

**MTR Corporation Limited**

**MTR Lai Chi Kok Station Pedestrian Subway and Entrance Works**

**Monthly Environmental Monitoring & Audit Report**

**16 October 2010 – 31 December 2010**

**Environmental Pioneers & Solutions Limited**

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Environment Permit No. EP-253/2006

MTR Lai Chi Kok Station Pedestrian Subway and Entrance Works

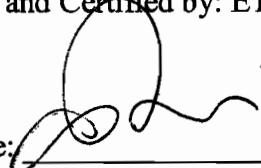
Response to Comments Table for EPD Letter Reference: (13) in EP2/K5/A/08 Pt. 4

Item	EPD's Comment(s)	E.T.'s Response(s)
1	Table 5.1: The total amount of Non-inert Waste (to Landfill) is not correct. Please rectify.	The total amount of Non-inert Waste is corrected from "1121.05" to "1149.05".
2	Table 6.1: Please check if '16 August 07 to 15 May 07' should be read as '16 August 07 to 15 May 08'	Yes, it should be "16 August 07 to 15 May 08" and it's corrected accordingly.
3	6.1 Summary Record for All complains Received (P.16-19): It is found that some information (e.g. Log Ref, dates) quoted in the summary table are different from the one included in the relevant EM&A reports. Please check the consistency.	Log Ref Nos "LCK-Ct01/08 (by contractor)" and "LCK-Ct02/08" is corrected to "LCK-Ct02/08" and "LCK-Ct03/08". Please note that "LCK-Ct03/08" was used twice for both complains reported on 15th May 2008 and 2nd July 2008 in the previous monthly EM&A Reports, so they will remain unchanged.
4	Please note that the EM&A Manual for the project was approved on 10 August 2007 under Condition 2.4 of the EP. The information that should be included in the Final EM&A Report is stated in the approved EM&A Manual. Please ensure all the required information is included in the Final EM&A Report.	Sections "3.6 Analysis of Trends of Monitored Parameters", "6.1 Summary Record for All Complaints Received" and "8.1 Review of Effectiveness and Efficiency of Mitigation Measures and Success of EM&A Programme" are added to satisfy the Final EM&A Review Report requirements listed in the EM&A Manual.

**APPROVAL SHEET**

Prepared and Certified by: ET Leader (Environmental Pioneers & Solutions Limited)

Signature: \_\_\_\_\_



Miss Patricia Chung  
(ET Leader)

Date: 11 MAR 2011

\* ET – Environmental Team

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MTR Lai Chi Kok Station

Cheung Lai Street Pedestrian Subway & Entrance Works

Environmental Permit No. EP – 253/ 2006

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**MTR Lai Chi Kok Station**

**Cheung Lai Street Pedestrian Subway & Entrance Works**

**Submission Document Title: Environmental Permit Conditions  
- Monthly EM&A Report**

**Environmental Permit No.: EP-253/ 2006**

**Independent Environmental Checker Ref: EP2532006-LCK-IEC-041**

*According to Permit Condition 1.9 of the above Environmental Permit, the titled document(s) certified by the Environmental Team Leader has been checked and verified by the undersigned.. The document is considered to be in environmental acceptable manner.*

*Verified by:*

  
*Dr. Glenn H Frommer*  
*Head of Sustainability Development*  
*of MTR Corporation*

11 MAR 2011

*Date*

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## **EXECUTIVE SUMMARY**

This is the 38<sup>th</sup> (FINAL) Monthly Environmental Monitoring and Audit (EM&A) Report for “MTRC Lai Chi Kok Station Pedestrian Subway and Entrance Works”. The Report concludes the environmental monitoring and audit works for the construction works undertaken during the period of 16 October 2010 to 31 December 2010.

Within the location of Designated Project as shown on Fig 1 of Environmental Permit No. EP- 253/2006, all civil construction and E&M works of the project were complete on 31 December 2010. The required environmental monitoring and audit works have been terminated since 31 December 2010 after the project completion.

The major construction activities in this reporting period include completion of the remaining connection works of subway box and escalator at Entrance D3 and the remaining works of the station entrance at Entrance D4 as well as the remaining E&M works inside the completed subway box sections. The on ground decoration works under separated contract managed by the Developer Sung Hung Kei was also complete.

Noise impact monitoring for construction maintained and conducted at the agreed NSRs with no exceedance recorded during this reporting periods. The Contractor's performance on environmental issues was considered to be satisfactory in general.

## **1 INTRODUCTION**

This is the 38<sup>th</sup> (FINAL) Monthly Environmental Monitoring and Audit (EM&A) Report for “MTRC Lai Chi Kok Station Pedestrian Subway and Entrance Works” (Environmental Permit No. EP-253/2006). This report concludes the impact monitoring and audit works for the construction works undertaken during the period of 16 October 2010 to 30 November 2010 and also concludes the whole project.

## **2 PROJECT INFORMATION**

### **2.1 Construction Program**

The overall project construction works have taken approx 40 months to complete for open to the public. The original project construction programme has been extended to suit progress of the project works due to longer time taken for the utility diversion works and resolving site constraints as well as the pervious 1800 mm dia sewer diversion of Lai Chi Kok Sewer. The construction sites are mainly located at Cheung Lai Street, a section of Lai Chi Kok road near West Kowloon Corridor and a section of Cheung Sha Wan Road.

The construction of the subway was carried out simultaneously by the cut and cover method. Vertical open cut areas were provided in phases to suit the project progress and laterally supported by sheet pile walls for temporary road decks construction. In order to maintain existing traffic flows at Lai Chi Kok Road, Cheung Sha Wan Road and Cheung Lai Street, temporary road decks were provided. This also acted as a screen to minimize the nuisance to the public and pedestrian during construction of the subway structures. All excavation and construction of the subway and its ancillary underground structures were carried out underneath the road decks thereby minimizing environmental impacts. At-grade access points were provided for transportation of material/spoil and workers' access during implementation of the underground subway construction works. When the construction of the subway structure was completed, the work areas were backfilled and the road surface for the temporary works sites were reinstated to the original conditions.

Activities	Month							
	Aug - Dec 07	Jan-May 08	Jun-Oct 08	Nov08 - Mar09	Apr-Aug 09	Sept 09 - Jan 10	Feb - Jun 10	Jul - Dec 10
1800 Φ Sewer Diversion of Lai Chi Kok Sewer	█							
<b>Construction of Subway</b>								
- Sheet Piling works & Temporary Support	█							
- Excavation works			█					
- Formwork & Concreting			█					
- Decoration Works						█		
- Backfilling & Reinstatement shaft						█		
Construction of fresh air intake shaft	█		█					
Construction of subway entrance D1					█			
Construction of subway entrance D2					█			
Construction of subway entrance D3 inside Liberte			█					
Construction of subway entrance D4 inside The Pacifica			█					

## 2.2 Construction Activities in the Past Month

Major construction activities carried out by the contractor during this reporting period include:

### Site under West Kowloon Corridor

- Complete the remaining connection works from the subway to Liberte;
- Complete the E&M installation and decoration inside of the subway sections

### Site under Lai Chi Kok Road Westbound

- Complete the remaining E&M installation and decoration inside the subway sections.

### Site at Cheung Lai Street

- Complete the remaining E&M works and decoration inside subway box sections.



Site at Entrance D3

- Complete the connection between Liberte and the completed subway;.
- Complete the above ground reinstatement and decoration works by others.

Site at Entrance D4

- Complete the remaining accessible staircases and entrance.

**2.3 Construction Activities for the Coming Month**

As the project works have been completed since 31 Dec 2010, no construction activities are needed.

### 3 NOISE MONITORING

#### 3.1 Monitoring Methodology

In accordance with the EM&A Manual, the construction noise level is measured in terms of A-weighted equivalent continuous sound pressure level ( $L_{Aeq}$ ). During normal construction working hours (0700-1900 Monday to Saturday), monitoring of  $L_{Aeq, 30min}$  noise levels (as six consecutive  $L_{Aeq, 5min}$  readings) was carried out once every week.

#### 3.2 Equipment Used and Calibration Details

Impact noise monitoring was conducted using SVAN sound analysis equipment – SVAN 949, which complied with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1 985 (Type 1) Specifications as referred to in the Technical Memorandum to the Noise Control Ordinance. The equipment were calibrated and verified by certified laboratory or manufacturer every two years to ensure they perform to the same level of accuracy as stated in the manufacturer's specification. Before and after each measurement, the reading of sound level meter was checked with the acoustic calibrator and the measurements were accepted as valid if the calibration levels before and after the noise measurement agreed to within 1.0 dB. Free field and weatherproof microphone was extended 1m from the exterior of the sensitive receivers building façade and with an unobstructed field of view of the proposed construction site. Measurements were recorded to the nearest 0.1 dB.

#### 3.3 Monitoring Station

In accordance with the EM&A Manual, monitoring stations were established at 2 locations, which are summarized in Table 3.1 and depicted in Appendix 1.

**Table 3.1 – Noise Monitoring Stations**

Sensitive Receiver No.	Location
R1	Podium, Block 7, Liberte
R2	Podium, Tower 1, The Pacifica

### 3.4 Monitoring Results

The results are presented in the Table 3.2. Relevant details of the noise monitoring results, graphic plots calculation references are presented in Appendix 2 and 3. The corrected LAeq results, ranged between 64.1 dB(A) and 69.7 dB(A), were within the limit levels and therefore, no exceedance was found.

**Table 3.2 – Noise monitoring results for the reporting month**

Location	Parameter	Time	Date	Measured Leq	Baseline Noise Level	Corrected LAeq*	Limit	Exceedance
R1	Leq30min	10:23	19-Oct-10	72.2 dB(A)	74 dB(A)	# dB(A)	75 dB(A)	N
R1	Leq30min	13:42	28-Oct-10	71.4 dB(A)	74 dB(A)	# dB(A)	75 dB(A)	N
R1	Leq30min	10:00	2-Nov-10	71.9 dB(A)	74 dB(A)	# dB(A)	75 dB(A)	N
R1	Leq30min	10:02	12-Nov-10	72.2 dB(A)	74 dB(A)	# dB(A)	75 dB(A)	N
R1	Leq30min	9:55	16-Nov-10	72.2 dB(A)	74 dB(A)	# dB(A)	75 dB(A)	N
R1	Leq30min	9:54	24-Nov-10	72.4 dB(A)	74 dB(A)	# dB(A)	75 dB(A)	N
R1	Leq30min	9:47	2-Dec-10	72.7 dB(A)	74 dB(A)	# dB(A)	75 dB(A)	N
R1	Leq30min	10:44	7-Dec-10	73.0 dB(A)	74 dB(A)	# dB(A)	75 dB(A)	N
R1	Leq30min	9:51	15-Dec-10	72.8 dB(A)	74 dB(A)	# dB(A)	75 dB(A)	N
R2	Leq30min	9:46	19-Oct-10	75.0 dB(A)	74.3 dB(A)	66.7 dB(A)	75 dB(A)	N
R2	Leq30min	13:06	28-Oct-10	75.6 dB(A)	74.3 dB(A)	69.7 dB(A)	75 dB(A)	N
R2	Leq30min	9:24	2-Nov-10	74.0 dB(A)	74.3 dB(A)	# dB(A)	75 dB(A)	N
R2	Leq30min	9:15	12-Nov-10	74.7 dB(A)	74.3 dB(A)	64.1 dB(A)	75 dB(A)	N
R2	Leq30min	9:17	16-Nov-10	74.1 dB(A)	74.3 dB(A)	# dB(A)	75 dB(A)	N
R2	Leq30min	9:18	24-Nov-10	75.3 dB(A)	74.3 dB(A)	68.4 dB(A)	75 dB(A)	N
R2	Leq30min	9:11	2-Dec-10	74.8 dB(A)	74.3 dB(A)	65.2 dB(A)	75 dB(A)	N
R2	Leq30min	10:07	7-Dec-10	75.1 dB(A)	74.3 dB(A)	67.4 dB(A)	75 dB(A)	N
R2	Leq30min	9:10	15-Dec-10	74.5 dB(A)	74.3 dB(A)	61.0 dB(A)	75 dB(A)	N

\*Corrected to baseline background level

# Measured Leq is lower than baseline noise measurement

Action and Limit levels and the associated Event/Action Plan in event of exceedance are summarized in Table 3.3 and 3.4, respectively.

**Table 3.3 – Action and Limit Levels for Construction Noise at Sensitive Receivers R1 and R2**

Time Period	Action	Limit
Daytime 0700 – 1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)
0700 – 2300hrs on holidays; and 1900 – 2300 hrs on all other days		Subject to the control of Noise Control Ordinance
2300 – 0700 hrs of next day		Subject to the control of Noise Control Ordinance

**Table 3.4 - Event/Action plan for construction noise**

Event	Action			
	ET Leader	IEC	RE	Contractor
<b>Action Level</b>	<ol style="list-style-type: none"> <li>1. Notify IEC, RE and the Contractor.</li> <li>2. Carry out investigation.</li> <li>3. Report the results of investigation to IEC, RE and the Contractor.</li> <li>4. Discuss with the RE and the Contractor and formulate remedial measures.</li> <li>5. Increase monitoring frequency to check mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Review with analysed results submitted by ET.</li> <li>2. Review the proposed remedial measures by the Contractor and advise RE accordingly.</li> <li>3. Supervise the implement of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing.</li> <li>2. Notify the Contractor.</li> <li>3. Require the Contractor to propose remedial measures for the analysed noise problem.</li> <li>4. Ensure remedial measures are properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to RE / ET.</li> <li>2. Implement noise mitigation proposals.</li> </ol>
<b>Limit Level</b>	<ol style="list-style-type: none"> <li>1. Identify the source.</li> <li>2. Notify IEC, RE, EPD and the Contractor.</li> <li>3. Repeat measurement to confirm findings.</li> <li>4. Increase monitoring frequency.</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented.</li> <li>6. Inform IEC, RE, and EPD the causes &amp; actions taken for the exceedances.</li> <li>7. Assess effectiveness of the Contractor's remedial actions and keep IEC, EPD and RE informed of the results.</li> <li>8. If exceedance stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst RE, ET Leader and the Contractor on the potential remedial actions.</li> <li>2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise RE accordingly.</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing.</li> <li>2. Notify the Contractor.</li> <li>3. Require the Contractor to propose remedial measures for the analysed noise problem.</li> <li>4. Ensure remedial measures are properly implemented.</li> <li>5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance.</li> <li>2. Submit proposals for remedial actions to RE and IEC within 3 working days of notification.</li> <li>3. Implement the agreed proposals.</li> <li>4. Resubmit proposals if problem still not under control.</li> <li>5. Stop the relevant activity of works as determined by the RE until the exceedance is abated.</li> </ol>

### **3.5 Monitoring Schedule for Next Reporting Period**

No further monitoring is required.

### **3.6 Analysis of Trends of Monitored Parameters**

As shown in Appendix 2, the measured noise levels in both monitoring stations decreased as amount the construction activities decrease. However, the monitoring location R2, Pacifica is very close to the West Kowloon Corridor, so the measured noise level remained between 74.0 to 75.3 dB(A).

#### **4 ACTION TAKEN IN EVENT OF EXCEEDENCE**

There were no exceedance recorded during this reporting period, therefore no actions were taken.

In summary, there were no exceedance during the entire project period.

## 5 CONSTRUCTION WASTE DISPOSAL

Dumping locations for disposal of C&D wastes from the construction site were appointed and allocated by EPD/CEDD. The contractor has implemented the delivery trip ticket system for recording the waste disposal to the public fill and landfill areas. Excavated materials are reused as back-fill material to balance cut and fill and hence reduce the generation of materials. Table 5.1 is a summary of updated figures of the construction wastes disposal provided by the Contractor. The relevant disposal records are kept in Contractor's site office for inspection.

**Table 5.1 Summary of Construction Waste Disposal**

	Amount of Construction Waste disposed		
	Inert Waste (to Public Fill) (tonnes)	Non-inert Waste (to Landfill) (tonnes)	Chemical Waste (trip) (tonnes)
16 August 07 to 15 May 08	5642.79	0	0.4
16 May 08 to 15 February 09	12526.15	16.00	1
16 February 09 to 15 March 09	3871.40	0	0
16 March 09 to 15 April 09	5603.90	3.00	0.4
16 April 09 to 15 May 09	3354.90	6.50	0
16 May 09 to 15 June 09	4182.60	2.70	0
16 June 09 to 15 July 09	5594.20	9.50	--
16 July 09 to 15 August 09	5667.33	4.45	0
16 August 09 to 15 September 09	1300.50	12.90	0
16 September 09 to 15 October 09	2442.80	32.00	0
16 October 09 to 15 November 09	0.00	145.00	0
16 November 09 to 15 December 09	0.00	140.00	0
16 December 09 to 15 January 10	0.00	29.00	0
16 January 10 to 15 February 10	0.00	81.00	0
16 February 10 to 15 March 10	0.00	267.00	0
16 March 10 to 15 April 10	0.00	106.00	0
16 April 10 to 15 May 10	0.00	31.00	0
16 May 10 to 15 June 10	0.00	106.00	0
16 June 10 to 15 July 10	0.00	33.00	0
16 July 10 to 15 August 10	0.00	35.00	0.4
16 August 10 to 15 September 10	0.00	24.00	0

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16 September 10 to 15 October 10	0.00	37.00	0
16 October 10 to 31 December 10	0.00	28.00	0
<i>Total</i>	50186.57	1149.05	2.20



## 6 COMPLAINT LOG

<b>Table 6.1 Summary of Formal Complaints received</b>				
	<b>Air</b>	<b>Noise</b>	<b>Water</b>	<b>Others</b>
16 August 07 to 15 May 08	1	1	0	0
16 May 08 to 15 February 09	2	0	0	0
16 February 09 to 15 March 09	0	0	0	0
16 March 09 to 15 April 09	0	1	0	0
16 April 09 to 15 May 09	0	0	0	0
16 May 09 to 15 June 09	0	0	0	0
16 June 09 to 15 July 09	0	0	0	1
16 July 09 to 15 August 09	0	0	0	0
16 August 09 to 15 September 09	0	0	0	0
16 September 09 to 15 October 09	0	0	0	0
16 October 09 to 15 November 09	0	0	0	0
16 November 09 to 15 December 09	0	0	0	0
16 December 09 to 15 January 10	0	0	0	0
16 January 10 to 15 February 10	0	0	0	0
16 February 10 to 15 March 10	0	0	0	0
16 March 10 to 15 April 10	0	0	0	0
16 April 10 to 15 May 10	0	0	0	0
16 May 10 to 15 June 10	0	0	0	0
16 June 10 to 15 July 10	0	0	0	0
16 July 10 to 15 August 10	0	0	0	0
16 August 10 to 15 September 10	0	0	0	0
16 September 10 to 15 October 10	0	0	0	0
16 October 10 to 31 December 10	0	0	0	0
<b>Total</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>1</b>

### 6.1 Summary Record for All Complaints Received

The following table listed all the complaints received, investigates and their mitigation measures. All the events listed were reported in previous EM&A monthly reports and have been settled and closed with satisfaction.

Log Ref	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/Mitigation Action
LCK-Ct01/08	31 <sup>st</sup> March 2008; Liberte Block 7	A public concern received by LCK site office from the management office of Liberte 31-Mar-2008	A tenant showed a concern on the nearby construction noise to the management office of the Liberte regarding noise on 29 <sup>th</sup> March 2008 (Sat) at about 8:15am	<ol style="list-style-type: none"> <li>1. Noise mitigation measures to reduce noise emission such as noise containment shield and noise reduction mat for breaking / piling works were provided on site</li> <li>2. Ad-hoc noise monitoring carried out at designated noise monitoring location at Podium level, Liberte on 5 April 2008 (Sat); Noise level was 69.4 dB(A), i.e. no exceedance of limit level.</li> <li>3. The Contractor has agreed to arrange the noisy work to start after 9:00am as much as possible.</li> </ol>
LCK-Ct02/08	30 <sup>th</sup> April 2008; Cheung Lai St.	A public concern received by LCK site office from EPD on 7 <sup>th</sup> May 08	A tenant showed a concern on the construction activities generate dust/air pollution in Cheung Lai Street to the EPD regarding air quality on 30 <sup>th</sup> April 2008 (Wednesday)	<ol style="list-style-type: none"> <li>1. Site investigations to figure out major source of impacts produced from the site have been conducted on 9 and 13 May 2008.</li> <li>2. Fugitive dust mitigation measures to reduce dust emission such as constant watering for the construction area and site cleaning were undertaken on site.</li> <li>3. Smoke emitted from plants such as excavators and generator were found during investigation. Contractor is advised to provide maintenance for the plants as remedial actions, also to extend the length of the exhaust pipes of the plants to higher than the breathing zone level for minimizing the impacts to the pedestrians pass through the Cheung Lai Street.</li> </ol>

LCK-Ct03/08	15 <sup>th</sup> May 2008; Cheung Lai St.	A public concern received by MTRC via EPD on 23 <sup>rd</sup> May 08	A tenant showed a concern on the construction activities which generated dust emission in Cheung Lai Street to the EPD on 15 <sup>th</sup> May 2008	<ol style="list-style-type: none"> <li>1. Site investigations to figure out major source of impacts produced from the site have been conducted on 26 May 2008.</li> <li>2. The contractor needs prompt action on mitigation measures to reduce dust emission by constant watering for the construction area and site cleaning undertaken on site.</li> <li>3. Smoke emitted from the concerned excavator and generator were found during investigation. The contractor was advised to provide maintenance for the plants as remedial actions;</li> <li>4. provide hoarding and tarpaulin covering on water plastic safety area around the construction site area.</li> </ol>
LCK-Ct03/08	2 <sup>nd</sup> July 2008; Cheung Lai St.	A public concern received by MTR via EPD on 7 <sup>th</sup> May 08	A pedestrian showed a concern on the construction activities which generated odorous exhaust gas in Cheung Lai Street to the EPD on 2 <sup>nd</sup> July 2008	<ol style="list-style-type: none"> <li>3. The event investigation on 9 and 11 July 2008 have been conducted to figure out major source of impacts produced from the site.</li> <li>4. The investigation outcome shows the Contractor's performance in odorous exhaust gas control at Cheung Lai Street site is satisfactory. While the drainage diversion work of that part at Cheung Lai Street is completed in 11<sup>th</sup> July 2008.</li> <li>5. The Contractor has agreed to improve the odor impact at the working locations to the passing pedestrians by putting the sludge into a well-covered container and to remove it the same day before the construction activities are done for future construction activities.</li> </ol>
LCK-Ct05/09	23 <sup>rd</sup> March 2009 Junction between Cheung Lai Street and Cheung Sha Wan Road.	Mr. Tsang 23 <sup>rd</sup> March 2009.	Mr. Tsang complained to EPD a construction noise nuisance due to the construction work, in particular the drilling works at the junction between Cheung Lai Street and Cheung Sha Wan Road.	<ol style="list-style-type: none"> <li>1. Contractor and ET had a meeting with Mr. Tsang (The Complainant) on site on 31<sup>st</sup> March 2009. During the meeting, the concerned operating rig was in operation and the noise level generated by the operation rig at that moment and the construction activities on site was acceptable to Mr. Tsang. However, Mr. Tsang requested the construction works to be done during nighttime, which will not affect the nearby commercial area during daytime.</li> <li>2. Contractor would relocate the operation rig to</li> </ol>

				<p>minimize the nuisance to the nearby commercial area.</p> <p>3. ET had an ad-hoc monitoring to the designated Noise Sensitive Receiver for the project on March 31<sup>st</sup> 2009. The result for Liberte was 70.5dB(A) with baseline correction; the result for Pacifica was below the baseline noise level. Both results were below the limit level of 75.0dbB</p> <p>4. Contractor, ET, RE and IEC had a joint site inspection on 1st April 2009. During the investigation, it was found that the contractor relocated the operation rig on site.</p> <p>5. Contractor, ET, RE and IEC had a joint meeting after the site inspection. The conclusion was the noise nuisance was mainly caused by the operation rig activities:</p> <p>The contractor agreed</p> <ul style="list-style-type: none"> <li>a) To minimize the construction operation during the peak hours.</li> <li>b) No more than one operation rig will be in operation.</li> <li>c) To place a hood surrounding the operation rig to minimize noise nuisance to the nearby commercial area.</li> </ul> <p>6. The contractor provided a hood to minimize the noise nuisance that was caused by the operation rig on 3<sup>rd</sup> April 2009.</p>
LCK-Ct06/09	24th June 2009; the pedestrian walkway next to	A public concern received by Public Relations	A public concern regarding bad smell emission to the pedestrian walkway	<p>1. The incident investigation carried out on 24 and 30 June 2009 with the representatives from the Contractor and ET indicated that minor odour problems have been found in</p>

	<p>the construction site under the West Kowloon Corridor (opposite to the Liberte).</p>	<p>Department of MTR on 24<sup>th</sup> June 2009. The relevant compliant message have been passed to RE and Contractor on the same day.</p>	<p>next to the construction site under the West Kowloon Corridor (opposite the Liberte ).</p>	<p>the pedestrian walkway next to the construction site under the West Kowloon Corridor. One of the identified potential sources of odour was the leakage from the exposed sewers and drainage channels at the construction site next to the pedestrian walkway. The bad smell from the bottom of the excavated site was extracted to ground level through the airflow driven by the working ventilation blowers.</p> <ol style="list-style-type: none"> <li>2. After the investigation, the Contractor was advised to re-orientate air blower outlet towards the direction that the least odor impact to the pedestrian and clean up the concerned excavated material as practicable as possible.</li> <li>3. As informed by the Contractor on 04 Jul 2009, the ventilation system in the construction site has been improved and the air blower outlet has been re-orientated so that the odor impact would be the least to affect the nearby pedestrian.</li> <li>4. ET have assessed the effectiveness of contractor's remedial actions and found to be acceptable.</li> </ol>
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## 7 STATUS OF PERMITS AND LICENSES OBTAINED

Table 7.1 is the updated status of environmental related permits/ license obtained for the construction activities. Construction Noise Permit is renewed in the reporting month.

**Table 7.1 Status of Permits and Licenses Obtained**

Description	License / Permit No.#	Date of Issue	Date of Expiry	Remarks
Environmental Permit	EP-253/2006	11 Aug 2006	--	
Registration of C&D Waste Producer	7005542	1 Jun 2007	--	
Chemical Waste Producer	5214-264-K2869-08	08-May 2007	--	
Construction Noise Permit	GW-RW0093-10	9 March 2010	8 September 2010	
Effluent Discharge License	EP760/264/0124051	24 July 2007	31 July 2012	

## 8 SITE INSPECTION AND AUDITS

During the reporting period, regular bi-weekly joint site inspections led by senior staffs from MTR, Residential Engineer, Contractor and the ET were carried out. The Contractor’s performance on the environmental matters was assessed and concerned items were raised for rectification. Inspection findings from the reporting period are summarized as follows:

Table 8.1 Summary of inspection findings

Item	Observations/ Description	Status
1	The Contractor was reminded to have regular check on site to ensure the compliance of relevant environmental regulations, permits and licenses.	Completed
2	The Contractor was reminded to ensure all required construction noise mitigation measures to be followed properly.	Completed
3	The Contractor was reminded to keep the site works area and site office tidy as good housekeeping to an acceptable standard, particularly inside the completed subway box sections.	Completed
4	The Contractor was reminded to implement proper noise mitigation measures to shield the noise parts of circular saw and handheld breaker during construction.	Completed
5	The Contractor should regularly review the condition of hoardings or equivalent approved for Cheung Lai Street site area. In order to reduce any air pollution impact to the nearby public.	Completed
6	The Contractor was reminded to have regular view on potential oil leak from fuel containers and the stationery plants on site by providing proper drip trays or similar.	Completed
7	The Contractor was reminded to have regular check on the potential black smoke from working plants.	Completed
8	The Contractor should implement properly required dust mitigation measures at the progressing work sites..	Completed
9	The Contactor should regularly check any ponding site water in order to prevent mosquito breeding problems and working condition of the working de-silting tanks.	Completed

### 8.1 Review of Effectiveness and Efficiency of Mitigation Measures and Success of EM&A Programme

The mitigation measures applied were effective throughout the construction period as shown in the decrease in complains and exceedance through time.

The E.T. and I.E.C. worked seamlessly to identify improper environmental practices and the Contractor was very co-operative to apply proper mitigation measures to yield a very successful EM&A Programme.

## **9 CONCLUSION**

In this reporting month, construction activities for this project “MTRC Lai Chi Kok Station Pedestrian Subway and Entrance Works” include completion of the E&M installation and decorations inside the completed subway boxes under Cheung Lai Street, West Kowloon Corridor and Lai Chi Kok Road and construction of station entrances at the Liberta and Pacifica. Regular monthly meetings and weekly site audits, led by the seniors and attended by representatives of RE, ET, IEC and the Contractor, were held for discussing site environmental related issues. Concerned site environmental items raised during the audits were generally followed up by the Contractor for rectification. The overall environmental pollution control measures provided by the Contractor were considered satisfactory. Noise levels recorded during the monitoring period were within limits.

Within the location of Designated Project as shown on Fig 1 of Environmental Permit No. EP- 253/2006, all civil construction and E&M works of the project were complete on 31 December 2010. The required environmental monitoring and audit works have been terminated since 31 December 2010 after the project completion.



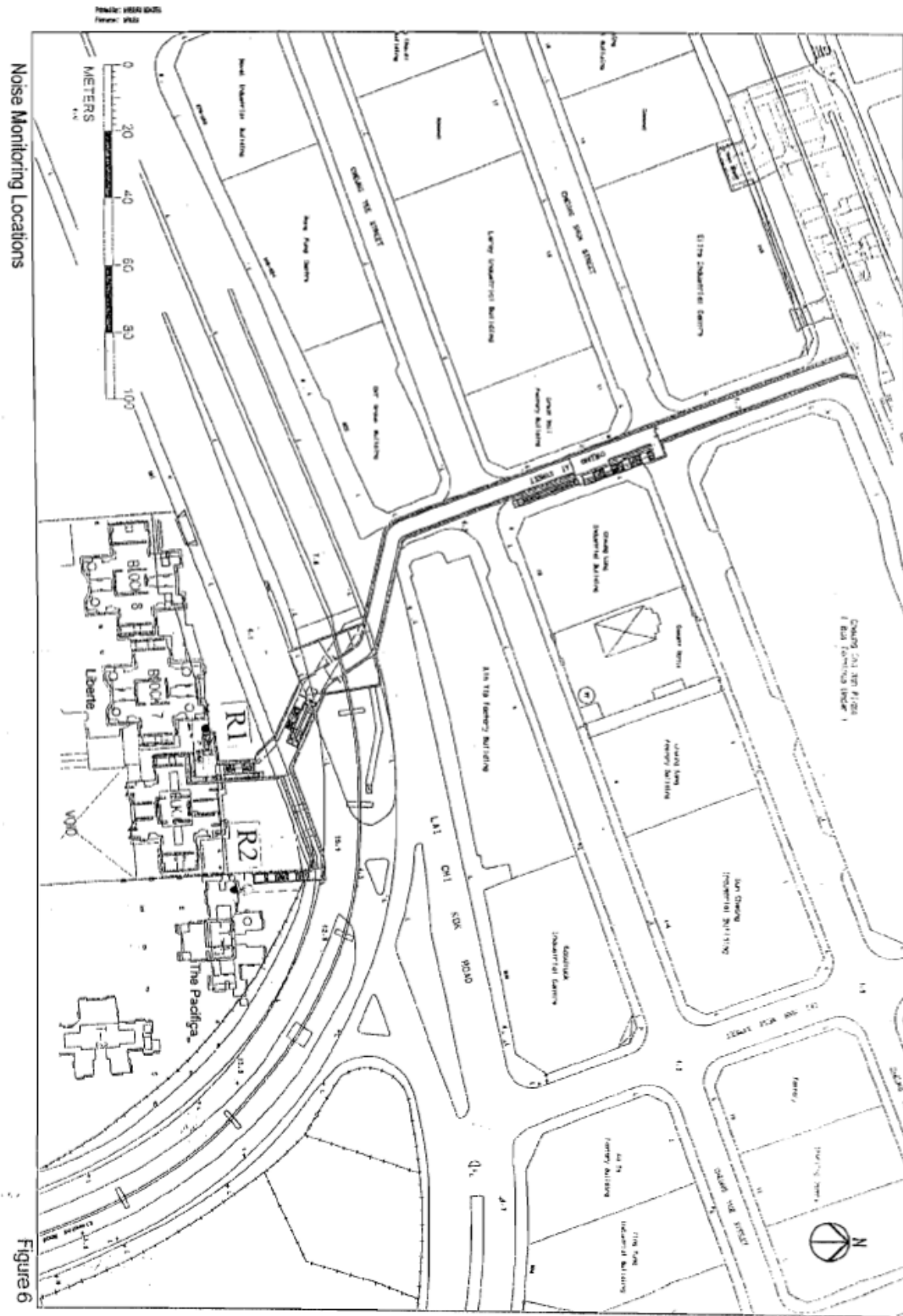
## **APPENDIX 1 – REFERENCE FIGURES**

**Figure 1 Project Construction Area**

**Figure 2 Noise Monitoring Stations**



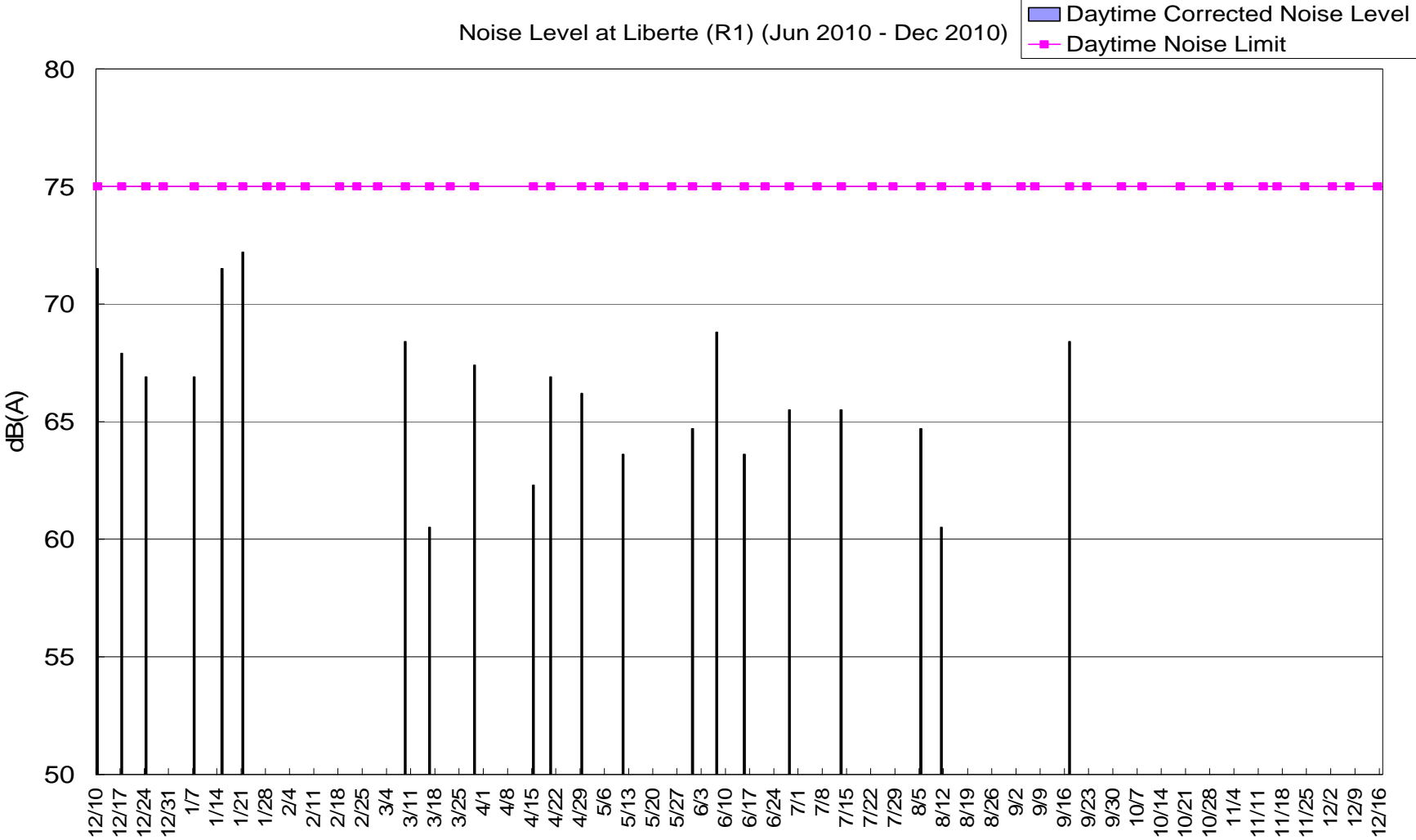
Figure 2 Noise Monitoring Stations R1 and R2

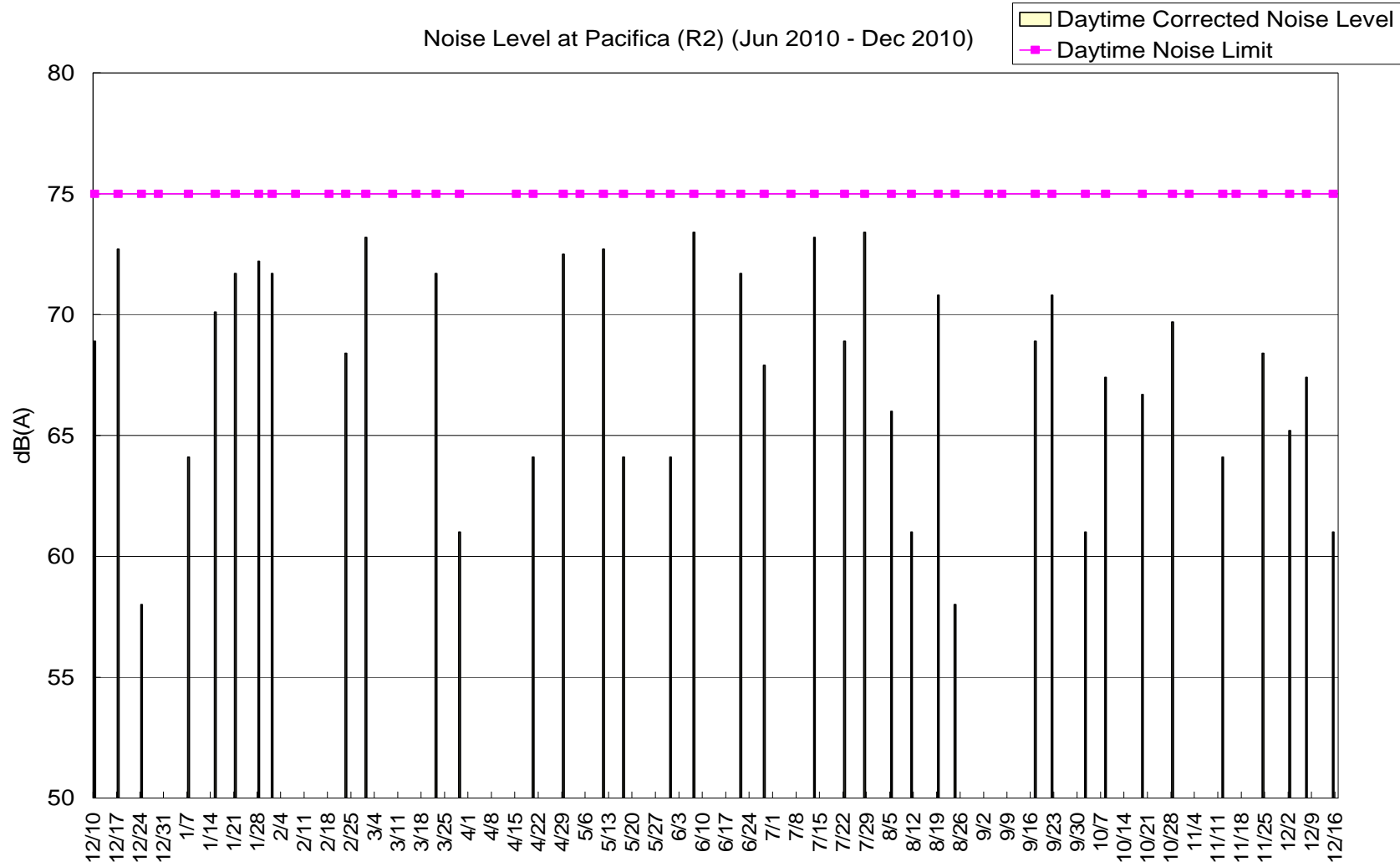


Noise Monitoring Locations

Figure 6

**APPENDIX 2 – Environmental Monitoring Data / Charts**





**APPENDIX 3 – Noise Monitoring Data Sheet and Calculation**

**Calculations and Equations:**

The 30minutes A-weighted equivalent continuous sound pressure level ( $L_{Aeq, 30min}$ ) is calculated by geometric mean from 6 consecutive  $L_{Aeq, 5min}$  readings:

$$L_{Aeq, 30min} = 6^{th} \text{ root of } (L1)(L2)...(L6)$$

Where: L1~6 is the 6consecutive  $L_{Aeq, 5min}$  readings

And the equation of the Baseline correction:

$$10\log (10^{L_{aeq}/10} - 10^{L_b/10})$$

Where:

$L_{aeq}$  is the  $L_{Aeq, 30min}$  from the geometric mean of 6 consecutive  $L_{eq5min}$  results

$L_b$  is the baseline noise level.



**Mass Transit Railway - Lai Chi Kok Station  
 Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Block 7, Liberte
<b>Sampling Date</b>		19 October 2010
<b>Sampling Time</b>		10:23 - 10:53
<b>Weather Condition</b>		Sunny
<b>Baseline Noise Level</b>	<b>dB(A)</b>	73.8
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	72.2
	<b>L<sub>10</sub>, dB(A)</b>	76.9
	<b>L<sub>90</sub>, dB(A)</b>	70.3
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b> Hammering noise by (Hammer x 1) Transportation noise by public transportation		
<b>Remarks</b> N/A		

With Baseline Correction :     #Note     dB(A)

#Note: The measurement noise level is lower than the baseline noise level  
 Therefore, no baseline correction is calculated.

Recorded by : William Law

Date : 19 October 2010

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: SUNNY      Recorded by: WILLIAM CAN

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>Aeq</sub>
11/17/2010	R1 Liberte	10:23-10:28		79.20	68.50	77.10	70.10	71.50
		10:28-10:33		78.90	68.60	76.80	70.40	72.60
		10:33-10:38		79.30	68.50	76.90	70.20	72.40
		10:38-10:43		79.50	68.60	77.30	69.90	72.70
		10:43-10:48		79.30	68.60	76.70	70.50	72.20
		10:48-10:53		79.60	68.70	76.90	70.50	72.30

L<sub>eq</sub> 30min = 72.20  
 L<sub>10</sub> 30min = 76.90  
 L<sub>90</sub> 30min = 70.30

**Mass Transit Railway - Lai Chi Kok Station  
 Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Block 7, Liberte
<b>Sampling Date</b>		28 October 2010
<b>Sampling Time</b>		13:42 - 14:12
<b>Weather Condition</b>		Sunny
<b>Baseline Noise Level</b>	<b>dB(A)</b>	73.8
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	71.4
	<b>L<sub>10</sub>, dB(A)</b>	77.9
	<b>L<sub>90</sub>, dB(A)</b>	69.4
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b> Hammering noise by (Hammer x 1) Transportation noise by public transportation		
<b>Remarks</b> N/A		

**With Baseline Correction :**          #Note     dB(A)

#Note: The measurement noise level is lower than the baseline noise level  
 Therefore, no baseline correction is calculated.

**Recorded by : William Law**

**Date : 28 October 2010**

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: SUNNY      Recorded by: WILLIAM CHAN

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>Acq</sub>
21/10/2010	R <sub>1</sub> Liberte	13:42-13:47		79.80	68.50	77.40	69.30	70.90
		13:47-13:52		79.30	68.80	78.10	69.70	72.40
		13:52-13:57		79.70	68.50	77.60	69.30	71.10
		13:57-14:02		79.20	68.20	78.00	69.70	72.30
		14:02-14:07		80.00	68.80	78.30	69.60	71.20
		14:07-14:12		79.80	68.60	77.80	68.90	70.80

Leq 30min = 71.40  
 L<sub>eq</sub> 30min = 71.90  
 L<sub>90</sub> 30min = 69.40

**Mass Transit Railway - Lai Chi Kok Station  
 Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Block 7, Liberte
<b>Sampling Date</b>		02 November 2010
<b>Sampling Time</b>		10:00 - 10:30
<b>Weather Condition</b>		Sunny
<b>Baseline Noise Level</b>	<b>dB(A)</b>	73.8
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	71.9
	<b>L<sub>10</sub>, dB(A)</b>	77.0
	<b>L<sub>90</sub>, dB(A)</b>	69.7
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b>		
Transportation noise by public transporation		
<b>Remarks</b>		
N/A		

**With Baseline Correction :**          #Note     dB(A)

#Note: The measurement noise level is lower than the baseline noise level  
 Therefore, no baseline correction is calculated.

**Recorded by :** William Law

**Date :** 02 November 2010

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: WINDY      Recorded by: WILLIAM LAM

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>Aeq</sub>
2/11/2010	R- <del>1</del> <u>1</u>	10:00-10:05		79.10	68.80	77.30	67.90	72.30
		10:05-10:10		78.90	68.60	76.90	67.70	70.90
		10:10-10:15		79.90	68.10	77.00	69.80	72.20
		10:15-10:20		80.10	68.40	76.80	70.00	72.40
		10:20-10:25		78.80	68.70	76.70	69.60	72.30
		10:25-10:30		79.70	68.20	77.20	69.50	71.20

L<sub>90</sub> 30min = 71.90  
 L<sub>10</sub> 30min = 77.00  
 L<sub>90</sub> 30min = 69.70

**Mass Transit Railway - Lai Chi Kok Station  
 Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Block 7, Liberte
<b>Sampling Date</b>		12 November 2010
<b>Sampling Time</b>		10:02 - 10:32
<b>Weather Condition</b>		Sunny
<b>Baseline Noise Level</b>	<b>dB(A)</b>	73.8
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	72.2
	<b>L<sub>10</sub>, dB(A)</b>	77.1
	<b>L<sub>90</sub>, dB(A)</b>	70.1
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b>		
Transportation noise by public transportation		
<b>Remarks</b>		
N/A		

**With Baseline Correction :**          #Note     dB(A)

#Note: The measurement noise level is lower than the baseline noise level  
 Therefore, no baseline correction is calculated.

**Recorded by : William Law**

**Date : 12 November 2010**

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: SUNNY      Recorded by: WILLIAM CAW

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>Aeq</sub>
12/14/2010	R <sub>1</sub> Liberte	10:02-10:07		71.90	68.70	76.90	70.10	73.00
		10:07-10:12		80.30	68.80	77.40	69.80	72.10
		10:12-10:17		79.50	68.10	77.10	70.20	72.80
		10:17-10:22		80.80	68.50	77.60	70.10	71.50
		10:22-10:27		79.60	68.20	76.80	70.20	72.20
		10:27-10:32		79.40	69.00	76.70	70.20	71.90

L<sub>eq 30min</sub> = 72.20  
 L<sub>10 30min</sub> = 77.10  
 L<sub>90 30min</sub> = 70.10



**Mass Transit Railway - Lai Chi Kok Station**  
**Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Block 7, Liberte
<b>Sampling Date</b>		16 November 2010
<b>Sampling Time</b>		09:55 - 10:25
<b>Weather Condition</b>		Sunny
<b>Baseline Noise Level</b>	<b>dB(A)</b>	73.8
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	72.2
	<b>L<sub>10</sub>, dB(A)</b>	77.1
	<b>L<sub>90</sub>, dB(A)</b>	69.7
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b>		
Transportation noise by public transporation		
<b>Remarks</b>		
N/A		

**With Baseline Correction :**          #Note     dB(A)

#Note: The measurement noise level is lower than the baseline noise level  
 Therefore, no baseline correction is calculated.

**Recorded by :** William Law

**Date :** 16 November 2010

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: SUNNY      Recorded by: WILLIAM CHAN

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>Aeq</sub>
16/11/2010	R1 Liberte	09:55-10:00		78.80	68.20	76.90	69.80	72.00
		<del>10:00</del> -10:05		80.20	68.20	77.30	69.90	72.70
		10:05-10:10		79.80	68.90	76.80	69.90	72.80
		10:10-10:15		79.30	68.60	77.10	69.60	71.70
		10:15-10:20		80.40	68.70	77.40	69.30	71.90
		10:20-10:25		79.90	68.70	77.20	69.50	72.40

L<sub>eq</sub> 30min = 72.20  
 L<sub>10</sub> 30min = 77.10  
 L<sub>90</sub> 30min = 69.70

**Mass Transit Railway - Lai Chi Kok Station**  
**Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Block 7, Liberte
<b>Sampling Date</b>		24 November 2010
<b>Sampling Time</b>		09:54 - 10:24
<b>Weather Condition</b>		Sunny
<b>Baseline Noise Level</b>	<b>dB(A)</b>	73.8
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	72.4
	<b>L<sub>10</sub>, dB(A)</b>	77.1
	<b>L<sub>90</sub>, dB(A)</b>	69.8
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b>		
Transportation noise by public transportation		
<b>Remarks</b>		
N/A		

**With Baseline Correction :**          #Note     dB(A)

#Note: The measurement noise level is lower than the baseline noise level  
 Therefore, no baseline correction is calculated.

**Recorded by :** William Law

**Date :** 24 November 2010

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA  
 Weather: SUNNY  
 Recorded by: WILLIAM LAW

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>Aeq</sub>
24/11/2010	R1 Licence	09:58-09:59		78.80	67.20	77.70	69.80	72.40
		09:59-10:04		78.40	67.90	76.90	70.40	73.90
		10:04-10:07		78.60	67.80	77.40	70.20	72.80
		10:07-10:14		80.60	67.40	77.90	69.40	71.70
		10:14-10:19		79.70	68.30	76.00	69.50	71.80
		10:19-10:24		78.70	68.20	76.60	69.70	72.10

L<sub>eq</sub>30min = 72.40  
 L<sub>10</sub>30min = 77.10  
 L<sub>90</sub>30min = 69.80

**Mass Transit Railway - Lai Chi Kok Station**  
**Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Block 7, Liberte
<b>Sampling Date</b>		02 December 2010
<b>Sampling Time</b>		09:47 - 10:17
<b>Weather Condition</b>		Sunny
<b>Baseline Noise Level</b>	<b>dB(A)</b>	73.8
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	72.4
	<b>L<sub>10</sub>, dB(A)</b>	77.1
	<b>L<sub>90</sub>, dB(A)</b>	69.8
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b>		
Transportation noise by public transportation		
<b>Remarks</b>		
N/A		

**With Baseline Correction :**          #Note     dB(A)

#Note: The measurement noise level is lower than the baseline noise level  
 Therefore, no baseline correction is calculated.

**Recorded by :** William Law

**Date :** 02 December 2010

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: SUNNY      Recorded by: WILLIAM CAW

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>Aeq</sub>
2/12/2010	R. Liberte	09:47-09:52		78.60	67.90	76.80	69.60	73.30
		09:52-09:57		80.10	68.00	75.80	70.00	72.90
		09:57-10:02		77.80	67.80	76.20	70.20	72.00
		10:02-10:07		77.90	67.10	75.90	70.10	72.50
		10:07-10:12		80.40	68.20	76.00	70.30	72.40
		10:12-10:17		80.00	68.10	77.00	69.70	73.30

L<sub>eq 30min</sub> = 72.70  
 L<sub>10 30min</sub> = 76.30  
 L<sub>90 30min</sub> = 70.00

**Mass Transit Railway - Lai Chi Kok Station  
 Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Block 7, Liberte
<b>Sampling Date</b>		07 December 2010
<b>Sampling Time</b>		10:44 - 11:14
<b>Weather Condition</b>		Sunny
<b>Baseline Noise Level</b>	<b>dB(A)</b>	73.8
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	73.0
	<b>L<sub>10</sub>, dB(A)</b>	76.6
	<b>L<sub>90</sub>, dB(A)</b>	70.1
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b>		
Transportation noise by public transportation		
<b>Remarks</b>		
N/A		

**With Baseline Correction :**          #Note     dB(A)

#Note: The measurement noise level is lower than the baseline noise level  
 Therefore, no baseline correction is calculated.

**Recorded by :** William Law

**Date :** 07 December 2010

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: SUNNY      Recorded by: WILLIAM CAW

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>50</sub>	L <sub>Acq</sub>
7/12/2006	R. Liberty	10:44-10:49		78.60	67.60	75.90	70.40	73.90
		10:49-10:54		80.70	67.80	77.00	69.80	71.90
		10:54-10:59		80.60	67.20	77.20	70.50	73.40
		10:59-11:04		79.30	67.80	76.70	69.30	72.50
		11:04-11:09		79.00	67.70	77.30	70.20	72.60
		11:09-11:14		80.30	67.00	75.80	70.50	74.00

L<sub>eq30min</sub> = 73.00  
 L<sub>1030min</sub> = 76.60  
 L<sub>9030min</sub> = 70.10



**Mass Transit Railway - Lai Chi Kok Station  
 Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Block 7, Liberte
<b>Sampling Date</b>		15 December 2010
<b>Sampling Time</b>		09:51 - 10:21
<b>Weather Condition</b>		Cloudy
<b>Baseline Noise Level</b>	<b>dB(A)</b>	73.8
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	72.8
	<b>L<sub>10</sub>, dB(A)</b>	75.4
	<b>L<sub>90</sub>, dB(A)</b>	69.6
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b>		
Transportation noise by public transportation		
<b>Remarks</b>		
N/A		

**With Baseline Correction :**          #Note     dB(A)

#Note: The measurement noise level is lower than the baseline noise level  
 Therefore, no baseline correction is calculated.

**Recorded by :** William Law

**Date :** 15 December 2010

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA  
 Weather: Cloudy  
 Recorded by: WILLIAM CAW

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>50</sub>	L <sub>Aeq</sub>
15/12/2010	R. Libence	09:51-09:56		77.20	68.30	77.40	69.90	73.50
		09:56-10:01		80.20	68.20	74.10	69.40	71.50
		10:01-10:06		80.80	68.60	75.90	69.30	72.90
		10:06-10:11		77.50	67.70	74.30	70.10	72.60
		10:11-10:16		79.60	67.30	75.20	69.50	72.80
		10:16-10:21		80.70	68.40	75.60	69.30	73.50

L<sub>eq 30min</sub> = 72.80  
 L<sub>10 30min</sub> = 75.40  
 L<sub>90 30min</sub> = 69.60

**Mass Transit Railway - Lai Chi Kok Station  
 Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Tower 1, The Pacifica
<b>Sampling Date</b>		19 October 2010
<b>Sampling Time</b>		09:46 - 10:16
<b>Weather Condition</b>		Sunny
<b>Baseline Noise Level</b>	<b>dB(A)</b>	74.3
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	75.0
	<b>L<sub>10</sub>, dB(A)</b>	78.1
	<b>L<sub>90</sub>, dB(A)</b>	72.1
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b> Hammering noise by (Hammer x 1) Transportation noise by public transportation		
<b>Remarks</b>		

**With Baseline Correction :**      66.7 dB(A)

# Note: The measurement level is lower than the baseline noise level.  
 Therefore, no baseline correction is calculated

**Recorded by : William Law**

**Date : 19 October 2010**

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: SIANNY      Recorded by: WILLIAM CHAN

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>Aeq</sub>
09/10/2010	R2 Pedestrian	09:46-09:51		84.20	69.20	77.40	71.20	73.90
		09:51-09:56		85.80	68.80	78.70	72.30	75.10
		09:56-10:01		82.10	68.60	78.20	72.40	75.30
		10:01-10:06		85.30	69.30	77.80	72.10	74.60
		10:06-10:11		86.70	69.10	77.60	72.80	76.10
		10:11-10:16		84.60	68.40	78.70	72.40	75.20

L<sub>eq</sub> 30min = 75.00  
 L<sub>10</sub> 30min = 78.10  
 L<sub>90</sub> 30min = 72.10

**Mass Transit Railway - Lai Chi Kok Station  
 Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Tower 1, The Pacifica
<b>Sampling Date</b>		28 October 2010
<b>Sampling Time</b>		13:06 - 13:36
<b>Weather Condition</b>		Sunny
<b>Baseline Noise Level</b>	<b>dB(A)</b>	74.3
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	75.6
	<b>L<sub>10</sub>, dB(A)</b>	78.9
	<b>L<sub>90</sub>, dB(A)</b>	72.4
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b> Hammering noise by (Hammer x 1) Transportation noise by public transportation		
<b>Remarks</b>		

**With Baseline Correction :**      69.7      dB(A)

# Note: The measurement level is lower than the baseline noise level.  
 Therefore, no baseline correction is calculated

**Recorded by : William Law**

**Date : 28 October 2010**

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: SUNNY      Recorded by: WILLIAM CHAN

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>Acq</sub>
28/10/2010	L2 Pedestrian	13:06 - 13:11		85.60	69.30	78.30	73.70	76.70
		13:11 - 13:16		82.80	69.20	79.20	72.80	77.10
		13:16 - 13:21		84.70	69.30	79.00	72.90	74.80
		13:21 - 13:26		88.10	67.20	78.90	72.60	74.70
		13:26 - 13:31		87.60	66.80	79.00	71.80	74.60
		13:31 - 13:36		87.50	66.40	78.80	71.60	74.80

L<sub>eq 30min</sub> = 75.60  
 L<sub>10 30min</sub> = 78.70  
 L<sub>90 30min</sub> = 72.40

**Mass Transit Railway - Lai Chi Kok Station  
 Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Tower 1, The Pacifica
<b>Sampling Date</b>		02 November 2010
<b>Sampling Time</b>		09:24 - 09:54
<b>Weather Condition</b>		Sunny
<b>Baseline Noise Level</b>	<b>dB(A)</b>	74.3
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	74.0
	<b>L<sub>10</sub>, dB(A)</b>	75.3
	<b>L<sub>90</sub>, dB(A)</b>	72.0
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b>		
Transportation noise by public transporation		
<b>Remarks</b>		

**With Baseline Correction :**          #Note     dB(A)

# Note: The measurement level is lower than the baseline noise level.  
 Therefore, no baseline correction is calculated

**Recorded by :** William Law

**Date :** 02 November 2010

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: WINDY      Recorded by: NICKY LAU

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>Aeq</sub>
2/11/2010	R2 Area/Office	07:24 - 07:29		83.60	65.80	75.10	71.80	73.80
		07:29 - 07:34		85.40	66.70	74.80	71.70	73.50
		07:34 - 07:39		85.70	66.90	75.70	72.30	74.40
		07:39 - 07:44		84.50	67.10	75.60	72.00	74.20
		07:44 - 07:49		84.00	67.00	74.90	72.00	73.80
		07:49 - 07:54		84.20	67.10	75.80	72.20	74.50

L<sub>eq</sub> 30min = 74.00  
 L<sub>10</sub> 30min = 75.30  
 L<sub>90</sub> 30min = 72.00



**Mass Transit Railway - Lai Chi Kok Station  
 Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Tower 1, The Pacifica
<b>Sampling Date</b>		12 November 2010
<b>Sampling Time</b>		09:15 - 09:45
<b>Weather Condition</b>		Sunny
<b>Baseline Noise Level</b>	<b>dB(A)</b>	74.3
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	74.7
	<b>L<sub>10</sub>, dB(A)</b>	76.2
	<b>L<sub>90</sub>, dB(A)</b>	72.1
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b>		
Transportation noise by public transportation		
<b>Remarks</b>		

With Baseline Correction : 64.1 dB(A)

# Note: The measurement level is lower than the baseline noise level.  
 Therefore, no baseline correction is calculated

Recorded by : William Law

Date : 12 November 2010

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: SUNNY      Recorded by: WILLIAM CHAN

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>Aeq</sub>
12/1/2010	Rz Pedestrian	09:15 - 09:20		80.90	66.60	75.60	71.60	74.70
		09:20 - 09:25		79.80	66.30	75.80	72.00	74.60
		09:25 - 09:30		80.20	66.20	76.30	72.40	74.70
		09:30 - 09:35		81.30	66.70	76.60	72.30	75.10
		09:35 - 09:40		80.70	67.30	76.70	72.50	75.00
		09:40 - 09:45		80.50	67.50	76.20	72.10	74.80

L<sub>90 30min</sub> = 74.70  
 L<sub>10 30min</sub> = 76.20  
 L<sub>90 30min</sub> = 72.10

**Mass Transit Railway - Lai Chi Kok Station  
 Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Tower 1, The Pacifica
<b>Sampling Date</b>		16 November 2010
<b>Sampling Time</b>		09:17 - 09:47
<b>Weather Condition</b>		Sunny
<b>Baseline Noise Level</b>	<b>dB(A)</b>	74.3
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	74.1
	<b>L<sub>10</sub>, dB(A)</b>	78.7
	<b>L<sub>90</sub>, dB(A)</b>	71.3
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b>		
Transportation noise by public transportation		
<b>Remarks</b>		

**With Baseline Correction :**          #Note     dB(A)

# Note: The measurement level is lower than the baseline noise level.  
 Therefore, no baseline correction is calculated

**Recorded by : William Law**

**Date : 16 November 2010**

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: SUNNY      Recorded by: WILLIAM CAW

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>Acq</sub>
16/11/2010	R2 Platform	09:17-09:22		86.30	68.30	79.10	71.20	74.20
		09:22-09:27		86.70	68.60	79.40	71.80	75.30
		09:27-09:32		85.10	68.70	78.30	71.50	73.80
		09:32-09:37		84.90	68.50	78.20	70.90	73.70
		09:37-09:42		84.80	68.50	78.30	71.20	73.80
		09:42-09:47		85.30	68.30	78.70	71.10	73.80

L<sub>eq</sub> 30min = 74.10  
 L<sub>10</sub> 30min = 78.70  
 L<sub>90</sub> 30min = 71.30

**Mass Transit Railway - Lai Chi Kok Station  
 Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Tower 1, The Pacifica
<b>Sampling Date</b>		24 November 2010
<b>Sampling Time</b>		09:18 - 09:48
<b>Weather Condition</b>		Sunny
<b>Baseline Noise Level</b>	<b>dB(A)</b>	74.3
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	75.3
	<b>L<sub>10</sub>, dB(A)</b>	76.5
	<b>L<sub>90</sub>, dB(A)</b>	72.7
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b>		
Transportation noise by public transportation		
<b>Remarks</b>		

**With Baseline Correction :**      68.4 dB(A)

# Note: The measurement level is lower than the baseline noise level.  
 Therefore, no baseline correction is calculated

**Recorded by :** William Law

**Date :** 24 November 2010

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA  
 Weather: JUNNY  
 Recorded by: WILLIAM CHAN

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>50</sub>	L <sub>Aeq</sub>
24/11/2010	R <sub>2</sub> Pedestrian	09:18 - 09:23		80.80	67.70	76.70	72.60	74.80
		09:23 - 09:28		80.00	67.90	76.90	71.60	74.70
		09:28 - 09:33		79.40	67.60	76.60	71.70	74.30
		09:33 - 09:38		80.10	66.70	75.70	73.50	75.20
		09:38 - 09:43		81.40	66.20	77.40	73.40	76.40
		09:43 - 09:48		81.00	67.70	75.60	73.20	76.40

L<sub>eq</sub> 30 min = 75.30  
 L<sub>10</sub> 30 min = 76.50  
 L<sub>90</sub> 30 min = 72.70

**Mass Transit Railway - Lai Chi Kok Station**  
**Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Tower 1, The Pacifica
<b>Sampling Date</b>		02 December 2010
<b>Sampling Time</b>		09:11 - 09:41
<b>Weather Condition</b>		Sunny
<b>Baseline Noise Level</b>	<b>dB(A)</b>	74.3
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	74.8
	<b>L<sub>10</sub>, dB(A)</b>	76.8
	<b>L<sub>90</sub>, dB(A)</b>	72.6
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b>		
Transportation noise by public transportation		
<b>Remarks</b>		

**With Baseline Correction :**      65.2 dB(A)

# Note: The measurement level is lower than the baseline noise level.  
 Therefore, no baseline correction is calculated

**Recorded by :** William Law

**Date :** 02 December 2010

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: SUNNY      Recorded by: WILLIAM CAW

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>Aeq</sub>
2/12/2010	R2 Pacifica	09:11-09:16		81.80	67.80	77.20	73.90	74.70
		09:16-09:21		81.60	66.30	76.90	73.30	76.00
		09:21-09:26		80.80	65.10	76.70	73.10	74.20
		09:26-09:31		81.40	66.90	75.90	71.30	73.60
		09:31-09:36		81.60	66.40	77.80	72.30	75.60
		09:36-09:41		80.20	65.10	76.60	71.90	75.00

L<sub>eq 30min</sub> = 74.80  
 L<sub>10 30min</sub> = 76.80  
 L<sub>90 30min</sub> = 72.60



**Mass Transit Railway - Lai Chi Kok Station  
 Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Tower 1, The Pacifica
<b>Sampling Date</b>		07 December 2010
<b>Sampling Time</b>		10:07 - 10:37
<b>Weather Condition</b>		Sunny
<b>Baseline Noise Level</b>	<b>dB(A)</b>	74.3
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	75.1
	<b>L<sub>10</sub>, dB(A)</b>	76.4
	<b>L<sub>90</sub>, dB(A)</b>	72.3
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b>		
Transportation noise by public transportation		
<b>Remarks</b>		

**With Baseline Correction :**      67.4 dB(A)

# Note: The measurement level is lower than the baseline noise level.  
 Therefore, no baseline correction is calculated

**Recorded by :** William Law

**Date :** 07 December 2010

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: JUNNY      Recorded by: WILLIAM CAW

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>50</sub>	L <sub>Acq</sub>
7/10/2010	R <sub>2</sub> Passifera	10:07-10:12		80.40	66.90	76.40	72.70	76.00
		10:12-10:17		81.60	66.60	76.10	72.40	75.20
		10:17-10:22		80.90	66.10	75.70	71.60	74.20
		10:22-10:27		79.60	65.20	76.70	72.20	74.70
		10:27-10:32		80.30	66.20	76.30	71.70	75.30
		10:32-10:37		79.20	65.60	77.10	73.30	75.40

L<sub>eq</sub> 30min = 75.10  
 L<sub>10</sub> 30min = 76.40  
 L<sub>90</sub> 30min = 72.30

**Mass Transit Railway - Lai Chi Kok Station  
 Cheung Lai Street Pedestrian Subway and Entrance Works**

**Noise Level Monitoring Log Sheet**

<b>Monitoring Location</b>		Podium, Tower 1, The Pacifica
<b>Sampling Date</b>		15 December 2010
<b>Sampling Time</b>		09:10 -09:40
<b>Weather Condition</b>		Cloudy
<b>Baseline Noise Level</b>	<b>dB(A)</b>	74.3
<b>Monitoring Results</b>	<b>L<sub>eq</sub>, dB(A)</b>	74.5
	<b>L<sub>10</sub>, dB(A)</b>	76.2
	<b>L<sub>90</sub>, dB(A)</b>	72.4
<b>Calibration before Measurement</b>	<b>dB(A)</b>	94.0
<b>Calibration after Measurement</b>	<b>dB(A)</b>	94.0
<b>Observation(s)</b>		
Transportation noise by public transportation		
<b>Remarks</b>		

**With Baseline Correction :**      61.0 dB(A)

# Note: The measurement level is lower than the baseline noise level.  
 Therefore, no baseline correction is calculated

**Recorded by :** William Law

**Date :** 15 December 2010

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA  
 Weather: Cloudy  
 Recorded by: WILLIAM CATW

Date	Location	Time/H Duration Min.	Comment/Source	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>Acq</sub>
15/10/2010	R <sub>2</sub> Pacifica	09:10-09:15		79.20	65.50	75.60	71.50	73.80
		09:15-09:20		79.70	65.20	76.10	72.40	74.60
		09:20-09:25		79.80	66.40	76.70	72.30	75.10
		09:25-09:30		79.70	65.50	76.40	71.90	73.40
		09:30-09:35		79.90	66.20	76.00	73.40	75.10
		09:35-09:40		79.80	66.00	76.30	72.90	74.80

Leg 30min = 74.50  
 L<sub>60</sub> 30min = 76.20  
 L<sub>90</sub> 30min = 72.40