MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

MONTHLY EM&A REPORT

June 2017

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/0833A

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 Limited

RAMBOLL ENVIRON

Ref.: CEDKTDS3EM00_0_0216L.17

10 July 2017

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 June 2017

Reference is made to the Environmental Team's submission of the Monthly EM&A Report for June 2017 (Report No. 0405_15_ED_0833A) we received by e-mail on 10 July 2017.

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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Ramboll Environ Hong Kong Limited 英環香港有限公司
21/F, BEA Harbour View Centre, 56 Gloucester Road, Wan Chai, Hong Kong Tel: 852.3465 2888 Fax: 852.3465 2899
www.Ramboll-Environ.com

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

MateriaLab

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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 June 2017 and 30 June 2017. As informed by the Contractor, major activities in the reporting month were:

- Temporary utility diversion works;
- Temporary diversion for CLP cable at CH6+560;
- Temporary diversion for sewage rising main;
- Construction of temporary diversion road for Shing Cheong Road (TTA Stage 2);
- Setup of temporary barging point;
- Drainage works (CH100 to CH240);
- Excavation of drainage pipe and manhole (M206 to M213);
- Seawall Modification Works;
- Construction of tunnel box structure;
- D-wall construction works;
- Construction of socket H-pile;
- Pumping test for Zone 3;
- Excavation and ELS construction; and
- Installation of dewatering, observation and recharging wells.

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 KER1b in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

iv. No environmental complaint, 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 sixteenth monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project within the period between 1 June 2017 and 30 June 2017.

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	3742 3803	3742 3899
IEC (Ramboll Environ Hong Kong Limited)	Independent Environmental Checker	Mr. F. C. Tsang	3465 2851	3465 2899
Main Contractor (CRBC)	Site Agent	Mr. Chan See Wai, Arnold	9380 4110	2283 1689
	Environmental Officer	Mr. Jacky Lai	9028 8975	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:

- Temporary utility diversion works;
- Temporary diversion for CLP cable at CH6+560;
- Temporary diversion for sewage rising main;
- Construction of temporary diversion road for Shing Cheong Road (TTA Stage 2);
- Setup of temporary barging point;
- Drainage works (CH100 to CH240);
- Excavation of drainage pipe and manhole (M206 to M213);
- Seawall Modification Works;
- Construction of tunnel box structure;
- D-wall construction works;
- Construction of socket H-pile;
- Pumping test for Zone 3;
- Excavation and ELS construction; and
- Installation of dewatering, observation and recharging wells.

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 2013	Not Applicable Not Applicable Not Applicable
Notification pursuant to Air Pollution (Construction Dust) Regulation	395601	4 December 2015	Not Applicable
Billing Account for Waste Disposal	A/C No.: 7023814	22 December 2015	Not Applicable
Construction Noise Permit	GW-RE0442-17	7 June 2017	6 December 2017
Construction Noise Permit	PP-RE0010-17	16 May 2017	15 November 2017
Wastewater Discharge License	WT00023125-2015	6 January 2016	31 January 2021
Chemical Waste Producer License	5213-247-C1232-12	23 November 2015	Not Applicable

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	2524
		TE-5005X	- Blower Motor Assembly	4037
		TE-5007X	- Mechanical Timer	5160
		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
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 0.6 m^3/min and 1.7 m^3/min) in accordance with the EM&A manual. 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 KER1b) 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)
KER1b	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 KER1b 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 ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
24-hr TSP in $\mu g/m^3$	KTD1a	86	59 – 119	177	260
	KTD2a	34	15 – 55	157	
	KER1b	44	29 – 85	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 June 2017 ($\mu g/m^3$)	Average 24-hour TSP concentration in June 2017 ($\mu g/m^3$)
KTD1a	KTD3	126	59 – 119	86
KTD2a	-	-	15 – 55	34
KER1b	KTD6	169	29 – 85	44

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 at KTD1a and KER1b were 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	2451083
2	Casella	CEL-63X Series	Integrating Sound Level Meter	2451028
3	Casella	CEL-633A Series	Integrating Sound Level Meter	2451091
4	Casella	CEL-120/1	Calibrator	3321858
5	Benetech	GM816	Wind Speed Anemometer	13372555

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
$L_{Aeq\ (30min)}$ 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 KER1b) for noise monitoring, they are summarized in **Table 3.3** and shown in **Figure 2**.

Table 3.3 Location of Noise 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)
KER1b	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 KER1b, 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	Limit Level
	Noise Monitoring Stations				
	KTD1a	KTD2a	KER1b		
0700-1900 hrs on normal weekdays	58-74	59-66	63-73	When one documented complaint is received	75 dB(A)

Note:
KTD1a: Façade Measurement
KTD2a & KER1b: 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)	Maximum Leq $_{(30min)}$ dB(A) In June 2017
KTD1a	KTD1	74	74
KTD2a	KTD2	75	66
KER1b	KER1	75	73

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 did not exceed 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, five weekly Landscape and Visual Site audits were carried out on 1, 8, 15, 23 and 29 June 2017 and two of them, 8 and 23 June 2017 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 During the Site audit on 8 June 2017, Contractor was reminded to remove or cover the concrete and debris properly by impervious sheeting at Zone 4.

4.2.3 During the Site audit on 15 June 2017, it was observed that the excavated materials at Zone 1 were not properly covered by impervious sheeting. The item was rectified by the Contractor and inspected on 22 June 2017.

4.2.4 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, five site inspections were carried out on 1, 8, 15, 23 and 29 June 2017. Two of them, held on 8 and 23 June 2017 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 in 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 KER1b in the reporting month.

7.2 Complaints, Notification of Summons and Prosecution

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

7.2.2 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 (May 2017)	13/06/2017
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 (May 2017)	13/06/2017
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	12/02/2016
Condition 3.4	Monthly EM&A Report (May 2017)	13/06/2017

9. FUTURE KEY ISSUES

9.1 Construction Programme for the Next Two Months

- Temporary utility diversion works;
- Temporary diversion for CLP cable at CH6+560;
- Temporary diversion of sewage rising main;
- Set up of barging point;
- Sewerage works at Cheung Yip Street;
- Laying of drainage pipe and construction manhole at Cheung Yip Street;
- Seawall modification works;
- Construction of tunnel box structure;
- D-wall construction works;
- Construction of socket H-pile;
- Excavation and ELS construction; and
- Installation of dewatering, observation and recharging wells.

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 Five environmental site inspections were carried out in the reporting month. 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 Five weekly Landscape and Visual Site audits were carried out on 1, 8, 15, 23 and 29 June 2017 and two of them, 8 and 23 June 2017 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).

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
- Open stockpile shall be covered with impermeable sheeting to prevent dust emission.
- Regular watering to site working areas shall be provided to suppress dust emission.

Construction Noise Impact
- No specific observation was identified in the reporting month.

Water Quality Impact
- The mud at mud tank shall be removed to prevent overflow of storm water at the mud tank.

Chemical and Waste Management
- General refuse shall be stored properly in enclosed bins or compaction units and removed regularly.
- Spent chemical containers and used bags of cement shall be stored properly.

Land Contamination
- No specific observation was identified in the reporting month.

Landscape and Visual Impact

- Debris and concrete shall be properly covered.
- Excavated materials shall be covered by impervious sheeting to prevent dust and dirt spreading to adjacent landscape areas and vegetation, and to create a neat and tidy visual appearance.

General Condition

- Stagnant water shall be removed.

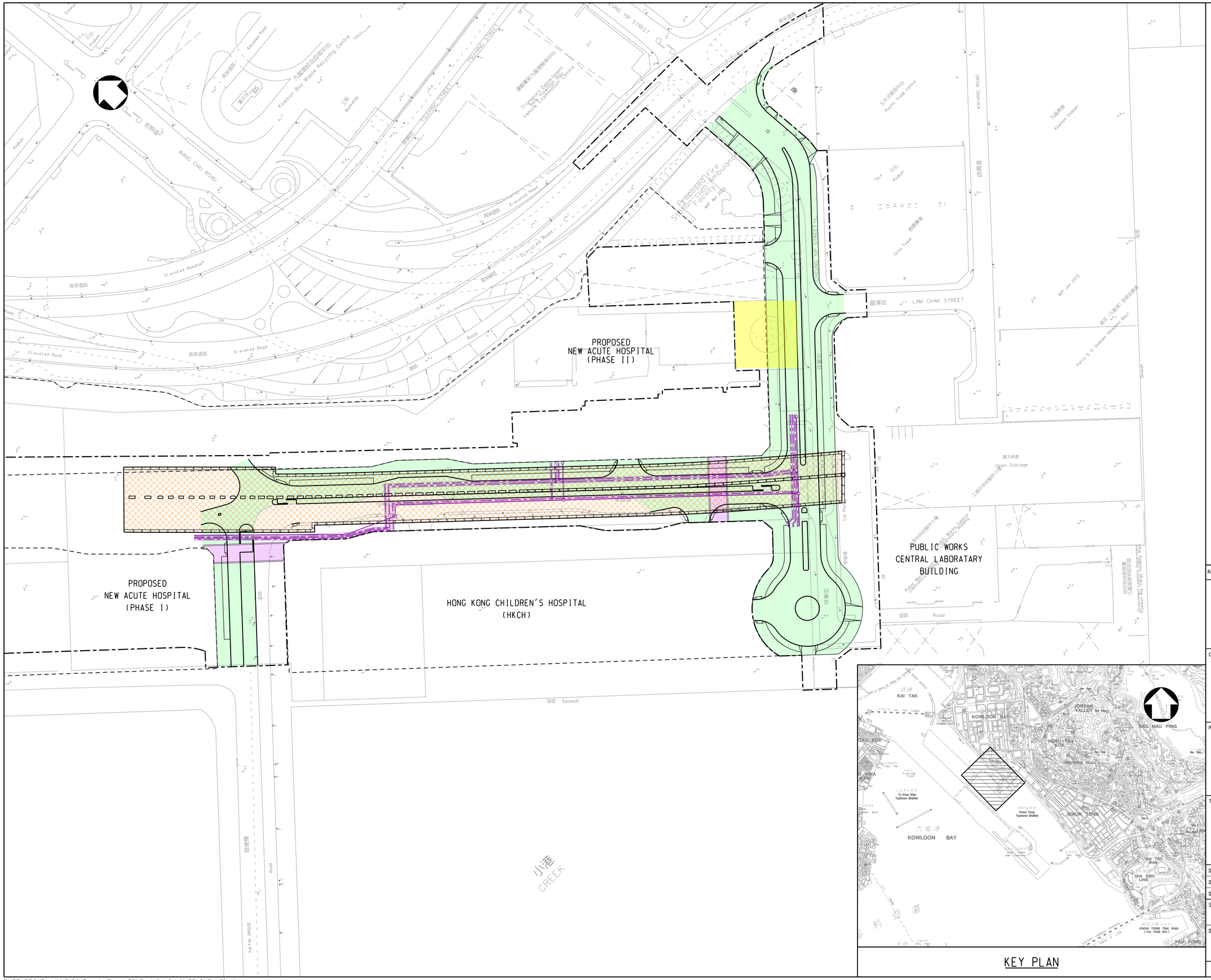
Permit / Licenses

- No specific observation was identified in the reporting month.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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

Rev.	Date	Drawn	Description	Checked	Approved

Hyder MEINHARDT
Hyder-Meinhardt JV

CLIENT

CEDD 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		

SCALE AT A1	STATUS	REV
1 : 1000		A

Drawing No.

FIGURE 1.0

KEY PLAN

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Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

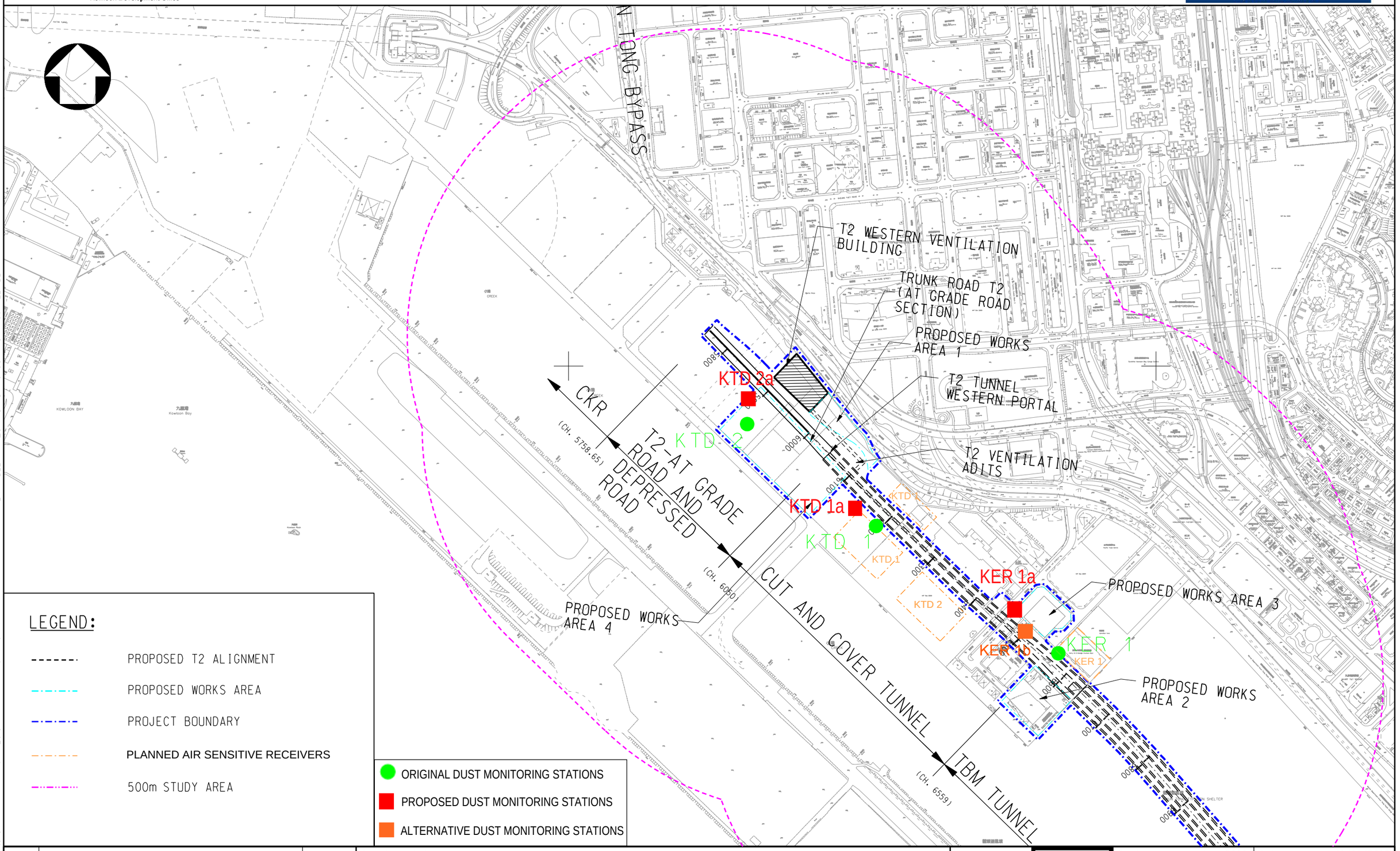
Figure 2

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

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 AIR SENSITIVE RECEIVERS
- 500m STUDY AREA

- ORIGINAL DUST MONITORING STATIONS
- PROPOSED DUST MONITORING STATIONS
- ALTERNATIVE 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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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

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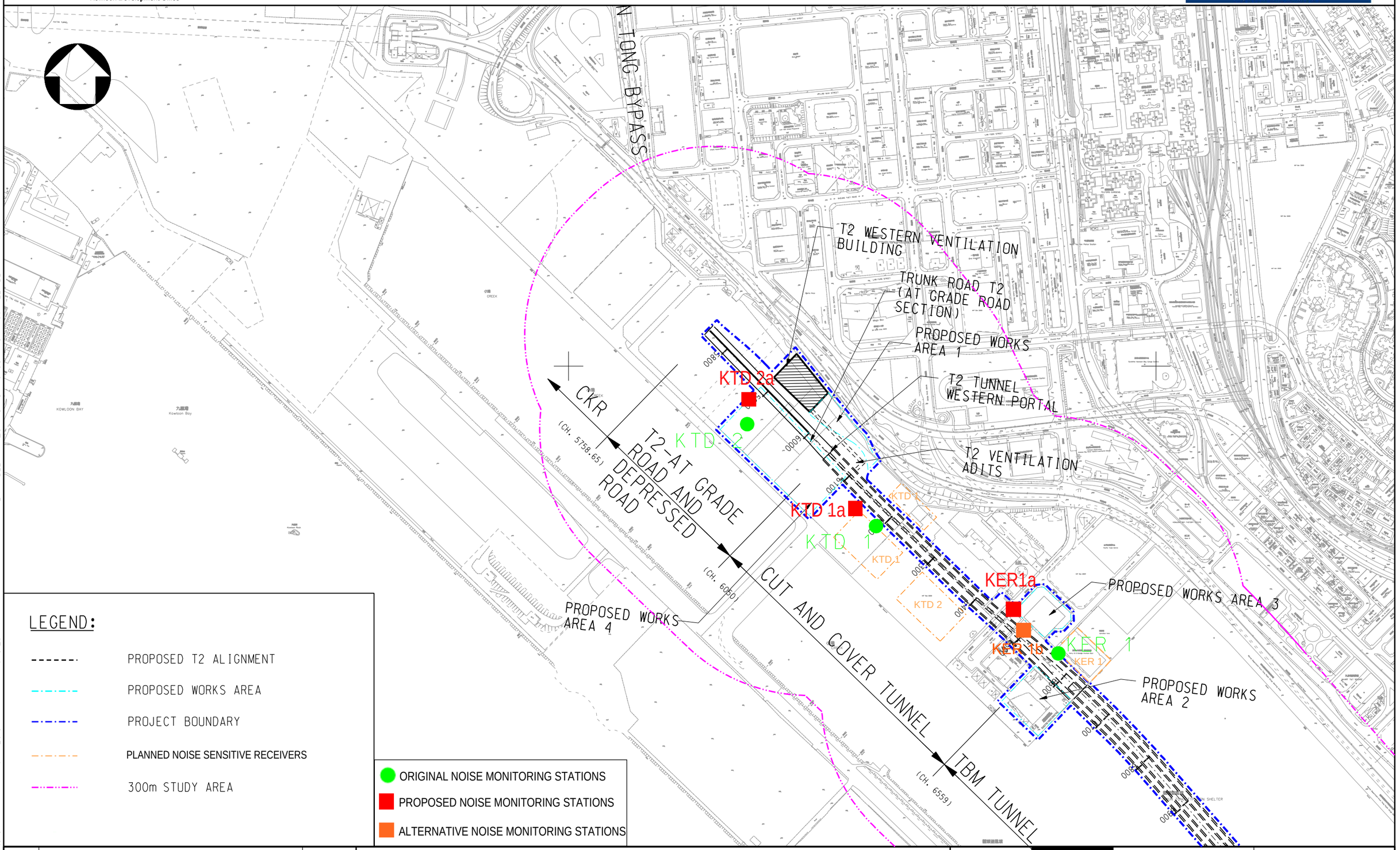

LEGEND:

- PROPOSED T2 ALIGNMENT
- PROPOSED WORKS AREA
- PROJECT BOUNDARY
- PLANNED NOISE SENSITIVE RECEIVERS
- 300m STUDY AREA

- ORIGINAL NOISE MONITORING STATIONS
- PROPOSED NOISE MONITORING STATIONS
- ALTERNATIVE 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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MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix A

Construction Programme

Hyder - Meinhardt JV

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

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

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish
KL/2014/03-Stage 3 Infrastructure Works for Developments at the Southern		1200	750	04-Jan-16 A	19-Jun-19
Project Key Dates		1190	745	01-Feb-16 A	14-Jun-19
Site Possession Date		0	0	01-Aug-17	01-Aug-17
K-PK-SPD-1900	Portion K	0	0	01-Aug-17*	
Site Handover Date		0	0	28-Jul-17	28-Jul-17
K-PK-SHD-1100	Portion B	0	0		28-Jul-17*
General Submission		415	123	12-Aug-16 A	30-Sep-17
Condition Survey & Construction Impact Assessment		21	21	22-Jun-17	13-Jul-17
K-DR-PRE-1190	Condition survey at HKCH	7	7	22-Jun-17	29-Jun-17
K-DR-PRE-1195	Submit condition survey report at HKCH	14	14	29-Jun-17	13-Jul-17
Alternative Design Submission and Approval		376	84	12-Aug-16 A	22-Aug-17
Package B06 : SUS Top & base slab and intermediate wall from (CH6+220 to CH6+568)		376	84	12-Aug-16 A	22-Aug-17
K-PA-ADS-1420	Revise & resubmit DDA drawing (SUS Top & Base slab and Intermediate wall from CH6+220 to CH6+568)	28	28	12-Aug-16 A	27-Jun-17
K-PA-ADS-1430	Engineer's review and approval	56	56	28-Jun-17	22-Aug-17
Major Temporary Works Design		140	123	10-May-17 A	30-Sep-17
K-PA-GSP-6820	ELS design for construction of SUS from CH6+220 to CH6+291 in Zone 2 - horizontal members	56	56	03-Jun-17	28-Jul-17
K-PA-GSP-6835	ELS design for construction of SUS from CH6+291 to CH6+568 in Zone 4 - horizontal members	56	56	14-May-17 A	25-Jul-17
K-PA-GSP-6900	Falsework design for construction of top slab of SUS structure	56	56	06-Aug-17	30-Sep-17
K-PA-GSP-8870	Pumping Test for SUS Cofferdam in Zone 2	50	3	10-May-17 A	02-Jun-17
Major Construction Works Method Statement		132	101	10-May-17 A	08-Sep-17
K-PA-GSP-7150	Method statement of Excavation and ELS for SUS Construction for Zone 3	28	4	15-May-17 A	03-Jun-17
K-PA-GSP-7155	Engineer's comments and approval	28	28	04-Jun-17	01-Jul-17
K-PA-GSP-7160	Method statement of Excavation and ELS for SUS Construction for Zone 4	28	28	04-Jun-17	01-Jul-17
K-PA-GSP-7165	Engineer's comments and approval	28	28	02-Jul-17	29-Jul-17
K-PA-GSP-7170	Method statement of Excavation and ELS for SUS Construction for Zone 2	28	28	05-Jun-17	02-Jul-17
K-PA-GSP-7175	Engineer's comments and approval	28	28	03-Jul-17	30-Jul-17
K-PA-GSP-7450	Method statement for Construction of top slab and base slab of SUS	28	28	15-Jul-17	11-Aug-17
K-PA-GSP-7455	Engineer's comments and approval	28	28	12-Aug-17	08-Sep-17
K-PA-GSP-7495	Engineer's comments and approval	28	0	10-May-17 A	31-May-17
Temporary Utility Diversion Works		284	52	05-Sep-16 A	31-Jul-17
Temporary Diversion for Drainage Works		284	10	05-Sep-16 A	10-Jun-17

中國路橋工程有限責任公司 CHINA ROAD AND BRIDGE CORPORATION

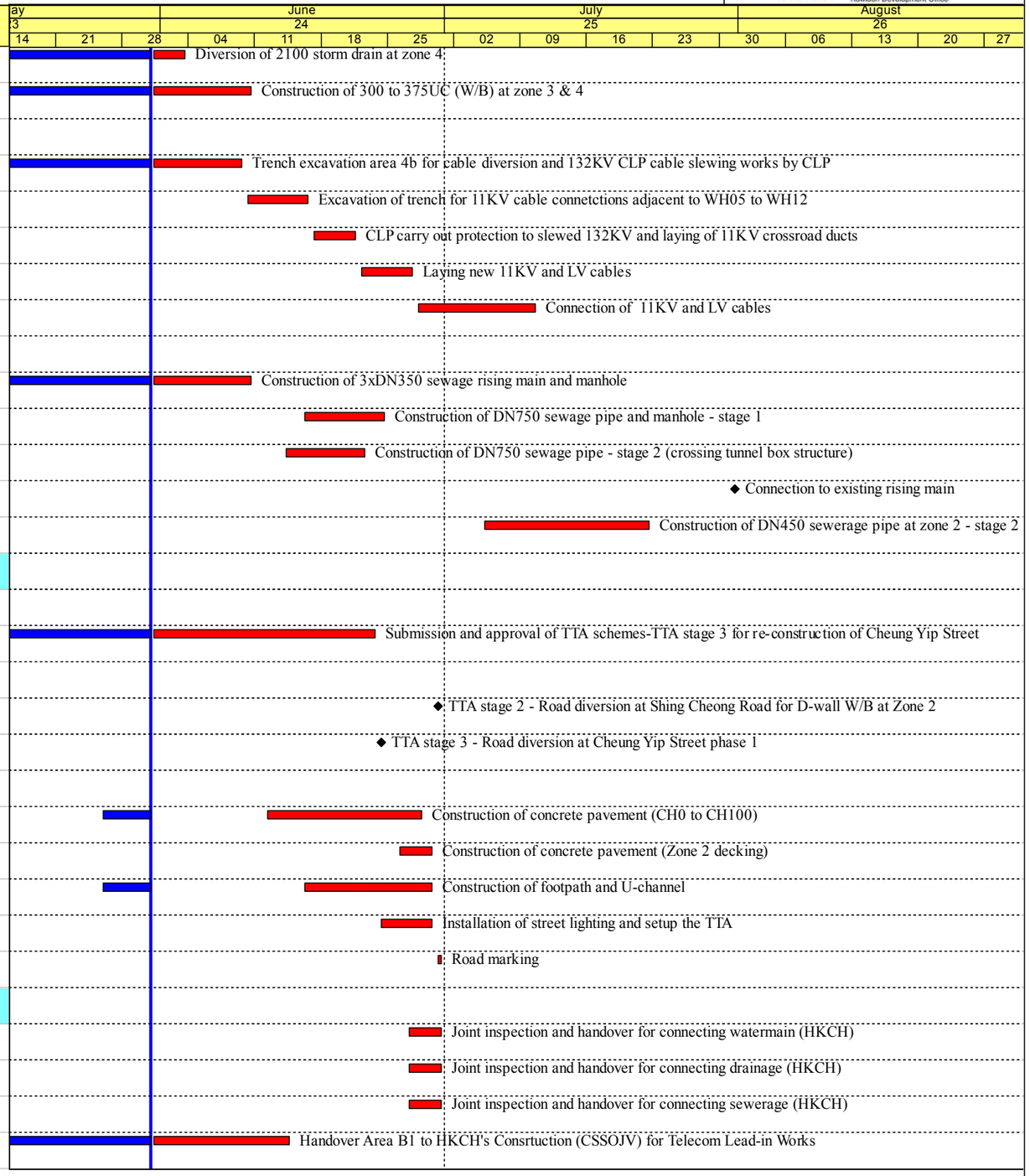
◆ Milestone
Critical Activity
Non-Critical Activity
Remaining Level of Effort
Actual Work

3 MRP Jun 2017 - Aug 2017

Project ID :18 3MPR Jun - Aug 17
Layout : KL201403 3MRP

3 Months Rolling Programme			
Date	Revision	Checked	Approved
31-May-17	Jun 17 - Aug 17		

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish
K-PA-TUD-2400	Diversion of 2100 storm drain at zone 4	60	4	05-Sep-16 A	03-Jun-17
K-PA-TUD-2700	Construction of 300 to 375UC (W/B) at zone 3 & 4	50	10	29-Mar-17 A	10-Jun-17
Temporary Diversion for CLP Cable at CH6+560		54	34	06-Apr-17 A	10-Jul-17
K-PA-TUD-3700	Trench excavation area 4b for cable diversion and 132KV CLP cable slewing works by CLP	28	9	06-Apr-17 A	09-Jun-17
K-PA-TUD-4060	Excavation of trench for 11KV cable connetctions adjacent to WH05 to WH12	6	6	10-Jun-17	16-Jun-17
K-PA-TUD-4070	CLP carry out protection to slewed 132KV and laying of 11KV crossroad ducts	4	4	17-Jun-17	21-Jun-17
K-PA-TUD-4080	Laying new 11KV and LV cables	5	5	22-Jun-17	27-Jun-17
K-PA-TUD-4090	Connection of 11KV and LV cables	10	10	28-Jun-17	10-Jul-17
Temporary Diversion for Sewage Rising Main		89	52	20-Feb-17 A	31-Jul-17
K-PA-TUD-1500	Construction of 3xDN350 sewage rising main and manhole	28	10	20-Feb-17 A	10-Jun-17
K-PA-TUD-1600	Construction of DN750 sewage pipe and manhole - stage 1	8	8	16-Jun-17	24-Jun-17
K-PA-TUD-1700	Construction of DN750 sewage pipe - stage 2 (crossing tunnel box structure)	8	8	14-Jun-17	22-Jun-17
K-PA-TUD-1800	Connection to existing rising main	0	0		31-Jul-17
K-PA-TUD-2800	Construction of DN450 sewerage pipe at zone 2 - stage 2	16	16	05-Jul-17	22-Jul-17
Temporary Traffic Management		126	31	11-Feb-17 A	30-Jun-17
Temp Traffic Arrangement Schemes		90	24	11-Feb-17 A	23-Jun-17
K-PA-TTA-8900	Submission and approval of TTA schemes-TTA stage 3 for re-construction of Cheung Yip Street	90	24	11-Feb-17 A	23-Jun-17
Implementation of Temporary Traffic Arrangement		5	5	24-Jun-17	30-Jun-17
K-PA-TTA-3000	TTA stage 2 - Road diversion at Shing Cheong Road for D-wall W/B at Zone 2	0	0	30-Jun-17	
K-PA-TTA-4000	TTA stage 3 - Road diversion at Cheung Yip Street phase 1	0	0	24-Jun-17	
Construction of Temporary Diversion Road for Shing Cheong Road (TTA stage 2)		15	17	26-May-17 A	30-Jun-17
K-PA-TTA-6000	Construction of concrete pavement (CH0 to CH100)	15	15	26-May-17 A	28-Jun-17
K-PA-TTA-6020	Construction of concrete pavement (Zone 2 decking)	4	4	26-Jun-17	29-Jun-17
K-PA-TTA-6050	Construction of footpath and U-channel	12	12	26-May-17 A	29-Jun-17
K-PA-TTA-6100	Installation of street lighting and setup the TTA	5	5	24-Jun-17	29-Jun-17
K-PA-TTA-6150	Road marking	1	1	30-Jun-17	30-Jun-17
Interfacing Works		141	31	10-Feb-17 A	30-Jun-17
K-PA-INT-1000	Joint inspection and handover for connecting watermain (HKCH)	4	4	27-Jun-17	30-Jun-17*
K-PA-INT-2000	Joint inspection and handover for connecting drainage (HKCH)	4	4	27-Jun-17	30-Jun-17*
K-PA-INT-3000	Joint inspection and handover for connecting sewerage (HKCH)	4	4	27-Jun-17	30-Jun-17*
K-PA-INT-6030	Handover Area B1 to HKCH's Consrtuction (CSSOJV) for Telecom Lead-in Works	15	15	10-Feb-17 A	14-Jun-17



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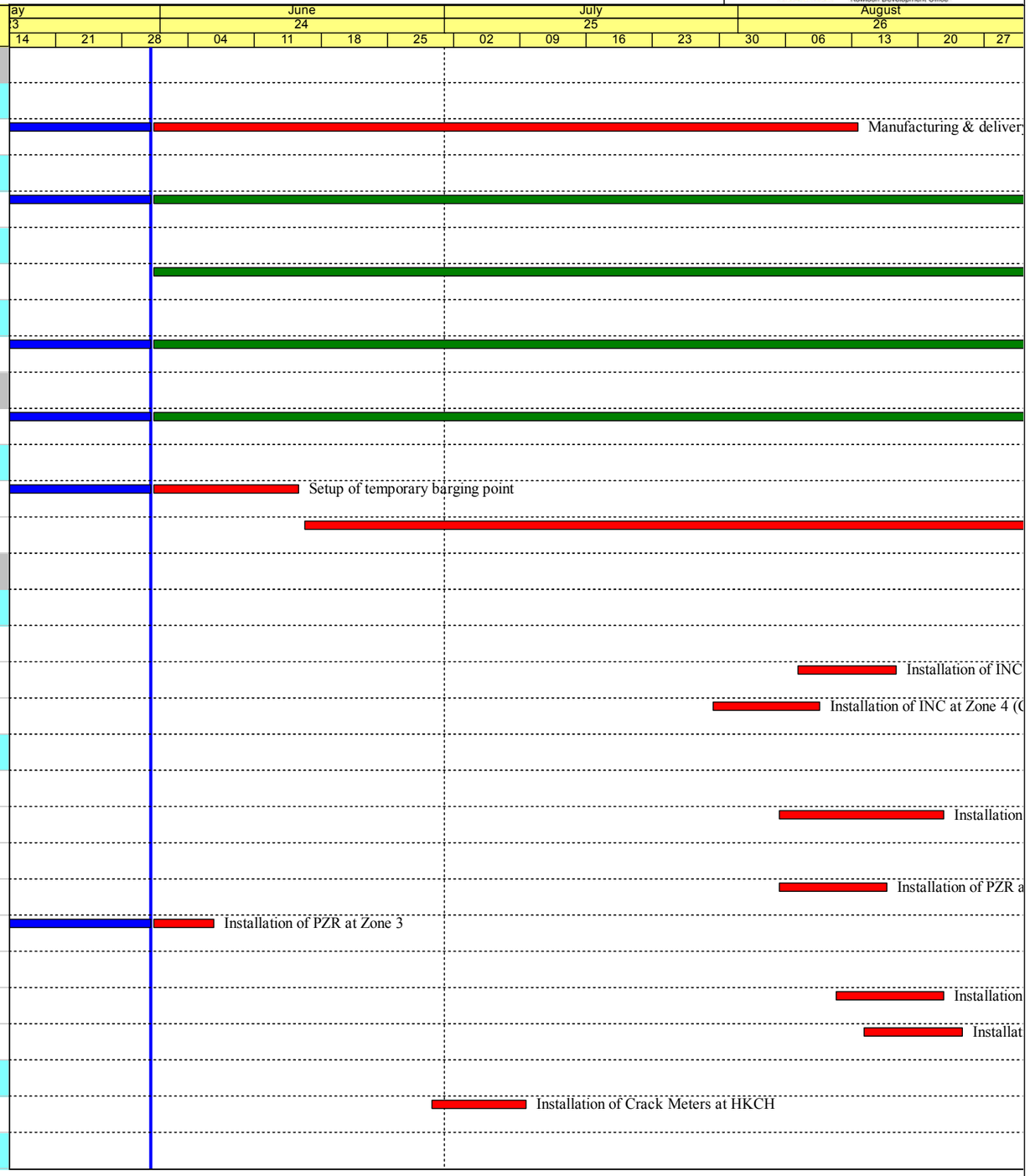
KL/2014/03 Kai Tak Development - Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway

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

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish
Materials Procurement (Major Materials)		901	440	01-Feb-16 A	13-Aug-18
Steel H-Pile		420	75	01-Feb-16 A	13-Aug-17
K-PA-MP-1250	Manufacturing & delivery to site	420	75	01-Feb-16 A	13-Aug-17
ELS struct / waling		360	165	10-Jun-16 A	11-Nov-17
K-PA-MP-1150	Manufacturing & delivery to site	360	165	10-Jun-16 A	11-Nov-17
Water Works		210	210	31-May-17	26-Dec-17
K-PA-MP-1050	Manufacturing & delivery to site	210	210	31-May-17	26-Dec-17
Chilled Water Pipes - DCS		550	440	06-Feb-17 A	13-Aug-18
K-PA-MP-1350	Manufacturing & delivery to site	550	440	06-Feb-17 A	13-Aug-18
Prelimiaries		1190	745	11-Mar-16 A	14-Jun-19
K-DR-PRE-1800	Submission of time-lapsed photographs and video	1190	745	11-Mar-16 A	14-Jun-19
Barge Loading Facilities		459	444	15-May-17 A	23-Nov-18
K-DR-PRE-1450	Setup of temporary barging point	21	14	15-May-17 A	15-Jun-17
K-DR-PRE-1480	Operation of temporary barging point	430	430	16-Jun-17	23-Nov-18
Instrumentation and Monitoring		416	93	25-Apr-16 A	31-Aug-17
Eastbound Instrumentation and Monitoring		17	17	29-Jul-17	17-Aug-17
Inclinometer (INC)		17	17	29-Jul-17	17-Aug-17
K-IM-INC-1320	Installation of INC at Zone 2	10	10	07-Aug-17	17-Aug-17
K-IM-INC-1335	Installation of INC at Zone 4 (CH6+467 to CH6+540)	10	10	29-Jul-17	09-Aug-17
Westbound Instrumentation and Monitoring		341	73	05-Aug-16 A	24-Aug-17
Extensomter (EXT)		15	15	05-Aug-17	22-Aug-17
K-IM-EXT-1360	Installation of EXT at Zone 2	15	15	05-Aug-17	22-Aug-17
Piezometer/Standpipe (PZR)		334	66	05-Aug-16 A	16-Aug-17
K-IM-PZR-1360	Installation of PZR at Zone 2	10	10	05-Aug-17	16-Aug-17
K-IM-PZR-1370	Installation of PZR at Zone 3	40	6	05-Aug-16 A	06-Jun-17
Inclinometer (INC)		12	12	11-Aug-17	24-Aug-17
K-IM-INC-1360	Installation of INC at Zone 2	10	10	11-Aug-17	22-Aug-17
K-IM-INC-1375	Installation of INC at Zone 4 (CH6+467 to CH6+540)	10	10	14-Aug-17	24-Aug-17
Crack Meters		10	10	29-Jun-17	09-Jul-17
K-IM-CRM-1010	Installation of Crack Meters at HKCH	10	10	29-Jun-17	09-Jul-17
Tilt Monitoring Tile Plates		310	93	25-Apr-16 A	31-Aug-17



中國路橋工程有限責任公司 CHINA ROAD AND BRIDGE CORPORATION

◆ Milestone
Critical Activity
Non-Critical Activity
Remaining Level of Effort
Actual Work

3 MRP Jun 2017 - Aug 2017

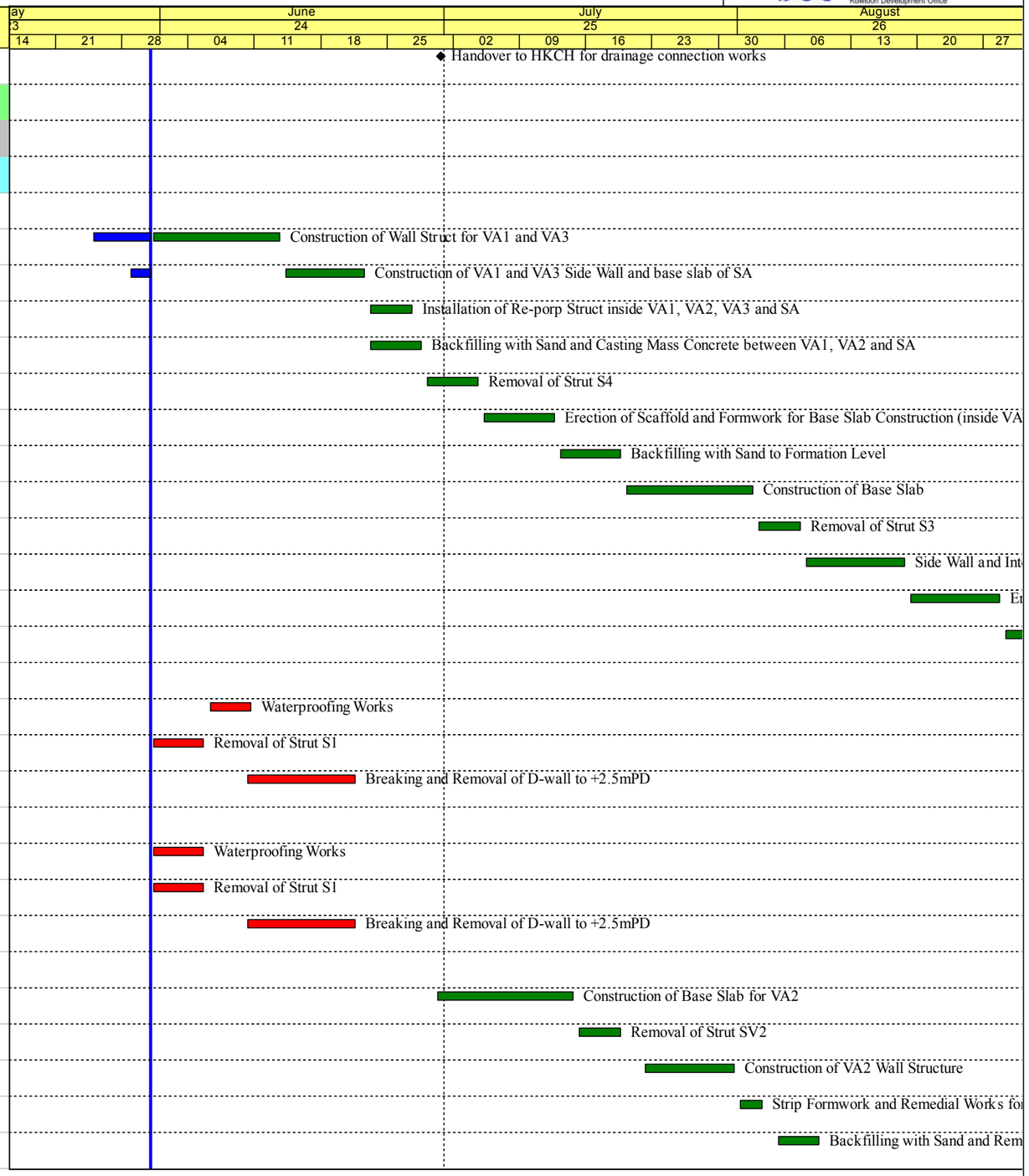
Project ID :18 3MPR Jun - Aug 17
Layout : KL201403 3MRP

3 Months Rolling Programme

Date	Revision	Checked	Approved
31-May-17	Jun 17 - Aug 17		

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish
K-IM-TMT-1000	Tilt Monitoring near PWCL	310	93	25-Apr-16 A	31-Aug-17
Section 1 of the Works-Remainder of the Works		142	133	22-May-17 A	10-Oct-17
Roadwork and Drainage Works		142	133	22-May-17 A	10-Oct-17
Road D4-4 (Cheung Yip Street)		142	133	22-May-17 A	10-Oct-17
Drainage Works (CH100 to CH240)		27	16	26-May-17 A	26-Jun-17
K-01-RWS-9320	Excavation of Drainage Pipe and Manhole (M101 to outfall)	8	0	26-May-17 A	31-May-17 A
K-01-RWS-9322	Laying Drainage Pipe and Construction Manhole (M101 to outfall)	8	8	08-Jun-17	16-Jun-17
K-01-RWS-9325	Backfilling of Drainage Pipe and Manhole (M101 to outfall)	8	8	17-Jun-17	26-Jun-17
CH240 - CH400 Northbound		90	90	24-Jun-17	10-Oct-17
Sewerage Works		40	40	05-Jul-17	19-Aug-17
K-01-RWS-9815	Excavation of Sewerage Pipe and Manhole (Site 3C1-1)	6	6	05-Jul-17	11-Jul-17
K-01-RWS-9820	Laying Sewerage Pipe and Manhole (Site 3C1-1)	22	22	12-Jul-17	05-Aug-17
K-01-RWS-9830	Backfilling Sewerage Pipe and Manhole (Site 3C1-1)	12	12	07-Aug-17	19-Aug-17
Laying of Drainage Pipe and Construction of Manhole (M206 to M213)		50	50	24-Jun-17	22-Aug-17
K-01-RWS-9340	Excavation of Drainage Pipe and Manhole (M206 to M213)	8	8	24-Jun-17	04-Jul-17
K-01-RWS-9350	Laying Drainage Pipe and Construction Manhole (M206 to M213)	30	30	05-Jul-17	08-Aug-17
K-01-RWS-9410	Backfilling Drainage Pipe and Manhole (M206 to M213)	12	12	09-Aug-17	22-Aug-17
Road Works		40	40	23-Aug-17	10-Oct-17
K-01-RWS-9440	Construction of Road Base and Road Pavement	40	40	23-Aug-17	10-Oct-17
Temporary Traffic Arrangement		0	0	24-Jun-17	24-Jun-17
K-01-RWS-9400	Implementation of TTA stage 3 - phase 1	0	0	24-Jun-17	
Seawall Modification Works		40	31	22-May-17 A	30-Jun-17
K-01-RWS-9700	Application of MD notice	15	8	22-May-17 A	08-Jun-17
K-01-RWS-9710	Concrete surround DN2100 drainage 5.34m*4m*1.5m	15	15	31-May-17	16-Jun-17
K-01-RWS-9730	Excavation and placing Blinding layer	5	4	26-May-17 A	03-Jun-17
K-01-RWS-9740	Breaking concrete coping and removal of seawall block	10	10	09-Jun-17	20-Jun-17
K-01-RWS-9750	Placing concrete surrounding DN2100 drainage pipe and construction of drainage pipe joint	5	5	22-Jun-17*	26-Jun-17
K-01-RWS-9770	AI test and CCTV test for drainage pipe	1	1	27-Jun-17	27-Jun-17
K-01-RWS-9780	Beakfilling of Drianage pipe near seawall	1	1	28-Jun-17	28-Jun-17
K-01-RWS-9790	Maintance department handover inspection	1	1	29-Jun-17	29-Jun-17
K-01-RWS-9800	Removal of stop log	1	1	30-Jun-17	30-Jun-17

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish
K-01-RWS-9810	Handover to HKCH for drainage connection works	0	0		30-Jun-17*
Section 1A of the Works -Construction of Supporting Underground Structure (Alter		248	122	22-Sep-16 A	23-Oct-17
SUS and Ventilation Adits from CH6+150 to CH6+220 in Zone 1		105	86	25-May-17 A	08-Sep-17
Construction of Tunnel Box Structure		105	86	25-May-17 A	08-Sep-17
SUS Bay 1 (Ch6150-Ch6167.5)		100	81	25-May-17 A	02-Sep-17
K-1A-SV1-8190	Construction of Wall Struct for VA1 and VA3	10	12	25-May-17 A	13-Jun-17
K-1A-SV1-8240	Construction of VA1 and VA3 Side Wall and base slab of SA	10	8	29-May-17 A	22-Jun-17
K-1A-SV1-8250	Installation of Re-porp Struct inside VA1, VA2, VA3 and SA	4	4	23-Jun-17	27-Jun-17
K-1A-SV1-8260	Backfilling with Sand and Casting Mass Concrete between VA1, VA2 and SA	5	5	23-Jun-17	28-Jun-17
K-1A-SV1-8270	Removal of Strut S4	4	4	29-Jun-17	04-Jul-17
K-1A-SV1-8290	Erection of Scaffold and Formwork for Base Slab Construction (inside VA1 and VA3)	7	7	05-Jul-17	12-Jul-17
K-1A-SV1-8300	Backfilling with Sand to Formation Level	6	6	13-Jul-17	19-Jul-17
K-1A-SV1-8320	Construction of Base Slab	12	12	20-Jul-17	02-Aug-17
K-1A-SV1-8330	Removal of Strut S3	4	4	03-Aug-17	07-Aug-17
K-1A-SV1-8350	Side Wall and Intermediate Wall Construction	10	10	08-Aug-17	18-Aug-17
K-1A-SV1-8360	Erection of Scaffold and Installation of Re-prop Struct inside W/B and E/B	8	8	19-Aug-17	28-Aug-17
K-1A-SV1-8370	Removal of Strut S2	5	5	29-Aug-17	02-Sep-17
SUS Bay 4 (Ch6202.5-Ch6220)		19	19	31-May-17	21-Jun-17
K-1A-SV1-8625	Waterproofing Works	5	5	06-Jun-17	10-Jun-17
K-1A-SV1-8640	Removal of Strut S1	5	5	31-May-17	05-Jun-17
K-1A-SV1-8650	Breaking and Removal of D-wall to +2.5mPD	10	10	10-Jun-17	21-Jun-17
SUS Bay 3 (Ch6185-Ch6202.5)		19	19	31-May-17	21-Jun-17
K-1A-SV1-8785	Waterproofing Works	5	5	31-May-17	05-Jun-17
K-1A-SV1-8800	Removal of Strut S1	5	5	31-May-17	05-Jun-17
K-1A-SV1-8810	Breaking and Removal of D-wall to +2.5mPD	10	10	10-Jun-17	21-Jun-17
SUS Bay 2 (Ch6167.5-Ch6185)		60	60	30-Jun-17	08-Sep-17
K-1A-SV1-8840	Construction of Base Slab for VA2	12	12	30-Jun-17	14-Jul-17
K-1A-SV1-8860	Removal of Strut SV2	4	4	15-Jul-17	19-Jul-17
K-1A-SV1-8870	Construction of VA2 Wall Structure	8	8	22-Jul-17	31-Jul-17
K-1A-SV1-8880	Strip Formwork and Remedial Works for Waterproofing	3	3	01-Aug-17	03-Aug-17
K-1A-SV1-8890	Backfilling with Sand and Removal part of SV1	4	4	05-Aug-17	09-Aug-17

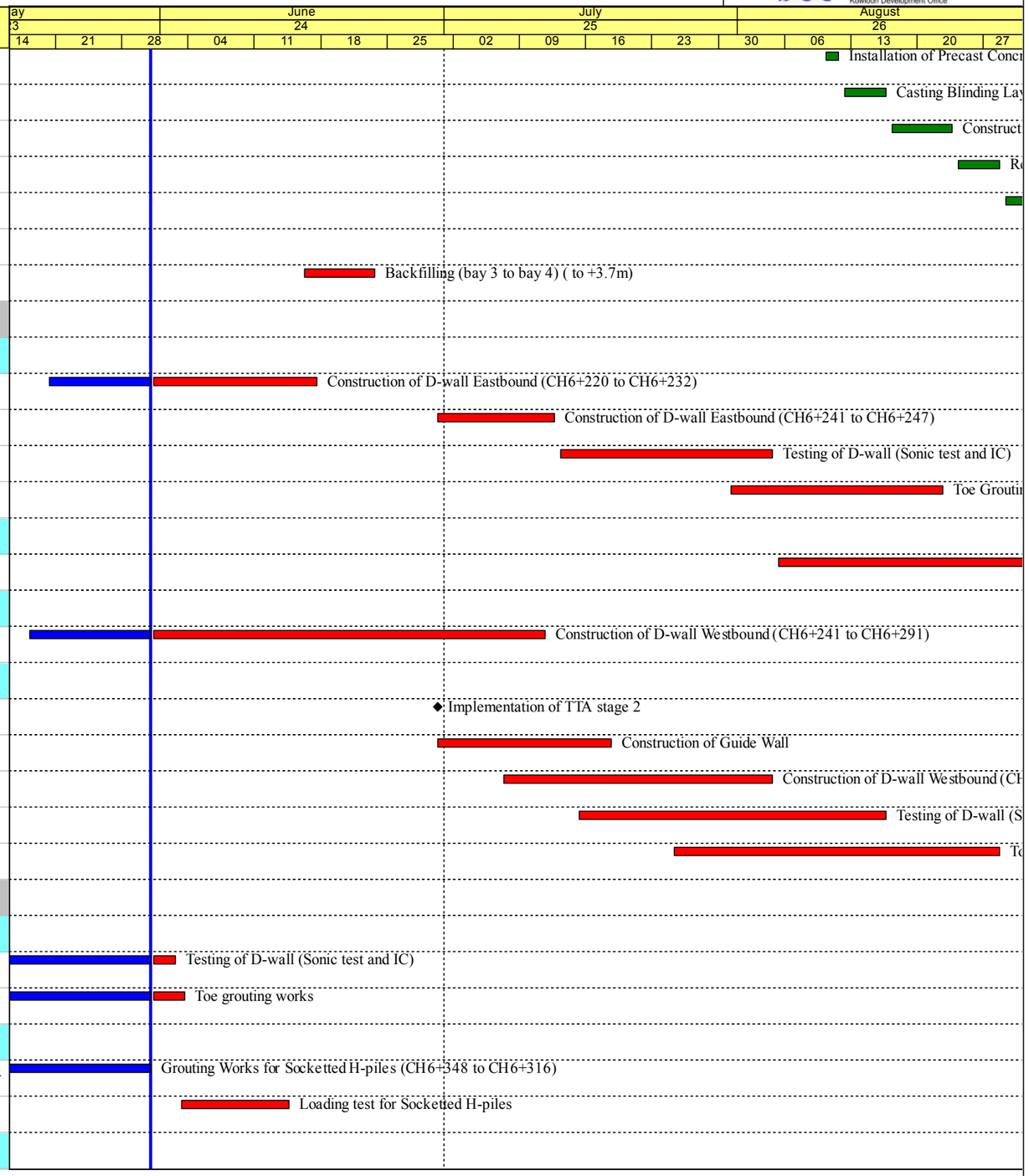


Hyder MEINHARDT
Hyder - Meinhardt JV

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

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

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish
K-1A-SV1-8900	Installation of Precast Concrete Slab for Base Slab Constrcution	2	2	10-Aug-17	11-Aug-17
K-1A-SV1-8910	Casting Blinding Layer (No-Fine) and Laying Waterproofing Works	4	4	12-Aug-17	16-Aug-17
K-1A-SV1-8920	Construction of Base Slab	6	6	17-Aug-17	23-Aug-17
K-1A-SV1-8930	Removal of Strut S3	4	4	24-Aug-17	28-Aug-17
K-1A-SV1-8950	Construction of Side Wall Construction	10	10	29-Aug-17	08-Sep-17
Backfilling Works		7	7	16-Jun-17	23-Jun-17
K-1A-SV1-6800	Backfilling (bay 3 to bay 4) (to +3.7m)	7	7	16-Jun-17	23-Jun-17
SUS and Ventilation Adits from CH6+220 to CH6+291 in Zone 2		92	81	18-May-17 A	02-Sep-17
E/B Construction of D-Wall		80	71	20-May-17 A	22-Aug-17
K-1A-SV2-2500	Construction of D-wall Eastbound (CH6+220 to CH6+232)	18	16	20-May-17 A	17-Jun-17
K-1A-SV2-2700	Construction of D-wall Eastbound (CH6+241 to CH6+247)	10	10	30-Jun-17	12-Jul-17
K-1A-SV2-2750	Testing of D-wall (Sonic test and IC)	20	20	13-Jul-17	04-Aug-17
K-1A-SV2-2800	Toe Grouting Works	20	20	31-Jul-17	22-Aug-17
Construction of Socketed H-Pile		25	25	05-Aug-17	02-Sep-17
K-1A-SV2-3300	Installation of Socketted H-piles (CH6+220 to CH6+248)	25	25	05-Aug-17	02-Sep-17
W/B Construction of D-Wall in TTA Stage 1A		45	35	18-May-17 A	11-Jul-17
K-1A-SV2-5500	Construction of D-wall Westbound (CH6+241 to CH6+291)	45	35	18-May-17 A	11-Jul-17
W/B Construction of D-Wall in TTA Stage 2		50	50	30-Jun-17	28-Aug-17
K-1A-SV2-4300	Implementation of TTA stage 2	0	0	30-Jun-17	
K-1A-SV2-4400	Construction of Guide Wall	15	15	30-Jun-17	18-Jul-17
K-1A-SV2-4500	Construction of D-wall Westbound (CH6+220 to CH6+241)	25	25	07-Jul-17	04-Aug-17
K-1A-SV2-4600	Testing of D-wall (Sonic test and IC)	28	28	15-Jul-17	16-Aug-17
K-1A-SV2-4700	Toe Grouting Works	30	30	25-Jul-17	28-Aug-17
SUS Structure from CH6+291 to 6+467 in Zone 3		248	122	22-Sep-16 A	23-Oct-17
E/B Construction of D-Wall		55	4	22-Sep-16 A	03-Jun-17
K-1A-SV3-2400	Testing of D-wall (Sonic test and IC)	30	3	22-Sep-16 A	02-Jun-17
K-1A-SV3-7440	Toe grouting works	55	4	06-Apr-17 A	03-Jun-17
Construction of Socketed H-Pile		37	10	13-Apr-17 A	14-Jun-17
K-1A-SV3-3020	Grouting Works for Socketted H-piles (CH6+348 to CH6+316)	30	0	13-Apr-17 A	31-May-17 A
K-1A-SV3-3025	Loading test for Socketted H-piles	10	10	03-Jun-17	14-Jun-17
W/B Construction of D-Wall in TTA Stage 1A		178	12	27-Dec-16 A	13-Jun-17



中國路橋工程有限責任公司
CHINA ROAD AND BRIDGE CORPORATION

◆ Milestone
Critical Activity
Non-Critical Activity
Remaining Level of Effort
Actual Work

3 MRP Jun 2017 - Aug 2017

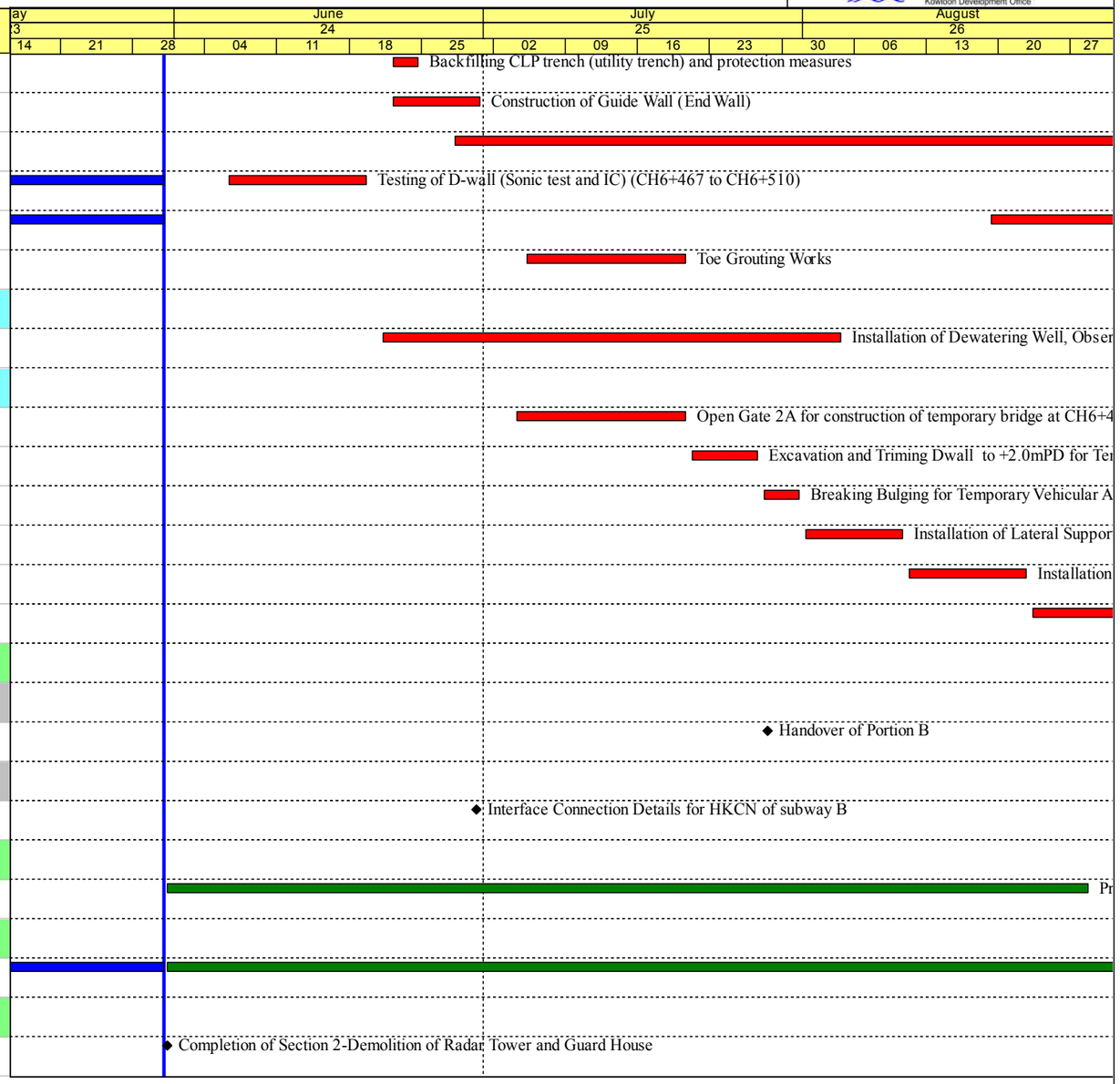
Project ID :18 3MPR Jun - Aug 17
Layout : KL201403 3MRP

3 Months Rolling Programme

Date	Revision	Checked	Approved
31-May-17	Jun 17 - Aug 17		

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish
K-1A-SV3-4270	Testing of D-wall (Sonic test and IC)	30	8	10-Jan-17 A	08-Jun-17
K-1A-SV3-4280	Toe grouting works	50	4	22-Mar-17 A	03-Jun-17
K-1A-SV3-4290	Construction of temporary cut-off wall at CH6+291	55	12	27-Dec-16 A	13-Jun-17
Pumping Test for Zone 3		78	30	12-Apr-17 A	05-Jul-17
K-1A-SV3-5100	Installation of Dewatering well, Observation well and Recharging well in Zone 3	35	14	12-Apr-17 A	15-Jun-17
K-1A-SV3-5200	Initial Dewatering to verify the Discharge Rates of Wells for Pumping Test for Excavation in Zone 3	1	1	17-Jun-17	17-Jun-17
K-1A-SV3-5210	Dewatering to Required Levels and Maintained for 48 Hours for Pumping Test for Excavation in Zone 3	3	3	19-Jun-17	21-Jun-17
K-1A-SV3-5220	Ground Water Recovery Stage for Pumping Test for Excavation in Zone 3	3	3	22-Jun-17	24-Jun-17
K-1A-SV3-5230	Review stage for Pumping test for excavation in Zone 3	1	1	26-Jun-17	26-Jun-17
K-1A-SV3-5240	Review Report for Pumping test for excavation in Zone 3	7	7	27-Jun-17	05-Jul-17
Excavation and ELS Construction		118	118	05-Jun-17	23-Oct-17
K-1A-SV3-5490	Open Gate 1A for construction of temporary bridge at CH6+325	15	15	05-Jun-17	21-Jun-17
K-1A-SV3-5500	Excavation and Triming Dwall to +2.0mPD for Temporary Bridge at CH6+325	6	6	22-Jun-17	28-Jun-17
K-1A-SV3-5510	Breaking Bulging for Temporary Vehicular Access at CH6+325	3	3	29-Jun-17	03-Jul-17
K-1A-SV3-5520	Installation of Lateral Support for Temporary Vehicular Access at CH6+325	9	9	04-Jul-17	13-Jul-17
K-1A-SV3-5530	Installation of Steel Bridge for Temporary Vehicular Access at CH6+325	10	10	14-Jul-17	25-Jul-17
K-1A-SV3-5540	Laying Sheetpiles and Concretng for Temporary Vehicular Access at CH6+325	10	10	26-Jul-17	05-Aug-17
K-1A-SV3-5550	Miscellaneous Activities for Temporary Vehicular Access at CH6+325	5	5	07-Aug-17	11-Aug-17
K-1A-SV3-5600	Breaking existing concrete slab / Excavation and Lateral Support (S1) to +1.95mPD	31	31	30-Jun-17	05-Aug-17
K-1A-SV3-5650	Excavation and Lateral Support (S2) to -2.20mPD	24	24	07-Aug-17	02-Sep-17
K-1A-SV3-5910	Construction of temporary steel decking and platforms along the westbound diaphram walls	65	65	07-Aug-17	23-Oct-17
SUS Structure from CH6+467 to 6+568 in Zone 4		125	86	27-Feb-17 A	08-Sep-17
E/B Construction of D-Wall		53	29	27-Feb-17 A	04-Jul-17
K-1A-SV4-2440	Testing of D-wall (Sonic test and IC) (CH6+467 to CH6+510)	12	5	10-Apr-17 A	05-Jun-17
K-1A-SV4-2450	Testing of D-wall (Sonic test and IC) (CH6+510 to CH6+560)	18	10	27-Feb-17 A	10-Jun-17
K-1A-SV4-2460	Toe Grouting Works	14	14	17-Jun-17	04-Jul-17
Construction of Socketed H-Pile		58	58	02-Jun-17	09-Aug-17
K-1A-SV4-3200	Installation of Socketted H-piles (CH6+550 to CH6+530)	16	16	02-Jun-17	20-Jun-17
K-1A-SV4-3300	Installation of Socketted H-piles (CH6+530 to CH6+510)	42	42	21-Jun-17	09-Aug-17
W/B and End Construction of D-Wall in TTA Stage 1A		123	81	12-Apr-17 A	08-Sep-17
K-1A-SV4-4040	CLP carry out protection to sewed 132KV and laying of 11KV crossroad ducts	0	0		21-Jun-17

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish
K-1A-SV4-4045	Backfilling CLP trench (utility trench) and protection measures	3	3	22-Jun-17	24-Jun-17
K-1A-SV4-4050	Construction of Guide Wall (End Wall)	8	8	22-Jun-17	30-Jun-17
K-1A-SV4-4700	Construction of D-wall (CH6+560 to CH6+568) & end wall at CH6+568	55	55	28-Jun-17	31-Aug-17
K-1A-SV4-4745	Testing of D-wall (Sonic test and IC) (CH6+467 to CH6+510)	12	12	12-Apr-17 A	19-Jun-17
K-1A-SV4-4750	Testing of D-wall (Sonic test and IC) (CH6+510 to CH6+568 and End Wall)	18	18	19-Apr-17 A	08-Sep-17
K-1A-SV4-4760	Toe Grouting Works	14	14	05-Jul-17	20-Jul-17
Pumping Test		38	38	21-Jun-17	04-Aug-17
K-1A-SV4-5000	Installation of Dewatering Well, Observation Well and Recharging Well at CH6+467 to CH6+550	38	38	21-Jun-17	04-Aug-17
Excavation and ELS Construction		53	53	04-Jul-17	02-Sep-17
K-1A-SV4-5490	Open Gate 2A for construction of temporary bridge at CH6+482	15	15	04-Jul-17	20-Jul-17
K-1A-SV4-5500	Excavation and Triming Dwall to +2.0mPD for Temporary Bridge at CH6+482	6	6	21-Jul-17	27-Jul-17
K-1A-SV4-5510	Breaking Bulging for Temporary Vehicular Access at CH6+482	3	3	28-Jul-17	31-Jul-17
K-1A-SV4-5520	Installation of Lateral Support for Temporary Vehicular Access at CH6+482	9	9	01-Aug-17	10-Aug-17
K-1A-SV4-5530	Installation of Steel Bridge for Temporary Vehicular Access at CH6+482	10	10	11-Aug-17	22-Aug-17
K-1A-SV4-5540	Laying Sheetpiles and Concretng for Temporary Vehicular Access at CH6+482	10	10	23-Aug-17	02-Sep-17
Section 4B of the Works- Construction of Subway B (Subject to Excision)		29	29	30-Jun-17	28-Jul-17
Bay 1 & 2		0	0	28-Jul-17	28-Jul-17
K-4B-BAY-3100	Handover of Portion B	0	0		28-Jul-17*
Bay 3 & 4		0	0	30-Jun-17	30-Jun-17
K-4B-BAY-2480	Interface Connection Details for HKCN of subway B	0	0	30-Jun-17	
Section 5 of the Works-Completion of All Landscape Softworks		90	90	31-May-17	28-Aug-17
K-05-LCS-1000	Procurement of plant species	90	90	31-May-17	28-Aug-17
Section 7 of the Works-Preservation and Protection of Existing Trees		1200	750	04-Jan-16 A	19-Jun-19
K-07-001-1000	Section 7 of the Works-Preservation and Protection of Existing Trees	1200	750	04-Jan-16 A	19-Jun-19
Sections Completion Date		0	0	31-May-17	31-May-17
K-PK-SCC-2100	Completion of Section 2-Demolition of Radar Tower and Guard House	0	0		31-May-17

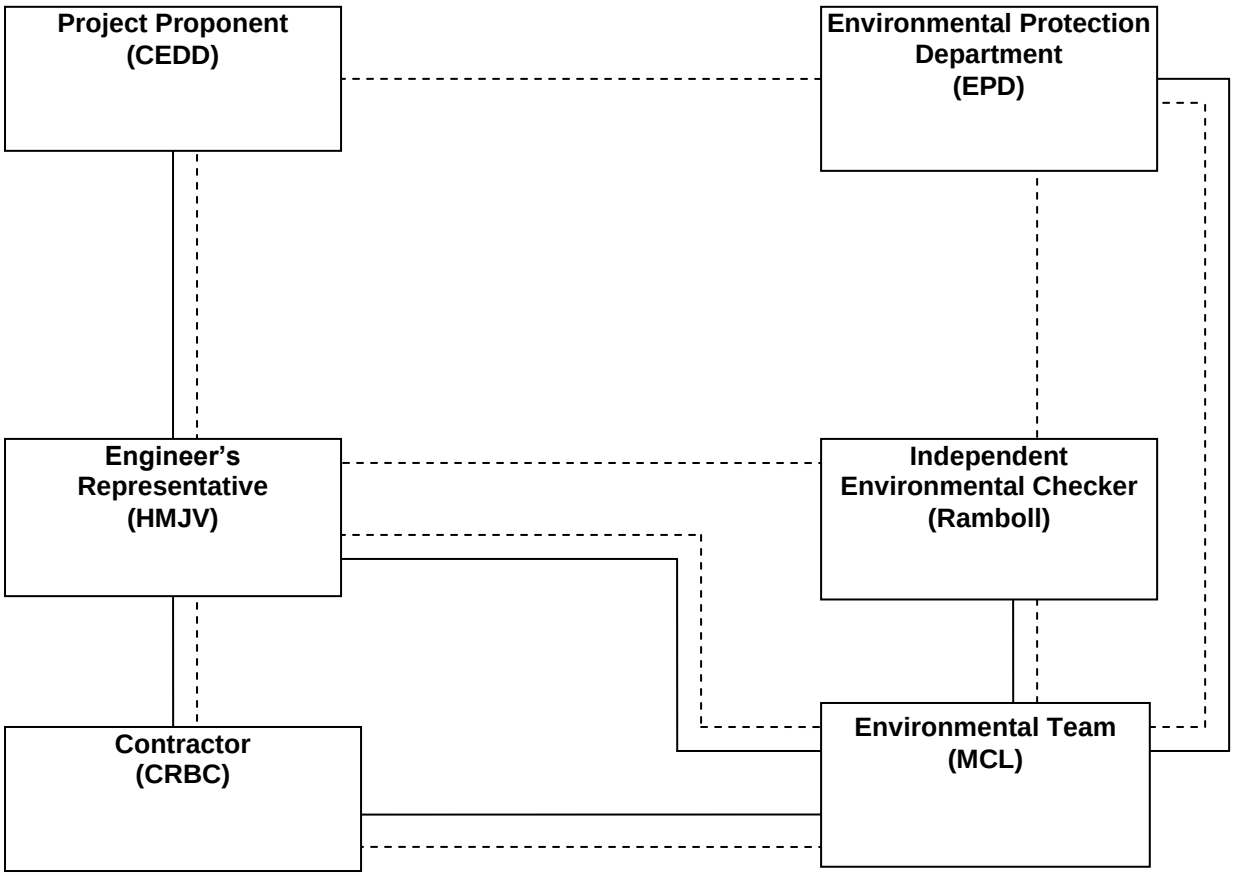


MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix B

Project Organization Chart

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com



Legend:
Line of Reporting
Line of Communication

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix C

Action and Limit Levels for Air Quality and Noise

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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	
	KER1b	172	
*1-hr TSP ($\mu g/m^3$)	KTD1a	285	500
	KTD2a	279	
	KER1b	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 KER1b	When one documented complaint is received	75 dB(A)

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

Appendix D

Calibration Certificates of Monitoring Equipment

TISCH Environmental

TISCH ENVIRONMENTAL, INC.
145 SOUTH MIAMI AVE
VILLAGE OF CLEVES, OH
45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jan 18, 2017 Rootsmeter S/N 0438320 Ta (K) - 294
Operator Tisch Orifice I.D. - 2154 Pa (mm) - 755.65

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	1.4530	3.2	2.00
2	NA	NA	1.00	1.0420	6.4	4.00
3	NA	NA	1.00	0.9290	7.9	5.00
4	NA	NA	1.00	0.8840	8.8	5.50
5	NA	NA	1.00	0.7300	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0035	0.6906	1.4197		0.9957	0.6853	0.8821
0.9993	0.9590	2.0078		0.9915	0.9516	1.2475
0.9972	1.0734	2.2448		0.9894	1.0651	1.3948
0.9960	1.1268	2.3543		0.9883	1.1180	1.4628
0.9907	1.3571	2.8394		0.9830	1.3466	1.7642

Qstd slope (m) =	2.12779	Qa slope (m) =	1.33238
intercept (b) =	-0.04273	intercept (b) =	-0.02655
coefficient (r) =	0.99982	coefficient (r) =	0.99982
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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Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

MaterialLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Date of Calibration: 7-Apr-17
Location : KER1b
Next Calibration Date: 6-Jul-17
Technician: Jimmy Lui

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

CONDITIONS

Sea Level Pressure (hPa):	1012.4	Corrected Pressure (mm Hg):	759
Temperature (°C):	25	Temperature (K):	298

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.12779
Model:	TE-5025A	Qstd Intercept:	-0.04273
Calibration Date:	18-Jan-17	Expiry Date:	18-Jan-18
S/N:	2154		

CALIBRATIONS

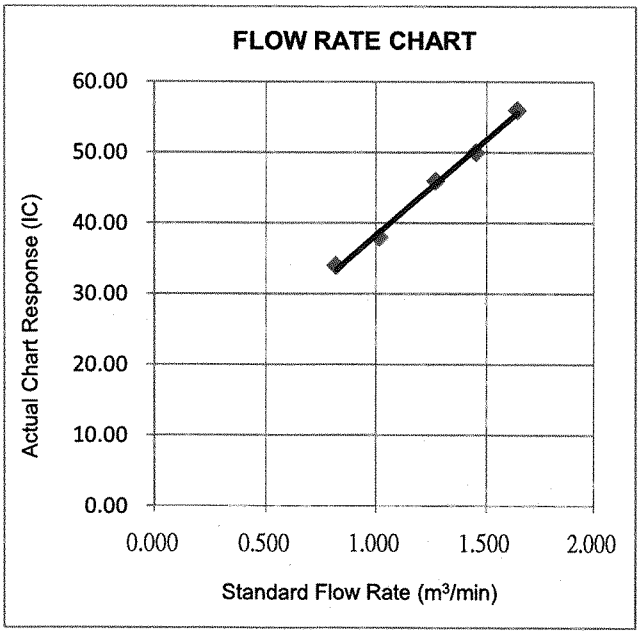
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	5.60	-6.30	11.900	1.640	56.00	55.96	Slope =	26.9764
13	4.30	-5.00	9.300	1.452	50.00	49.97	Intercept =	11.3176
10	3.20	-3.90	7.100	1.272	46.00	45.97	Corr. coeff.=	0.9977
7	1.90	-2.60	4.500	1.016	38.00	37.97		
5	1.10	-1.80	2.900	0.820	34.00	33.98		

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: 7th April, 2017

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

MaterialLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Date of Calibration: 7-Apr-17
Location : KTD1a
Next Calibration Date: 6-Jul-17
Brand: Tisch
Technician: Jimmy Lui
Model: TE-5170 S/N: 4037

CONDITIONS

Sea Level Pressure (hPa):	1012.4	Corrected Pressure (mm Hg):	759
Temperature (°C):	25	Temperature (K):	298

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.12779
Model:	TE-5025A	Qstd Intercept:	-0.04273
Calibration Date:	18-Jan-17	Expiry Date:	18-Jan-18
S/N:	2154		

CALIBRATIONS

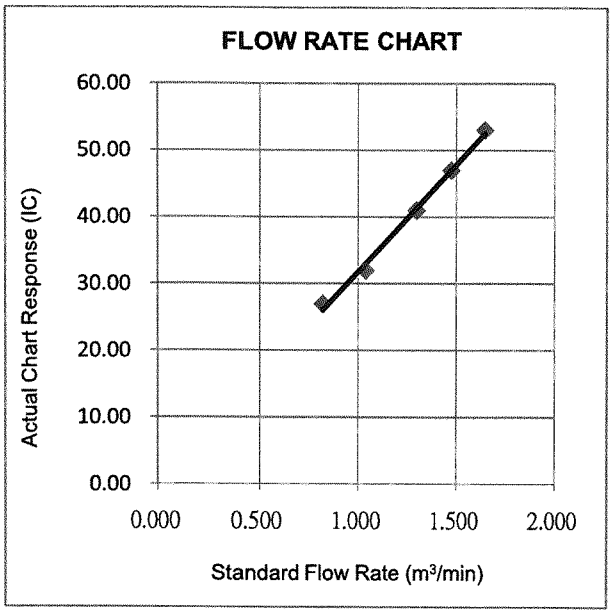
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	5.70	-6.30	12.000	1.647	53.00	52.97	Slope =	31.9356
13	4.50	-5.10	9.600	1.475	47.00	46.97	Intercept =	-0.1259
10	3.40	-4.00	7.400	1.298	41.00	40.97	Corr. coeff.=	0.9974
7	2.00	-2.70	4.700	1.038	32.00	31.98		
5	1.10	-1.80	2.900	0.820	27.00	26.98		

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: 7th April, 2017

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

MaterialLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Date of Calibration: 7-Apr-17
Location : KTD2a
Next Calibration Date: 6-Jul-17
Brand: Tisch
Technician: Jimmy Lui
Model: TE-5170 S/N: 3838

CONDITIONS

Sea Level Pressure (hPa):	1012.4	Corrected Pressure (mm Hg):	759
Temperature (°C):	25	Temperature (K):	298

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.12779
Model:	TE-5025A	Qstd Intercept:	-0.04273
Calibration Date:	18-Jan-17	Expiry Date:	18-Jan-18
S/N:	2154		

CALIBRATIONS

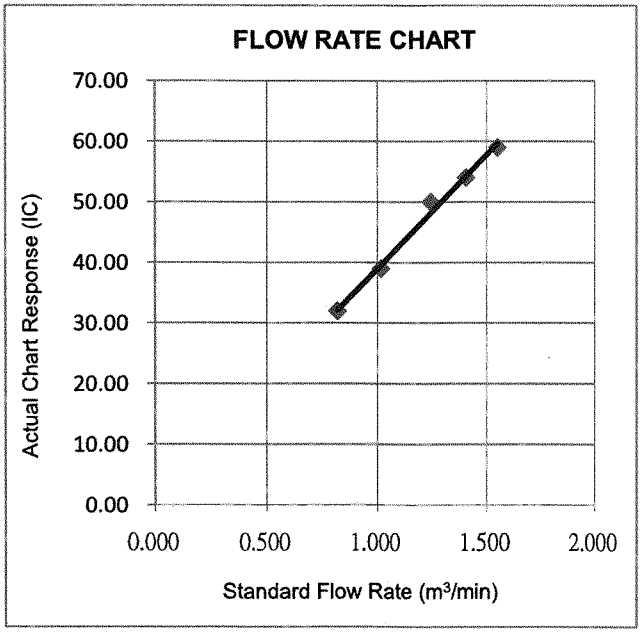
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	4.90	-5.70	10.600	1.549	59.00	58.96	Slope =	37.5842
13	4.00	-4.70	8.700	1.405	54.00	53.96	Intercept =	1.4001
10	3.00	-3.80	6.800	1.245	50.00	49.97	Corr. coeff.=	0.9958
7	1.90	-2.60	4.500	1.016	39.00	38.97		
5	1.10	-1.80	2.900	0.820	32.00	31.98		

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: 7th April, 2017

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.fugro.com

MateriaLab

Report No. : 161966CA171055

CALIBRATION CERTIFICATE OF ANEMOMETER

Client Supplied Information

Client : MateriaLab Consultants Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Anemometer

Manufacturer : Benetech

Model No. : GM816

Serial No. : 13372555

Equipment ID. : N/A

Next Calibration Date : 09-May-2018

Laboratory Information

Details of Reference Equipment –

Description : Reference Anemometer

Equipment ID. : R-101-4

Date of Calibration : 10-May-2017 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of MateriaLab

Method Used : By direct Comparison

Calibration Results :

Reference Reading (m/s)	UUT Reading (m/s)	Error (m/s)
2.00	2.0	0.0
3.98	3.9	-0.1
5.98	5.4	-0.6
8.01	7.0	-1.0
10.01	8.8	-1.2

Remark :

1. The equipment being used in this calibration is traceable to recognized National Standards.

Checked by : _____ Date : 12-5-2017 Certified by : _____ Date : 12.5.2017

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

Chan Chun Wai (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.hk

MateriaLab

Report no.: 161966CA161737

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client : Materialab Consultants Ltd.

Project : Calibration Services

Client Supplied Information

Details of Unit Under Test, UUT

Description	:	Sound Level Meter
Manufacturer	:	Casella (Model no. CEL-63X(meter), CEL-251(microphone), CEL-495(Preamplifier))
Serial No.	:	2451083 (meter), 01361(microphone), 002845 (Preamplifier))
Next Calibration Date	:	23-Aug-2017
Specification Limit	:	EN 61672: 2003 Type 1

Laboratory Information

Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)

Equipment ID. : R-108-1

Date of Calibration : 24-Aug-2016 Ambient Temperature : 21 °C

Calibration Location : Calibration Laboratory of MateriaLab

Method Used : By direct comparison

Calibration Results :

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weighing frequency response	4000Hz	0.6	2.6 to -0.6
	2000Hz	0.5	2.8 to -0.4
	1000Hz	0.0	1.1 to -1.1
	500Hz	-3.0	-1.8 to -4.6
	250Hz	-8.3	-7.2 to -10.0
	125Hz	-15.7	-14.6 to -17.6
	63Hz	-25.7	-24.7 to -27.7
	31.5Hz	-37.4	-37.4 to -41.4
Differential level linearity	94dB-104dB	0.0	± 0.6
	104dB-114dB	0.0	± 0.6

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. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighing is fast
4. The equipment does comply with EN 61672: 2003 Type 1 sound level meter for the above measurement.

Checked by : _____ Date : 26.8.2016 Certified by : _____ Date : 26.8.2016

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

Chan Chun Wai (Manager) /
~~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.hk

MateriaLab

Report no.: 161966CA162338

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : MateriaLab Consultants Ltd.

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

Project : Calibration Services

Details of Unit Under Test, UUT

Description	:	Sound Level Meter
Manufacturer	:	Casella
Model No.		Casella (Model no. CEL-63X(meter), CEL-251(microphone), CEL-495(Preamplifier))
Serial No.	:	2451028 (meter), 01231(microphone), 002850 (Preamplifier))
Next Calibration Date	:	16-Nov-2017
Specification Limit	:	EN 61672: 2003 Type 1

Laboratory Information

Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)

Equipment ID. : R-108-1

Date of Calibration : 17-Nov-2016 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of MateriaLab

Method Used : By direct comparison

Calibration Results :

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weighing frequency response	4000Hz	2.6	2.6 to -0.6
	2000Hz	0.8	2.8 to -0.4
	1000Hz	-1.0	1.1 to -1.1
	500Hz	-4.5	-1.8 to -4.6
	250Hz	-9.9	-7.2 to -10.0
	125Hz	-17.3	-14.6 to -17.6
	63Hz	-27.3	-24.7 to -27.7
	31.5Hz	-39.5	-37.4 to -41.4
Differential level linearity	94dB-104dB	0.0	± 0.6
	104dB-114dB	0.0	± 0.6

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. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighing is fast
4. The equipment does comply with EN 61672: 2003 Type 1 sound level meter for the above measurement.

Checked by : _____ Date : 23.11.2016 Certified by : _____ Date : 23.11.2016

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

Chan Chun Wai (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.hk

MateriaLab

Report no.: 161966CA162202

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : MateriaLab Consultants Ltd.

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

Project : Calibration Services

Details of Unit Under Test, UUT

Description	:	Sound Level Meter
Manufacturer	:	Casella
Model No.		Casella (Model no. CEL-63X(meter), CEL-251(microphone), CEL-495(Preamplifier))
Serial No.	:	2451091 (meter), 01308(microphone), 002752 (Preamplifier))
Next Calibration Date	:	31-Oct-2017
Specification Limit	:	EN 61672: 2003 Type 1

Laboratory Information

Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)

Equipment ID. : R-108-1

Date of Calibration : 01-Nov-2016 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of MateriaLab

Method Used : By direct comparison

Calibration Results :

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weighing frequency response	2000Hz	1.9	2.8 to -0.4
	1000Hz	0.1	1.1 to -1.1
	500Hz	-3.5	-1.8 to -4.6
	250Hz	-8.9	-7.2 to -10.0
	125Hz	-16.4	-14.6 to -17.6
	63Hz	-26.4	-24.7 to -27.7
	31.5Hz	-39.3	-37.4 to -41.4
Differential level linearity	94dB-104dB	0.0	± 0.6
	104dB-114dB	0.0	± 0.6

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. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighing is fast
4. The equipment does comply with EN 61672: 2003 Type 1 sound level meter for the above measurement.

Checked by : _____ Date : 3-11-2016 Certified by : _____ Date : 4/11/2016

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

Chan Chun Wai (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.hk

MateriaLab

Report no.: 161966CA162202(1)

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client Supplied Information

Client : Materialab Consultants Ltd.

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

Project : Calibration Services

Details of Unit Under Test, UUT

Description	:	Sound Calibrator
Manufacturer	:	Casella (Model no. CEL-120/1)
Serial No.	:	3321858
Next Calibration Date	:	31-Oct-2017
Specification Limit	:	±0.5dB

Laboratory Information

Description : Reference Sound level meter

Equipment ID. : R-119-1

Date of Calibration : 01-Nov-2016 Ambient Temperature : 22 °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	-0.3 dB	±0.5dB
114dB	-0.2 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 : 3-11-2016 Certified by : _____ Date : 4/11/2016

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

Chan Chun Wai (Manager)

** End of Report **

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix E

Environmental Monitoring Schedule

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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 2017)

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

Remarks

1. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2a: G/IC Zone next to Kwun Tong Bypass (Future at Site 3C1), KER1b: Site Boundary at Cheung Yip Street, close to open space car park area
2. 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)
3. Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
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 (July 2017)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
						1
2	3 TSP Monitoring Noise Monitoring	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	26 TSP Monitoring Noise Monitoring	27	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), KER1b: 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.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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

Impact Monitoring Schedule (August 2017)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
		1 TSP Monitoring Noise Monitoring	2	3	4	5
6	7 TSP Monitoring Noise Monitoring	8	9	10	11	12 TSP Monitoring Noise Monitoring
13	14	15	16	17	18 TSP Monitoring Noise Monitoring	19
20	21	22	23	24 TSP Monitoring Noise Monitoring	25	26
27	28	29	30 TSP Monitoring Noise Monitoring	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), KER1b: 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.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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

Impact Monitoring Schedule (September 2017)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
					1	2
3	4	5 TSP Monitoring Noise Monitoring	6	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), KER1b: 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.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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 (ug/m^3)	Limit Level (ug/m^3)
				Initial	Final			Initial	Final					
3-Jun-17	Fine	303.0	752.1	2.8410	3.1249	0.2839	24	1.64	1.67	1.66	2384.2	119	177	260
9-Jun-17	Fine	303.0	756.8	2.8396	3.0853	0.2457	24	1.49	1.51	1.50	2156.8	114		
15-Jun-17	Cloudy	302.0	755.7	2.8252	2.9699	0.1447	24	1.55	1.57	1.56	2250.5	64		
21-Jun-17	Cloudy	300.4	750.4	2.8059	2.9392	0.1333	24	1.55	1.57	1.56	2250.2	59		
27-Jun-17	Cloudy	302.5	757.1	2.8127	2.9678	0.1551	24	1.49	1.51	1.50	2158.0	72		
											Min	59		
											Max	119		
											Average	86		

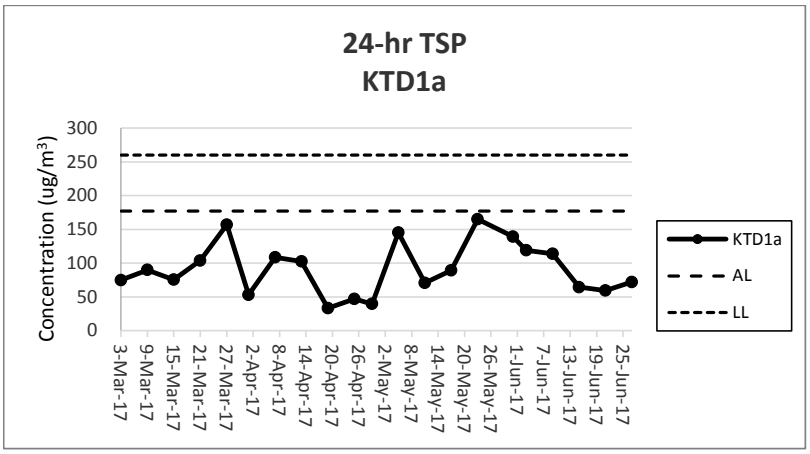
KTD2a - G/IC Zone next to Kwun Tong Bypass (Future Hospital at Site 3C1)

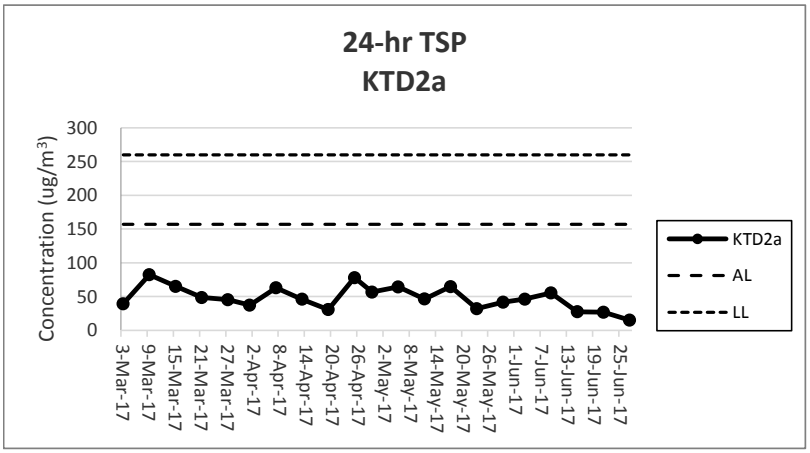
Start Date	Weather Condition	Air Temperature (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Sampling Time(hrs)	Flow Rate (m^3/min.)		Average flow (m^3/min.)	Total volume ($m^{3)}$	Conc. (ug/m^3)	Action Level (ug/m^3)	Limit Level (ug/m^3)
				Initial	Final			Initial	Final					
3-Jun-17	Fine	303.0	752.1	2.8453	2.9368	0.0915	24	1.36	1.38	1.37	1977.8	46	157	260
9-Jun-17	Fine	303.0	756.8	2.8404	2.9413	0.1009	24	1.26	1.27	1.27	1823.7	55		
15-Jun-17	Cloudy	302.0	755.7	2.8071	2.8691	0.0620	24	1.55	1.57	1.56	2245.6	28		
21-Jun-17	Cloudy	300.4	750.4	2.7907	2.8399	0.0492	24	1.26	1.27	1.27	1824.5	27		
27-Jun-17	Cloudy	302.5	757.1	2.8142	2.8404	0.0262	24	1.19	1.20	1.19	1719.6	15		
											Min	15		
											Max	55		
											Average	34		

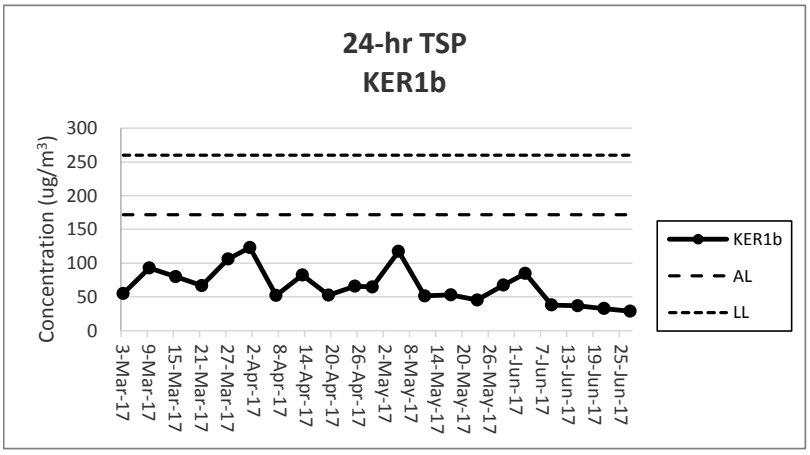
KER1b - Site Boundary at Cheung Yip Street

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 (ug/m^3)	Limit Level (ug/m^3)
				Initial	Final			Initial	Final					
3-Jun-17	Fine	303.0	752.1	2.8393	3.0026	0.1633	24	1.33	1.35	1.34	1927.1	85	172	260
9-Jun-17	Fine	303.0	756.8	2.8505	2.9104	0.0599	24	1.09	1.10	1.09	1576.5	38		
15-Jun-17	Cloudy	302.0	755.7	2.8116	2.8697	0.0581	24	1.09	1.10	1.10	1577.4	37		
21-Jun-17	Cloudy	300.4	750.4	2.7898	2.8412	0.0514	24	1.09	1.10	1.10	1577.2	33		
27-Jun-17	Cloudy	302.5	757.1	2.7833	2.8238	0.0405	24	0.97	0.98	0.97	1400.4	29		
											Min	29		
											Max	85		
											Average	44		

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.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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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)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather
03-Jun-17	08:50	58	60	57	0.9	Fine
09-Jun-17	10:15	69	69	66	0.5	Fine
15-Jun-17	09:23	71	73	69	2.1	Cloudy
21-Jun-17	09:57	73	74	72	0.2	Cloudy
27-Jun-17	10:05	74	78	70	0.0	Cloudy
	Max	74				
	Min	58				
	Limit Level	**75**				

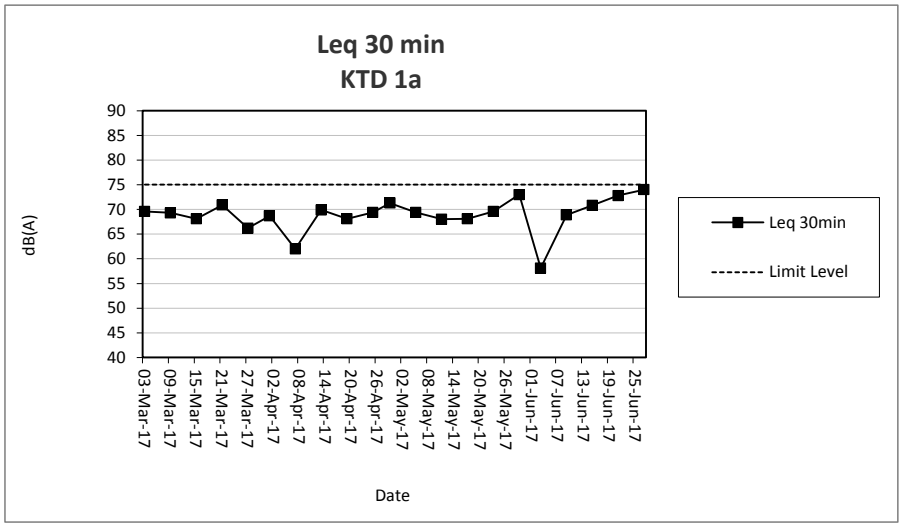
KTD 2a: G/IC Zone next to Kwun Tong Bypass (Future Hospital at Site 3C1)

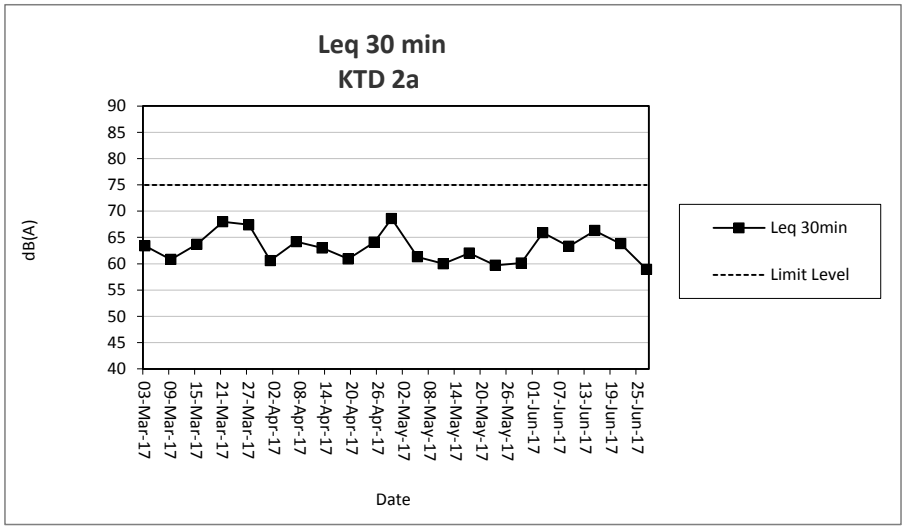
Date	Start Time	Leq 30min dB(A)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather
03-Jun-17	09:20	66	69	64	0.4	Fine
09-Jun-17	11:00	63	65	59	0.3	Fine
15-Jun-17	10:03	66	68	65	0.8	Cloudy
21-Jun-17	10:37	64	66	61	0.2	Cloudy
27-Jun-17	09:55	59	61	56	0.0	Cloudy
	Max	66				
	Min	59				
	Limit Level	**75**				

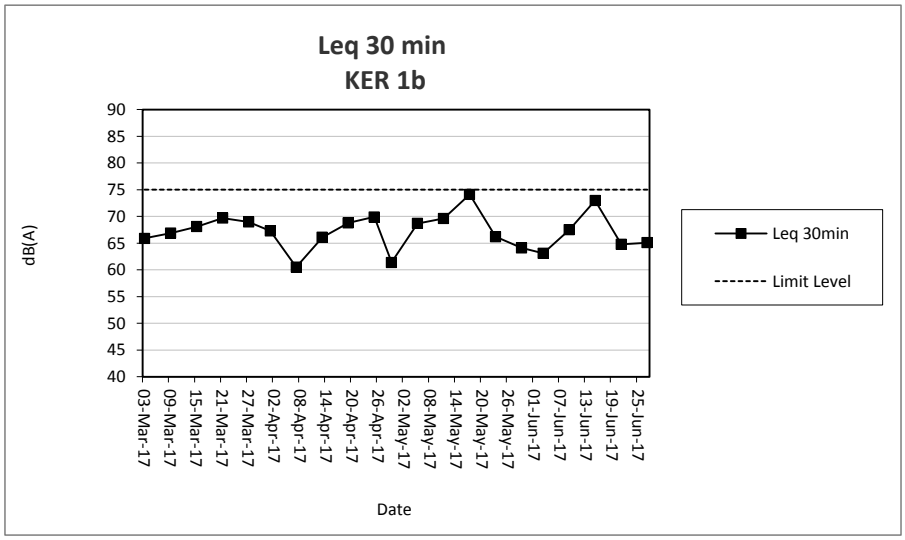
KER 1b: Site Boundary at Cheung Yip Street

Date	Start Time	Leq 30min dB(A)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather
03-Jun-17	08:17	63	66	61	0.3	Fine
09-Jun-17	09:30	68	70	65	0.5	Fine
15-Jun-17	10:50	73	76	65	1.8	Cloudy
21-Jun-17	09:51	65	67	62	0.2	Cloudy
27-Jun-17	10:29	65	66	61	0.0	Cloudy
	Max	73				
	Min	63				
	Limit Level	**75**				

Note:
KTD1a: Façade Measurement
KTD2a & KER1b: 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.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix H

Events and Action Plan

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix I

Waste Flow Table

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Waste Flow Table for Year 2016

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	0.0426
2016 May	3.592	Nil	0.299	Nil	3.293	Nil	5.23	0.023	0.00002	0.0158	0.0621
2016 June	4.6035	Nil	0.8555	Nil	3.748	Nil	Nil	0.023	0.00002	0.0158	0.0619
2016 July	6.155	0.153	0.015	Nil	5.987	Nil	7.84	0.023	0.00002	0.0158	0.0433
2016 Aug	5.1155	Nil	Nil	Nil	5.1155	Nil	19.93	0.023	Nil	Nil	0.0147
2016 Sept	7.2267	Nil	Nil	Nil	7.2267	Nil	33.65	0.023	Nil	Nil	0.0103
2016 Oct	4.6448	Nil	Nil	Nil	4.6448	Nil	13.30	0.023	Nil	Nil	0.0385
2016 Nov	6.1626	Nil	Nil	Nil	6.1626	Nil	27.06	0.023	Nil	Nil	0.0192
2016 Dec	6.3522	Nil	Nil	Nil	6.3522	Nil	13.30	0.023	Nil	Nil	0.0121
Total	51.213	0.4025	1.9967	Nil	48.8138	Nil	140.07	0.276	0.00014	0.1106	0.4288

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.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Waste Flow Table for Year 2017

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)
2017 Jan	4.2300	Nil	Nil	Nil	4.2300	Nil	0.015	0.023	Nil	Nil	0.0109
2017 Feb	3.2128	Nil	Nil	Nil	3.2128	Nil	0.015	0.023	Nil	Nil	0.0096
2017 Mar	9.4759	Nil	Nil	Nil	9.4759	Nil	0.034	0.023	Nil	Nil	0.0162
2017 Apr	4.8827	Nil	Nil	Nil	4.8827	Nil	0.016	0.023	Nil	Nil	0.0062
2017 May	3.0366	Nil	Nil	Nil	3.0366	Nil	0.022	0.023	Nil	Nil	0.0282
2017 June	2.5656	Nil	Nil	Nil	2.5656	Nil	41.25	Nil	Nil	Nil	0.0357
Total	27.404	Nil	Nil	Nil	27.404	Nil	41.352	0.115	Nil	Nil	0.1068

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.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix J

Environmental Mitigation Implementation Schedule (EMIS)

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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	Partially 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	Partially 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	Partially

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	Implemented
		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	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

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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	Implemented
		<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

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	Implemented
		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	Implemented
		Use of acoustic fabric for the silent piling system, drill rigs, rock drills etc.	Contractor	All relevant worksites	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	Implemented
		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	Implemented
		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	Implemented
		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
Water Quality Measures					
Trunk Road T2					
		Accidental Spillage			
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

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>			

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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	Not Applicable
		<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	Partially 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 m3 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	Not Applicable
		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	Implemented
		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	Implemented
		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

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		<u>Drainage</u>			
		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	Implemented
		<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	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
		properly to avoid entering into the adjacent harbour waters. Stockpiles of cement and other 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
		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	Implemented
		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	Partially 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	Partially 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	Partially Implemented

		Skip hoist for material transport should be totally enclosed by impervious sheeting.	Contractor	All relevant worksites	Implemented
		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	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	Partially Implemented

		<u>General Refuse</u>			
		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
<u>Land Contamination Measures</u>					
		<u>For any excavation works conducted at Radar Station</u>			
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
<u>Landscape and Visual Impact</u>					
New Distributor Roads Serving the Planned KTD					
		<u>Construction Phase</u>			
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
		Erection of decorative screen hoarding.	Contractor	All relevant worksites	Implemented

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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	Partially 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 locations as the original Permit. The suspended, varied or cancelled Permit shall be removed from display at the Project site(s).	Contractor	All relevant worksites	Implemented

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

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix K

Weather and Meteorological Conditions during Reporting Month

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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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)		
June 2017						
01	1003.2	30.6	29.1	27.8	83	Trace
02	1002.6	30.6	29.4	28.6	85	Trace
03	1002.7	32.5	30.0	28.5	83	0.0
04	1003.6	31.2	30.0	29.3	81	Trace
05	1006.2	33.5	30.3	28.8	80	Trace
06	1009.2	33.8	30.4	28.5	78	Trace
07	1010.0	34.0	30.0	27.2	80	4.3
08	1009.9	32.5	29.8	28.3	80	0.0
09	1009.2	31.9	29.5	28.1	81	1.1
10	1008.3	33.8	29.9	28.0	79	Trace
11	1007.0	34.1	29.8	28.1	78	Trace
12	1001.9	30.0	27.6	25.3	87	37.7
13	1006.2	28.9	26.4	24.3	93	219.4
14	1008.6	29.5	28.3	25.5	85	15.6
15	1007.6	31.1	29.2	26.8	81	14.5
16	1005.1	29.6	29.0	27.8	85	13.5
17	1003.7	28.4	25.5	24.4	96	138.0
18	1004.7	27.3	26.2	24.7	91	24.2
19	1005.3	28.3	26.2	25.3	92	32.6
20	1005.1	28.2	26.5	25.2	91	24.8
21	1005.3	29.2	27.4	25.2	90	95.9
22	1007.8	32.4	29.3	28.0	81	Trace
23	1007.7	31.6	28.9	27.5	84	10.5
24	1006.3	30.8	28.5	26.4	85	18.3
25	1006.9	31.5	29.2	26.8	79	4.2
26	1008.4	32.0	29.8	28.6	78	0.1
27	1009.5	31.5	29.5	28.6	79	1.3
28	1010.2	32.3	29.7	28.2	77	0.0
29	1009.7	32.8	29.6	27.9	78	0.0
30	1007.8	33.7	29.9	27.6	75	0.0

Source: Hong Kong Observatory – Hong Kong Observatory

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix L

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

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Environmental Complaints Log

Complaint Log No.	Date of Notification	Received From and Received By	Nature of Complaint	Date of Investigation	Outcome	Date of Reply
1	15 December 2016	Andy Choy	Air	13 February 2017	Project-related	13 February 2017
2	21 February 2017	Andy Choy	Air	22 February 2017	Not Project-related	7 March 2017
3	2 May 2017	Andy Choy	Noise	4 May 2017	Not Valid	22 May 2017

Cumulative Statistics on Complaints

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Month	Cumulative Project-to-Date
Air	2	0	2
Noise	1	0	1
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

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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Appendix M

Summary of Site Audit in the Reporting Month

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

MaterialLab

Summary of Site Audit in the Reporting Month

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	1 June 2017	Regular watering to the site working area shall be provided to suppress dust emission. (Zone 1)	The item was rectified by the Contractor and inspected on 8 June 2017.
	15 June 2017	Open stockpiles of excavated material shall be covered properly with impervious sheeting to avoid dust emission. (Zone 1)	The item was rectified by the Contractor and inspected on 23 June 2017
Noise	NA		
Water Quality	1 June 2017	The mud at mud tank shall be removed to prevent overflow of storm water at the mud tank. (Zone 1)	The item was rectified by the Contractor and inspected on 8 June 2017.
Chemical and Waste Management	8 June 2017	Chemical containers shall be stored on drip tray. (Zone 1)	The item was rectified by the Contractor and inspected on 15 June 2017.
	8 June 2017	General refuse shall be stored properly and removed regularly. (Zone 2)	The item was rectified by the Contractor and inspected on 15 June 2017.
	15 June 2017	General refuse, spent chemical containers and used bags of cement shall be stored properly. (Zone 2)	The item was rectified by the Contractor and inspected on 23 June 2017.
Land Contamination	NA		

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
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Email : mcl@fugro.com

Landscape and Visual Impact	8 June 2017	Debris and concrete shall be properly covered. (Zone 4)	The item was rectified by the Contractor and inspected on 15 June 2017.
	15 June 2017	Excavated materials shall be properly covered by impervious sheeting. (Zone 4)	The item was rectified by the Contractor and inspected on 23 June 2017.
General Condition	23 June 2017	Stagnant water shall be removed. (Portion I and Portion O)	The item was rectified by the Contractor and inspected on 29 June 2017.

MATERIALAB CONSULTANTS LIMITED
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Hong Kong..
Tel : (852)-24508238
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Email : mcl@fugro.com

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Appendix N

Outstanding Issues and Deficiencies

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

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	