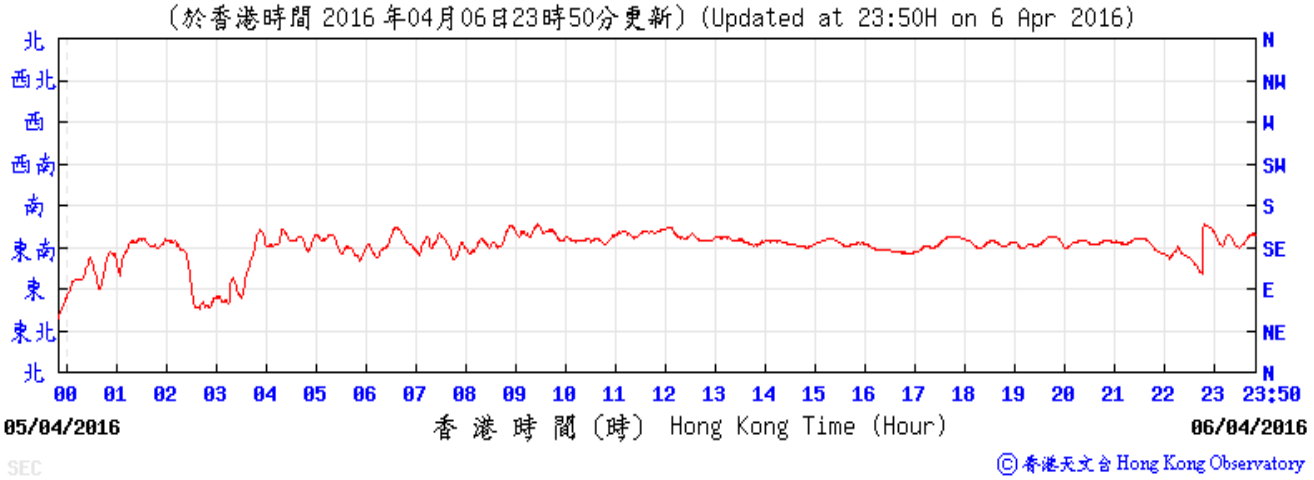
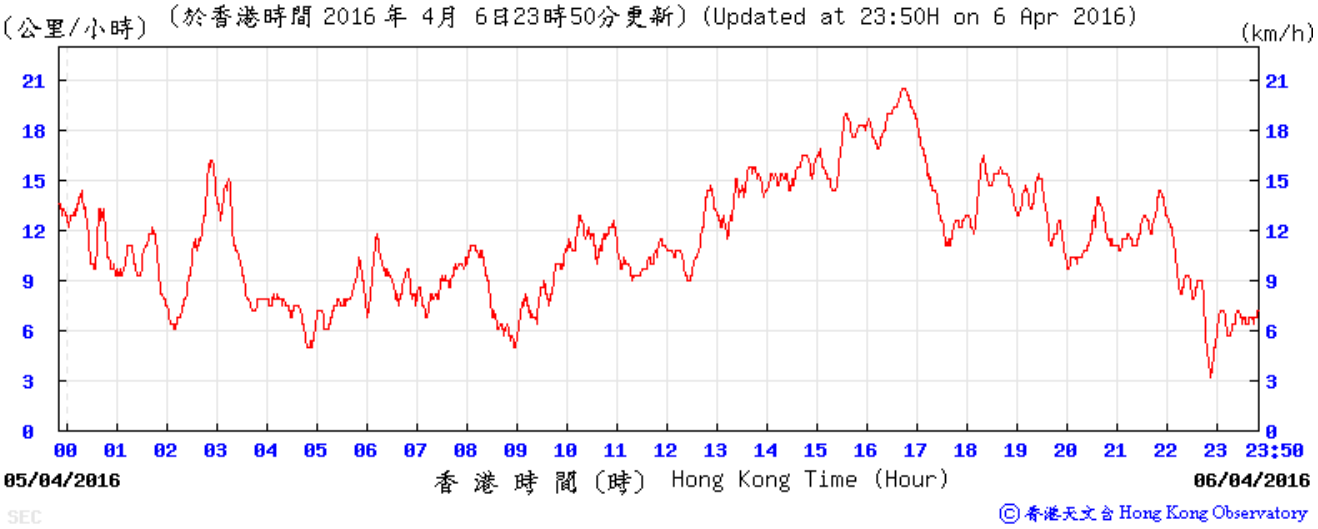
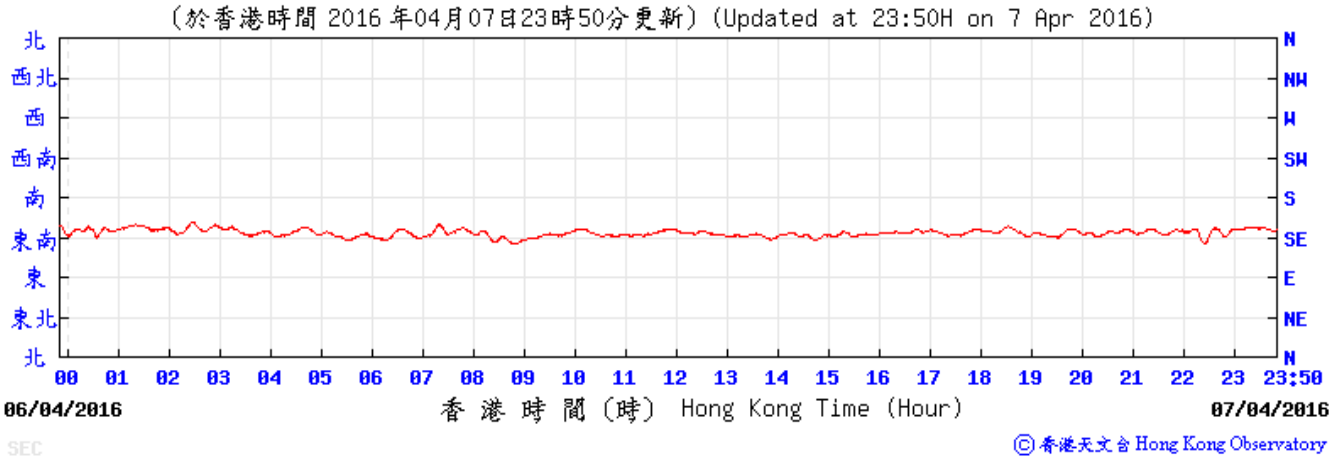
Wind Speed and Wind Direction Data by Hong Kong Observatory – **Kai Tak**

Elevation of station: 3m above mean sea level
Elevation of Anemometer: 16m above mean sea level

5 Apr 2016 – 6 Apr 2016







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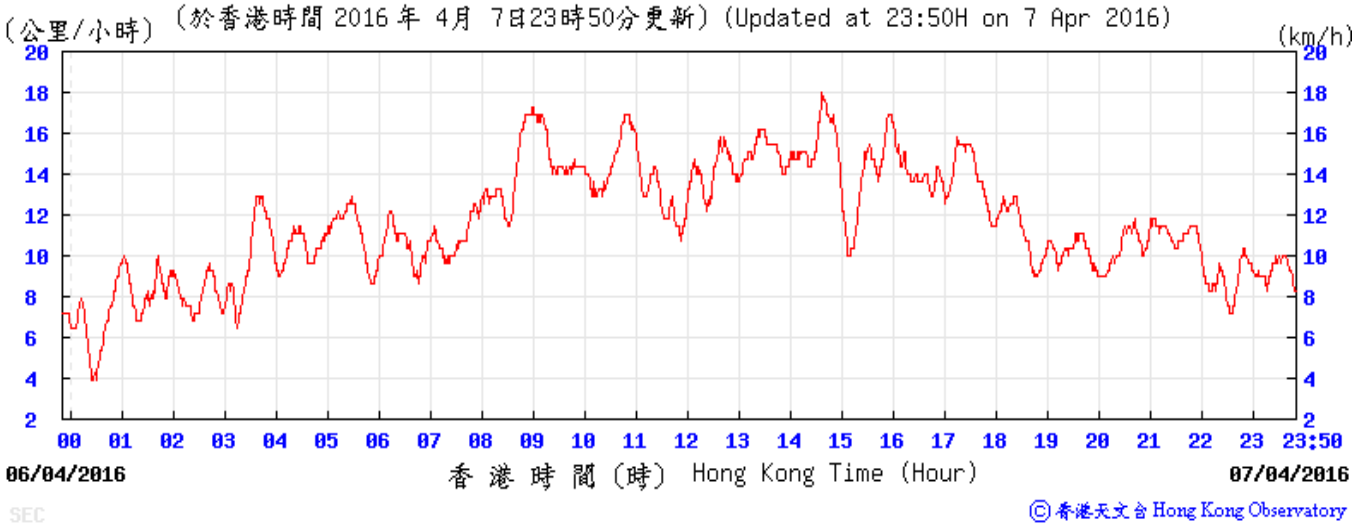
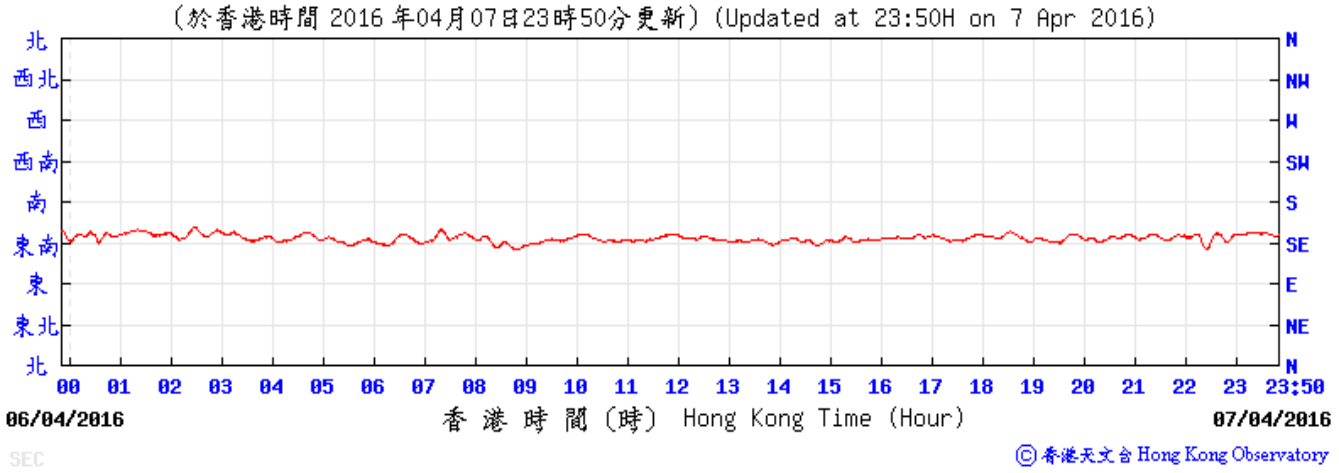
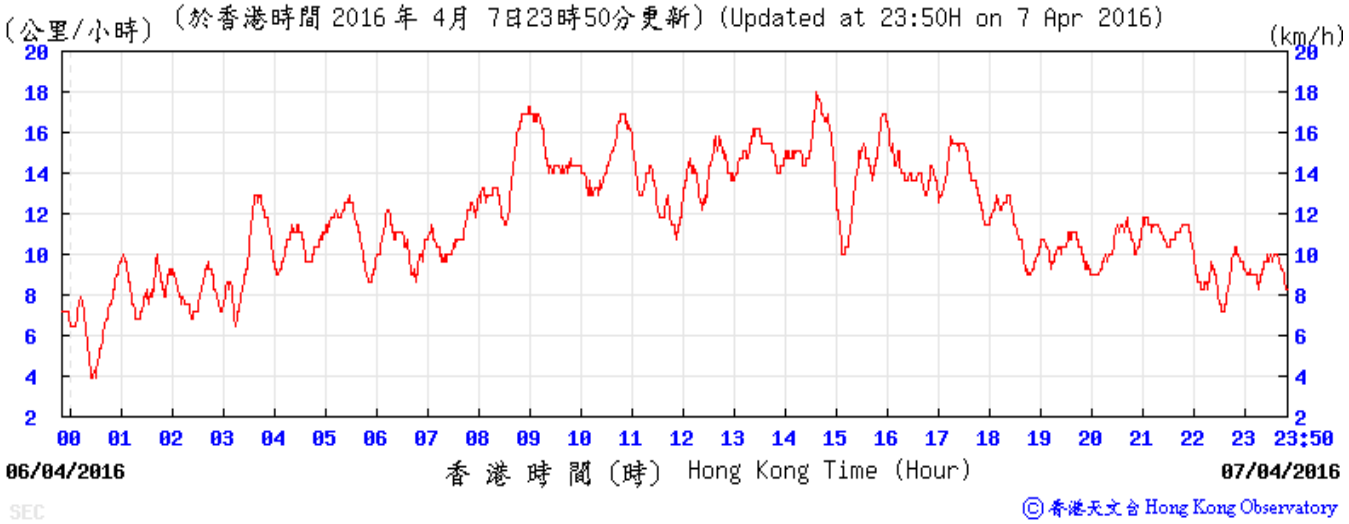


6 Apr 2016 – 7 Apr 2016





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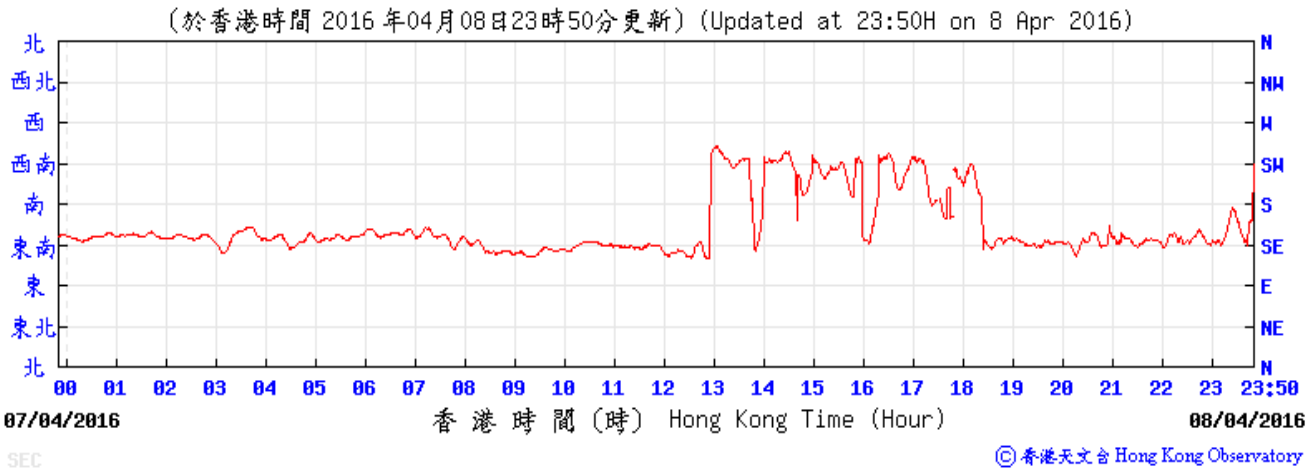
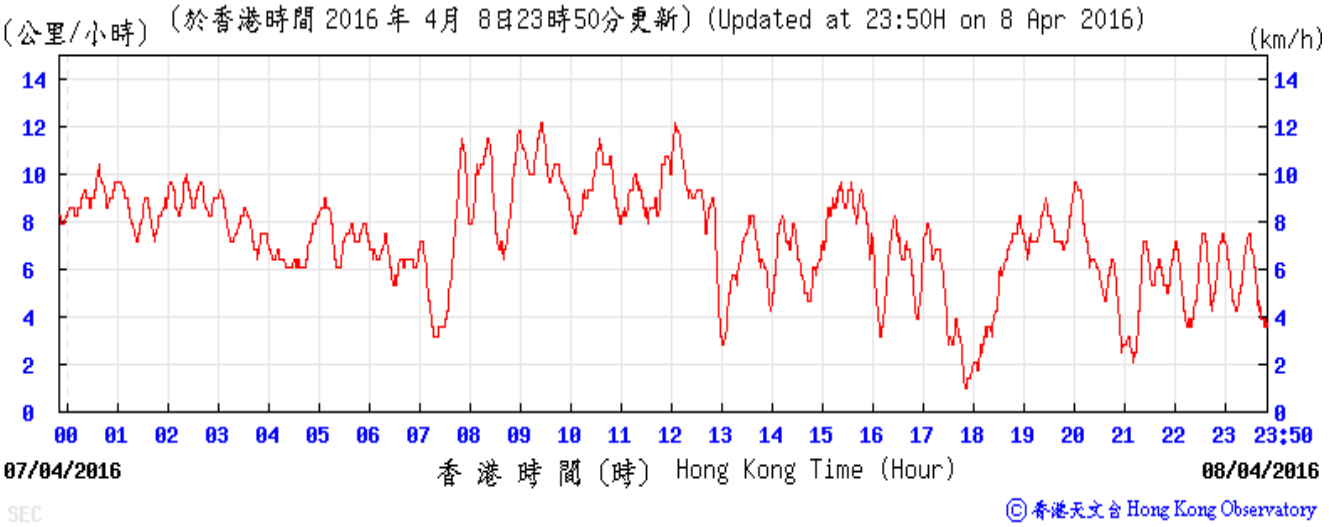
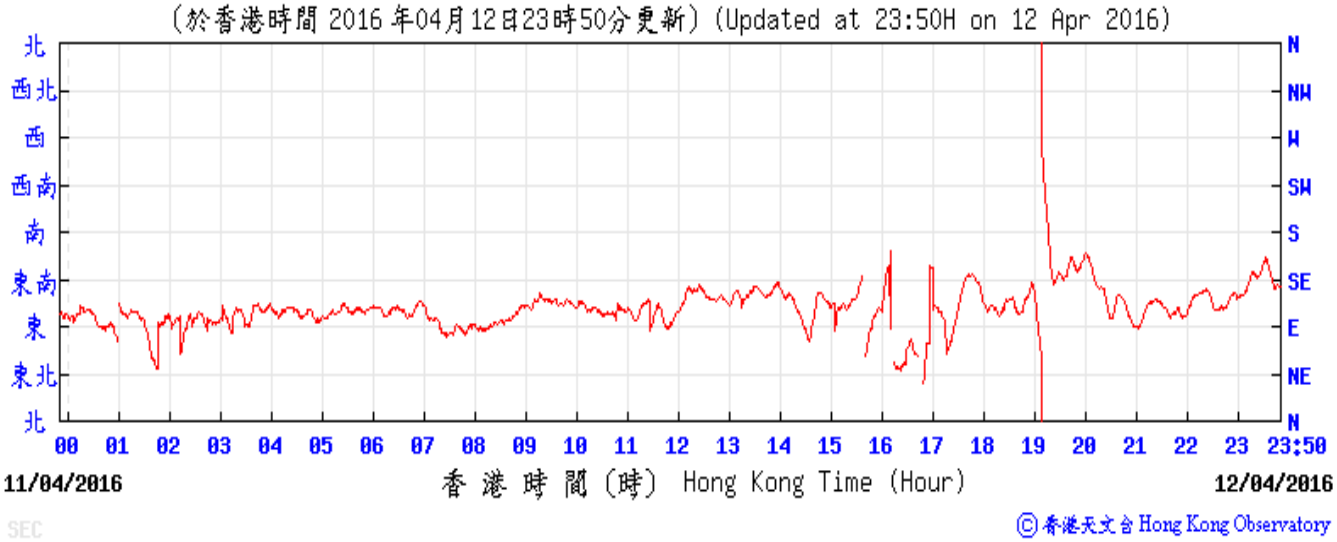




11 Apr 2016 – 12 Apr 2016



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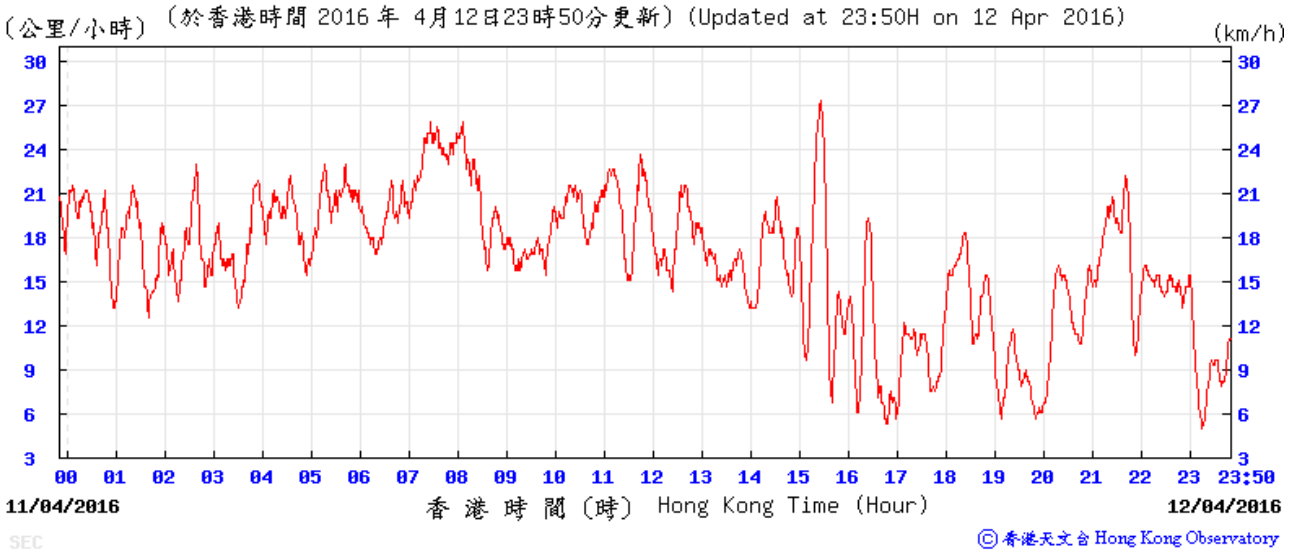

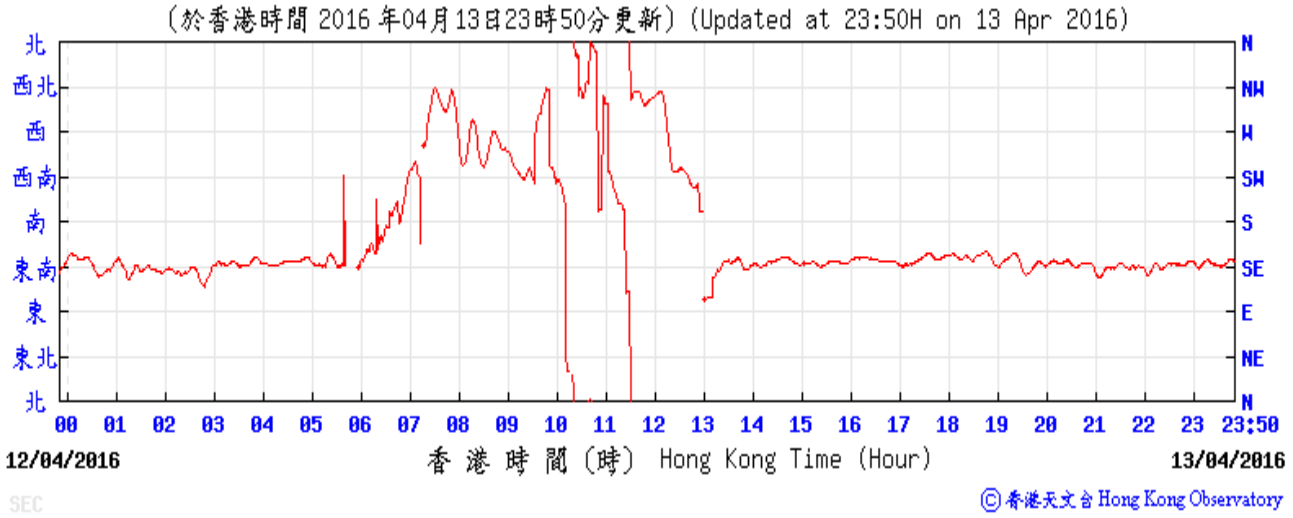

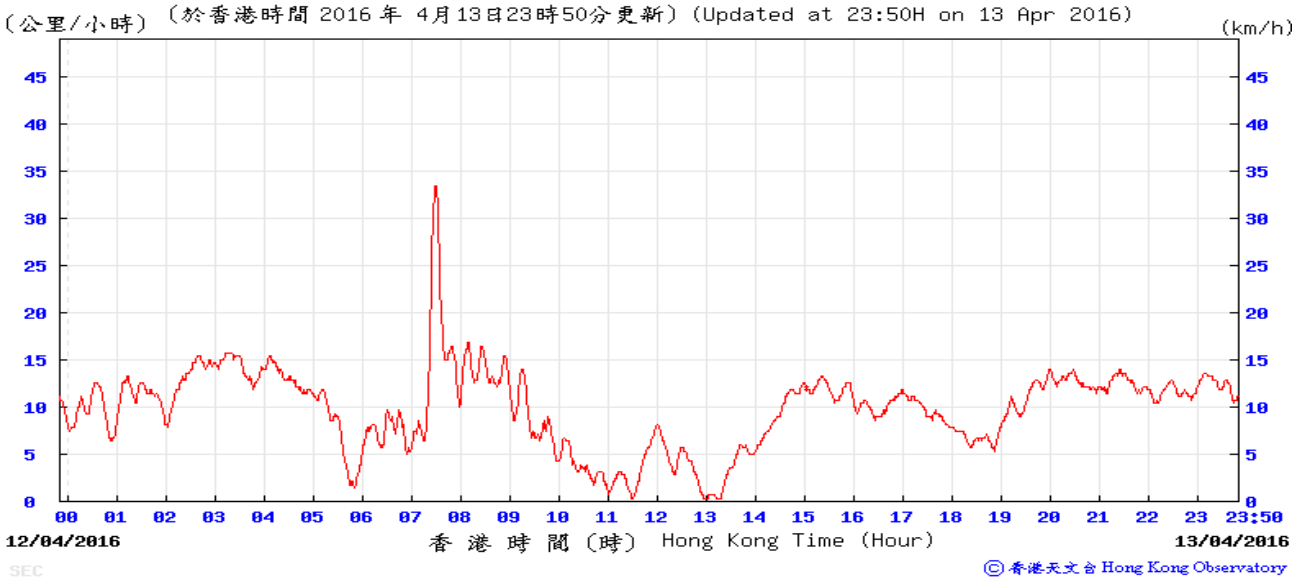

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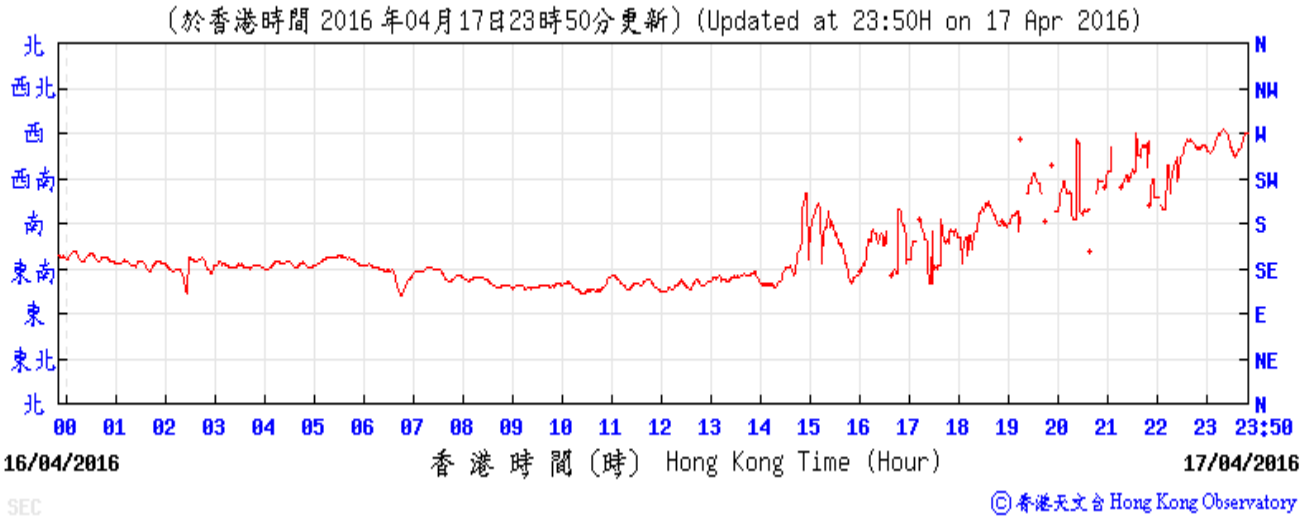
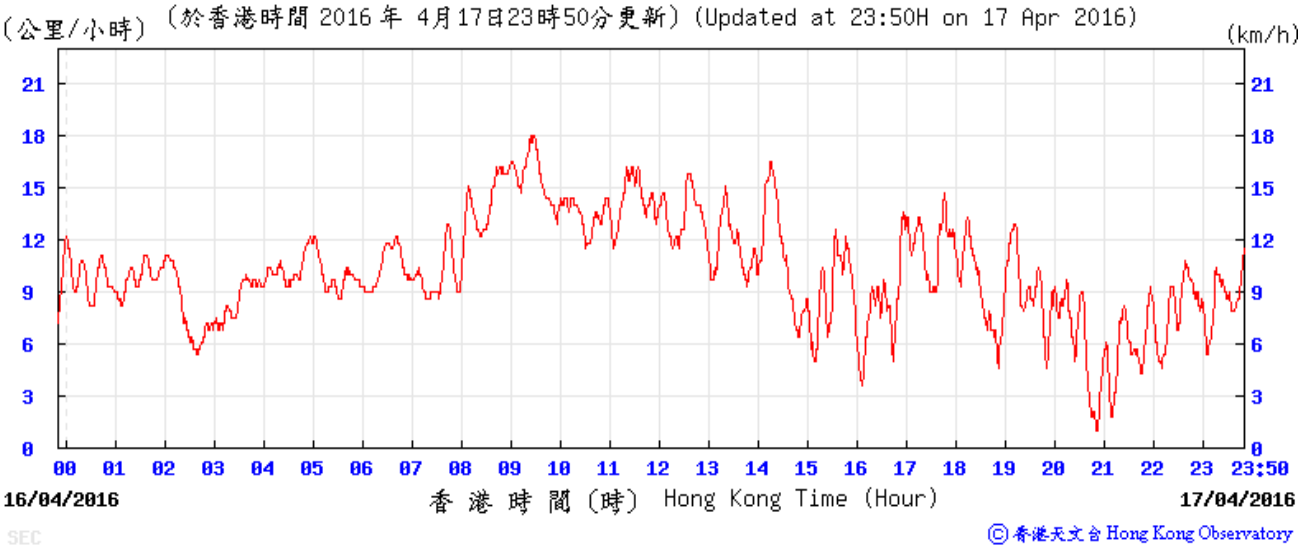
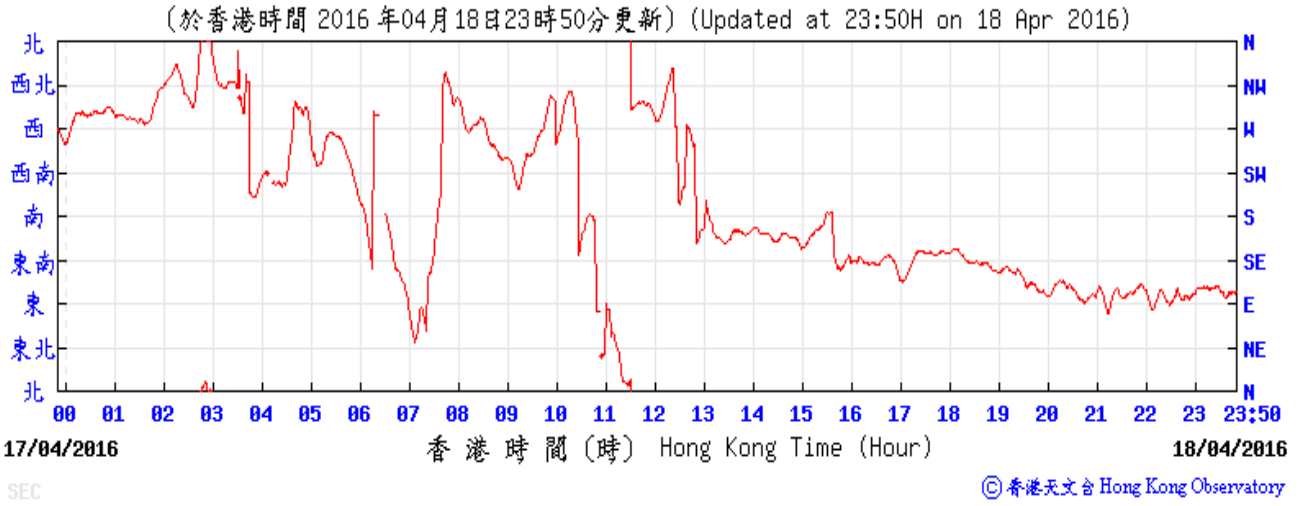
16 Apr 2016 – 17 Apr 2016







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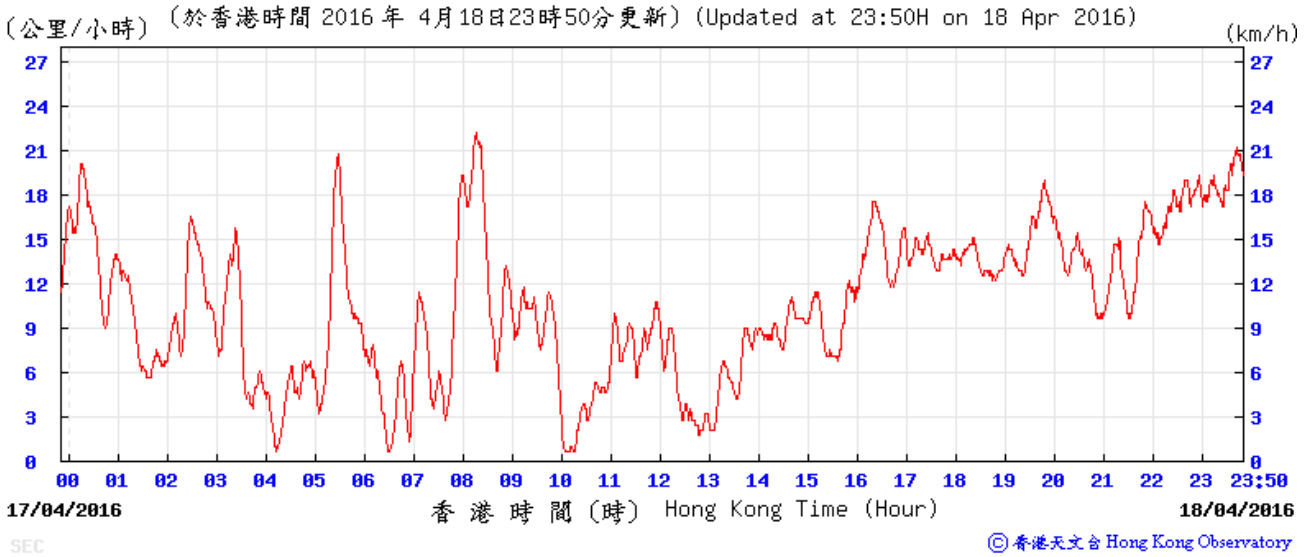
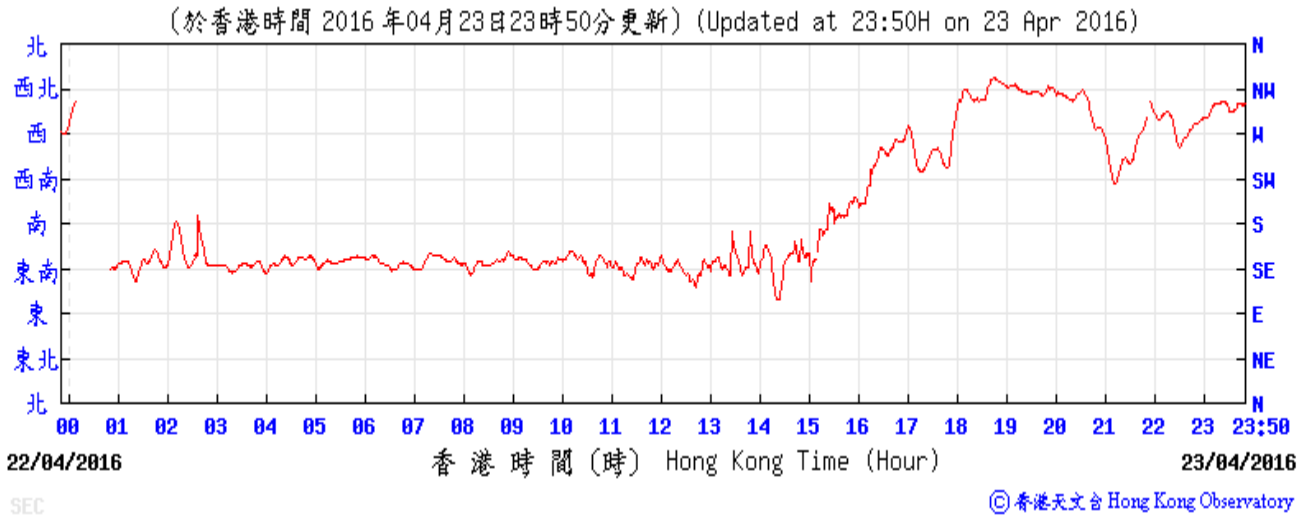
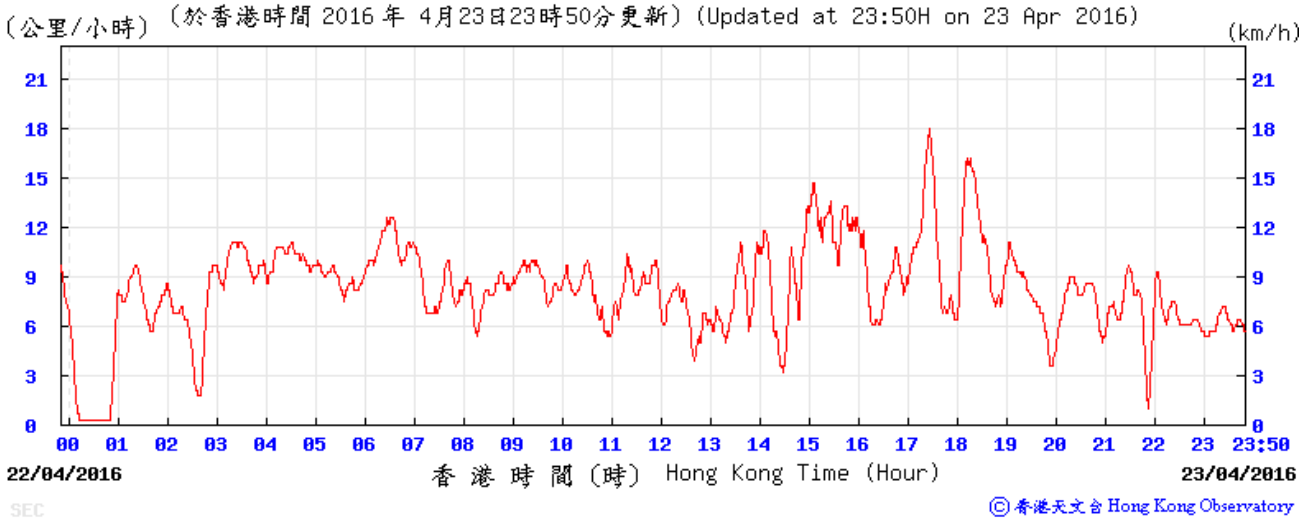


22 Apr 2016 – 23 Apr 2016





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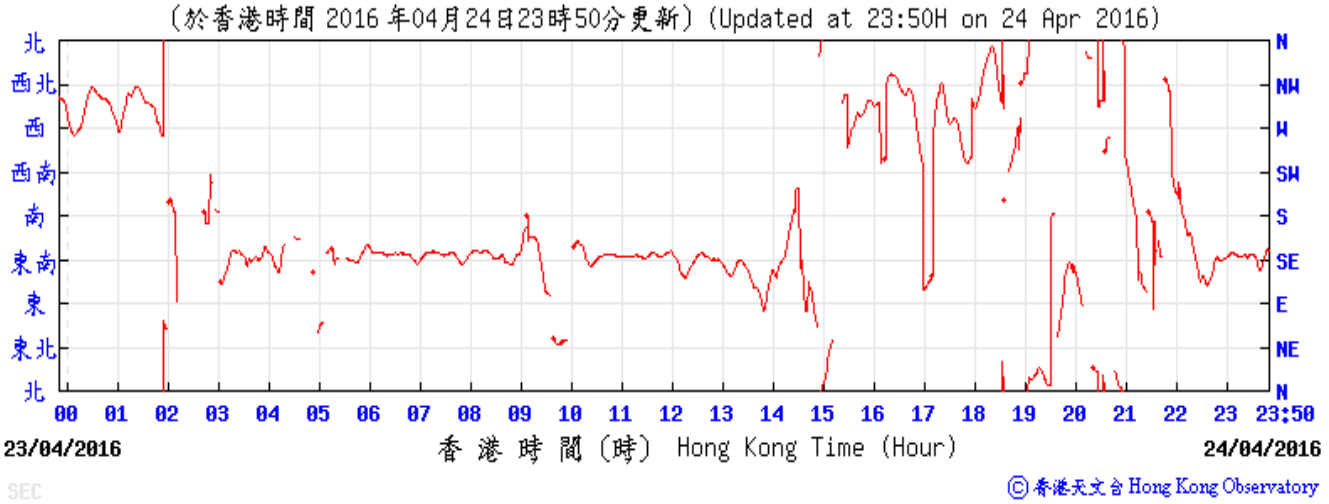
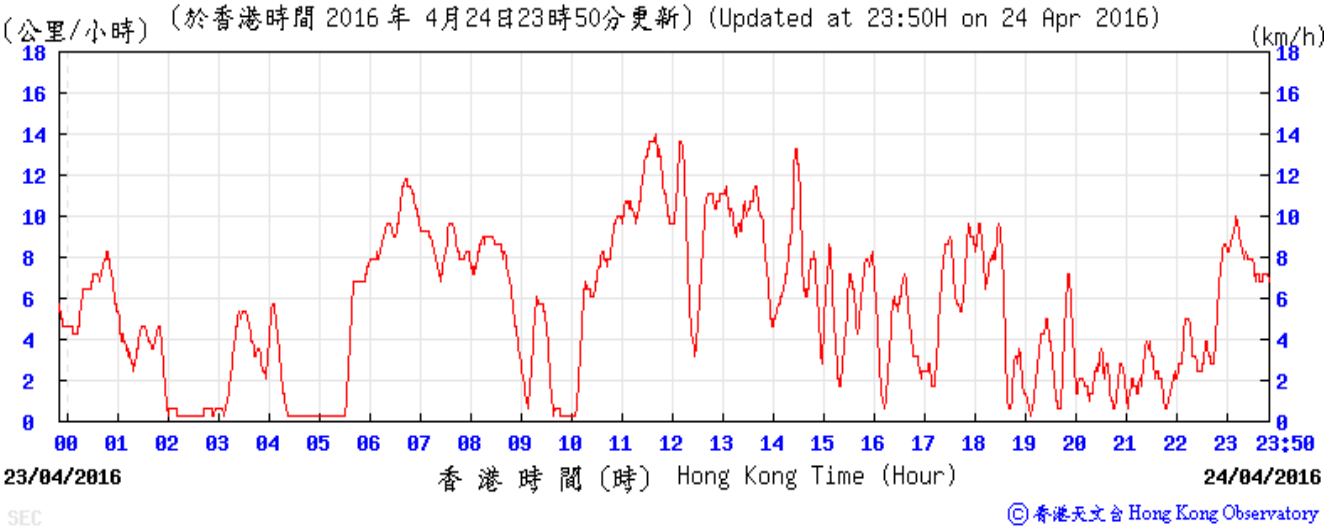
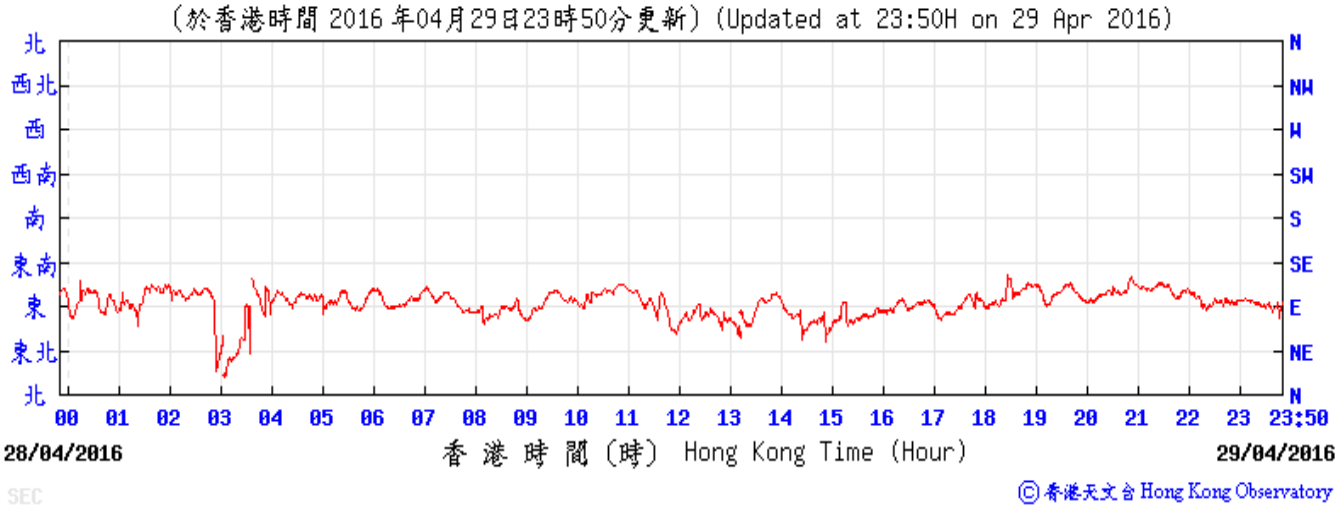




28 Apr 2016 – 29 Apr 2016



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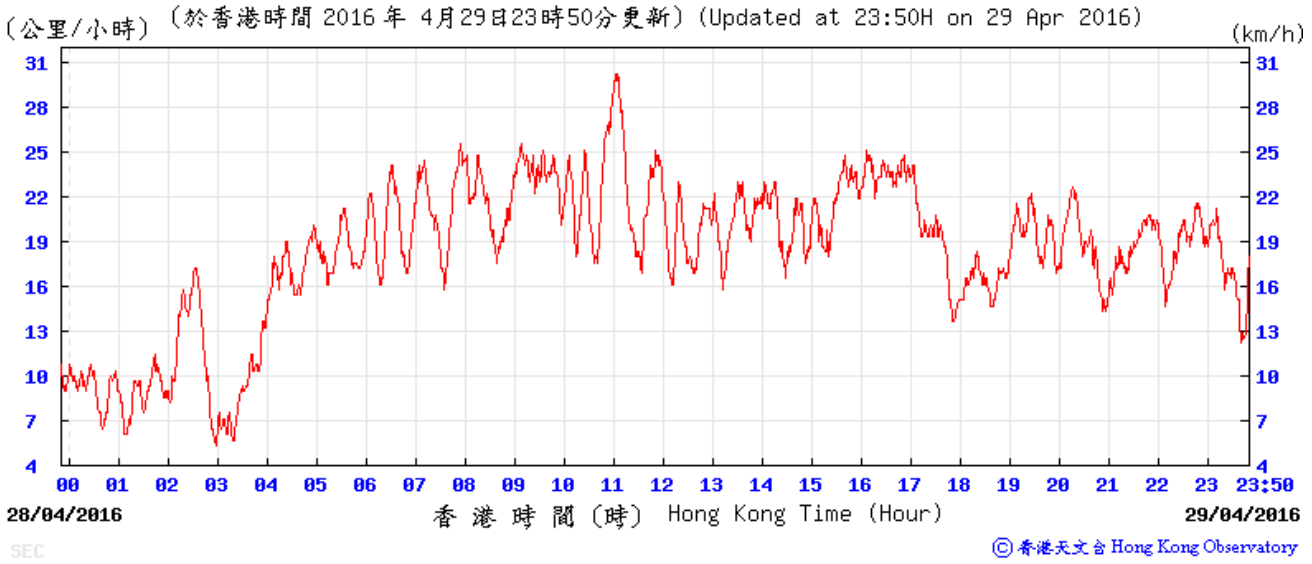

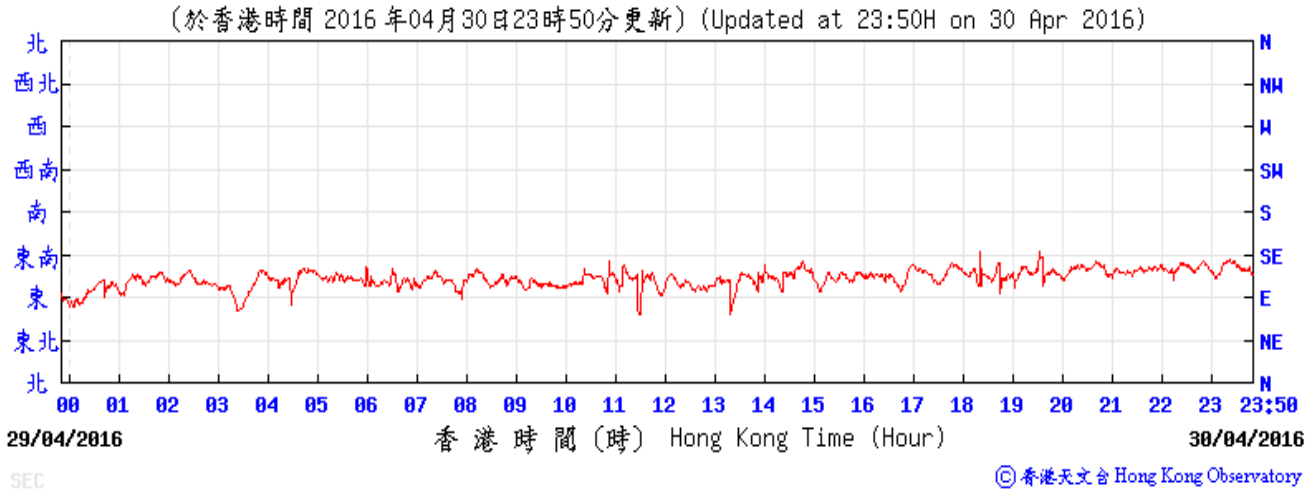

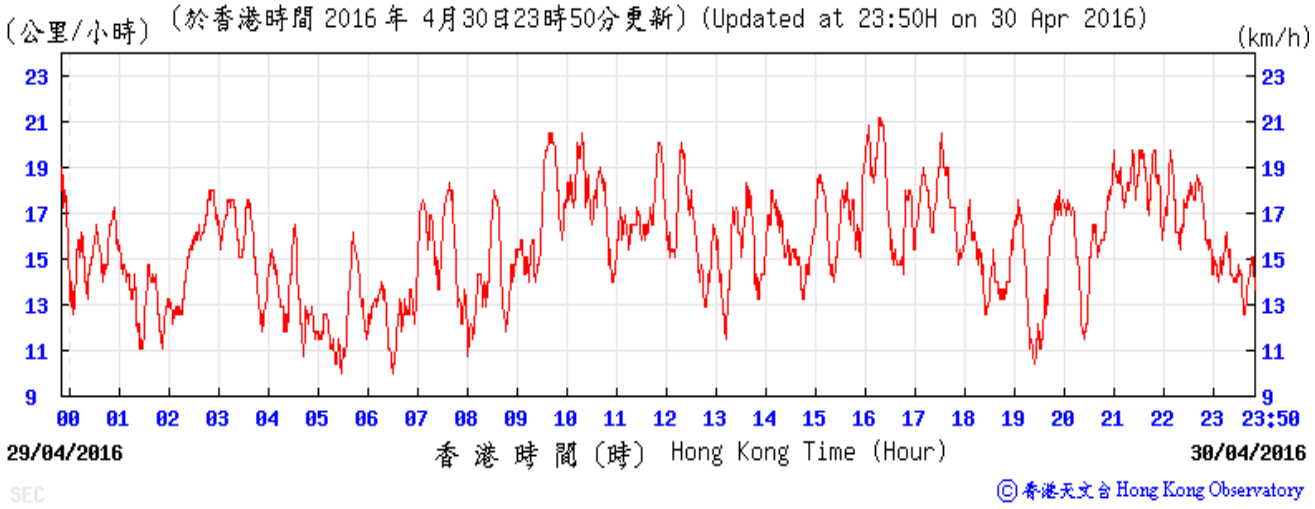

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Appendix L

Cumulative statistics on Environmental Complaints, Notifications of Summons and Successful Prosecution

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Environmental Complaints Log

Complaint Log No.	Date of Receipt	Received From and Received By	Nature of Complaint	Date Investigated	Outcome	Date of Reply
Nil	-	-	-	-	-	-

Cumulative Statistics on Complaints

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Month	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0

Cumulative Statistics on Notification of Summons and Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Notification of Summons and Prosecutions This Month	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0

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Appendix M

Summary of Site Audit in the Reporting Month

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MateriaLab

Summary of Site Audit in the Reporting Month

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	7 April 2016	Watering spraying frequency shall be increased to keep the entire haul road surface wet in Portion B, E and Portion N.	The item was rectified by the Contractor and inspected on 14 April 2016.
Noise	14 April 2016	Appropriate and effective acoustic fabric should be used for the breaker machine in Portion X.	The item was rectified by the Contractor and inspected on 21 April 2016.
	21 April 2016	Appropriate and effective acoustic fabric should be used for the breaker machine in Portion Q.	The item was rectified by the Contractor and inspected on 28 April 2016.
Water Quality	7 April 2016	Stagnant water on the ground and inside the drip tray shall be removed regularly in Portion N.	The items were rectified by the Contractor and inspected on 14 April 2016.
	21 April 2016	Stagnant water inside the drip tray shall be removed regularly in Portion N.	The items were rectified by the Contractor and inspected on 28 April 2016.
	28 April 2016	Stagnant water on the ground shall be removed properly and regularly in Portion M.	The items were rectified by the Contractor and inspected on 5 May 2016.
Chemical and Waste Management	14 April 2016	General refuse should be stored in enclosed bins or compaction units separate from C&D material. Effective collection and storage methods of site wastes would be required to prevent creating odour nuisance or pest problem. The skip should be covered in Portion Q.	The item was rectified by the Contractor and inspected on 21 April 2016.
	21 April 2016	C&D wastes stored in the skip should be collected regularly to prevent overload in Portion B.	The item was rectified by the Contractor and inspected on 28 April 2016.
Land Contamination	NA		
Landscape and Visual Impact	NA		
General Condition	NA		

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Appendix N

Outstanding Issues and Deficiencies

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Summary of Outstanding Issues and Deficiencies in the Reporting Month

Parameters	Outstanding Issues	Deficiencies
Air Quality	NA	Any items of deficiencies can be referred to **Appendix M**.
Noise	NA	
Water Quality	NA	
Chemical and Waste Management	NA	
Land Contamination	NA	
Landscape and Visual Impact	NA	
General Condition	NA	
Others	NA	