

MATERIALAB CONSULTANTS LIMITED

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The logo for MaterialLab, featuring the word "MaterialLab" in a bold, black, sans-serif font. The text is centered between two thick, horizontal black bars.

QUARTERLY ENVIRONMENTAL MONITORING & AUDIT SUMMARY REPORT

March 2017 – May 2017

Client : SANG HING – KULY JOINT VENTURE

Contract Name : Castle Peak Road Trunk Sewer and Tuen Mun
Village Sewerage (Sewage Pumping Station at
Lok Chui Street near Castle Peak Villas)

Contract No. : DC/2014/01


EP No. : EP-068/2000/A

Title of Project : Sewage Pumping Stations at Tai Lam Chung Tsuen
Luen On San Tsuen, Tai Lam Valley and Lok Chui Street near
Castle Peak Villas under the scope of “Tuen Mun Sewerage –
Eastern Coastal Sewerage Extension”

Report No. : 0367/15/ED/0805A

Prepared by : Wingo H. W. So

Reviewed by : Cyrus C. Y. Lai

Certified by : 
Colin K. L. Yung
Environmental Team Leader
MaterialLab Consultants Limited

13 June 2017



Drainage Services Department
42/F., Revenue Tower
5 Gloucester Road
Wan Chai
Hong Kong

Your reference:

Our reference: HKDSD202/50/104352

Date: 13 June 2017

Attention: Ms Winnie Ng

BY EMAIL & POST
(email: wyng03@dsd.gov.hk)

Dear Sirs

Agreement No.: PM 08/2014
Services for Independent Environmental Checker for
Construction of Lok Chui Street Sewage Pumping Station
Verification of Quarterly EM&A Summary Report (March 2017 – May 2017)

We refer to emails of 7 and 13 June 2017 attaching a Quarterly EM&A Summary Report (March 2017 - May 2017) for the captioned project prepared by the ET.

We have no further comment and hereby verify the Quarterly EM&A Summary Report (March 2017 - May 2017).

Should you have any queries, please do not hesitate to contact the undersigned or our Mr Nic Lam at 2618 2836.

Yours faithfully
ANEWR CONSULTING LIMITED

Adi Lee
Independent Environmental Checker

LYMA/LHHN/HCYD/lhnh

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EXECUTIVE SUMMARY

- i. This is the 5th Quarterly Environmental Monitoring Audit (EM&A) Summary Report, it presents the environmental monitoring and audit works for the period from 1 March 2017 to 31 May 2017.

Construction Activities for the Reporting Period

- ii. During this reporting period, the principal work activities within the site included:

March 2017

- Welding of capping plate
- Construction of Wet Well Chamber

April 2017 – May 2017

- Construction of Wet Well Chamber

Breaches of Action and Limit Levels for Air Quality

- iii. No Action or Limit Level Exceedance of 1-hr TSP monitoring was recorded in the reporting period.

Breaches of Action and Limit Levels for Noise

- iv. No exceedance was recorded at all monitoring stations in the reporting period.

Complaint, Notifications of Summons and Successful Prosecutions

- v. No Action or Limit Level Exceedance of noise monitoring was recorded in the reporting period.
- vi. No complaints, notification of summons or successful prosecutions were received in the reporting period.

Reporting Change

- vii. There was no reporting change required in the reporting period.

Future Key Issues

- viii. Potential environmental impacts due to the construction activities, including air quality, noise, water quality, waste, landscape and visual, will be monitored or reviewed. The ET will continue to implement the environmental monitoring & audit programme in accordance with the EM&A Manual and Environmental Permit requirements. The recommended environmental mitigation measures shall be implemented on site and regular inspections as required will be carried out to ensure that the environmental conditions are acceptable.

1. INTRODUCTION

1.1 Background

- 1.1.1 Contract No. DC/2014/01 – Castle Peak Road Trunk Sewer and Tuen Mun Village Sewerage (“the Project”) includes the construction of a sewage pumping station at Lok Chui Street near Castle Peak Villas as shown in **Figure 1**.
- 1.1.2 The environmental impact assessment (EIA) report (Tuen Mun Sewerage - Eastern Coastal Sewerage Extension) – EIA Report (Register No. AEIAR-034/2000) for the Project was approved by Environmental Protection Department (EPD) dated 7 June 2000. The EIA Report involves the construction of four sewage pumping stations at Tai Lam Chung Tsuen, Luen On San Tsuen, Tai Lam Valley and Lok Chui Street near Castle Peak Villas. The scope of this EM&A Manual focuses on the Sewage Pumping Station at Lok Chui Street near Castle Peak Villas in the EIA Report. The Project is designated under Schedule 2, section F3(b) and Q1 of the Environmental Impact Assessment Ordinance (EIAO). EPD subsequently issued the Environmental Permit (EP) EP- 068/2000 on 25 July 2000.
- 1.1.3 A Register of Change to Environmental Permit was submitted to EPD to register any change to the conditions in the EP for adoption of the latest design of the Pumping Station at Lok Chui Street and justify that the latest changes would not violate the conditions as stated in the approved EIA Report and EP based on the latest engineering design information. A Variation of Environmental Permit (VEP) EP-068/2000/A was issued on 10 April 2015 and it is the current permit for the Project.
- 1.1.4 The amended EP (EP-068/2000/A) is the current permit for the Project.
- 1.1.5 In accordance to EP-068/2000/A Condition 2.3 and 2.4, an updated EM&A Manual was duly certified by ETL and verified by IEC and submitted to EPD for approval on 18 January 2016.
- 1.1.6 The construction phase and EM&A programme of the Project commenced on 29 February 2016.
- 1.1.7 This is the 5th Quarterly Environmental Monitoring Audit (EM&A) Summary Report, it presents the environmental monitoring and audit works for the period from 1 March 2017 to 31 May 2017.

1.2 Project Organization

1.2.1 The Project Organization structure is shown in **Appendix B**. The key personnel contact names and numbers are summarized in **Table 1.1**.

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
Drainage Services Department, HKSAR (DSD)	Project Management	Ms. Winnie Ng	2594 7265	2827 8526
Engineer/Engineer's Representative (AECOM)	Resident Engineer	Ms. Jacqueline Chan	3127 5103	2441 1755
	Senior Inspector of Works	Mr. Raymond Au	3127 5160	
Independent Environmental Checker (ANEWR)	Independent Environmental Checker	Mr. Adi Lee	2618 2836	3007 8648
Contractor (SKLV)	Site Agent	Mr. Alan Lo	2674 3888	2674 6688
	Environmental Officer	Mr. Billy Wong		
Environmental Team (MCL)	Environmental Team Leader	Mr. Colin Yung	3565 4114	3565 4160

1.3 Construction Programme and Activities

1.3.1 The construction phase of the Project under the EP commenced on 29 February 2016.

1.3.2 The construction programme of the Project is shown in **Appendix A**.

1.4 Works undertaken during the month

1.4.1 During this reporting period, the principal work activities within the site included:

March 2017

- Welding of capping plate
- Construction of Wet Well Chamber

April 2017 – May 2017

- Construction of Wet Well Chamber

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1.5 Status of Environmental Licences, Notification and Permits

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

Table 1.2 Status of Environmental Licences, Notification and Permits

Permit / Direction / License	Ref No	Valid From	Valid Till
Environmental Permit	EP-068/2000/A	10/04/2015	N/A
Notification of Works Under APCO	391923	06/08/2015	N/A
Wastewater Discharge Licence	WT00022654-2015	23/10/2015	31/10/2020
Registration as a Chemical Waste Producer	5111-421-S3879-01	02/09/2015	N/A
Billing Account for Disposal of Construction Waste	7022922	06/08/2015	N/A

2. ENVIRONMENTAL MONITORING & AUDIT REQUIREMENTS

2.1 Monitoring Parameters and Monitoring Locations

2.1.1 In accordance with the updated EM&A Manual, monitoring of the 1 hourly average of Total Suspended Particulates (TSP) levels for air quality and the A-weighted equivalent continuous sound pressure level Leq (30min) for the time period between 0700-1900 hours on normal weekdays for noise impact. The monitoring locations are shown in **Figure 2**.

2.2 Monitoring Methodology and Calibration

2.2.1 Monitoring equipment were conducted and calibrated regularly in accordance with the updated EM&A Manual. Copies of calibration certificates are attached in the appendices of the corresponding Monthly EM&A Reports.

2.3 Environmental Quality Performance Limits (Action and Limit Levels)

2.3.1 The adopted Action and Limit Levels for air quality impact and noise monitoring are presented in **Appendix C**.

2.4 Environmental Mitigation Measures

2.4.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and the EM&A Manuals. The implementation status of the mitigation measures during the reporting period is summarized in **Appendix G**.

2.5 Results and Observations

2.5.1 The weather conditions during the monitoring are presented in the Appendices of the corresponding Monthly EM&A Reports.

2.5.2 The monitoring data of 1-hr TSP are summarized in **Table 2.1**. Detailed monitoring data are presented in **Appendix D**.

Table2.1 Summary of 1-hr TSP Monitoring Results

Reporting Months	Monitoring Station	Average (µg/m ³)	Range (µg/ m ³)	Action Level (µg/ m ³)	Limit Level (µg/ m ³)
March 2017	LC6a	67	39-101	344	500
	LC9	62	45-85	335	
April 2017	LC6a	74	35-122	344	
	LC9	64	28-92	335	
May 2017	LC6a	94	25-197	344	
	LC9	88	25-182	335	

2.5.3 The noise monitoring data are summarized in **Table 2.2**. Detailed monitoring data are presented in **Appendix E**.

Table 2.2 Summary of Noise Impact Monitoring Results

Reporting Month	Monitoring Station	Leq _(30min) Range, dB(A)		Leq _(30min) Limit Level, dB(A)
		Measured	Corrected	
March 2017	LC6a ¹	63-73	58-68	75
	LC9	62-70	N.A	
April 2017	LC6a ¹	57-73	52-68	
	LC9	54-71	N.A	
May 2017	LC6a ¹	59-64	54-59	
	LC9	55-64	N.A	

Note:

- Leq_(30min) was measured at day-time (0700-1900) on normal weekdays.
- 1) A distance correction of -5dB(A) has been applied in monitoring data of LC6a according to baseline monitoring report (Appendix G).

2.5.4 No Action or Limit Level Exceedance of 1-hr TSP monitoring was recorded in the reporting period.

2.5.5 No Action or Limit Level Exceedance of noise monitoring was recorded in the reporting period.

2.6 Other factor influencing the monitoring results

2.6.1 There were no other noticeable external factors generally affecting the monitoring results in this reporting period.

3. ADVICE ON THE SOLID AND LIQUID WASTE MANAGEMENT STATUS

3.1.1 The Contractor has been registered as a chemical waste producer for the Project. Construction and demolition (C&D) material sorting was carried out on site. Receptacles were available for general refuse collection.

3.1.2 Monthly summary of waste flow table is detailed in **Appendix H**.

4. ENVIRONMENTAL SITE INSPECTION AND AUDIT

4.1 Site Inspection

- 4.1.1 Weekly site inspections and bi-weekly landscape and visual impact inspections were carried out to monitor the implementation of proper environmental pollution control and mitigation measures for the Project.
- 4.1.2 In the reporting period, site inspections were carried out on 2, 10, 16, 23 and 30 March 2017, 6, 13, 20 and 27 April 2017, 4, 11, 18 and 25 May 2017 and the landscape and visual impact inspections were carried out on 9 and 24 March 2017, 6 and 19 April 2017, 5 and 18 May 2017.
- 4.1.3 Detailed of site inspections during the reporting period are summarized in the appendices of the corresponding Monthly EM&A Reports.

5. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

5.1 Environmental Exceedance

- 5.1.1 No Action or Limit Level Exceedance of 1-hr TSP monitoring was recorded in the reporting period.
- 5.1.2 No Action or Limit Level Exceedance of noise monitoring was recorded in the reporting period.
- 5.1.3 The summary of noncompliance (exceedances) of the environmental quality performance limits (Action and Limit levels) are shown in **Table 5.1**:

Table 5.1 Summary of noncompliance (exceedances)

Parameter	No. of Exceedance		No. of Exceedance due to the Project		Cumulative Project-to-Date
	Action Level	Limit Level	Action Level	Limit Level	
1-hr TSP	0	0	0	0	0
Noise Leq _(30min) dB(A)	0	0	0	0	0

5.2 Complaints, Notification of Summons and Successful Prosecution

- 5.2.1 No complaints, notification of summons or successful prosecutions were received in the reporting period.
- 5.2.2 Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in **Appendix F**.

6. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

6.1 Implementation Status

- 6.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and the EM&A Manuals. The implementation status of the mitigation measures during the reporting period is summarized in **Appendix G**.
- 6.1.2 Based on the monitoring results and the implementation status of the mitigation measures during the reporting period, it is considered that the environmental mitigation measures implemented by the Contractor in the reporting period are effective.

7. FUTURE KEY ISSUES

Potential environmental impacts due to the construction activities, including air quality, noise, water quality, waste, landscape and visual, will be monitored or reviewed. The ET will continue to implement the environmental monitoring & audit programme in accordance with the EM&A Manual and Environmental Permit requirement. The recommended environmental mitigation measures shall be implemented on site and regular inspections as required will be carried out to ensure that the environmental conditions are acceptable.

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8. CONCLUSIONS

- 8.1.1 The construction phase and EM&A programme of the Project commenced on 29 February 2016.
- 8.1.2 No Action or Limit Level Exceedance of 1-hr TSP monitoring was recorded in the reporting period.
- 8.1.3 No Action or Limit Level Exceedance of noise monitoring was recorded in the reporting period.
- 8.1.4 In the reporting period, site inspections were carried out on 2, 10, 16, 23 and 30 March 2017, 6, 13, 20 and 27 April 2017, 4, 11, 18 and 25 May 2017 and the landscape and visual impact inspections were carried out on 9 and 24 March 2017, 6 and 19 April 2017, 5 and 18 May 2017.
- 8.1.5 No complaints, notification of summons or successful prosecutions were received in the reporting period.

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Figure 1

Project General Layout

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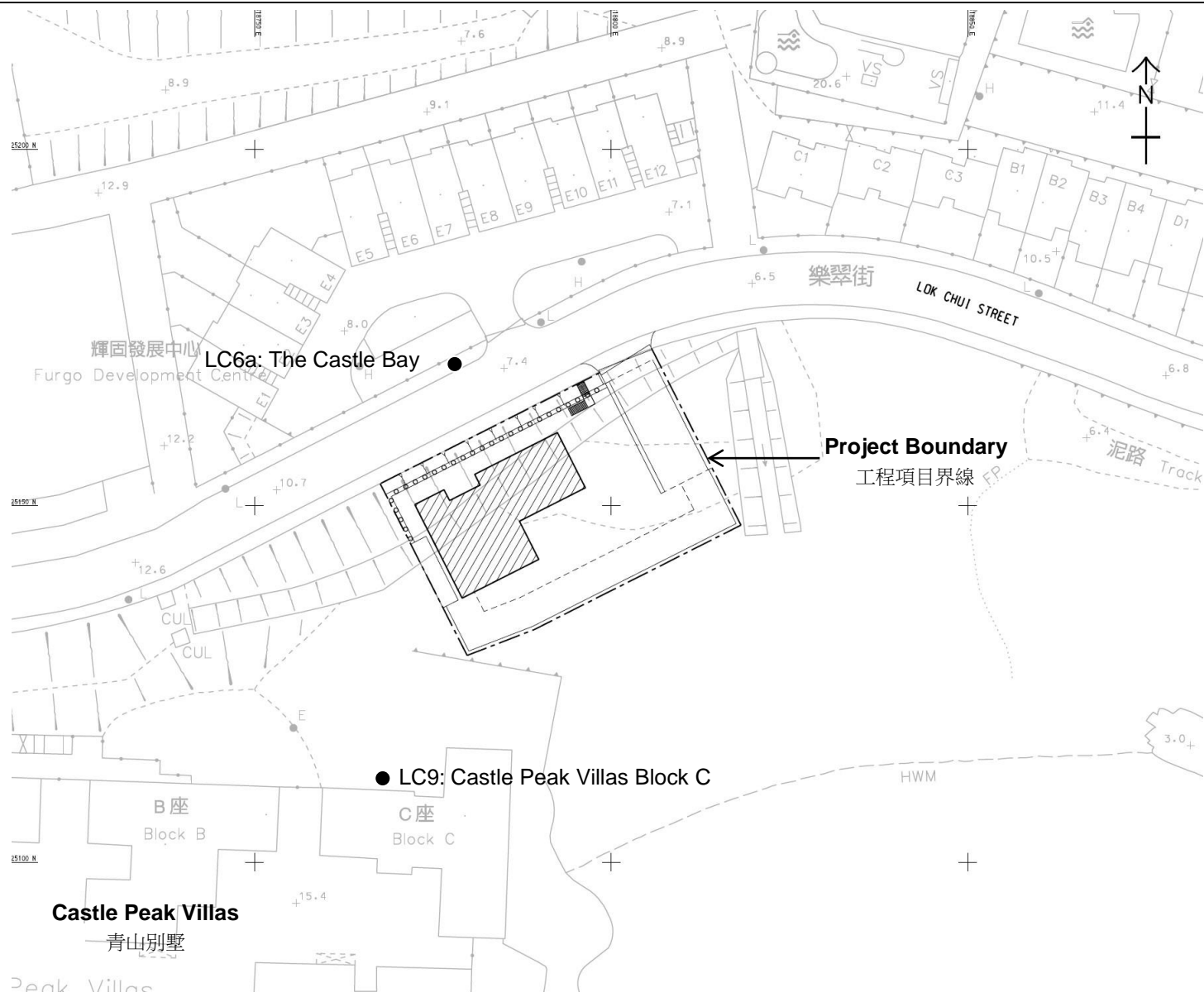
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Figure 2

Air and Noise Monitoring Locations



Air and Noise Monitoring Locations

Figure 2

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LC6a: The Castle Bay






LC9: Castle Peak Villas Block C



Note:

1) LC6a: The air and noise monitoring station is set at a point 1m from the exterior of the sensitive receiver fence wall, and set at a position 1.2m above ground. Façade measurement will be carried out for noise monitoring.

2) LC9: The air monitoring station is set at the top of parapet wall of sensitive receivers building and the noise monitoring station is set at a point 1m from the exterior of the sensitive receivers building façade and set at a position 5m above the ground.

Legend:  Proposed Air Monitoring Location
 Proposed Noise Monitoring Location
 1m from the exterior building façade

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Appendix A

Construction Programme

ID	Task Name	Baseline Duration	Duration	Baseline Start	Baseline Finish	Actual Start	Actual Finish	% complete	Start	Finish	Predecessors	2016	2017	2018	2019	2020
1279	Metal fence wall & Gate	60 days	60 days	Thu 4/1/18	Sun 4/3/18	NA	NA	0%	Wed 14/11/18	Sat 12/1/19	1266FS-30 days					
1280	Tempred glass fence on roof	30 days	30 days	Sat 3/2/18	Sun 4/3/18	NA	NA	0%	Fri 14/12/18	Sat 12/1/19	1279FS-30 days,127					
1281	Green Roof	45 days	45 days	Mon 5/3/18	Wed 18/4/18	NA	NA	0%	Sun 13/1/19	Tue 26/2/19	1280					
1282	U-channel	50 days	50 days	Tue 13/2/18	Tue 3/4/18	NA	NA	0%	Mon 24/12/18	Mon 11/2/19	1279FS-20 days					
1283	Road pavement around Pumping Station	50 days	50 days	Mon 5/3/18	Mon 23/4/18	NA	NA	0%	Sun 13/1/19	Sun 3/3/19	1282FS-30 days					
1284	Landscaping work	60 days	60 days	Mon 5/3/18	Thu 3/5/18	NA	NA	0%	Sun 13/1/19	Wed 13/3/19	1283FS-50 days					
1285	Handing Over to E&M (1019 days after commencement of Pumping Station)	0 days	0 days	Thu 3/5/18	Thu 3/5/18	NA	NA	0%	Wed 13/3/19	Wed 13/3/19	1SS+1019 days,1281FF,1284					
1286	E&M Work	260 days	260 days	Sat 3/2/18	Sat 20/10/18	NA	NA	0%	Fri 14/12/18	Fri 30/8/19						
1287	Installation of E&M work	120 days	120 days	Sat 3/2/18	Sat 2/6/18	NA	NA	0%	Fri 14/12/18	Fri 12/4/19	1268					
1288	Installation of E&M works & Testing and Commissioning	140 days	140 days	Sun 3/6/18	Sat 20/10/18	NA	NA	0%	Sat 13/4/19	Fri 30/8/19	1287					
1289	Completion Section 11B	0 days	0 days	Sat 20/10/18	Sat 20/10/18	NA	NA	0%	Fri 30/8/19	Fri 30/8/19	1288,1285FF+170 d					
1290																
1291																
1292																
1293																
1294																
1295	Duration of Section 10A	750 days	750 days	Mon 20/7/15	Mon 7/8/17	Mon 20/7/15	NA	80%	Mon 20/7/15	Mon 7/8/17	1SS					
1296	Incident Weather Granted (EOT Claim No. 3.10, up to 31 Oct 16)	0 days?	22 days	NA	NA	NA	NA	0%	Tue 8/8/17	Tue 29/8/17	1295					
1297	Section 10A - Siu Lam Psychiatric Centre Sewage	750 days	1200 days?	Mon 20/7/15	Mon 7/8/17	Mon 20/7/15	NA	29%	Mon 20/7/15	Wed 31/10/18						
1298	Portion 10 - Time Possession of Site	60 days	60 days	Mon 20/7/15	Thu 17/9/15	Mon 20/7/15	Thu 17/9/15	100%	Mon 20/7/15	Thu 17/9/15	1SS					
1299	Preparation Work	90 days	90 days	Fri 18/9/15	Wed 16/12/15	Fri 18/9/15	Wed 16/12/15	100%	Fri 18/9/15	Wed 16/12/15						
1300	Initial Survey	60 days	60 days	Fri 18/9/15	Mon 16/11/15	Fri 18/9/15	Mon 16/11/15	100%	Fri 18/9/15	Mon 16/11/15	1298					
1301	Site clearance	30 days	30 days	Tue 17/11/15	Wed 16/12/15	Tue 17/11/15	Wed 16/12/15	100%	Tue 17/11/15	Wed 16/12/15	1300					
1302																
1303	EOT Claim 021 - Delay due to Change of Design at SLPC SPS	0 days?	80 days?	NA	NA	Sat 10/9/16	Tue 29/11/16	100%	Sat 10/9/16	Tue 29/11/16						
1304	Works were suspended due to design change	0 days?	0 days	NA	NA	Sat 10/9/16	Sat 10/9/16	100%	Sat 10/9/16	Sat 10/9/16						
1305	Partially updated design information was reviewed by AECOM and provided	0 days?	79 days?	NA	NA	Sun 11/9/16	Mon 28/11/16	100%	Sun 11/9/16	Mon 28/11/16	1304					
1306	Works resumed	0 days?	0 days	NA	NA	Tue 29/11/16	Tue 29/11/16	100%	Tue 29/11/16	Tue 29/11/16	1305					
1307																
1308	EOT Claim XXX (34A) - Change of Design in Siu Lam Psychiatric Centre SPS	0 days?	168 days?	NA	NA	Mon 28/11/16	NA	26%	Mon 28/11/16	Sun 14/5/17						
1309	Additional cast-in socket for davit is requested to install under updated construction details	0 days?	0 days	NA	NA	Mon 28/11/16	Mon 28/11/16	100%	Mon 28/11/16	Mon 28/11/16	1306					
1310	Order, Fabrication and Delivery of socket	0 days?	42 days?	NA	NA	Tue 29/11/16	Mon 9/1/17	100%	Tue 29/11/16	Mon 9/1/17	1309					
1311	Ready for installation	0 days?	0 days	NA	NA	Tue 10/1/17	Tue 10/1/17	100%	Tue 10/1/17	Tue 10/1/17	1310					
1312	Installation of cast-in davit and modification of installed RC bars	0 days?	3 days	NA	NA	Tue 10/1/17	Thu 12/1/17	100%	Tue 10/1/17	Thu 12/1/17	1311					
1313	Construct Rasing main (CH 307 to CH 282) from Pump House in advance Koisk due to increase of depth of pumping station	0 days?	55 days	NA	NA	NA	NA	0%	Wed 22/2/17	Mon 17/4/17	1336					
1314	Confirm details of additional 45 degree bend by AECOM	0 days?	0 days	NA	NA	NA	NA	0%	Wed 1/3/17	Wed 1/3/17						
1315	Additional time for ordering of 45 degree bend in front of pumping station to avoid conflict with Koisk	0 days?	75 days	NA	NA	NA	NA	0%	Wed 1/3/17	Sun 14/5/17	1314					
1316																
1317	EOT Claim XXX (33A) - Pending Details for Boundary Fencing and Vehicular Gate in Siu Lam Psychiatric Centre SPS	0 days?	659 days	NA	NA	Wed 11/1/17	NA	0%	Wed 11/1/17	Wed 31/10/18						
1318	Preliminary details for cost estimation were provided by AECOM	0 days?	0 days	NA	NA	Wed 11/1/17	Wed 11/1/17	100%	Wed 11/1/17	Wed 11/1/17						
1319	Provision of final construction details from AECOM (interim only)	0 days?	60 days	NA	NA	NA	NA	0%	Wed 11/1/17	Sat 11/3/17	1318					
1320	Subletting	0 days?	120 days	NA	NA	NA	NA	0%	Sun 12/3/17	Sun 9/7/17	1319					
1321	Prepare shop drawings	0 days?	60 days	NA	NA	NA	NA	0%	Mon 10/7/17	Thu 7/9/17	1320					
1322	Submission of shop drawings	0 days?	0 days	NA	NA	NA	NA	0%	Thu 7/9/17	Thu 7/9/17	1321					
1323	Approval of shop drawings	0 days?	60 days	NA	NA	NA	NA	0%	Fri 8/9/17	Mon 6/11/17	1322					
1324	Place order	0 days?	14 days	NA	NA	NA	NA	0%	Tue 7/11/17	Mon 20/11/17	1323					

Project: Rolling Programme (Feb 2017)

Task		Milestone		Rolled Up Milestone		Split		Inactive Task		Duration-only		External Tasks		External Milestone
Task Progress		Baseline Milestone		Baseline Summary		Baseline Split		Inactive Milestone		Manual Summary Rollup		External Milestone		External Milestone
Critical Task		Summary		Rolled Up Baseline		External Tasks		Inactive Summary		Manual Summary		Deadline		Deadline
Critical Task Progress		Rolled Up Task		Rolled Up Baseline Milestone		Project Summary		Start-only		Finish-only				
Baseline		Rolled Up Critical Task		Rolled Up Progress		Group By Summary		Manual Task						

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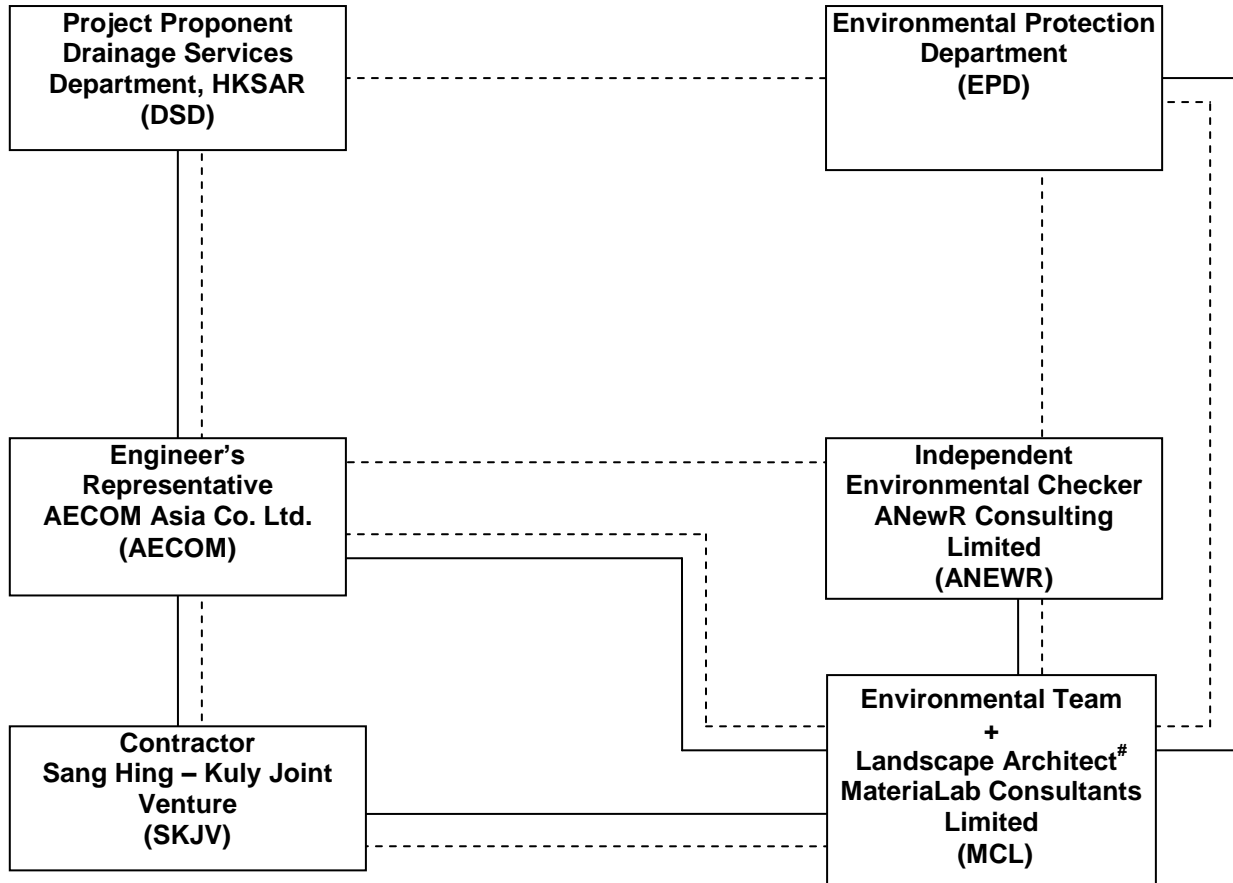
Appendix B

Project Organization Chart

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Remark:

The Landscape Architect with a minimum of 1-2years on site experience as a member of the ET to monitor and audit the landscaping installation works and landscape protection measures.

Legend:

— Line of Reporting

- - - Line of Communication

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Appendix C

Action and Limit Levels for Air Quality and Noise

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Action and Limit Levels for Air Quality

Parameter	Monitoring Station	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
1-hr TSP ($\mu\text{g}/\text{m}^3$)	LC6a	344	500
	LC9	335	

Action and Limit Levels for Construction Noise

Time Period	Location	Action	Limit
0700-1900 hrs on normal weekdays	LC6a LC9	When one documented complaint is received	75* dB(A)

* reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.

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Appendix D

Air Quality Monitoring Data and Graphical Presentations

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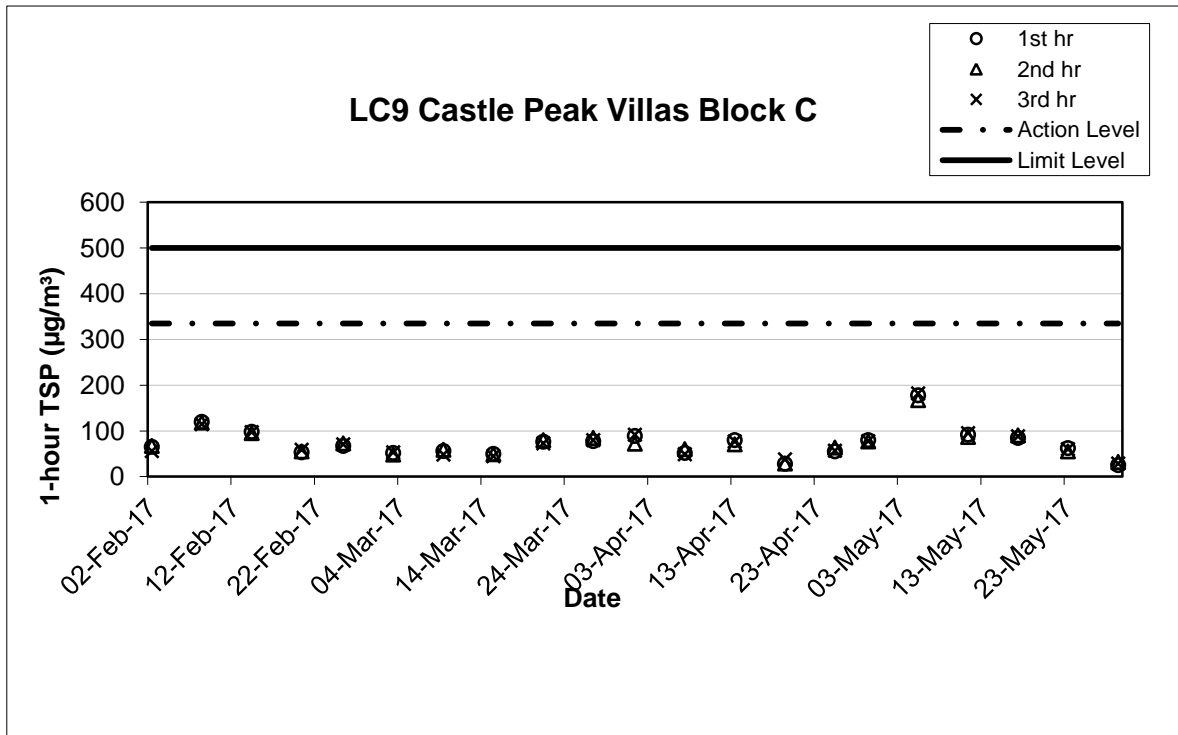
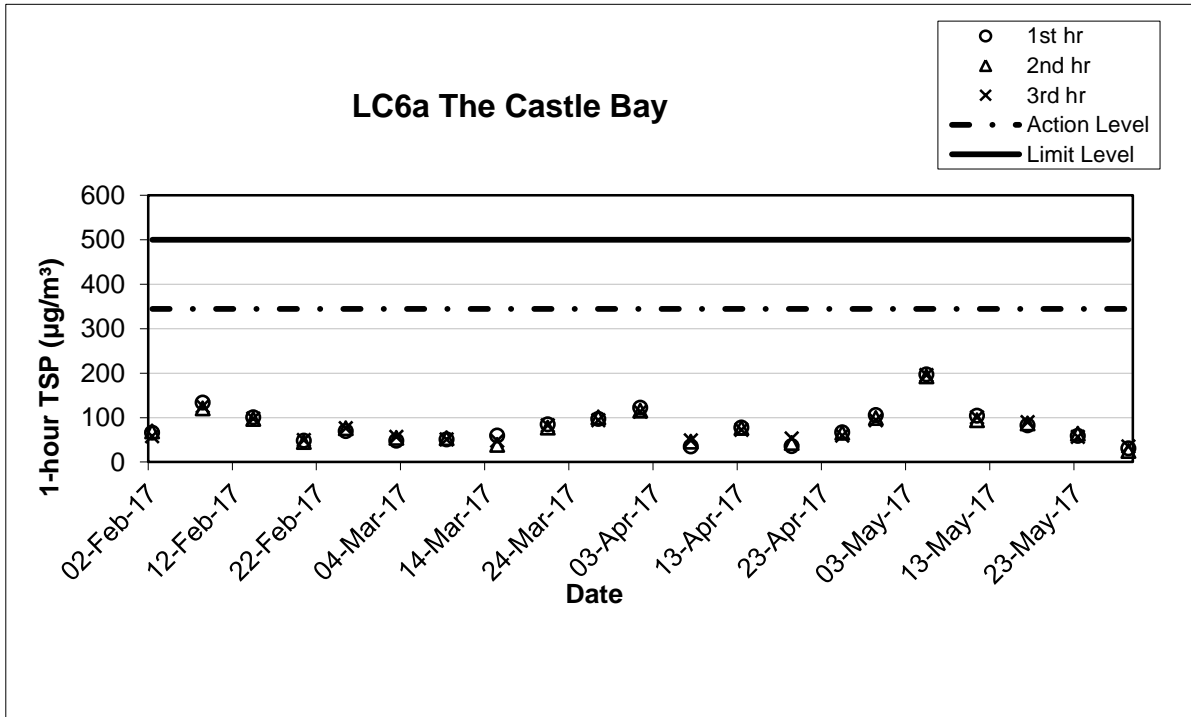
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LC6a The Castle Bay

1-hour TSP ($\mu\text{g}/\text{m}^3$)					
Date	Start Time	1st hr	2nd hr	3rd hr	Weather
02-Feb-17	08:41	66	69	58	Cloudy
08-Feb-17	13:16	134	121	126	Fine
14-Feb-17	13:20	101	97	98	Fine
20-Feb-17	14:55	48	45	50	Cloudy
25-Feb-17	09:03	70	76	76	Fine
03-Mar-17	13:50	48	55	57	Fine
09-Mar-17	14:12	51	54	51	Cloudy
15-Mar-17	13:00	60	39	48	Cloudy
21-Mar-17	13:35	85	78	83	Fine
27-Mar-17	08:35	97	101	94	Fine
01-Apr-17	09:16	122	116	114	Fine
07-Apr-17	08:49	35	46	49	Fine
13-Apr-17	14:05	78	77	73	Cloudy
19-Apr-17	09:18	36	43	53	Cloudy
25-Apr-17	14:00	67	66	60	Cloudy
29-Apr-17	14:08	106	99	94	Sunny
05-May-17	08:45	197	193	196	Fine
11-May-17	09:02	104	94	101	Fine
17-May-17	08:35	83	87	90	Fine
23-May-17	09:00	59	64	57	Cloudy
29-May-17	13:05	31	25	35	Fine

LC9 Castle Peak Villas Block C

1-hour TSP ($\mu\text{g}/\text{m}^3$)					
Date	Start Time	1st hr	2nd hr	3rd hr	Weather
02-Feb-17	14:11	65	67	56	Cloudy
08-Feb-17	13:24	120	118	115	Fine
14-Feb-17	13:30	98	95	97	Fine
20-Feb-17	14:40	53	55	59	Cloudy
25-Feb-17	09:10	67	73	71	Fine
03-Mar-17	14:00	52	48	53	Fine
09-Mar-17	14:19	56	59	48	Cloudy
15-Mar-17	13:10	50	49	45	Cloudy
21-Mar-17	13:48	76	80	73	Fine
27-Mar-17	08:46	78	85	80	Fine
01-Apr-17	09:29	89	72	92	Fine
07-Apr-17	09:00	52	60	49	Fine
13-Apr-17	14:21	80	71	77	Cloudy
19-Apr-17	09:24	28	29	38	Cloudy
25-Apr-17	14:10	55	64	57	Cloudy
29-Apr-17	14:08	80	77	78	Sunny
05-May-17	08:30	178	167	182	Fine
11-May-17	08:55	92	87	95	Fine
17-May-17	08:45	85	90	88	Fine
23-May-17	13:30	62	55	60	Cloudy
29-May-17	13:12	25	32	29	Fine



Note:

- 1) The major activities during the reporting period refer to section 1.4.1.
- 2) The weather conditions during the period refer to section 2.5.1.
- 3) The other factors influencing the monitoring results refer to section 2.6.

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Appendix E

Noise Monitoring Data and Graphical Presentations

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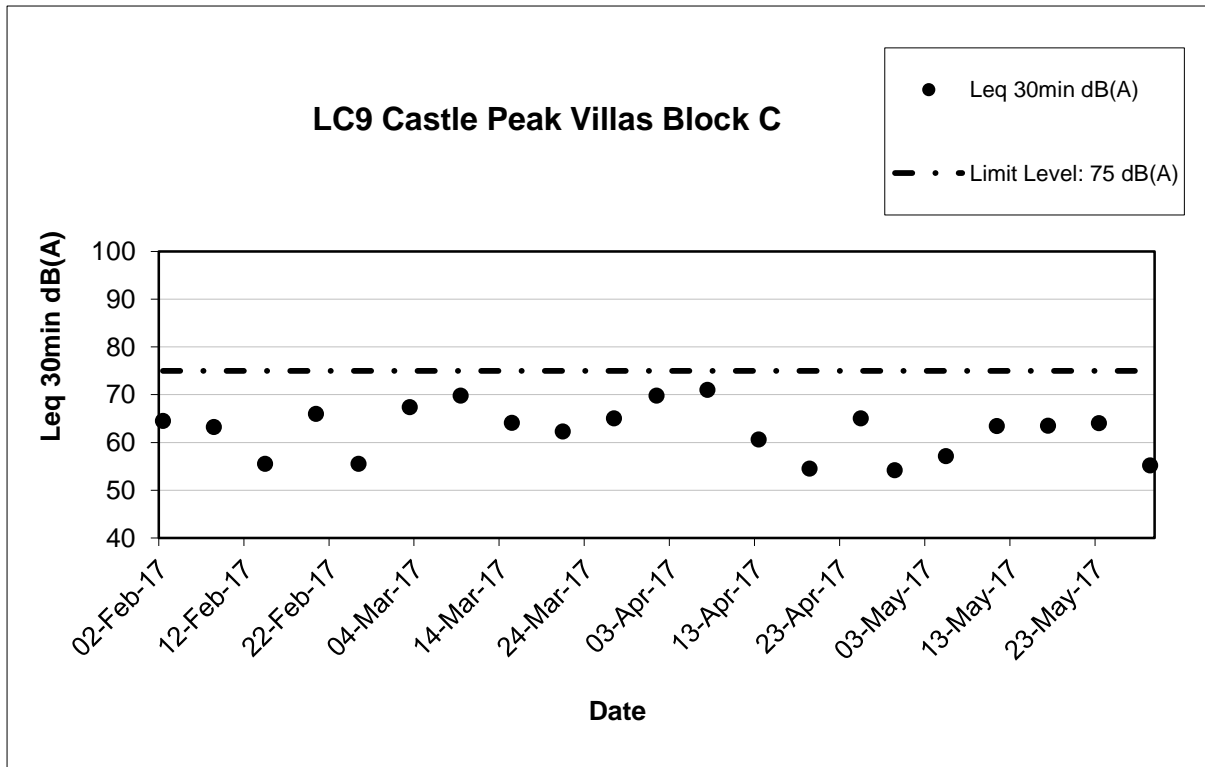
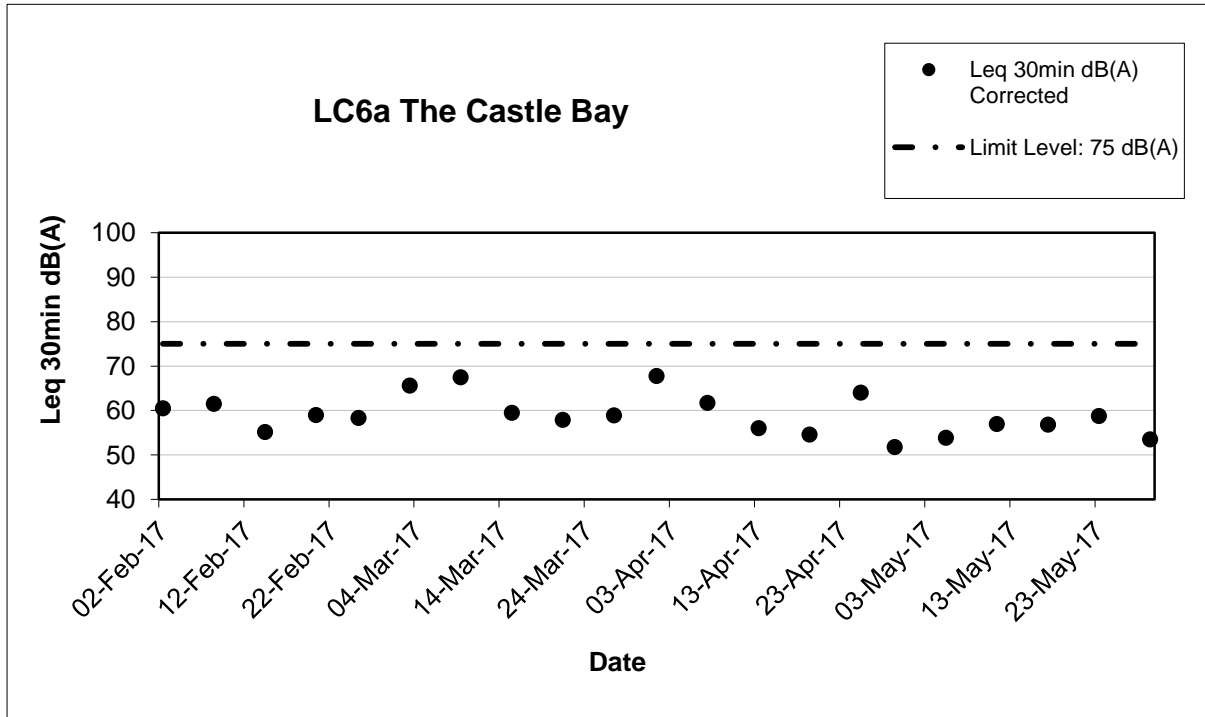
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LC6a The Castle Bay

Date	Start Time	L _{eq} 30min dB(A)	Corrected Leq 30min dB(A)	L ₉₀ dB(A)	L ₁₀ dB(A)	Weather
02-Feb-17	14:12	66	61	58	69	Cloudy
08-Feb-17	14:06	67	62	61	69	Fine
14-Feb-17	14:11	60	55	58	64	Fine
20-Feb-17	15:30	64	59	61	66	Cloudy
25-Feb-17	09:53	63	58	59	65	Fine
03-Mar-17	15:00	71	66	67	72	Fine
09-Mar-17	15:00	73	68	64	74	Cloudy
15-Mar-17	13:30	65	60	57	66	Cloudy
21-Mar-17	14:33	63	58	52	66	Fine
27-Mar-17	09:36	64	59	57	63	Fine
01-Apr-17	10:11	73	68	71	75	Fine
07-Apr-17	09:40	67	62	63	70	Fine
13-Apr-17	15:12	61	56	55	63	Cloudy
19-Apr-17	10:05	60	55	56	64	Cloudy
25-Apr-17	14:00	69	64	67	72	Cloudy
29-Apr-17	14:08	57	52	49	57	Sunny
05-May-17	09:00	59	54	51	59	Fine
11-May-17	10:35	62	57	54	63	Fine
17-May-17	09:37	62	57	53	62	Fine
23-May-17	09:00	64	59	57	67	Cloudy
29-May-17	13:46	59	54	55	62	Fine

LC9 Castle Peak Villas Block C

Date	Start Time	L _{eq} 30min dB(A)	Corrected Leq 30min dB(A)	L ₉₀ dB(A)	L ₁₀ dB(A)	Weather
02-Feb-17	14:58	65	N.A	56	67	Cloudy
08-Feb-17	13:30	63	N.A	59	65	Fine
14-Feb-17	13:35	56	N.A	52	58	Fine
20-Feb-17	14:45	66	N.A	61	69	Cloudy
25-Feb-17	09:13	56	N.A	53	58	Fine
03-Mar-17	14:15	67	N.A	64	70	Cloudy
09-Mar-17	14:21	70	N.A	65	72	Cloudy
15-Mar-17	14:17	64	N.A	58	66	Cloudy
21-Mar-17	13:50	62	N.A	57	65	Fine
27-Mar-17	08:48	65	N.A	60	68	Fine
01-Apr-17	09:31	70	N.A	63	77	Fine
07-Apr-17	09:02	71	N.A	69	75	Fine
13-Apr-17	14:25	61	N.A	58	62	Cloudy
19-Apr-17	09:29	55	N.A	54	56	Cloudy
25-Apr-17	14:35	65	N.A	63	70	Cloudy
29-Apr-17	14:38	54	N.A	51	57	Sunny
05-May-17	10:00	57	N.A	53	60	Fine
11-May-17	11:20	63	N.A	55	65	Fine
17-May-17	08:50	64	N.A	57	67	Fine
23-May-17	09:40	64	N.A	56	65	Cloudy
29-May-17	13:07	55	N.A	53	57	Fine



Note:

- 1) The major activities during the reporting period refer to section 1.4.1.
- 2) The weather conditions during the period refer to section 2.5.1.
- 3) The other factors influencing the monitoring results refer to section 2.6.

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Appendix F

Cumulative Statistics on Exceedances, Complaints, Notifications of Summons and Successful Prosecutions

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**Environmental Complaints Log**

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

Cumulative Statistics on Complaints

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

Cumulative Statistics on Notifications of Summons and Successful Prosecutions

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

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Appendix G

Implementation Status of Environmental Mitigation Measures

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Air Quality

EIA Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Status in Construction Phase
4.5	Undertake all air pollution measures to prevent dust nuisance as a result of and during construction activities.	All unpaved haul roads, bulldozed material, exposed site areas / Throughout construction period	Contractor	TMEIA	*
4.5	No debris or other materials shall be burnt on the works areas.	All areas / Throughout construction period	Contractor	TMEIA. Avoid smoke impacts and disturbance	^
4.5	Dust suppression measures shall be provided and to be submitted to and approved by the Engineer.	All areas / Throughout construction period	Contractor	TMEIA	^
4.5	Stockpiles of imported material kept on site shall be contained within hoardings, dampened and/or covered during dry and windy weather.	All areas / Throughout construction period	Contractor	TMEIA Avoid dust generation	^
4.5	Material stockpiled along side trenches should be covered with tarpaulins whenever works are within village boundaries.	All areas / Throughout construction period	Contractor	TMEIA Avoid dust generation / visual impacts	*
4.5	Water sprays shall be used during the delivery and handling of cement, sands aggregates and the like.	All areas / Throughout construction period	Contractor	TMEIA Avoid dust generation	^
4.5	No batching of concrete should be carried out on site. Concrete should be used in ready mixed form and off loaded adjacent to designated works areas.	All areas / Throughout construction period	Contractor	TMEIA	^

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EIA Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Status in Construction Phase
4.5	Any vehicle used for moving cement, sands, aggregates and construction waste and the like shall have properly fitting side and tail boards. Materials shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300mm over the edges of the side and tail boards.	All areas / Throughout construction period	Contractor	TMEIA Avoid dust and spillage of material	^
4.5	No earth, mud, debris, dust and the like shall be deposited on public roads. Details of proposals for the wheel cleaning facilities shall be agreed with the Engineer. Such wheel washing facility shall be usable prior to any earthworks excavation activity on the Site.	All areas, particularly pumping station sites / Throughout construction period	Contractor	TMEIA Avoid spread/ deposition of mud	^
4.6.9	Pumping station vent shafts should be located away from sensitive receivers.	All pumping stations	DSD	TMEIA Avoid odour impacts	N/A
4.6.18	Use a covered container to store and transport the screenings from the pump house.	All pumping stations /operational phase	DSD	TMEIA Avoid odour impacts	N/A
4.6.18	Undertake the collection of the screenings and transfer to the covered container within the confines of the pump house.	All pumping stations / operational phase	DSD	TMEIA Avoid odour impacts	N/A
11.2.8	EM&A in the form of 1 hour total suspended particulates monitoring once per week	All sensitive representative receivers / Throughout construction period	Contractor	EM&A Manual	^

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MaterialLab**Noise**

EIA Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Status in Construction Phase
5.7.1 & 5.8.1	Ensure silencers are installed on the exhaust pipes of the trucks, excavators, compactors, concrete lorry mixer, and cranes for all activities.	All areas / Throughout construction period	Contractor	TMEIA	^
5.7.1 & 5.8.1	Use of mufflers on the breakers for all activities.	All areas / Throughout construction period	Contractor	TMEIA	^
5.7.1 & 5.8.1	Use of temporary noise barriers for all activities at the pumping station sites and during main sewer construction. During main sewer construction, barriers should be used to screen the activities of mobile equipment including the crane and excavator.	All pumping stations and main sewer construction locations / Throughout construction period	Contractor	TMEIA	^
5.5.10	Use of temporary noise barriers for all activities in the villages, where there is at least a 5m clearance	Village sewer alignment / Throughout construction period	Contractor	TMEIA	^
5.8.6 & 5.9.6	Manual breaking of concrete, where the concrete is less than 50mm thick.	Sewer alignment construction / concrete breaking activities	Contractor	TMEIA	N/A
5.8.6 & 5.9.6	Use of alternative pavement removal methods/equipment (kick ripper), where the concrete is less than 100mm thick	Sewer alignment construction / concrete breaking activities	Contractor	TMEIA	N/A

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EIA Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Status in Construction Phase
5.8.6 & 5.9.6	Use of acoustic enclosure in place of a barrier where there is a 6m clearance.	Sewer alignment construction / Throughout construction period	Contractor	TMEIA	^
5.8.6 & 5.9.6	Scheduling the numbers and operating times of equipment, when noise levels cannot be reduced to within the standards by other means	Sewer alignment construction / Throughout construction period	Contractor	TMEIA	^
5.8.11	The construction activities should be carried out in the daytime period (08.00- 18.00) only and shall exclude Sundays and public holidays.	All areas	Contractor	TMEIA	^
5.8.11	Powered mechanical equipment shall not be used within 5m of an NSR without the permission of the Engineer	All areas / Throughout construction period	Contractor	TMEIA	^
5.8.11	Carry out good site practice to limit noise emission at source.	All areas / Throughout construction period	Contractor	TMEIA	^
5.8.11	Avoid simultaneous noisy activities.	All areas / Throughout construction period	Contractor	TMEIA	^
11.2.8	EM&A in the form of noise monitoring.	All representative receivers / Throughout construction period	Contractor	EM&A Manual	^

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MaterialLab**Water Quality**

EIA Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Status in Construction Phase
6.4.3	Stockpiles of excavated material should be kept to a minimum and covered during times of heavy rainfall.	All areas / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94	^
6.4.10	Pass any trench dewatering through a portable sand/silt removal traps prior to discharge.	All areas / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94	^
6.5.2	When works are carried out during the rainy season exposed slopes, stockpiles should be covered with tarpaulin and temporary access roads protected with a layer of gravel or crushed stone.	All areas / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94	^
6.5.2	Surface run off should be discharged to storm drains via sand/silt removal traps.	All areas / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94	^
6.5.2	Channels, bunds or sand bags should be used to direct any storm water to the traps and perimeter channels should be constructed before the main works begin to prevent external run off from crossing the site.	All areas / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94	^
6.5.2	Silt removal structures, channels and manholes should be maintained to remove accumulated material, specifically at the onset and end of rainy periods.	All areas / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94	*

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EIA Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Status in Construction Phase
6.5.2	Trenches for the sewer main should be dug and backfilled in short sections to minimise the quantities of rain water which will need to be pumped from them and upslope bunding provided to prevent surface water from flowing into the trenches.	All areas / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94	^
6.5.2	Rainwater pumped from the trenches should be discharged to storm drains via sand/silt removal traps.	All areas / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94	^
6.5.2	Discharges to natural water courses should only take place when the effluent can be shown to comply with the relevant specified standards.	All areas / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94 & Technical Memorandum on Standards for Effluent Discharged in Drainage and Sewerage Systems, Inland and Coastal Waters	^
6.5.3	All plant should be in proper working order and maintained such that there is no leakage of fuel or oil. Any waste oils should be collected in designated tanks prior to disposal off site.	All areas / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94	^

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EIA Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Status in Construction Phase
6.5.3	All mechanical plant maintenance and refuelling areas shall be sited on paved areas. All storm water run-off from these areas should be discharged via oil separators/petrol separators and sand/silt removal traps.	All areas / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94	^
6.5.4	Groundwater pumped out of excavations for the construction of pump sumps should only be discharged following removal of silt by sand/silt removal traps.	All areas / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94	^
6.5.5	Water from drilling of rock should be discharged following removal of silt by sand/silt removal traps.	All areas / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94	^
6.5.6	The wheels of all vehicles leaving the construction site should be washed before leaving the site to minimise the carry over of mud onto public roads. Wheel wash water should be recycled and only discharged following removal of silt by sand/silt removal traps.	All areas particularly pumping station sites / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94	^
6.5.7	Run off from the roofs of site buildings should be conveyed in closed drains to the nearest surface water course to prevent the generation of excessive quantities of surface water run off carrying suspended solids.	Site Office areas / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94	^
6.5.7	All spillages should be cleaned up immediately to prevent their downward migration into the groundwater.	All areas / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94	^

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EIA Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Status in Construction Phase
6.5.7	Sewage from toilets and any kitchens in the site facilities should be treated via a septic tank system or if this is not practicable chemical toilets should be provided and the waste from these together with 'grey water' removed from the site on a daily basis for disposal at an appropriate receiving point.	All areas / throughout construction period	Contractor	WPCO, TMEIA & ProPECC PN 1/94	^
6.6.2	Overflow bypasses to be used in emergency situations only and no effluent should be discharged during regular maintenance.	All pumping stations / Operation	DSD	WPCO, TMEIA	N/A
6.6.3 & 6.6.4	Supply pumping stations with stand-by pumps, emergency power supplies and telemetry system.	All Pumping Stations	DSD	WPCO, TMEIA & ProPECC PN 1/94	N/A
11.2.8	EM&A in the form of site supervision to ensure water quality protection measures are implemented.	All areas/ Throughout construction period	Contractor	EM&A	^

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Waste Management

EIA Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Status in Construction Phase
7.12.1	The Contractor shall identify a coordinator for the management of waste. The coordinator shall prepare a Waste Management Plan which specifies procedures such as a ticketing system, to facilitate tracking of loads and to ensure that illegal disposal of wastes does not occur, and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed. The Waste Management Plan shall be prepared with reference to Works Branch Technical Circular (WBTC) No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material and issued to the DEP and CED to confirm the availability for C&D and public fill waste.	Plan to be prepared prior to the start of construction, Implementation throughout construction period / All areas	Contractor	TMEIA.Works Branch Technical Circular (WBTC) No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material	^
7.12.1	Stockpiled material should avoid vegetated areas where possible and covered by tarpaulins. Storage of material on site should be kept to a minimum.	All areas/ Throughout construction period	Contractor	TMEIA. Prevent windblown dust and/or surface run-off / avoid nuisance to local residents	*
7.12.1	Surplus material should be sorted on site into C&D waste and that suitable for public fill	All areas /throughout construction period	Contractor	TMEIA. Maximise reusable material	*
7.12.1	The contractor should provide a temporary storage area for general refuse during the construction phase which should be enclosed to avoid refuse being windblown and affected by rain. General refuse should be stored on site for a minimum period and disposed of at a licenced facility.	All areas / throughout construction period	Contractor	TMEIA	^

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EIA Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Status in Construction Phase
7.12.1	Excavated material in trucks shall be covered by tarpaulins to reduce the potential for spillage.	All areas / throughout construction period	Contractor	TMEIA	^
7.12.1	Suitable chemical waste storage areas shall be formed on the site for temporary storage pending collection. All chemical wastes shall be handled, stored, transported and disposed of in accordance with the relevant practices.	All areas / throughout construction period	Contractor	TMEIA/ Code of Practice on the Package, Labelling and Storage of Chemical Wastes and A Guide to the Chemical Waste Control Scheme	^
7.12.1	Nightsoil arising from chemical toilets and on site chemical treatment facilities shall be transported by a licensed contractor to government Sewage Treatment Works for disposal.	All areas / throughout construction period	Contractor	TMEIA/ Sanitation and Conservancy (Regional Council) By-laws	^
7.12.1	Any screenings and grit that are removed during maintenance shall be disposed of at a landfill site. The material shall be suitably contained and covered.	All areas / operational phase	DSD	TMEIA	N/A
11.2.8	EM&A in the form of supervision of waste management practices	All areas / throughout construction period	Contractor	EM&A	^

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Landscape and Visual

EIA Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Status in Construction Phase
10.8.5, 10.9.15, 10.10.6, 10.10.11, 10.10.20, 10.11.6	Use of a suitable colour scheme to the pump station building to match the design of the adjacent properties.	All pumping stations	DSD & Contractor	Reduce visual intrusion of pumping stations	N/A
10.8.5, 10.9.15, 10.10.11, 10.10.20, 10.11.6	Construction of boundary wall similar to the adjacent housing instead of standard chain link and barbed wire fence.	All pumping stations except Tai Lam Correctional Institution	DSD & Contractor	Screen pumping stations	N/A
10.8.5, 10.9.15, 10.10.11, 10.10.20, 10.11.6	Planting of trees and shrubs to the boundary of the pumping station compound.	All pumping stations except Tai Lam Correctional Institution	DSD & Contractor	Screen pumping stations	N/A
10.8.6	Minimise damage to the rootball of the tree east of the pumping station site.	East of Castle Peak Villas pumping station/ During excavation	DSD and Contractor		^
11.2.8	EM&A in the form of site supervision of protection measures for trees and landscaping and compensatory planting establishment during the construction and operational phases respectively	All areas	Contractor	EM&A	^

Remarks: ^ Compliance of mitigation measure
* Recommendation was made during site audit but improved/ rectified by the Contractor
N/A Not Applicable at this stage as no such site activities were conducted in the reporting month

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Appendix H

Monthly Summary of Waste Flow Table

Sang Hing – Kuly Joint Venture
Environmental Monthly Report for Contract No. DC/2014/01
Castle Peak Road Trunk Sewer and Tuen Mun Village Sewage

Forecast of Total Quantities of C&D Materials to be Generated from the Contract*										
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
27	10	8	1	1	0	2	1	1	1	2

Notes:

- (1) The performance targets are given in ETWB Technical Circular PS Clause 6(14).
- (2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
- (4) *The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m³. (ETWB Technical Circular PS Clause 5(4)(b) refers).
 [Delete Note (4) and the table above on the forecast, where inapplicable].