

Lam Environmental Services Limited

# CONTRACT NO: CV/2012/07

# DEVELOPMENT AT ANDERSON ROAD -FOOTBRIDGE D AND ASSOCIATED WORKS AREA

#### **MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT**

- SEPTEMBER 2016 -

CLIENTS:

Lam-Po Wing Joint Venture

#### PREPARED BY:

# Lam Environmental Services Limited

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**CERTIFIED BY:** 

Derek Lo Environmental Team Leader

DATE:

12 October 2016



# Ref.: OAPANDSNEM00\_0\_1794L.16.docx

13 October 2016

By Post and Fax: 2407 8382

Engineer's Representative Ove Arup & Partners Level 5, Festival Walk 80 Tat Chee Avenue Kowloon Tong, Kowloon Hong Kong

Attention: Mr. Dennis Leung

Dear Sir/Madam,

# Re: Contract No. CV/2012/07 Development at Anderson Road Footbridge D and Associated Works Area <u>Monthly EM&A Report for September 2016</u>

Reference is made to the Environmental Team's submission of the Monthly EM&A Report for September 2016 received by e-mail on 13 October 2016 for our review and comment.

We are pleased to inform you that we have no adverse comment on the captioned report.

Thank you very much for your attention and please feel free to contact the undersigned should you require further information.

Yours faithfully,

David Yeung Managing Director

c.c. Lam LPW3V Attn.: Mr. Derek Lo Attn.: Mr. Tak-Leung Lo Fax: 2882 3331 Fax: 3171 7222

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# EXECUTIVE SUMMARY

 This is the Environmental Monitoring and Audit (EM&A) Monthly Report – September 2016 of "Development at Anderson Road – Footbridge D and Associated Works Area" (Hereafter called "this Project"). The construction works of this project was commenced on 20 July 2013. This is the 39<sup>th</sup> month of EM&A report presenting the environmental monitoring findings and information recorded during the period of 1 September 2016 to 30 September 2016. The cut-off date of reporting is at the end of each reporting month.

# Construction Activities for the Reporting Period

- Drainage works at portion C2
- Backfilling between tower B to tower C at portion C2
- Steel deck A-B installation at C3

#### Noise Monitoring

ii. Noise monitoring during daytime was conducted at the stations NM1 and NM2 on a weekly basis in the reporting month. No exceedance was recorded in the reporting month.

#### Air Quality Monitoring

iii. Air quality monitoring has been conducted at station AQM1. No exceedance was recorded in the reporting month.

#### Complaints, Notifications of Summons and Successful Prosecutions

i. No complaint and notifications of summons or successful prosecutions were recorded in this reporting month.

#### Site Inspections and Audit

ii. The Environmental Team (ET) conducted weekly site inspections for Contract no. CV/2012/07 in the reporting month. Major observations and recommendations made during the audit sessions were rectified by the Contractors. No non-conformance was identified during the site inspections.

#### Future Key Issues

- iii. In coming reporting month, the principal work activities of individual contracts are anticipated as follows:
  - Reinstatement of road works at C3
  - Steel deck C-E installation at C1



Reporting Change

vii. There are no reporting changes in this Reporting Period.



#### 1. Introduction

#### 1.1 Scope of the Report

- 1.1.1. Lam Environmental Services Limited (LES) has been appointed to work as the Environmental Team (ET) to implement the Environmental Monitoring and Audit (EM&A) programme as stipulated in the EM&A Manual of the approved Environmental Impact Assessment (EIA) Report for Development of Anderson Road.
- 1.1.2. This report presents the environmental monitoring and auditing work carried out in accordance to the Section 1.4 of EM&A Manual and "*Environmental Monitoring and Audit Requirements*" under Particular Specification Section 25.
- 1.1.3. The construction works of this project was commenced on 20 July 2013. This report documents the finding of EM&A works for this Project and during the period of 1 September 2016 to 30 September 2016. The cut-off date of reporting is at the end of each reporting month.

#### 1.2 Structure of the Report

- **Section 1** *Introduction* details the scope and structure of the report.
- Section 2 *Project Background* summarizes background and scope of the project, site description, project organization and contact details of key personnel during the reporting period.
- Section 3 Status of Regulatory Compliance summarizes the status of valid Environmental Permits / Licenses during the reporting period.
- Section 4 *Monitoring Requirements* summarizes all monitoring parameters, monitoring methodology and equipment, monitoring locations, monitoring frequency, criteria and respective event and action plan and monitoring programmes.
- Section 5 *Monitoring Results* summarizes the monitoring results obtained in the reporting period.
- Section 6 Compliance Audit summarizes the auditing of monitoring results, all exceedances environmental parameters.
- Section 7 Cumulative Construction Impact due to the Concurrent Projects -



summarizes the relevant cumulative construction impact due to the concurrent activities of the concurrent Projects.

- Section 8 Site Inspection summarizes the findings of weekly site inspections undertaken within the reporting period, with a review of any relevant follow-up actions within the reporting period.
- Section 9Complaints, Notification of summons and Prosecution summarizes the<br/>cumulative statistics on complaints, notification of summons and prosecution
- Section 10 Conclusion



# 2. Project Background

# 2.1 Background

- 2.1.1. The main objective of the project "Development at Anderson Road Footbridge D and Associated Works Area" (Hereafter called "this Project") is to construct a footbridge, Footbridge D, and associated lift towers across Shun On Road between the existing Shun Tin Estate and the future development platform.
- 2.1.2. For this project, Tin Wan House (NM1) and Ning Po No.2 College (NM2 and AQM1) are the designated monitoring station during the construction period. Owing to this contract is under the master project and on the other hand, the construction area is vicinity to the monitoring station (On Yat House) ID2 and (Sau Nga House) ID3 of the master project, so that the baseline noise and air quality monitoring will adopt the baseline data from those stations instead of conducting baseline monitoring. All the baseline data are referred to the baseline report from the public domain web site (www.anderson-road.com/main.htm).
- 2.1.3. The construction works of this project was commenced on 20 July 2013. During the construction phase of the project, air quality (dust) and noise impacts from the development site itself and the adjacent Anderson Road Quarry and other nearby construction sites are identified as the major environmental issues of concern. Besides, waste management is also identified in the EIA study as another environmental issue during the construction phase of the project that requires mitigation measures.

# 2.2 Scope of the Project and Site Description

- 2.2.1. The Project is located mainly near Shun Tin Estate and Ning Po No.2 College, as shown in *Figure 2.1.*
- 2.2.2. The scope of the Project comprises:
  - Construction of footbridge and associated lift towers between Shun On Road and future platform at +152mPD and across Shun On Road. In Conjunction with these footbridge works are the associated furniture, drainage system, irrigation system and traffic signs.
  - Construction of drainage system for diversion of an existing stream on the slope adjoining Footbridge D.
  - Site formation and associated slope works for Footbridge D adjacent to Shun On Road.



# 2.3 Project Organization and Contact Personnel

- 2.3.1. Civil Engineering and Development Department is the overall project controllers for this project. For the construction phase of the Project, Project Engineer, Contractor(s), Environmental Team and Independent Environmental Checker are appointed to manage and control environmental issues.
- 2.3.2. The proposed project organization and lines of communication with respect to environmental protection works are shown in *Figure 2.2.* Key personnel and contact particulars are summarized in *Table 2.1*.

Party	Role	Post	Name	Contact	Contact
				No.	Fax
Ove Arup	Engineer	Chief	Dennis	2407 0300	2407
		Resident	Leung		8382
		Engineer			
		Resident	Heidi Fung	3656 3000	3656
		Engineer			1000
Lam-Po Wing	Contractor	Project	K.C. Wong	2318 0281	3171
Joint Venture	under	Manager			7222
	Contract no. CV/2012/07	Site Agent	T.L. Lo	2318 0281	
		Safety Officer	K.W. Lau	2318 0281	
		Environment	K.I. Ip	2318 0281	
		al Officer			
Ramboll	Independent	Independent	Mr. David	3465 2888	3465
Environ Hong	Environment	Environment	Yeung		2899
Kong Limited	al Checker	al Checker			
	(IEC)	(IEC)			
Lam	Environment	Environment	Mr. Derek Lo	2882 3939	2882
Environmenta	al Team (ET)	al Team			3331
I Services		Leader (ETL)			
Limited					

# Table 2.1 Contact Details of Key Personnel

8



2.3.3. For Contract no. CV/2012/07, the principal work activities in this reporting month included:

- Drainage works at portion C2
- Backfilling between tower B to tower C at portion C2
- Steel deck A-B installation at C3

In coming reporting month, the principal work activities of individual contracts are anticipated as follows:

- Reinstatement of road works at C3
- Steel deck C-E installation at C1



# 3. Status of Regulatory Compliance

# 3.1 Status of Environmental Licensing and Permitting under the Project

3.1.1. A summary of the current status on licences and/or permits on environmental protection pertinent to the Project is shown in *Table 3.1*.

# Table 3.1 Summary of the current status on licences and/or permits on environmentalprotection pertinent to the Project

Permits and/or Licences	Reference No.	Issued Date	Valid Period/ Expiry Date	Status
Discharge Licence	WT00015447-20 13	27 March 2013	31 March 2018	Valid
Billing Account under Waste Disposal Ordinance	7017083	15 March 2013	N/A	Valid
The Air Pollution Control (Construction Dust) Regulation	355705	14 February 2013	N/A	Valid
Form A – Application for Water Pollution Control Licence	355706	14 February 2013	N/A	Valid
Application for Registration as a Chemical Waste Producer	WPN5213-292-L 2825-01	28 November 2013	N/A	Valid
Application for Construction Noise Permit	GW-RE0694-16	24 July 2016	14 August 2016	Expired



#### 4. Monitoring Requirements

#### 4.1 Noise Monitoring

#### NOISE MONITORING STATIONS

4.1.1. The noise monitoring has been undertaken at the designated locations Tin Wan House (NM1) and Ning Po No.2 College (NM2). The detailed information of monitoring stations for the Project are listed and shown in *Table 4.1* and *Figure 4.1*. *Appendix 4.1* shows the established Action/Limit Levels for the monitoring works.

# Table 4.1 Noise Monitoring Stations

Station ID	Monitoring Location
NM1	G/F of Tin Wan House
NM2	G/F of Ning Po No.2 College

#### NOISE MONITORING PARAMETERS, FREQUENCY AND DURATION

- 4.1.2. The construction noise level shall be measured in terms of the A-weighted equivalent continuous sound pressure level (L<sub>eq</sub>). L<sub>eq (30 minutes)</sub> shall be used as the monitoring parameter for the time period between 0700 and 1900 hours on normal weekdays. For all other time periods, L<sub>eq (5 minutes)</sub> shall be employed for comparison with the Noise Control Ordinance (NCO) criteria. Supplementary information for data auditing, statistical results such as L10 and L90 shall also be obtained for reference.
- 4.1.3. Noise monitoring shall be carried out at all the designated monitoring stations. The monitoring frequency shall depend on the scale of the construction activities. The following is an initial guide on the regular monitoring frequency for each station on a weekly basis when noise generating activities are underway:
  - one set of measurements between 0700 and 1900 hours on normal weekdays.
- 4.1.4. If construction works are extended to include works during the hours of 1900 0700 as well as public holidays and Sundays, additional weekly impact monitoring shall be carried out during respective restricted hours periods. Applicable permits under NCO shall be obtained by the Contractor.

#### MONITORING EQUIPMENT

4.1.5. As referred to in the Technical Memorandum (TM) issued under the NCO, sound level meters in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring. Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound



pressure level at a known frequency. Measurements may be accepted as valid only if the calibration level from before and after the noise measurement agree to within 1.0 dB.

4.1.6. Noise measurements shall not be made in fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

# 4.2 Air Monitoring

# AIR QUALITY MONITORING STATIONS

4.2.1. The air monitoring has been conducted at the designated location Ning Po No.2 College (AQM1). The air monitoring stations for the Project are listed and shown in *Table 4.2* and *Figure 4.1*. *Appendix 4.1* shows the established Action/Limit Levels for the monitoring works.

Table 4.2 Air Monitoring Station

Station ID	Monitoring Location
AQM1	Roof Top of Ning Po No.2 College

# AIR MONITORING PARAMETERS, FREQUENCY AND DURATION

- 4.2.2. One-hour and 24-hour TSP levels should be measured to indicate the impacts of construction dust on air quality. The 24-hour TSP levels shall be measured by following the standard high volume sampling method as set out in the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B.
- 4.2.3. All relevant data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper, and any other local atmospheric factors affecting or affected by site conditions, etc., shall be recorded down in detail.
- 4.2.4. For regular impact monitoring, the sampling frequency of at least once in every six-days, shall be strictly observed at all the monitoring stations for 24-hour TSP monitoring. For 1-hour TSP monitoring, the sampling frequency of at least three times in every six-days should be undertaken when the highest dust impact occurs.

# SAMPLING PROCEDURE AND MONITORING EQUIPMENT

- 4.2.5. High volume samplers (HVSs) in compliance with the following specifications shall be used for carrying out the 1-hour and 24-hour TSP monitoring:
  - 0.6 1.7 m<sup>3</sup> per minute adjustable flow range;
  - equipped with a timing / control device with +/- 5 minutes accuracy for 24 hours operation;
  - installed with elapsed-time meter with +/- 2 minutes accuracy for 24 hours operation;



- capable of providing a minimum exposed area of 406 cm<sup>2</sup>;
- flow control accuracy: +/- 2.5% deviation over 24-hour sampling period;
- equipped with a shelter to protect the filter and sampler;
- incorporated with an electronic mass flow rate controller or other equivalent devices;
- equipped with a flow recorder for continuous monitoring;
- provided with a peaked roof inlet;
- incorporated with a manometer;
- able to hold and seal the filter paper to the sampler housing at horizontal position;
- easily changeable filter; and
- capable of operating continuously for a 24-hour period.
- 4.2.6. Initial calibration of dust monitoring equipment shall be conducted upon installation and thereafter at bi-monthly intervals. The transfer standard shall be traceable to the internationally recognized primary standard and be calibrated annually. The calibration data shall be properly documented for future reference by concerned parties such as the IEC. All the data should be converted into standard temperature and pressure equivalents.

#### LABORATORY MEASUREMENT / ANALYSIS

- 4.2.7. A clean laboratory with constant temperature and humidity control, and equipped with necessary measuring and conditioning instruments to handle the dust samples collected, shall be available for sample analysis, and equipment calibration and maintenance. The laboratory should be HOKLAS accredited.
- 4.2.8. If a site laboratory is set up or a non-HOKLAS accredited laboratory is retained for analysis, laboratory equipment shall be provided by the ER in consultation with the IC(E). Measurement performed by the laboratory shall be demonstrated to the satisfaction of the ER and the IC(E). The IC(E) shall conduct regular audit to the measurement performed by the laboratory to ensure the accuracy of measurement results. The ET leader shall provide the ER with one copy of the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), and Appendix B for his reference.
- 4.2.9. Filter paper of size 8" x 10" shall be labelled before sampling. It shall be a clean filter paper with no pinholes, and shall be conditioned in a humidity-controlled chamber for over 24-hours and be pre-weighed before use for the sampling.
- 4.2.10. After sampling, the filter paper loaded with dust shall be kept in a clean and tightly sealed plastic bag. The filter paper shall then be returned to the laboratory for reconditioning in the humidity controlled chamber followed by accurate weighing by an electronic balance with readout down to 0.1 mg. The balance shall be regularly calibrated against a traceable standard.
- 4.2.11. All the collected samples shall be kept in a good condition for 6 months prior to disposal.



# 5. Monitoring Results

- 5.0.1. The environmental monitoring will be implemented based on the sensitive receivers which would be mostly affected. Overall layout showing the work area, latest status of work commencement and monitoring stations are shown in *Figure 2.1* and *Figure 4.1*.
- 5.0.2. The environment monitoring schedules for reporting month and coming month are presented in *Appendix 5.1*.

# 5.1 Noise Monitoring Results

5.1.1. The noise monitoring results for Contract no. CV/2012/07 are summarized in *Table 5.1* below:

Date	Time	Location	Leq (dB)	Limit Level
1. Con 10	13:21	NM1	63.3	75
1-Sep-16	14:15	NM2	62.1	70
7 Sop 16	13:41	NM1	61.8	75
7-Sep-16	14:25	NM2	62.2	70
13-Sep-16	13:11	NM1	63.4	75
13-3ep-10	14:14	NM2	61.2	70
19-Sep-16	13:19	NM1	62.1	75
19-Sep-16	14:23	NM2	61.7	70
30-Sep-16	13:21	NM1	62.4	75
30-3ep-16	14:40	NM2	62.9	70
	Limit Level		65 / 70 /75*	

Table 5.1 Summary of Noise Monitoring Results at NM1 and NM2

Note :

- 70dB(A) and 65 dB(A) for schools during normal teaching periods and school examination periods, respectively.
- 5.1.2. Day time period noise monitoring was conducted at the Tin Wan House (NM1) and Ning Po No.2 College (NM2).
- 5.1.3. Noise monitoring results measured in this reporting period are reviewed and summarized. No exceedance was recorded in reporting month. Details of noise monitoring results and graphical presentation can be referred in <u>Appendix 5.2</u>.



# 5.2 Air Monitoring Results

5.2.1. The air monitoring results are summarized in *Table 5.2* and *Table 5.3* below. No exceedance was recorded in the reporting month.

Date	Time	TSP Level, (μg /m³)
6-Sep-16	8:00	27
12-Sep-16	8:00	41
17-Sep-16	8:00	85
23-Sep-16	8:00	80
29-Sep-16	8:00	99
Actio	n Level	200
Limit	Level:	260

Table 5.2Summary of Air Monitoring Results at AQM1 - 24 hr TSP Monitoring

Table 5.3	Summary of Air Monitoring Results at AQM1 - 1 hr TSP Monitoring
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Date	Time	TSP Level, (µg /m³)
1-Sep-16	13:01	32
1-Sep-16	14:05	21
1-Sep-16	15:10	28
7-Sep-16	13:00	19
7-Sep-16	14:05	17
7-Sep-16	15:10	29
13-Sep-16	13:00	80
13-Sep-16	14:10	85
13-Sep-16	15:15	30
19-Sep-16	13:01	48
19-Sep-16	14:07	54
19-Sep-16	15:09	85
24-Sep-16	13:01	9
24-Sep-16	14:05	22
24-Sep-16	15:10	19
30-Sep-16	13:05	100
30-Sep-16	14:10	52
30-Sep-16	15:15	54



Action Level	197
Limit Level:	500

5.2.2. Air monitoring results measured in this reporting period are reviewed and summarized. No exceedance was recorded in reporting month. Details of air monitoring results can be referred in <u>Appendix 5.3.</u>

# 5.3 Waste Monitoring Results

5.3.1. Inert C&D waste and general refuse were disposed in this reporting month. Details of the waste flow table are summarized in *Table 5.4.* 

# Table 5.4 Details of Waste Disposal for Contract no. CV/2012/07

Waste Type	Quantity this month	Cumulative Quantity-to-Date	Disposal / Dumping Grounds
Inert C&D materials disposed, m <sup>3</sup>	0.022417	12.02622	TKO137
Inert C&D materials recycled, m <sup>3</sup>	0	0	N/A
Non-inert C&D materials disposed, m <sup>3</sup>	0	0	N/A
Non-inert C&D materials recycled, kg	0	34.5436	N/A
Chemical waste disposed, kg	0	0	N/A
General refuse,m <sup>3</sup>	0.00975	0.88124	NENT



#### 6. Compliance Audit

6.0.1. The Event Action Plan for construction noise, air quality and water quality are presented in Appendix 6.1.

#### 6.1 Noise Monitoring

6.1.1. No exceedance was recorded in the reporting month.

# 6.2 Air Monitoring

6.2.1. No exceedance was recorded in the TSP monitoring in the reporting month.

# 6.3 Review of the Reasons for and the Implications of Non-compliance

6.3.1. There was no non-compliance from the site audits in the reporting period. The observations and recommendations made in each individual site audit session were presented in Section 7.

# 6.4 Summary of action taken in the event of and follow-up on non-compliance

6.4.1. There was no particular action taken since no project-related non-compliance was recorded from the site audits and environmental monitoring in the reporting period.



# 7. Environmental Site Audit

7.0.1. According to EM&A Manual stipulation, the regular weekly site inspections on 6, 13, 20 and 27 September 2016 were carried out by ET, IEC, the Contractor and ARUP for Contracts no. CV/2012/07 to ensure the environmental performance. Observations and findings are summarized in *Table 7.1*.

Date	Obs	ervations	Follow-Up
6 – Sep - 2016	•	Drip tray should be provided to chemical	The findings have been
		container at 2/F, Tower B	rectified during inspection on
	•	General refuse are not allowed in the	13 Sep 2016
		drainage or silt removable system	
13 – Sep-2016	•	Housekeeping of the site and site tidiness	the finding have been
		should be undertaken regularly	rectified during inspection on
			20 Sep 2016
20 – Sep-2016	•	Dusty stockpile at Tower B should be	the finding have been
		covered by tarpaulin sheet or spray with	rectified during inspection on
		water	27 Sep 2016
27 – Sep-2016	•	Drip tray at 2/F, Tower B should be	Drip tray was provided during
		provided to chemical container	inspection on 4 Oct 2016

Table 7.1 Summary of Environmental Inspections for Contract no. CV/2012/07



#### 8. Complaints, Notification of Summons and Prosecution

- 8.0.1. No complaint and notification of summons or successful prosecutions were recorded in this reporting month.
- 8.0.2. The details of cumulative complaint log and updated summary of complaints are presented in *Appendix 8.1*.
- 8.0.3. Cumulative statistic on complaints and successful prosecutions are summarized in *Table 8.1* and *Table 8.2* respectively.

# Table 8.1 Cumulative Statistics on Complaints

Reporting Period	No. of Complaints
September 2016	0
Project-to-Date	1

# Table 8.2 Cumulative Statistics on Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Successful Prosecutions this month (Offence Date)	Cumulative No. Project-to-Date
Air	-	0	0
Noise	-	0	0
Waste	-	0	0
Total	-	0	0



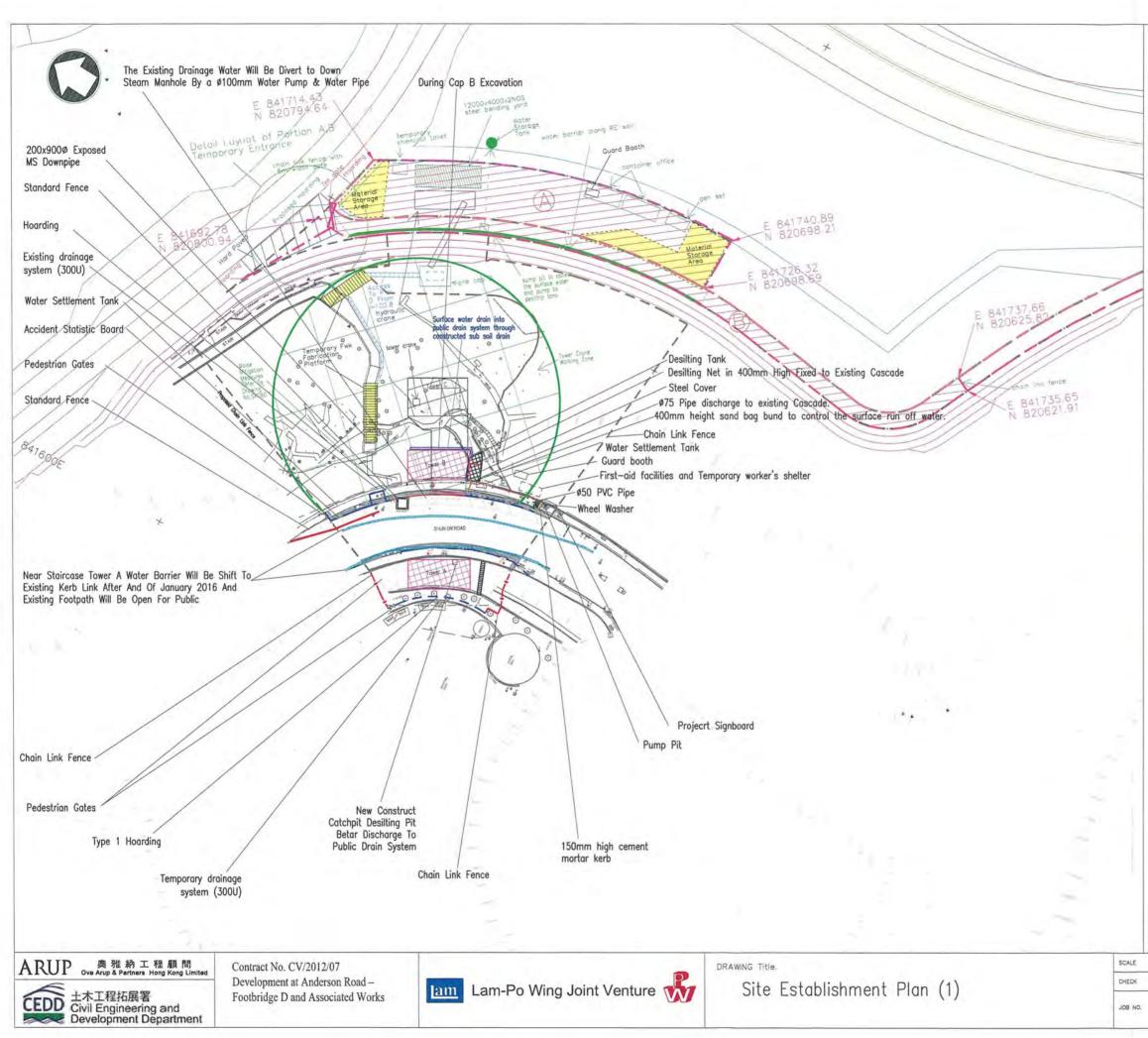
#### 9. Conclusion

- 9.0.1. The EM&A programme was carried out in accordance with the EM&A Manual requirements, minor alterations to the programme proposed were made in response to changing circumstances.
- 9.0.2. No construction air and noise monitoring results that triggered the Action and Limit Level was recorded. No complaint of air and noise were received by the ARUP and the contractor. Furthermore, no notification of summons or successful prosecution was received in this reporting month.
- 9.0.3. Construction noise should be a key environmental impact during the works. The noise mitigation measures such as use of quiet plants and installation of temporary noise barrier at the construction noise predominate area should be fully implemented as accordance with the EM&A requirement. Moreover, breaking works should be the potential construction dust impact since the construction site located nearby residential area of Shun Tin Estate. It is reminded that mitigation measures for dust should be properly implemented.



Figure 2.1

Project Layout



# NOTES:

- This drawing shall be read in conjunction with Drawing 24711/1052.
- The location of fencing and hoarding is indicative only. The exact location is approved on site by Engineer.
- For Detail of Access gate refer to CEDD Standard Drawing No. C1007.
- 4. Dimensions Are in Meters Unless Otherwise Shown.
- 5. The surface water inside Portion C3 will be collected by a pump pit and pump into water settlement tank for recycle purpose. In case the water inside the settlement tank is overflow, a Ø75 pipe will discharge the overflow water into existing 300U on slope toe.

Legend

1:500 @ A3 SM NG	DATE 18-04	-2016
	Platfrom 7 Footprint Of Staircase Ad	
	12Mx4M Steel Bending Yo Temporary Formwork Fab Platfrom	
	Material Storage Area	
CHERCE CONTINUED ON	As-Built Water Barrier	
	Tower Crane Working radi (Not Encroach to Shun C	ius In Road)
	Proposed Hoarding (Type	1)
	Proposed Safety Fence (*	Type A)



Figure 2.2

Project Organization Chart



#### **Project Organization Chart**

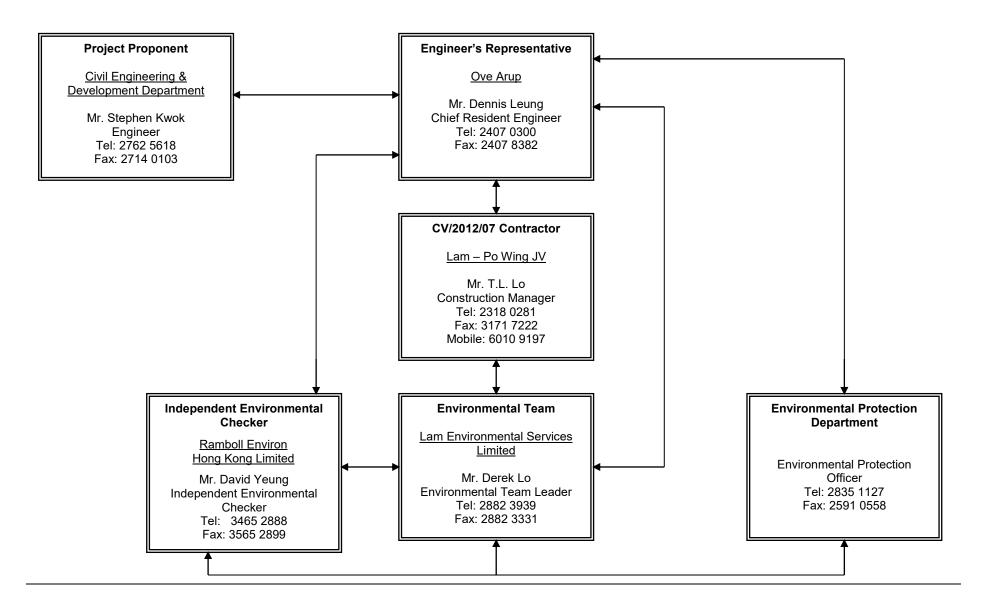
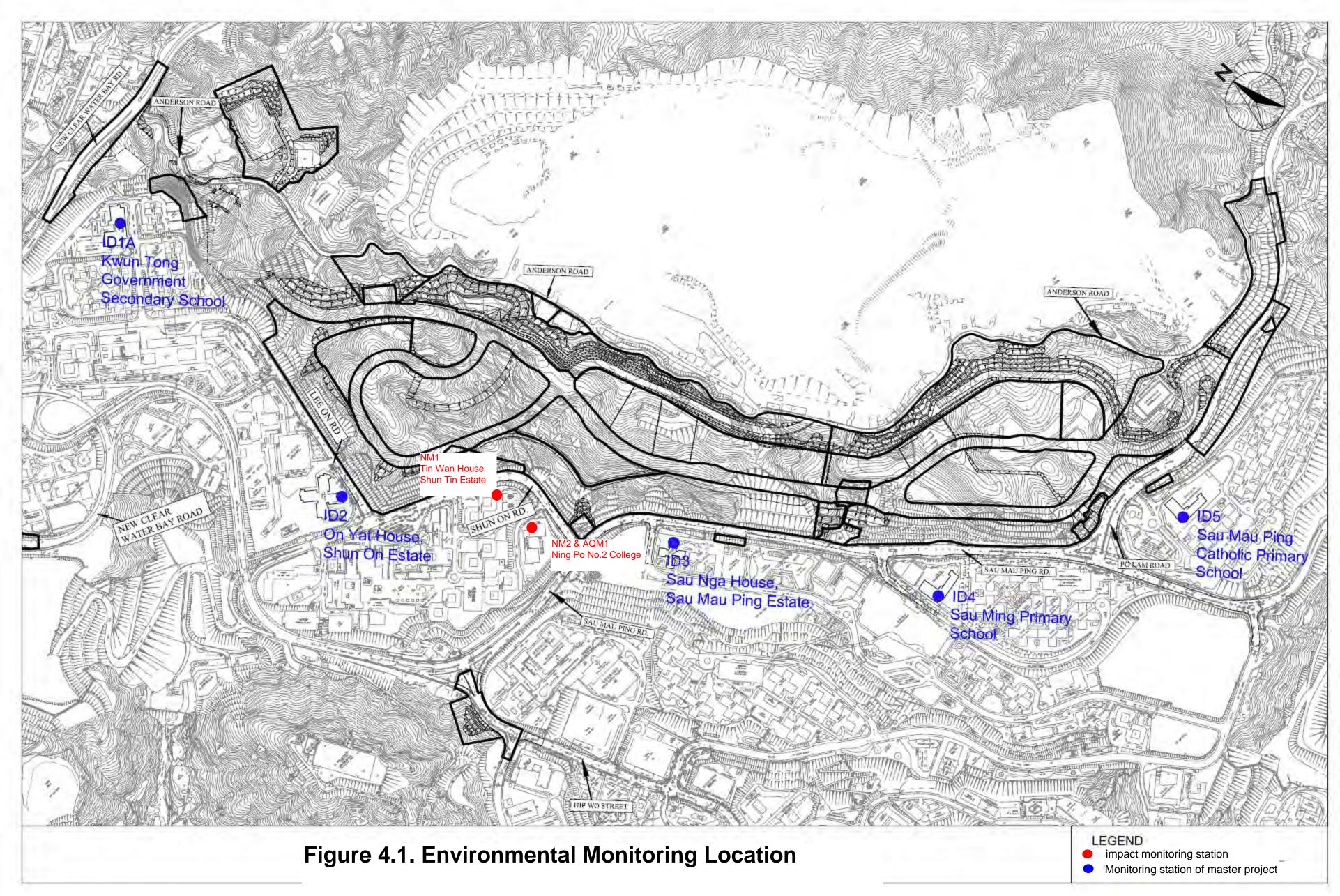




Figure 4.1

Locations of Environmental Monitoring Stations





Appendix 3.1

Environmental Mitigation Implementation Schedule



# Environmental Mitigation Implementation Schedule

Implementation Schedule for Construction Dust Control

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location (duration/ completion of	Funding Agent	Implementation Agent	Impleme Stages**		Relevant Legislation & Guidelines
			measures)			D (	С	
\$2.7	S1, S2.8	<ul> <li>Site Practice <ul> <li>Mean vehicle speed of haulage trucks at 10 km/hr.</li> </ul> </li> <li>Twice daily watering of all open site areas.</li> <li>Regular watering (once every 1 hour) of all site roads and access roads with frequent truck movement.</li> <li>Tarpaulin covering of all dusty vehicle loads transported to, form and between site locations.</li> <li>Establishment and use of vehicle wheel and body washing facilities at the exit points of the site, combined with cleaning of public roads where necessary.</li> <li>Suitable side and tailboards on haulage vehicles.</li> <li>Watering of temporary stockpiles.</li> </ul> Blasting <ul> <li>Use of select aggregate and fines to stem the charge with drill holes and watering of blast face.</li> <li>Use of vaccum extraction drilling methods.</li> <li>Carefully sequenced blasting.</li> </ul> Crushing <ul> <li>Fabric filters installed for the crushing plant.</li> <li>Water sprays on the crusher.</li> </ul> Water sprays at all fixed loading and unloading points (at the crusher and conveyor belts). <ul> <li>The loading point at the crusher is enclosed with dust curtains are used for controlling dust.</li> <li>When transferring materials from conveyor belt or crusher to the dump trucks, chutes or dust curtains are used for controlling dust.</li> </ul>	All Construction sites (late 2007 to 2016)	CEDD	Lam – Po Wing JV			TM on EIA Process, APCO, Air Pollution Control (Construction Dust) Regulation

\* All recommendations and requirements are summarized from approved EIA resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project,



EIA Ref.			completion of	Funding Agent	Implementation Agent	Implementation Stages**		Relevant Legislation & Guidelines
		measures)			D	С		
\$3.7	S1, S3.7	<ul> <li>Site Formation</li> <li>Silenced powered mechanical equipment (PME) for most equipment5 (including drill rig, backhoe, dump truck, breaker and crane) and the decrease of percentage on time usage of drill rig among the Central Area form 50% to 40% is prosed.</li> <li>Temporary movable noise barrier shall be used to shield the noise emanating from the drilling rig in order to provide adequate shielding for the affected NSRs.</li> </ul>	All Construction sites (late 2007 to 2016)	CEDD	Lam – Po Wing JV	J	J	TM on EIA Process, NCO, TM on Noise from Construction Work other than Percussive Pilling, ProPECC Note PN2/93

# Implementation Schedule for Construction Noise Control

\* All recommendations and requirements are summarized from approved EIA resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project,



EIA Ref.	EM&A Log Ref.		completion of	Funding Agent	Implementation Agent	Implementation Stages**		Relevant Legislation & Guidelines
			measures)			D	С	
S6.4	S1	<ul> <li>Construction Phase</li> <li>All active working areas should be bounded to retain storm water with sufficient retention time to ensure that suspended solids are not discharged from the site in concentrations above those specified in the TM for the Victor Harbour (Phase I) WCZ. All fuel storage areas should be bounded with drainage directed to an oil interceptor.</li> <li>Separate treatment facilities may be required for effluent from site offices, toilets (unless chemical toilets are used) and canteens.</li> <li>Discharged wastewater from the construction sites to surface water and /or public drainage systems should be controlled through licensing. Discharges should follow fully the terms and conditions in the licences.</li> <li>Relevant practice for dealing with various typr of construction discharges provided in EPD's ProPECC Note 1/94 should be adopted.</li> </ul>	All Construction sites (late 2007 to 2016)	CEDD	Lam – Po Wing JV	J	J	TM on EIA Process, WPCO, ProPECC Note PN 1/94

#### Implementation Schedule for Water Quality Control

\* All recommendations and requirements are summarized from approved EIA resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project,



EIA Ref.	EM&A Log Ref.	_og Ref.	Location (duration/ completion of	Funding Agent	Implementation Agent	Implementation Stages**		Relevant Legislation & Guidelines
			measures)			D	С	-
S8.4	S1,S4	<ul> <li>Waste Disposal</li> <li>Different types of wastes should be segregated, stored, transported and disposed of proper practice of waste management.</li> <li>Sorting of wastes should be done on-site. Different types of wastes should be segregated and stored in different stockpiles, containers or skips to enhance recycling of materials and proper disposal of wastes.</li> <li>Excavated spoil should be used as much as possible to minimize off-site fill material requirements and disposal of spoil.</li> <li>During road transportation of excavated spoil, vehicles should be installed at all site exits together with regular qatering of the site access roads.</li> <li>Chemical waste should be recycled on-site or removed by licenced companies. It should be handled according to the Code of practice on the packaging, Labelling and Storage of Chemical Wastes. When off-site disposal is required, it should be collected and delivered by licenced contractors to Tsing Yi Chemical Waste Treatment Facility and disposed of in accordance with the Chemical Waste (General) Regulation.</li> <li>Necessary mitigation measures should be adopted to prevent the uncontrolled disposal of chemical and hazardous waste into air, soil, surface waters and ground waters.</li> </ul>	All Construction sites (late 2007 to 2016)	CEDD	Lam – Po Wing JV	J	J	TM on EIA Process, WDO, DGO, Waste Disposal (Chemical Waste) (General) Regulation

Implementation Schedule for Construction Waste Management



Waste Storage			
<ul> <li>Chemical material storage areas should be bounded, constructed of impervious materials, and have the capacity to contain 120 percent of the total volume of the containers. Indoor storage areas must have sufficient ventilation to prevent the build-up of fumes, and must be capable of evacuating the space in the event of an accidental release. Outdoor storage areas must be covered with a canopy or contain provisions for the safe removal of rainwater. In both cases, storage areas must not be connected to the foul or stormwater sewer system.</li> </ul>			
<ul> <li>Dangerous materials as defined under the DGO, including fuel, oil and lubricants, should be stored and properly labeled on site in accordance with the requirements in the DGO. If transportation of hazardous materials is necessary, hazardous materials, chemical wastes and fuel should be packed or stored in containers or vessels of suitable design and construction to prevent leakage, spillage or escape.</li> </ul>			
<ul> <li>Human waste should be discharged into septic tanks provided by the contractors and removed regularly by a hygiene services company. Refuse containers such as open skips should be provided at every work site for use by the workforce; On-site refuse collection points must also be provided.</li> </ul>			

\* All recommendations and requirements are summarized from approved EIA resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project,



Appendix 4.1

Action and Limit Level



#### **Action and Limit Level**

#### Action and Limit Level for Noise Monitoring

Time Period	Action Level	Limit Level
07:00 – 19:00 hours on normal weekdays	When one documented complaint is received.	75 dB(A)/ 70 dB(A)/ 65 db(A) <sup>Note 1</sup>

Note 1:

- 70dB(A) and 65 dB(A) for schools during normal teaching periods and school examination periods, respectively.

- If works are to be carried out during the restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.

#### Action and Limit Level for Air Monitoring

Monitoring Location	1-hour TSP Level i	n $\mu$ g/m <sup>3</sup>	24-hour TSP Level in $\mu$ g/m <sup>3</sup>		
	Action Level	Limit Level	Action Level	Limit Level	
AQM1	197	500	200	260	



Appendix 4.2

**Copies of Calibration Certificates** 



Tel : (852) 2873 6860 Fax : (852) 2555 7533



# CERTIFICATE OF CALIBRATION

Certificate No.:	15CA1203 04-02	2	Page:	1 of 2
Item tested				
Description:	Acoustical Calibre	rator (Class 1)		
Manufacturer:	Rion Co., Ltd.	and the second of		
Type/Model No.:	NC-73			
Serial/Equipment No.:	10707358			
Adaptors used:	-			
Item submitted by				
Curstomer:	Lam Geotechnic	s Ltd.		
Address of Customer:				
Request No .:	-			
Date of receipt:	03-Dec-2015			
Date of test:	04-Dec-2015			
Reference equipment	used in the cali	bration		
Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	15-Apr-2016	SCL
Preamplifier	B&K 2673	2239857	22-Apr-2016	CEPREI
Measuring amplifier	B&K 2610	2346941	22-Apr-2016	CEPREI
Signal generator	DS 360	61227	16-Apr-2016	CEPREI
Digital multi-meter	34401A	US36087050	17-Apr-2016	CEPREI
Audio analyzer	8903B	GB41300350	17-Apr-2016	CEPREI
Universal counter	53132A	MY40003662	16-Apr-2016	CEPREI
Ambient conditions				

## Ambient conditions

22 ± 1 °C		
50 ± 10 %		
1010 ± 5 hPa		

## **Test specifications**

- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B 1, and the lab calibration procedure SMTP004-CA-156.
- 2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- 3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

### **Test results**

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on page 2 of this certificate.

05-Dec-2015 Date:



Approved Signatory:

Huang Jian Mir/Feng Jun Qi

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

Soils & Materials Engineering Co., Ltd

Form No.CARP156-1/Issue 1/Rev.D/01/03/2007

Company Chop:

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. 028 - CAL) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS Directory of Accredited Laboratories. The results shown in this certificate were determined by this laboratory in accordance with its terms of accreditation. Such terms of accreditation stipulate that the results shall be traceable to the International System of Units (S.I.) or recognised measurement standards. This certificate shall not be reproduced except in full.



# 綜合試驗有限公司 SOILS & MATERIALS ENGINEERING CO., LTD.

G/F, 9/F, 12/F, 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong. 香港黄竹坑道37號利達中心地下,9樓,12樓,13樓及20樓 E-mail: smec@cigismec.com Website: www.cigismec.com Tel : (852) 2873 6860 Fax : (852) 2555 7533



# CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.:

15CA1203 04-02

Page: 2 of 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

Frequency	Output Sound Pressure	Measured Output	Estimated Expanded
Shown	Level Setting	Sound Pressure Level	Uncertainty
Hz	dB	dB	dB
1000	94.00	94.05	0.10

## 2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz	STF = 0.002 dB
Estimated expanded uncertainty	0.005 dB

## 3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

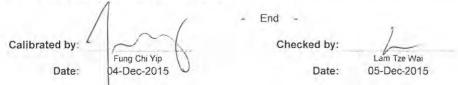
At 1000 Hz	Actual Frequency = 992.8 Hz	
Estimated expanded uncertainty	0.1 Hz	Coverage factor k = 2.2

## 4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz	TND = 0.3 %
Estimated expanded uncertainty	0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.



The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

Soils & Materials Engineering Co., Ltd.	Form No.CARP156-2/Issue 1/Rev.C/01/05/2005
Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. 028 - 0	CAL) under the Hong Kong Laboratory Accreditation Scheme
(HOKLAS) for specific calibration activities as listed in the HOKLAS Directory of Accredi	ted Laboratories. The results shown in this certificate were
determined by this laboratory in accordance with its terms of accreditation. Such terms of a	accreditation stipulate that the results shall be traceable to the
International System of Units (S.I.) or recognised measurement standards. Th	his certificate shall not be reproduced except in full.



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Tel : (852) 2873 6860 Fax : (852) 2555 7533



# CERTIFICATE OF CALIBRATION

Certificate No.:	16CA0226 04-02	Page:	1	of	2	
Item tested						
Description:	Acoustical Calibrator (Class 1L)					
Manufacturer:	CESVA, SPAIN					
Type/Model No.:	CB-5					
Serial/Equipment No.:	0035092					
Adaptors used:	8					
Item submitted by						
Customer:	Lam Geotechnics Ltd.					
Address of Customer:	-					
Request No.:						
Date of receipt:	26-Feb-2016					
Date of test:	27-Feb-2016					

# Date of test: 27-Feb-2016

## Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	15-Apr-2016	SCL
Preamplifier	B&K 2673	2239857	22-Apr-2016	CEPREI
Measuring amplifier	B&K 2610	2346941	22-Apr-2016	CEPREI
Signal generator	DS 360	61227	16-Apr-2016	CEPREI
Digital multi-meter	34401A	US36087050	17-Apr-2016	CEPREI
Audio analyzer	8903B	GB41300350	17-Apr-2016	CEPREI
Universal counter	53132A	MY40003662	16-Apr-2016	CEPREI

## **Ambient conditions**

Temperature:	*21 ± 1 °C	
Relative humidity:	55 ± 10 %	
Air pressure:	1010 ± 5 hPa	

## **Test specifications**

- 1. The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- 2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

## **Test results**

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on page 2 of this certificate.

Huana tian Feng Jun Oi

Date: 01-Mar-2016



Comments: The results reported in this sertificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

© Soils & Materials Engineering Co., Ltd.

**Approved Signatory:** 

Form No CARP156-1/Issue 1/Rev D/01/03/2007

Company Chop:

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. 028 - CAL) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS Directory of Accredited Laboratories. The results shown in this certificate were determined by this laboratory in accordance with its terms of accreditation. Such terms of accreditation stipulate that the results shall be traceable to the International System of Units (S.I.) or recognised measurement standards. This certificate shall not be reproduced except in full.



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Tel : (852) 2873 6860 Fax : (852) 2555 7533



# CERTIFICATE OF CALIBRATION

(Continuation Page)

16CA0226 04-02

2 Page: 2 of

#### Measured Sound Pressure Level 1.

Certificate No.:

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	(Output level in dB re 20 μPa) Estimated Expanded Uncertainty dB
1000	94.00	94.04	0.10

#### 2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz	STF = 0.002 dB
Estimated expanded uncertainty	0 005 dB

Estimated expanded uncertainty

#### **Actual Output Frequency** 3.

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz	Actual Frequency = 1000.6 Hz		
Estimated expanded uncertainty	0 1 Hz	Coverage factor $k = 2.2$	

#### 4 **Total Noise and Distortion**

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz	TND = 0.7 %
Estimated expanded uncertainty	0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.



The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

© Soils & Materials Engineering Co., Ltd. Form No CARP156-2/Issue 1/Rev C/01/05/2005 Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. 028 - CAL) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS Directory of Accredited Laboratories. The results shown in this certificate were determined by this laboratory in accordance with its terms of accreditation. Such terms of accreditation stipulate that the results shall be traceable to the International System of Units (S.I.) or recognised measurement standards. This certificate shall not be reproduced except in full.

# **Calibration Certificate**

Issued By: Castle Group Ltd

Date Of Issue : 26/01/15 Certificate No : 069819/63570

All instruments are tested to check compliance with particular specifications. These specifications may be appropriate British Standards, or if the instrument was not originally designed to meet any British Standard, or when the instrument was originally manufactured a relevant British Standard did not exist, the instrument will be tested to the manufacturer's original specification.

Absolute acoustic calibration of acoustic calibrators and sound level meters is checked at one or more standard frequencies against an independent sound source with calibration directly traceable to the National Physical Laboratory (NPL) in the United Kingdom. The NPL reference applicable for the calibration of the test equipment is shown below.

The performance of the instrument was determined by comparison with the manufacturers' specification as found in the instrument handbook or other technical publication. Any significant uncertainty of the measuring system will also be included.

The instrument was allowed to stabilise for a period of 30 minutes prior to measurements made.

The ambient temperature and relative humidity throughout calibration were 23  $\pm 2$  °C and 37% RH respectively.

Instruments used to carry out this calibration are as follows: -Multifunction Calibrator 4226 Serial No: 1551589 Applicable Reference: S6312.

Subject of Calibration: GA116L Instrument: Safety / Environmental Data-logging Sound Meter Serial No: 069819

Preamplifier Data Preamplifier Type: MK580P1B Preamplifier Serial No: 3133

Microphone Data Microphone Type: MK80 Microphone Serial No: 59018

Basis Of Test: Compliance to IEC 61672-1 : 2002 Class 1, IEC 61252 : 1993

Calibrated By: H. Aistrop (Approved Signatory)

Date of Calibration: 26 Jan 2015 Completed Status: Pass

completed Status, Pas

Client: Address: Checked By: O. L. Wrightson [Approved Signatory]

Recalibration Due: 01 Oct 2016

Castle

Client Reference:

Castle Group Ltd

Salter Road, Scarborough Business Park, Scarborough, North Yorkshire YO11 3UZ United Kingdom t: +44 (0)1723 584250 f: +44 (0)1723 583728 e: sales@castlegroup.co.uk www.castlegroup.co.uk



# Calibration Data for High Volume Sampler (TSP Sampler)

Location		Ning Po No.2 College	Calbration Date	:	13-Jul-16
ID	4	HVS003	Calbration Due Date	:	13-Sep-16

## CALIBRATION OF CONTINUOUS FLOW RECORDER

				Ambient Co	ndition				
Temperature, T <sub>a</sub>		30:	2	Kelvin	Pressure, P <sub>a</sub>		1005	mmHg	
			Orifice Tr	ansfer Stan	dard Information				
Equipment No.		Ori002		Slope, m <sub>c</sub>	2.10714	Intercept, b	c	-0.05158	
Last Calibration Date		20-May-	16		(HxP <sub>a</sub> /	1013.3 x 298	/T <sub>a</sub> ) <sup>1/2</sup>		
Next Calibration Date		20-May-	17	í	= <i>m</i>	$c x Q_{std} + b_c$			
			-	Calibration	of TSP				
Calibration	Ma	nometer R	eading	Q	std Cor	ntinuous Flow		IC	
Point	Point H (in		water)	(m <sup>3</sup> /	/ min.) F	Recorder, W		(W(P <sub>p</sub> /1013.3x298/T <sub>p</sub> ) <sup>1/2</sup> /35.31)	
	(up)	(down)	(difference)	X-4	axis	(CFM)	Also -	Y-axis	
1	5.9	5.9	11.8	1.6	372	54		53.4211	
2	4.7	4.7	9.4	1.4	639	44		43.5283	
3	3.6	3.6	7.2	1.2	842	39		38.5819	
4	2.2	2.2	4.4	1.0	093	20		19.7856	
5	1.4	1.4	2.8	0.8	101	14		13.8499	
By Linear Regression of Y	on X								
	Slope, m	ic cě.	49.1	800	Intercept,	b = -	27.0983		
Correlation Co	pefficient*	-	0.99	922					
Calibration	Accepted	=	Yes/	No**					

\* if Correlation Coefficient < 0.990, check and recalibration again.

\*\* Delete as appropriate.

Remarks : As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been

re-as	signed from	n EL086 to HVS003 with respect to the up	date in quality management system.		
Calibrated by	:	Kit Au	Checked by	1	Pauline Wong
Date	:	13-Jul-16	Date	:	13-Jul-16

Pilot Testing Limited

Room B12, Block B, 5/F, Tonic Industrial Centre, 19 Lam Hing Street, Kowloon Bay, Kowloon. Tel: (852) 2527 6691 email: info@pilot-testing.com



# Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	Ning Po No.2 College	Calbration Date	÷	13-Sep-16
ID	;	HVS003	Calbration Due Date	;	13-Nov-16

## CALIBRATION OF CONTINUOUS FLOW RECORDER

				Ambient Condi	tion			
Temperature, T <sub>a</sub>	301			Kelvin Pre	essure, P <sub>a</sub>	-	1010	mmHg
			Orifice Tr	ansfer Standar	d Information			
Equipment No.	Equipment No. Ori002				2.10714	Intercept, b	c	-0.05158
Last Calibration Date		20-May-	16		(HxPa/	1013.3 x 298	/T <sub>a</sub> ) <sup>1/2</sup>	
Next Calibration Date		20-May-	17		= m <sub>c</sub>	$c x Q_{std} + b_c$	8	
			-	Calibration of	rsp	_		
Calibration	Ma	nometer R	eading	Q std	Con	tinuous Flow		IC
Point	H (inches of water)		(m <sup>3</sup> / mi	n.) R	ecorder, W	(W(P <sub>a</sub> /1013	.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31	
	(up)	(down)	(difference)	X-axis		(CFM)		Y-axis
1	1.3	1.3	2.6	0.7846	5	14	1	3.9074
2	2.2	2.2	4.4	1.0134	4	21	2	20.8610
3	3.8	3.8	7.6	1.324		38	3	37.7485
4	4.8	4.8	9.6	1.4852	2	48	4	17.6824
5	6.2	6.2	12.4	1.6846	3	58	ŧ	57.6162
By Linear Regression of Y	on X							
	Slope, m	=	50.1	143	Intercept,	b =	27.4998	
Correlation Co	pefficient*	=	0.99	953				
Calibration	Accepted	=	Yes/	No**				

\* if Correlation Coefficient < 0.990, check and recalibration again.

\*\* Delete as appropriate.

Remarks : As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been

10 00	orginou nor		e update in quality management system.		
Calibrated by	:	Jackey MA	Checked by	:	Pauline Wong
Date	:	13-Sep-16	Date	:	13-Sep-16

Pilot Testing Limited Room B12, Block B, 5/F, Tonic Industrial Centre, 19 Lam Hing Street, Kowloon Bay, Kowloon. Tel: (852) 2527 6691 email: info@pilot-testing.com



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

		Rootsmeter Orifice I.I		438320 3166	Ta (K) - Pa (mm) -	293 - 748.03
PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1 2 3 4 5	NA NA NA NA NA	NA NA NA NA	1.00 1.00 1.00 1.00 1.00	1.4270 1.0220 0.9100 0.8730 0.7180	3.2 6.4 7.9 8.8 12.7	2.00 4.00 5.00 5.50 8.00

## DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9967 0.9925 0.9904 0.9892 0.9840	0.6985 0.9711 1.0883 1.1332 1.3705	1.4150 2.0010 2.2372 2.3464 2.8299	0.9957 0.9915 0.9893 0.9882 0.9830	0.6977 0.9701 1.0872 1.1320 1.3691	0.8851 1.2517 1.3995 1.4678 1.7702
Qstd slo intercep coeffici y axis =	t (b) = ent (r) =	2.10714 -0.05158 0.99978 	Qa slop intercep coeffici y axis =	t (b) =	1.31946 -0.03226 0.99978

## 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 =  $1/m\{ [SQRT H2O(Ta/Pa)] - b \}$ 



Appendix 5.1

Monitoring Schedules for Reporting Month and Coming Reporting Month



## Contract No. CV/2012/07 Development at Anderson Road - Footbridge D and Associated Works Area Tentative Environmental Monitoring Schedule September 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28-Aug				1-Sep 1hr TSP x 3 Noise	2-Sep	3-Sep
4-Sep	5-Sep	24 hr TSP	7-Sep 1hr TSP x 3 Noise	8-Sep	9-Sep	10-Sep
11-Sep	12-Sep 24 hr TSP	13-Sep 1hr TSP x 3 Noise	14-Sep	15-Sep		17-Sep 24 hr TSP
	19-Sep 1hr TSP x 3 Noise	20-Sep	21-Sep			24-Sep 1hr TSP x 3
25-Sep	26-Sep	27-Sep	28-Sep	24 hr TSP	30-Sep 1hr TSP x 3 Noise	

Noise Monitoring Station NM1: Tin Wan House NM2: Ning Po No. 2 College Air Monitoring Station AQM1: Ning Po No.2 College



## Contract No. CV/2012/07 Development at Anderson Road - Footbridge D and Associated Works Area Tentative Environmental Monitoring Schedule October 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
2-Oct	3-Oct	4-Oct	5-Oct 24 hr TSP	6-Oct 1hr TSP x 3 Noise	7-Oct	8-Oct
9-Oct	10-Oct		12-Oct 1hr TSP x 3 Noise	13-Oct	14-Oct	15-Oct
16-Oct		18-Oct 1hr TSP x 3 Noise	19-Oct	20-Oct		22-Oct 24 hr TSP
	24-Oct 1hr TSP x 3 Noise	25-Oct	26-Oct			29-Oct 1hr TSP x 3
30-Oct	31-Oct					

Noise Monitoring Station NM1: Tin Wan House NM2: Ning Po No. 2 College Air Monitoring Station AQM1: Ning Po No.2 College



Appendix 5.2

Noise Monitoring Results and Graphical Presentations



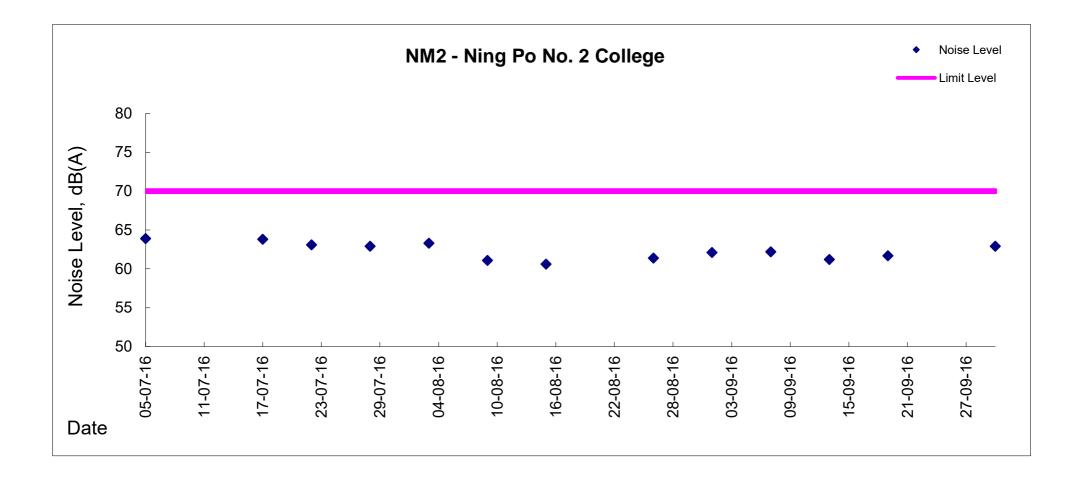
## Contract No. CV/2012/07 Development at Anderson Road -Footbridge D and Associated Works Area

JOB NO : CS\_J2013-02\_CV201207 CLIENT : LPWJV

		Daytir	ne(07:00-19:00)		
Date	Time	Location	Leq (dB)	L10 (dB)	L90 (dB)
1-Sep-16	13:21	NM1	63.3	64.0	58.4
1-Sep-10	14:15	NM2	62.1	63.4	60.1
7-Sep-16	13:41	NM1	61.8	63.3	57.2
7-Sep-10	14:25	NM2	62.2	63.8	59.9
13-Sep-16	13:11	NM1	63.4	64.7	60.5
13-3ep-10	14:14	NM2	61.2	62.9	56.9
19-Sep-16	13:19	NM1	62.1	63.3	57.5
19-3ep-10	14:23	NM2	61.7	63.0	56.3
30-Sep-16	13:21	NM1	62.4	64.0	59.4
30-3ep-10	14:40	NM2	62.9	63.7	58.8

NM1 - Tin Wan House

NM2 - Ning Po No. 2 College





Appendix 5.3

Air Quality Monitoring Results and Graphical Presentations

Location: AQM1-Ning Po No.2 College

Report on 24-hour TSP monitoring Action Level (µg/m3) - 200 Limit Level (µg/m3) - 260

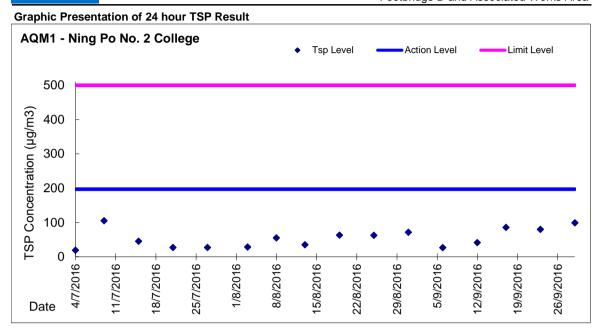
Date	Sampling Weather Filter Filter Weight, g		Elapse Time, hr		Sampling	Flow Rate, m <sup>3</sup> /min		<sup>3</sup> /min	Total	TSP Level,			
	Time	Condition	paper no.	Initial	Final	Initial	Final	Time, hr	Initial, Q <sub>si</sub>	Final, Q <sub>sf</sub>	Average	/olume, m	µg/m³
6-Sep-16	8:00	Cloudy	16839	2.6857	2.7381	5512.59	5536.59	24.00	1.37	1.37	1.37	1971	27
12-Sep-16	8:00	Cloudy	17170	2.8240	2.9050	5539.60	5563.60	24.00	1.37	1.37	1.37	1970	41
17-Sep-16	8:00	Fine	17335	2.7528	2.9161	5566.60	5590.60	24.00	1.33	1.33	1.33	1911	85
23-Sep-16	8:00	Fine	17325	2.8012	2.9562	5593.60	5617.60	24.00	1.35	1.35	1.35	1943	80
29-Sep-16	8:00	Fine	17399	2.7927	2.9857	5620.60	5644.60	24.00	1.35	1.35	1.35	1943	99

## Report on 1-hour TSP monitoring Action Level (µg/m3) - 197 Limit Level (µg/m3) - 500

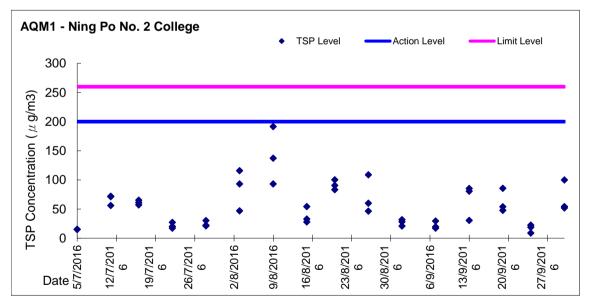
Date	Sampling	Weather	Filter	Filter Weig	ht, g	Elapse Tim	ne, hr	Sampling	Flov	v Rate, m <sup>3</sup>	/min	Total	TSP Level,
	Time	Condition	paper no.	Initial	Final	Initial	Final	Time, hr	Initial, Q <sub>si</sub>	Final, Q <sub>sf</sub>	Average	/olume, m	µg/m <sup>3</sup>
1-Sep-16	13:01	Cloudy	16823	2.6742	2.6768	5509.59	5510.59	1.00	1.36	1.36	1.36	82	32
1-Sep-16	14:05	Cloudy	16822	2.6584	2.6601	5510.59	5511.59	1.00	1.36	1.36	1.36	82	21
1-Sep-16	15:10	Cloudy	16821	2.6311	2.6334	5511.59	5512.59	1.00	1.36	1.36	1.36	82	28
7-Sep-16	13:00	Cloudy	15596	2.8581	2.8597	5536.59	5537.59	1.00	1.37	1.37	1.37	82	19
7-Sep-16	14:05	Cloudy	17184	2.8201	2.8215	5537.59	5538.59	1.00	1.37	1.37	1.37	82	17
7-Sep-16	15:10	Cloudy	17183	2.8134	2.8158	5538.59	5539.59	1.00	1.37	1.37	1.37	82	29
13-Sep-16	13:00	Cloudy	17167	2.7995	2.8061	5563.60	5564.60	1.00	1.37	1.37	1.37	82	80
13-Sep-16	14:10	Cloudy	16166	2.7945	2.8015	5564.60	5565.60	1.00	1.37	1.37	1.37	82	85
13-Sep-16	15:15	Cloudy	16165	2.7958	2.7983	5565.60	5566.60	1.00	1.37	1.37	1.37	82	30
19-Sep-16	13:01	Fine	17328	2.8111	2.8149	5590.60	5591.60	1.00	1.33	1.33	1.33	80	48
19-Sep-16	14:07	Fine	17327	2.8141	2.8184	5591.60	5592.60	1.00	1.33	1.33	1.33	80	54
19-Sep-16	15:09	Fine	17326	2.8127	2.8195	5592.60	5593.60	1.00	1.33	1.33	1.33	80	85
24-Sep-16	13:01	Fine	17402	2.8195	2.8202	5617.60	5618.60	1.00	1.35	1.35	1.35	81	9
24-Sep-16	14:05	Fine	17401	2.8219	2.8237	5618.60	5619.60	1.00	1.35	1.35	1.35	81	22
24-Sep-16	15:10	Fine	17400	2.8340	2.8355	5619.60	5620.60	1.00	1.35	1.35	1.35	81	19
30-Sep-16	13:05	Fine	17392	2.7795	2.7876	5644.60	5645.60	1.00	1.35	1.35	1.35	81	100
30-Sep-16	14:10	Fine	17391	2.7835	2.7877	5645.60	5646.60	1.00	1.35	1.35	1.35	81	52
30-Sep-16	15:15	Fine	17390	2.8008	2.8052	5646.60	5647.60	1.00	1.35	1.35	1.35	81	54

am

Contract No. CV/2012/07 Development at Anderson Road -Footbridge D and Associated Works Area



## Graphic Presentation of 1 hour TSP Result





Appendix 6.1

**Event Action Plans** 



## **Event/Action Plan for Construction Noise**

EVENT		A	CTION	
	ET	IC(E)	ER	CONTRACTOR
Exceedance for Action Level	<ol> <li>Notify IC(E) and Contractor;</li> <li>Carry out investigation;</li> <li>Report the results of investigation to IC(E) and Contractor;</li> <li>Discuss with Contractor and formulate remedial measures;;</li> <li>Increase monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol> <li>Review the analysed results submitted by ET;</li> <li>Review the proposed remedial measures by the Contractor and advise ER accordingly;</li> <li>Supervise the implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>Ensure remedial measures are properly implemented.</li> </ol>	<ol> <li>Submit noise mitigation proposals to IC(E);</li> <li>Implement noise mitigation proposals.</li> </ol>
Exceedance for Limited Level	<ol> <li>Notify IC(E), ER, EPD and Contractor;</li> <li>Identify sources;</li> <li>Repeat measurements to confirm finding;</li> <li>Increase monitoring frequency;</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>Inform IC(E), ER and EPD the causes and actions taken for the exceedances;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results;</li> <li>If exceedance stops, cease additional monitoring.</li> </ol>	<ol> <li>Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly.</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>Ensure remedial measures are properly implemented;</li> <li>If exceedance continues, consider what portion of the work is responsible and instruct Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IC(E) within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Resubmit proposals if problem still not under control;</li> <li>Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>



## Event / Action Plan for Construction Air Quality

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



Appendix 6.2

Summary for Notification of Exceedance\_Air and Noise

Summary for Notification of Exceedance

Ref. No.	Date	Time	Location	Measured TSP Level	Unit	Action Level	Limit Level	Follow-up action		
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

Summary for Notification of Exceedance

Ref. No.	Date	Time	Location	Construction Noise Level	Unit	Action Level	Limit Level	Follow-up action
N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A



Appendix 8.1

Complaint Log



# Environmental Complaints Log

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome		Status
140813	13 Aug 2014	Resident complained via hotline by RE	The slope opposite to Tin Wan House, Shun Tin Estate, Kowloon	Noise was emanated from the construction site at the slope opposite to Tin Wan House, Shun Tin Estate, Kowloon at around 1620 hrs on 13 Aug 2014 and requested follow up action by relevant department.	<ol> <li>ET col constr slope</li> <li>After r statior Colleg routine constr was cr noise Contra statuto</li> <li>In add condu the ins noise</li> </ol>	notified ET on 15 Aug 2014 onfirmed with site staff the major noise generating ruction activities undertaken at works area at the opposite to Tin Wan House including slope works reviewing the noise monitoring data at monitoring ns (NM1 - Tin Wan House and NM2 - Ning Po No.2 ge), no limit level exceedances were recorded during re noise monitoring event on 14 Aug 2014. As similar ruction works activities conducted on 13 Aug 2014 continued across the above monitoring period, the emanated from the construction activities under fact CV/2012/07 was considered to comply with the tory requirement. Idition, weekly environmental site inspection was ucted on 12 Aug 2014 at around 10:00. According to ispection record, no particular observation regarding impact was recorded and the mitigation measures ding erection of temporary noise barrier was observed ce.	Closed



Appendix 9.1

Construction Programme

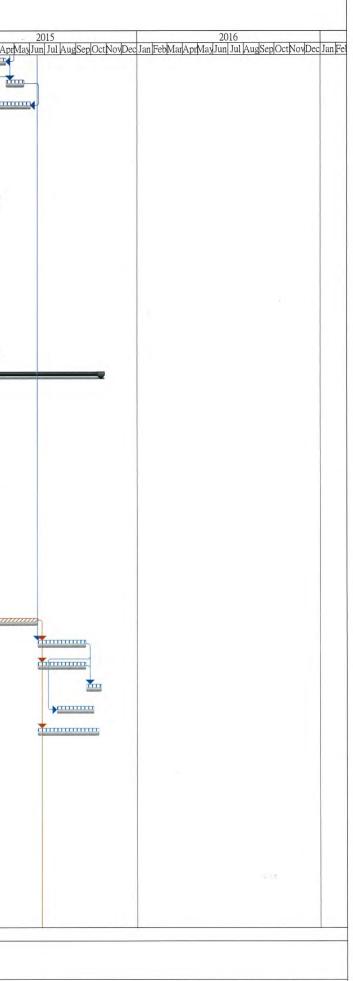
				1				d Associated Worl	KS				
	Task Name	Duration	Start	Finish Predecessors	Successors	Total Slack	2 Po Ian FebMar AniMay Juu	13	2014 an FebMarlAnrMay Jun Jul AugSepOct	20 NovDec Ian FebMarAprMayJur	)15 Jul AugSepOctNovDe	2016 ec Jan FebMarAprMayJun Jul AugSepOc	tNovDec J;
WBS 1	Development at Anderson Road - Footbridge D and Associated Works			Wed 30/11/16	5466635013	0 days			ant ook and statistic and a set to do a film of				
1.1	PRELIMINARY WORK	578 days	Thu 31/01/13	Sun 01/02/15		541 days							
1.1.1	Application of XP, Site Access from Highways	140 days		Wed 31/07/13	88								
1.1.1	Tree Survey		Mon 18/02/13			0 days	-						
1.1.2	Transplant		Mon 04/03/13			0 days	-						
1.1.4	Air & noise baseline monitoring		Mon 18/02/13		46,47								
1.1.5	Record Survey, Condition Survey and Setting Out		Thu 31/01/13			1029 days							
1.1.6	Erect Fencing and Hoarding As Directed		Mon 08/04/13		16	5 491 days							
1.1.7	Design and material submission	120 days			38,79	) 128 days							
1.1.8	Handover of Portion A, B & C1	0 days		Sat 28/09/13	61	109 days		<b>∳</b> _28/09					
1.1.9	Handover of Portion E1	0 days		Fri 31/05/13		1029 days	•	1/05					
1.1.10	Handover of Portion E2	0 days		Sun 01/02/15		541 days				♦ 01/02			
1.2	Section 1	781 days		Tue 01/12/15		20 days							
1.2.1	Lift Tower D-A	475 days	Wed 05/06/13	Wed 14/01/15		491 days							
5 1.2.1.1	Method statement and material submission			Tue 29/10/13 18SS-60 day	S	905 days		<b></b>					
5 1.2.1.2				Tue 03/12/13 8	1785	s 491 days							
1.2.1.3				Tue 03/12/13 16SS	18	3 491 days							
1.2.1.4			Wed 04/12/13		19,15SS-60 day	s 491 days		Tur	h				
1.2.1.5		80 days			20,4								
1.2.1.6				Tue 22/07/14 19	21,22								
1.2.1.7				Wed 19/11/14 20	22FF+:								
					days,23,24FS-60 days,54								
2 1.2.1.8	M&E Installation	100 days	Tue 29/07/14	Tue 25/11/14 20,21FF+5 d	lays 23,24FS-60 day	s 550 days							
3 1.2.1.9			Wed 26/11/14	Fri 02/01/15 21,22	24FF+7 day	s 553 days							
4 1.2.1.10				Wed 14/01/15 21FS-60 days,22FS-6 days,23FF+7 days	0	550 days			+				
5 1.2.2	Lift Tower D-B	480 days	Tue 08/10/13	3 Mon 01/06/15		439 days							
6 1.2.2.1	Method statement and material submission	30 days	Tue 08/10/13	Tue 12/11/13 27SS-60 day	/S	893 days		-					
7 1.2.2.2	Excavation for Raft footing	100 days	Wed 18/12/13	3 Tue 29/04/14 74	28SS,26SS-60 day	s 379 days							
8 1.2.2.3	Rock Joint Mapping for founding material of raft footing	g 100 days	Wed 18/12/13	3 Tue 29/04/14 27SS	2	9 379 days							
7 1.2.2.4	Construct Raft footing	30 days	Wed 30/04/14	Thu 05/06/14 28	3	0 379 days			<b>*</b>				
) 1.2.2.5	Construct RC Lift Tower and Retaining Wall	80 days	Fri 06/06/14	Wed 10/09/14 29	31,4	1 379 days							
1 1.2.2.6	Erect Steelwork for Lift Shaft	70 days	Thu 11/09/14	4 Wed 03/12/14 30	32,3	3 379 days							
32 1.2.2.7	Installation of Lift	100 days	Thu 04/12/14	4 Mon 13/04/15 31	33FF,34,35FS-6 days,5	0 379 days							
					uays,5	-							
Pate: Mon 1	0,00,10	ne Milestone 🛇	*		Miles		Basel						
repared By:	I.L. LO Baselir	ne Summary 🔺		Critical Task	Sumr	nary	Progr	\$\$					

Duration as shown by week day

				Dev		derson Road - I	Contract No. CV/2012/07 Footbridge D and Associated Works ev. 2)	
	sk Name	Duration	Start	Finish Predecessors	Successors 7	otal Slack Dec Ja	2013 Jan FebMar Apr May Jun Jul Aug Sep Oct Nov Dec Jan FebMar Apr May Jun Jul Aug Sep Oct Nov Dec Jar	FebMar
WBS 33 1.2.2.8	M&E Installation	100 days	Thu 04/12/14	Mon 13/04/15 32FF,31	34,35FS-60 days	443 days		
34 1.2.2.9	T & C of M&E Equipment	30 days	Tue 14/04/15	Tue 19/05/15 32,33	35FF+7 days	446 days		
35 1.2.2.10	Finishing and Metal Works	100 days	Fri 30/01/15	Mon 01/06/15 32FS-60 days,33FS-60 days,34FF+7 days		443 days		
36 1.2.3	Bridge Deck D-AB	563 days	Wed 24/04/13	Wed 25/03/15		188 days		
37 1.2.3.1	Method statement and material submission	30 days	Wed 24/04/13	Thu 30/05/13 38SS-60 days		1029 days		
38 1.2.3.2	Ordering of Material	100 days	Mon 08/07/13	Tue 05/11/13 9	39,37SS-60 days	128 days		
39 1.2.3.3	Fabrication of Steel work off site	100 days	Wed 06/11/13	Thu 13/03/14 38	40,80	128 days	**************************************	
40 1.2.3.4	Connecting the Bridge on site	60 days	Fri 14/03/14	Wed 28/05/14 39	41	582 days		
41 1.2.3.5	Erecting Steel bridge frame	7 days	Thu 11/09/14	Thu 18/09/14 40,30,19	89,42	496 days		
42 1.2.3.6	Irrigation system installation	60 days	Fri 19/09/14	Sat 29/11/14 41	43	496 days		
43 1.2.3.7	Roofing and finishing works on bridge	90 days	Mon 01/12/14	Wed 25/03/15 42		496 days	<b>*</b>	
44 1.2.4	Lift Tower D-C	726 days	Thu 02/05/13	Tue 20/10/15		0 days	specific and the second se	
45 1.2.4.1	Method statement and material submission	30 days	Tue 08/10/13	Tue 12/11/13 48SS-60 days		893 days		
46 1.2.4.2	Predrill & determine F/L (included all necessary preparation and test)	40 days	Thu 02/05/13	Wed 19/06/13 6	47,70,73	0 days		
47 1.2.4.3	Demolish the exixting structure	30 days	Thu 20/06/13	Fri 26/07/13 46,6	48	120 days		
48 1.2.4.4	Construct Pre-bored H pile (60 no) (included all necessar preparation and test)	y 160 days	Wed 18/12/13	Sat 12/07/14 47,72,74	49,45SS-60 days	0 days	Bored pile machine - A	(1no.)
49 1.2.4.5	Pile Testing	40 days		Thu 28/08/14 48	50	0 days		
50 1.2.4.6	Construct pile cap	30 days	Fri 29/08/14	Mon 06/10/14 49	51	0 days		
51 1.2.4.7	Construct superstructure to level 103.8	30 days		Mon 10/11/14 50	52	0 days		
52 1.2.4.8	Backfilling above pile cap	12 days		Mon 24/11/14 51	53	0 days		
53 1.2.4.9	Construct superstructure level 103.8~158.05	160 days	Tue 25/11/14	Mon 15/06/15 52	54,58,55,82	0 days		
54 1.2.4.10	Installation of Lift	80 days	Tue 16/06/15	Sat 19/09/15 53,21,32	56,57FS-49 days	327 days		
55 1.2.4.11	M&E Installation	80 days	Tue 16/06/15	Sat 19/09/15 53	56	327 days		
56 1.2.4.12	T & C of M&E Equipment	24 days	Mon 21/09/15	Tue 20/10/15 54,55		327 days		
57 1.2.4.13	Roofing Connection Tower D-B & D-C	60 days	Fri 24/07/15	Mon 05/10/15 54FS-49 days		340 days		
58 1.2.4.14	Finishing and Metal Works	100 days	Tue 16/06/15	Thu 15/10/15 53		331 days		
59 1.2.5	Pier D-D	450 days		Mon 02/02/15		169 days		
60 1.2.5.1	Method statement and material submission	30 days	Thu 18/07/13	Thu 22/08/13 61SS-60 days		960 days		
61 1.2.5.2	Slope Cutting	10 days		Thu 10/10/13 10	62,60SS-60 days	109 days		
62 1.2.5.3	Working platform for mini pile	40 days		Wed 27/11/13 61	63	109 days		
63 1.2.5.4	Predrill & determine $F/L$ (included all necessary preparation and test)	20 days	Thu 28/11/13	Fri 20/12/13 62	64	109 days	<u> </u>	
64 1.2.5.5	Construct mini pile (30 nos) (included all necessary preparation and test)	90 days	Sat 21/12/13	Thu 17/04/14 63	65	109 days	Mini pile machine - A (1no)	
Date: Mon 10/06/ Prepared By: T.L. I		e Milestone 🛇 e Summary 🔺	:		Milesto		Baseline Progress	
	tart ()n 31-Jan-2013 )-Nov-2016 (1399 days) yn by week day				Lam	- Po Win	ng Joint Venture	

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Landscape & Establishment Work Not Shown For Clarity

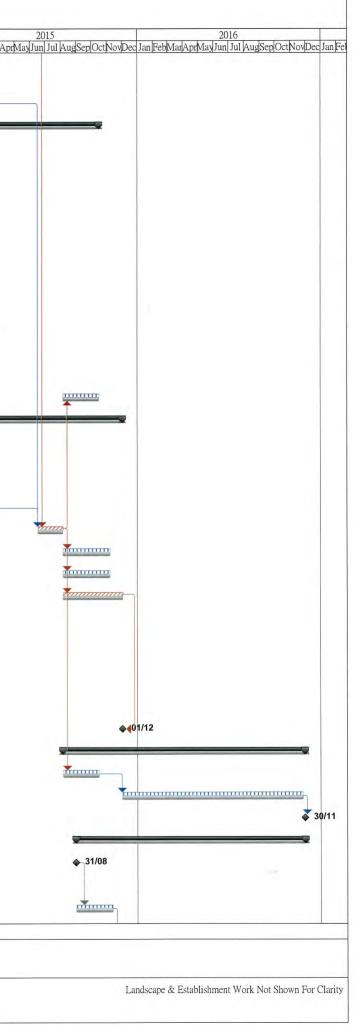
Master Programme For Contract No. CV/2012/07	
Development at Anderson Road - Footbridge D and Associated Works	
(P 2)	

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D	WBS	Name	Duration	Start	Finish Predecess	ors Successo	Total	Slack Dec.	2013 Jan FebMarAprMayJun Ji	ul AugSeplOctNov	ec Jan FebManAr	2014 orMayJun Jul AugS	SepOctNovDec	Jan Feb
	1.2.5.6	Pile Testing	40 days		Mon 09/06/14 64		66	109 days		and red of the local sector				
6	1.2.5.7	Construct pile cap	100 days	Tue 10/06/14	Thu 09/10/14 65		67	109 days						
7	1.2.5.8	Construct pier to level 152.1	90 days	Fri 10/10/14	Mon 02/02/15 66		82	109 days					*	
8	1.2.6	Slope Works	742 days	Mon 08/04/13	Thu 15/10/15			60 days						
9	1.2.6.1	Method statement and material submission	30 days	Mon 08/04/13	Mon 13/05/13 70SS-60	days		1043 days						
0	1.2.6.2	Slope Cutting, Soil Nail and Raking Drain (Row E (included all necessary preparation and test) 31nos	D-F) 50 days	Thu 20/06/13	Mon 19/08/13 46	71SS,72,6	9SS-60 days	50 days		Soil nail mac	chine-A (1no.)			
1	1.2.6.3	Construct Cascade and down pipe	120 days	Thu 20/06/13	Tue 12/11/13 70SS			893 days						
2	1.2.6.4	Slope Cutting, Soil Nail and Raking Drain (Row C (included all necessary preparation and test) 40nos		Tue 20/08/13	Sat 19/10/13 70		48	50 days		Soil I	aail machine-A (	1no.)		
73	1.2.6.5	Slope Cutting, Soil Nail and Raking Drain (Row S (included all necessary preparation and test) 103nc		Thu 20/06/13	Mon 07/10/13 46		74	0 days	2	Soil na	iil machine-B (1	no.)		
74	1.2.6.6	Slope Cutting, Soil Nail and Raking Drain (Row F (included all necessary preparation and test) 102nd		Tue 08/10/13	Tue 17/12/13 73	7	5,27,48	0 days		Tarana	?∼Soil nail macl	hine-B (1no.),Soil	nail machine	-A (1no
75	1.2.6.7	Construction of Inspection Access to Slope	120 days	Wed 18/12/13	Fri 23/05/14 74			743 days						
76	1.2.6.8	Constructio of Footpath (Portion B)	60 days	Wed 05/08/15	Thu 15/10/15 82			331 days						
77	1.2.7	Bridge Deck D-CE	767 days	Wed 24/04/13	Tue 01/12/15			208 days	-				-	-
78	1.2.7.1	Method statement and material submission	30 days	Wed 24/04/13	Thu 30/05/13 7988-60	days		1029 days						
79	1.2.7.2	Ordering of Material	180 days	Mon 08/07/13	Tue 18/02/14 9	80,78SS-	50 days	148 days						
80	1.2.7.3	Fabrication of Steel work off site	150 days	Fri 14/03/14	Mon 15/09/14 79,39		81	128 days			*****		3	
81	1.2.7.4	Connecting the Bridge on site	90 days	Tue 16/09/14	Sat 03/01/15 80		82	128 days						<u> </u>
82	1.2.7.5	Erecting Steel bridge frame	40 days	Tue 16/06/15	Tue 04/08/15 81,67,53	83,85,9	3,76,84	0 days						
83	1.2.7.6	M&E Installation	78 days	Wed 05/08/15	Fri 06/11/15 82			313 days						
84	1.2.7.7	Irrigation system installation	78 days	Wed 05/08/15	Fri 06/11/15 82			313 days						
85	1.2.7.8	Roofing and finishing works on bridge	99 days	Wed 05/08/15	Tue 01/12/15 82		91FF	0 days						
86	1.2.8	Drainage Works at Shun On Road	437 days	Tue 20/08/13	Wed 18/02/15			526 days					_	_
87	1.2.8.1	Method statement and material submission	30 days	Tue 20/08/13	Tue 24/09/13 88SS-60	days		933 days		<b>,</b>				
88	1.2.8.2	DN1500 drainage construction	90 days	Fri 01/11/13	Tue 25/02/14 3	87SS-	60 days	813 days						
89	1.2.8.3	DN375 and DN225 Drainage construction	60 days	Fri 19/09/14	Sat 29/11/14 41		90	526 days					The second second	
	1.2.8.4	Road Works and Reinstatement Works	60 days	Mon 01/12/14	Wed 18/02/15 89			526 days					-	
	1.2.9	Completion of Section 1	0 days		Tue 01/12/15 85FF			0 days						
		Section 2		Wed 05/08/15	Wed 30/11/16			1 day						
	1.3.1	Landscape Softworks for Footbridge D			Thu 15/10/15 82		94	42 days						
	1.3.2	Establishment Works for Footbridge D	289 days	Tue 01/12/15	Fri 25/11/16 93		95	4 days						
1	1.3.3	Completion of Section 2			Wed 30/11/16 94			1 day						
95	().	Section 3		Mon 31/08/15				0 days						
				Mon 31/08/15			98	0 days						
97	1.4.1	Notified by The Engineer for commencing (Subject t Excision)	u U days	NION 51/08/15	M001 31/06/13		70	Uuays						
98	1.4.2	Landscape Softworks for Footbridge D	60 days	Mon 31/08/15	Wed 11/11/15 97		99	20 days						
Date:	Mon 10/06/1	3	Baseline Milestone 🛇				Milestone	*	Baseline					
Prepa	ured By: T.L. Lo		Baseline Summary	A	Critical Task		Summary	-	Progress					

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Master Programme For Contract No. CV/2012/07 Development at Anderson Road - Footbridge D and Associated Works (Rev. 2)												
ID WBS 99 1.4.3	Task Name	Duration	Start	Finish	Predecessors	Successors	Total Slack		2013 Jun Jul AugSepOctNovDe	2014 c Jan FebMarAprMayJun Jul AugSepOctNovD	2015 ec Jan FebMarAprMayJun Jul AugSepOctNovDec	2016 San FebMarAprMayJun Jul AugSepOctNovDec Jan
99 1.4.3	Landscape Softworks and Establishment Works for Footbridge A, B and C	289 days	Thu 12/11/1	5 Mon 07/11	/16 98	10	00 20 day:	5				
100 1.4.4	Completion of Section 3	0 days	Wed 30/11/10	6 Wed 30/11	/16 99		0 days	5				<b>3</b> 0/11

Date: Mon 10/06/13	Baseline Milestone ♦	Task	Milestone	٠	Baseline		
Prepared By: T.L. Lo	Baseline Summary	Critical Task	Summary	-	Progress		
Assume Contract Start On 31-Jan-2013 and Finish On 30-Nov-2016 (1399 days) Duration as shown by week day			Lam - P	o Wing	g Joint Ventu	ure	

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Landscape & Establishment Work Not Shown For Clarity