

Lam Geotechnics Limited

#### CONTRACT NO: HY/2019/18

#### WANCHAI DEVELOPMENT PHASE II AND CENTRAL WANCHAI BYPASS SAMPLING, FIELD MEASUREMENT AND TESTING WORK (STAGE 4)

#### **ENVIRONMENTAL PERMIT NO. EP-376/2009**

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

- JUNE 2022 -

**CLIENTS:** 

#### PREPARED BY:

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**CERTIFIED BY:** 

Raymond Dai Environmental Team Leader

DATE:

07 July 2022



Ref.: AACWBIECEM00\_0\_13074L.22

11 July 2022

By Post and Fax (2691 2649)

AECOM Asia Company Limited 12/F Tower 2 Grand Central Plaza 138 Shatin Rural Committee Road Shatin New Territories Hong Kong

Attention: Mr. Conrad Ng

Dear Mr. Ng,

## Re: Wan Chai Development Phase II - Central-Wan Chai Bypass <u>Monthly Environmental Monitoring and Audit Report (June 2022)</u> <u>for EP-376/2009</u>

Reference is made to the Environmental Team's submission of the captioned Monthly Environmental Monitoring and Audit (EM&A) Report for June 2022 received by email on 7 July 2022 for our review and comment.

Please be informed that we have no adverse comment on the captioned submission. We write to verify the captioned submission in accordance with Condition 3.4 in the captioned Environmental Permit.

Thank you very much for your attention and please do not hesitate to contact the undersigned should you have any queries.

Yours sincerely,

m

David Yeung Independent Environmental Checker

c.c.	CEDD	Attn: Ms. Maggie Wong	by fax: 2301 1277
	AECOM	Attn: Mr. S. K. Lo	by fax: 2587 1877
	AECOM	Attn: Mr. Francis Leong/ Stephen Lai	by fax: 2691 2649
	Lam	Attn: Mr. Raymond Dai	by fax: 2882 3331

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# TABLE OF CONTENTS

EXE	CUTIV	E SUMMARY
1	INTR	ODUCTION
	1.1 1.2	Scope of the Report
2	PROJ	ECT BACKGROUND7
	2.1 2.2 2.3	Background
3	STAT	US OF REGULATORY COMPLIANCE9
	3.1	Status of Environmental Licensing and Permitting under the Project9
4	MON	ITORING REQUIREMENTS10
	4.1 4.2	Noise Monitoring10Air Quality Monitoring11
5	MON	ITORING RESULTS
	5.1 5.2	Noise Monitoring Results13Air Quality Monitoring Results13
6	COM	PLIANCE AUDIT 14
	6.1 6.2 6.3 6.4	Noise Monitoring
7		ULATIVE CONSTRUCTION IMPACT DUE TO THE CONCURRENT
8		RONMENTAL SITE AUDIT 16
9		PLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTION 17
10	CON	CLUSION



## LIST OF TABLES

- Table 2.1 Schedule 2 Designated Projects under this Project
- Table 2.2 Contact Details of Key Personnel
- Table 3.1Summary of the current status on licences and/or permits on environmentalprotection pertinent to the Project
- Table 4.1 Noise Monitoring Stations
- Table 4.2 Air Quality Monitoring Stations
- Table 5.1 Noise Monitoring Stations for Contract no. HK/2012/08
- Table 5.2 Air Quality Monitoring Station for Contract no. HK/2012/08
- Table 9.1 Cumulative Statistics on Complaints
- Table 9.2 Cumulative Statistics on Successful Prosecutions
- Table 10.1
   Summary of Key Construction Activities of Individual Contract(s) to be

   commenced in Coming Reporting Month

## LIST OF FIGURES

- Figure 2.1 Project Layout
- Figure 2.2 Project Organization Chart
- Figure 4.1 Locations of Environmental Monitoring Stations

## LIST OF APPENDICES

- Appendix 3.1 Environmental Mitigation Implementation Schedule
- Appendix 4.1 Action and Limit Level
- Appendix 6.1 Event Action Plans
- Appendix 9.1 Complaint Log



## **EXECUTIVE SUMMARY**

i. This is the Environmental Monitoring and Audit (EM&A) Monthly Report – June 2022 specific for Environmental Permit no. EP-376/2009. The EM&A report is prepared by the Environmental Team (ET) employed under Contract No. HY/2019/18 – Wan Chai Development Phase II and Central Wanchai Bypass – Sampling, Field Measurement and Testing Works (Stage 4). This report presents the environmental monitoring findings and information recorded during the period of 27<sup>th</sup> May 2022 to 26<sup>th</sup> June 2022. The cut-off date of reporting is at 26<sup>th</sup> of each reporting month.

#### Noise Monitoring

- ii. Noise monitoring was conducted at M1a Footbridge for Ex-Harbour Road Sports Centre.
- iii. With respect to the shift in major construction site portions at Wan Chai North, the noise monitoring station M1a – Harbour Road Sports Centre was finely adjusted from East of Harbour Road Sports Centre to West of Harbour Road Sports Centre on 21 June 2016.
- With respect to the demolition of Ex-Harbour Road Sports Centre, the respective noise monitoring station M1a – Harbour Road Sports Centre were finely adjusted on 16 and 25 May 2017 and thereafter to the Footbridge for Harbour Road Sports for noise monitoring.
- With respect to WDII RSS confirmed that the remaining works under HK/2012/08 would be tree planting works at EP-376/2009 area only, considered that no adverse noise impact would be contributed by the tree planting works, the respective noise monitoring at noise monitoring station M1a - Footbridge at EX-Wanchai Harbour Road Sports Centre was temporary suspended from 27 March 2019 onwards.

#### Air Quality Monitoring

- vi. 1-hour and 24-hour Total Suspended Particulates (TSP) monitoring were conducted on every six days basis at CMA5b Pedestrian Plaza and CMA6a WDII PRE Site Office.
- vii. With respect to WDII RSS confirmed that the remaining works under HK/2012/08 would be tree planting works at EP-376/2009 area only, considered that no adverse air quality impact would be contributed by the tree planting works, the respective air quality monitoring at monitoring stations CMA5b – Pedestrian Plaza and CMA6a – WDII PRE Site Office, were temporary suspended from 27 March 2019 onwards.

## Complaints, Notifications of Summons and Successful Prosecutions

viii. No environmental complaint was received in this reporting month.



## Site Inspections and Audit

ix. As WDII RSS confirmation of construction works completion on 1 April 2020 and agreed with IEC on 3 April 2020, the weekly environmental site inspection for Contract no. HK/2012/08 under EP-376/2009 was suspended from 3 April 2020 onward.



#### 1 INTRODUCTION

#### 1.1 Scope of the Report

1.1.1. Lam Geotechnics Limited (LGL) has been appointed take up the role as the Environmental Team (ET) under Environmental Permit no. EP-376/2009 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 Wan Chai Development Phase II and Central-Wan Chai Bypass (Register No.: AEIAR-125/2008).

This report documents the finding of EM&A works for Environmental Permit (EP) no. EP-376/2009 during the period of 27<sup>th</sup> May 2022 to 26<sup>th</sup> June 2022. The cut-off date of reporting is the 26<sup>th</sup> 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 Environmental Site Audit 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 9 Complaints, Notification of summons and Prosecution summarizes the cumulative statistics on complaints, notification of summons and prosecution
- Section 10 Conclusion



## 2 PROJECT BACKGROUND

#### 2.1 Background

2.1.1 Wan Chai Development phase II and Central-Wan Chai Bypass (hereafter called "the Project") are Designated Project (DP) under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO). The Environmental Impact Assessment (EIA) Report for Wan Chai Development phase II and Central-Wan Chai Bypass (Register No.: AEIAR-125/2008) has been approved on 11 December 2008.

#### 2.2 Scope of the Project and Site Description

- 2.2.1. The design and construction of Wan Chai Development Phase II and Central Wanchai Bypass involves the construction and operation of primary and district distributor roads that is shown at *Figure 2.1.*
- 2.2.2. The key purpose of the study area encompasses the Wan Chai harbourfront area. The area starts at the boundary of Central Reclamation Phase III (CRIII) at the west and connects to the existing Hung Hing Road at the east. The scope of the project includes:
  - A dual 2-lane primary distributor road, Road P2, approximately 0.6km in length; and
  - Other new primary and district distributor roads connecting to the slip roads of the Central-Wan Chai Bypass with a total length of approximately 0.7km.
- 2.2.3. The project also contains various Schedule 2 DP that, under the EIAO, require Environmental Permits (EPs) to be granted by the DEP before they may be either constructed or operated. *Table 2.1* summarises the DP under this Project. *Figure 2.1* shows the locations of these Schedule 2 DP.

ltem	Designated Project	EIAO Reference
DP2	Road P2 and other roads which are classified as	Schedule 2, Part I, A.1
	primary/district distributor roads	

 Table 2.1
 Schedule 2 Designated Project under this Project

2.2.4. The designated project work II (DP2) was awarded to China State – Build King Joint Venture HK/2012/08 (Contract Title: Wan Chai Development Phase II Central – Wan Chai Bypass at Wan Chai West) as part of the Project works by the Civil Engineering and Development Department (CEDD). The construction work under Contract no. HK/2012/08 was commenced on 13 May 2015.



## 2.3 Project Organization and Contact Personnel

- 2.3.1 Civil Engineering and Development Department and Highway Department are the overall project controllers for the Wan Chai Development Phase II and Central-Wan Chai Bypass respectively. 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 2.2*:

Party	Role	Post	Name	Contact No.	Contact Fax
AECOM	Engineer's Representative for WDII	Senior Resident Engineer	Mr. S.K. Lo	3519 9033	2587 1877
Ramboll Hong Kong Limited	Independent Environmental Checker (IEC)	Independent Environmental Checker (IEC)	Mr. David Yeung	3465 2888	3465 2899
Lam Geotechnics Limited	Environmental Team (ET)	Environmental Team Leader (ETL)	Mr. Raymond Dai	2882 3939	2882 3331

#### Table 2.2 Contact Details of Key Personnel



# 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	Status
Environmental Permit	EP-376/2009	13 Nov 2009	Valid
Further Environmental Permit	FEP-01/376/2009	31 Mar 2015	Surrendered
Further Environmental Permit	FEP-02/376/2009	1 Aug 2016	Surrendered

3.1.2. Implementation status of the recommended mitigation measures during this reporting month is presented in <u>Appendix 3.1</u>.



## 4 MONITORING REQUIREMENTS

#### 4.1 Noise Monitoring

#### NOISE MONITORING STATION

4.1.1. The noise monitoring station for the Project is listed and shown in *Table 4.1* and *Figure 4.1*. <u>Appendix 4.1</u> shows the established Action/Limit Levels for the monitoring works.

Table 4.1	Noise	Monitoring	Station
	110130	monitoring	olulion

District	Station	Description
Wan Chai	M1a	Footbridge for Ex-Harbour Road Sports Centre

## 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 (Leq). Leq (30 minutes) shall be used as the monitoring parameter for the time period between 0700 and 1900 hours on normal weekdays. For all other time periods, Leq (5 minutes) 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.

## MONITORING EQUIPMENT

- 4.1.4. As referred to in the Technical Memorandum <sup>™</sup> 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 agrees to within 1.0 dB.
- 4.1.5. 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 Quality Monitoring

## AIR QUALITY MONITORING STATIONS

4.2.1. The air quality monitoring stations for the Project are listed and shown in *Table 4.2* and *Figure* 

<u>4.1.</u> <u>Appendix 4.1</u> shows the established Action/Limit Levels for the monitoring works.

Table 4.2 Air Quality Monitoring Stations

Station ID	Description
CMA5b	Pedestrian Plaza
CMA6a	WDII PRE Site Office

#### AIR QUALITY 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 cm2;
  - 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;



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- 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 concern parties such as IEC shall properly document the calibration data for future reference. All the data should be converted into standard temperature and pressure condition.

## 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. 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.
- 4.2.9. 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.
- 4.2.10. All the collected samples shall be kept in a good condition for 6 months before disposal.



## 5 MONITORING RESULTS

- 5.0.1. The environmental monitoring will be implemented based on the division of works areas of the designated project managed under the contract with FEP applied by individual contractors. Overall layout showing work areas of various contracts, latest status of work commencement and monitoring stations is 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 proposed division of noise monitoring station is summarized in *Table 5.1* below.

#### Table 5.1 Noise Monitoring Station for Contract no. HK/2012/08

Location ID	District	Description
M1a	Wan Chai	Footbridge for Ex-Harbour Road Sports Centre

5.1.2 With respect to WDII RSS confirmed that the remaining works under HK/2012/08 would be tree planting works at EP-376/2009 area only, considered that no adverse noise impact would be contributed by the tree planting works, the respective noise monitoring at noise monitoring station M1a - Footbridge at EX-Wanchai Harbour Road Sports Centre was temporary suspended from 27 March 2019 onwards.

## 5.2 Air Quality Monitoring Results

5.2.1 The proposed division of air quality monitoring stations are summarized in *Table 5.2* below.

 Table 5.2
 Air Quality Monitoring Station for Contract no. HK/2012/08

Station	Description
CMA5b	Pedestrian Plaza
CMA6a	WDII PRE Site Office

5.2.2 With respect to WDII RSS confirmed that the remaining works under HK/2012/08 would be tree planting works at EP-376/2009 area only, considered that no adverse air quality impact would be contributed by the tree planting works, the respective air quality monitoring at air quality monitoring stations CMA5b – Pedestrian Plaza and CMA6a – WDII PRE Site Office were temporary suspended from 27 March 2019 onwards



## 6 COMPLIANCE AUDIT

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

#### 6.1 Noise Monitoring

6.1.1 With respect to WDII RSS confirmed that the remaining works under HK/2012/08 would be tree planting works at EP-376/2009 area only, considered that no adverse noise impact would be contributed by the tree planting works, the respective noise monitoring at noise monitoring station M1a - Footbridge at EX-Wanchai Harbour Road Sports Centre was temporary suspended from 27 March 2019 onwards.

#### 6.2 Air Quality Monitoring

6.2.1 With respect to WDII RSS confirmed that the remaining works under HK/2012/08 would be tree planting works at EP-376/2009 area only, considered that no adverse air quality impact would likely be contributed by the tree planting works, the respective air quality monitoring at air quality monitoring stations CMA5b – Pedestrian Plaza and CMA6a – WDII PRE Site Office were temporary suspended from 27 March 2019 onwards.

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

6.3.1 As WDII RSS confirmation of construction works completion on 1 April 2020 and agreed with IEC on 3 April 2020, the weekly environmental site inspection for Contract no. HK/2012/08 under EP-376/2009 was suspended from 3 April 2020 onward.

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

6.4.1 As WDII RSS confirmation of construction works completion on 1 April 2020 and agreed with IEC on 3 April 2020, the weekly environmental site inspection for Contract no. HK/2012/08 under EP-376/2009 was suspended from 3 April 2020 onward.



## 7 CUMULATIVE CONSTRUCTION IMPACT DUE TO THE CONCURRENT PROJECTS

- 7.0.1. According to the Condition 3.4 of the EP-376/2009, this section addresses the relevant cumulative construction impact due to the concurrent activities of the current projects including the Central Reclamation Phase III (CRIII), Wan Chai Development Phase II (WDII), Central-WanChai Bypass (CWB), Island Eastern Corridor Link projects (IECL) and Wan Chai Development Phase II Central Wan Chai Bypass at Wan Chai East (CWB Tunnel).
- 7.0.2. According to the Final EM&A report of Central Reclamation Phase III (CRIII) for Contract HK 12/02, the major construction activities were completed by end of January 2014 and no construction activities were undertaken thereafter and the water quality monitoring was completed in October 2011. As such, it is considered that there were no cumulative construction impact due to the concurrent activities of the current projects with the Central Reclamation Phase III (CRIII) undertaken by contractor HK12/02 in the reporting month.
- 7.0.3. According to the Final EM&A Reports of EP-122/2002/E, EP-356/2009, FEP-01/356/2009, FEP-02/356/2009, FEP-03/356/2009, FEP-04/356/2009, FEP-05/356/2009, FEP-06/356/2009, FEP-07/356/2009 and FEP-08/356/2009, the construction works at these areas of the above EPs and FEPs were completed. In view of the above, the cumulative construction impact due to the Central Reclamation Phase III (CRIII), Wan Chai Development Phase II (WDII) and Central-Wan Chai Bypass was not anticipated.
- 7.0.4. The major construction activities under Central-Wan Chai Bypass and Island Eastern Corridor Link Projects were installation of green roof irrigation system, lightning protection system for noise enclosure and additional lighting at open area in the reporting period. In addition, other non-Wan Chai Development Phase II, Central-Wan Chai Bypass and Island Eastern Corridor Link projects were observed undertaken at Wan Chai North and North Point area.
- 7.0.5. As relevant site mitigation measures for air quality and construction noise were implemented, no significant air quality impact and noise impact from construction activities was concluded in the reporting period. Besides, no construction work was conducted at EP-376 area in the reporting period. Thus, it is evaluated that the cumulative construction impact from the concurrent projects including Wan Chai Development Phase II (WDII), Central- WanChai Bypass (CWB), Island Eastern Corridor Link projects (IECL) was insignificant.



## 8 ENVIRONMENTAL SITE AUDIT

8.0.1. As WDII RSS confirmation of construction works completion on 1 April 2020 and agreed with IEC on 3 April 2020, the weekly environmental site inspection for Contract no. HK/2012/08 under EP-376/2009 was suspended from 3 April 2020 onward.



## 9 COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTION

- 9.0.1. No environmental complaint was received in the reporting period.
- 9.0.2. The details of cumulative complaint log and updated summary of complaints are presented in <u>Appendix 9.1</u>
- 9.0.3. Cumulative statistic on complaints and successful prosecutions are summarized in *Table 9.1* and *Table 9.2* respectively.

Reporting Period	No. of Complaints
Commencement works (May 2015) to last reporting month	0
June 2022	0
Total	0

#### Table 9.2 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	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0



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## 10 CONCLUSION

10.0.1. 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.



Figure 2.1

Project Layout

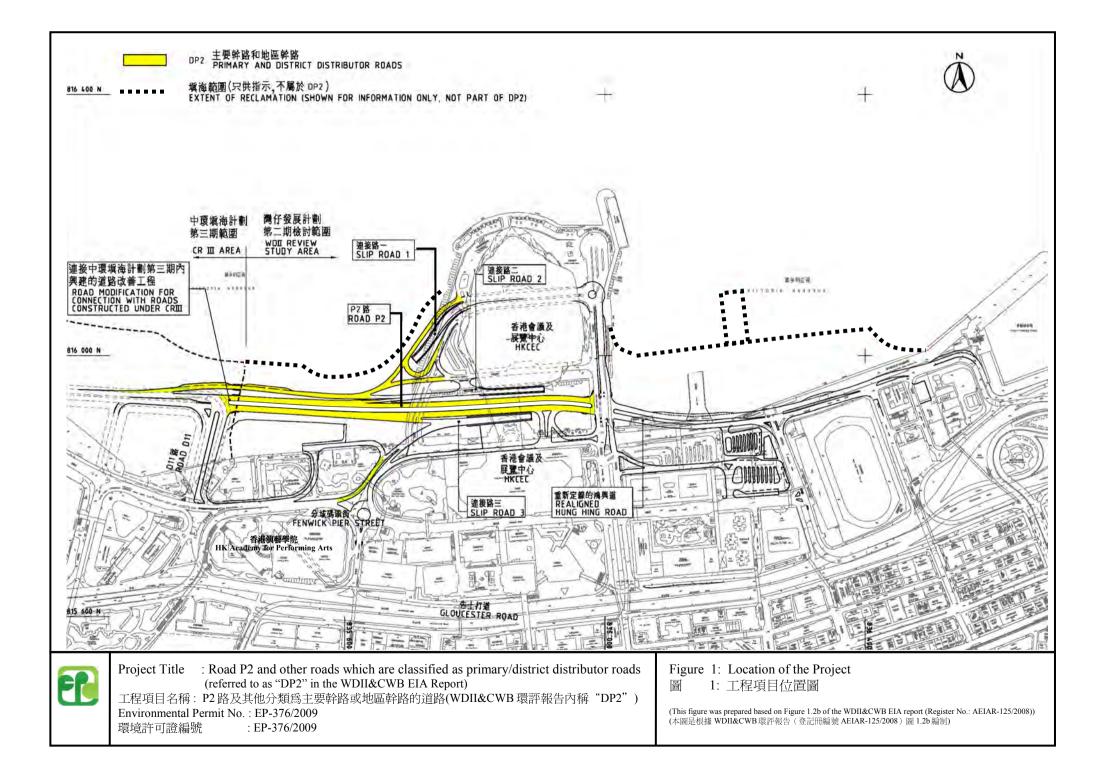




Figure 2.2

**Project Organization Chart** 



# Project Organization Chart

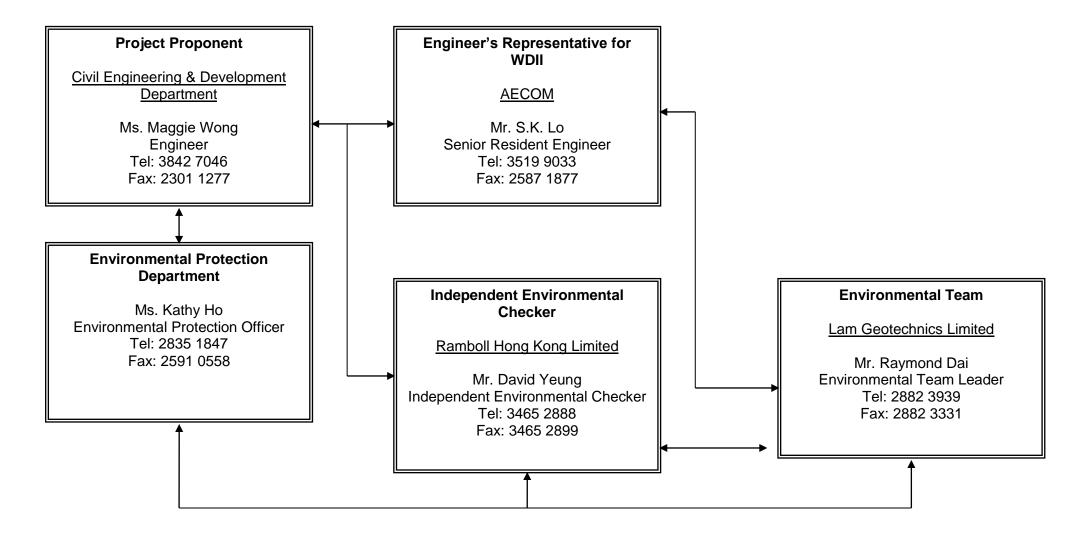
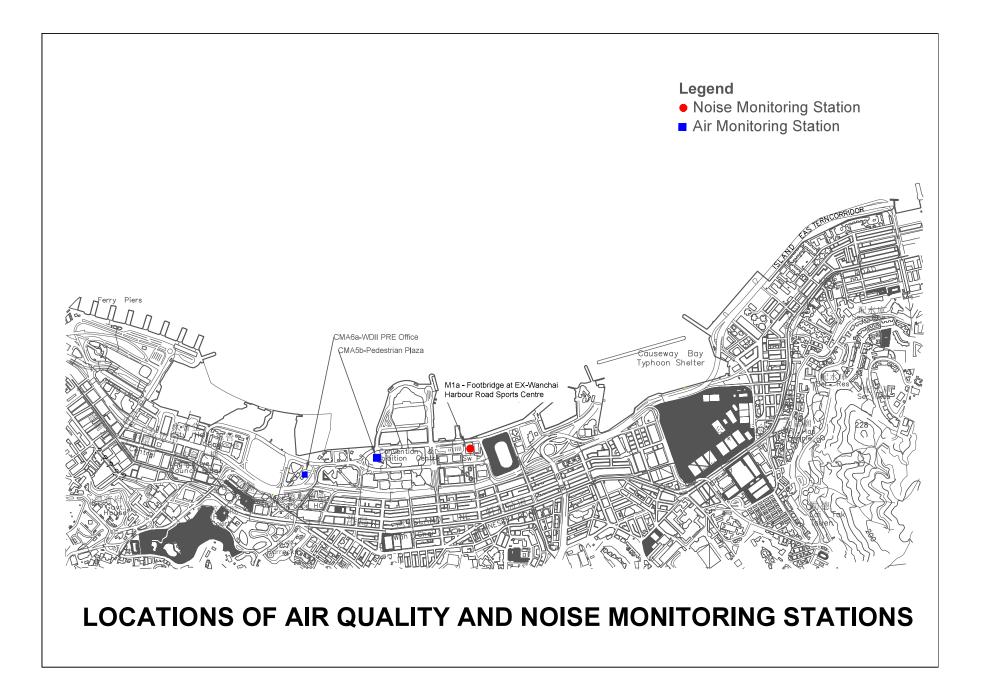




Figure 4.1

Locations of Monitoring Stations





Appendix 3.1

Environmental Mitigation Implementation Schedule

Appendix A

 Table A13.1 Implementation Schedule for Air Quality Control

Table A13.2 Implementation Schedule for Noise Control

 Table A13.3 Implementation Schedule for Water Quality Control

 Table A13.4 Implementation Schedule for Waste Management

 Table A13.7 Implementation Schedule for Landscape and Visual

## IMPLEMENTATION SCHEDULE OF THE PROPOSED MITIGATION MEASURES

#### Table A13.1 Implementation Schedule for Air Quality Control

EIA Ref	Environmental Protection Measures /	Location / Timing	Implementation	Impl	emen	tation	stage	<b>Relevant Legislation</b>
	Mitigation Measures		Agent	Des	С	0	Dec	and Guidelines
Construction	n Phase	1						
For the Who	le Project							
S3.6.5	Four times a day watering of the work site with active operations.	Work site / during construction	Contractor		$\checkmark$			EIAO-TM
\$3.8.1	<ul> <li>Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimise cumulative dust impacts.</li> <li>Strictly limit the truck speed on site to below 10 km per hour and water spraying to keep the haul roads in wet condition;</li> <li>Watering during excavation and material handling;</li> <li>Provision of vehicle wheel and body washing facilities at the exit points of the site, combined with cleaning of public roads where necessary; and</li> <li>Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.</li> </ul>	Work site / during construction	Contractor		N			

Des - Design, C - Construction, O – Operation, and Dec – Decommissioning

EIA Ref	<b>Environmental Protection Measures /</b>	Location / Timing	Implementation	Impl	emen	tation s	stage	<b>Relevant Legislation</b>
	Mitigation Measures		Agent	Des	C	0	Dec	and Guidelines
Constructio								
For the Wh	ole Project							
S4.9.4	<ul> <li>Good Site Practice:</li> <li>Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program.</li> <li>Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program.</li> <li>Mobile plant, if any, shall be sited as far away from NSRs as possible.</li> <li>Machines and plant (such as trucks) that may be in intermittent use shall be shut down between works periods or shall be throttled down to a minimum.</li> <li>Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.</li> <li>Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from onsite</li> </ul>	Work site / during construction	Contractor					EIAO-TM, NCO
For DP2 _ 1	construction activities.         WDII Major Roads (Road P2)							
S4.8.3 –	Use of quiet powered mechanical equipment,	Work site / during	Contractor					EIAO-TM, NCO
S4.8.4	movable noise	construction			`			,
	barrier and temporary noise barrier for the							
	following tasks:							
	<ul> <li>Temporary road diversion</li> </ul>							
	<ul> <li>Resurfacing</li> </ul>							
	<ul> <li>At-grade roadwork</li> </ul>							

• Des - Design, C - Construction, O – Operation, and Dec – Decommissioning

# Table A13.3 Implementation Schedule for Water Quality Control

EIA Ref	<b>Environmental Protection Measures /</b>	Location / Timing	Implementation	Impl	emen	tation	stage	<b>Relevant Legislation</b>
	Mitigation Measures		Agent	Des	С	0	Dec	and Guidelines
Constructio	n Phase				I			
For the Who	ole Project							
S5.8	<ul> <li>Construction Runoff and Drainage</li> <li>use of sediment traps, wheel washing facilities for vehicles leaving the site, and adequate maintenance of drainage systems to prevent flooding and overflow;</li> <li>Permanent drainage channels shall incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities shall be based on the guidelines in Appendix A1 of ProPECC PN 1/94;</li> <li>a sediment tank constructed from preformed individual cells of approximately 6 - 8 m3 capacity can be used for settling ground water prior to disposal;</li> <li>Oil interceptors shall be provided in the drainage system for the tunnels and regularly cleaned to prevent flushing during periods of heavy rain; precautions and actions to be taken when a rainstorm is imminent or forecast, and during or after rainstorms. Particular attention shall be paid to the control of any silty surface runoff during storm events;</li> <li>On-site drainage system shall be installed prior to the commencement of other construction activities. Sediment traps shall be</li> </ul>	Work site / during construction	Contractor					ProPECC PN 1/94; WPCO (TM-DSS)

	<ul> <li>installed in order to minimise the sediment loading of the effluent prior to discharge;</li> <li>All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge shall be adequately designed for the controlled release of storm flows. All sediment control measures shall be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms.</li> <li>The temporarily diverted drainage shall be reinstated to its original condition when the construction work is finished or the temporary diversion is no longer required.</li> <li>All fuel tanks and store areas shall be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity.</li> <li>Minimum distances of 100 m shall be</li> </ul>				
S5.8	and the existing or planned WSD flushing water intakes during construction phase. Sewage from Construction Work Force Construction work force sewage discharges on site shall be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage shall be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.	Work site / during construction	Contractor	√	ProPECC PN 1/94; WPCO (TM-DSS)

<u>EP-376/20</u>	009					EM&A Manual
\$5.8	<i>Floating Debris and Refuse</i> Collection and removal of floating refuse shall be performed at regular intervals on a daily basis. The contractor shall be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish.	Work site and adjacent water / During the construction period.	Contractor		V	WPCO
\$5.8	Storm Water Discharges Minimum distances of 100 m shall be maintained between the existing or planned stormwater discharges and the existing or planned WSD flushing water intakes.	Work site and adjacent water / During the design and construction period.	Contractor	$\checkmark$	V	WPCO

• Des - Design, C - Construction, O – Operation, and Dec – Decommissioning

# Table A13.4 Implementation Schedule for Waste Management

EIA Ref	Environmental Protection Measures /	Location / Timing	Implementation	Impl	emen	tation	stage	<b>Relevant Legislation</b>
	Mitigation Measures		Agent	Des	С	0	Dec	and Guidelines
Constructio	on Phase				1			
For the Wh	ole Project							
S6.7.7	<ul> <li>Good Site Practices</li> <li>Recommendations for good site practices during the construction activities include: <ul> <li>nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site;</li> <li>training of site personnel in proper waste management and chemical waste handling procedures;</li> <li>provision of sufficient waste disposal points and regular collection for disposal;</li> <li>appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;</li> <li>regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and</li> <li>a recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).</li> </ul> </li> </ul>	Work site / During planning and design stage, and construction stage	Contractor					
S.6.7.8	<ul> <li>Waste Reduction Measures</li> <li>Recommendations to achieve waste reduction include:</li> <li>Sort C&amp;D waste from demolition of the existing waterfront structures to recover</li> </ul>	Work site / During planning and design stage, and construction stage	Contractor	V	V			

	<ul> <li>recyclable portions such as metals.</li> <li>Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.</li> <li>Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force.</li> <li>Any unused chemicals or those with remaining functional capacity shall be recycled.</li> <li>Use of reusable non-timber formwork, such as in casting the tunnel box sections, to reduce the amount of C&amp;D material.</li> <li>Proper storage and site practices to minimise the potential for damage or contamination of construction materials.</li> <li>Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.</li> </ul>				
S6.7.10	<i>General Refuse</i> General refuse shall be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D material.	Work site / During the construction period	Contractor	V	Public Health and Municipal Services Ordinance (Cap. 132)
	A collection area shall be provided where wastes can be stored and loaded prior to removal from site. An enclosed and covered area is recommended to reduce the occurrence of 'wind blow' light material.				

S6.7.11	Chemical Wastes	Work site / During	Contractor		Waste Disposal
,01,111	After use, chemical wastes (for example,	the	Conductor	, i i i i i i i i i i i i i i i i i i i	(Chemical Waste)
	cleaning fluids, solvents, lubrication oil and fuel)	construction period			(General) Regulation
	shall be handled according to the Code of	1			Code of Practice on
	Practice on the Packaging, Labelling and Storage				the Packaging,
	of Chemical Wastes. Spent chemicals shall be				Labelling and Storage
	collected by a licensed collector for disposal at				of Chemical Wastes
	the CWTF or other licensed facility in				
	accordance with the Waste Disposal (Chemical				
	Waste) (General) Regulation.				
6.7.12 -	Construction and Demolition Material	Work site / During	Contractor and	$\checkmark$	DEVB TCW
56.7.13	C&D material shall be sorted on-site into inert	the	Independent		No.6/2010;
	C&D material (that is, public fill) and C&D waste. All the suitable inert C&D material shall	construction period	Environmental Checker		ETWB TCW No.
	be broken down to 250 mm in size for reuse as		Cnecker		33/2002; ETWB TCW No.
	public fill in the WDII reclamation. C&D waste,				19/2005
	such as wood, glass, plastic, steel and other				19/2005
	metals shall be reused or recycled and, as a last				
	resort, disposed of to landfill. A suitable area				
	shall be designated to facilitate the sorting				
	process and a temporary stockpiling area will be				
	required for the separated materials.				
	In order to monitor the disposal of public fill and				
	C&D waste at public fill reception facilities and				
	landfills, respectively, and to control fly tipping,				
	a trip-ticket system shall be included as one of				
	the contractual requirements and implemented				
	by the Environmental Team undertaking the				
	environmental monitoring and audit work.				
	An Independent Environment Checker shall be				
6.7.14	responsible for auditing the results of the system. Bentonite Slurry	Work site / During	Contractor	√	ProPECC PN 1/94
0.7.14	The disposal of residual used bentonite slurry	the	Contractor	N	FIORECC FIN 1/94
	shall follow the good practice guidelines stated	construction period			
	shan tonow the good practice guidennes stated	construction period		I I	

#### EM&A Manual

	1		 	
in ProPECC PN 1/94 "Construction Site				
Drainage" and listed as follows:				
<ul> <li>If the disposal of a certain residual</li> </ul>				
quantity cannot be avoided, the used slurry may				
be disposed of at the marine spoil grounds				
subject to obtaining a marine dumping licence				
from EPD on a case-by-case basis.				
<ul> <li>If the used bentonite slurry is intended</li> </ul>				
to be disposed of through the public drainage				
system, it shall be treated to the respective				
effluent standards applicable to foul sewers,				
storm drains or the receiving waters as set out in				
the Technical Memorandum of Standards for				
Effluents Discharged into Drainage and				
Sewerage Systems, Inland and Coastal Waters.				
<ul> <li>If the used bentonite slurry is intended</li> </ul>				
to be disposed to public fill reception facilities, it				
· · ·				
will be mixed with dry soil on site before				
disposal.	<u> </u>			

• Des - Design, C - Construction, O – Operation, and Dec – Decommissioning

# Table A13.7 Implementation Schedule for Landscape and Visual

EIA Ref	Environmental Protection Measures /	Location / Timing	Implementation	Impl	emen	tation	stage	<b>Relevant Legislation</b>
	Mitigation Measures	_	Agent	Des	C	0	Dec	and Guidelines
Construction	n Phase							
For the Who	le Project							
Table 10.5	CM1 Topsoil, where identified, shall be stripped and stored for re-use in the construction of the soft landscape works, where practical.	Work site / During Construction Phase	Contractor	V	V			EIAO TM
Table 10.5	CM2 Existing trees to be retained on site shall be carefully protected during construction.	Work site / During Construction Phase	Contractor	$\checkmark$	$\checkmark$			EIAO TM
Table 10.5	CM3 Trees unavoidably affected by the works shall be transplanted where practical.	Work site / During Construction Phase	Contractor	$\checkmark$	V			EIAO TM
Table 10.5	CM4 Compensatory tree planting shall be provided to compensate for felled trees.	Work site / During Construction Phase	Contractor	$\checkmark$	$\checkmark$			EIAO TM
Table 10.5	CM5 Control of night-time lighting.	Work site / During Construction Phase	Contractor		V			EIAO TM
Table 10.5	CM6 Erection of decorative screen hoarding compatible with the surrounding setting.	Work site / During Construction Phase	Contractor		$\checkmark$			EIAO TM
For DP2 – W	VDII Major Roads (Road P2)							
Table 10.5	CM1 Topsoil, where identified, shall be stripped and stored for re-use in the construction of the soft landscape works, where practical.	Work site / During Construction Phase	Contractor	$\checkmark$	$\checkmark$			EIAO TM
Table 10.5	CM2 Existing trees to be retained on site shall be carefully protected during construction.	Work site / During Construction Phase	Contractor	$\checkmark$	$\checkmark$			EIAO TM
Table 10.5	CM3 Trees unavoidably affected by the works shall be transplanted where practical.	Work site / During Construction Phase	Contractor	$\checkmark$	$\checkmark$			EIAO TM
Table 10.5	CM4 Compensatory tree planting shall be provided to compensate for felled trees.	Work site / During Construction Phase	Contractor	$\checkmark$	$\checkmark$			EIAO TM
Table 10.5	CM5 Control of night-time lighting.	Work site / During Construction Phase	Contractor		V			EIAO TM
Table 10.5	CM6 Erection of decorative screen hoarding compatible with the surrounding setting.	Work site / During Construction Phase	Contractor		$\checkmark$			EIAO TM

EP-376/2009
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EM&A Manual

<b>Operation P</b>	hase					
•	DII Major Roads (Road P2)					
Table 10.6, Figure 10.5.1- 10.5.5	OM1 Aesthetic design of buildings and road- related structures, including viaducts, vent buildings, subways, footbridges and noise barriers and enclosure.	Work site / During Design Stage and Operation Phases	CEDD/HyD	N	V	ETWB TCW 2/2004
Table 10.6, Figure 10.5.1- 10.5.5	OM3 Buffer Tree and Shrub Planting to screen proposed roads and associated structures.	Work site / During Design Stage and Operation Phases	CEDD/HyD	V	√	ETWB TCW 2/2004
Table 10.6, Figure 10.5.1- 10.5.5	OM5 Aesthetic streetscape design.	Work site / During Design Stage and Operation Phases	CEDD/HyD	$\checkmark$	N	ETWB TCW 2/2004
Table 10.6, Figure 10.5.1- 10.5.5	OM6 Aesthetic design of roadside amenity areas	Work site / During Design Stage and Operation Phases	CEDD/HyD	$\checkmark$	N	ETWB TCW 2/2004

• Des - Design, C - Construction, O – Operation, and Dec – Decommissioning



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)	

Notes: If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed. \*The Limit level shall be 70 dB(A) and 65 dB(A) for educational institute during normal teaching periods and school examination periods, respectively.

#### Action and Limit Level for Air Monitoring

Monitoring Locations	1-hour TSP Level inµg/m3		24-hour TSP Level inµg/m3		
	Action Level	Limit Level	Action Level	Limit Level	
<b>CMA5b</b> Pedestrian Plaza	339.7	500	209.9	260	
CMA6a WDII PRE Site Office	333.0	500	207.1	260	



Appendix 6.1

Event Action Plans



#### Event/Action Plan for Construction Noise

EVENT	ACTION				
	ET	IEC	ER	CONTRACTOR	
Action Level being exceeded	<ol> <li>Notify ER, IEC and Contractor;</li> <li>Carry out investigation;</li> <li>Report the results of investigation to the IEC, ER and Contractor;</li> <li>Discuss with the IEC and Contractor on remedial measures required;</li> <li>Increase monitoring frequency to check mitigation effectiveness.</li> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</li> </ol>	<ol> <li>Review the investigation results submitted by the ET;</li> <li>Review the proposed remedial measures by the Contractor and advise the ER accordingly;</li> <li>Advise the ER on the effectiveness of the proposed remedial measures.</li> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>Supervise the implementation of remedial measures.</li> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</li> </ol>	<ol> <li>Submit noise mitigation proposals to IEC and ER;</li> <li>Implement noise mitigation proposals.</li> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</li> </ol>	



EVENT	ACTION						
	ET	IEC	ER	CONTRACTOR			
Limit Level being exceeded	<ol> <li>Inform IEC, ER, Contractor and EPD;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency;</li> <li>4. Identify source and investigate the cause of exceedance;</li> <li>5. Carry out analysis of Contractor's working procedures;</li> <li>6. Discuss with the IEC, Contractor and ER on remedial measures required;</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> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</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>(The above actions should be taken within 2 working days after the exceedance is identified)</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>Supervise the implementation of remedial measures;</li> <li>If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated.</li> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</li> </ol>	<ol> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC and ER within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Submit further proposal if problem still not under control;</li> <li>Stop the relevant portion of works as instructed by the ER until the exceedance is abated.</li> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</li> </ol>			



#### Event / Action Plan for Construction Air Quality

EVENT		ACTION			
EVENT	ET	IEC	ER	CONTRACTOR	
ACTION LEVEL					
1. Exceedance for one sample	<ol> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform IEC and ER;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily.</li> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method.</li> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</li> </ol>	Notify Contractor.     (The above actions should be taken within 2     working days after the exceedance is identified)	<ol> <li>Rectify any unacceptable practice;</li> <li>Amend working methods if appropriate. (The above actions should be taken within 2 working days after the exceedance is identified)</li> </ol>	
2. Exceedance for two or more consecutive samples	<ol> <li>Identify source;</li> <li>Inform IEC and ER;</li> <li>Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Discuss with IEC and Contractor on remedial actions required;</li> <li>If exceedance continues, arrange meeting with IEC and ER;</li> <li>If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified)</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 ET on the effectiveness of the proposed remedial measures;</li> <li>Supervise Implementation of remedial measures.</li> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</li> </ol>	<ol> <li>Submit proposals for remedial to ER within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</li> </ol>	
LIMIT LEVEL	1	I			
1. Exceedance for one sample	<ol> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</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 IEC, EPD and ER informed of the results.</li> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</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> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</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> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</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. (The above actions should be taken within 2 working days after the exceedance is identified)</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 IEC, 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> <li>(The above actions should be taken within 2 working days after the exceedance is identified)</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>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. (The above actions should be taken within 2 working days after the exceedance is identified)</li> </ol>	



Appendix 9.1

Complaint Log



# Environmental Complaints Log

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
			-	-	-	