



Lam Environmental Services Limited

Service Contract No: EDO/01/2017
Environmental Team for
Development of Anderson Road Quarry Site
Road Improvement Works
Monthly EM&A Report (August 2020)

SERVICE CONTRACT NO: EDO/01/2017

**ENVIRONMENTAL TEAM FOR
DEVELOPMENT OF
ANDERSON ROAD QUARRY SITE -
ROAD IMPROVEMENT WORKS**

UNDER ENVIRONMENTAL PERMIT NO. EP-513/2016

MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT

AUGUST 2020

CLIENTS:

**Civil Engineering and Development
Department**

PREPARED BY:

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CERTIFIED BY:

Sam Lam
Environmental Team Leader

DATE:

11 September 2020



Civil Engineering and Development Department
East Development Office
8/F, South Tower, West Kowloon Government Offices
11 Hoi Ting Road
Yau Ma Tei
Kowloon

Your reference:

Our reference: HKCEDD12/50/106785

Date: 11 September 2020

Attention: Mr Leung Siu Kau, Kelvin

BY POST

Dear Sirs

Agreement No. EDO/04/2017
Independent Environmental Checker (IEC) for Development of Anderson Road Quarry Site
– Road Improvement Works
Monthly Environmental Monitoring & Audit Report (August 2020)

We refer to email dated 10 September 2020 from Environmental Team, Lam Environmental Services Limited attaching a Monthly Environmental Monitoring and Audit Report (August 2020) for the captioned project.

We have no comment and hereby verify the abovementioned report in accordance with Clause 3.4 of the Environmental Permit no. EP-513/2016.

Should you have any queries, please do not hesitate to contact the undersigned or our Mr Ricky Lau on 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

Adi Lee
Independent Environmental Checker

LYMA/LCCR/esym

cc CEDD – Ms Yoyo Ning (email: yyning@cedd.gov.hk)
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TABLE OF CONTENTS

1 INTRODUCTION..... 10

1.1 Scope of the Report 10

1.2 Structure of the Report..... 10

2 PROJECT BACKGROUND..... 12

2.1 Background..... 12

2.2 Scope of the Project and Site Description 12

2.3 Project Organization and Contact Personnel 12

2.4 Construction Activities..... 13

3 STATUS OF REGULATORY COMPLIANCE..... 15

3.1 Status of Environmental Licensing and Permitting under the Project . 15

3.2 Status of Submission under the EP-513/2016 16

4 MONITORING REQUIREMENTS 18

4.1 Noise Monitoring 18

4.2 Air Monitoring 21

4.3 Water Quality Monitoring 23

5. MONITORING RESULTS..... 28

5.1 Noise Monitoring Results..... 28

5.2 Air Monitoring Results 28

5.3 Water Quality Monitoring Results..... 28

5.4 Waste Management 30

6. COMPLIANCE AUDIT 32

6.1 Noise Monitoring 32

6.2 Air Quality Monitoring..... 32

6.3 Water Quality Monitoring 32

6.4 Review of the Reasons for and the Implications of Non-compliance .. 32

6.5 Summary of action taken in the event of and follow-up on
non-compliance 33

7. ENVIRONMENTAL SITE AUDIT 34

8. COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTION..... 36

9. CONCLUSION 39



LIST OF TABLES

Table 2.1	Schedule 2 Designated Projects under this Project
Table 2.2	Contact Details of Key Personnel
Table 3.1	Summary of the current status on licences and/or permits on environmental protection pertinent to the Project
Table 3.2	Summary of submission status under EP-513/2016
Table 4.1	Noise Monitoring Station
Table 4.2	Noise Monitoring Equipment
Table 4.3	Action and Limit Level for Noise Monitoring
Table 4.4	Air Monitoring Station
Table 4.5	Air Quality Monitoring Equipment
Table 4.6	Action and Limit Level for Air Quality Monitoring
Table 4.7	Marine Water Quality Stations for Water Quality Monitoring
Table 4.8	Water Quality Monitoring Equipment
Table 4.9	Action and Limit Level for Water Quality Monitoring
Table 5.1	Summary of Quantities of Inert C&D Materials
Table 5.2	Summary of Quantities of C&D Wastes
Table 7.1	Summary of Environmental Inspections
Table 7.2	Summary of Lanscape Inspections
Table 7.3	Summary of Ecological Monitoring
Table 8.1	Cumulative Statistics on Complaints
Table 8.2	Cumulative Statistics on Successful Prosecutions
Table 9.1	Construction Activities and Recommended Mitigation Measures in Coming Reporting 2 Months

LIST OF FIGURES

Figure 2.1	Project Layout
Figure 2.2	Project Organization Chart
Figure 4.1	Locations of Noise Monitoring Station (for Road Improvement Work 1 & 2)
Figure 4.2	Locations of Noise Monitoring Station (for Road Improvement Work 3)
Figure 4.3	Locations of Air Quality Monitoring Station (for Road Improvement Work 1 & 2)
Figure 4.4	Locations of Air Quality Monitoring Station (for Road Improvement Work 3)
Figure 4.5	Locations of Water Quality Monitoring Station (for Road Improvement Work 1 & 2)
Figure 4.6	Locations of Water Quality Monitoring Station (for Road Improvement Work 3)

LIST OF APPENDICES

Appendix 3.1	Environmental Mitigation Implementation Schedule
Appendix 4.1	Action and Limit Level
Appendix 4.2	Copies of Calibration Certificates
Appendix 4.3	Wind data extracted from HKO Automatic Weather Station
Appendix 5.1	Monitoring Schedule for Reporting Month
Appendix 5.2	Noise Monitoring Results and Graphical Presentations
Appendix 5.3	Air Quality Monitoring Results and Graphical Presentations
Appendix 5.4	Water Quality Monitoring Results and Graphical Presentations
Appendix 5.5	Monthly Summary Waste Flow Table
Appendix 6.1	Event and Action Plans
Appendix 6.2	Summary for Notification of Exceedance
Appendix 8.1	Complaint Log
Appendix 9.1	Construction Programme of Individual Contracts

EXECUTIVE SUMMARY

i. This is the Environmental Monitoring and Audit (EM&A) Monthly Report – [August 2020](#) of Development of Anderson Road Quarry Site – Road Improvement Works under Environmental Permit no. EP-513/2016 (Hereafter as “the Project”). The construction works of the Project was commenced on 2 November 2018 and the tentative completion date is end of 2023. This is the [22nd](#) EM&A report presenting the environmental monitoring findings and information recorded during the period of [1 August 2020 to 31 August 2020](#). The cut-off date of reporting is at the end of each reporting month.

ii. In the reporting month, the principal work activities conducted are as follow:

Works in Road Improvement Works 1 (RIW1)

- Earth works (such as temporary soil nail, form working platform etc) at RWC2 in-progress; No fine concrete construction at RWC2 area is in progress;
- RC works at KS27 subway extension is in progress;
- RC works at FE1 was completed;
- Gasmain laying (by Towngas company) works is in-progress;

Works in Road Improvement Works 2 (RIW2)

- Retaining wall construction, RC works at Slope C3 type 3C was in progress;
- Preparation works for RC works at Slope C3 type 3A and 3D were in progress;
- Socket-H piles work at CT4 was in-progress;
- Modify existing pedestrian crossing facilities and remove existing central median works at at junction On Sau Road / Clean Water Bay Road and On Sau Road were in-progress;

Works in Road Improvement Works 3 (RIW3)

- Mini-pile construction at RWD1 along Sau Mau Ping Road is in progress.
- Water-main works for new Public Toilet at Sau Mau Ping Road is in progress;
- ELS works and construction pile cap for temporary platform were in-progress.
- Rock excavation works using drill and split method at Slope D3 along Lin Tak Road was in-progress;
- Retaining wall construction at slope crest of Slope D3 was in-progress;
- No-fines concrete construction at slope crest of Slope D3 is in progress;
- Inspection Pit for UU at Sau Mau Ping Road.
- Rock-fall fence for Lin Tak Road (Stage 2) was in-progress.



Air Quality Monitoring

- iii. 1-hour Total Suspended Particulates (TSP) monitoring was conducted at eight monitoring stations. The sampling frequency is 3 times in every 6 days in the reporting month.
- iv. Due to the construction site has been closed down by Contractor from 2 August 2020 to 8 August 2020, EM&A program including environmental site audit and environmental monitoring were temporally suspended from 2 August 2020 to 8 August 2020.
- v. No action or limit level exceedance was recorded in the reporting period.

Noise Monitoring

- vi. Noise monitoring was conducted at five noise monitoring stations once per week in the reporting month.
- vii. Due to the construction site has been closed down by Contractor from 2 August 2020 to 8 August 2020, EM&A program including environmental site audit and environmental monitoring were temporally suspended from 2 August 2020 to 8 August 2020.
- viii. Ad- hoc noise monitoring for NMC05 was conducted on 13, 20 and 31 August 2020.
- ix. No action or limit level exceedance was recorded during this reporting period.

Water Quality Monitoring

- x. Water quality monitoring was conducted at four monitoring stations three days per week in the reporting month.
- xi. Due to the construction site has been closed down by Contractor from 2 August 2020 to 8 August 2020, EM&A program including environmental site audit and environmental monitoring were temporally suspended from 2 August 2020 to 8 August 2020.
- xii. Due to the hoisting of Tropical Storm Signal No. 8 and safety consideration under adverse weather condition, the water quality monitoring on 19 August 2020 was rescheduled to 20 August 2020. And the water quality monitoring scheduled on 21 August 2020 was postponed to 22 August 2020.
- xiii. No water can be collected at Station AC1 during this reporting period as the station was dried out during the monitoring scheduled in the reporting month.
- xiv. Three limit level exceedances of Suspended Solid at Station F were recorded on 12, 20 and 28 August 2020.
- xv. For the exceedance recorded on 12 August 2020, after investigation, the weather was rainy from 11 to 12 August 2020. Silty water was observed at monitoring station F during water quality monitoring. RC works, soil nail, piling, road marking and demolition of median island were commenced at RIW2 construction site area under Contract No. NE/2017/03 on 12 August 2020, no surface runoff was also observed. Turbidity and suspended solid results were not high at station E (18.6 NTU and 5.9 mg/L) and station AC2 (7.6 NTU and 2.6 mg/L)

- but was high at station AC3 (46.1 NTU and 25.6 mg/L). In view of the above, it is considered that there was no evidence to suggest the exceedance was related to Project works at RIW2.
- xvi. For the exceedance recorded on 20 August 2020, after investigation, the weather was rainy from 18 to 20 August 2020 and amber rainstorm warning signal was enforced on 18 August 2020. Slightly silty water was observed at monitoring station F during water quality monitoring. RC works, soil nail, piezometer installation and piling were commenced at RIW2 construction site area under Contract No. NE/2017/03 on 20 August 2020. No surface runoff affecting the surrounding gullies or public drainages was observed. Turbidity and suspended solid results were not high at station E (12.0 NTU and 6.2 mg/L), station AC2 (7.3 NTU and 8.0 mg/L) and station AC3 (14.8 NTU and 15.6 mg/L). In view of the above, it is considered that there was no evidence to suggest the exceedance was related to Project works at RIW2.
- xvii. For the exceedance recorded on 28 August 2020, the weather was rainy from 27 to 28 August 2020. Slightly silty water was observed at monitoring station F during water quality monitoring. RC works and piling were commenced at RIW2 construction site area under Contract No. NE/2017/03 on 28 August 2020. No surface runoff affecting the surrounding gullies or public drainages was observed. Turbidity and suspended solid results were not high at station E (18.7 NTU and 3.8 mg/L) and station AC2 (8.0 NTU and 8.5 mg/L) but high at station AC3 (35.8 NTU and 208.5 mg/L). In view of the above, it is considered that there was no evidence to suggest the exceedance was related to Project works at RIW2.

Site Inspections and Audit

- xviii. The Environmental Team (ET) conducted weekly site inspections for the Contract on 14, 17, and 28 August 2020. IEC attended the joint site inspection on 17 August 2020. No non-compliance was found during the site inspection while reminders on environmental measures were recommended.
- xix. The Environmental Team (ET) conducted biweekly landscape site inspections for the Contract on 10 and 26 August 2020. No non-compliance was found during the site inspection while reminders on environmental measures were recommended.
- xx. The Environmental Team (ET) conducted monthly ecological monitoring for the Contract on 26 August 2020. No non-compliance was found during the monitoring while reminders on environmental measures were recommended.

Complaints, Notifications of Summons and Successful Prosecutions

- xxi. Two environmental complaints were received in this reporting month.
- xxii. The complainant reported to 1823 online dated on 25 August 2020 that the construction noise generated from the construction site at New Clear Water Bay Road adjacent to Choi Wan Estate was causing noise nuisance to complainant's apartment. Construction activities

starting from 8:30 to dusk and even on Sunday. The construction activities have been conducted for a year especially for drilling works. The complainant has measured the construction noise with mobile app and obtained 64dB in average for one driller. The complainant said the condition was worse when two to three drillers operated at the same time. The complainant asked the completion date of the construction works and whether the construction noise would affect the health of people as the complainant was seriously influenced by the noise and causing insomnia.

The complaint regarding the construction noise at Lin Tak Road referred by CEDD and AECOM was received by ET on 30 August 2020.

According to the information provided by the contractor, and also reported in EM&A monthly report, that ELS to RW pile cap and construct RW footing were the major construction works conducted under contract NE/2017/03 at the photo record provided by the complaint at RIW1 near New Clear Water Bay Road adjacent to Choi Wan Estate starting from June 2020 to August 2020. Based on the observation of recent monitoring, excavation, grouting, welding and loading and unloading of materials were the major sources of the construction noise. Pre-drilling works have been conducted at the section near New Clear Water Bay Road adjacent to the Shun Lee Disciplined Services Quarters which is distance from the area that the complainant mentioned.

According to the monitoring data of Station NMC01, G/F of Kei Shun Special School, and NMC02, 3/F podium of Shun Lee Disciplined Services Quarters, no exceedances were recorded since November 2018.

According to the construction program provided by contractor, of July and August 2020 provided by the in July 2020 after observing the breaking works at station, NMC05 – Yee Hong House of Hong Wah Court, no noise exceedance was recorded. Although measurement for the confirmation of exceedances have been conducted twice, no exceedances were recorded for the second measurement.

According to the site diaries of July and August 2020 provided by the contractor, excavation and loading and unloading of materials were the major sources of the construction noise in this two months. Moreover, no works have been conducted on Sunday.

Site visits were conducted by ET on 31 August 2020 and 1, 2, 4 September 2020, excavation, welding and loading and unloading of materials were observed as the major activities at that moment.

No drilling works were observed pre-drilling work was distance from at the area that the complainant mentioned. Moreover, pre-drilling works was finished in July 2020.



xxiii. The complainant, Resident of Hong Wah Court, reported to AECOM through the hotline dated on 31 August 2020 that the construction noise generated from the construction site at the slope of Lin Tak Road was causing noise nuisance and also causing air quality impact.

The complaint regarding the construction noise at Lin Tak Road referred by AECOM was received by ET on 2 September 2020.

According to the information provided by the contractor, and also reported in EM&A monthly report, that slope works using drill and split method were conducted under contract NE/2017/03 at RIW3 of Lin Tak Road starting from August 2019. Based on the observation of recent monitoring, slope cutting with breaker and driller were the major sources of the construction noise. Besides, breaking, drilling and loading and unloading of dusty materials were the major sources spreading dust.

Concurrent construction projects adjacent to Tseung Kwan O tunnel were another noise source, however, these were considered a minor impact to Hong Wah Court as those projects were located further away and the influence was not significant according to the observation during environmental measurement.

According to the monitoring data in August 2020 at station, NMC05 – Yee Hong House of Hong Wah Court, no noise exceedance was recorded. Although measurement for the confirmation of exceedances have been conducted once, no exceedances were recorded for the second measurement. Moreover, no exceedance of air quality monitoring was recorded at Station LTR_AMS-2, Environmental Protection Department's Restored Landfill Site Office.

Ad-hoc noise monitoring had been conducted by ET and no exceedances were recorded.

The construction activities at Lin Tak Road, especially for slope cutting works with breaker and driller, were the major noise nuisance at Lin Tak Road near Hong Wah Court. Besides, breaking, drilling and loading and unloading of dusty materials by excavator were the major sources spreading dust.

Site visits were conducted by ET on 31 August 2020, 2, 4, 7 September 2020, breaking, drilling work, excavator and splitor were observed as the major activities at that moment.

Noise barriers were in place for lower level but the noise barriers at upper level was lowered on 2 and 4 September 2020 and erected again on 7 September 2020.

Water spraying was observed during breaking works on 20 and 27 August 2020 and 7 September 2020. Water spraying was also observed for drilling works.

Remedial action taken according to the observations by ET:

1. Setting up of noise barriers for the covering of working area and the plant was observed since 15 June 2020.



- 2. Quieter breaker, claimed by the contractor, was observed installed.
- 3. The plant and working area were covered by noise barrier in most of the time during noise monitoring and site inspections.
- 4. Sequencing of works was observed that the driller and breaker were operated alternatively to avoid concurrent noisy works.
- 5. Water spraying for breaking works was observed.

Reporting Changes

- xxiv. There are no particular reporting changes.

Future Key Issues

- xxv. In coming reporting 2 months, the scheduled construction activities and the recommended mitigation measures are listed as follows:

Key Construction Works	Recommended Mitigation Measures
<ul style="list-style-type: none"> • Site formation and temporary soil nail installation at RWC2 Type 1 & 1a and 2; • Site formation and temporary soil nail installation for RIW2 Type 6,7 & 8; • Gasmain redirection at Slip Road 2; • RC base slab construction at KS27; and • Construction at FE1 Footing. • ELS at Zone 6 & 7; • Retaining wall construction for Bay 2 to 8; • Removal of Lamp posts and erect temporary lamp posts at Central Median for later road diversion; • Piling construction at CT4; • Predrilling works at SE2; • Mini-pile installation works at RWD1; • ELS construction for Noise Barrier Footing SE1; • Mini-pile and ELS construction at Slope D2; • Plate Load Test at Bay 3 of Retaining 	<ul style="list-style-type: none"> • Dust control during dust generating works; • Implementation of proper noise pollution control; and • Provision of protection to ensure no runoff out of site area or direct discharge into public drainage system.



Key Construction Works	Recommended Mitigation Measures
<p>Wall RWD2 at Slope D2;</p> <ul style="list-style-type: none">• Construction of Retaining Wall RWD2 at Slope D2;• Stage 1 rock excavation at Slope D3; and• Retaining wall construction at Slope D3;• No-fines concrete construction at Slope D3;• Rock-fall Fence (Stage 2) along Lin Tak Road.• Watermain works at Sau Mau Ping Road	



1 Introduction

1.1 Scope of the Report

- 1.1.1. Lam Environmental Services Limited (LES) has been appointed to work as the Environmental Team (ET) under Environmental Permit (EP) no. EP-513/2016 to implement the Environmental Monitoring and Audit (EM&A) programme as stipulated in the EM&A Manual of the approved Environmental Impact Assessment (EIA) Report for Development of Anderson Road Quarry site - Road Improvement Works (Register No.: AEIAR-195/2016).
- 1.1.2. In accordance with Clause 3.4 stated in EP-513/2016, four hard copy and one electronic copy of the monthly EM&A Report shall be submitted to the Director within 2 weeks after the end of each reporting month throughout the entire construction period.
- 1.1.3. In accordance with Section 11.3.1 of the Project EM&A Manual, the first Monthly EM&A Report should be prepared and submitted to EPD within a month after the major construction works commences with the subsequently Monthly EM&A Reports due in 10 works day of the end of each reporting month.

1.2 Structure of the Report

Section 1 *Introduction* – details the scope and structure of the report.

Section 2 *Project Background* – summarizes background and scope of the project, site description, project organization and contact details of key personnel during the reporting period.

Section 3 *Status of Regulatory Compliance* – summarizes the status of valid Environmental Permits / Licenses during the reporting period.

Section 4 *Monitoring Requirements* – summarizes all monitoring parameters, monitoring methodology and equipment, monitoring locations, monitoring frequency, criteria and respective event and action plan and monitoring programmes.

Section 5 *Monitoring Results* – summarizes the monitoring results obtained in the reporting period.

Section 6 *Compliance Audit* – summarizes the auditing of monitoring results, all exceedances environmental parameters.



- Section 7** **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 8** ***Complaints, Notification of summons and Prosecution*** – summarizes the cumulative statistics on complaints, notification of summons and prosecution
- Section 9** ***Conclusion***

2 Project Background

2.1 Background

- 2.1.1. The Development of Anderson Road Quarry (ARQ) Site is to provide land and the associated infrastructures for the proposed land uses at the existing ARQ site at the north-eastern of East Kowloon.
- 2.1.2. In addition to the site formation and infrastructure works within the ARQ site, a new bus-to-bus interchange (BBI) at the toll plaza of Tseung Kwan O Tunnel and a series of associated off-site road improvement works and pedestrian connectivity facilities are also proposed to mitigate the potential cumulative traffic impact arising from the proposed ARQ development.
- 2.1.3. The Project under Environmental Permit (EP) (EP No. EP-513/2016) is for the three associated of-site road improvement works which comprises: (i) improvement of junction of (J/O) Lin Tak Road / Sau Mau Ping Road (RIW3) (ii) widening and improvement of sections of Clear Water Bay Road and On Sau Road (RIW2); and (iii) widening and improvement of sections of New Clear Water Bay Road and Shun Lee Tsuen Road (RIW1). The location of the Project is shown [Figure 2.1](#).

2.2 Scope of the Project and Site Description

- 2.2.1. The project contains various Schedule 2 Designated Projects (DPs) that, under the EIAO, require EPs to be granted by the DEP before they may be either constructed or operated. **Table 2.1** summarises the DPs under this Project.

Table 2.1 Schedule 2 Designated Projects under this Project

Item	Designated Project	EIAO Reference
DP2	A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing road	Schedule 2, Part I, A.1

2.3 Project Organization and Contact Personnel

- 2.3.1 Civil Engineering and Development Department is the overall project controllers for the Project. For the construction phase of the Project, Project Engineer, Contractor(s), Environmental Team and Independent Environmental Checker are appointed to manage and control environmental issues.

2.3.2 The proposed project organization and lines of communication with respect to environmental protection works are shown in [Figure 2.2](#). Key personnel and contact particulars are summarized in **Table 2.2**:

Table 2.2 Contact Details of Key Personnel

Party	Role	Post	Name	Contact No.	Contact Fax
AECOM	Engineer's Representative	Senior Resident Engineer	Mr. Brad Chan	5506 0068	2473 3221
Chun Wo – China Metallurgical Group Corporation Joint Venture	Contractor	Site Agent	Mr. Chris Lam	9801 9974	3965 9854
		Environmental Officer	Ms. King Lam	9570 6187	
ANewR Consulting Limited	Independent Environmental Checker (IEC)	Independent Environmental Checker (IEC)	Mr. Adi Lee	2618 2836	3007 8648
Lam Environmental Services Limited	Environmental Team (ET)	Environmental Team Leader (ETL)	Mr. Sam Lam	6178 3179	2882 3331

2.4 Construction Activities

2.4.1 In the reporting month, the principal work activities conducted are as follow.

Works in Road Improvement Works 1 (RIW1)

- Earth works (such as temporary soil nail, form working platform etc) at RWC2 in-progress; No fine concrete construction at RWC2 area is in progress;
- RC works at KS27 subway extension is in progress;
- RC works at FE1 was completed;
- Gasmain laying (by Towngas company) works is in-progress;

Works in Road Improvement Works 2 (RIW2)

- Retaining wall construction, RC works at Slope C3 type 3C was in progress;
- Preparation works for RC works at Slope C3 type 3A and 3D were in progress;
- Socket-H piles work at CT4 was in-progress;
- Modify existing pedestrian crossing facilities and remove existing central median works at at junction On Sau Road / Clean Water Bay Road and On Sau Road were in-progress;

Works in Road Improvement Works 3 (RIW3)

- Mini-pile construction at RWD1 along Sau Mau Ping Road is in progress.
- Water-main works for new Public Toilet at Sau Mau Ping Road is in progress;
- ELS works and construction pile cap for temporary platform were in-progress.
- Rock excavation works using drill and split method at Slope D3 along Lin Tak Road was in-progress;
- Retaining wall construction at slope crest of Slope D3 was in-progress;
- No-fines concrete construction at slope crest of Slope D3 is in progress;
- Inspection Pit for UU at Sau Mau Ping Road.
- Rock-fall fence for Lin Tak Road (Stage 2) was in-progress.

2.4.2 In coming reporting 2 months, the scheduled construction activities are listed as follows:

- Site formation and temporary soil nail installation at RWC2 Type 1 & 1a and 2;
- Site formation and temporary soil nail installation for RIW2 Type 6,7 & 8;
- Gasmain redirection at Slip Road 2;
- RC base slab construction at KS27; and
- Construction at FE1 Footing.
- ELS at Zone 6 & 7;
- Retaining wall construction for Bay 2 to 8;
- Removal of Lamp posts and erect temporary lamp posts at Central Median for later road diversion;
- Piling construction at CT4;
- Predrilling works at SE2;
- Mini-pile installation works at RWD1;
- ELS construction for Noise Barrier Footing SE1;
- Mini-pile and ELS construction at Slope D2;
- Plate Load Test at Bay 3 of Retaining Wall RWD2 at Slope D2;
- Construction of Retaining Wall RWD2 at Slope D2;
- Stage 1 rock excavation at Slope D3; and
- Retaining wall construction at Slope D3;
- No-fines concrete construction at Slope D3;
- Rock-fall Fence (Stage 2) along Lin Tak Road.
- Watermain works at Sau Mau Ping Road

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 environmental protection pertinent to the Project

Permits and/or Licences	Permit. No. / Account No.	Valid From	Expiry Date	Status
Notification pursuant to Air Pollution Control (Construction Dust) Regulation	Form NA submitted to EPD on 29 May 2018.			
Environmental Permit	EP-513/2016	20 Jul 2016	N/A	Valid
Construction Noise Permit (CNP)				
CNP for a section of Sau Mau Ping Road in Area RIW3 for loading / unloading of construction material	GW-RE0389-20	22 May 2020	30 Sep 2020	Valid
Billing Account for Disposal				
Billing Account for Disposal of Construction Waste	7031075	20 Jul 2018	End of the Project	Valid
Chemical Waste Registration				
Registration as a Waste Producer for Sau Mau Ping Road to Lin Tak Road	5213-294-C4239-04	6 Aug 2018	N/A	Valid
Registration as a Waste Producer for Sau Mau Ping Area between Him Tat House and Sau Mau Ping Salt Water Service Reservoir	5213-293-C4239-05	6 Aug 2018	N/A	Valid
Registration as a Waste Producer for New Clear Water Bay Road (Start from 46 Clear Water Bay Road, End at Shun Lee Tsuen Road and San Lee Street	5213-291-C4239-02	13 Aug 2018	N/A	Valid
Registration as a Waste Producer for South Part of Hiu Ming Street Playground	5213-294-C4239-03	6 Aug 2018	N/A	Valid
Registration as a Waste Producer for Clear Water Bay Road and New Clear Water Bay Road (From the intersection of Fei Ngo Shan Road to Tai Pan Court) and on Sau Road (From the intersection of New Clear Water Bay Road to 9 Anderson Road	5213-831-C4239-08	6 Aug 2018	N/A	Valid

Permits and/or Licences	Permit. No. / Account No.	Valid From	Expiry Date	Status
Registration as a Waste Producer for Sau Mau Ping Area Between Anderson Road and On Sau Road, next to Oi Tat House	5213-292-C4239-06	6 Aug 2018	N/A	Valid
Water Discharge Licence				
Water Pollution Ordinance Licence for Lin Tak Road to Sau Mau Ping Road including Tseung Kwan O Tunnel Toll Plaza	WT00032742-2018	18 Jan 2019	31 Jan 2024	Valid
Water Pollution Ordinance Licence for Sau Mau Ping Area between Anderson Road and On Sau Road, next to Oi Tat House	WT00033223-2019	31 Jan 2019	31 Jan 2024	Valid
Water Pollution Ordinance Licence for Sau Mau Ping Area at south part of Hiu Ming Street playground	WT00033224-2019	21 Mar 2019	31 Mar 2024	Valid
Water Pollution Ordinance Licence for intersection of Fei Ngo Shan Road to Tai Pan Court and on Sau Road (From the intersection of New Clear Water Bay Road to 9 Anderson Road	WT00033299-2019	5 Mar 2019	31 Mar 2024	Valid
Water Pollution Ordinance Licence for Sau Mau Ping area between Him Tat House and Sau Mau Ping Salt Water service Reservoir	WT00033229-2019	24 Jun 2019	30 Jun 2024	Valid

3.2 Status of Submission under the EP-513/2016

3.2.1. A summary of the current status on submission under EP-513/2016 is shown in **Table 3.2**.

Table 3.2 Summary of submission status under EP-513/2016

EP Condition	Submission	Date of Submission
Condition 1.12	Notification of Commencement Date of Works	24 September 2018
Condition 2.10	Management Organization of Main Construction Companies	27 September 2018
Condition 2.11	Submission of Design Drawing(s) of the Project	28 September 2018
Condition 2.12	Submission of Landscape and Visual Mitigation Plan(s)	28 September 2018
Condition 2.14 (a) and 2.15	Submission of Detailed Vegetation Survey Report (2nd submission)	7 December 2018



EP Condition	Submission	Date of Submission
Condition 2.14 (b) and 2.15	Submission of Transplantation Proposal	7 December 2018
Condition 3.3	Submission of Baseline Environmental Monitoring Report (2nd submission)	18 December 2018
Condition 2.14 (c)	Transplantation Completion Report	3 May 2019
Condition 3.4	Monthly EM&A Report (July 2020)	14 August 2020

4 Monitoring Requirements

4.1 Noise Monitoring

NOISE MONITORING STATIONS

4.1.1. The noise monitoring stations for the Project are listed and shown in **Table 4.1** and [Figure 4.1](#) & [4.2](#).

Table 4.1 Noise Monitoring Station

Monitoring Station ID	Monitoring Location	Measurement Type	Level (in terms of no. of floor)
NMC01	Kei Shun Special School	Façade	G/F
NMC02	Shun Lee Disciplined Services Quarters Block 6	Façade	3/F podium
NMC03	Sienna Garden Block 6	Free-field	G/F
NMC04	Po Tat Estate Tat Kai House	Free-field	3/F podium
NMC05	Hong Wah Court Block B Yee Hong House	Façade	G/F

NOISE MONITORING PARAMETERS, FREQUENCY AND DURATION

4.1.2. 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 0700-1900 hours on normal weekdays (six consecutive Leq/5min readings);
- One set of measurements between 1900-2300 hours;
- One set of measurements between 2300-0700 hours of next day; and
- One set of measurements between 0700-2300 hours on holidays (three consecutive Leq/5min readings).

4.1.3. For the latter 3 sets of measurements specified in Section 4.1.2 above, one set of measurements shall at least include 3 consecutive Leq (5min) results.

4.1.4. Supplementary information for data auditing, statistical results such as L10 and L90 shall also be obtained for reference.

4.1.5. If a school exists near the construction activity, noise monitoring shall be carried out at the monitoring stations for the schools during the examination periods. The ET leader shall liaise with the school's personnel and the examination authority to ascertain the exact dates and times of all examination periods during the course of the contract.

MONITORING EQUIPMENT

4.1.6. Noise monitoring was performed using sound level meter at the designated monitoring locations. The sound level meters shall comply with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator shall be deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 4.2**.

Table 4.2 Noise Monitoring Equipment

Equipment	Brand and Model	Series Number
Integrated Sound Level Meter	NTi XL2	A2A-15269-EO
Acoustic Calibrator	Larson Davis CAL200	13437

4.1.7. The calibration certificates of the noise monitoring equipment are attached in [Appendix 4.2](#).

SAMPLING PROCEDURE AND MONITORING EQUIPMENT

4.1.8. Monitoring Procedure

- (a) The monitoring station shall normally be at a point 1m from the exterior of the sensitive receiver's building façade and be at a position 1.2m above the ground.
- (b) Façade measurements were made at the monitoring locations. For free-field measurement, a correction factor of +3 dB (A) would be applied.
- (c) The battery condition was checked to ensure the correct functioning of the meter.
- (d) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
- (e) Frequency weighting: A, Time weighting: Fast, Measurement time set: continuous 5 mins
- (f) Prior and after to the noise measurement, the meter was checked using the acoustic calibrator for 94dB (A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than ±1 dB (A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- (g) Noise measurements shall not be made in fog, rain, wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

4.1.9. Maintenance and Calibration

- (a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.
- (b) The sound level meter and calibrator were calibrated at yearly intervals.

EVENT AND ACTION PLAN

4.1.10. Noise Standards for Daytime Construction Activities are specified under EIAO-TM. The Action and Limit levels for construction noise are defined in **Table 4.3** and [Appendix 4.1](#). Should non-compliance of the criteria occurs, action in accordance with the Event and Action Plan in [Appendix 6.1](#) shall be carried out.

Table 4.3 Action and Limit Level for Noise Monitoring

Monitoring Station	Action Level	Limit Level (dB(A))		
		0700-1900 hrs on normal weekdays	0700-2300 hrs on holidays (including Sundays); and 1900-2300 hrs on all days ²	2300-0700 hrs of all days ²
NMC01	When one documented complaint is received	65 / 70 ¹	60 / 65 / 70 ³	45 / 50 / 55 ³
NMC02		75		
NMC03		75		
NMC04		75		
NMC05		75		

Remark 1: Limit level of NMC01 - Kei Shun Special School reduce to 65 dB (A) during examination periods if any.

Remark 2: Construction noise during restricted hours is under the control of Noise Control Ordinance Limit Level to be selected based on Area Sensitivity Rating.

Remark 3: Limit Level for restricted hour monitoring shall act as reference level only. Investigation would be conducted on CNP compliance if exceedance recorded during restricted hour noise monitoring period.

4.2 Air Monitoring

AIR QUALITY MONITORING STATIONS

4.2.1. The air monitoring stations for the Project are listed and shown in **Table 4.4** and [Figure 4.3](#) & [4.4](#).

Table 4.4 Air Monitoring Station

Monitoring Station ID	Monitoring Location	Level (in terms of no. of floor)
NCWBR_AMS-1	Shun Lee Fire Station	2/F Roof
NCWBR_AMS-2	Shun Lee Estate Lee Hang House	G/F
NCWBR_AMS-3	Shun Lee Disciplined Services Quarters (Block 6)	4/F podium
NCWBR_AMS-4	Sienna Garden	G/F
NCWBR_AMS-5	Shun Chi Court Shun Fung House	Roof
LTR_AMS-1	St Edward's Catholic Primary School	G/F
LTR_AMS-2	Environmental Protection Department's Restored Landfill Site Office	G/F
LTR_AMS-3	Po Tat Estate Tat Kai House	3/F podium

AIR MONITORING PARAMETERS, FREQUENCY AND DURATION

4.2.2. One-hour TSP levels should be measured to indicate the impacts of construction dust on air quality.

4.2.3. 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

4.2.4. Monitoring Procedures

- (a) Check the calibration period of portable direct reading dust meter prior to monitoring (The direct reading dust meter was calibrated at 2-years interval and checked with High Volume Sampler (HVS) yearly.)
- (b) Record the site condition near / around the monitoring stations.
- (c) Install the portable direct reading dust meter to the monitoring location.
- (d) Slide the power switch to turn the power on.
- (e) Check of portable direct reading dust meter to ensure the equipment operation in normal condition.

- (f) Select the period of measurement to 60mins.
- (g) Check and set the correct time.
- (h) Select the appropriate unit display for the equipment.
- (i) Slide the power switch to turn the power off when the monitoring period ended (3 times 1 hour TSP monitoring per day).
- (j) Uninstall the portable direct reading dust meter
- (k) Collected the sampled data for analysis.
- (l) Remark: Procedures (c) to (h) may be different subject to the brands and models of portable direct reading dust meter

4.2.5. Maintenance and Calibration

- (a) The direct reading dust meter was calibrated at 2-years interval and checked with High Volume Sampler (HVS) yearly to determine the accuracy and validity of the results measured.
- (b) Checking of direct reading dust meter will be carried out in order to determine the conversion factor between the direct reading dust meter and the standard equipment, HVS. The comparison check is to be considered valid based on correlation coefficient checked by HOKLAS laboratory.

4.2.6. The 1-hour TSP air quality monitoring was performed by using portable direct reading dust meters at each designated monitoring station. The brand and model of the equipment are given in **Table 4.5**.

Table 4.5 Air Quality Monitoring Equipment

Equipment	Brand and model	Series Number
Portable direct reading dust meter	Met One BT- 645	X19297 X19299
	Met One AEROCET 831	W15448 W15449 W16848 Y23153 Y23154 Y23160

4.2.7. The calibration certificates of the air quality monitoring equipment are attached in [Appendix 4.2](#).

WIND DATA

4.2.8. The representative wind data from Tate’s Cairn HKO Automatic Weather Station and Tseung Kwan O HKO Automatic Weather Station were obtained covering the 1-hr TSP monitoring periods. The wind data were extracted and shown in [Appendix 4.3](#).

EVENT AND ACTION PLAN

4.2.9. The Action and Limit levels for construction air quality are defined in **Table 4.6** and [Appendix 4.1](#). Should non-compliance of the air quality criteria occur, action in accordance with the Event and Action Plan in [Appendix 6.1](#) shall be carried out.

Table 4.6 Action and Limit Level for Air Quality Monitoring

Monitoring Locations	1-hour TSP Level in µg/m3	
	Action Level	Limit Level
NCWBR_AMS-1	284.4	500.0
NCWBR_AMS-2	282.4	500.0
NCWBR_AMS-3	287.9	500.0
NCWBR_AMS-4	281.6	500.0
NCWBR_AMS-5	270.0	500.0
LTR_AMS-1	272.1	500.0
LTR_AMS-2	281.1	500.0
LTR_AMS-3	285.1	500.0

4.3 Water Quality Monitoring

WATER QUALITY MONITORING STATIONS

4.3.1. Water quality monitoring was undertaken at 7 monitoring stations in the reporting month. The proposed water quality monitoring stations of the Project are shown in **Table 4.7** and [Figure 4.5 & 4.6](#).

Table 4.7 Marine Water Quality Stations for Water Quality Monitoring

Inland Water	Stations	Description	Easting	Northing
Channelized nullah across the Project site	E	Upstream Control Station	841329	821753
	F	Downstream Impact Station	841469	821635
	AC1	Upstream Reference Station	-	-
	AC2	Upstream Reference Station	-	-
	AC3	Upstream Reference Station	-	-



		Station		
Ma Yau Tong Stream	H	Upstream Control Station	843008	819880
	I	Downstream Impact Station	842652	819573

WATER QUALITY PARAMETERS, FREQUENCY AND DURATION

- 4.3.2. The levels of dissolved oxygen (DO), turbidity and pH shall be measured in situ while suspended solids (SS) is determined by laboratory analysis at all the designated monitoring stations.
- 4.3.3. In association with the water quality parameters, other relevant data shall also be recorded, such as monitoring location / position, time, water temperature, salinity, DO saturation, weather conditions, and any special phenomena underway near the monitoring station.
- 4.3.4. The sampling frequency of at least three days per week should be undertaken when the highest dust impact occurs. Upon completion of the construction works, the monitoring exercise at the designated monitoring locations should be continued for four weeks in the same manner as the impact monitoring.
- 4.3.5. The interval between two sets of monitoring should not be less than 36 hours except where there are exceedances of Action and/or Limit Levels, in which case the monitoring frequency will be increased.
- 4.3.6. Replicate in-situ measurements should be carried out in each sampling event.

SAMPLING PROCEDURES AND MONITORING EQUIPMENT

Dissolved Oxygen And Temperature Measuring Equipment

- 4.3.7. The instrument should be a portable, weatherproof dissolved oxygen measuring instrument complete with cable, sensor, comprehensive operation manuals, and use a DC power source. It should be capable of measuring:
 - a dissolved oxygen level in the range of 0-20 mg/l and 0-200% saturation
 - a temperature of 0-45 degree Celsius
- 4.3.8. It should have a membrane electrode with automatic temperature compensation complete with a cable. Sufficient stocks of spare electrodes and cables should be available for replacement where necessary. (e.g. YSI model 59 meter, YSI 5739 probe, YSI 5795A submersible stirrer with reel and cable or an approved similar instrument).
- 4.3.9. Should salinity compensation not be build-in in the DO equipment, in-situ salinity shall be measured to calibrate the DO equipment prior to each DO measurement.

Turbidity Measurement Instrument

4.3.10. The instrument should be a portable, weatherproof turbidity-measuring instrument complete with comprehensive operation manual. The equipment should use a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0-1000 NTU and be complete with a cable (e.g. Hach model 2100P or an approved similar instrument).

Sampler

4.3.11. Due to low water level as mentioned in Section 6.4.3 of the EIA report, bucket sampler (Approximate 1L) will be use instead of water sampler in order to obtain surface water sample without disturb the stream sediment and collect representative results.

Salinity

4.3.12. A portable salinometer capable of measuring salinity in the range of 0-70 ppt shall be provided for measuring salinity of the water at each of monitoring location.

MONITORING METHODOLOGY

4.3.13. Monitoring Procedure

- (a) The condition near the monitoring stations shall be observed and recorded on the data log sheet.
- (b) Check of sensors and electrodes with certified standard solutions before each use.
- (c) Wet bulb calibration for a DO meter should be carried out before measurement.
- (d) Sample would be taken using bucket sampler at surface level.
- (e) Transfer the sampled water carefully into cleaned water bottles (2x 1000ml) provided by the laboratory at the spot after the collection of the water sample for the subsequent laboratory Suspended Solid testing.
- (f) Transfer the sampled water from the bucket sampler to the rinsed water container for in-situ measurement (In case of the in-situ measurement cannot be carried at spot due to safety and adverse weather condition, sampled water from the bucket sampler will be transfer to cleaned water bottles provided by laboratory. Then, In-situ measurement will be conducted at a safe location which sampled water inside cleaned water bottle will be transfer to the rinsed water container for in-situ measurement) In-situ measurement shall be measured in duplicate.
- (g) Parameters including Water Temperature (°C), pH (units), Salinity (ppt), DO (mg/L), DO saturation (%) will be measured by the Multifunctional Meter and Turbidity (NTU) will be measured by turbid meter. (Water Temperature and Salinity will be measured as reference parameters)
- (h) Record the result on the data log sheet and record any special finding during / after in-situ measurement.
- (i) The water sample bottles will be stored in a cool box (at cooled to 4°C without being frozen), which shall be delivered to HOKLAS laboratory (ALS Technichem (HK) Pty Ltd) for further testing to determine the level of SS.

4.3.14. Maintenance and Calibration

- (a) The responses of sensors and electrodes of the water quality monitoring equipment were cleaned and checked at regular intervals.
- (b) DO meter (Multifunctional Meter) and turbid meter was certified by a laboratory accredited under HOKLAS or any other international accreditation scheme, and subsequently re-calibrated at three monthly intervals.

4.3.15. Brand and model of the equipment are given in **Table 4.8**.

Table 4.8 Water Quality Monitoring Equipment

Equipment	Brand and model	Series Number
Multifunctional Meter	YSI Professional Plus	17F100236 19H100656
Turbid meter	Xin Rui WGZ-3B	1807079 1807069

4.3.16. The calibration certificates of the water quality monitoring equipment are attached in [Appendix 4.2](#).

LABORATORY MEASUREMENT / ANALYSIS

4.3.17. Analysis of suspended solids has been carried out in a HOKLAS accredited laboratory, which is ALS Technichem (HK) Pty Ltd.

EVENT AND ACTION PLAN

4.3.18. The Action and Limit levels for construction water quality are defined in **Table 4.9** and [Appendix 4.1](#). Should the monitoring results of the water quality parameters at any designated monitoring station exceed the water quality criteria, action in accordance with the Event and Action Plan in [Appendix 6.1](#) shall be carried out.

Table 4.9 Action and Limit Level for Water Quality Monitoring

Monitoring Station	Surface pH		Surface DO (mg/L)		Surface Turbidity (NTU)		Surface SS (mg/L)	
	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level
E	-	-	-	-	-	-	-	-
F	Beyond the range of 6.6-8.4	Beyond the range of 6.5-8.5	5.8	5.5	24.4	32.7	17.0	23.8
AC1	-	-	-	-	-	-	-	-



AC2	-	-	-	-	-	-	-	-
AC3	-	-	-	-	-	-	-	-
H	-	-	-	-	-	-	-	-
I	Beyond the range of 6.6-8.4	Beyond the range of 6.5-8.5	5.5	5.4	206.9	214.2	172.8	201.4

*Remarks:

The value of 1.0mg/L was taken as the value for measurement with suspended solid level of <1.0mg/L for Action and Limit level calculation.

It is recommended that upstream monitoring station (monitoring station E, AC1, AC2, AC3 and H) would be taken as control reference for exceedance investigation only. Action and limit level would not be establish using the baseline data.

5. Monitoring Results

- 5.0.1 The environmental monitoring will be implemented based on the division of works areas of each designed projects. Overall layout showing work areas and monitoring stations is shown in [Figure 2.1](#) and Figure 4.1 – 4.6 respectively.
- 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 Due to the construction site has been closed down by Contractor from 2 August 2020 to 8 August 2020, EM&A program including environmental site audit and environmental monitoring were temporally suspended from 2 August 2020 to 8 August 2020.
- 5.1.2 Ad- hoc noise monitoring for NMC05 was conducted on 13, 20 and 31 August 2020.
- 5.1.3 No action or limit level exceedance was recorded during this reporting period.
- 5.1.4 Noise monitoring results measured in this reporting period are reviewed and summarized. Details of noise monitoring results and graphical presentation can be referred in [Appendix 5.2](#).

5.2 Air Monitoring Results

- 5.2.1 Due to the construction site has been closed down by Contractor from 2 August 2020 to 8 August 2020, EM&A program including environmental site audit and environmental monitoring were temporally suspended from 2 August 2020 to 8 August 2020.
- 5.2.2 All 1-hour TSP monitoring was conducted as scheduled in the reporting month.
- 5.2.3 No action or limit level exceedance was recorded in the reporting period.
- 5.2.4 Air quality monitoring results measured in this reporting period are reviewed and summarized. Details of air monitoring results and graphical presentation can be referred in [Appendix 5.3](#).

5.3 Water Quality Monitoring Results

- 5.2.5 Due to the construction site has been closed down by Contractor from 2 August 2020 to 8 August 2020, EM&A program including environmental site audit and environmental monitoring were temporally suspended from 2 August 2020 to 8 August 2020.
- 5.2.6 Due to the hoisting of Tropical Storm Signal No. 8 and safety consideration under adverse weather condition, the water quality monitoring on 19 August 2020 was rescheduled to 20

- August 2020. And the water quality monitoring scheduled on 21 August 2020 was postponed to 22 August 2020
- 5.2.7 No water can be collected at Station AC1 during this reporting period as the station was dried out during the monitoring scheduled in the reporting month.
- 5.2.8 Three limit level exceedances of Suspended Solid at Station F were recorded on 12, 20 and 28 August 2020. Investigation of the exceedances were still in progress and would be reported in the coming report.
- 5.2.9 For the exceedance recorded on 12 August 2020, after investigation, the weather was rainy from 11 to 12 August 2020. Silty water was observed at monitoring station F during water quality monitoring. RC works, soil nail, piling, road marking and demolition of median island were commenced at RIW2 construction site area under Contract No. NE/2017/03 on 12 August 2020, no surface runoff was also observed. Turbidity and suspended solid results were not high at station E (18.6 NTU and 5.9 mg/L) and station AC2 (7.6 NTU and 2.6 mg/L) but was high at station AC3 (46.1 NTU and 25.6 mg/L). In view of the above, it is considered that there was no evidence to suggest the exceedance was related to Project works at RIW2.
- 5.2.10 For the exceedance recorded on 20 August 2020, after investigation, the weather was rainy from 18 to 20 August 2020 and amber rainstorm warning signal was enforced on 18 August 2020. Slightly silty water was observed at monitoring station F during water quality monitoring. RC works, soil nail, piezometer installation and piling were commenced at RIW2 construction site area under Contract No. NE/2017/03 on 20 August 2020. No surface runoff affecting the surrounding gullies or public drainages was observed. Turbidity and suspended solid results were not high at station E (12.0 NTU and 6.2 mg/L), station AC2 (7.3 NTU and 8.0 mg/L) and station AC3 (14.8 NTU and 15.6 mg/L). In view of the above, it is considered that there was no evidence to suggest the exceedance was related to Project works at RIW2.
- 5.2.11 For the exceedance recorded on 28 August 2020, the weather was rainy from 27 to 28 August 2020. Slightly silty water was observed at monitoring station F during water quality monitoring. RC works and piling were commenced at RIW2 construction site area under Contract No. NE/2017/03 on 28 August 2020. No surface runoff affecting the surrounding gullies or public drainages was observed. Turbidity and suspended solid results were not high at station E (18.7 NTU and 3.8 mg/L) and station AC2 (8.0 NTU and 8.5 mg/L) but high at station AC3 (35.8 NTU and 208.5 mg/L). In view of the above, it is considered that there was no evidence to suggest the exceedance was related to Project works at RIW2.
- 5.3.1 Water quality monitoring results measured in this reporting period are reviewed and summarized. Details of water quality monitoring results and graphical presentation can be referred in [Appendix 5.4](#).



5.4 Waste Management

5.4.1 The quantities of waste for disposal in the Reporting Period are summarized in **Table 5.1** and **Table 5.2**. The Monthly Summary Waste Flow Table is shown in [Appendix 5.5](#). Whenever possible, materials were reused on-site as far as practicable.

Table 5.1 Summary of Quantities of Inert C&D Materials

Waste Type	Quantity (this month)	Quantity (Project commencement to the end of last month)	Cumulative Quantity-to-Date	Disposal Location
Hard Rock and Large Broken Concrete (Inert) (in '000m3)	0	0	0	Nil
Reused in this Contract (Inert) (in '000m3)	0.323	1.848	2.171	Nil
Reused in other Projects (Inert) (in '000m3)	0.713	14.29	15.003	Nil
Disposal as Public Fill (Inert) (in '000m3)	1.718	37.769	39.487	TKO137



Table 5.2 Summary of Quantities of C&D Wastes

Waste Type	Quantity (this month)	Quantity (Project commencement to the end of last month)	Cumulative Quantity-to-Date	Disposal Location
Metals (in '000kg)	0	0.143	0.143	Nil (waste recycle was arranged)
Paper / Cardboard Packing (in '000kg)	0	3.094	3.094	Nil (waste recycle was arranged)
Plastics (in '000kg)	0.830	3.751	4.581	Nil (waste recycle was arranged)
Chemical Wastes (in '000kg)	0	1.0	1.0	Nil
General Refuses (in '000m3)	0.048	0.584	0.632	SENT

6. Compliance Audit

- 6.0.1. The Event Action Plan for construction noise, air quality and water quality are presented in [Appendix 6.1.](#)
- 6.0.2. The summary of exceedance is presented in [Appendix 6.2.](#)

6.1 Noise Monitoring.

- 6.1.1 [No action or limit level exceedance was recorded during this reporting period.](#)

6.2 Air Quality Monitoring

- 6.2.1 [No action or limit level exceedance was recorded in the reporting period.](#)

6.3 Water Quality Monitoring

- 6.3.1 [No water can be collected at Station AC1 during this reporting period as the station was dried out during the monitoring scheduled in the reporting month.](#)
- 6.3.2 [Three limit level exceedances of Suspended Solid at Station F were recorded on 12, 20 and 28 August 2020.](#)
- 6.3.3 [For the exceedance recorded on 12 August 2020, after investigation, the weather was rainy from 11 to 12 August 2020. Silty water was observed at monitoring station F during water quality monitoring. RC works, soil nail, piling, road marking and demolition of median island were commenced at RIW2 construction site area under Contract No. NE/2017/03 on 12 August 2020, no surface runoff was also observed. Turbidity and suspended solid results were not high at station E \(18.6 NTU and 5.9 mg/L\) and station AC2 \(7.6 NTU and 2.6 mg/L\) but was high at station AC3 \(46.1 NTU and 25.6 mg/L\). In view of the above, it is considered that there was no evidence to suggest the exceedance was related to Project works at RIW2.](#)
- 6.3.4 [For the exceedance recorded on 20 August 2020, after investigation, the weather was rainy from 18 to 20 August 2020 and amber rainstorm warning signal was enforced on 18 August 2020. Slightly silty water was observed at monitoring station F during water quality monitoring. RC works, soil nail, piezometer installation and piling were commenced at RIW2 construction site area under Contract No. NE/2017/03 on 20 August 2020. No surface runoff affecting the surrounding gullies or public drainages was observed. Turbidity and suspended solid results were not high at station E \(12.0 NTU and 6.2 mg/L\), station AC2 \(7.3 NTU and 8.0 mg/L\) and station AC3 \(14.8 NTU and 15.6 mg/L\). In view of the above, it is considered that there was no evidence to suggest the exceedance was related to Project works at RIW2.](#)



6.3.5 For the exceedance recorded on 28 August 2020, the weather was rainy from 27 to 28 August 2020. Slightly silty water was observed at monitoring station F during water quality monitoring. RC works and piling were commenced at RIW2 construction site area under Contract No. NE/2017/03 on 28 August 2020. No surface runoff affecting the surrounding gullies or public drainages was observed. Turbidity and suspended solid results were not high at station E (18.7 NTU and 3.8 mg/L) and station AC2 (8.0 NTU and 8.5 mg/L) but high at station AC3 (35.8 NTU and 208.5 mg/L). In view of the above, it is considered that there was no evidence to suggest the exceedance was related to Project works at RIW2.

6.4 Review of the Reasons for and the Implications of Non-compliance

6.4.1 No environmental non-compliance was recorded in the reporting month.

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

6.5.1 There was no particular action taken since no non-compliance was recorded in the reporting period.

7. Environmental Site Audit

- 7.0.1. Within this reporting month, weekly environmental site audits were conducted on 14, 17 and 28 August 2020. IEC attended the joint site inspection on 17 August 2020.
- 7.0.2. No non-compliance was found during the site inspection while reminders on environmental measures were recommended. Results and findings of these inspections in this reporting month are listed below in Table 7.1.

Table 7.1 Summary of Environmental Inspections

Item	Date	Reminder(s)/ Observation(s)	Action taken by Contractor	Outcome
20200817_1	17 Aug 2020	Chemical containers should be stored properly. (D3 and C1 slope of RIW3)	The chemical containers have been removed	Item was rectified on 20 August 2020
20200817_2	17 Aug 2020	Damaged sand bags should be replaced (D1 slope of RIW3)	Damaged sand bags have been replaced.	Item was rectified on 4 September 2020
20200817_3	17 Aug 2020	Debris should be cleared regularly (D1 slope of RIW3)	Pending	Pending
20200817_4	17 Aug 2020	The NRMM label should be replaced with correct colour. (D3 slope of RIW3)	Pending	Pending
20200817_5	17 Aug 2020	Chemical containers should be stored properly or drip tray should be provided (RIW1)	The chemical containers have been removed	Item was rectified on 4 September 2020
20200828_1	28 Aug 2020	Muddy water was observed discharging into the discharge point. The contractor should stop the discharge and review the wastewater treatment system to ensure the silty water is well treated and fulfil the requirement of discharge license, (RIW2)	No further discharge was observed.	Item was rectified on 31 August 2020
20200828_1	28 Aug 2020	The leakage of silty runoff should be avoided by improving the bunds and temporary drainage system. (RIW2)	No silty leakage was observed.	Item was rectified on 31 August 2020

7.0.3. Within this reporting month, biweekly landscape site audits were conducted on 10 and 26 August 2020.

7.0.4. No non-compliance was found during the landscape site inspection. Results and findings of these inspections in this reporting month are listed below in Table 7.2.

Table 7.2 Summary of Landscape site inspections

Date	Item	Reminder(s)/ Observation(s)	Action taken by Contractor	Outcome
10 Aug 2020	20200810_1	Fell <i>Leucaena leucocephala</i> was observed in the nursery, the contractor was reminded to remove the invasive species. (RIW 3)	On-going	Completed as observed on 29 July 2020
26 Aug 2020	20200826_1	Fell <i>Leucaena leucocephala</i> was observed in the nursery, the contractor was reminded to remove the invasive species. (RIW 3)	On-going	Completed as observed on 29 July 2020
26 Aug 2020	20200826_2	Tag missing was observed on P-T00087(T).	On-going	Completed as observed on 29 July 2020

7.0.5. Within this reporting month, monthly ecological monitoring was conducted on 26 August 2020.

7.0.6. No non-compliance was found during the ecological monitoring. Results and finding of the inspection in this reporting month is listed below in Table 7.3

Table 7.3 Summary of Ecological Monitoring

Date	Item	Reminder(s)/ Observation(s)	Action taken by Contractor	Outcome
26 Aug 2020	20200826_1	Most of the damaged <i>Aquilaria sinensis</i> have been recovered. Keep monitoring on the health status.	Pesticide has been applied.	Completed as observed on 26 August 2020

8. Complaints, Notification of Summons and Prosecution

8.0.1. Two environmental complaints were received in this reporting month.

8.0.2. The complainant reported to 1823 online dated on 25 August 2020 that the construction noise generated from the construction site at New Clear Water Bay Road adjacent to Choi Wan Estate was causing noise nuisance to complainant's apartment. Construction activities starting from 8:30 to dusk and even on Sunday. The construction activities have been conducted for a year especially for drilling works. The complainant has measured the construction noise with mobile app and obtained 64dB in average for one driller. The complainant said the condition was worse when two to three drillers operated at the same time. The complainant asked the completion date of the construction works and whether the construction noise would affect the health of people as the complainant was seriously influenced by the noise and causing insomnia.

The complaint regarding the construction noise at Lin Tak Road referred by CEDD and AECOM was received by ET on 30 August 2020.

According to the information provided by the contractor, and also reported in EM&A monthly report, that ELS to RW pile cap and construct RW footing were the major construction works conducted under contract NE/2017/03 at the photo record provided by the complaint at RIW1 near New Clear Water Bay Road adjacent to Choi Wan Estate starting from June 2020 to August 2020. Based on the observation of recent monitoring, excavation, grouting, welding and loading and unloading of materials were the major sources of the construction noise. Pre-drilling works have been conducted at the section near New Clear Water Bay Road adjacent to the Shun Lee Disciplined Services Quarters which is distance from the area that the complainant mentioned.

According to the monitoring data of Station NMC01, G/F of Kei Shun Special School, and NMC02, 3/F podium of Shun Lee Disciplined Services Quarters, no exceedances were recorded since November 2018.

According to the construction program provided by contractor, of July and August 2020 provided by the in July 2020 after observing the breaking works at station, NMC05 – Yee Hong House of Hong Wah Court, no noise exceedance was recorded. Although measurement for the confirmation of exceedances have been conducted twice, no exceedances were recorded for the second measurement.

According to the site diaries of July and August 2020 provided by the contractor, excavation and loading and unloading of materials were the major sources of the construction noise in this two months. Moreover, no works have been conducted on Sunday.

Site visits were conducted by ET on 31 August 2020 and 1, 2, 4 September 2020, excavation, welding and loading and unloading of materials were observed as the major activities at that moment.

No drilling works were observed pre-drilling work was distance from at the area that the complainant mentioned. Moreover, pre-drilling works was finished in July 2020.

- 8.0.3. The complainant, Resident of Hong Wah Court, reported to AECOM through the hotline dated on 31 August 2020 that the construction noise generated from the construction site at the slope of Lin Tak Road was causing noise nuisance and also causing air quality impact.

The complaint regarding the construction noise at Lin Tak Road referred by AECOM was received by ET on 2 September 2020.

According to the information provided by the contractor, and also reported in EM&A monthly report, that slope works using drill and split method were conducted under contract NE/2017/03 at RIW3 of Lin Tak Road starting from August 2019. Based on the observation of recent monitoring, slope cutting with breaker and driller were the major sources of the construction noise. Besides, breaking, drilling and loading and unloading of dusty materials were the major sources spreading dust.

Concurrent construction projects adjacent to Tseung Kwan O tunnel were another noise source, however, these were considered a minor impact to Hong Wah Court as those projects were located further away and the influence was not significant according to the observation during environmental measurement.

According to the monitoring data in August 2020 at station, NMC05 – Yee Hong House of Hong Wah Court, no noise exceedance was recorded. Although measurement for the confirmation of exceedances have been conducted once, no exceedances were recorded for the second measurement. Moreover, no exceedance of air quality monitoring was recorded at Station LTR_AMS-2, Environmental Protection Department's Restored Landfill Site Office.

Ad-hoc noise monitoring had been conducted by ET and no exceedances were recorded.

The construction activities at Lin Tak Road, especially for slope cutting works with breaker and driller, were the major noise nuisance at Lin Tak Road near Hong Wah Court. Besides, breaking, drilling and loading and unloading of dusty materials by excavator were the major sources spreading dust.

Site visits were conducted by ET on 31 August 2020, 2, 4, 7 September 2020, breaking, drilling work, excavator and splitter were observed as the major activities at that moment.

Noise barriers were in place for lower level but the noise barriers at upper level was lowered on 2 and 4 September 2020 and erected again on 7 September 2020.

Water spraying was observed during breaking works on 20 and 27 August 2020 and 7 September 2020. Water spraying was also observed for drilling works.

Remedial action taken according to the observations by ET:

1. Setting up of noise barriers for the covering of working area and the plant was observed since 15 June 2020.
2. Quieter breaker, claimed by the contractor, was observed installed.
3. The plant and working area were covered by noise barrier in most of the time during noise monitoring and site inspections.
4. Sequencing of works was observed that the driller and breaker were operated alternatively to avoid concurrent noisy works.
5. Water spraying for breaking works was observed.

8.0.4. The details of cumulative complaint log and updated summary of complaints are presented in [Appendix 8.1](#).

8.0.5. Cumulative statistic on complaints and successful prosecutions are summarized in **Table 8.1** and **Table 8.2** respectively.

Table 8.1 Cumulative Statistics on Complaints

Reporting Period	No. of Complaints
August 2020	2
Project commencement to the end of last reporting month	11
Total	13

Table 8.2 Cumulative Statistics on Successful Prosecutions

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

9. Conclusion

- 9.0.1. The EM&A programme was carried out in accordance with the EM&A Manual requirements, minor alterations to the programme proposed were made in response to changing circumstances.
- 9.0.2. The performance of the environmental management system of the previous three months (quarter) was generally satisfied. Mitigation measures according to the environmental mitigation implementation schedule and the EIA were generally implemented by the Contractor. Hence, the EM&A programme was considered effective and shall be maintained. The status of the water quality station shall be kept in view, as station E usually was dried out.
- 9.0.3. The scheduled construction activities and the recommended mitigation measures for the coming 2 months are listed in **Table 9.1**. The construction programmes of the Project are provided in [Appendix 9.1](#).

Table 9.1 Construction Activities and Recommended Mitigation Measures in Coming Reporting 2 Months

Key Construction Works	Recommended Mitigation Measures
<ul style="list-style-type: none"> • Site formation and temporary soil nail installation at RWC2 Type 1 & 1a and 2; • Site formation and temporary soil nail installation for RIW2 Type 6,7 & 8; • Gasmain redirection at Slip Road 2; • RC base slab construction at KS27; and • Construction at FE1 Footing. • ELS at Zone 6 & 7; • Retaining wall construction for Bay 2 to 8; • Removal of Lamp posts and erect temporary lamp posts at Central Median for later road diversion; • Piling construction at CT4; • Predrilling works at SE2; • Mini-pile installation works at RWD1; • ELS construction for Noise Barrier Footing SE1; • Mini-pile and ELS construction at Slope D2; 	<ul style="list-style-type: none"> • Dust control during dust generating works; • Implementation of proper noise pollution control; and • Provision of protection to ensure no runoff out of site area or direct discharge into public drainage system.

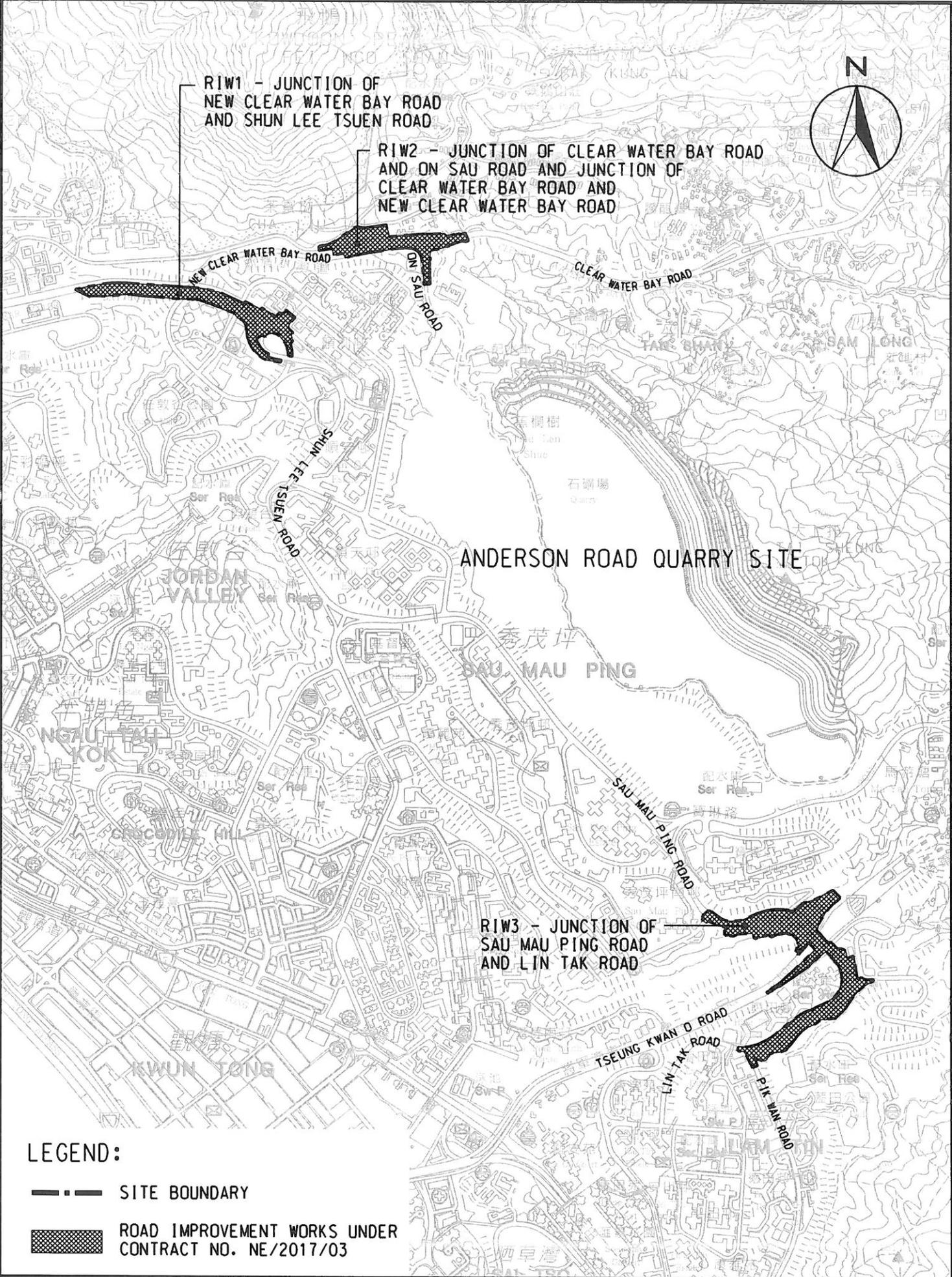


Key Construction Works	Recommended Mitigation Measures
<ul style="list-style-type: none">• Plate Load Test at Bay 3 of Retaining Wall RWD2 at Slope D2;• Construction of Retaining Wall RWD2 at Slope D2;• Stage 1 rock excavation at Slope D3; and• Retaining wall construction at Slope D3;• No-fines concrete construction at Slope D3;• Rock-fall Fence (Stage 2) along Lin Tak Road.• Watermain works at Sau Mau Ping Road	



Figure 2.1

Project Layout



LEGEND:

- SITE BOUNDARY
- ▨ ROAD IMPROVEMENT WORKS UNDER CONTRACT NO. NE/2017/03

GENERAL LAYOUT PLAN OF
ROAD IMPROVEMENT WORKS
UNDER CONTRACT NO. NE/2017/03

Figure 2.1
Project Layout



Figure 2.2

Project Organization Chart



Project Organization Chart

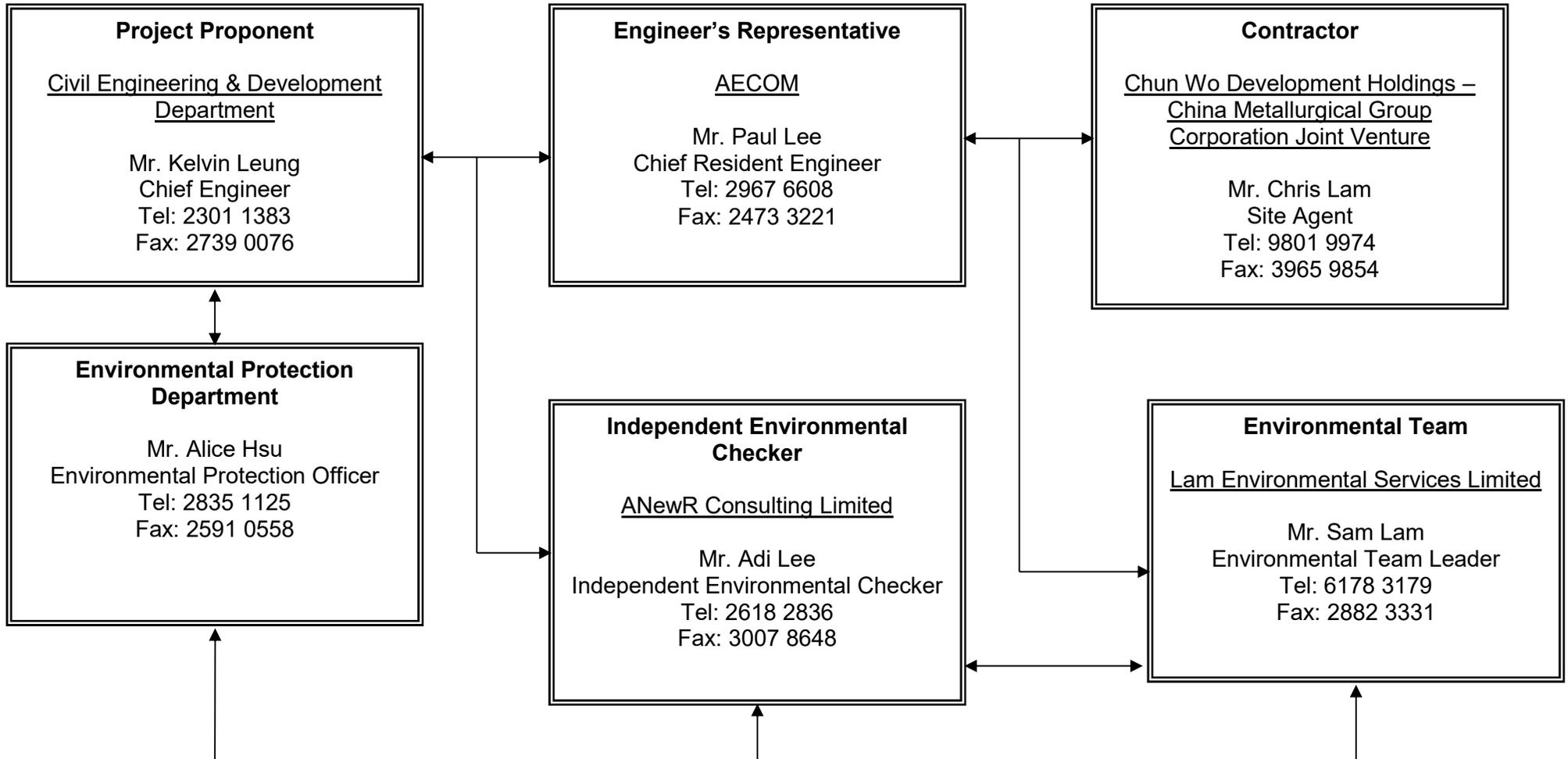
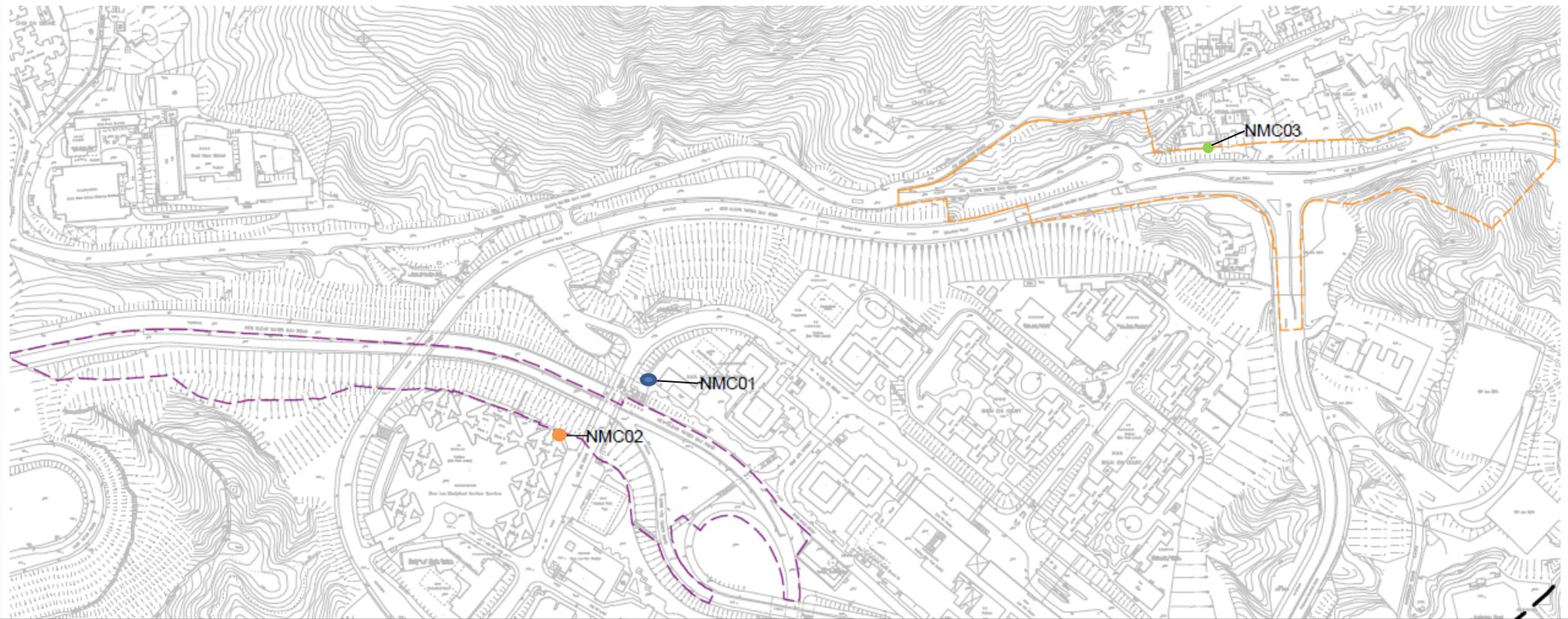


Figure 2.2



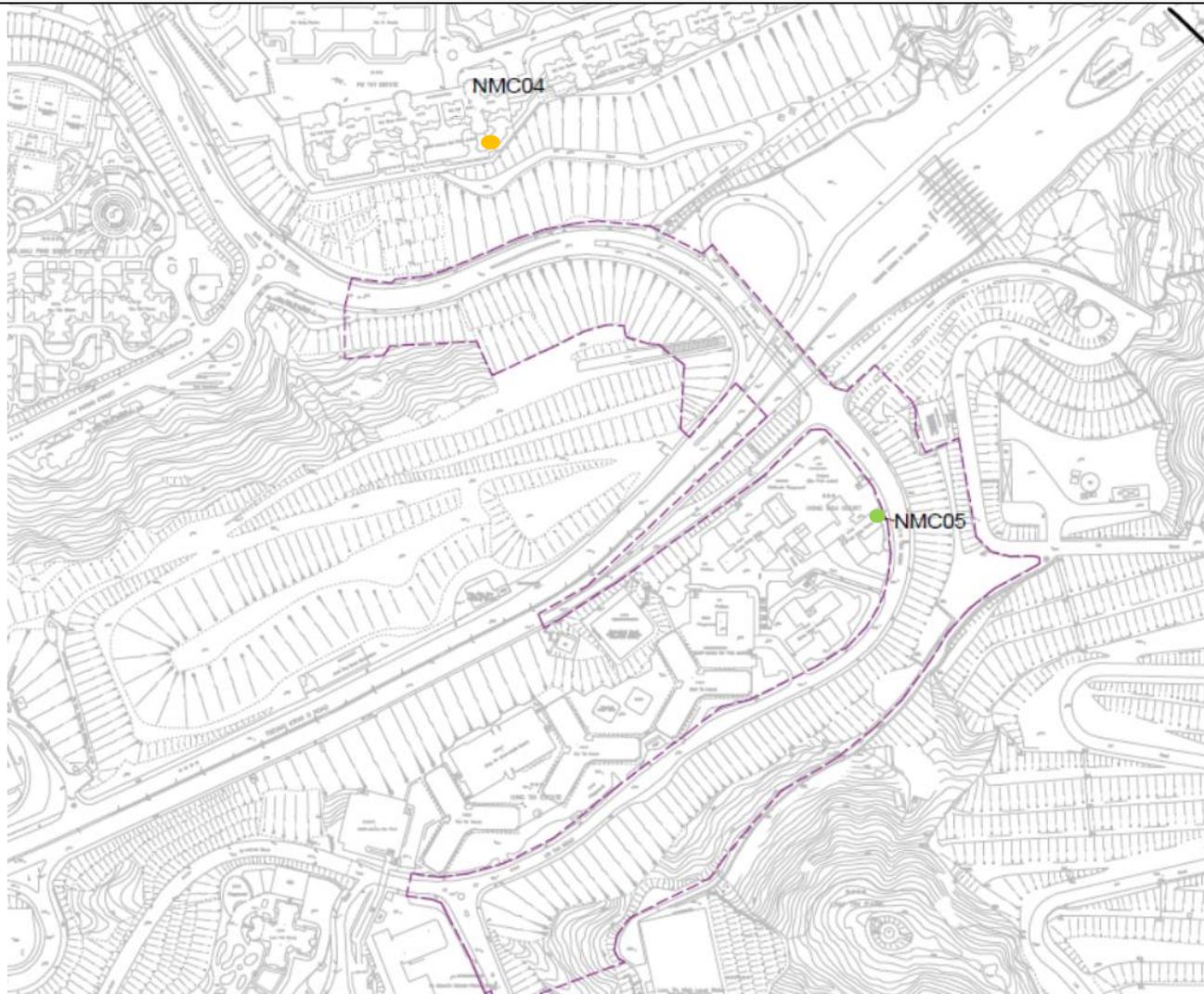
Figure 4.1 to Figure 4.6

Locations of Monitoring Stations



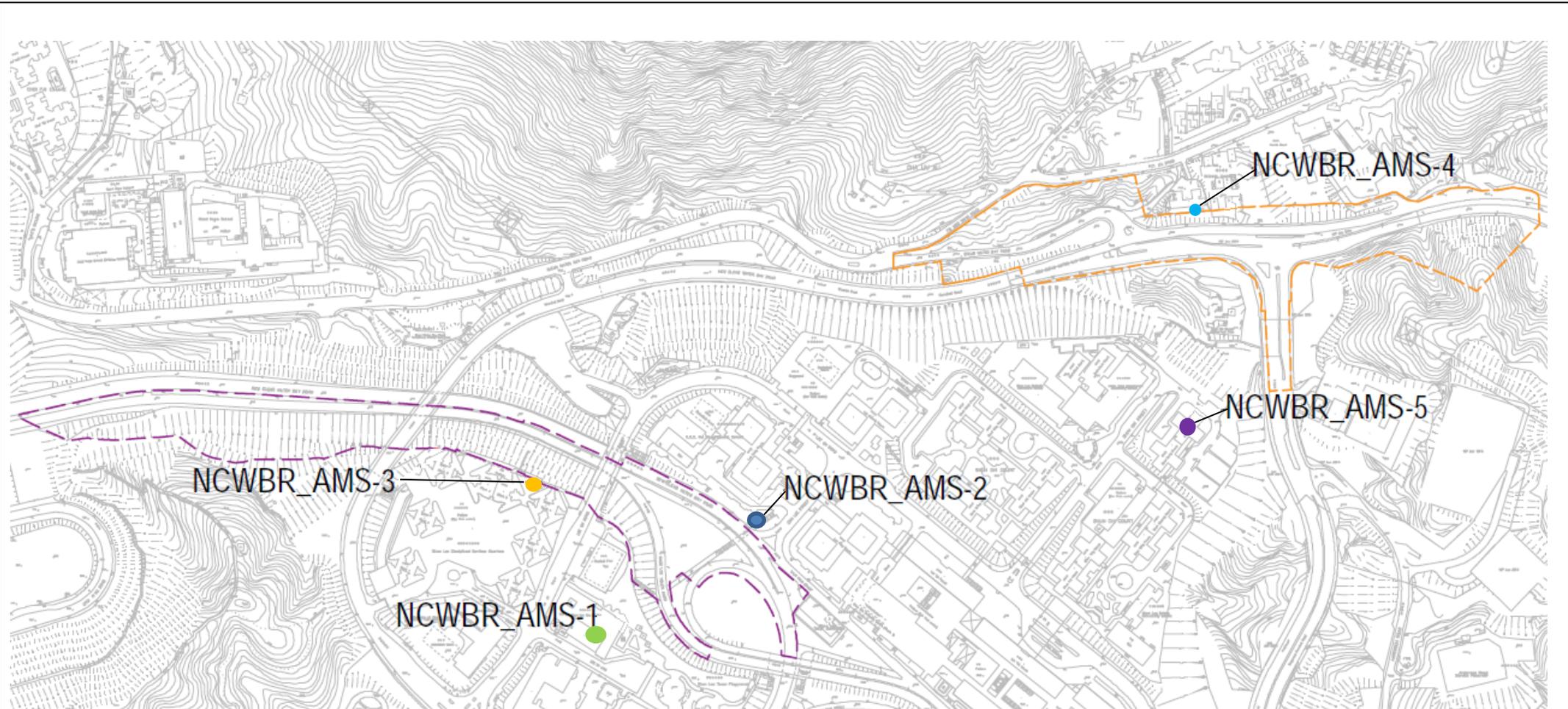
Monitoring Location ID	Description
<i>Noise Monitoring Station (Construction Phase)</i>	
NMC01	Kei Shun Special School
NMC02	Shun Lee Disciplined Services Quarters Block 6
NMC03	Sienna Garden Block 6

Figure 4.1
 Location of Noise Monitoring Station
 (Construction Phase)
 (for Road Improvement Work 1 & 2)



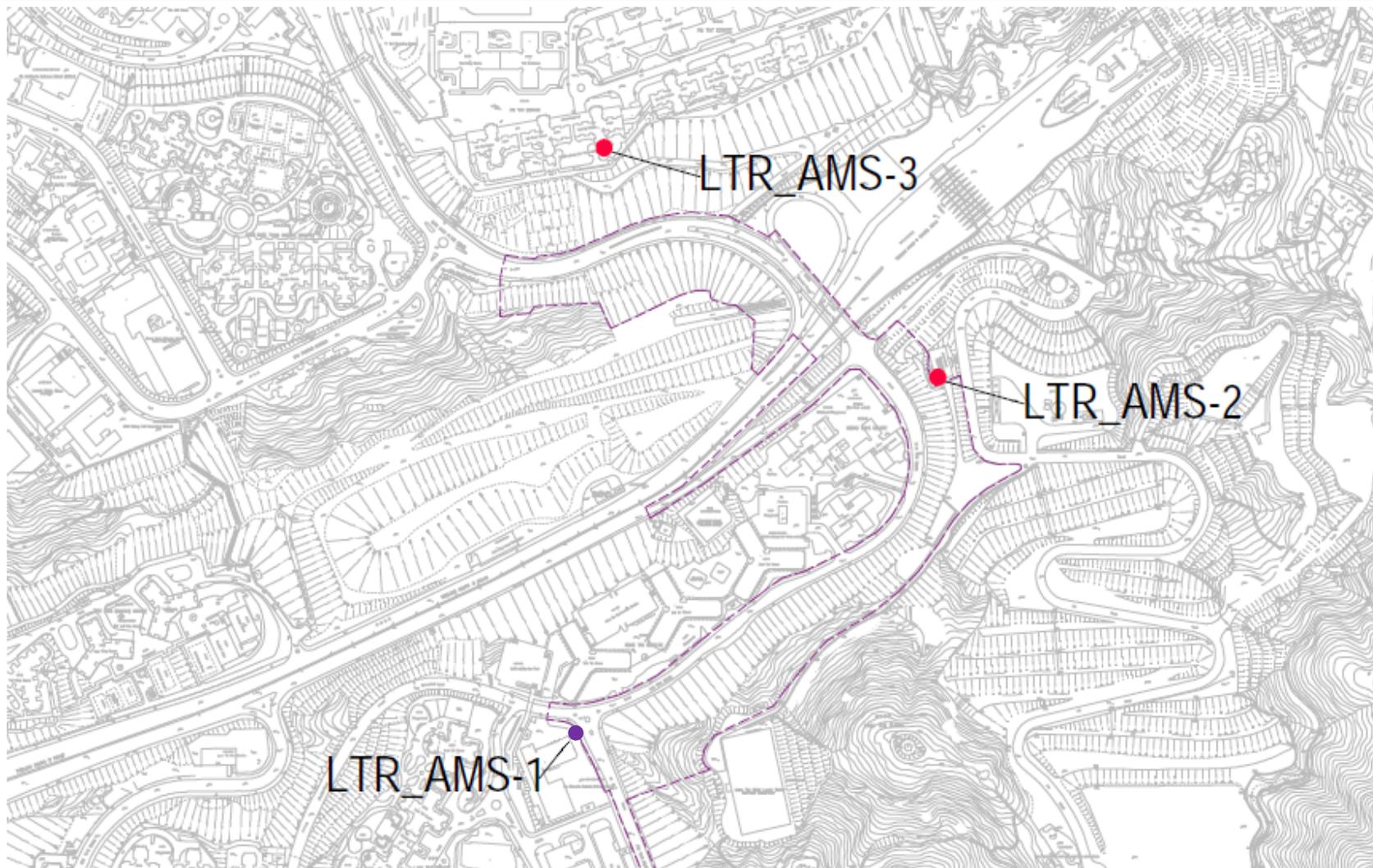
Monitoring Location ID	Description
NMC04	Po Tat Estate Tat Kai House
NMC05	Hong Wah Court Block B Yee Hong House

Figure 4.2
 Location of Noise Monitoring Station
 (Construction Phase)
 (for Road Improvement Work 3)



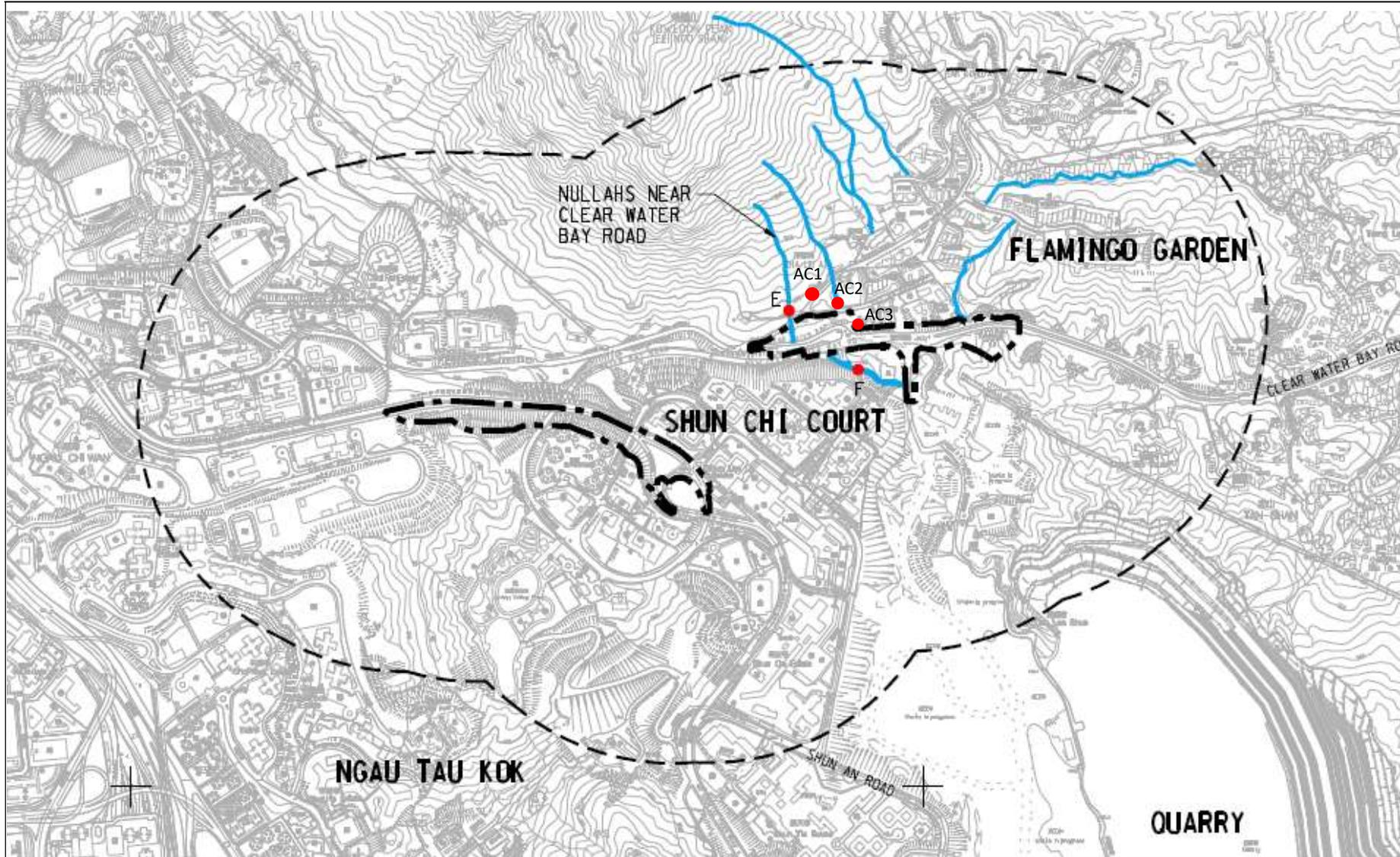
Monitoring Station ID	EIA ID	Location
NCWBR RIW		
NCWBR_AMS-1	ASLF-1	Shun Lee Fire Station
NCWBR_AMS-2	ASLE-21	Shun Lee Estate Lee Hang House
NCWBR_AMS-3	ASLD-10	Shun Lee Disciplined Services Quarters (Block 6)
NCWBR_AMS-4	AFNS-3	Sienna Garden
NCWBR_AMS-5	ASCC-05	Shun Chi Court Shun Fung House

Figure 4.3
Location of Air Quality Monitoring Station
(for Road Improvement Work 1 & 2)



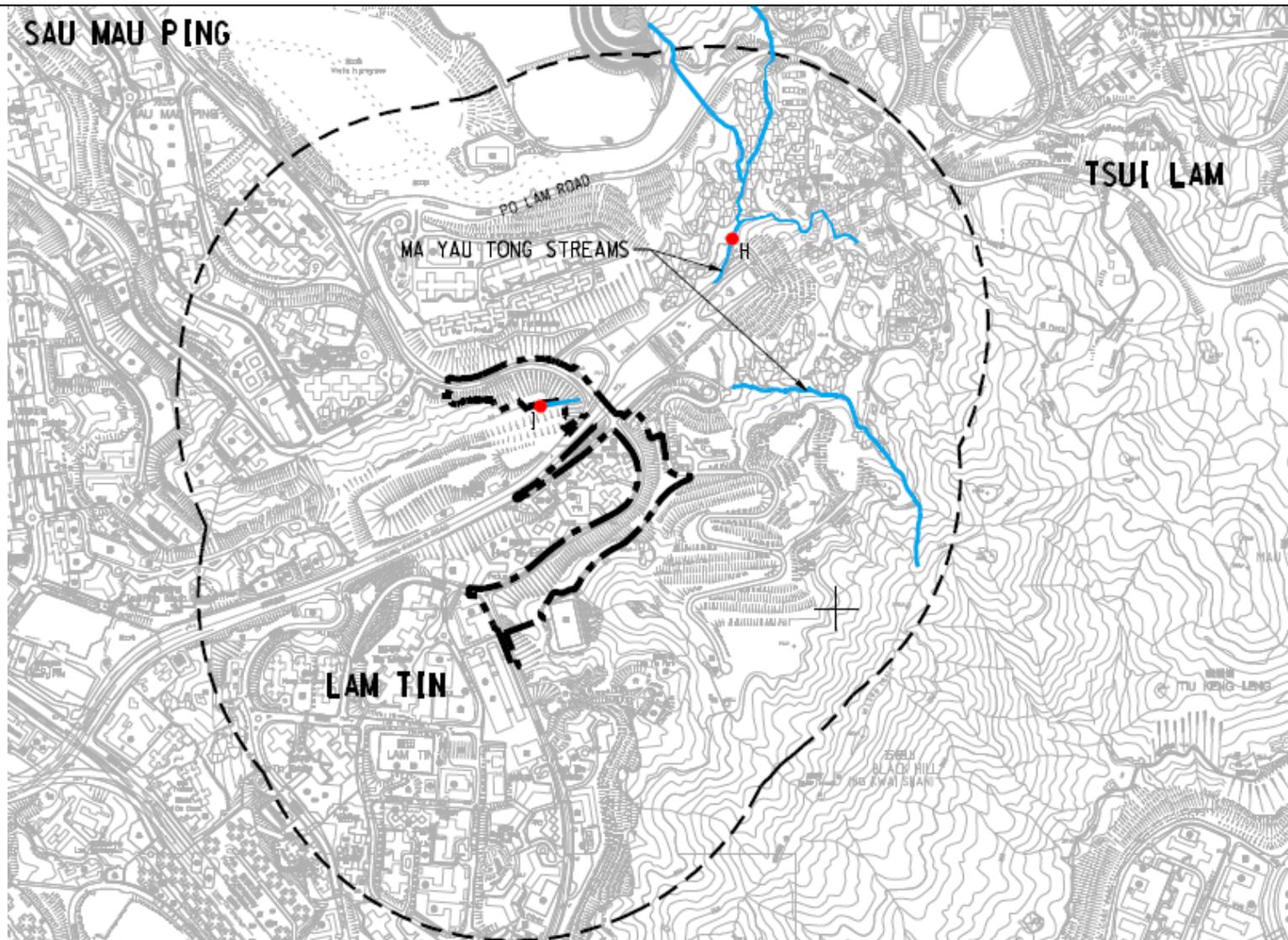
Monitoring Station ID	EIA ID	Location
LTR RIW		
LTR_AMS-1	ASECP-2	St Edward's Catholic Primary School
LTR_AMS-2	AEPD-01	Environmental Protection Department's Restored Landfill Site Office
LTR_AMS-3	APTE-14	Po Tat Estate Tat Kai House

Figure 4.4
Location of Air Quality Monitoring Station
(for Road Improvement Work 3)



Inland Water	Stations	Description
Channelized nullah across the Project site	E	Upstream Control Station
	F	Downstream Impact Station
	AC1	Upstream Reference Station
	AC2	Upstream Reference Station
	AC3	Upstream Reference Station

Figure 4.5
Location of Water Quality Monitoring Station
(for Road Improvement Work 1 & 2)



Inland Water	Stations	Description
Ma Yau Tong Stream	H	Upstream Control Station
	I	Downstream Impact Station

Figure 4.6
Location of Water Quality Monitoring Station
(for Road Improvement Work 3)



Appendix 3.1

Environmental Mitigation Implementation Schedule

APPENDIX C - IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

Introduction

This chapter presents the implementation schedule of mitigation measures for the Project. **Table C.1** summarizes the details of the recommended mitigation measures for all works areas. For each recommended mitigation measure, both the location and timing for the mitigation measures have clearly been identified as well as the parties responsible for implementing the mitigation measures and for maintenance (where applicable).

Table C.1 Implementation Schedule of Mitigation Measures

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Air Quality Impact (Construction Phase)								
4.7.1	Hourly watering with intensity of 0.0455 L/m ² (tentatively) on the active construction area so as to achieve a dust removal efficiency of 87.5%.	Active works areas	CEDD/Contractor		✓			EIAO-TM, AQOs
4.7.2	<ul style="list-style-type: none"> • To minimize the dust impact to the surrounding ASRs, dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation should be incorporated to control dust emission from the site. Major control measures relevant to this Project are listed below, and they are recommended to be included in relevant contract documents. - Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; - Any dusty material remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; - A stockpile of dusty material should not extend beyond the pedestrian barriers, fencing or traffic cones; - The load of dusty materials on a vehicles leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak form the vehicle; 	All works areas	CEDD/Contractor		✓			Air Pollution Control (Construction Dust) Regulation

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<ul style="list-style-type: none"> - Where practicable, vehicles washing facilities including a high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; - When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; - The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; - Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; - Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; - Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; - Any skip hoist for material transport should be totally enclosed by impervious sheeting; - Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the three sides; 							

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<ul style="list-style-type: none"> - Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; and - Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shortcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 							
Air Quality Impact (Operational Phase)								
N/A	N/A	N/A	N/A					N/A
Noise Impact (Construction Phase)								
5.8.1 – 5.8.4	<u>Adoption of Quiet PMEs</u> <ul style="list-style-type: none"> • To reduce the noise impacts at the affected NSRs during normal daytime working hours, mitigation measures such as adopting quiet PME and construction noise barriers are recommended. <u>Construction Noise Barriers</u> <ul style="list-style-type: none"> • To alleviate the construction noise impact on the affected NSRs, construction noise barriers or enclosures would be erected to provide screening from the construction plant. 	All works areas	CEDD/Contractor		✓			EIAO-TM
Noise Impact (Operational Phase)								
5.8.5	Direct mitigation measures in the form of Vertical Noise Barriers, Cantilevered Noise Barriers, Semi-Enclosures and Full Enclosures are proposed on the Project Roads such that the noise level would be reduced to fulfil the EIAO requirements for RIW sites at: <ul style="list-style-type: none"> • Sau Mau Ping Road and Lin Tak Road, • J/O Clear Water Bay Road and On Sau Road and • New Clear Water Bay Road and Shun Lee Tsuen Road 	Project roads	CEDD/Contractor			✓		EIAO-TM

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	•							
Water Quality Impact (Construction Phase)								
6.9.1 - 6.9.13	<p><u>Construction Site Run-off and General Construction Activities</u></p> <p><i>Boring and Drilling Water</i></p> <ul style="list-style-type: none"> Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities. <p><i>Wheel Washing Water</i></p> <ul style="list-style-type: none"> All vehicles and plant should be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfill to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains. <p><i>Rubbish and Litter</i></p> <ul style="list-style-type: none"> Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis. <p><i>Construction Site Run-off</i></p> <ul style="list-style-type: none"> The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" should be followed as far as practicable to minimise surface run-off and the chance of erosion. The following measures are recommended to protect water quality and sensitive uses of the coastal area, and when properly implemented should be sufficient to adequately control site discharges so as to avoid water quality impact. Surface run-off from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities 	All works areas	CEDD/Contractor		✓			<p>ProPECC PN 1/94 Construction Site Drainage</p> <p>TM-DSS</p> <p>Water Pollution Control Ordinance</p>

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p>such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries should be provided on site boundaries where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks.</p> <ul style="list-style-type: none"> • Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage should comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distance of 100m should be maintained between the discharge points of construction site run-off and the existing saltwater intakes. No effluent will be discharged into typhoon shelter. • Construction works should be programmed to minimize soil excavation works in rainy seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. • Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary. • Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater 							

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p>pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.</p> <ul style="list-style-type: none"> Construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms. Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system. Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis. <p><i>Site Effluent</i></p> <ul style="list-style-type: none"> There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the relevant WPCO licence which is under the ambit of regional office (RO) of EPD. 							
6.9.14 - 6.9.16	<p><u>Accidental Spillage and Potential Contamination of Surface Water and Groundwater</u></p> <ul style="list-style-type: none"> Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations 	All works areas	CEDD/Contractor		✓			<p>Waste Disposal Ordinance</p> <p>Waste Disposal (Chemical Waste)</p>

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p>in particular the Waste Disposal (Chemical Waste) (General) Regulation, should be observed and complied with for control of chemical wastes.</p> <ul style="list-style-type: none"> Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges. Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: <ul style="list-style-type: none"> Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport; Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents; and Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 							<p>(General) Regulation</p> <p>The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</p>
6.9.17 - 6.9.18	<p><u>Sewage Effluent from Construction Workforce</u></p> <ul style="list-style-type: none"> The construction workforce on site will generate sewage. It is recommended to provide sufficient chemical toilets in the works areas. A licensed waste collector should be deployed to clean the chemical toilets on a regular basis. Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the surrounding environment. Regular environmental audit of the construction site will provide an effective control of any malpractices and can encourage continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the project would not cause water 	All works areas	CEDD/Contractor		✓			Water Pollution Control Ordinance

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	pollution problem after undertaking all required measures.							
6.9.19	<p><u>Construction Works in Close Proximity of Inland Waters</u></p> <ul style="list-style-type: none"> The practices outlined in ETWB TC (Works) No. 5/2005 "Protection of natural streams/rivers from adverse impacts arising from construction works" should also be adopted where applicable to minimize the water quality impacts upon any natural streams or surface water systems. Relevant mitigation measures from the ETWB TC (Works) No. 5/2005 are listed below: <ul style="list-style-type: none"> Construction works close to the inland waters should be carried out in dry season as far as practicable where the flow in the surface channel or stream is low. The use of less or smaller construction plants may be specified in areas close to the water courses to reduce the disturbance to the surface water. Temporary storage of materials (e.g. equipment, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. Proper shoring may need to be erected in order to prevent soil or mud from slipping into the watercourses. 	All works areas	CEDD/Contractor		✓			Water Pollution Control Ordinance
Water Quality Impact (Operational Phase)								
6.9.20 - 6.9.23	<ul style="list-style-type: none"> Best Management Practices (BMPs) to reduce storm water and non-point source pollution have been proposed for the RIW as follows: <p><i>Design Measures</i></p> <ul style="list-style-type: none"> Exposed surface shall be avoided within the RIW sites to minimize soil erosion. The development site shall be either hard paved or 	All works areas	CEDD/HyD	✓		✓		Water Pollution Control Ordinance

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p>covered by landscaping area where appropriate.</p> <ul style="list-style-type: none"> The streams and channelized nullahs near the RIW sites will be retained to maintain the original flow path. The drainage system will be designed to avoid flooding. Green areas / tree / shrub planting etc. will be introduced along roadside amenity strips and central dividers as far as possible, which can help to reduce soil erosion. Evergreen trees species, which in general generate relatively smaller amount of fallen leaves, should be selected where possible. <p><i>Devices/ Facilities to Control Pollution</i></p> <ul style="list-style-type: none"> Screening facilities such as standard gully grating and trash grille, with spacing which is capable of screening off large substances such as fallen leaves and rubbish should be provided at the inlet of drainage system. Road gullies with standard design and silt traps and oil interceptors should be incorporated during the detailed design to remove particles present in stormwater runoff, where appropriate. <p><i>Administrative Measures</i></p> <ul style="list-style-type: none"> Good management measures such as regular cleaning and sweeping of road surface/ open areas are suggested. The road surface/ open area cleaning should also be carried out prior to occurrence rainstorm. Manholes, as well as stormwater gullies, ditches provided at the Project sites should be regularly inspected and cleaned (e.g. monthly). Additional inspection and cleansing should be carried out before forecast heavy rainfall. 							
Waste Management Implication (Construction Phase)								
7.6.1 – 7.6.3	<p><u>Good Site Practices</u></p> <ul style="list-style-type: none"> Appropriate waste handling, transportation and disposal methods for all waste arising generated during the construction works for the Project should be implemented to ensure that construction wastes do not enter the nearby streams or drainage channel. It is anticipated that adverse impacts would not arise on the 	All works areas	CEDD/Contractor		✓			<p>Waste Disposal Ordinance</p> <p>DEVB TCW No. 6/2010, ETWB TCW No. 19/2005</p>

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p>construction site, provided that good site practices are strictly followed. Recommendations for good site practices during the construction activities include:</p> <ul style="list-style-type: none"> - Nomination of approved personnel, such as a site manager, to be responsible for good site practices, and making arrangements for collection of all wastes generated at the site and effective disposal to an appropriate facility. - Training of site personnel in proper waste management and chemical waste handling procedures. - Provision of sufficient waste reception/ disposal points, of a suitable vermin-proof design that minimises windblown litter. - Arrangement for regular collection of waste for transport off-site and final disposal. - Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. - Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. - A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed. - A Waste Management Plan should be prepared and should be submitted to the Engineer for approval. One may make reference to <i>ETWB TCW No. 19/2005</i> for details. <ul style="list-style-type: none"> • In order to monitor the disposal of C&D materials at landfills and public filling areas, as appropriate, and to control fly tipping, a trip-ticket system should be included as one of the contractual requirements to be implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. One may take reference to <i>DEVB TCW No.6/2010</i> for details. 							
7.6.4 – 7.6.5	<p><u>Waste Reduction Measures</u></p> <ul style="list-style-type: none"> • Good management and control of construction site activities/ 	All works areas	CEDD/Contractor	✓	✓			Waste Disposal Ordinance

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p>processes can minimise the generation of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> - Segregate and store different types of construction related waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. - Provide separate labelled bins to segregate recyclable waste such as aluminium cans from other general refuse generated by the work force, and to encourage collection by individual collectors. - Any unused chemicals or those with remaining functional capacity shall be recycled. - Maximising the use of reusable steel formwork to reduce the amount of C&D materials. - Prior to disposal of C&D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill. - Adopt proper storage and site practices to minimise the potential for damage to, or contamination of, construction materials. - Plan the delivery and stock of construction materials carefully to minimise the amount of waste generated. - Minimize over ordering of concrete, mortars and cement grout by doing careful check before ordering. <ul style="list-style-type: none"> • In addition to the above measures, other specific mitigation measures are recommended below to minimise environmental impacts during handling, transportation and disposal of wastes. 							ETWB TCW No. 19/2005
7.6.6 – 7.6.8	<p><u>Construction and Demolition Materials</u></p> <ul style="list-style-type: none"> • The C&D materials generated from site clearance, demolition of existing roads, slope excavation works, and construction of new 	All works areas	CEDD/Contractor		✓			Waste Disposal Ordinance Waste Disposal

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p>roads, retaining wall and piling works should be sorted on-site into inert C&D materials (that is, public fill) and C&D waste. To minimise the impact resulting from collection and transportation of C&D materials as far as practicable. C&D waste, such as wood, plastic, steel and other metals should be reused or recycled and, as a last resort, disposed to landfill. A suitable area should be designated within the site for temporary stockpiling of C&D materials and to facilitate the sorting process. Within the stockpile areas, the following measures should be taken to control potential environmental impacts or nuisance:</p> <ul style="list-style-type: none"> - Waste such as soil should be handled and stored well to ensure secure containment; - Covering material during heavy rainfall; - Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; - Locating stockpiles to minimise potential visual impacts; and - Minimising land intake of stockpile areas as far as possible. <p><u>General Refuse</u></p> <ul style="list-style-type: none"> • General refuse should be stored in enclosed bins or compaction units separate from C&D materials. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D materials. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material. <p><u>Chemical Wastes</u></p> <ul style="list-style-type: none"> • If chemical wastes were to be produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer, and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the 						<p>(Chemical Waste) (General) Regulation</p> <p>Public Health and Municipal Services Ordinance (Cap. 132) - Public Cleansing and Prevention of Nuisances Regulation</p> <p>Land (Miscellaneous Provisions) Ordinance</p> <p>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</p> <p>Packaging, Labelling and Storage of Chemical Wastes</p>	

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	corresponding chemical characteristics of the waste such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport the chemical wastes. The licensed collector shall deliver the waste to the Chemical Waste Treatment Centre at Tsing Yi, or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.							
Waste Management Implication (Operational Phase)								
N/A	N/A	N/A	N/A					
Land Contamination (Construction Phase)								
N/A	N/A	N/A	N/A					
Land Contamination (Operational Phase)								
N/A	N/A	N/A	N/A					
Ecological Impact (Terrestrial) (Construction Phase)								
9.13.2-9.13.5	<p>Measures to Avoid/ Minimize Impacts to Flora Species of Conservation Importance</p> <ul style="list-style-type: none"> • Within the Project Site boundary, two flora species of conservation importance (Incense Tree and Luofushan Joint-fir) would be subject to direct impacts. A detailed vegetation survey should be conducted by a qualified ecologist / botanist within the Project Site boundary. • A Transplantation Proposal should be prepared by a qualified ecologist / botanist with detailed findings of the vegetation survey (i.e. number and locations of the affected individuals, assessment of the suitability and / or practicality of the transplantation) and locations of receptor site(s), transplantation methodology, implementation programme of transplantation, post-transplantation monitoring and maintenance programme. The proposal should be submitted to and approved by AFCD prior to commencement of any works (including ground investigation. The approved transplantation works should be supervised by a qualified botanist / horticulturist / Certified Arborist with relevant experience in transplanting flora species of conservation importance. After transplantation, a 3-year monitoring and maintenance programme 	All works areas	CEDD/Contractor		✓			EIAO-TM

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p>of the transplanted species should be conducted to ensure the establishment of the transplanted trees.</p> <ul style="list-style-type: none"> Hoarding or fencing should be erected around the works areas during the construction phase to restrict access, to adjacent habitats supporting flora species of conservation importance, by site workers and to reduce human disturbance. 							
9.13.6-9.13.8	<p>Measures to Avoid/ Minimize Habitat Loss to Woodland and Plantation</p> <ul style="list-style-type: none"> Habitat loss could be avoided in the first instance by retaining existing vegetation wherever possible, particularly mature and semi-mature trees present within the works areas. Any trees retained should be adequately protected during construction phase to promote their health and longevity. Areas which would be temporarily affected by construction activities (i.e. slope works) should be reinstated after completing the construction works. Hoarding or fencing should be erected around the works areas during construction phase to restrict access to natural habitats adjacent to works areas by site workers. 	All works areas	CEDD/Contractor	✓	✓			EIAO-TM
9.13.9-9.13.12	<p>Measures to Minimise Disturbance from Construction Activities</p> <ul style="list-style-type: none"> Construction dust should be suppressed to avoid and minimize the dust covering leaves of plants that would affect their photosynthesis, and thus their health and growth: <ul style="list-style-type: none"> Regular spraying of haul roads. Proper storage of construction materials. Covering trucks or transporting wastes in enclosed containers to minimize windblown litter and dust during transportation of waste. Noise impact during construction phase should be avoided and minimized to reduce the disturbance to the habitats adjacent to the works areas: <ul style="list-style-type: none"> Machines and plant (e.g. trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum. Machines and plants known to emit strong directional noise 	All works areas	CEDD/Contractor		✓			EIAO-TM

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p>should, wherever possible, be orientated so that the noise is directed away from the nearby habitats.</p> <ul style="list-style-type: none"> - Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities. - Using Quiet Mechanical Plant (QMP) to limit noise emissions at source. - QMP and other machines and plants (e.g. air compressors, concrete pumps) should be covered by noise enclosure to further reduce noise impact. <ul style="list-style-type: none"> • Through night-time lighting control during construction phase, glare disturbance to wildlife would be controlled. 							
9.13.13	<p>Measures to Minimise Pollution to Watercourses</p> <ul style="list-style-type: none"> • Good site practices should be adopted to avoid any pollution from entering the watercourses. Practices to minimize surface runoff and to reduce suspended solid levels should be undertaken. - Drainage arrangements should include sediment traps to collect and control construction run-off. - All works and storage area should be restricted to the site boundary. - General refuse and construction wastes should be collected and disposed of in a timely and appropriate manner. - Regular check of the construction boundary to avoid unmitigated impacts imposed on nearby watercourse. 	All works areas	CEDD/Contractor		✓			EIAO-TM
Ecological Impact (Terrestrial) (Operational Phase)								
9.13.14	<p>Measures to Minimize Impacts from Noise Barriers</p> <ul style="list-style-type: none"> • During the operational phase, the road networks and associated noise barriers may result in bird collision and mortality. Mitigation measures such as use of tinted materials and superimposing dark patterns or strips on the barrier, as per EPD / Highways Department requirements would be employed to minimise incidents 	All works areas	CEDD/Contractor			✓		EIAO-TM

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	of mortality from collision.							
Landscape and Visual (Construction Phase)								
10.10.4 (Table 10.9)	All existing trees to be retained shall be carefully protected during construction.	All works areas	CEDD/Contractor	✓	✓			DEVB TC (W) No.10/2013
10.10.4 (Table 10.9)	Tree Transplantation Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWB TCW No. 29/2004, DEVB TC (W) No.7/2015 and “ Guidelines on Tree Transplanting ”, GLTMS of DEVB.	All works areas	CEDD/Contractor	✓	✓			ETWB TCW No. 29/2004 DEVB TC (W) No.7/2015 Guidelines on Tree Transplanting, GLTMS of DEVB
10.10.4 (Table 10.9)	Erection of decorative screen hoarding for reducing visual impacts	All works areas	CEDD/Contractor		✓			EIAO-TM
10.10.4 (Table 10.9)	Measures to avoid / minimize impacts to flora species of conservation importance.	All works areas	CEDD/Contractor	✓	✓			EIAO-TM
Landscape and Visual (Operational Phase)								
10.10.4 (Table 10.10)	Compensatory tree planting for loss of existing trees (Compensation for loss of road side amenity)	All works areas	Design and Construction Stage - CEDD Operational Stage – HyD/LCSD	✓	✓	✓		DEVB TC (W) No.7/2015 GEO publication No. 1/2011
10.10.4 (Table 10.10)	Compensatory woodland planting	All works areas	Design and Construction Stage - CEDD Operational Stage – HyD/ArchSD	✓	✓	✓		DEVB TC (W) No.7/2015 GEO publication No. 1/2011

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
10.10.4 (Table 10.10)	Compensatory shrub mix planting	All works areas	Design and Construction Stage - CEDD Operational Stage – HyD	✓	✓	✓		DEVB TC (W) No.7/2015 GEO publication No. 1/2011
10.10.4 (Table 10.10)	Hydro-seeding planting with shrub seed mix	All works areas	Design and Construction Stage - CEDD Operational Stage – HyD	✓	✓	✓		DEVB TC (W) No.7/2015 GEO publication No. 1/2011
10.10.4 (Table 10.10)	Tall buffer advance screen tree / shrub / climber planting	All works areas	Design and Construction Stage - CEDD Operational Stage – HyD	✓	✓	✓		DEVB TC (W) No.7/2015 GEO publication No. 1/2011
10.10.4 (Table 10.10)	Planting of road verges, central divider and around structures	All works areas	Design and Construction Stage - CEDD Operational Stage – HyD, LCSD	✓	✓	✓		ETWB(W) No. 2/2004 Subject to ACABAS approval
10.10.4 (Table 10.10)	Reinstate modified watercourse	All works areas	Design and Construction Stage - CEDD Operational Stage - DSD	✓	✓	✓		EIAO-TM
10.10.4 (Table 10.10)	Provision of visually pleasing aesthetic treatment on noise barriers (with climbers provided if space available) and enclosures	All works areas	Design and Construction Stage - CEDD Operational Stage - HyD	✓	✓	✓		ETWB(W) No. 2/2004 Subject to ACABAS approval
10.10.4 (Table 10.10)	Hard Landscape Treatment Carriageway, Structures and Roadside Furniture (for example, pleasing aesthetic finishing of retaining wall)	All works areas	Design and Construction Stage - CEDD	✓	✓	✓		ETWB(W) No. 10/2005 Subject to

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
			Operational Stage – HyD/LCSD/ArchSD					ACABAS approval
10.10.4 (Table 10.10)	Planting of toe planters for slope enhancement	All works areas	Design and Construction Stage - CEDD Operational Stage – LCSD	✓	✓	✓		EIAO-TM GEO publication No. 1/2011
10.10.4 (Table 10.10)	Planting of berm planters/ planting strips for slope enhancement	All works areas	Design and Construction Stage - CEDD Operational Stage – HyD	✓	✓	✓		EIAO-TM GEO publication No. 1/2011
Landfill Gas Hazard (Construction Phase)								
11.9.2 - 11.9.4	<ul style="list-style-type: none"> Contractors shall note the possible presence of landfill gas in the ground (even if it is unlikely) and shall take this into account in the design, construction of the proposed works. A Safety Officer or an appropriately qualified person, trained in the use of gas detection equipment, landfill gas related hazards and the appropriate actions to take in the event of adverse circumstances, shall be present on site throughout the works, in particular, when works are undertaken below ground. The contractor shall take cognizance of the presence of surface water and leachate management system and landfill gas management systems near the proposed works area. The contractor shall take all reasonable care to avoid any damage, loss, injury, interruption or impairment of the integrity of the landfill facilities within the works limits, storage area and across road area. The contractor shall also liaise and seek EPD and their landfill contractor – Hong Kong Landfill Restoration Group Limited (HKLRG) agreement on site arrangement before carrying out the proposed work. 	Works areas within landfill consultation zones	CEDD/Contractor		✓	✓		EPD's Landfill Gas Hazard Assessment Guidance Note
11.9.5 - 11.9.11	<u>Safety Measures</u> <ul style="list-style-type: none"> The contractor shall be aware of, and inform all workers accordingly, that methane and carbon dioxide is always likely to be 	Works areas within landfill consultation zones	CEDD/Contractor		✓			EPD's Landfill Gas Hazard Assessment

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p>present in the soil voids.</p> <ul style="list-style-type: none"> All personnel working on site and all visitors to the site be informed of the nearby landfill site and the possibility of landfill gas in the vicinity of the proposed works area. Safety warning notices shall be posted. No worker shall be allowed to work alone at any time inside the trenches or joint bays or near to any excavation. At least one other worker shall be available to assist in a rescue in an emergency case. Smoking and naked flames shall be strictly prohibited within the site or confined space if any. 'No Smoking' and 'No Naked Flame' notices shall be posted prominently at the site entrance and other conspicuous locations. All electrical equipment, such as motors and extension cords, shall be intrinsically safe. Adequate safety equipment shall be available at all times. This includes but is not limited to fire extinguishing equipment, breathing apparatus and personal protective equipment. In the event of working inside a confined space is required, sufficient approved resuscitation equipment, breathing apparatus and safety torches shall be available. Persons involved in or supervising such work shall be trained and practiced for the use of such equipment. A permit-to-work system for entry into confined space shall be established by an approved qualified person and consistently enforced. All relevant Ordinances, Legislations, Guidelines and Codes of Practice pertaining to work in confined space must be strictly adhered to. 							<p>Guidance Note</p> <p>Labour Department's Code of Practice for Safety and Health at Work in Confined Space</p>
11.9.12-11.9.16	<p><u>Monitoring</u></p> <ul style="list-style-type: none"> The works area shall be monitored periodically during construction for the presence of methane, carbon dioxide and oxygen using gas detection equipment. The gas detection equipment shall be an intrinsically safe portable instrument, appropriately calibrated and capable of measuring the following gases in the ranges indicated below: <p>– Methane 0 – 100% LEL and 0 – 100% v/v;</p>	Works areas within landfill consultation zones	CEDD/Contractor		✓			EPD's Landfill Gas Hazard Assessment Guidance Note

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<ul style="list-style-type: none"> – Carbon dioxide 0 – 100%; and – Oxygen 0 – 21%. • During construction, monitoring of excavations shall be undertaken as follows: • For excavation deeper than 1 m, measurements shall be made: <ul style="list-style-type: none"> – At the ground surface before excavation commences; – Immediately before any worker enters an excavation; – At the beginning of each working day for the entire period the excavation remains open; and – Periodically through the working day whilst workers are in the excavation. • For excavation between 300 mm and 1 m deep, measurements shall be made: <ul style="list-style-type: none"> – Directly after the excavation has been completed; and – Periodically whilst the excavation remains open. • For excavation less than 300 mm, monitoring may be omitted at the discretion of the Safety Officer or other appropriate qualified person. • The monitoring frequency and area to be monitored shall be set down prior to commencement of ground works either by the Safety Officer or by an appropriately qualified person. • Monitoring should be undertaken by the Safety Officer or by an appropriately qualified person. The monitoring results shall be recorded and kept on site and shall be readily available at all times for inspection by the relevant authority. • Depending upon the results of measurements, actions will vary. Actions shall be set down by the Safety Officer or other appropriately qualified person prior to commencement of occupancy of the proposed works area. 							
Landfill Gas Hazard (Operational Phase)								

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Implementation Stage ⁽¹⁾				Relevant Legislation and Guidelines
				Des	C	O	Dec	
11.10.2 – 11.10.3	<ul style="list-style-type: none"> The presence of landfill gas should be assumed at all times by maintenance workers. All maintenance workers inspecting any manhole should be fully trained in the issue of landfill gas hazard. Any manhole which is large enough to permit to access to personnel should be subject to safe entry procedures. Working in confined spaces is controlled by the Factories and Industrial Undertakings (Confined Spaces) Regulations of the Factories and Industrial Undertakings Ordinance. Following the Code of Practice on Safety and Health at Work in Confined Spaces (Labour Department, Hong Kong) maintains compliance with the above regulations. A strictly regulated “work permit procedure” should be implemented and the relevant safety procedures must be rigidly followed. Adequate communication with maintenance staff should be maintained with respect to landfill gas hazard. Utility companies should undertake a landfill gas surveillance exercise at the utility manholes/inspection chambers. Undertaken using an intrinsically safe portable instrument, appropriately calibrated and capable of measuring the following gases in the ranges indicated: <ul style="list-style-type: none"> – Methane 0 – 100% LEL and 0 – 100% v/v; – Carbon dioxide 0 – 100%; and – Oxygen 0 – 21%. Undertaken for the duration of the site occupancy, or until such time that EPD agrees that surveillance is no longer required. Depending on the results of the measurements, actions required will vary and should be set down by appropriately qualified person. 	Works areas within landfill consultation zones	Maintenance contractor/Utility companies			✓		<p>EPD’s Landfill Gas Hazard Assessment Guidance Note</p> <p>Labour Department’s Code of Practice for Safety and Health at Work in Confined Space</p>

Note:

(1) Des = Design; C = Construction; O = Operation; Dec = Decommissioning



Appendix 4.1

Action and Limit Level

Action and Limit Level

Action and Limit Level for Noise Monitoring

Monitoring Station	Action Level	Limit Level (dB(A))		
		0700-1900 hrs on normal weekdays	0700-2300 hrs on holidays (including Sundays); and 1900-2300 hrs on all days ²	2300-0700 hrs of all days ²
NMC01	When one documented complaint is received	65 / 70 ¹	60 / 65 / 70 ³	45 / 50 / 55 ³
NMC02		75		
NMC03		75		
NMC04		75		
NMC05		75		

Remark 1: Limit level of NMC01 - Kei Shun Special School reduce to 65 dB (A) during examination periods if any.

Remark 2: Construction noise during restricted hours is under the control of Noise Control Ordinance Limit Level to be selected based on Area Sensitivity Rating.

Remark 3: Limit Level for restricted hour monitoring shall act as reference level only. Investigation would be conducted on CNP compliance if exceedance recorded during restricted hour noise monitoring period.

Baseline Level for Noise Monitoring

(For reference and calculation of Construction Noise Levels (CNLs))

Monitoring Station	Action Level	Baseline Level (dB(A))		
		0700-1900 hrs on normal weekdays	0700-2300 hrs on holidays (including Sundays); and 1900-2300 hrs on all days	2300-0700 hrs of all days
NMC01	When one documented complaint is received	69.3	69.0	66.6
NMC02		72.0	66.3	68.6
NMC03		78.2	77.9	73.8
NMC04		66.6	64.0	62.1
NMC05		61.8	59.8	57.9

All the Construction Noise Levels (CNLs) reported in this report were adjusted with the corresponding baseline level (i.e. Measured Leq – Baseline Leq = CNL), in order to facilitate the interpretation of the noise exceedance.

**Action and Limit Level for Air Quality Monitoring**

Monitoring Locations	1-hour TSP Level inµg/m3	
	Action Level	Limit Level
NCWBR_AMS-1	284.4	500.0
NCWBR_AMS-2	282.4	500.0
NCWBR_AMS-3	287.9	500.0
NCWBR_AMS-4	281.6	500.0
NCWBR_AMS-5	270.0	500.0
LTR_AMS-1	272.1	500.0
LTR_AMS-2	281.1	500.0
LTR_AMS-3	285.1	500.0

Action and Limit Level for Water Monitoring

Monitoring Station	Surface pH		Surface DO (mg/L)		Surface Turbidity (NTU)		Surface SS (mg/L)	
	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level
E	-	-	-	-	-	-	-	-
F	Beyond the range of 6.6-8.4	Beyond the range of 6.5-8.5	5.8	5.5	24.4	32.7	17.0	23.8
H	-	-	-	-	-	-	-	-
I	Beyond the range of 6.6-8.4	Beyond the range of 6.5-8.5	5.5	5.4	206.9	214.2	172.8	201.4

***Remarks:**

The value of 1.0mg/L was taken as the value for measurement with suspended solid level of <1.0mg/L for Action and Limit level calculation.

It is recommended that upstream monitoring station (monitoring station E and H) would be taken as control reference for exceedance investigation only. Action and limit level would not be establish using the baseline data.



Appendix 4.2

Copies of Calibration Certificates



CERTIFICATE OF CALIBRATION

Certificate No.: 20CA0214 01-02 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone	Preamp
Manufacturer:	Nti	,	Nti Andio	Nti Andio
Type/Model No.:	XL2	,	MC230A	MA220
Serial/Equipment No.:	A2A-15269-EO	,	A14232	6830
Adaptors used:	-	,		

Item submitted by

Customer Name: Lam Environmental Services Limited.
 Address of Customer: -
 Request No.: -
 Date of receipt: 14-Feb-2020

Date of test: 17-Feb-2020

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2020	CIGISMEC
Signal generator	DS 360	33873	10-May-2020	CEPREI

Ambient conditions

Temperature: 21 ± 1 °C
 Relative humidity: 55 ± 10 %
 Air pressure: 1000 ± 5 hPa

Test specifications

- The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

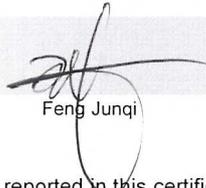
Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

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

Actual Measurement data are documented on worksheets.

Approved Signatory:



Feng Junqi

Date: 18-Feb-2020

Company Chop:



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



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 20CA0214 01-02 Page 2 of 2

1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	0.8	2.1
	Lin	Pass	1.6	2.2
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Frequency weightings			
Time weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Peak response	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
R.M.S. accuracy	Single 100µs rectangular pulse	Pass	0.3	
Time weighting I	Crest factor of 3	Pass	0.3	
	Single burst 5 ms at 2000 Hz	Pass	0.3	
Time averaging	Repeated at frequency of 100 Hz	Pass	0.3	
	1 ms burst duty factor 1/10 ³ at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 ⁴ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

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

- End -

Calibrated by:		Checked by:	
Date:	Fung Chi Yip 17-Feb-2020	Date:	Shek Kwong Tat 18-Feb-2020

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



Test Data for Sound Level Meter

Page 1 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 17-Feb-2020
Microphone type: MC230A Serial No. A14232

Report: 20CA0214 01-02

SELF GENERATED NOISE TEST

The noise test is performed in the most sensitive range of the SLM with the microphone replaced by an equivalent impedance.

Noise level in A weighting 10.5 dB
Noise level in C weighting 14.2 dB
Noise level in Lin 21.4 dB

LINEARITY TEST

The linearity is tested relative to the reference sound pressure level using a continuous sinusoidal signal of frequency 4 kHz. The measurement is made on the reference range for indications at 5 dB intervals starting from the 94 dB reference sound pressure level. And until within 5 dB of the upper and lower limits of the reference range, the measurements shall be made at 1 dB intervals. (SLM set to LEQ/SPL)

Reference/Expected level	Actual level		Tolerance	Deviation	
	non-integrated	integrated		non-integrated	integrated
dB	dB	dB	+/- dB	dB	dB
94.0	94.0	94.0	0.7	0.0	0.0
99.0	99.0	99.0	0.7	0.0	0.0
104.0	104.0	104.0	0.7	0.0	0.0
109.0	109.0	109.0	0.7	0.0	0.0
114.0	114.0	114.0	0.7	0.0	0.0
115.0	115.0	115.0	0.7	0.0	0.0
116.0	116.0	116.0	0.7	0.0	0.0
117.0	117.0	117.0	0.7	0.0	0.0
118.0	118.0	118.0	0.7	0.0	0.0
119.0	119.0	119.0	0.7	0.0	0.0
120.0	120.0	120.0	0.7	0.0	0.0
89.0	89.0	89.0	0.7	0.0	0.0
84.0	84.0	84.0	0.7	0.0	0.0
79.0	79.0	79.0	0.7	0.0	0.0
74.0	74.0	74.0	0.7	0.0	0.0
69.0	69.0	69.0	0.7	0.0	0.0
64.0	64.0	64.0	0.7	0.0	0.0
59.0	59.0	59.0	0.7	0.0	0.0
54.0	54.0	54.0	0.7	0.0	0.0
49.0	49.0	49.0	0.7	0.0	0.0
44.0	44.0	44.0	0.7	0.0	0.0
39.0	39.0	39.0	0.7	0.0	0.0
34.0	34.1	34.1	0.7	0.1	0.1
33.0	33.1	33.1	0.7	0.1	0.1



Test Data for Sound Level Meter

Page 2 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 17-Feb-2020
Microphone type: MC230A Serial No. A14232

Report: 20CA0214 01-02

32.0	32.2	32.2	0.7	0.2	0.2
31.0	31.2	31.2	0.7	0.2	0.2
30.0	30.3	30.3	0.7	0.3	0.3

Measurements for an indication of the reference SPL on all other ranges which include it

Other ranges	Expected level	Actual level	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
40-140	94.0	94.0	0.7	0.0
20-120	94.0	94.0	0.7	0.0
0-100	94.0	94.0	0.7	0.0

Measurements on all level ranges for indications 2 dB below the upper limit and 2 dB above the lower limit

Ranges	Reference/Expected level	Actual level	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
40-140	52.0	52.5	0.7	0.5
	138.0	138.0	0.7	0.0
20-120	30.0	30.3	0.7	0.3
	118.0	118.0	0.7	0.0
0-100	30.0	30.0	0.7	0.0
	98.0	98.0	0.7	0.0

FREQUENCY WEIGHTING TEST

The frequency response of the weighting networks are tested at octave intervals over the frequency ranges 31.5 Hz to 12500 Hz. The signal level at 1000 Hz is set to give an indication of the reference SPL.

Frequency weighting A:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
				+	-	
Hz	dB	dB	dB			dB
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	54.6	54.7	1.5	1.5	0.1
63.1	94.0	67.8	67.7	1.5	1.5	-0.1
125.9	94.0	77.9	77.9	1.0	1.0	0.0
251.2	94.0	85.4	85.4	1.0	1.0	0.0
501.2	94.0	90.8	90.8	1.0	1.0	0.0
1995.0	94.0	95.2	95.2	1.0	1.0	0.0
3981.0	94.0	95.0	95.0	1.0	1.0	0.0
7943.0	94.0	92.9	92.9	1.5	3.0	0.0
12590.0	94.0	89.7	89.6	3.0	6.0	-0.1

Frequency weighting C:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
				+	-	
Hz	dB	dB	dB			dB



Test Data for Sound Level Meter

Page 3 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 17-Feb-2020
Microphone type: MC230A Serial No. A14232

Report: 20CA0214 01-02

1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	91.0	90.9	1.5	1.5	-0.1
63.1	94.0	93.2	93.1	1.5	1.5	-0.1
125.9	94.0	93.8	93.8	1.0	1.0	0.0
251.2	94.0	94.0	94.0	1.0	1.0	0.0
501.2	94.0	94.0	94.0	1.0	1.0	0.0
1995.0	94.0	93.8	93.8	1.0	1.0	0.0
3981.0	94.0	93.2	93.2	1.0	1.0	0.0
7943.0	94.0	91.0	91.0	1.5	3.0	0.0
12590.0	94.0	87.8	87.6	3.0	6.0	-0.2

Frequency weighting Lin:

Frequency Hz	Ref. level dB	Expected level dB	Actual level dB	Tolerance(dB)		Deviation dB
				+	-	
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	94.0	93.9	1.5	1.5	-0.1
63.1	94.0	94.0	93.9	1.5	1.5	-0.1
125.9	94.0	94.0	94.0	1.0	1.0	0.0
251.2	94.0	94.0	94.0	1.0	1.0	0.0
501.2	94.0	94.0	94.0	1.0	1.0	0.0
1995.0	94.0	94.0	94.0	1.0	1.0	0.0
3981.0	94.0	94.0	94.0	1.0	1.0	0.0
7943.0	94.0	94.0	94.0	1.5	3.0	0.0
12590.0	94.0	94.0	94.0	3.0	6.0	0.0

Note: No corrections for the frequency response of the microphone, instrument case and windshield are made to the sound level meter.

TIME WEIGHTING FAST TEST

Time weighting F is tested on the reference range with a single sinusoidal burst of duration 200 ms at a frequency 2000 Hz and an amplitude which produces an indication 4 dB below the upper limit of the primary indicator range when the signal is continuous. (Weight A, Maximum hold)

Ref. level dB	Expected level dB	Actual level dB	Tolerance(dB)		Deviation dB
			+	-	
116.0	115.0	115.0	1.0	1.0	0.0

TIME WEIGHTING SLOW TEST

Time weighting S is tested on the reference range with a single sinusoidal burst of duration 500 ms at a frequency 2000 Hz and an amplitude which produces an indication 4 dB below the upper limit of the primary indicator range when the signal is continuous. (Weight A, Maximum hold)

Ref. level dB	Expected level dB	Actual level dB	Tolerance(dB)		Deviation dB
			+	-	
116.0	111.9	111.9	1.0	1.0	0.0



Test Data for Sound Level Meter

Page 4 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 17-Feb-2020
Microphone type: MC230A Serial No. A14232

Report: 20CA0214 01-02

PEAK RESPONSE TEST

The onset time of the peak detector is tested on the reference range by comparing the response to a 100 us rectangular test pulse with the response to a 10 ms reference pulse of the same amplitude. The amplitude of the 10 ms reference pulse is such as to produce an indication 1 dB below the upper limit of the primary indicator range.

Positive polarities: (Weighting Z, set the generator signal to single, Lzpeak)

Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
119.0	119.0	119.4	2.0	0.4

Negative polarities:

Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
119.0	119.0	119.4	2.0	0.4

RMS ACCURACY TEST

The RMS detector accuracy is tested on the reference range for a crest factor of 3.

Test frequency: 2000 Hz
Amplitude: 2 dB below the upper limit of the primary indicator range.
Burst repetition frequency: 40 Hz
Tone burst signal: 11 cycles of a sine wave of frequency 2000 Hz. (Set to INT)

	Ref. Level	Expected level	Tone burst signal	Tolerance	Deviation
Time weighting	dB	dB	indication(dB)	+/- dB	dB
Slow	118.0+6.6	118.0	118.0	0.5	0.0

TIME WEIGHTING IMPULSE TEST

Time weighting I is tested on the reference range (Set the SLM to LAImax)

Test frequency: 2000 Hz
Amplitude: The upper limit of the primary indicator range.

Single sinusoidal burst of duration 5 ms:

Ref. Level	Single burst indication		Tolerance	Deviation
dB	Expected (dB)	Actual (dB)	+/- dB	dB
120.0	111.2	111.1	2.0	-0.1

Repeated at 100 Hz

Ref. Level	Repeated burst indication		Tolerance	Deviation
dB	Expected (dB)	Actual (dB)	+/- dB	dB
120.0	117.3	117.2	1.0	-0.1

TIME AVERAGING TEST

This test compares the SLM reading for continuous sine signals with readings obtained from a sine tone burst sequence having the same RMS level. The test level is 30 dB below the upper limit of the linearity range and repeated for Type 1 SLM with 40 dB below the upper limit of the linearity.

Frequency of tone burst: 4000 Hz

Duration of tone burst: 1 ms

Repetition Time	Level of tone burst	Expected Leq	Actual Leq	Tolerance	Deviation	Remarks



Test Data for Sound Level Meter

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 17-Feb-2020
Microphone type: MC230A Serial No. A14232
Report: 20CA0214 01-02

msec	dB	dB	dB	+/- dB	dB	
1000	90.0	90.0	89.9	1.0	-0.1	60s integ.
10000	80.0	80.0	79.9	1.0	-0.1	6min. integ.

PULSE RANGE AND SOUND EXPOSURE LEVEL TEST

The test tone burst signal is superimposed on a baseline signal corresponding to the lower limit of reference range

Test frequency: 4000 Hz
Integration time: 10 sec

The integrating sound level meter set to Leq:

Duration	Rms level of	Expected	Actual	Tolerance	Deviation
msec	tone burst (dB)	dB	dB	+/- dB	dB
10	88.0	58.0	58.0	1.7	0.0

The integrating sound level meter set to SEL:

Duration	Rms level of	Expected	Actual	Tolerance	Deviation
msec	tone burst (dB)	dB	dB	+/- dB	dB
10.0	88.0	68.0	68.0	1.7	0.0

OVERLOAD INDICATION TEST

For SLM capable of operating in a non-integrating mode.

Test frequency: 2000 Hz
Amplitude: 2 dB below the upper limit of the primary indicator range.
Burst repetition frequency: 40 Hz
Tone burst signal: 11 cycles of a sine wave of frequency 2000 Hz.

Level	Level reduced by	Further reduced	Difference	Tolerance	Deviation
at overload (dB)	1 dB	3 dB	dB	dB	dB
121.6	120.6	117.6	3.0	1.0	0.0

For integrating SLM, with the instrument indicating Leq.

For integrating SLM, with the instrument indicating Leq and set to the reference range. The test signal as following:

The test tone burst signal is superimposed on a baseline signal corresponding to the lower limit of reference range

Test frequency: 4000 Hz
Integration time: 10 sec
Single burst duration: 1 msec

Rms level	Level reduced by	Expected level	Actual level	Tolerance	Deviation
at overload (dB)	1 dB	dB	dB	dB	dB
127.6	126.6	86.6	86.6	2.2	0.0

ACOUSTIC TEST

The acoustic test of the complete SLM is tested at the frequency 125 Hz and 8000 Hz using a B&K type 4226 Multifunction Acoustic Calibrator. The test is performed in A weighting.

Frequency	Expected level	Actual level	Tolerance (dB)		Deviation
Hz	dB	Measured (dB)	+	-	dB



Test Data for Sound Level Meter

Page 6 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 17-Feb-2020
Microphone type: MC230A Serial No. A14232

Report: 20CA0214 01-02

1000	94.0	94.0	0.0	0.0	0.0
125	77.9	77.9	1.0	1.0	0.0
8000	92.9	92.0	1.5	3.0	-0.9

-----END-----



CERTIFICATE OF CALIBRATION

Certificate No.: 19CA1105 03

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Larson Davis
Type/Model No.: CAL200
Serial/Equipment No.: 13437
Adaptors used: -

Item submitted by

Customer: Lam Environmental Services Limited.
Address of Customer: -
Request No.: -
Date of receipt: 05-Nov-2019

Date of test: 06-Nov-2019

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	03-May-2020	SCL
Preamplifier	B&K 2673	2239857	17-May-2020	CEPREI
Measuring amplifier	B&K 2610	2346941	05-Jun-2020	CEPREI
Signal generator	DS 360	33873	10-May-2020	CEPREI
Digital multi-meter	34401A	US36087050	08-May-2020	CEPREI
Audio analyzer	8903B	GB41300350	13-May-2020	CEPREI
Universal counter	53132A	MY40003662	10-May-2020	CEPREI

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 50 ± 10 %
Air pressure: 1000 ± 5 hPa

Test specifications

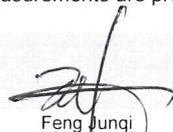
- 1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- 2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
-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

Test results

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

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

Approved Signatory:



Feng Junqi

Date: 06-Nov-2019

Company Chop:



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



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 19CA1105 03 Page: 2 of 2

1, Measured Sound Pressure Level

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

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	93.83	0.10

(Output level in dB re 20 μ Pa)

2, Sound Pressure Level Stability - Short Term Fluctuations

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

At 1000 Hz **STF = 0.031 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

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

At 1000 Hz **Actual Frequency = 1000.2 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

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

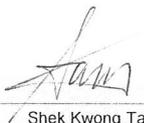
At 1000 Hz **TND = 0.5%**

Estimated expanded uncertainty 0.7 %

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

- End -

Calibrated by: 
 Date: 06-Nov-2019

Checked by: 
 Date: 06-Nov-2019

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



Portable Dust Meter Performance Check Record

Portable Dust Meter

Type : Particulate Monitor
Manufacturer : Metone AEROCET 831
Model Number : 831
Serial Number : W16848
Performance Check Date : 6-Nov-19

Standard Equipment

Type : High Volume Sampler
Manufacturer : TISCH
Model Number : TE-5170
Equipment Number : HVS018
Last Calibration Date : 30-Sep-19

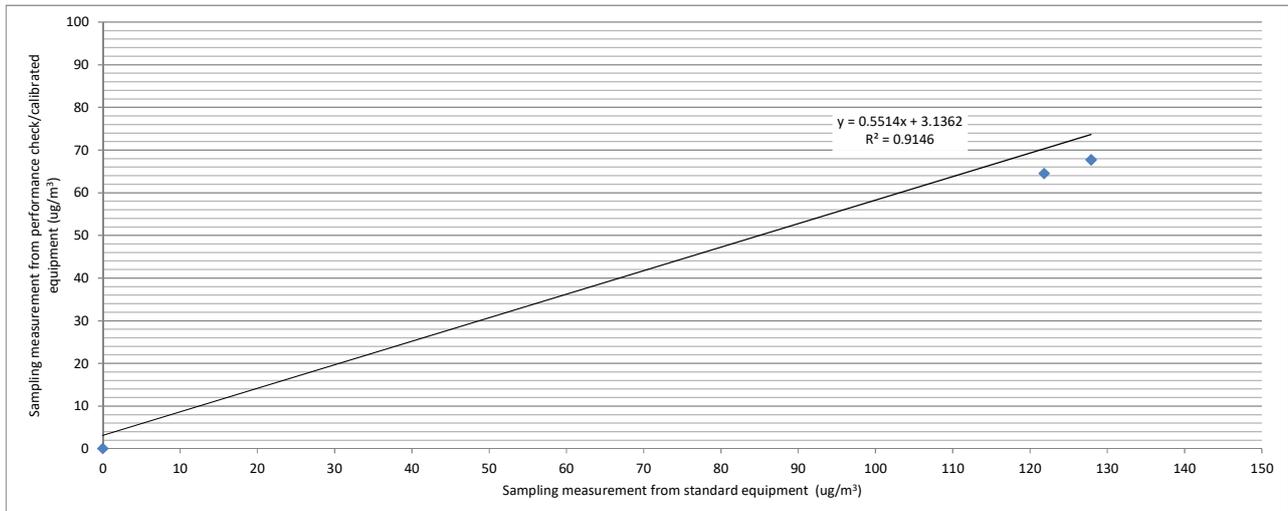
Portable Dust Meter Performance Check Results

Table with 6 columns: Trial no. in 1-hr period, Time, Mean Pressure (hPa), Mean Temp (°C), Concentration in ug/m³ (Standard equipment), Concentration in ug/m³ (Performance Check / Calibrated equipment). Rows include Zero Check and three trials on 6/11/2019.

* Filter paper weighting was conducted by HOKLAS accredited laboratory.

Linear Regression of Y on X

Slope (K- factor) : 1.7000
Correlation Coefficient : 0.9563
Validity of Performance Check / Calibration Record : 5/11/2020



Operator: Alan Ng

Date: 6-Nov-19

Checked by: James Chu

Date: 7-Nov-19



Portable Dust Meter Performance Check Record

Portable Dust Meter

Type : Particulate Monitor

Manufacturer : Metone AEROCET 831

Model Number : 831

Serial Number : Y23153

Performance Check Date : 3-Jan-20

Standard Equipment

Type : High Volume Sampler

Manufacturer : TISCH

Model Number : TE-5170

Equipment Number : HVS018

Last Calibration Date : 29-Nov-19

Portable Dust Meter Performance Check Results

Trial no. in 1-hr period	Time	Mean Pressure (hPa)	Mean Temp (°C)	Concentration in ug/m ³ (Standard equipment) (Y - Axis)	Concentration in ug/m ³ (Performance Check / Calibrated equipment) (X - Axis)
Zero Check	2/1/2019 08:00	1025	18	0	0
1	3/1/2020 09:26	1023	19	87	156
2	3/1/2020 10:27	1023	19	104	115
3	3/1/2020 11:28	1023	19	107	132

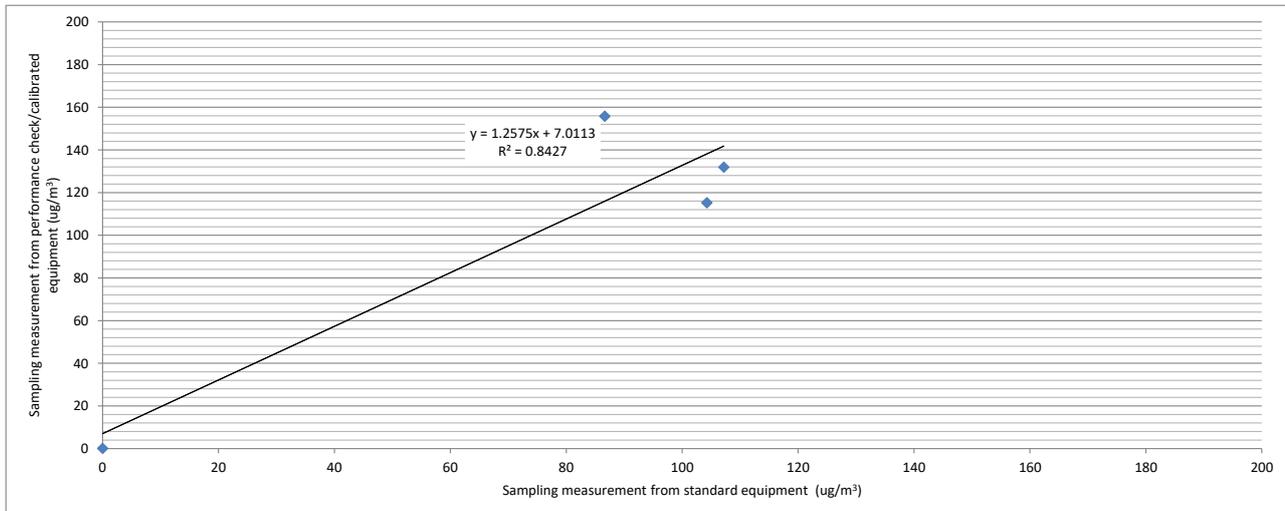
* Filter paper weighting was conducted by HOKLAS accredited laboratory.

Linear Regression of Y on X

Slope (K- factor) : 0.7000

Correlation Coefficient : 0.9180

Validity of Performance Check / Calibration Record : 2/1/2021



Operator: Henry Lau Date: 3-Jan-20

Checked by: James Chu Date: 4-Jan-20



Portable Dust Meter Performance Check Record

Portable Dust Meter

Type : Particulate Monitor
 Manufacturer : Metone AEROCET 831
 Model Number : 831
 Serial Number : Y23154
 Performance Check Date : 3-Jan-20

Standard Equipment

Type : High Volume Sampler
 Manufacturer : TISCH
 Model Number : TE-5170
 Equipment Number : HVS018
 Last Calibration Date : 29-Nov-19

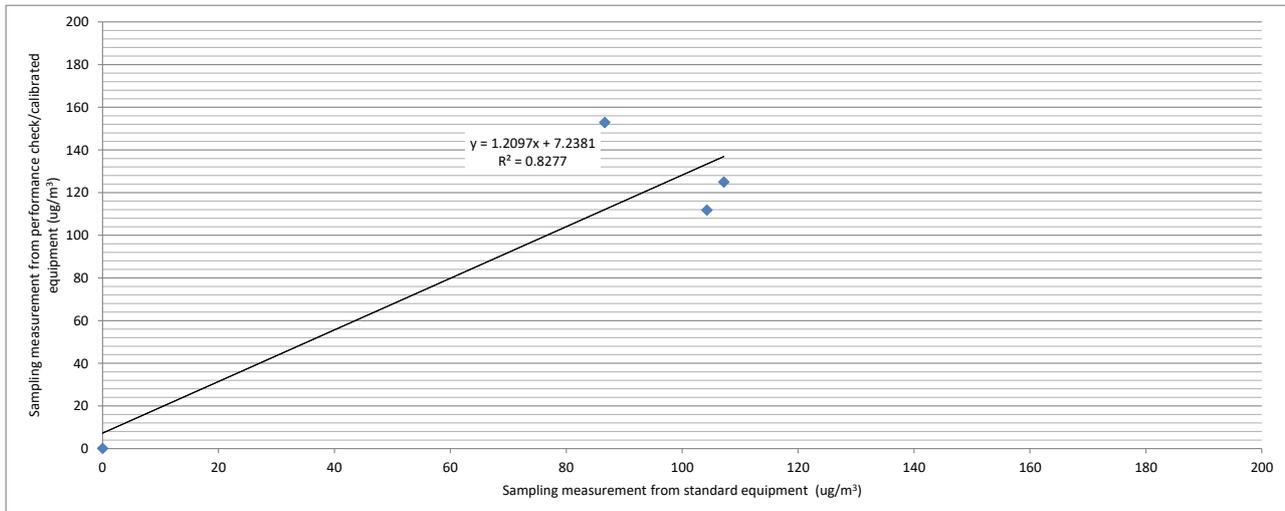
Portable Dust Meter Performance Check Results

Trial no. in 1-hr period	Time	Mean Pressure (hPa)	Mean Temp (°C)	Concentration in ug/m ³ (Standard equipment) (Y - Axis)	Concentration in ug/m ³ (Performance Check / Calibrated equipment) (X - Axis)
Zero Check	2/1/2019 08:00	1025	18	0	0
1	3/1/2020 09:26	1023	19	87	153
2	3/1/2020 10:27	1023	19	104	112
3	3/1/2020 11:28	1023	19	107	125

* Filter paper weighting was conducted by HOKLAS accredited laboratory.

Linear Regression of Y on X

Slope (K- factor) : 0.7000
 Correlation Coefficient : 0.9098
 Validity of Performance Check / Calibration Record : 2/1/2021



Operator: Henry Lau Date: 3-Jan-20
 Checked by: James Chu Date: 4-Jan-20



Portable Dust Meter Performance Check Record

Portable Dust Meter

Type : Particulare Monitor

Manufacturer : Metone AEROCET 831

Model Number : 831

Serial Number : Y23160

Performance Check Date : 3-Jan-20

Standard Equipment

Type : High Volume Sampler

Manufacturer : TISCH

Model Number : TE-5170

Equipment Number : HVS018

Last Calibration Date : 29-Nov-19

Portable Dust Meter Performance Check Results

Trial no. in 1-hr period	Time	Mean Pressure (hPa)	Mean Temp (°C)	Concentration in ug/m ³ (Standard equipment) (Y - Axis)	Concentration in ug/m ³ (Performance Check / Calibrated equipment) (X - Axis)
Zero Check	2/1/2019 08:00	1025	18	0	0
1	3/1/2020 09:32	1023	19	87	82
2	3/1/2020 10:33	1023	19	104	73
3	3/1/2020 11:34	1023	19	107	120

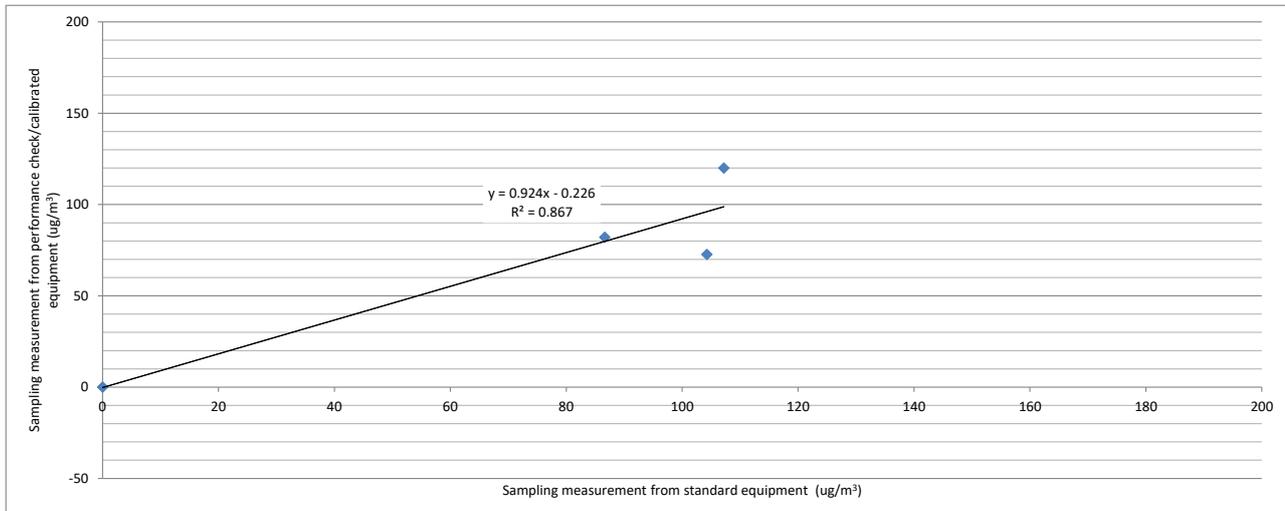
* Filter paper weighting was conducted by HOKLAS accredited laboratory.

Linear Regression of Y on X

Slope (K- factor) : 1.0000

Correlation Coefficient : 0.9311

Validity of Performance Check / Calibration Record : 2/1/2021



Operator: Henry Lau

Date: 3-Jan-20

Checked by: James Chu

Date: 4-Jan-20



Portable Dust Meter Performance Check Record

Portable Dust Meter

Type : Particulate Monitor
 Manufacturer : Metone AEROCET 831
 Model Number : 831
 Serial Number : W15449
 Performance Check Date : 7-Dec-19

Standard Equipment

Type : High Volume Sampler
 Manufacturer : TISCH
 Model Number : TE-5170
 Equipment Number : HVS002
 Last Calibration Date : 18-Oct-19

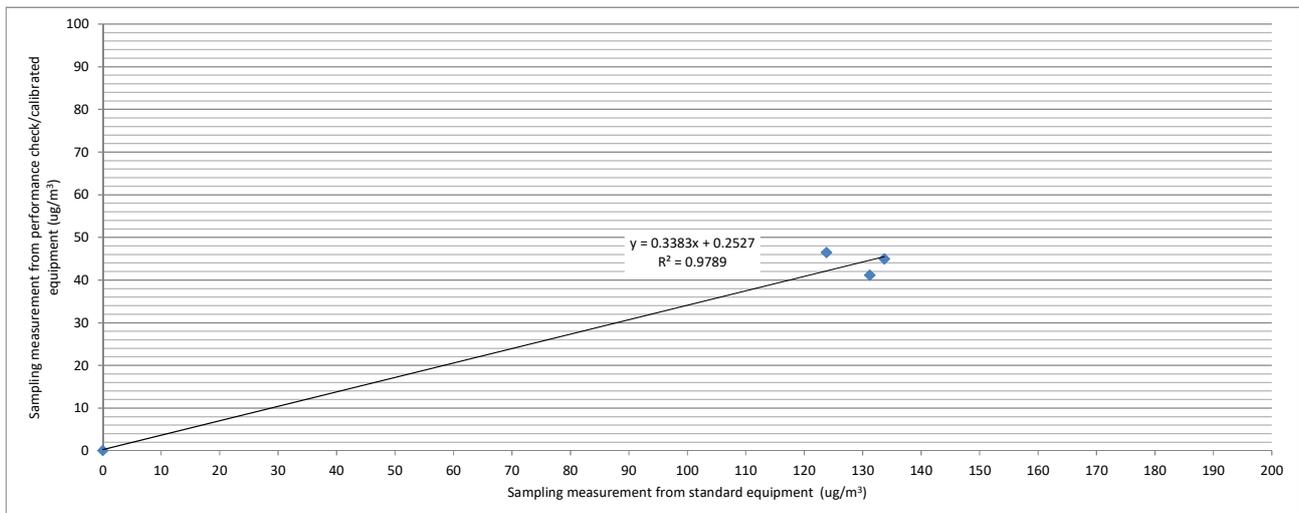
Portable Dust Meter Performance Check Results

Trial no. in 1-hr period	Time	Mean Pressure (hPa)	Mean Temp (°C)	Concentration in ug/m ³ (Standard equipment) (Y - Axis)	Concentration in ug/m ³ (Performance Check / Calibrated equipment) (X - Axis)
Zero Check	6/12/2019 08:00	1025	17	0	0
1	7/12/2019 09:45	1025	16	131	41
2	7/12/2019 10:46	1025	16	124	46
3	7/12/2019 13:00	1025	16	134	45

* Filter paper weighting was conducted by HOKLAS accredited laboratory.

Linear Regression of Y on X

Slope (K- factor) : 2.9000
 Correlation Coefficient : 0.9894
 Validity of Performance Check / Calibration Record : 6/12/2020



Operator: Alan Ng

Date: 7-Dec-19

Checked by: James Chu

Date: 8-Dec-19



Portable Dust Meter Performance Check Record

Portable Dust Meter

Type : Particulate Monitor
Manufacturer : MET ONE INSTRUMENTS
Model Number : BT645
Serial Number : X19299
Performance Check Date : 17-Mar-20

Standard Equipment

Type : High Volume Sampler
Manufacturer : TISCH
Model Number : TE-5170
Equipment Number : HVS006
Last Calibration Date : 07-Mar-20

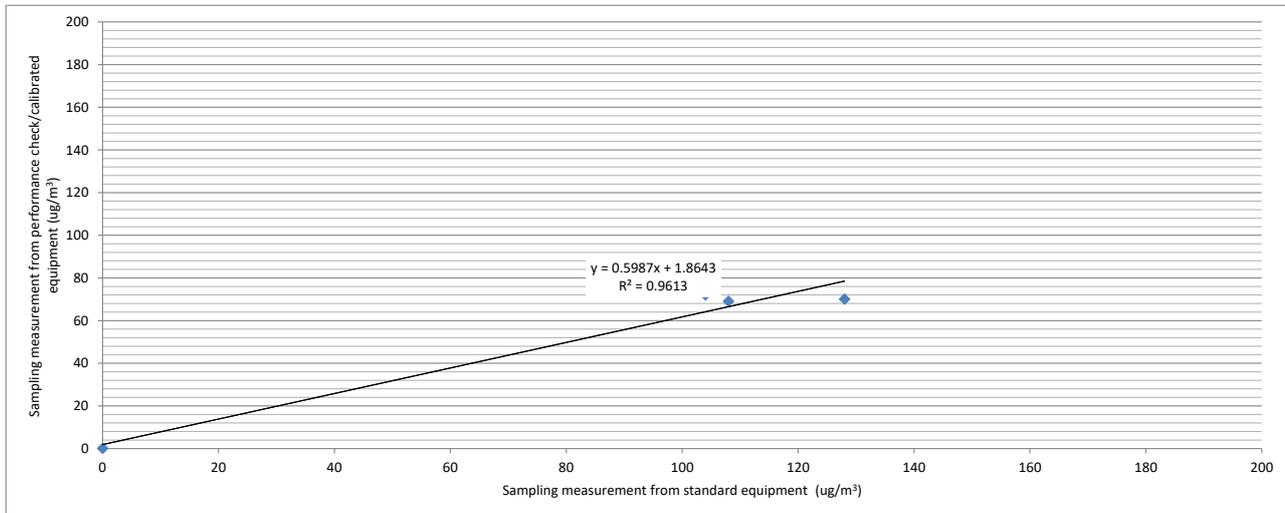
Portable Dust Meter Performance Check Results

Table with 6 columns: Trial no. in 1-hr period, Time, Mean Pressure (hPa), Mean Temp (°C), Concentration in ug/m³ (Standard equipment) (X - Axis), Concentration in ug/m³ (Performance Check / Calibrated equipment) (Y - Axis). Rows include Zero Check and trials 1, 2, 3.

* Filter paper weighting was conducted by HOKLAS accredited laboratory.

Linear Regression of Y on X

Slope (K- factor) : 1.7000
Correlation Coefficient : 0.9805
Validity of Performance Check / Calibration Record : 17/3/2021



Operator: Henry Lau

Date: 17-Mar-20

Checked by: James Chu

Date: 18-Mar-20



Portable Dust Meter Performance Check Record

Portable Dust Meter

Type : Particulate Monitor
Manufacturer : MET ONE INSTRUMENTS
Model Number : BT645
Serial Number : X19297
Performance Check Date : 17-Mar-20

Standard Equipment

Type : High Volume Sampler
Manufacturer : TISCH
Model Number : TE-5170
Equipment Number : HVS0003
Last Calibration Date : 07-Mar-20

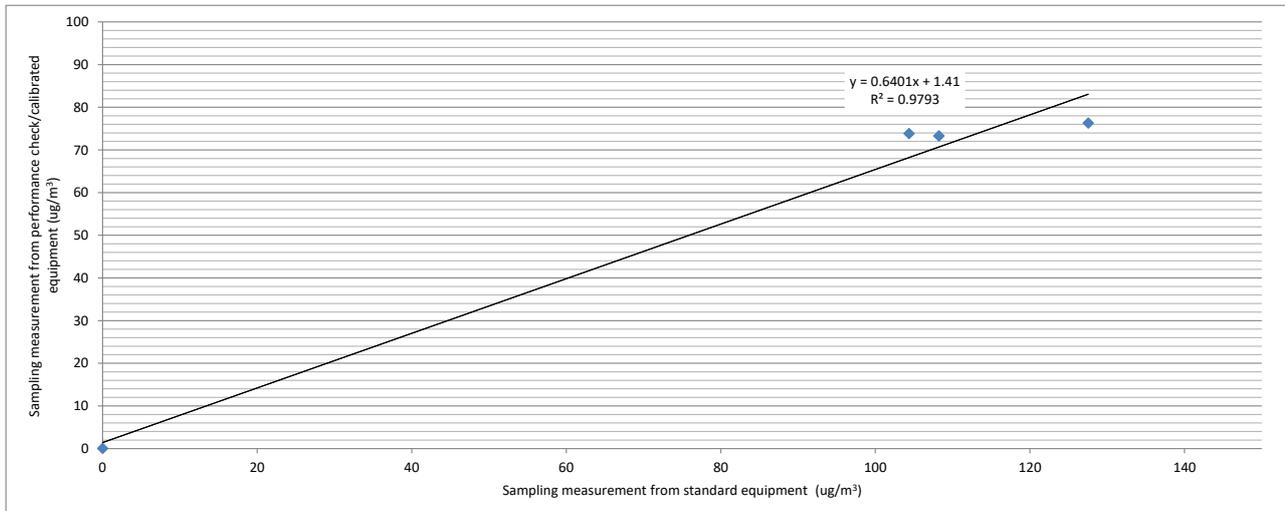
Portable Dust Meter Performance Check Results

Table with 6 columns: Trial no. in 1-hr period, Time, Mean Pressure (hPa), Mean Temp (°C), Concentration in ug/m³ (Standard equipment), Concentration in ug/m³ (Performance Check / Calibrated equipment). Rows include Zero Check and three trials on 17/3/2020.

* Filter paper weighting was conducted by HOKLAS accredited laboratory.

Linear Regression of Y on X

Slope (K- factor) : 1.6000
Correlation Coefficient : 0.9896
Validity of Performance Check / Calibration Record : 17/3/2021



Operator: Henry Lau

Date: 17-Mar-20

Checked by: James Chu

Date: 18-Mar-20



Portable Dust Meter Performance Check Record

Portable Dust Meter

Type : Particulate Monitor
Manufacturer : MET ONE INSTRUMENTS
Model Number : 831
Serial Number : R22586
Performance Check Date : 02-May-20

Standard Equipment

Type : High Volume Sampler
Manufacturer : TISCH
Model Number : TE-5170
Equipment Number : HVS006
Last Calibration Date : 07-Mar-20

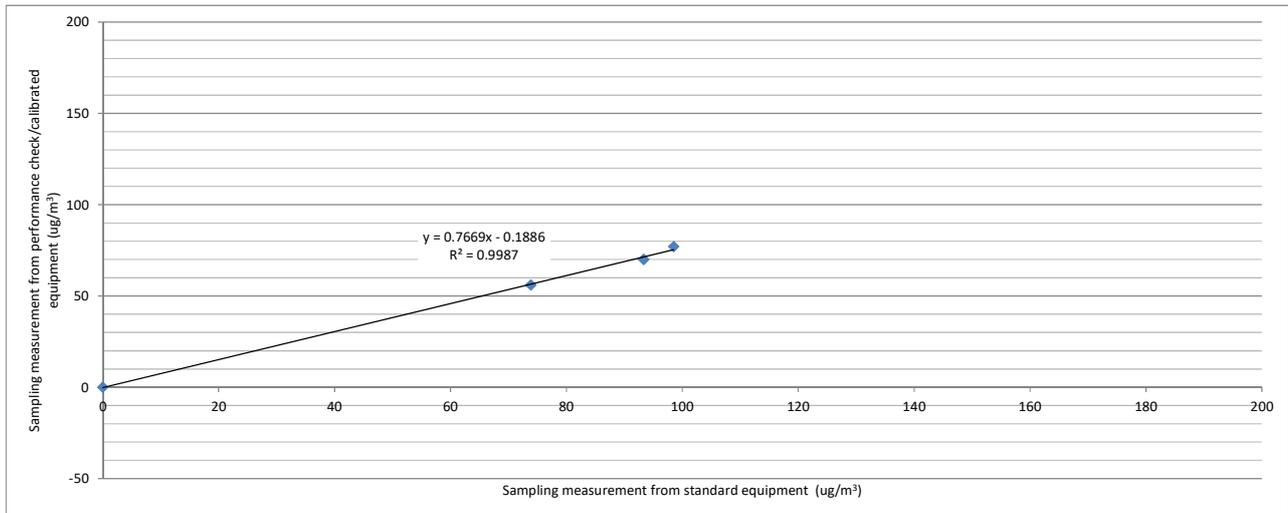
Portable Dust Meter Performance Check Results

Table with 6 columns: Trial no. in 1-hr period, Time, Mean Pressure (hPa), Mean Temp (°C), Concentration in ug/m³ (Standard equipment), Concentration in ug/m³ (Performance Check / Calibrated equipment). Rows include Zero Check and trials 1, 2, 3.

* Filter paper weighting was conducted by HOKLAS accredited laboratory.

Linear Regression of Y on X

Slope (K- factor) : 1.4000
Correlation Coefficient : 0.9993
Validity of Performance Check / Calibration Record : 2/5/2021



Operator: Henry Lau

Date: 02-May-20

Checked by: James Chu

Date: 03-May-20



REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: JAMES CHU
CLIENT: LAM ENVIRONMENTAL SERVICES LTD
ADDRESS: 11/F CENTRE POINT,
181-185 GLOUCESTER ROAD,
WANCHAI, HONG KONG

WORK ORDER: HK2024178
SUB-BATCH: 0
LABORATORY: HONG KONG
DATE RECEIVED: 30-Jun-2020
DATE OF ISSUE: 10-Jul-2020

SPECIFIC COMMENTS

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client. The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source. The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the laboratory or quoted from relevant international standards. The "Next Calibration Date" is recommended according to best practice principle as practised by the laboratory or quoted from relevant international standards. The validity of equipment/ meter performance only applies to the result(s) stated in the report.

Equipment Type: Multifunctional Meter
Service Nature: Performance Check
Scope: Dissolved Oxygen, pH Value, Salinity and Temperature
Brand Name/ Model No.: YSI Professional Plus
Serial No./ Equipment No.: 17F100236
Date of Calibration: 10-July-2020

GENERAL COMMENTS

This is the Final Report and supersedes any preliminary report with this batch number.

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganic

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2024178
SUB-BATCH: 0
DATE OF ISSUE: 10-Jul-2020
CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: YSI Professional Plus
Serial No./ Equipment No.: 17F100236
Date of Calibration: 10-July-2020 **Date of Next Calibration:** 10-October-2020

PARAMETERS:

Dissolved Oxygen Method Ref: APHA (21st edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
2.46	2.57	+0.11
5.53	5.60	+0.07
7.49	7.44	-0.05
Tolerance Limit (mg/L)		±0.20

pH Value Method Ref: APHA (21st edition), 4500H: B

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	3.98	-0.02
7.0	7.03	+0.03
10.0	9.87	-0.13
Tolerance Limit (pH unit)		±0.20

Salinity Method Ref: APHA (21st edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	9.91	-0.9
20	20.32	+1.6
30	30.34	+1.1
Tolerance Limit (%)		±10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris
 Assistant Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2024178
SUB-BATCH: 0
DATE OF ISSUE: 10-Jul-2020
CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: YSI Professional Plus
Serial No./ Equipment No.: 17F100236
Date of Calibration: 10-July-2020 Date of Next Calibration: 10-October-2020

PARAMETERS:

Temperature Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
9.0	8.1	-0.9
19.0	18.6	-0.4
40.0	39.7	-0.3
	Tolerance Limit (°C)	±2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganic



REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: JAMES CHU
CLIENT: LAM ENVIRONMENTAL SERVICES LTD
ADDRESS: 11/F., CENTRE POINT,
181-185 GLOUCESTER ROAD,
WAN CHAI, HONG KONG

WORK ORDER: HK2028452
SUB-BATCH: 0
LABORATORY: HONG KONG
DATE RECEIVED: 31-Jul-2020
DATE OF ISSUE: 10-Aug-2020

SPECIFIC COMMENTS

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client. The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principle as practised by the laboratory or quoted from relevant international standards.

The validity of equipment/ meter performance only applies to the result(s) stated in the report.

Equipment Type: Multifunctional Meter
Service Nature: Performance Check
Scope: Dissolved Oxygen, pH Value, Salinity and Temperature
Brand Name/ Model No.: YSI Professional Plus
Serial No./ Equipment No.: 19H100656
Date of Calibration: 10-August-2020

GENERAL COMMENTS

This is the Final Report and supersedes any preliminary report with this batch number.

Mr Chan Siu Ming, Vico
Manager - Inorganic

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2028452
 SUB-BATCH: 0
 DATE OF ISSUE: 10-Aug-2020
 CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type: Multifunctional Meter
 Brand Name/ Model No.: YSI Professional Plus
 Serial No./ Equipment No.: 19H100656
 Date of Calibration: 10-August-2020 Date of Next Calibration: 10-November-2020

PARAMETERS:

Dissolved Oxygen Method Ref: APHA (21st edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
3.86	3.89	+0.03
5.08	4.96	-0.12
7.11	7.16	+0.05
	Tolerance Limit (mg/L)	±0.20

pH Value Method Ref: APHA (21st edition), 4500H: B

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	4.08	+0.08
7.0	7.04	+0.04
10.0	9.93	-0.07
	Tolerance Limit (pH unit)	±0.20

Salinity Method Ref: APHA (21st edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	9.84	-1.6
20	19.85	-0.7
30	29.59	-1.4
	Tolerance Limit (%)	±10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr Chan Siu Ming, Vico
 Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2028452
SUB-BATCH: 0
DATE OF ISSUE: 10-Aug-2020
CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type: Multifunctional Meter
Brand Name/
Model No.: YSI Professional Plus
Serial No./
Equipment No.: 19H100656
Date of Calibration: 10-August-2020

Date of Next Calibration: 10-November-2020

PARAMETERS:

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical
Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
10.5	10.6	+0.1
19.5	19.8	+0.3
39.5	40.0	+0.5
	Tolerance Limit (°C)	±2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr Chan Siu Ming, Vico
Manager - Inorganic



REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

Information supplied by customer:

CONTACT: MR. CHAN KA CHUN JOB REFERENCE NO.: 22777053-G27A5402
CLIENT: LAM ENVIRONMENTAL SERVICES
DATE RECEIVED: 27/07/2020
DATE OF ISSUE: 31/07/2020
ADDRESS: 11/F, CENTRE POINT, 181-185, GLOUCESTER ROAD,
 WANCHAI, HONG KONG
PROJECT: ---

METHOD OF PERFORMANCE CHECK/ CALIBRATION:

Ref: APHA22nd ed 2130B

COMMENTS

It is certified that the item under performance check/calibration has been calibrated/checked by corresponding calibrated equipment in the laboratory.

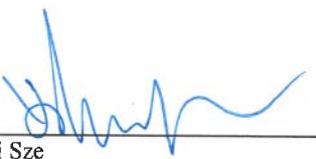
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of FT Laboratories Ltd will be followed.

Scope of Test:	Turbidity
Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1807079
Equipment No.:	---
Date of Calibration:	30/07/2020

Remarks:

This is the Final Report. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Certified By:


Ho Lai Sze
Senior Chemist

Issue Date:

31/07/2020

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Form No.: HG022-002 Rev 0 20190101

Page 1 of 2



REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

WORK ORDER: 22777053-G27A5402
DATE OF ISSUE: 31/07/2020
CLIENT: LAM ENVIRONMENTAL SERVICES

Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1807079
Equipment No.:	---
Date of Calibration:	30/07/2020
Date of next Calibration:	30/10/2020
Lab I.D.:	H200217-02

Parameters:

Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
0	0.00	---
4	4.02	0.5%
10	9.77	-2.3%
40	40.27	0.7%
100	109.10	9.1%
400	400	0.0%
1000	1000	0.0%
	Tolerance Limit (\pm)	10%

Remark: "Displayed Reading" presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.



REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

WORK ORDER: 22787053-E14A5501
DATE OF ISSUE: 29/05/2020
CLIENT: LAM GEOTECHNICS LTD

Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1807069
Equipment No.:	---
Date of Calibration:	28/05/2020
Date of next Calibration:	28/08/2020
Lab I.D.:	H200148-01

Parameters:

Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
0	0.00	---
4	3.88	-3.0%
10	10.03	0.3%
40	39.52	-1.2%
100	99.97	0.0%
400	403	0.7%
1000	1003	0.3%
	Tolerance Limit (±)	10%

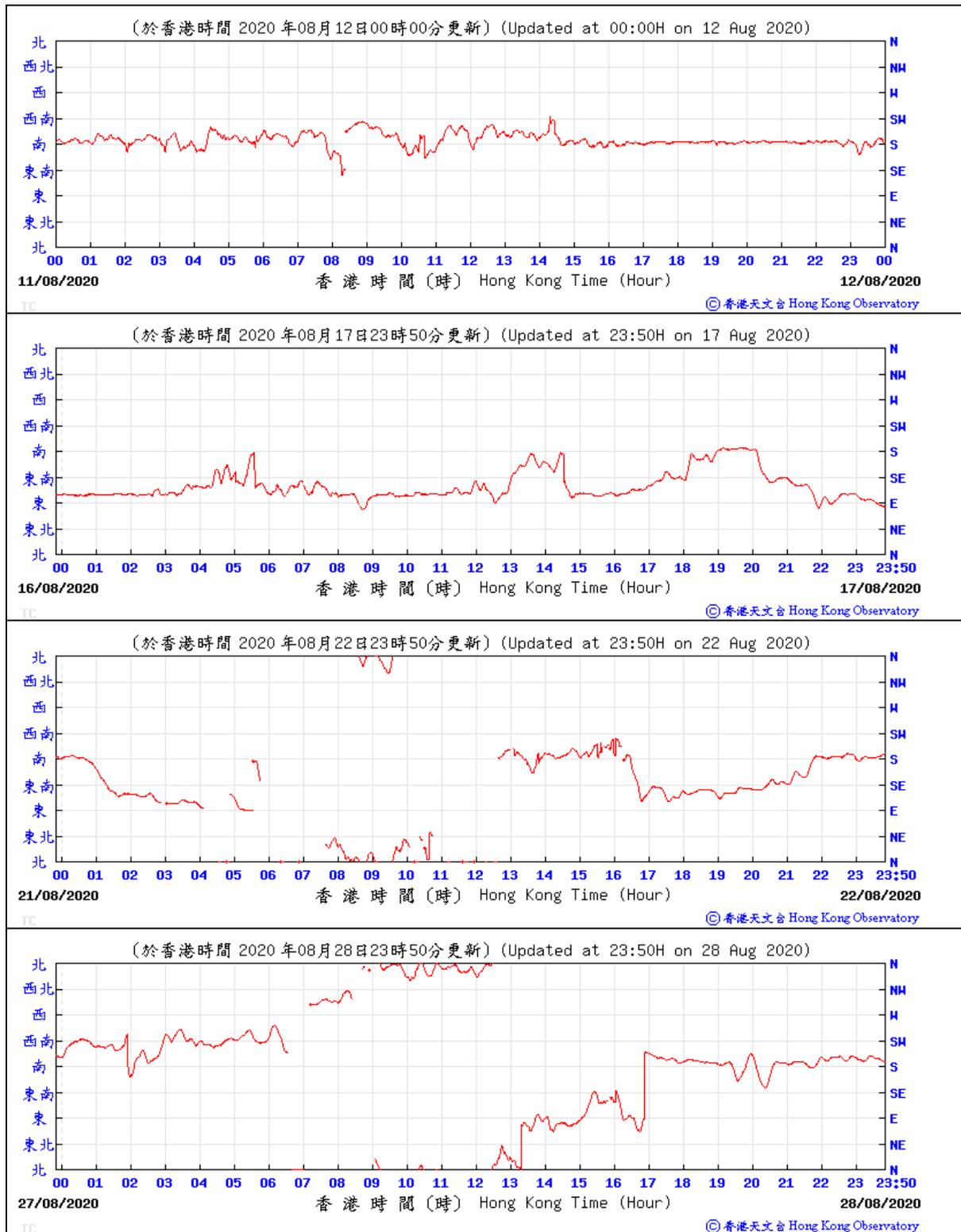
Remark: "Displayed Reading" presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.



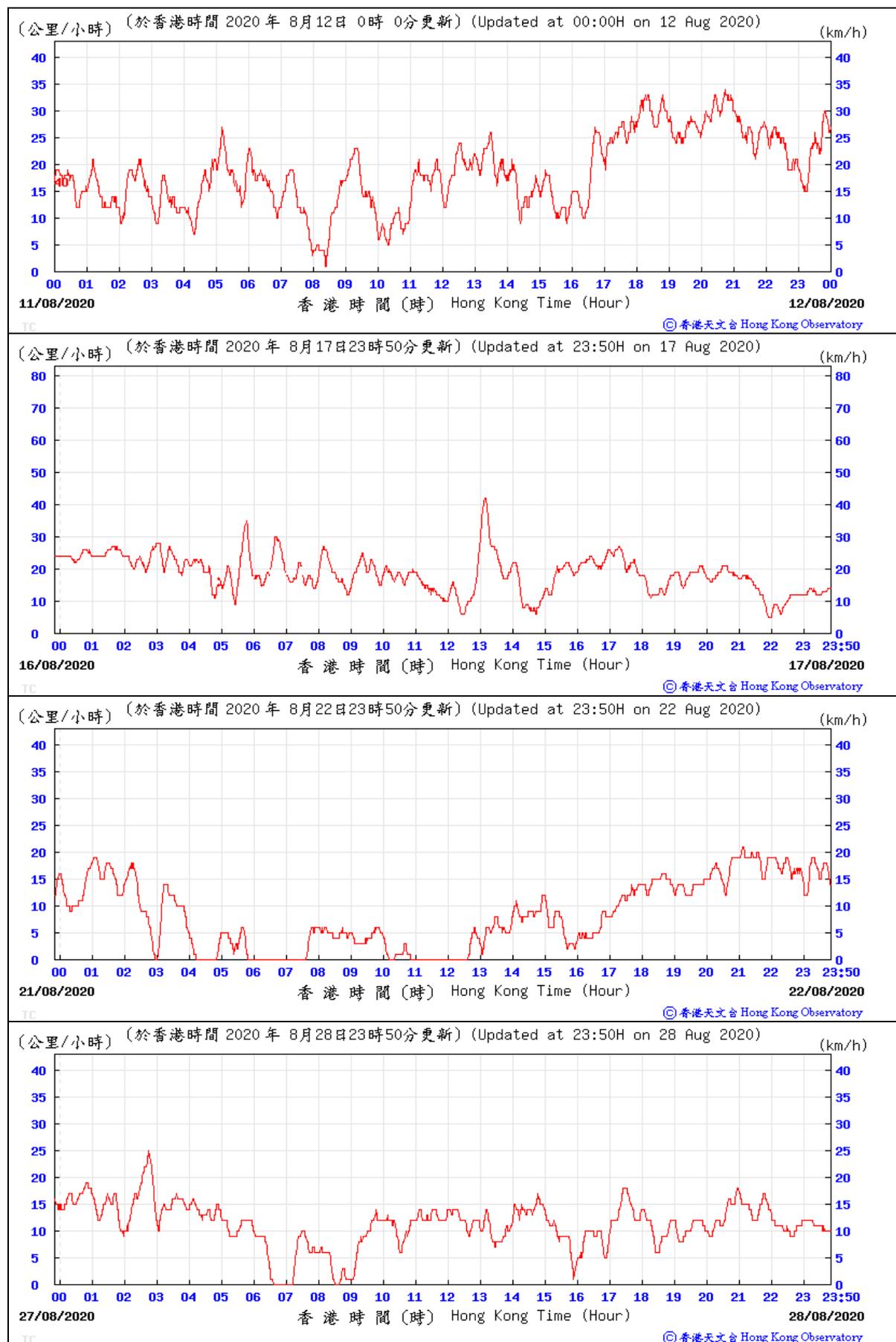
Appendix 4.3

Wind data extracted from HKO Automatic Weather Station

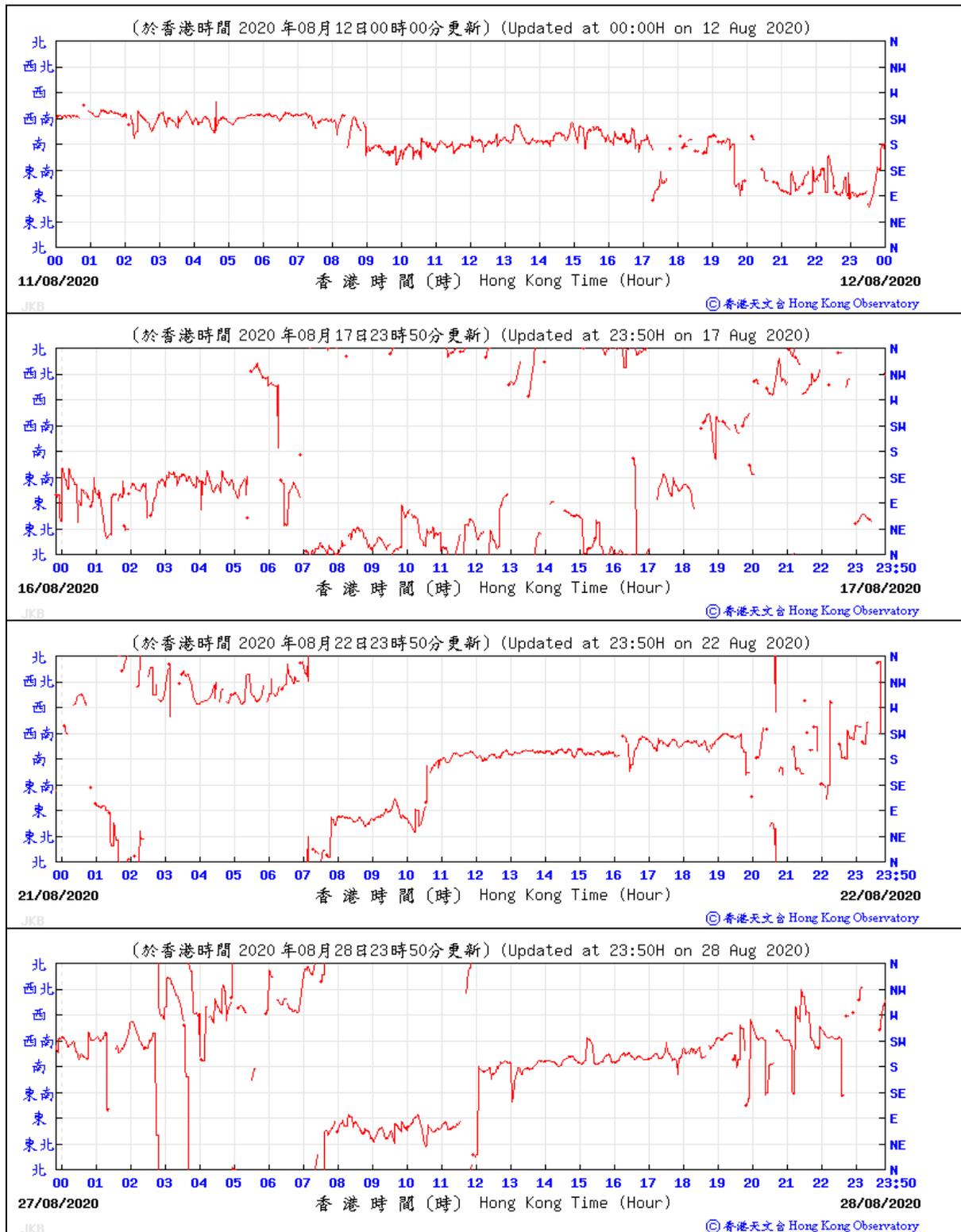
A. Wind Direction extracted from Tate's Cairn HKO Automatic Weather Station



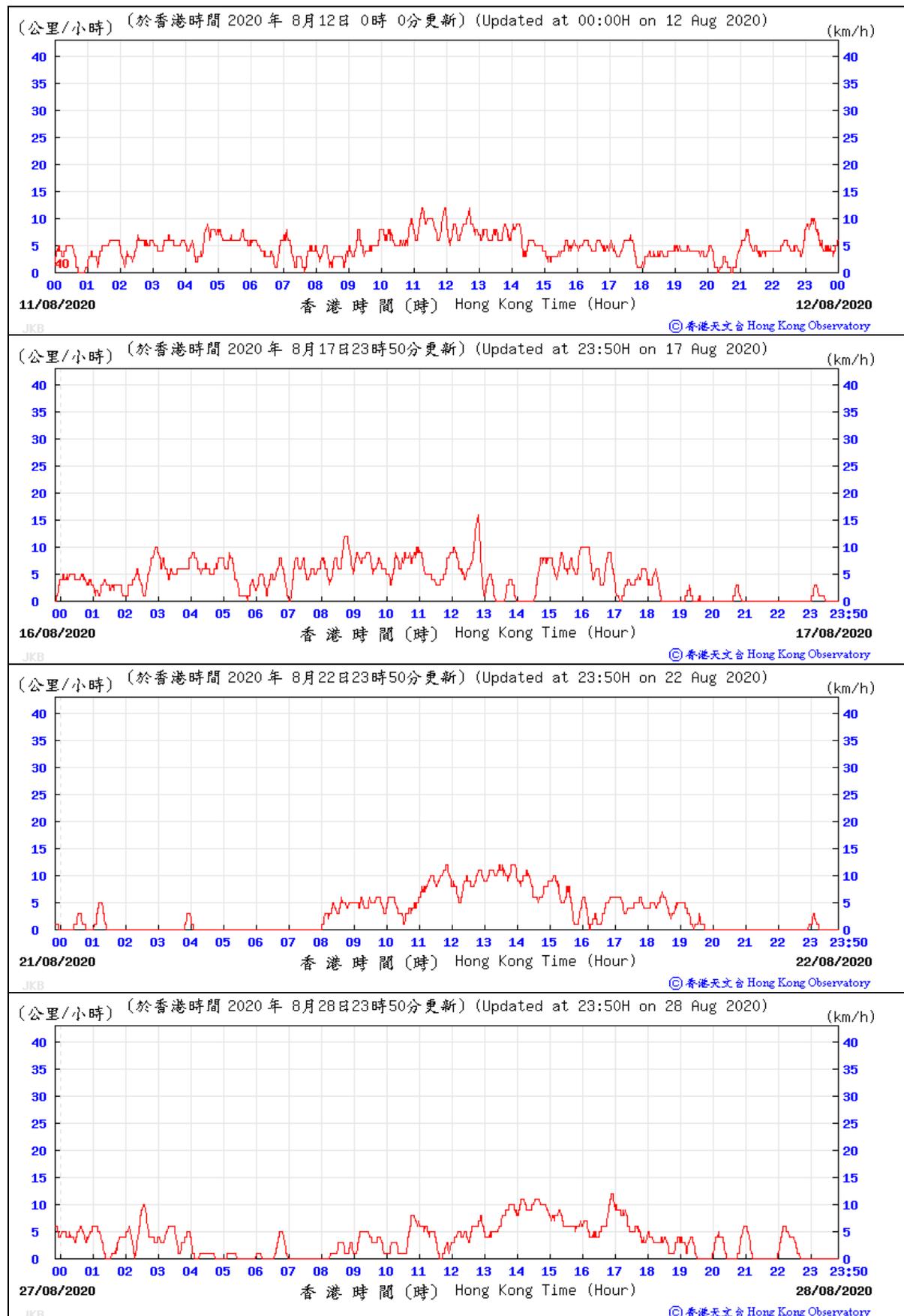
B. Wind Speed extracted from Tate's Cairn HKO Automatic Weather Station



C. Wind Direction extracted from Tseung Kwan O HKO Automatic Weather Station



D. Wind Speed extracted from Tseung Kwan O HKO Automatic Weather Station





Appendix 5.1

Monitoring Schedules for Reporting Month



SERVICE CONTRACT NO. EDO/01/2017
ENVIRONMENTAL TEAM FOR DEVELOPMENT OF
ANDERSON ROAD QUARRY SITE - ROAD IMPROVEMENT WORKS
Impact Water Quality, Air Quality and Noise Monitoring Schedule
August 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						01-Aug
02-Aug	03-Aug	04-Aug	05-Aug	06-Aug	07-Aug	08-Aug
09-Aug	10-Aug WQM	11-Aug NM AQM	12-Aug WQM	13-Aug	14-Aug WQM	15-Aug
16-Aug	17-Aug WQM NM AQM	18-Aug NM	19-Aug	20-Aug WQM NM	21-Aug	22-Aug WQM AQM
23-Aug	24-Aug WQM NM	25-Aug	26-Aug WQM	27-Aug NM	28-Aug WQM AQM	
30-Aug	31-Aug WQM NM					

Remark:

1. WQM: Water Quality Monitoring

AQM: Air Quality Monitoring

NM: Noise monitoring is scheduled at the beginning of each week

2. Monitoring Location:

Inland Water	Station	Description
Channelized nullah across the project site	E	Upstream Control Station
	F	Downstream Impact Station
	AC1	Upstream Control Station
	AC2	Upstream Control Station
Ma Yau Tong Stream	AC3	Upstream Control Station
	H	Upstream Control Station
	I	Downstream Impact Station

3. The interval between 2 sets of monitoring should not be less than 36 hours



SERVICE CONTRACT NO. EDO/01/2017
ENVIRONMENTAL TEAM FOR DEVELOPMENT OF
ANDERSON ROAD QUARRY SITE - ROAD IMPROVEMENT WORKS
Tentative Impact Water Quality, Air Quality and Noise Monitoring Schedule
September 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Sep	2-Sep	3-Sep	4-Sep	5-Sep
			WQM	AQM	WQM	
6-Sep	7-Sep	8-Sep	9-Sep	10-Sep	11-Sep	12-Sep
	WQM NM		WQM AQM		WQM	
13-Sep	14-Sep	15-Sep	16-Sep	17-Sep	18-Sep	19-Sep
	WQM NM	AQM	WQM		WQM	
20-Sep	21-Sep	22-Sep	23-Sep	24-Sep	25-Sep	26-Sep
	WQM NM AQM		WQM		WQM	AQM
27-Sep	28-Sep	29-Sep	30-Sep			
	WQM NM		WQM			

Remark:

1. WQM: Water Quality Monitoring

AQM: Air Quality Monitoring

NM: Noise monitoring is scheduled at the beginning of each week

2. Monitoring Location:

Inland Water	Station	Description
Channelized nullah across the project site	E	Upstream Control Station
	F	Downstream Impact Station
	AC1	Upstream Control Station
	AC2	Upstream Control Station
	AC3	Upstream Control Station
Ma Yau Tong Stream	H	Upstream Control Station
	I	Downstream Impact Station

3. The interval between 2 sets of monitoring should not be less than 36 hours



Appendix 5.2

Noise Monitoring Results and Graphical Presentations



Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

Location: NMC-01 - G/F, Kei Shun Special School

Date	Weather	Time	Measurement Noise Level			Average Noise Level	Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq	Leq
			Unit: dB(A), (5-min)			Unit: dB(A), (30-min)			
11 Aug 2020	Fine	11:05	70.9	72.7	64.9	70	69.3	63	70
		11:10	71.8	73.1	66.6				
		11:15	69.5	71.7	65.2				
		11:20	70.4	73.1	64.6				
		11:25	69.5	72.1	66.2				
		11:30	68.4	70.7	64.8				
17 Aug 2020	Fine	11:27	67.9	70.0	63.6	68	69.3	<Baseline Level	70
		11:32	68.8	71.6	64.0				
		11:37	68.5	71.0	63.5				
		11:42	68.1	70.6	63.9				
		11:47	68.2	70.9	64.0				
		11:52	67.9	70.3	63.1				
24 Aug 2020	Fine	10:27	68.2	70.6	64.7	69	69.3	<Baseline Level	70
		10:32	68.4	70.7	64.1				
		10:37	69.1	71.2	64.7				
		10:42	69.3	72.2	64.9				
		10:47	68.3	70.5	63.0				
		10:52	69.0	71.3	65.8				
31 Aug 2020	Fine	10:56	68.6	71.1	63.5	68	69.3	<Baseline Level	70
		11:01	67.9	70.2	64.5				
		11:06	67.9	70.2	63.7				
		11:11	68.3	70.8	63.4				
		11:16	68.6	70.8	64.9				
		11:21	68.3	70.6	62.9				



Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

Location: NMC-02 - 3/F podium, Shun Lee Disciplined Services Quarters Block 6

Date	Weather	Time	Measurement Noise Level			Average Noise Level	Baseline Level	Construction Noise Level	Limit Level			
			Leq	L10	L90					Leq	Leq	Leq
			Unit: dB(A), (5-min)							Unit: dB(A), (30-min)		
11 Aug 2020	Fine	13:16	71.7	74.6	65.6	71	72.0	<Baseline Level	75			
		13:21	71.6	74.8	63.7							
		13:26	70.4	73.1	66.4							
		13:31	71.9	74.2	66.9							
		13:36	71.1	74.4	64.6							
		13:41	71.5	73.7	66.7							
18 Aug 2020	Cloudy	10:18	72.7	75.2	70.7	72	72.0	60	75			
		10:23	72.1	75.1	66.5							
		10:28	71.4	74.0	69.4							
		10:33	72.6	75.0	68.4							
		10:38	73.0	75.2	66.4							
		10:43	71.4	74.4	66.0							
24 Aug 2020	Fine	09:41	72.3	74.5	68.4	71	72.0	<Baseline Level	75			
		09:46	71.4	73.1	67.1							
		09:51	71.1	74.1	67.0							
		09:56	71.0	73.3	67.6							
		10:01	71.5	74.3	66.2							
		10:06	70.8	72.7	66.5							
31 Aug 2020	Fine	10:03	71.3	73.5	67.7	72	72.0	54	75			
		10:08	73.1	75.5	69.9							
		10:13	72.1	74.4	67.7							
		10:18	71.8	74.3	68.0							
		10:23	72.8	74.5	68.5							
		10:28	70.9	73.2	65.5							



Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

Location: NMC-03 - G/F, Sienna Garden Block 6

Date	Weather	Time	Measurement Noise Level			Average Noise Level	Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq	Leq
			Unit: dB(A), (5-min)			Unit: dB(A), (30-min)			
11 Aug 2020	Fine	09:45	77.2	80.9	69.6	78	78.2	<Baseline Level	75
		09:50	77.6	81.0	69.4				
		09:55	77.9	81.8	70.9				
		10:00	78.0	81.9	69.9				
		10:05	76.9	80.5	69.8				
		10:10	77.9	81.5	71.7				
17 Aug 2020	Fine	11:15	73.5	76.4	65.4	76	78.2	<Baseline Level	75
		11:20	76.5	79.3	69.3				
		11:25	76.5	78.0	65.0				
		11:30	74.0	76.9	64.5				
		11:35	77.1	80.0	66.0				
		11:40	76.2	77.9	66.8				
24 Aug 2020	Fine	11:18	76.1	79.7	69.0	75	78.2	<Baseline Level	75
		11:23	74.6	77.4	68.6				
		11:28	75.7	78.1	69.0				
		11:33	75.5	78.5	68.2				
		11:38	72.2	75.6	64.3				
		11:43	76.1	80.0	63.8				
31 Aug 2020	Fine	15:39	77.5	80.8	70.9	76	78.2	<Baseline Level	75
		15:44	75.0	77.3	71.5				
		15:49	74.9	77.3	70.2				
		15:54	75.9	78.3	68.9				
		15:59	74.8	78.0	64.6				
		16:04	76.1	79.5	64.2				



Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

Location: NMC-04 - 3/F Podium, Po Tat Estate Tat Kai House

Date	Weather	Time	Measurement Noise Level			Average Noise Level	Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90				
			Unit: dB(A), (5-min)						
			Unit: dB(A), (30-min)						
11 Aug 2020	Fine	10:54	67.2	68.6	64.9	67	66.6	58	75
		10:59	67.5	69.8	64.5				
		11:04	67.7	69.8	64.8				
		11:09	67.5	69.0	65.4				
		11:14	67.5	69.0	64.9				
		11:19	64.7	65.7	63.2				
17 Aug 2020	Fine	10:38	68.0	69.8	65.3	68	66.6	61	75
		10:43	67.5	69.1	64.9				
		10:48	67.5	69.5	63.9				
		10:53	68.0	69.7	64.2				
		10:58	67.6	69.0	63.1				
		11:03	66.7	68.4	64.5				
24 Aug 2020	Fine	14:05	66.1	67.7	64.0	66	66.6	<Baseline Level	75
		14:10	67.9	69.7	64.3				
		14:15	67.7	69.6	64.3				
		14:20	66.8	69.0	63.9				
		14:25	64.5	66.2	62.8				
		14:30	64.4	65.5	62.9				
31 Aug 2020	Fine	14:19	66.3	67.4	64.5	66	66.6	<Baseline Level	75
		14:24	65.4	66.7	63.4				
		14:29	66.0	66.9	64.7				
		14:34	66.6	67.5	65.4				
		14:39	66.0	67.1	64.7				
		14:44	66.0	67.3	64.0				



Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

Location: NMC-05 - G/F, Hong Wah Court Block B Yee Hong House

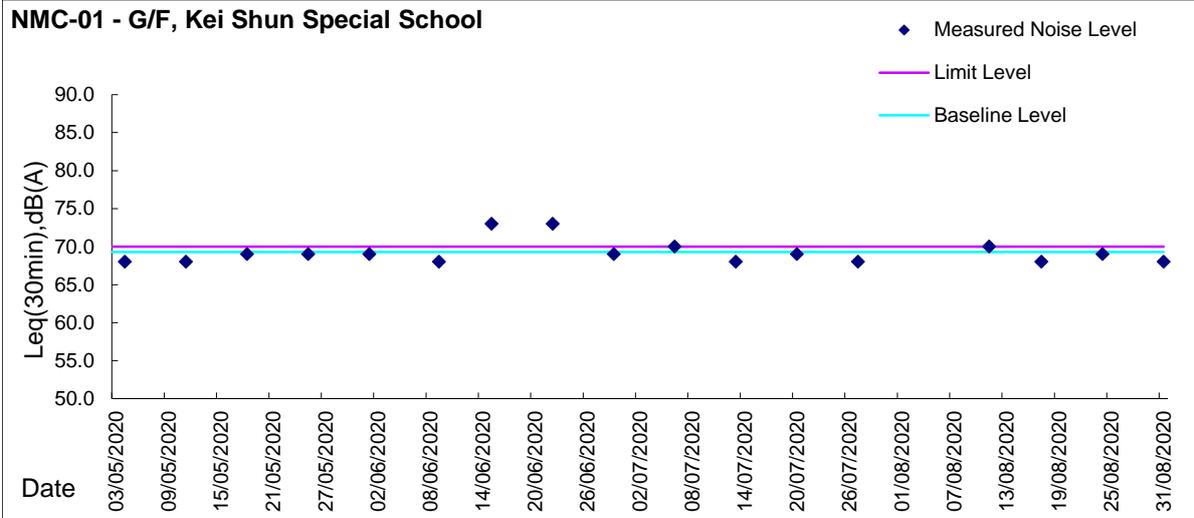
Date	Weather	Time	Measurement Noise Level			Average Noise Level	Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90				
			Unit: dB(A), (5-min)						
			Unit: dB(A), (30-min)						
11 Aug 2020	Fine	09:54	71.1	72.1	70.0	72	61.8	71	75
		09:59	71.7	72.8	65.4				
		10:04	71.7	73.3	66.9				
		10:09	72.5	73.9	70.7				
		10:14	71.7	73.4	69.3				
		10:19	71.9	73.3	70.0				
13 Aug 2020	Fine	13:41	70.7	72.0	64.5	71	61.8	70	75
		13:46	68.7	70.7	65.7				
		13:51	71.5	73.3	67.2				
		13:56	71.7	73.3	69.7				
		14:01	71.4	72.8	67.4				
		14:06	70.4	72.3	65.1				
17 Aug 2020	Fine	09:44	63.2	64.8	60.7	63	61.8	57	75
		09:49	64.4	67.1	59.8				
		09:54	62.3	64.2	59.5				
		09:59	62.0	64.0	58.8				
		10:04	62.9	65.4	59.4				
		10:09	62.7	64.8	59.3				
20 Aug 2020	Fine	14:34	69.5	73.1	63.6	71	61.8	70	75
		14:39	70.6	75.2	63.8				
		14:44	72.5	76.8	64.5				
		14:49	71.2	72.3	68.8				
		14:54	70.6	72.2	65.0				
		14:59	70.9	72.3	64.1				
24 Aug 2020	Fine	15:01	71.9	73.9	64.6	69	61.8	68	75
		15:06	65.6	67.0	63.1				
		15:11	71.3	73.0	64.4				
		15:16	68.2	70.8	63.4				
		15:21	66.1	68.0	63.1				
		15:26	66.1	67.6	63.0				
27 Aug 2020	Cloudy	13:52	66.7	69.4	61.6	68	61.8	67	75
		13:57	68.3	69.3	61.6				
		14:02	68.1	68.4	61.5				
		14:07	68.2	69.5	61.2				
		14:12	67.7	69.8	63.1				
		14:17	68.5	70.2	65.4				
31 Aug 2020	Fine	13:13	69.2	72.2	62.4	71	61.8	70	75
		13:18	69.8	72.7	64.8				
		13:23	71.5	73.8	65.7				
		13:28	71.0	72.3	68.0				
		13:33	70.4	71.3	68.2				
		13:38	71.0	73.3	66.4				



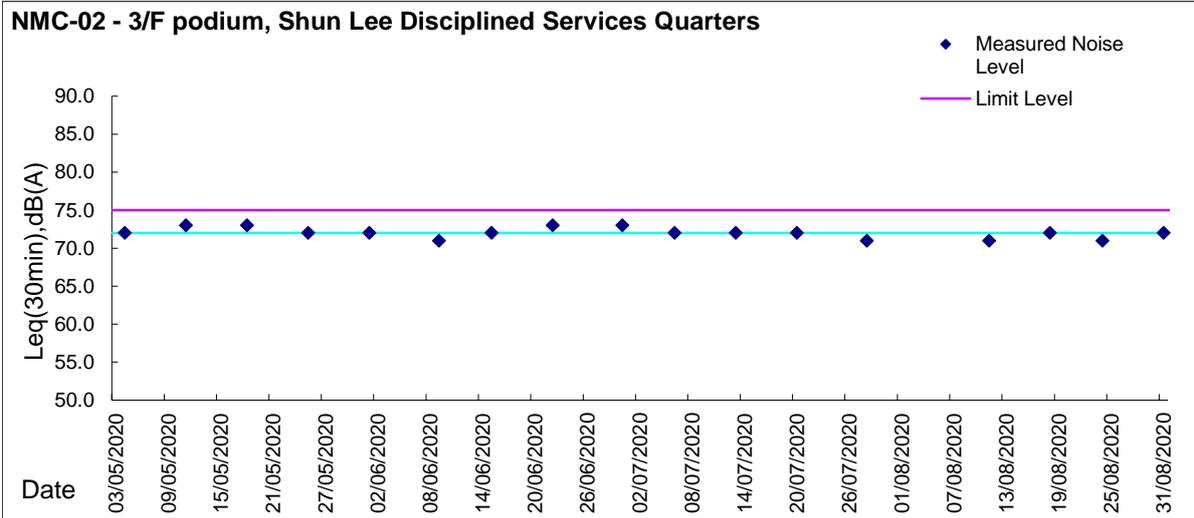
Graphic Presentation of Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

NMC-01 - G/F, Kei Shun Special School



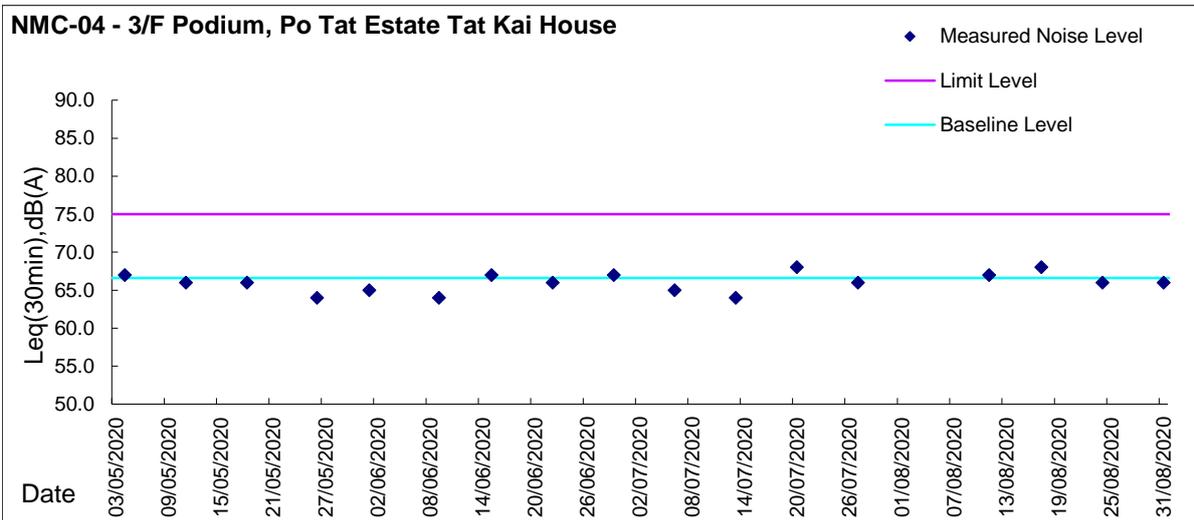
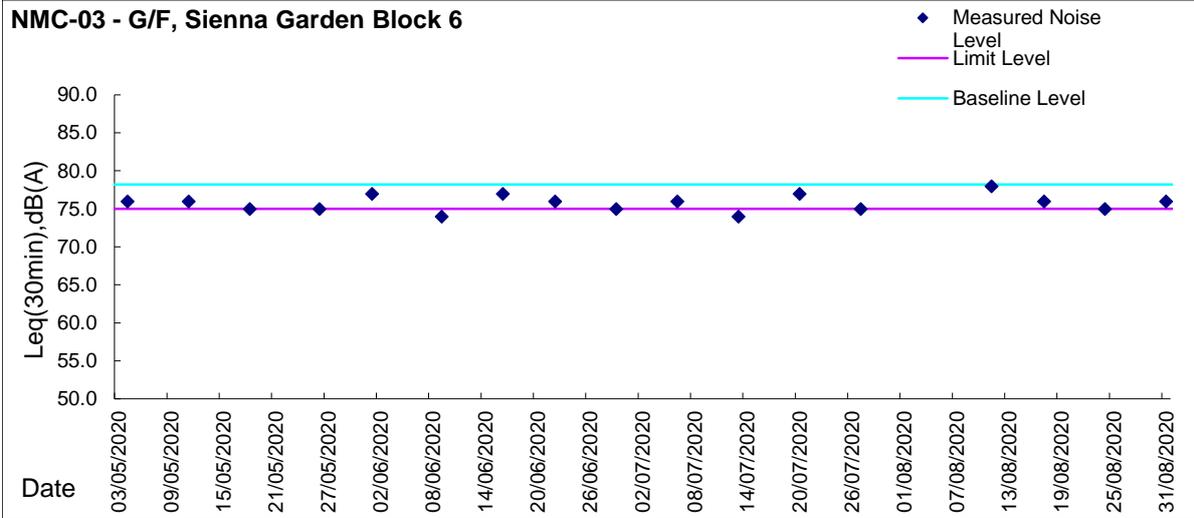
NMC-02 - 3/F podium, Shun Lee Disciplined Services Quarters





Graphic Presentation of Noise Monitoring Result

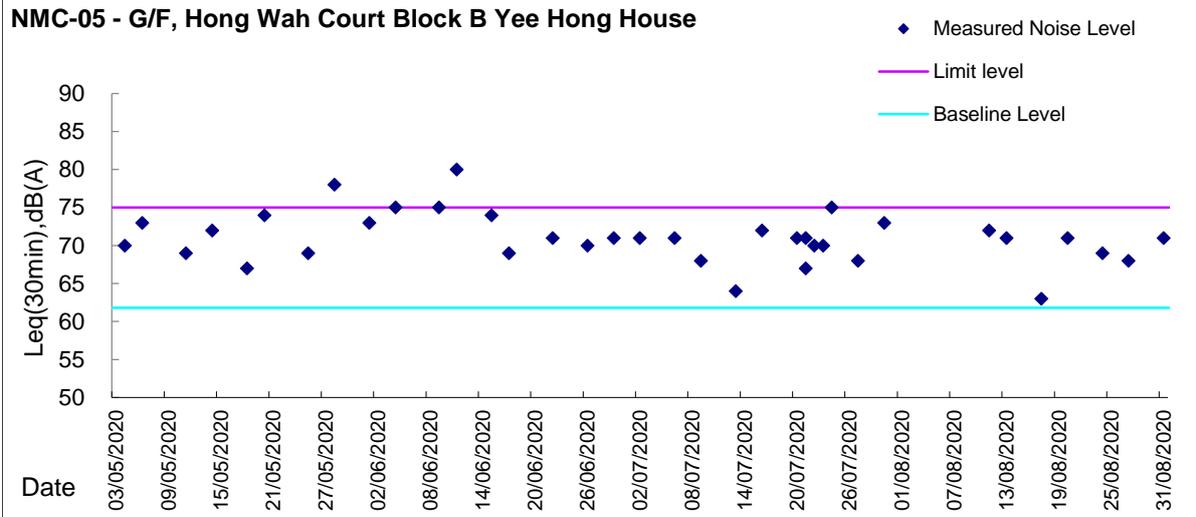
Day Time (0700 - 1900hrs on normal weekdays)





Graphic Presentation of Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)





Appendix 5.3

Air Quality Monitoring Results and Graphical Presentations



Report on 1-hour TSP monitoring at NCWBR_AMS-1 - Shun Lee Fire Station

Action Level ($\mu\text{g}/\text{m}^3$) - 284.4
Limit Level ($\mu\text{g}/\text{m}^3$) - 500.0

Date	Weather Condition	Time	Mass Concentration ($\mu\text{g}/\text{m}^3$)
11-Aug-20	Fine	8:52	24.8
11-Aug-20	Fine	9:53	17.1
11-Aug-20	Fine	10:54	13.5
17-Aug-20	Fine	11:00	35.1
17-Aug-20	Fine	13:00	35.4
17-Aug-20	Fine	14:01	51.9
22-Aug-20	Fine	8:24	30.9
22-Aug-20	Fine	9:25	47.9
22-Aug-20	Fine	10:26	50.7
28-Aug-20	Fine	10:55	48.0
28-Aug-20	Fine	13:00	44.3
28-Aug-20	Fine	14:01	91.3



Report on 1-hour TSP monitoring at NCWBR_AMS-2 - Shun Lee Estate Lee Hang House

Action Level ($\mu\text{g}/\text{m}^3$) - 282.4
Limit Level ($\mu\text{g}/\text{m}^3$) - 500.0

Date	Weather Condition	Time	Mass Concentration ($\mu\text{g}/\text{m}^3$)
11-Aug-20	Fine	8:37	24.1
11-Aug-20	Fine	9:38	19.3
11-Aug-20	Fine	10:39	17.1
17-Aug-20	Fine	11:00	45.0
17-Aug-20	Fine	13:00	43.5
17-Aug-20	Fine	14:01	40.5
22-Aug-20	Fine	8:28	93.3
22-Aug-20	Fine	9:29	71.7
22-Aug-20	Fine	10:30	75.7
28-Aug-20	Fine	10:23	79.2
28-Aug-20	Fine	13:00	52.7
28-Aug-20	Fine	14:01	56.6



Report on 1-hour TSP monitoring at NCWBR_AMS-3 - Shun Lee Disciplined Services
Quarters (Block 6)
Action Level ($\mu\text{g}/\text{m}^3$) - 287.9
Limit Level ($\mu\text{g}/\text{m}^3$) - 500.0

Date	Weather Condition	Time	Mass Concentration ($\mu\text{g}/\text{m}^3$)
11-Aug-20	Fine	8:47	8.5
11-Aug-20	Fine	9:48	5.9
11-Aug-20	Fine	10:49	5.0
17-Aug-20	Fine	11:00	31.8
17-Aug-20	Fine	13:00	17.0
17-Aug-20	Fine	14:01	22.1
22-Aug-20	Fine	8:18	58.7
22-Aug-20	Fine	9:19	78.3
22-Aug-20	Fine	10:20	76.8
28-Aug-20	Fine	10:31	40.8
28-Aug-20	Fine	13:00	31.5
28-Aug-20	Fine	14:01	32.3



Report on 1-hour TSP monitoring at NCWBR_AMS-4 - Sienna Garden

Action Level ($\mu\text{g}/\text{m}^3$) - 281.6
Limit Level ($\mu\text{g}/\text{m}^3$) - 500.0

Date	Weather Condition	Time	Mass Concentration ($\mu\text{g}/\text{m}^3$)
11-Aug-20	Fine	8:34	35.2
11-Aug-20	Fine	9:35	36.9
11-Aug-20	Fine	10:36	20.8
17-Aug-20	Fine	11:00	37.1
17-Aug-20	Fine	13:00	57.0
17-Aug-20	Fine	14:01	41.6
22-Aug-20	Fine	8:45	88.8
22-Aug-20	Fine	9:46	61.1
22-Aug-20	Fine	10:47	77.3
28-Aug-20	Fine	10:55	55.4
28-Aug-20	Fine	13:00	54.3
28-Aug-20	Fine	14:01	59.8



Report on 1-hour TSP monitoring at NCWBR_AMS-5 - Shun Chi Court Shun Fung

House

Action Level ($\mu\text{g}/\text{m}^3$) - 270.0

Limit Level ($\mu\text{g}/\text{m}^3$) - 500.0

Date	Weather Condition	Time	Mass Concentration ($\mu\text{g}/\text{m}^3$)
11-Aug-20	Fine	8:45	75.4
11-Aug-20	Fine	9:46	50.4
11-Aug-20	Fine	10:47	47.4
17-Aug-20	Fine	11:00	33.9
17-Aug-20	Fine	13:00	39.4
17-Aug-20	Fine	14:01	31.2
22-Aug-20	Fine	8:15	45.5
22-Aug-20	Fine	9:16	41.0
22-Aug-20	Fine	10:17	45.7
28-Aug-20	Fine	10:57	54.9
28-Aug-20	Fine	13:00	47.5
28-Aug-20	Fine	14:01	57.3



Report on 1-hour TSP monitoring at LTR_AMS-1 - St Edward's Catholic Primary School

Action Level ($\mu\text{g}/\text{m}^3$) - 272.1
Limit Level ($\mu\text{g}/\text{m}^3$) - 500.0

Date	Weather Condition	Time	Mass Concentration ($\mu\text{g}/\text{m}^3$)
11-Aug-20	Fine	8:50	13.9
11-Aug-20	Fine	9:51	21.9
11-Aug-20	Fine	10:52	24.6
17-Aug-20	Fine	8:24	19.6
17-Aug-20	Fine	9:25	46.8
17-Aug-20	Fine	10:26	51.4
22-Aug-20	Fine	8:00	34.5
22-Aug-20	Fine	9:01	39.0
22-Aug-20	Fine	10:02	18.7
28-Aug-20	Fine	8:50	19.2
28-Aug-20	Fine	9:51	23.2
28-Aug-20	Fine	10:52	14.2



Report on 1-hour TSP monitoring at LTR_AMS-2 - Environmental Protection
Department's Restored Landfill Site Office
Action Level ($\mu\text{g}/\text{m}^3$) - 281.1
Limit Level ($\mu\text{g}/\text{m}^3$) - 500.0

Date	Weather Condition	Time	Mass Concentration ($\mu\text{g}/\text{m}^3$)
11-Aug-20	Fine	8:16	12.8
11-Aug-20	Fine	9:17	31.3
11-Aug-20	Fine	10:18	37.0
17-Aug-20	Fine	8:32	23.5
17-Aug-20	Fine	9:33	49.0
17-Aug-20	Fine	10:34	65.0
22-Aug-20	Fine	8:24	53.2
22-Aug-20	Fine	9:25	74.6
22-Aug-20	Fine	10:26	29.0
28-Aug-20	Fine	8:45	28.4
28-Aug-20	Fine	9:46	34.0
28-Aug-20	Fine	10:47	27.5



Report on 1-hour TSP monitoring at LTR_AMS-3 - Po Tat Estate Tat Kai House

Action Level ($\mu\text{g}/\text{m}^3$) - 285.1
Limit Level ($\mu\text{g}/\text{m}^3$) - 500.0

Date	Weather Condition	Time	Mass Concentration ($\mu\text{g}/\text{m}^3$)
11-Aug-20	Fine	8:41	20.6
11-Aug-20	Fine	9:42	25.1
11-Aug-20	Fine	10:43	21.0
17-Aug-20	Fine	8:00	16.5
17-Aug-20	Fine	9:01	32.6
17-Aug-20	Fine	10:02	34.1
22-Aug-20	Fine	8:31	32.5
22-Aug-20	Fine	9:32	34.3
22-Aug-20	Fine	10:33	20.1
28-Aug-20	Fine	8:40	22.6
28-Aug-20	Fine	9:41	22.4
28-Aug-20	Fine	10:42	22.4



Appendix 5.4

Water Quality Monitoring Results and Graphical Presentations



Water Monitoring Result at Monitoring Station E - Channelized nullah across the Project site (Upstream Control Station)

Date	Time	Weather Condition	Sampling Depth m	Water Temperature °C			pH			Salinity ppt			DO Saturation %			DO mg/L			Turbidity NTU			Suspended Solids mg/L	
				Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Average
				10/08/2020	13:05	Fine	Surface	27.50	27.50	27.50	7.42	7.42	7.41	0.04	0.04	0.04	97.8	98.3	97.55	8.02	8.06	7.98	21.42
	13:07	27.50	27.50	7.39	7.39			0.04	0.04		98.0	96.1		8.03	7.81		21.26	21.24		9.7			
12/08/2020	10:35	Cloudy	Surface	26.80	26.80	27.05	7.21	7.20	7.20	0.03	0.03	0.03	97.5	98.6	98.08	7.79	7.87	7.82	18.80	18.20	18.59	5.8	5.90
	10:37			27.30	27.30		7.20	7.20		0.03	0.03		98.0	98.2		7.80	7.82		18.68	18.66		6	
14/08/2020	10:03	Fine	Surface	26.10	26.10	26.55	6.84	6.84	6.80	0.03	0.03	0.03	98.5	97.4	96.58	7.86	7.76	7.69	20.63	20.64	20.56	10.6	10.80
	10:07			27.00	27.00		6.75	6.75		0.03	0.03		96.2	94.2		7.62	7.51		20.61	20.36		11	
17/08/2020	10:50	Fine	Surface	26.20	26.20	26.50	6.81	6.81	6.81	0.03	0.03	0.03	90.3	93.4	93.63	7.35	7.50	7.54	11.06	11.84	11.67	3.5	3.50
	10:52			26.80	26.80		6.80	6.80		0.03	0.03		95.0	95.8		7.62	7.68		11.92	11.85		3.5	
20/08/2020	10:16	Fine	Surface	25.20	25.20	25.40	7.13	7.13	7.12	0.02	0.02	0.02	90.2	93.5	93.58	7.41	7.68	7.68	12.00	12.00	12.00	6.3	6.15
	10:18			25.60	25.60		7.10	7.10		0.02	0.02		95.1	95.5		7.79	7.82		12.00	12.00		6	
22/08/2020	10:50	Fine	Surface	26.30	26.30	26.35	7.89	7.89	7.81	0.02	0.02	0.02	102.3	101.7	102.18	8.25	8.20	8.24	11.84	11.75	11.78	5.6	5.40
	10:52			26.40	26.40		7.72	7.72		0.02	0.02		102.3	102.4		8.24	8.25		11.76	11.78		5.2	
24/08/2020	11:20	Fine	Surface	26.40	26.40	26.65	6.86	6.86	6.89	0.02	0.02	0.02	90.7	92.2	92.10	7.26	7.38	7.38	12.00	12.00	12.00	4.4	4.55
	11:22			26.90	26.90		6.91	6.91		0.02	0.02		92.9	92.6		7.44	7.42		12.00	12.00		4.7	
26/08/2020	11:15	Fine	Surface	26.40	26.40	26.65	7.34	7.34	7.32	0.03	0.03	0.03	94.5	94.5	94.88	7.59	7.59	7.61	10.45	10.46	10.40	5.2	5.05
	11:17			26.90	26.90		7.30	7.30		0.03	0.03		94.9	95.6		7.60	7.65		10.37	10.33		4.9	
28/08/2020	10:35	Fine	Surface	26.30	26.30	26.45	6.91	6.91	6.89	0.03	0.03	0.03	87.8	90.0	90.23	7.07	7.24	7.26	18.85	18.73	18.72	3.9	3.80
	10:37			26.60	26.60		6.87	6.87		0.03	0.03		91.5	91.6		7.36	7.36		18.68	18.61		3.7	
31/08/2020	10:13	Fine	Surface	26.50	26.50	26.75	6.90	6.90	6.86	0.04	0.04	0.04	94.8	95.6	95.23	7.58	7.64	7.61	17.40	17.38	17.35	5.7	6.05
	10:15			27.00	27.00		6.81	6.81		0.04	0.04		94.7	95.8		7.57	7.64		17.32	17.31		6.4	

Remarks:
 Single underline denotes exceedance over Action Level.
 Double underline denotes exceedance over Limit Level.
 Upstream Monitoring Station (Monitoring Station E) would be taken as control reference for exceedance investigation only.



Water Monitoring Result at Monitoring Station F - Channelized nullah across the Project site (Downstream Impact Station)

Date	Time	Weather Condition	Sampling Depth m	Water Temperature °C			pH -			Salinity ppt			DO Saturation %			DO mg/L			Turbidity NTU			Suspended Solids mg/L	
				Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Average
10/08/2020	13:35	Fine	Surface	26.00	26.00	26.00	7.96	7.96	8.0	0.05	0.05	0.05	87.0	88.2	88.55	7.07	7.17	7.2	19.86	19.96	20.0	11.1	11.5
	13:37			26.00	26.00		8.05	8.05		0.05	0.05		89.0	90.0		7.23	7.31		20.02	19.96		11.9	
12/08/2020	11:10	Cloudy	Surface	26.80	26.80	27.00	8.20	8.20	8.2	0.08	0.08	0.08	87.1	89.2	89.40	6.93	7.09	7.1	23.51	23.62	23.1	67.8	<u>66.2</u>
	11:12			27.20	27.20		8.21	8.21		0.08	0.08		90.3	91.0		7.18	7.23		22.55	22.54		64.5	
14/08/2020	11:07	Fine	Surface	27.60	27.60	27.90	8.40	8.40	8.4	0.08	0.08	0.08	91.0	92.5	92.88	7.12	7.23	7.3	24.06	24.05	24.1	16.3	16.4
	11:09			28.20	28.20		8.41	8.41		0.08	0.08		94.0	94.0		7.34	7.34		24.05	24.05		16.4	
17/08/2020	11:35	Fine	Surface	27.60	27.60	27.80	8.06	8.06	8.1	0.07	0.07	0.07	88.7	94.0	93.93	6.91	7.37	7.4	17.45	17.41	17.4	12.5	12.8
	11:37			28.00	28.00		8.06	8.06		0.07	0.07		96.1	96.9		7.54	7.59		17.41	17.40		13.0	
20/08/2020	10:45	Fine	Surface	26.10	26.10	26.20	8.37	8.37	8.4	0.04	0.04	0.04	88.0	90.4	91.15	7.12	7.30	7.4	20.50	20.51	20.5	51.6	<u>51.2</u>
	10:47			26.30	26.30		8.37	8.37		0.04	0.04		92.7	93.5		7.48	7.57		20.51	20.51		50.8	
22/08/2020	10:25	Fine	Surface	27.40	27.40	27.40	8.10	8.10	8.1	0.05	0.05	0.05	105.3	106.7	105.93	8.31	8.40	8.3	7.81	7.82	7.8	6.1	6.1
	10:27			27.40	27.40		8.12	8.12		0.05	0.05		106.0	105.7		8.34	8.31		7.84	7.89		6.1	
24/08/2020	11:50	Fine	Surface	27.90	27.90	27.95	7.09	7.09	7.4	0.06	0.06	0.06	99.6	99.5	98.53	7.80	7.80	7.7	12.21	12.41	12.2	5.9	5.7
	11:52			28.00	28.00		7.72	7.72		0.06	0.06		98.0	97.0		7.68	7.59		12.11	12.07		5.5	
26/08/2020	11:45	Fine	Surface	27.80	27.80	28.00	7.78	7.78	7.8	0.08	0.08	0.08	90.2	93.4	94.23	7.01	7.32	7.4	7.44	7.38	7.4	5.2	5.3
	11:47			28.20	28.20		7.78	7.78		0.08	0.08		96.5	96.8		7.55	7.56		7.43	7.48		5.4	
28/08/2020	11:15	Fine	Surface	31.30	31.30	31.30	7.75	7.75	7.7	0.89	0.89	0.89	92.9	91.6	91.65	6.83	6.73	6.7	24.12	24.13	24.2	154.0	<u>153.5</u>
	11:17			31.30	31.30		7.74	7.74		0.88	0.88		90.3	91.8		6.64	6.75		24.15	24.25		153.0	
31/08/2020	11:00	Fine	Surface	27.30	27.30	27.45	8.21	8.21	8.2	0.01	0.01	0.01	92.1	93.7	93.73	7.28	7.41	7.4	20.58	20.56	20.6	12.7	12.5
	11:02			27.60	27.60		8.21	8.21		0.01	0.01		94.5	94.6		7.46	7.47		20.57	20.55		12.3	

Remarks:
 Single underline denotes exceedance over Action Level.
 Double underline denotes exceedance over Limit Level.



Water Monitoring Result at Monitoring Station H - Ma Yau Tong Stream (Upstream Control Station)

Date	Time	Weather Condition	Sampling Depth m	Water Temperature °C			pH			Salinity ppt			DO Saturation %			DO mg/L			Turbidity NTU			Suspended Solids mg/L	
				Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Average
10/08/2020	13:50	Fine	Surface	27.00	27.00	27.00	7.60	7.60	7.7	0.31	0.31	0.31	96.3	95.2	93.73	7.63	7.58	7.5	64.50	64.49	64.6	52.4	53.1
	13:52			27.00	27.00		7.72	7.72		0.31	0.31		93.2	90.2		7.42	7.19		64.38	64.97		53.8	
12/08/2020	09:57	Cloudy	Surface	27.60	27.60	27.75	7.63	7.63	7.6	0.62	0.62	0.62	92.3	93.4	92.53	6.93	7.09	7.1	26.36	26.57	26.4	13.4	14.1
	09:59			27.90	27.90		7.53	7.53		0.61	0.61		92.5	91.9		7.18	7.23		26.41	26.35		14.7	
14/08/2020	09:40	Fine	Surface	27.60	27.60	27.65	7.95	7.95	7.9	0.33	0.33	0.33	88.1	87.9	88.30	6.93	6.91	6.9	188.20	188.20	187.9	134.0	132.5
	09:42			27.70	27.70		7.90	7.90		0.33	0.33		88.2	89.0		6.93	6.99		187.90	187.10		131.0	
17/08/2020	10:15	Fine	Surface	27.60	27.60	27.75	7.68	7.68	7.7	0.43	0.43	0.43	83.8	86.2	85.98	6.58	6.76	6.7	17.65	17.64	17.6	11.0	11.3
	10:17			27.90	27.90		7.66	7.66		0.43	0.43		87.3	86.6		6.85	6.74		17.54	17.48		11.5	
20/08/2020	09:05	Fine	Surface	26.50	26.50	26.30	7.72	7.72	7.7	0.18	0.18	0.17	91.3	97.6	96.93	7.32	7.82	7.8	11.08	11.08	11.1	5.1	5.0
	09:07			26.10	26.10		7.71	7.71		0.16	0.16		99.3	99.5		7.95	7.97		11.08	11.08		4.8	
22/08/2020	09:45	Fine	Surface	26.80	26.80	26.95	7.53	7.53	7.5	0.30	0.30	0.30	88.3	89.4	90.55	7.03	7.11	7.2	4.75	4.65	4.7	2.8	2.7
	09:47			27.10	27.10		7.53	7.53		0.30	0.30		91.7	92.8		7.29	7.38		4.64	4.63		2.6	
24/08/2020	10:46	Fine	Surface	28.40	28.40	28.40	7.65	7.65	7.6	0.30	0.30	0.30	86.4	86.2	86.28	6.72	6.71	6.7	10.60	10.57	10.6	7.6	7.4
	10:48			28.40	28.40		7.59	7.59		0.30	0.30		86.4	86.1		6.72	6.69		10.55	10.54		7.1	
26/08/2020	10:55	Fine	Surface	28.50	28.50	28.70	7.57	7.57	7.5	0.46	0.46	0.46	85.3	85.2	86.50	6.59	6.57	6.7	6.61	6.42	6.6	4.2	4.1
	10:57			28.90	28.90		7.50	7.50		0.46	0.46		87.6	87.9		6.76	6.77		6.61	6.60		3.9	
28/08/2020	10:15	Fine	Surface	27.70	27.70	27.85	7.76	7.76	7.8	0.42	0.42	0.42	91.9	92.1	92.05	7.19	7.25	7.2	26.05	26.05	26.0	23.4	23.2
	10:17			28.00	28.00		7.76	7.76		0.41	0.41		92.3	91.9		7.21	7.18		26.05	26.01		23.0	
31/08/2020	09:45	Fine	Surface	27.70	27.70	27.85	7.49	7.49	7.5	0.68	0.68	0.68	78.5	79.5	80.28	6.14	6.21	6.3	16.50	16.38	16.4	2.7	2.9
	09:47			28.00	28.00		7.49	7.49		0.68	0.68		81.1	82.0		6.34	6.41		16.35	16.33		3.1	

Remarks:

Single underline denotes exceedance over Action Level.

Double underline denotes exceedance over Limit Level.

Upstream Monitoring Station (Monitoring Station H) would be taken as control reference for exceedance investigation only.



Water Monitoring Result at Monitoring Station I - Ma Yau Tong Stream (Downstream Impact Station)

Date	Time	Weather Condition	Sampling Depth m	Water Temperature °C			pH			Salinity ppt			DO Saturation %			DO mg/L			Turbidity NTU			Suspended Solids mg/L	
				Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Average
10/08/2020	14:17	Fine	Surface	27.20	27.20	27.25	7.84	7.84	7.9	0.45	0.45	0.45	88.1	87.8	87.80	6.99	6.97	7.0	29.46	29.46	29.5	22.9	22.1
	14:19			27.30	27.30		7.92	7.92		0.45	0.45		87.6	87.7		6.95	6.96		29.46	29.46		21.2	
12/08/2020	09:30	Cloudy	Surface	28.20	28.20	28.35	7.81	7.81	7.8	0.25	0.25	0.25	86.9	91.8	91.48	6.75	7.13	7.1	12.08	12.03	12.0	5.3	4.9
	09:32			28.50	28.50		7.79	7.79		0.24	0.24		93.5	93.7		7.26	7.27		12.01	12.00		4.4	
14/08/2020	09:10	Fine	Surface	27.70	27.70	27.75	7.91	7.91	7.9	0.20	0.20	0.20	98.8	99.3	98.98	7.77	7.80	7.8	80.30	80.28	80.3	46.5	46.8
	09:12			27.80	27.80		7.90	7.90		0.20	0.20		98.9	98.9		7.76	7.76		80.27	80.27		47.1	
17/08/2020	09:53	Fine	Surface	27.80	27.80	28.00	7.86	7.86	7.9	0.28	0.28	0.28	96.4	95.9	96.00	7.53	7.49	7.5	8.64	8.58	8.5	5.7	5.6
	09:55			28.20	28.20		7.85	7.85		0.28	0.28		96.0	95.7		7.49	7.47		8.45	8.45		5.5	
20/08/2020	09:30	Fine	Surface	26.80	26.80	26.85	7.97	7.97	8.0	0.16	0.16	0.16	92.9	93.7	93.93	7.42	7.48	7.5	9.04	9.02	9.0	3.7	4.0
	09:32			26.90	26.90		7.96	7.96		0.16	0.16		95.0	94.1		7.58	7.51		9.02	9.02		4.2	
22/08/2020	09:15	Fine	Surface	27.30	27.30	27.40	7.64	7.64	7.6	0.19	0.19	0.19	94.0	97.6	96.98	7.43	7.72	7.7	4.65	4.46	4.5	3.9	3.9
	09:17			27.50	27.50		7.62	7.62		0.19	0.19		98.6	97.7		7.79	7.72		4.51	4.52		3.8	
24/08/2020	10:20	Fine	Surface	28.10	28.10	28.20	7.78	7.78	7.8	0.24	0.24	0.24	93.8	96.1	95.15	7.31	7.48	7.4	19.66	19.60	19.6	15.4	15.3
	10:22			28.30	28.30		7.74	7.74		0.24	0.24		95.9	94.8		7.46	7.37		19.58	19.57		15.1	
26/08/2020	10:28	Fine	Surface	29.10	29.10	29.20	7.78	7.78	7.8	0.26	0.26	0.26	99.1	99.3	98.68	7.58	7.60	7.5	79.17	79.17	79.2	60.3	61.2
	10:30			29.30	29.30		7.77	7.77		0.26	0.26		98.4	97.9		7.52	7.48		79.18	79.18		62.0	
28/08/2020	09:25	Fine	Surface	27.60	27.60	27.75	7.68	7.68	7.7	0.23	0.23	0.23	96.8	96.5	95.65	7.61	7.58	7.5	7.37	7.25	7.2	15.8	16.1
	09:27			27.90	27.90		7.66	7.66		0.23	0.23		96.1	93.2		7.55	7.32		7.10	7.09		16.4	
31/08/2020	09:20	Fine	Surface	28.10	28.10	28.20	7.57	7.57	7.6	0.23	0.23	0.23	95.8	98.9	97.80	7.47	7.71	7.6	21.82	21.80	21.9	2.2	2.2
	09:22			28.30	28.30		7.57	7.57		0.23	0.23		98.4	98.1		7.66	7.63		21.89	21.89		2.2	

Remarks:
 Single underline denotes exceedance over Action Level.
 Double underline denotes exceedance over Limit Level.



Water Monitoring Result at Monitoring Station AC1 - Channelized nullah across the Project site (Upstream Reference Station)

Date	Time	Weater Condition	Sampling Depth m	Water Temperature °C			pH		Salinity ppt		DO Saturation %		DO mg/L		Turbidity NTU		Suspended Solids mg/L	
				Value	Average		Value	Average	Value	Average	Value	Average	Value	Average	Value	Average		
10/08/2020	- -	Fine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
12/08/2020	- -	Cloudy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
14/08/2020	- -	Fine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
17/08/2020	- -	Fine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
20/08/2020	- -	Fine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
22/08/2020	- -	Fine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
24/08/2020	- -	Fine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
26/08/2020	- -	Fine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
28/08/2020	- -	Fine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
31/08/2020	- -	Fine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Remarks:

Upstream Monitoring Station (Monitoring Station AC1) would be taken as reference for exceedance investigation only.



Water Monitoring Result at Monitoring Station AC2 - Channelized nullah across the Project site (Upstream Reference Station)

Date	Time	Weater Condition	Sampling Depth m	Water Temperature °C		pH		Salinity ppt			DO Saturation %		DO mg/L		Turbidity NTU		Suspended Solids mg/L						
				Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average						
10/08/2020	13:15	Fine	Surface	27.70	27.70	27.75	7.79	7.79	7.9	0.08	0.08	0.08	91.5	96.2	95.18	7.45	7.82	7.7	15.50	15.26	15.2	68.8	50.9
	13:17			27.80	27.80		8.01	8.01		0.08	0.08		96.6	96.4		7.85	7.83		15.07	14.98		33	
12/08/2020	10:54	Cloudy	Surface	26.60	26.60	26.75	7.44	7.44	7.6	0.07	0.07	0.07	87.8	89.9	90.78	7.02	7.19	7.3	7.56	7.58	7.6	2.3	2.6
	10:56			26.90	26.90		7.68	7.68		0.07	0.07		92.4	93.0		7.38	7.43		7.55	7.52		2.9	
14/08/2020	10:40	Fine	Surface	26.70	26.70	26.85	7.67	7.67	7.8	0.07	0.07	0.07	84.6	87.0	87.68	6.77	6.94	7.0	46.59	46.59	46.4	14.1	25.6
	10:42			27.00	27.00		7.85	7.85		0.07	0.07		89.0	90.1		7.10	7.18		46.38	46.21		37	
17/08/2020	11:00	Fine	Surface	27.10	27.10	27.75	7.58	7.58	7.7	0.06	0.06	0.06	78.8	87.0	86.58	6.15	6.77	6.7	4.43	4.43	4.4	5.6	5.5
	11:02			28.40	28.40		7.75	7.75		0.06	0.06		89.9	90.6		6.99	7.04		4.42	4.33		5.4	
20/08/2020	10:25	Fine	Surface	25.10	25.10	25.25	7.37	7.37	7.4	0.04	0.04	0.04	92.9	95.8	95.68	7.64	7.88	7.9	7.55	7.30	7.3	5.4	8.0
	10:27			25.40	25.40		7.46	7.46		0.04	0.04		97.0	97.0		7.97	7.97		7.28	7.26		10.5	
22/08/2020	10:45	Fine	Surface	26.30	26.30	26.30	8.01	8.01	8.0	0.05	0.05	0.05	102.3	103.3	103.25	8.21	8.32	8.3	13.27	13.20	13.2	7.3	12.2
	10:47			26.30	26.30		8.03	8.03		0.05	0.05		103.5	103.9		8.34	8.35		13.21	13.22		17	
24/08/2020	11:30	Fine	Surface	26.90	26.90	27.00	7.28	7.28	7.3	0.05	0.05	0.05	94.4	95.4	95.20	7.51	7.60	7.6	14.33	13.84	13.8	42.1	22.6
	11:32			27.10	27.10		7.30	7.30		0.05	0.05		96.0	95.0		7.64	7.56		13.52	13.40		3.1	
26/08/2020	11:25	Fine	Surface	26.60	26.60	26.70	7.29	7.29	7.3	0.05	0.05	0.05	88.3	90.5	91.55	7.07	7.24	7.3	6.23	6.21	6.2	16.6	12.0
	11:27			26.80	26.80		7.39	7.39		0.05	0.05		92.7	94.7		7.42	7.57		6.20	6.18		7.4	
28/08/2020	10:50	Fine	Surface	26.70	26.70	26.85	7.77	7.77	7.8	0.06	0.06	0.06	90.8	94.5	95.18	7.26	7.56	7.6	8.02	8.05	8.0	8.6	8.5
	10:52			27.00	27.00		7.77	7.77		0.06	0.06		97.3	98.1		7.77	7.83		8.02	7.80		8.4	
31/08/2020	10:30	Fine	Surface	26.50	26.50	26.70	7.58	7.58	7.6	0.05	0.05	0.05	85.6	88.4	89.58	6.86	7.08	7.2	8.59	8.58	8.5	4.4	4.3
	10:32			26.90	26.90		7.59	7.59		0.05	0.05		91.5	92.8		7.53	7.43		8.45	8.35		4.1	

Remarks:

Upstream Monitoring Station (Monitoring Station AC2) would be taken as reference for exceedance investigation only.



Water Monitoring Result at Monitoring Station AC3 - Channelized nullah across the Project site (Upstream Reference Station)

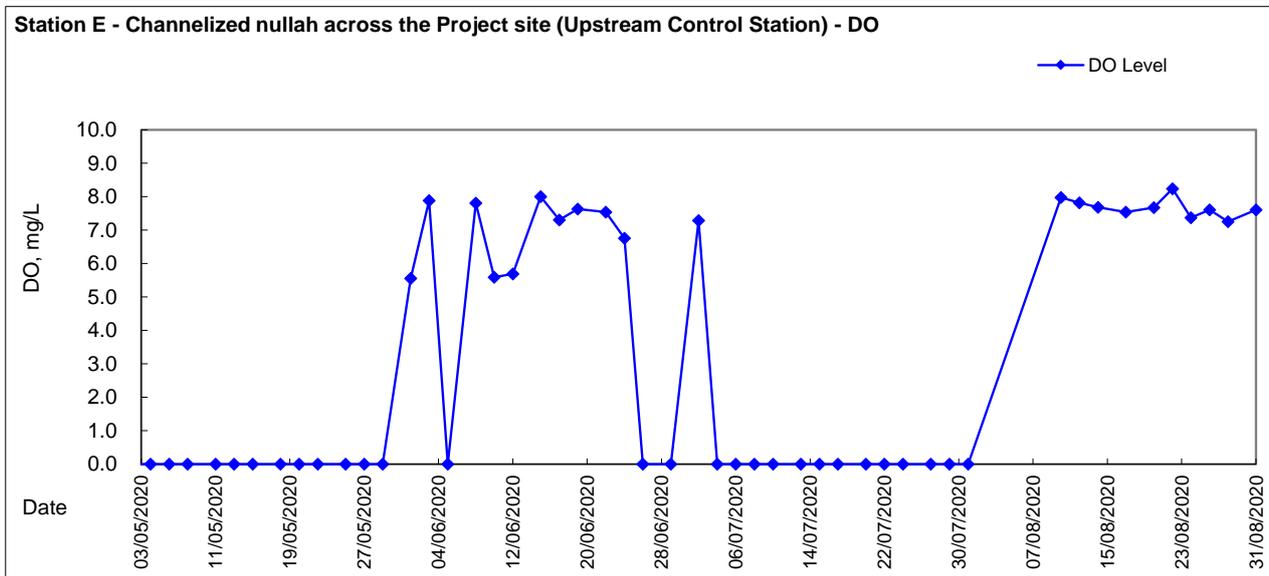
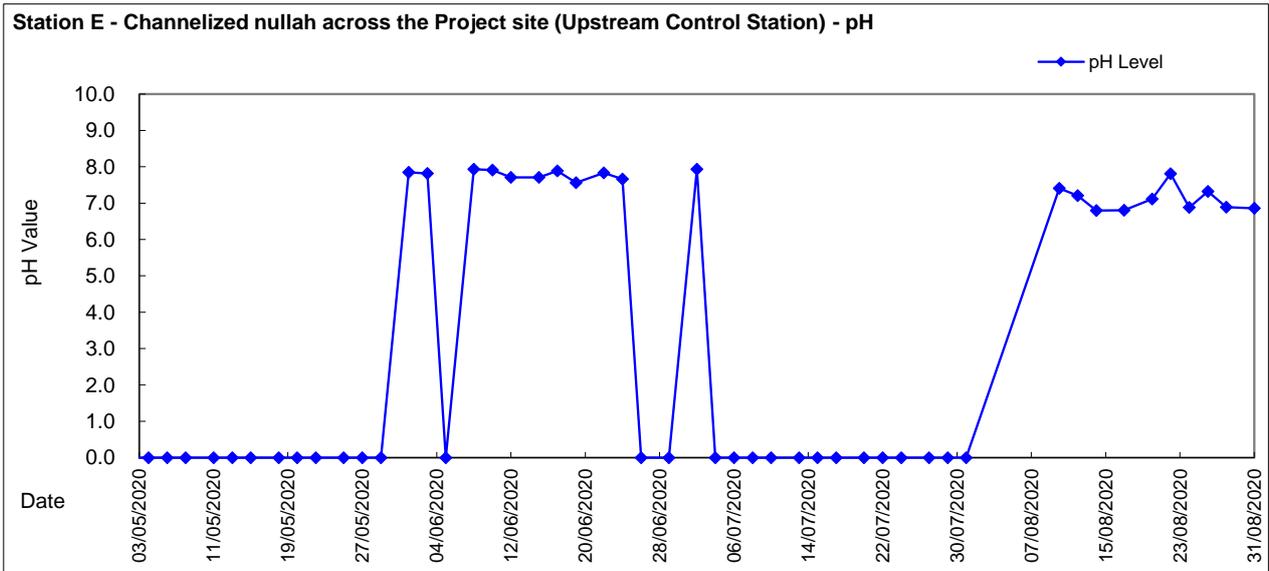
Date	Time	Weater Condition	Sampling Depth m	Water Temperature °C			pH			Salinity ppt			DO Saturation %			DO mg/L			Turbidity NTU			Suspended Solids mg/L		
				Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Value	Average	Value	Value	Average
10/08/2020	13:25	Fine	Surface	26.00	26.00	26.10	7.82	7.82	7.8	0.04	0.04	0.04	83.4	89.4	89.53	6.75	7.25	7.3	25.43	25.35	25.2	20.3	21.1	
	13:25			26.20	26.20		7.81	7.81		0.04	0.04		92.0	93.3		7.45	7.56		25.20	24.96		21.8		
12/08/2020	11:05	Cloudy	Surface	27.10	27.10	27.25	7.87	7.87	7.9	0.06	0.06	0.06	86.0	90.3	91.05	6.82	7.15	7.2	46.59	46.15	46.1	6.3	25.6	
	11:07			27.40	27.40		7.84	7.84		0.06	0.06		93.4	94.5		7.40	7.48		45.96	45.81		44.8		
14/08/2020	10:55	Fine	Surface	27.50	27.50	27.60	7.82	7.82	7.7	0.07	0.07	0.07	94.2	92.1	91.85	7.43	7.26	7.2	14.79	14.58	14.5	9.8	9.6	
	10:57			27.70	27.70		7.67	7.67		0.07	0.07		91.0	90.1		7.18	7.10		14.38	14.36		9.4		
17/08/2020	11:28	Fine	Surface	27.40	27.40	27.45	7.76	7.76	7.7	0.05	0.05	0.05	96.0	95.9	95.58	7.59	7.58	7.6	8.70	8.69	8.7	4.3	4.5	
	11:30			27.50	27.50		7.65	7.65		0.05	0.05		95.4	95.0		7.54	7.51		8.68	8.69		4.7		
20/08/2020	10:35	Fine	Surface	26.20	26.20	26.30	7.60	7.60	7.5	0.03	0.03	0.03	96.3	98.3	98.38	7.77	7.92	7.9	14.84	14.89	14.8	15.4	15.6	
	10:37			26.40	26.40		7.42	7.42		0.03	0.03		99.4	99.5		8.01	8.02		14.87	14.72		15.8		
22/08/2020	10:35	Fine	Surface	26.50	26.50	26.60	7.94	7.94	7.9	0.08	0.08	0.08	105.0	105.1	105.18	8.42	8.42	8.4	8.99	8.96	8.9	6.8	6.8	
	10:37			26.70	26.70		7.95	7.95		0.08	0.08		105.5	105.1		8.44	8.41		8.97	8.87		6.8		
24/08/2020	11:48	Fine	Surface	27.70	27.70	27.80	7.62	7.62	7.6	0.05	0.05	0.05	93.8	95.2	94.83	7.37	7.48	7.4	8.79	8.19	8.5	4.6	4.5	
	11:47			27.90	27.90		7.61	7.61		0.05	0.05		96.0	94.3		7.53	7.40		8.79	8.20		4.4		
26/08/2020	11:38	Fine	Surface	27.60	27.60	27.75	7.62	7.62	7.6	0.06	0.06	0.06	82.9	91.9	91.28	6.53	7.73	7.3	8.35	8.33	8.4	4.0	3.8	
	11:40			27.90	27.90		7.61	7.61		0.06	0.06		94.2	95.0		7.40	7.46		8.32	8.31		3.6		
28/08/2020	11:10	21:36	Surface	27.60	27.60	27.75	7.80	7.80	7.7	0.06	0.06	0.06	91.1	93.3	92.55	7.17	7.34	7.3	35.81	35.80	35.8	178	208.5	
	11:12			27.90	27.90		7.81	7.81		0.06	0.06		95.5	96.5		7.50	7.57		35.74	35.85		239		
31/08/2020	10:55	Fine	Surface	27.00	27.00	27.10	7.96	7.96	8.0	0.05	0.06	0.06	92.4	95.4	95.30	7.35	7.59	7.6	40.58	41.56	41.7	73.8	74.3	
	10:57			27.20	27.20		7.95	7.95		0.06	0.06		96.7	96.7		7.63	7.69		42.33	42.35		74.8		

Remarks:

Upstream Monitoring Station (Monitoring Station AC3) would be taken as reference for exceedance investigation only.

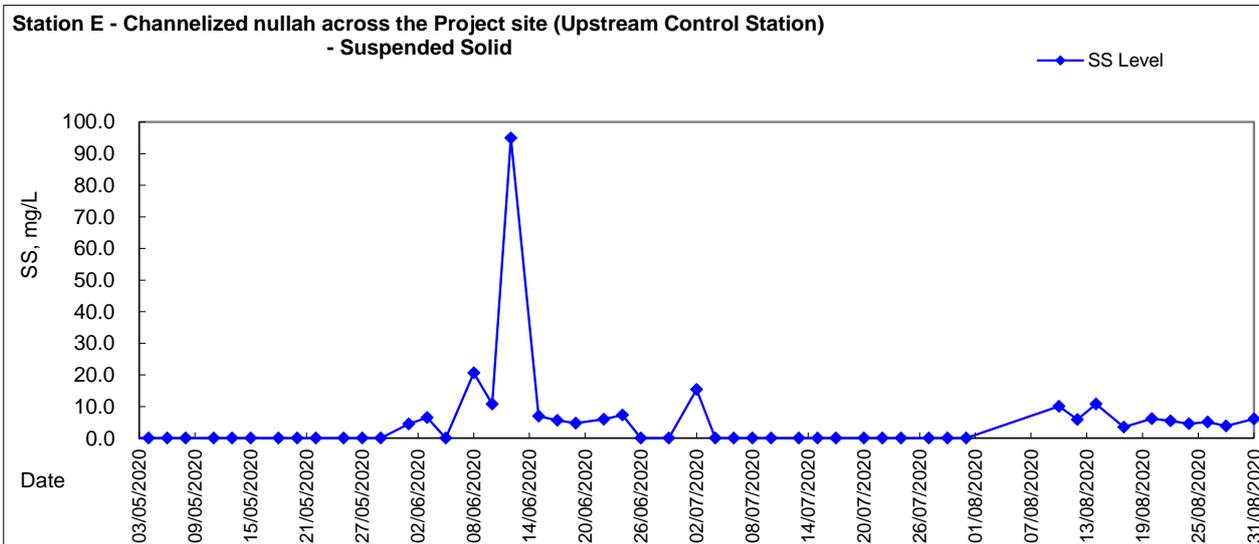
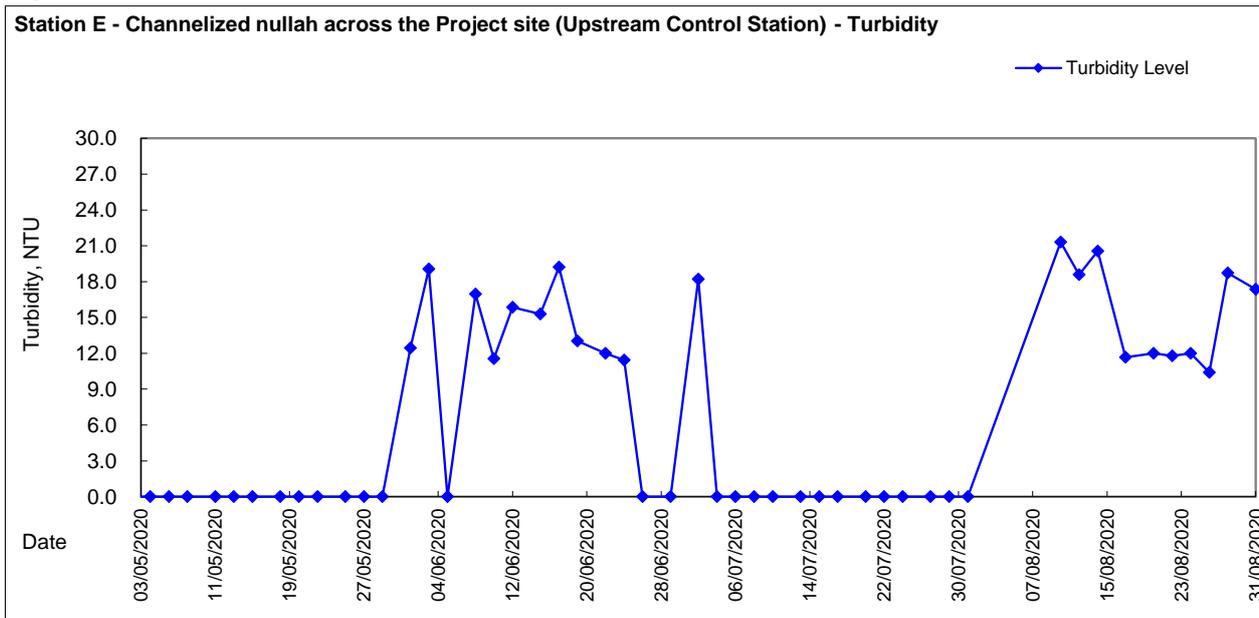


Graphic Presentation of WQM Result



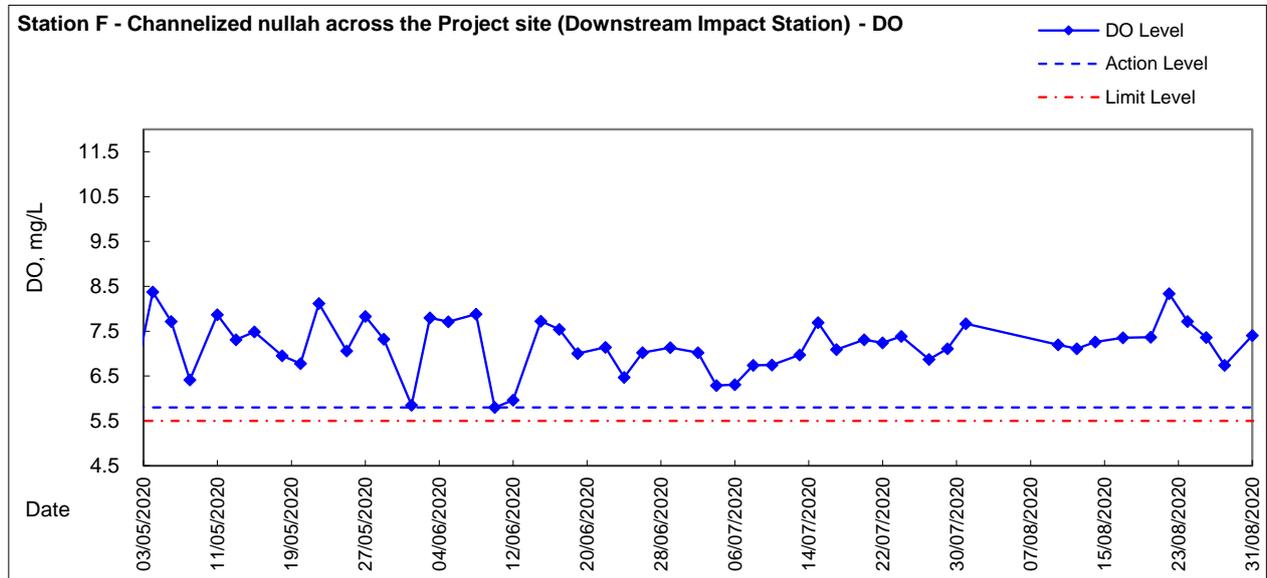
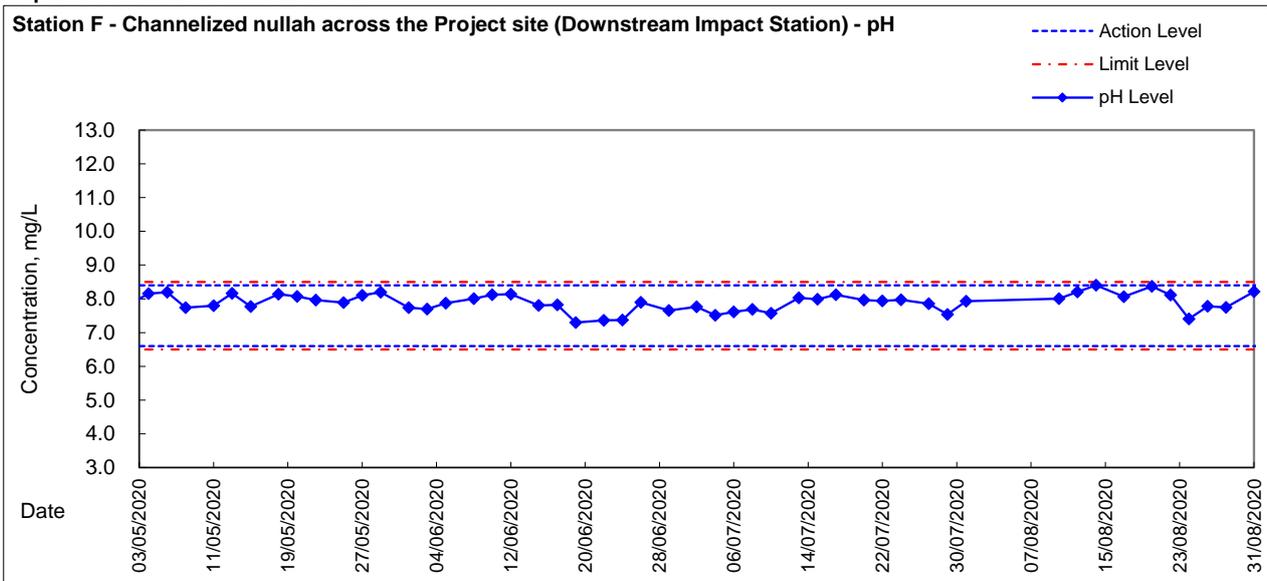


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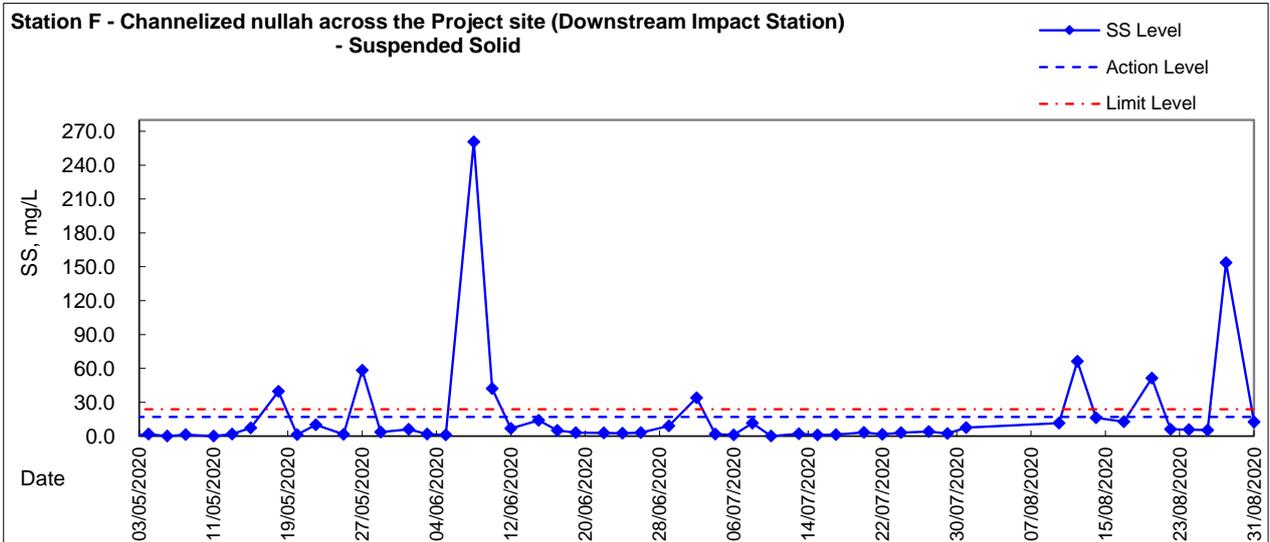
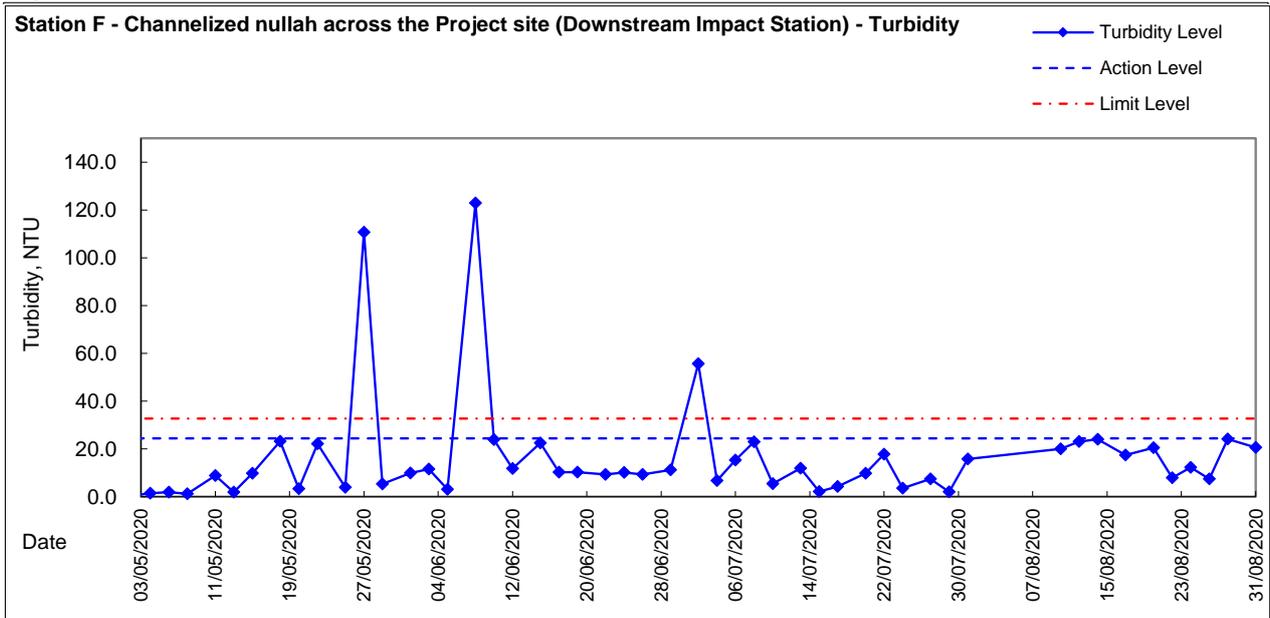


Graphic Presentation of WQM Result



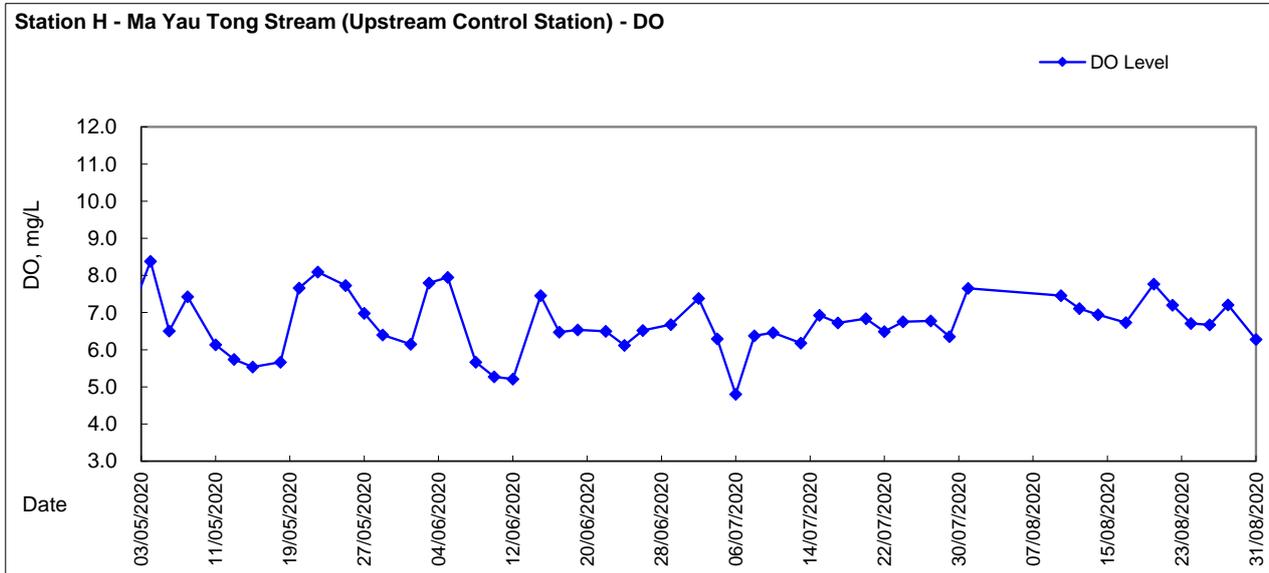
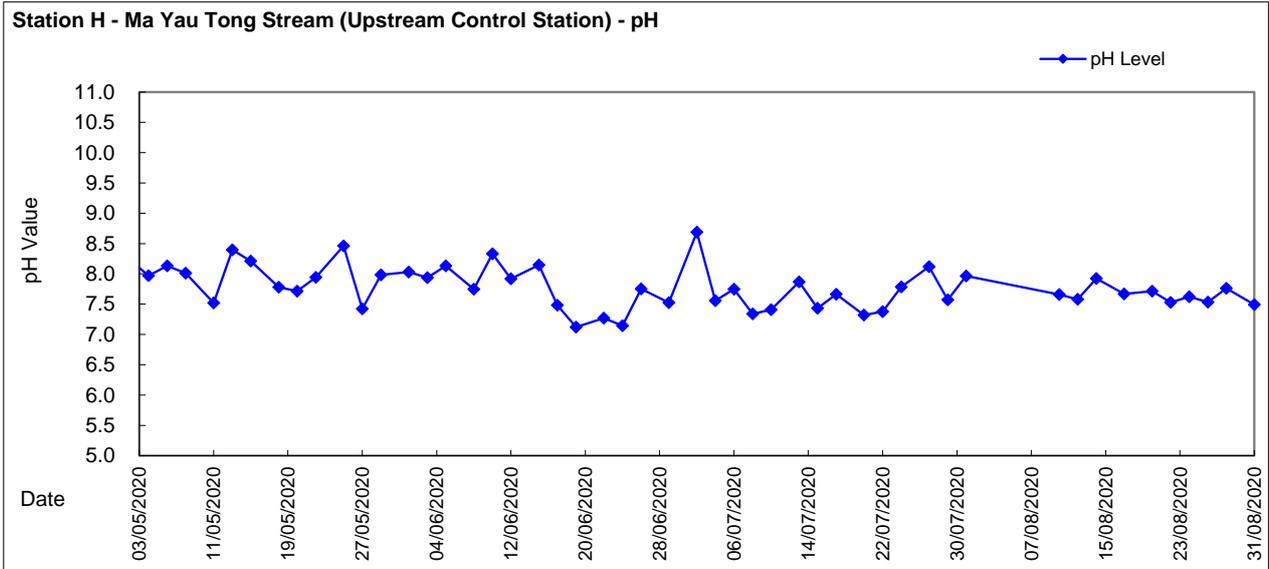


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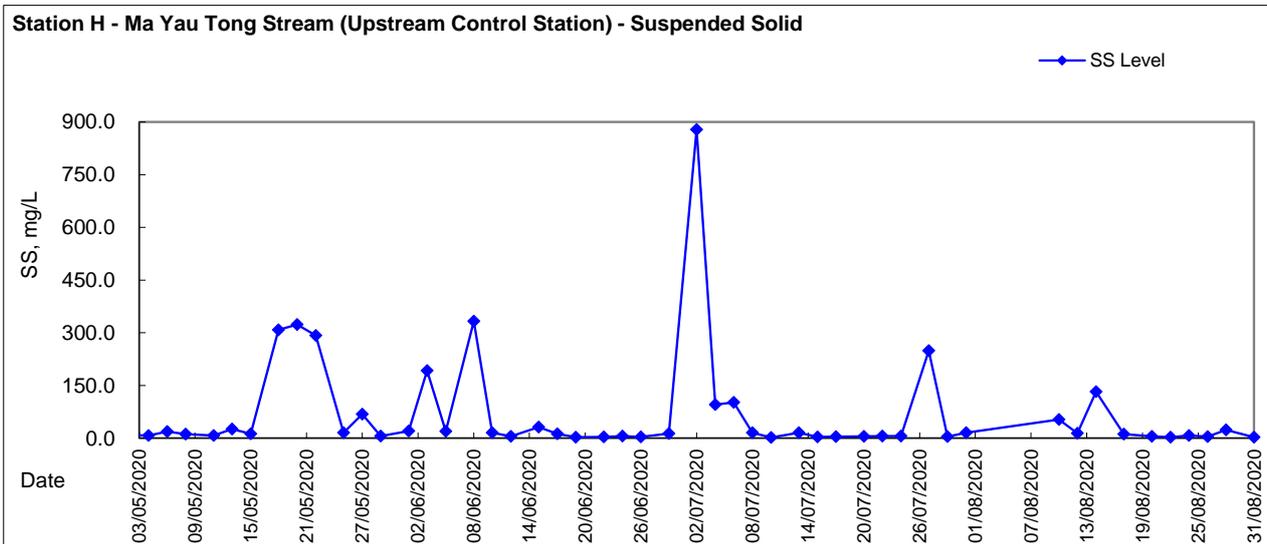
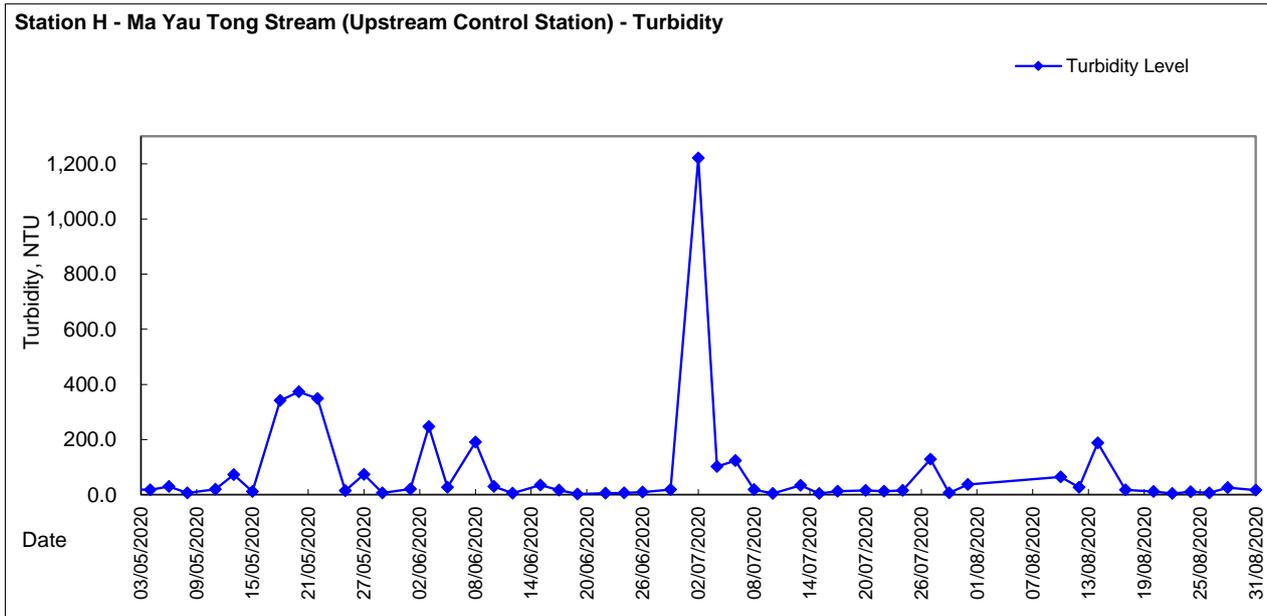


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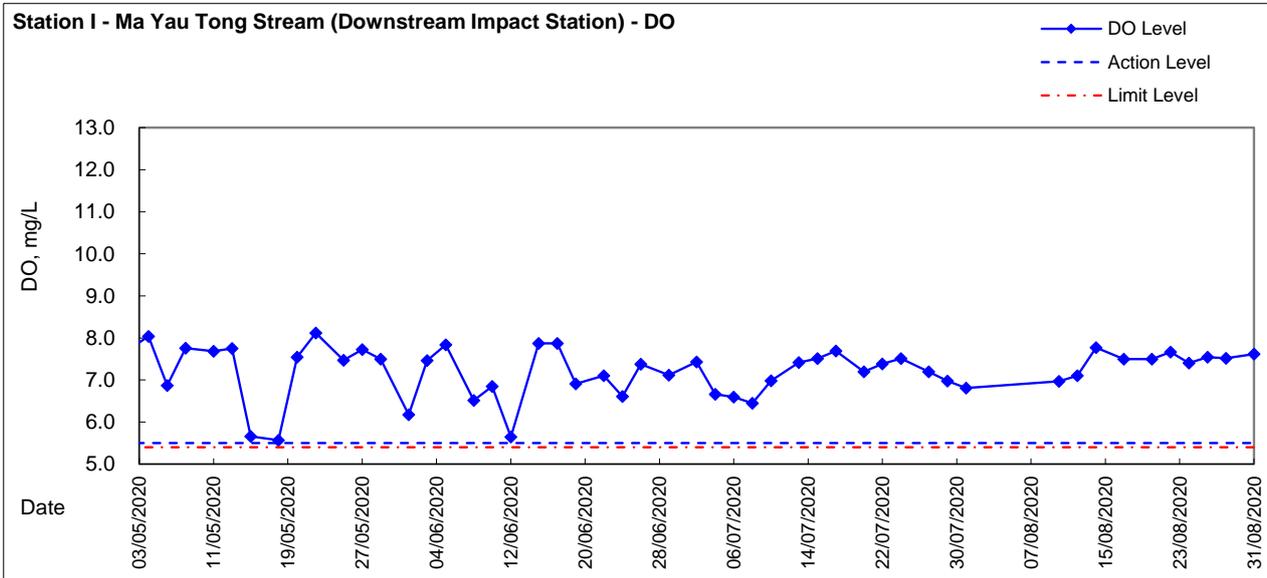
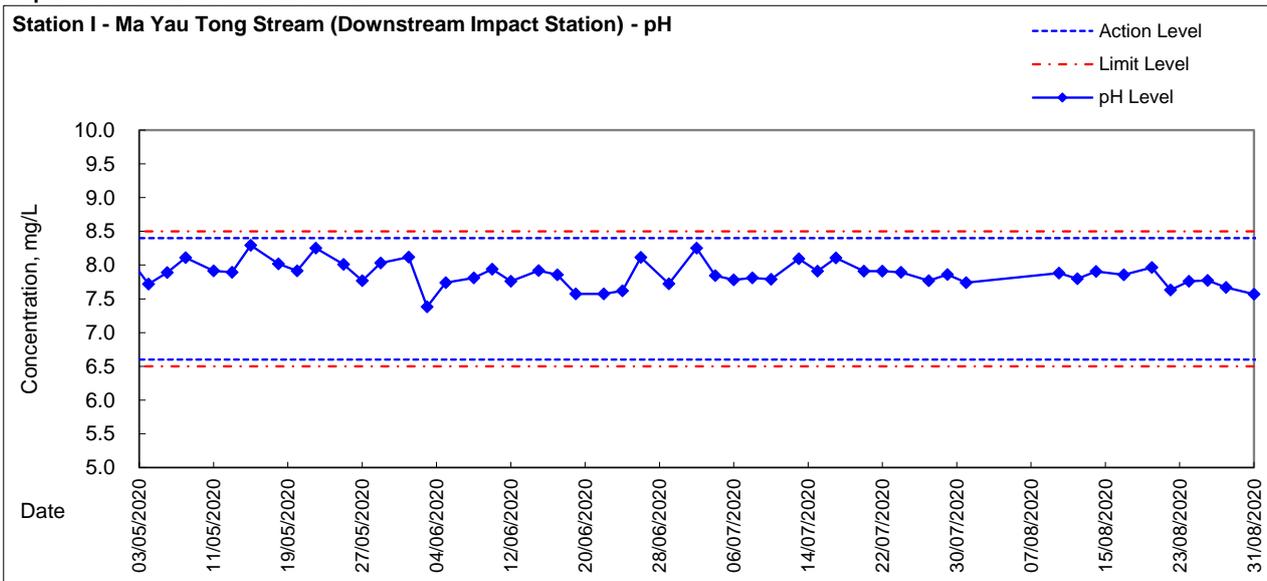


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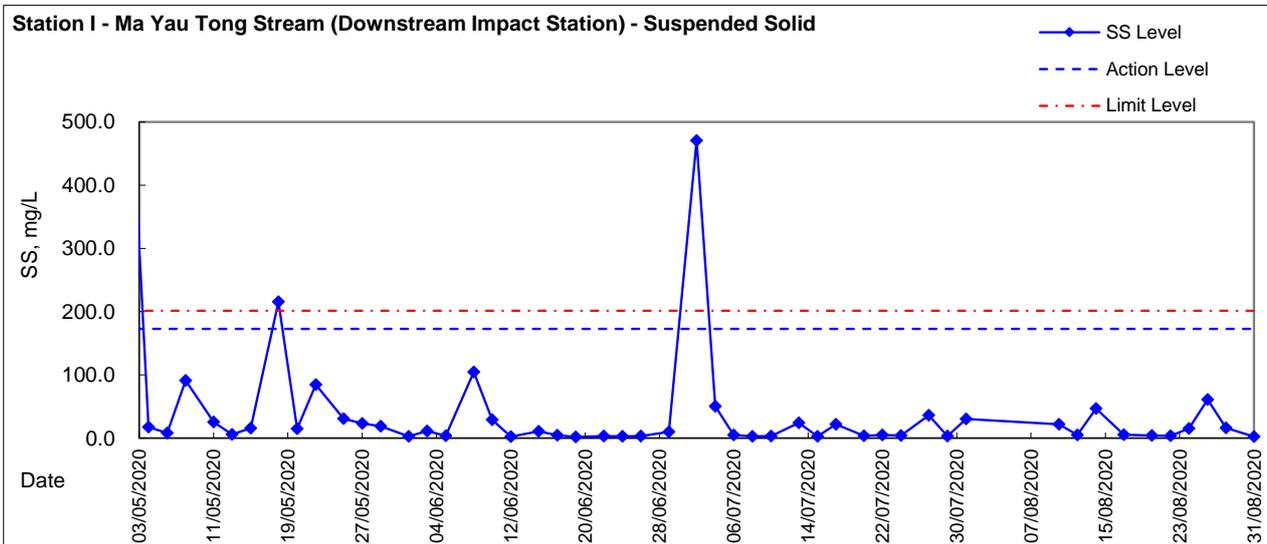
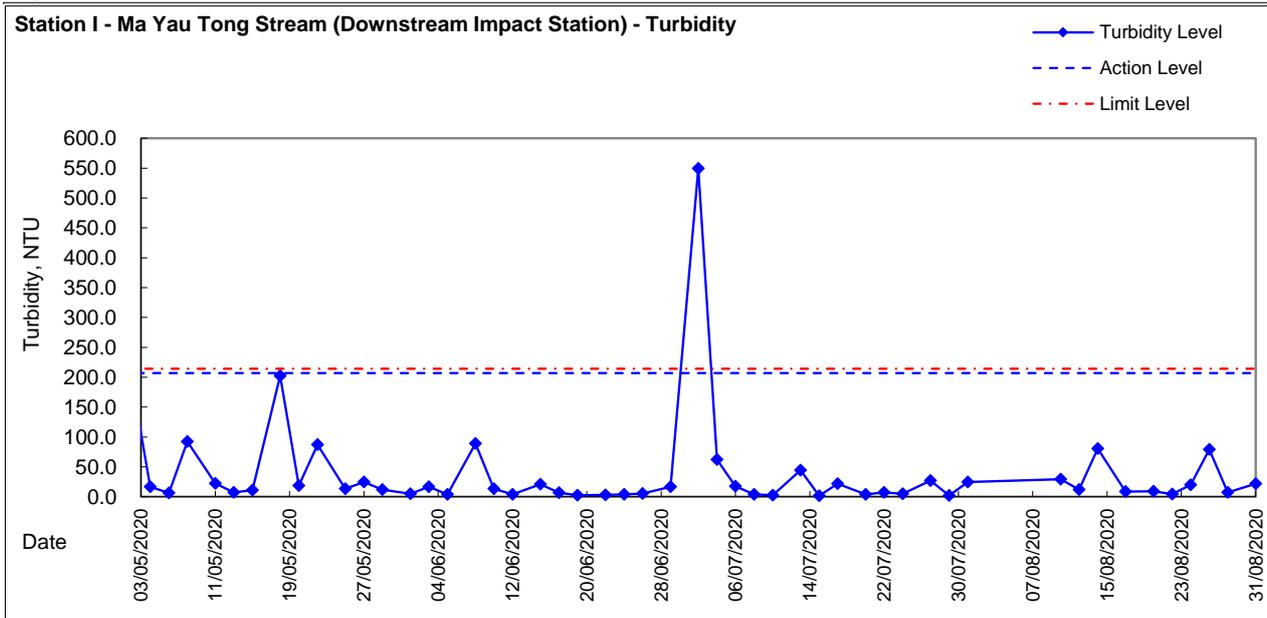


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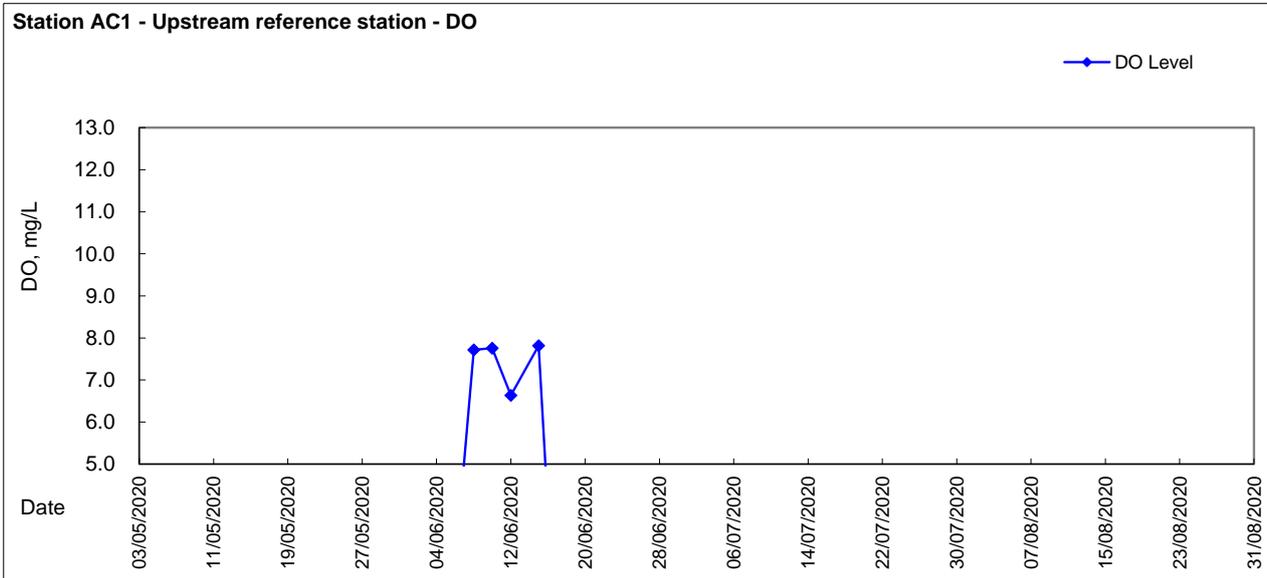
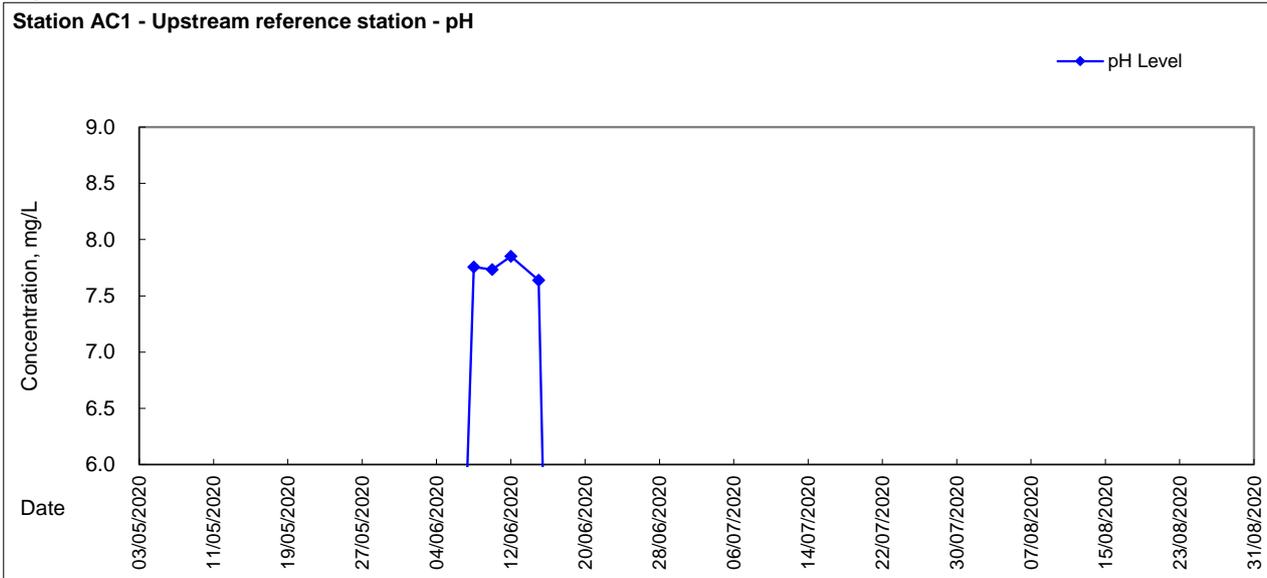


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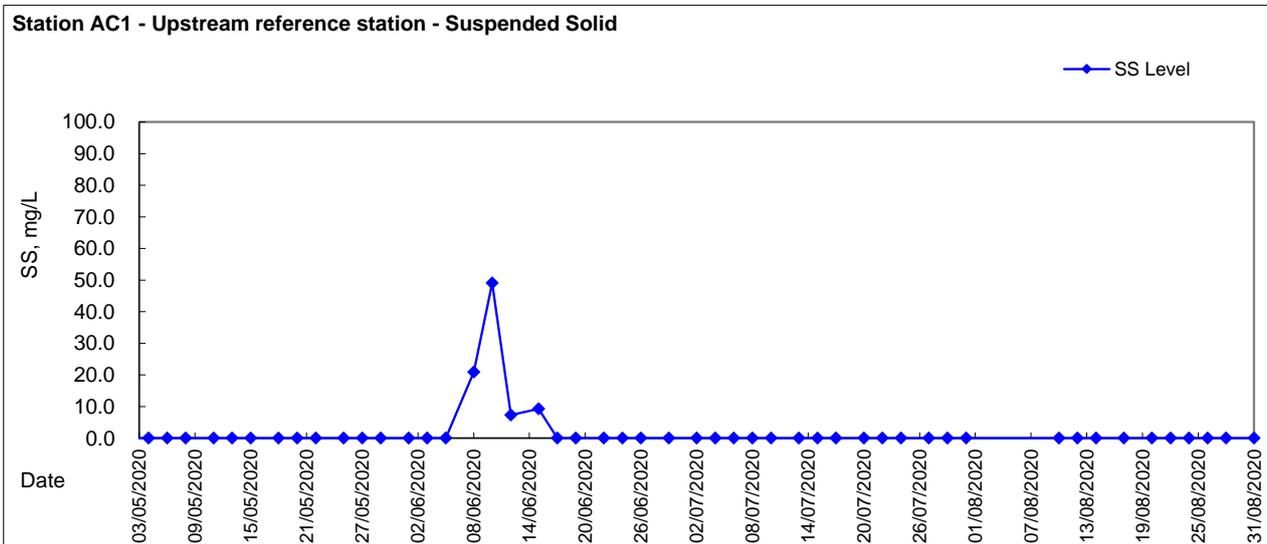
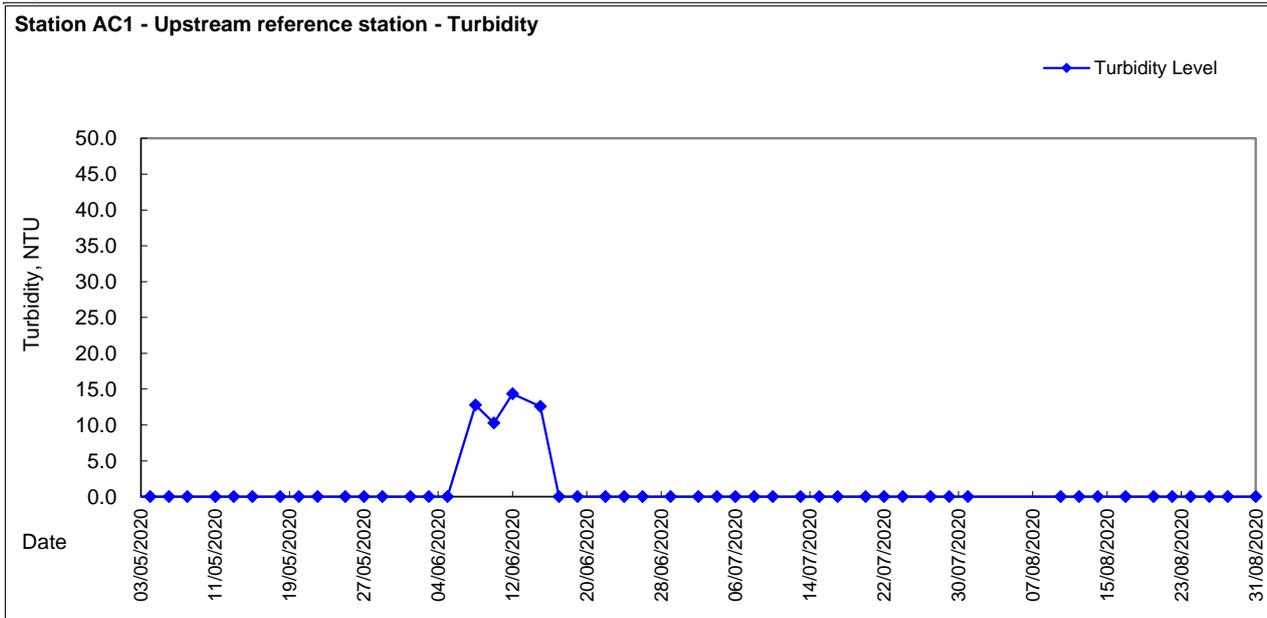


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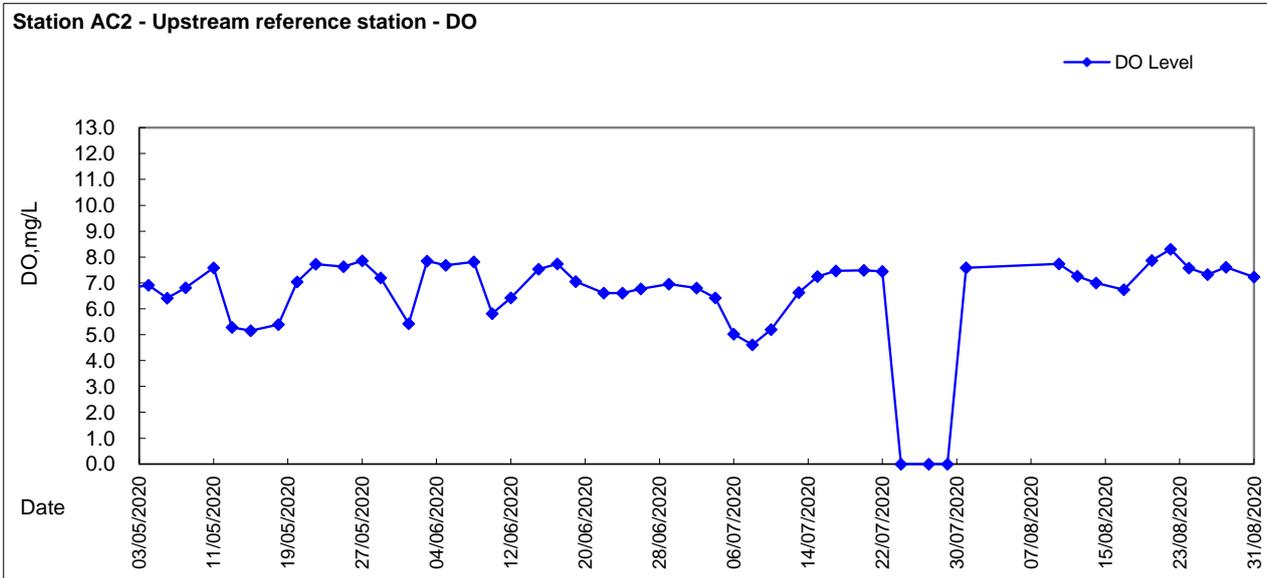
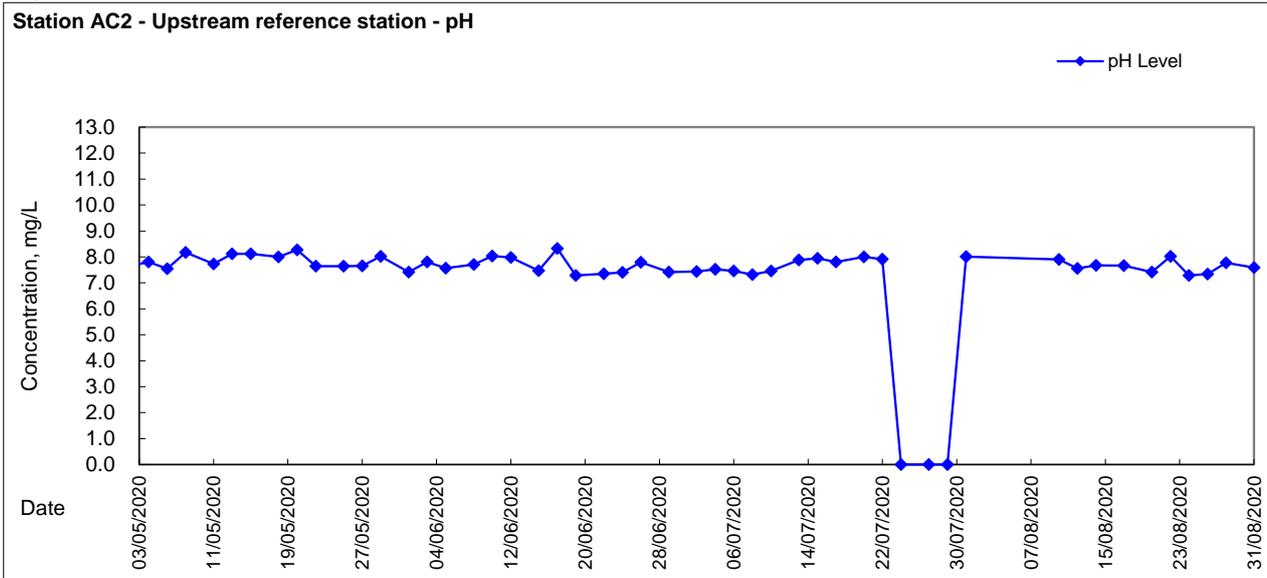


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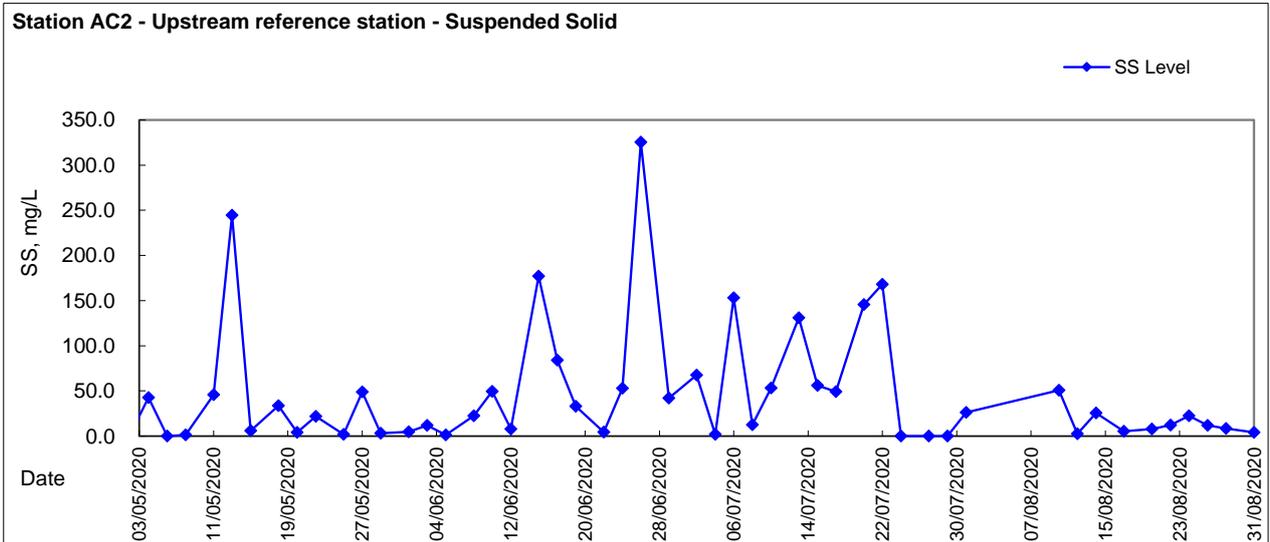
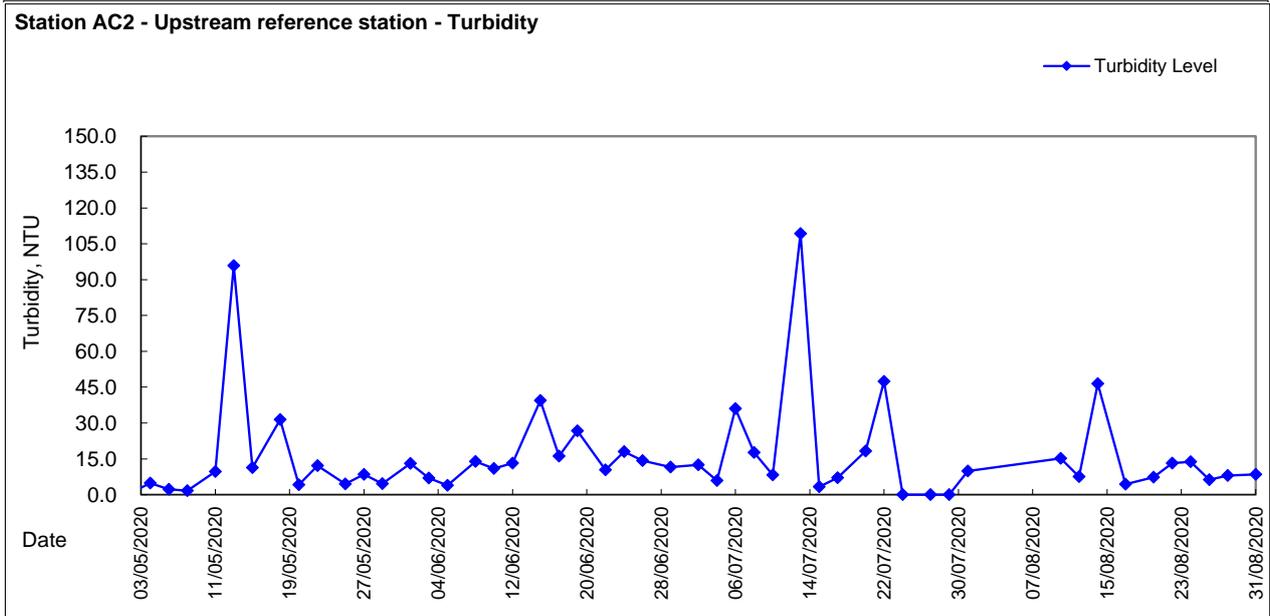


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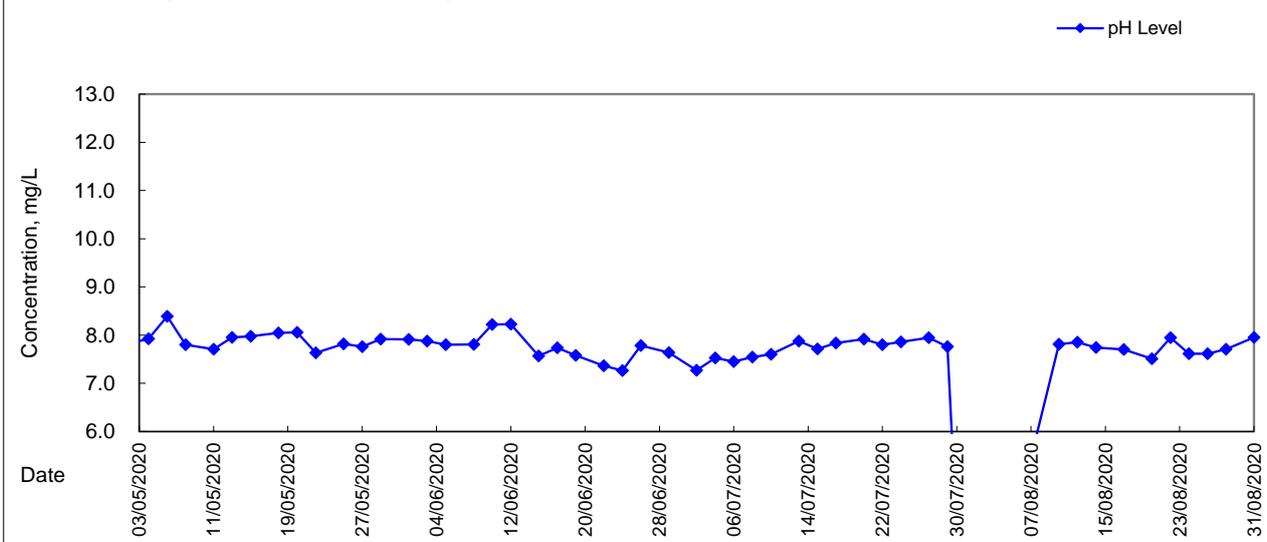
Graphic Presentation of WQM Result



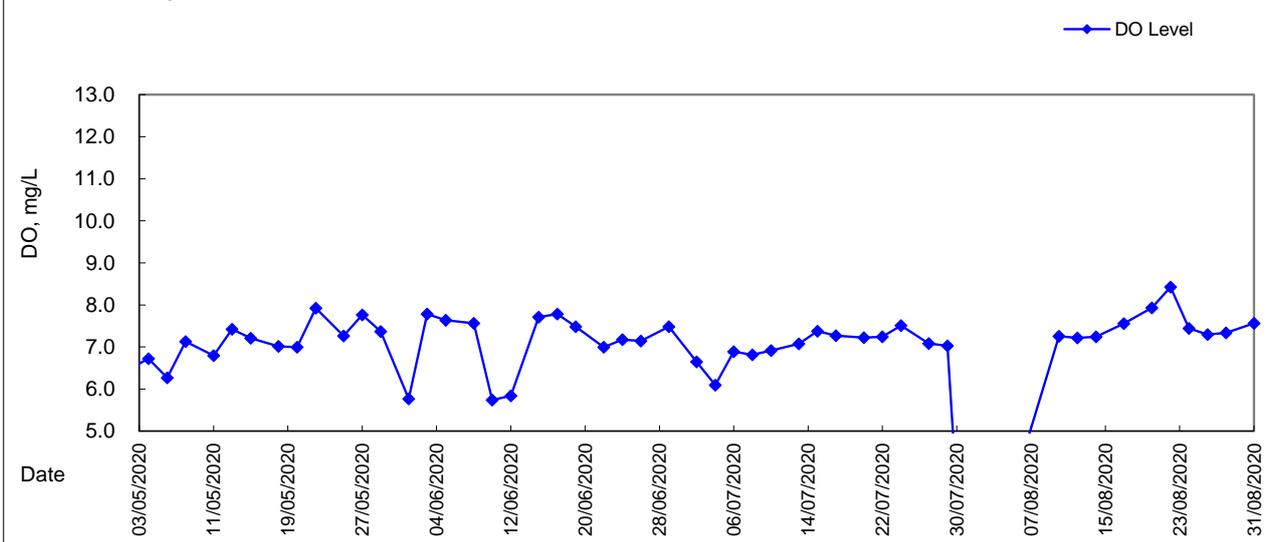


Graphic Presentation of WQM Result

Station AC3 - Upstream reference station - pH

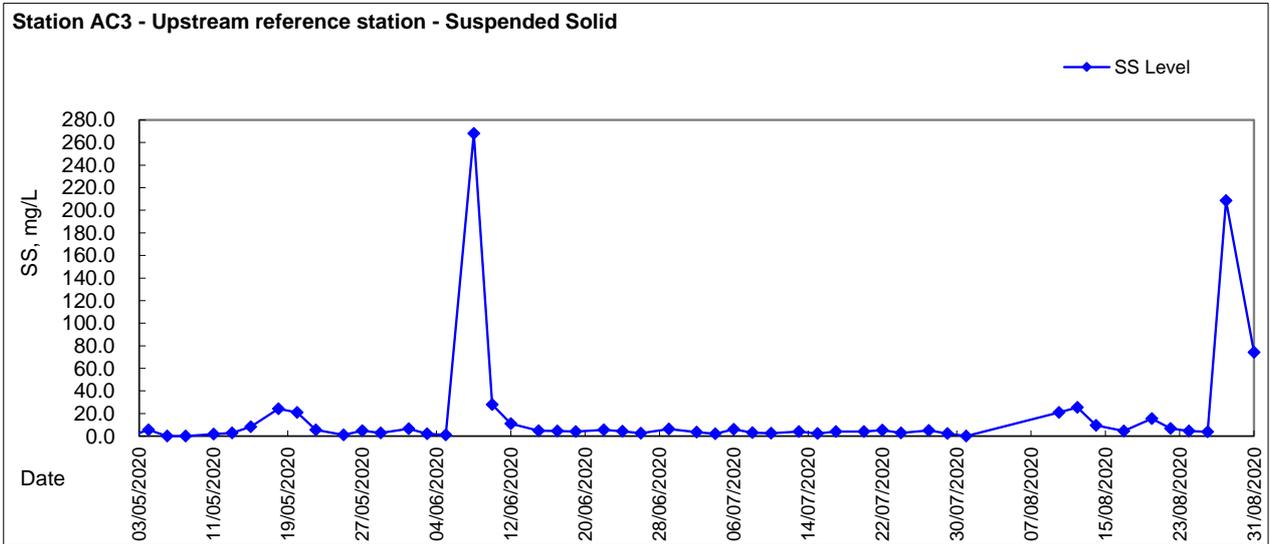
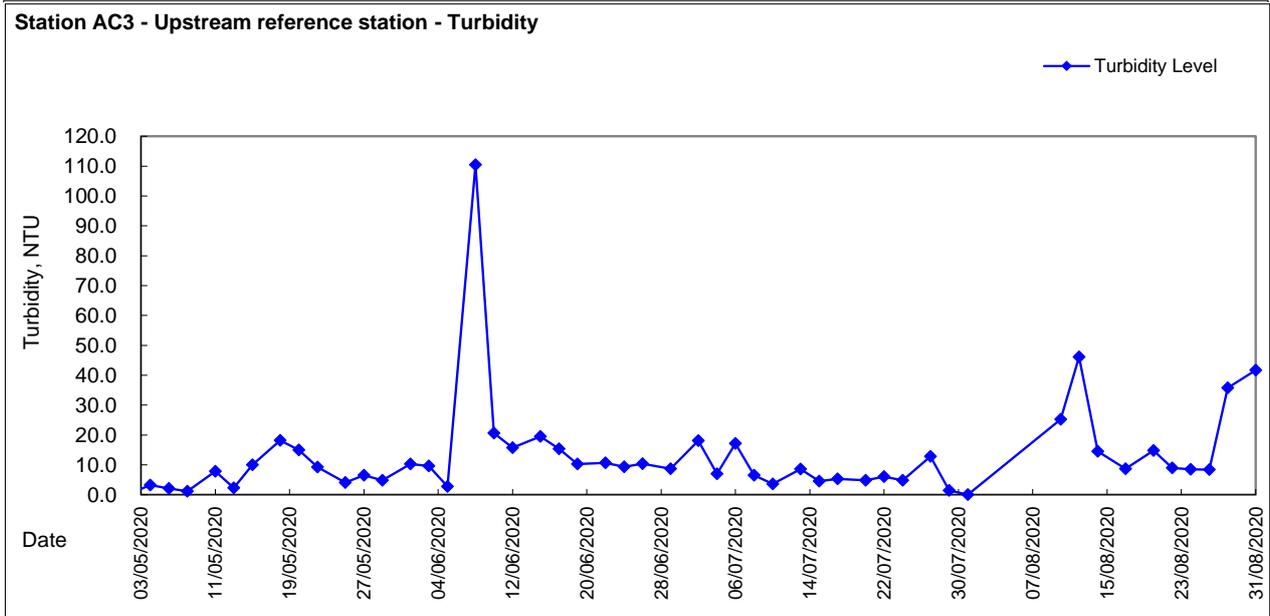


Station AC3 - Upstream reference station - DO





Graphic Presentation of WQM Result





Appendix 5.5

Monthly Summary Waste Flow Table

Contract No.: NE/2017/03

Development of Anderson Road Quarry Site – Road Improvement Works and Pedestrian Connectivity Facilities Works Phase 2A

Monthly Summary Waste Flow Table for 2020(year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	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)
Jan	1.284	0.000	0.083	1.058	1.202	0.000	0.002	0.069	0.000	0.000	0.029
Feb	4.744	0.000	0.023	1.590	4.721	0.000	0.000	0.000	0.620	0.000	0.027
Mar	6.140	0.000	0.083	0.503	6.057	0.000	0.002	0.054	0.569	0.000	0.025
Apr	1.828	0.000	0.000	0.968	1.828	0.000	0.000	0.000	0.000	0.000	0.031
May	0.380	0.000	0.000	0.015	0.380	0.000	0.000	0.000	0.260	0.000	0.026
Jun	1.181	0.000	0.000	0.135	1.181	0.000	0.002	0.176	2.210	0.000	0.015
Sub-total	15.557	0.000	0.188	4.268	15.370	0.000	0.006	0.299	3.660	0.000	0.153
Jul	2.107	0.000	0.938	1.575	1.169	0.000	0.000	0.000	0.000	0.000	0.011
Aug	2.041	0.000	0.323	0.713	1.718	0.000	0.000	0.000	0.830	0.000	0.048
Sep											
Oct											
Nov											
Dec											
Total	19.705	0.000	1.448	6.555	18.257	0.000	0.006	0.299	4.490	0.000	0.213

Contract No.: NE/2017/03

Development of Anderson Road Quarry Site – Road Improvement Works and Pedestrian Connectivity Facilities Works Phase 2A

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)
15.000	0.000	0.000	0.000	15.000	0.000	0.100	2.000	0.300	1.000	3.500

- Notes:
- (1) The performance targets are given in 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 and waste will be collected by recycler for recycling
 - (4) Use the conversion factor, density of general refuse (1 t/m³) and inert C&D materials (2 t/m³).
 - (5) Use the conversion factor for chemical waste (0.88kg/L)



Appendix 6.1

Event Action Plans



Event and Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded	<ol style="list-style-type: none"> 1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analyzed noise problem; 4. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to ET Leader / ER; 2. Implement noise mitigation proposals.
Limit Level being exceeded	<ol style="list-style-type: none"> 1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated.



Event and Action Plan for Construction Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Contractor, IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Notify Contractor.	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; and 3. Amend working methods agreed with the ER as appropriate
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform Contractor, IEC and ER; 3. Advise the Contractor and ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with Contractor, IEC and ER; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures; 4. Advise the ET and ER on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 4. 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.	1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; and 4. Amend proposal as appropriate.



Event and Action Plan for Construction Air Quality (Con't)

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Contractor, IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; and 5. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 3. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 4. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. 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.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.



Event and Action Plan for Water Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> Repeat in situ measurement to confirm findings; Identify reasons for noncompliance and source(s) of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor; Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> Discuss with ET, ER and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Discuss with ET, IEC and Contractor on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> Inform the ER and confirm notification of the noncompliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, ER and IEC and propose mitigation measures to IEC and ER; Implement the agreed mitigation measures.
Action level being exceeded by more than one consecutive sampling days	<ol style="list-style-type: none"> Repeat in situ measurement to confirm findings; Identify reasons for noncompliance and source(s) of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor; Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> Discuss with ET, ER and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Discuss with ET, IEC and Contractor on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented; Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> Inform the ER and confirm notification of the noncompliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, ER and IEC and propose mitigation measures to IEC and ER within three working days; Implement the agreed mitigation measures.



Event and Action Plan for Water Quality (cont'd)

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
LIMIT LEVEL				
Limit level being exceeded by one sampling day	<ol style="list-style-type: none"> Repeat in situ measurement to confirm findings; Identify reasons for noncompliance and source(s) of impact; Inform IEC Contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit level. 	<ol style="list-style-type: none"> Discuss with ET, ER and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> Inform the ER and confirm notification of the noncompliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within three working days; Implement the agreed mitigation measures.
Limit level being exceeded by more than one consecutive sampling days	<ol style="list-style-type: none"> Repeat in situ measurement to confirm findings; Identify reasons for noncompliance and source(s) of impact; Inform IEC Contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days. 	<ol style="list-style-type: none"> Discuss with ET, ER and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Supervise the implementation of remedial measures; Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level. 	<ol style="list-style-type: none"> Inform the ER and confirm notification of the noncompliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within three working days; Implement the agreed mitigation measures; As directed by the ER, to slow down or to stop all or part of the construction activities.



Event and Action Plan for Landscape and Visual

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
LIMIT LEVEL				
Nonconformity on one occasion	<ol style="list-style-type: none"> 1. Identify source(s); 2. Inform the Contractor, IEC and ER; 3. Discuss remedial actions with IEC, ER and Contractor; 4. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check inspection report; 2. Check contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures; 4. Advise ER on effectiveness of proposed remedial measures; 5. Check implementation of remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-conformity in writing 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial 	<ol style="list-style-type: none"> 1. Identify source and investigate the non- conformity 2. Implement remedial measures 3. Amend working methods agreed with ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Nonconformity	<ol style="list-style-type: none"> 1. Identify source(s) 2. Inform the Contractor, IEC and ER; 3. Discuss inspection frequency 4. Discuss remedial actions with IEC, ER and Contractor 5. Monitor remedial actions until rectification has been completed; 6. If non- conformity stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check Contractor's working method 3. Discuss with ET, ER and Contractor on possible remedial measures 4. Advise ER on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Identify source and investigate the non- conformity 2. Implement remedial measures 3. Amend working methods agreed with ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by ER until the non- conformity is abated.



Appendix 6.2

Summary for Notification of Exceedance



Ref no.	Date	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Follow-up action
X_20RIW2_056	12-Aug-20	F	Turbidity (NTU)	23.1	24.4	32.7	<p>Possible reason: Natural variation in water quality in the vicinity of the water quality monitoring station due to rainy weather.</p> <p>Action taken/ to be taken: Checking with contractor for the construction activities conducted on 12 August 2020. No exceedance was recorded on 14 August 2020.</p> <p>Remarks/ Other Observations: The weather was rainy from 11 to 12 August 2020. Silty water was observed at monitoring station F during water quality monitoring. RC works, soil nail, piling, road marking and demolition of median island were commenced at RIW2 construction site area under Contract No. NE/2017/03 on 12 August 2020, No surface runoff was also observed. Turbidity and suspended soil results were not high at station E (18.6NTU and 5.9mg/L) and station AC2 (7.6NTU and 2.6mg/L) but was high at station AC3 (46.1NTU and 25.6mg/L). In view of the above, it is considered that there were no evidence to suggest the exceedances were related to Project works at RIW2.</p>
			pH	8.2	6.6-8.4	6.5-8.5	
			SS (mg/L)	66.2	17.0	23.8	
			DO(mg/l)	7.1	5.8	5.5	
X_20RIW2_056	20-Aug-20	F	Turbidity (NTU)	20.5	24.4	32.7	<p>Possible reason: Natural variation in water quality in the vicinity of the water quality monitoring station due to adverse weather.</p> <p>Action taken/ to be taken: Checking with contractor for the construction activities conducted on 20 August 2020. No exceedance was recorded on 22 August 2020.</p> <p>Remarks/ Other Observations: The weather was rainy from 18 to 20 August 2020 and amber rainstorm warning signal was enforced on 18 August 2020. Slightly silty water was observed at monitoring station F during water quality monitoring. RC works, soil nail, piezometer installation and piling were commenced at RIW2 construction site area under Contract No. NE/2017/03 on 20 August 2020. No surface runoff affecting the surrounding gullies or public drainages was observed. Turbidity and suspended soil results were not high at station E (12.0NTU and 6.2mg/L), station AC2 (7.3NTU and 8.0mg/L) and station AC3 (14.8NTU and 15.6mg/L). In view of the above, it is considered that there were no evidence to suggest the exceedances were related to Project works at RIW2.</p>
			pH	8.4	6.6-8.4	6.5-8.5	
			SS (mg/L)	51.2	17.0	23.8	
			DO(mg/l)	7.4	5.8	5.5	
X_20RIW2_056	28-Aug-20	F	Turbidity (NTU)	24.2	24.4	32.7	<p>Possible reason: Natural variation in water quality in the vicinity of the water quality monitoring station due to rainy weather.</p> <p>Action taken/ to be taken: Checking with contractor for the construction activities conducted on 28 August 2020. No exceedance was recorded on 31 August 2020.</p> <p>Remarks/ Other Observations: The weather was rainy from 27 to 28 August 2020. Slightly silty water was observed at monitoring station F during water quality monitoring. RC works and piling were commenced at RIW2 construction site area under Contract No. NE/2017/03 on 28 August 2020. No surface runoff affecting the surrounding gullies or public drainages was observed. Turbidity and suspended soil results were not high at station E (18.7NTU and 3.8mg/L) and station AC2 (8.0NTU and 8.5mg/L) but high at station AC3 (35.8NTU and 208.5mg/L). In view of the above, it is considered that there were no evidence to suggest the exceedances were related to Project works at RIW2.</p>
			pH	7.7	6.6-8.4	6.5-8.5	
			SS (mg/L)	153.5	17.0	23.8	
			DO(mg/l)	6.7	5.8	5.5	



Appendix 8.1

Complaint Log



Environmental Complaints Log

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
20190902	2 September 2019	DSD	A portion of Clear Water Bay Road, near the junction of Fei Ngo Shan Road	The complainant reported that muddy water was improperly overflowed from the construction site under Contract NE/2017/03 at Clear Water Bay Road and eventually to the downstream public storm water drainage system on 02 September 2019	<p>The investigation report from contractor has revealed that the gaps between sand bags at site boundary would be the potential source of muddy water leakage.</p> <p>Remedial action taken according to the investigation report conducted by Contractor:</p> <ol style="list-style-type: none">1. The sand bags were replaced by cement sand mortar which filled the gaps between water-filled barriers along the site boundary to block the leakage point.2. Additional sedimentation tank has been added to increase buffer for further treatment by the wastewater treatment facility.3. Concrete ramp was provided at the site entrance to mitigate against potential surface runoff related impact.4. Specific training for the subcontractor and front-line staff has been provided to enhance their knowledge on the requirements of discharge license. <p>ET recorded WQM exceedance on SS on 06 Sept 2019 and 09 Sept 2019, effectiveness of remedial measures under rainy days requires close monitoring. Regular joint site inspections on 06 & 19 September 2019 had observed that wastewater treatment facilities required further improvement particularly in rainy days.</p> <p>ET and IEC recommended contractor to provide proper protection to the nearby gullies like membrane or sandbags.</p> <p>ET reminded Contractor/RSS to inform ET and IEC upon the receipt of environmental complaint to allow timely investigation.</p>	Closed



Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
20200315	15 March 2020	Resident of Hong Wah Court	Slope at Lin Tak Road, Opposite to Hong Wah Court	<p>The complainant, resident of Hong Wah Court, reported to CEDD by email dated on 15 March 2020 that the resident at Hong Wah Court was affected by the noise nuisance from the construction site under Contract NE/2017/03 at Lin Tak Road since the construction activities started for approximately one year especially for the period under the attack of coronavirus-19 recently.</p>	<p>Remedial action taken according to the observations by ET:</p> <ol style="list-style-type: none">1. Noise barriers have been setup along the haul road and working area as much as possible.2. The head of the drillers and breakers has been wrapped with noise absorption materials during operation.3. The contractor has made different combination of group of plants to avoid multiple noisy works operating at the same time.4. Moveable noise barrier was observed in place for breaking works.	Closed
20200403	3 April 2020	Resident of Hong Wah Court	Slope at Lin Tak Road, Opposite to Hong Wah Court	<p>The complainant, a resident of Hong Wah Court, reported to AECOM through the hotline dated on 3 April 2020 that the resident at Hong Wah Court was affected by the noise nuisance from the construction site under Contract NE/2017/03 at Lin Tak Road. She claimed that the slope cutting works have been carried out from 8:00 to 18:00, which was very annoying and made her anxious especially under the situation that the government called citizen to stay at home avoiding the infection of coronavirus-19.</p> <p>The complaint regarding the construction noise at Lin Tak Road referred by AECOM was received by ET on 7 April 2020.</p> <p>According to the information provided by the contractor, and also reported in EM&A monthly report, that slope works using drill and split method were conducted under contract NE/2017/03 at RIW3 of Lin Tak Road starting from August 2019. Based on the observation of recent monitorings, slope cutting with breaker and driller were the major sources of the construction noise.</p>	<p>Remedial action taken according to the observations by ET:</p> <ol style="list-style-type: none">1. Noise barriers have been setup along the haul road and working area, and only partially covered the works area and plants due to limited site conditions.2. The head of the drillers and breakers had been wrapped with noise absorption materials during operation.	Closed



Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
20200420	20 April 2020	Resident of Hong Wah Court	Slope at Lin Tak Road, Opposite to Hong Wah Court	The complainant, a resident of Hong Wah Court, reported to AECOM through the hotline dated on 20 April 2020 that the noise level generated from the construction site at the slope of Lin Tak Road reached 80-90 dB consecutively from 8:00 to 18:30 and affecting their health. Moreover, the district councilor has reflected the complaint from resident of Hong Wah Court and query about the implementation of the noise barrier.	Remedial action taken according to the observations by ET: 1. Sequencing of works to avoid the operation of breaker and driller at the same time 2. No remedial action was taken by contractor on improving the setting up of noise barriers for the covering of working area and the plant. 3. No remedial action was taken by contractor on deploying movable noise barrier at drilling works or wrapping noise reductive materials at the head of the driller.	Closed
0200518	18 May 2020	Public	New Clear Water Bay Road from the construction site at the slope under Shun Lee Disciplined Services Quarters	The complainant reported through the 1823 electronic form dated on 18 May 2020 that silty water was discharged to public road, New Clear Water Bay Road, from the construction site at the slope under Shun Lee Disciplined Services Quarters. The complaint concerned on the silty runoff at New Clear Water Bay Road was referred by AECOM to ET on 21 May 2020. According to the information provided by the contractor, silty runoff to public road was due to the damaged pipe at the top of the slope Shun Lee Disciplined Services Quarters, water leaked from the pipe flew along the exposed down slope and became silty.	Remedial action taken according to the observations by ET: 1. Placing sand bags at the perimeter of the site and the site exit as bunds. 2. Repairing the damaged pipe to stop the water leakage.	Pending
20200525	25 May 2020	Public	New Clear Water Bay Road from the construction site at the slope under Shun Lee Disciplined Services Quarters	The complainant reported through the 1823 electronic form dated on 25 May 2020 that silty water was discharged to public road, New Clear Water Bay Road from the construction site at the slope under Shun Lee Disciplined Services Quarters. The complaint concerned on the silty runoff at New Clear Water Bay Road was referred by AECOM to ET on 3 June 2020 respectively. According to the observation and inspection,	Remedial action taken according to the observations by ET: 1. Placing sand bags at the site boundary and the site exit as bunds. 2. Deployed one more set of sedimentation tank and wastewater treatment facilities. 3. Diversion of part of the runoff from the top of the slope to avoid flowing through soil surface.	Pending



Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
				the silty runoff should be caused by the large volume of water flow through the soil surface of the construction site after heavy rainfall.		
202007007	7 July 2020	Resident of Hong Wah Court	Slope at Lin Tak Road, Opposite to Hong Wah Court	<p>The complainant, District Councilor, reported to AECOM through the hotline dated on 7 July 2020 that the resident complaint the construction noise generated from the construction site at the slope of Lin Tak Road was annoying and no mitigation measures for the construction noise was implemented.</p> <p>The complaints regarding the construction noise at Lin Tak Road referred by AECOM was received by ET on 7 July 2020 respectively.</p> <p>According to the information provided by the contractor, and also reported in EM&A monthly report, that slope works using drill and split method were conducted under contract NE/2017/03 at RIW3 of Lin Tak Road starting from August 2019. Based on the observation of recent monitoring, slope cutting with breaker and driller were the major sources of the construction noise.</p>	<p>Remedial action taken according to the observations by ET:</p> <ol style="list-style-type: none"> Setting up of noise barriers for the covering of working area and the plant was observed since 15 June 2020. Quieter breaker, claimed by the contractor, was observed installed. The plant and working area were covered by noise barrier most of the time during the monitoring and inspections. 	Pending
20200718	18 July 2020	Public	Slope at Lin Tak Road, Opposite to Hong Wah Court	<p>The complainant, District Councilor, reported to AECOM through the hotline dated on 18 July 2020 that no water spraying was carried out by contractor during dusty construction works at the slope of Lin Tak Road and fugitive dust was observed and cause dust impact to the complainant's property.</p> <p>The complaints regarding the construction noise at Lin Tak Road referred by AECOM was received by ET on 20 July 2020 respectively.</p> <p>According to the information provided by the contractor, and also reported in EM&A monthly report, that slope works using drill and split method were conducted under contract NE/2017/03 at RIW3 of Lin Tak Road</p>	<p>Remedial action taken according to the observations by ET:</p> <ol style="list-style-type: none"> Facilities for water spraying was observed being setup at the slope of Lin Tak Road. 	Pending



Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
				starting from August 2019. Based on the observation of recent monitoring, slope cutting with breaker and driller were the major sources of dust emissions.		
20200718	18 July 2020	Public	Slope at Lin Tak Road, Opposite to Hong Wah Court	<p>The complainant, District Councilor, reported to AECOM through the hotline dated on 18 July 2020 that the resident of block C complained the construction noise generated from the construction site at the slope of Lin Tak Road was causing noise nuisance.</p> <p>The complaint regarding the construction noise at Lin Tak Road referred by AECOM was received by ET on 20 July 2020.</p> <p>According to the information provided by the contractor, and also reported in EM&A monthly report, that slope works using drill and split method were conducted under contract NE/2017/03 at RIW3 of Lin Tak Road starting from August 2019. Based on the observation of recent monitoring, slope cutting with breaker and driller were the major sources of the construction noise.</p>	<p>Remedial action taken according to the observations by ET:</p> <ol style="list-style-type: none"> 1. Setting up of noise barriers for the covering of working area and the plant was observed since 15 June 2020. 2. Quieter breaker, claimed by the contractor, was observed installed. 3. The plant and working area were covered by noise barrier in most of the time during noise monitoring and site inspections. 4. Sequencing of works was observed that the driller and breaker were operated alternatively to avoid concurrent noisy works. 	Pending
20200724	24 July 2020	Public	New Clear Water Bay Road near Sienna Garden	<p>The complainant, resident of Sienna Garden, reported to AECOM through the hotline dated on 24 July 2020 that the noise generated from the air compressor at the construction site of New Clear Water Bay Road Road was annoying.</p> <p>The complaints regarding the construction noise at New Clear Water Bay Road referred by AECOM was received by ET on 27 July 2020 respectively.</p> <p>According to the observation on-site and information provided by the contractor, piling work was conducting near Sienna Garden at New Clear Water Bay Road.</p>	<p>Remedial action taken according to the observation during inspection conducted by ET:</p> <ol style="list-style-type: none"> 1. Setting up of noise barriers for screening up the air compressor was observed since 30 July 2020. 	Pending



Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
20200729	29 July 2020	Public	Slope at Lin Tak Road, Opposite to Hong Wah Court	<p>The complainant, Resident of Hong Wah Court, reported to AECOM through the hotline dated on 29 July 2020 that the construction noise generated from the construction site at the slope of Lin Tak Road was causing noise nuisance to upper level of the building and the phone call of the complainant was influenced.</p> <p>The complaint regarding the construction noise at Lin Tak Road referred by AECOM was received by ET on 30 July 2020.</p> <p>According to the information provided by the contractor, and also reported in EM&A monthly report, that slope works using drill and split method were conducted under contract NE/2017/03 at RIW3 of Lin Tak Road starting from August 2019. Based on the observation of recent monitoring, slope cutting with breaker and driller were the major sources of the construction noise.</p>	<p>Remedial action taken according to the observations by ET:</p> <ol style="list-style-type: none"> 1. Setting up of noise barriers for the covering of working area and the plant was observed since 15 June 2020. 2. Quieter breaker, claimed by the contractor, was observed installed. 3. The plant and working area were covered by noise barrier in most of the time during noise monitoring and site inspections. 4. Sequencing of works was observed that the driller and breaker were operated alternatively to avoid concurrent noisy works. 	Closed
20200825	25 August 2020	Public	New Clear Water Bay Road near Choi Wan Estate	<p>The complainant reported to 1823 online dated on 25 August 2020 that the construction noise generated from the construction site at New Clear Water Bay Road adjacent to Choi Wan Estate was causing noise nuisance to complainant's apartment. Construction activities starting from 8:30 to dusk and even on Sunday. The construction activities have been conducted for a year especially for drilling works. The complainant has measured the construction noise with mobile app and obtained 64dB in average for one driller. The complainant said the condition was worse when two to three drillers operated at the same time. The complainant asked the completion date of the construction works and whether the construction noise would affect the health of people as the complainant was</p>	<p>Remedial action taken according to the observations by ET:</p> <p>No further mitigation measure for construction noise was implemented at the moment as no drilling works were observed recently.</p>	Pending



Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
				<p>seriously influenced by the noise and causing insomnia.</p> <p>The complaint regarding the construction noise at Lin Tak Road referred by CEDD and AECOM was received by ET on 30 August 2020.</p> <p>According to the information provided by the contractor, and also reported in EM&A monthly report, that ELS to RW pile cap and construct RW footing were the major construction works conducted under contract NE/2017/03 at the photo record provided by the complaint at RIW1 near New Clear Water Bay Road adjacent to Choi Wan Estate starting from June 2020 to August 2020. Based on the observation of recent monitoring, excavation, grouting, welding and loading and unloading of materials were the major sources of the construction noise. Pre-drilling works have been conducted at the section near New Clear Water Bay Road adjacent to the Shun Lee Disciplined Services Quarters which is distance from the area that the complainant mentioned.</p>		
20200831	31 August 2020	Public	Slope at Lin Tak Road, Opposite to Hong Wah Court	<p>The complainant, Resident of Hong Wah Court, reported to AECOM through the hotline dated on 31 August 2020 that the construction noise generated from the construction site at the slope of Lin Tak Road was causing noise nuisance and also causing air quality impact.</p> <p>The complaint regarding the construction noise at Lin Tak Road referred by AECOM was received by ET on 2 September 2020.</p> <p>According to the information provided by the contractor, and also reported in EM&A monthly report, that slope works using drill</p>	<p>Remedial action taken according to the observations by ET:</p> <ol style="list-style-type: none">1. Setting up of noise barriers for the covering of working area and the plant was observed since 15 June 2020.2. Quieter breaker, claimed by the contractor, was observed installed.3. The plant and working area were covered by noise barrier in most of the time during noise monitoring and site inspections.4. Sequencing of works was observed that the driller and breaker were operated alternatively	Pending



Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
				and split method were conducted under contract NE/2017/03 at RIW3 of Lin Tak Road starting from August 2019. Based on the observation of recent monitoring, slope cutting with breaker and driller were the major sources of the construction noise. Besides, breaking, drilling and loading and unloading of dusty materials were the major sources spreading dust.	5. to avoid concurrent noisy works. Water spraying for breaking works was observed.	



Appendix 9.1

Construction Programme of Individual Contracts

Activity ID	Activity Name	Duration	Start	Finish	2020			
					Aug 32	Sep 33	Oct 34	Nov 35
NE2017/03 - ARQ PHASE 2A - Monthly Programme Update (202008)-0_200817								
Road Improvement Works Location 1 (RIW1)								
Construction Works								
CON10231	Existing watermain diversion (by WSD)	24	06-Apr-20 A	05-Sep-20				
CON10630	Construct RW footing (RWC2 type 1a & 1)	78	04-Jun-20 A	03-Oct-20				
CON10612	ELS to RW pile cap (RWC2 type 2)	78	04-Jun-20 A	03-Oct-20				
CON11470	Existing towngas main diversion	48	12-Jun-20 A	09-Sep-20				
CON11572	ELS works for FE1-F4b to FE1-F7b & FE1-PC1b	78	17-Jun-20 A	17-Sep-20				
CON11318B	Reviewing on CT5 alignment not matching with design alignment	30	30-Jul-20 A	02-Sep-20				
CON11574	Construct NB RC footing (FE1-F4b to FE1-F7b, 57m, 1.0m/d, 1 team)	60	07-Aug-20 A	17-Oct-20				
CON1150B	(NCE063) Inclement weather (21/5/2020 to 20/6/2020) on RIW1 Slip Rd 2	12	10-Aug-20 A	22-Aug-20				
CON10728B	ArchSD consider for the possible option	12	15-Aug-20 A	28-Aug-20				
CON12350	Construct subway wall and soffit (KS27 west side, bay 1)	90	19-Aug-20 A	23-Oct-20				
CON10254C	SLG meeting for protection arrangement (by CLP)	1	21-Aug-20	21-Aug-20				
CON11150C	(NCE???) Excavation of new location for connection point	6	21-Aug-20	27-Aug-20				
CON10254D	Protection works to existing 11kV cable (by CLP)	26	22-Aug-20	21-Sep-20				
CON11150D	(NCE066) Inclement weather (21/6/2020 to 20/7/2020) on RIW1 Slip Rd 2	2	28-Aug-20	29-Aug-20				
CON10728C	Apply CNP for temporary diversion	26	29-Aug-20	28-Sep-20				
CON11150E	(NCE???) Towngas connection & associated testing	10	31-Aug-20	10-Sep-20				
CON11318C	Design review & preparation of TTA for CT5 work in parallel for SR2 works	12	03-Sep-20	16-Sep-20				
CON11576	Construct NB RC wall (FE1-F4b to FE1-F7b, 57m, 0.85m/d, 1 team)	66	11-Sep-20	30-Nov-20				
CON11152	(NCE[TBA]) Inclement weather (21/7/2020 to 20/8/2020) on RIW1 Slip Rd 2	8	11-Sep-20	19-Sep-20				
CON11318D	TTA application for TMLG approval	18	17-Sep-20	09-Oct-20				
CON10650	Construct RW wall (RWC2 type 1a & 1)	78	21-Sep-20	23-Dec-20				
CON11170	Utilities works, drainage works for slip road 2 _stage 3	60	21-Sep-20	02-Dec-20				
CON11210	Utilities works, drainage works for slip road 2 _stage 4	18	21-Sep-20	13-Oct-20				
CON10270	ELS to bore pile cap (RWC2 type 5)	59	22-Sep-20	02-Dec-20				
CON10330	upgrading works at Feature No. 11NEA/F60 (by pip-by-pit method) - Stage 2	90	22-Sep-20	11-Jan-21				
CON10310	Construct RW footing (RWC2 type 4, 6, 7, 8)	72	29-Sep-20	24-Dec-20				
CON10728D	Temporary diversion - Stage 1	6	29-Sep-20	07-Oct-20				
CON10652	Construct RW footing (RWC2 type 2)	78	05-Oct-20	07-Jan-21				
CON10728E	Site formation works (RWC2 Type 3a & 4)	23	08-Oct-20	04-Nov-20				
CON11318E	RA application, TTA setup & Trial run	12	10-Oct-20	23-Oct-20				
CON11190	Road works for slip road 2 _stage 3	60	14-Oct-20	23-Dec-20				
CON11230	Road works for slip road 2 _stage 4	18	14-Oct-20	04-Nov-20				
CON11508	Pre-drill works on FE1	18	24-Oct-20	14-Nov-20				
CON12352	Construct subway footing (KS27 west side, bay 3)	6	24-Oct-20	31-Oct-20				
CON12354	Construct subway wall and soffit (KS27 west side, bay 3)	30	02-Nov-20	05-Dec-20				
CON11270	Upgrading works on existing slip road 2 _stage 5	18	05-Nov-20	25-Nov-20				
CON10728F	Remove platform no. 1 haul road	5	05-Nov-20	10-Nov-20				
CON10728G	Temporary diversion - Stage 2	6	11-Nov-20	17-Nov-20				
CON11506	Erect piling platform on FE1	21	16-Nov-20	09-Dec-20				
CON10730	Mobilization works for socket H-pile works (RWC2 type 3)	12	18-Nov-20	01-Dec-20				
Road Improvement Works Location 2 (RIW2)								
Construction Works in Slope C3 (Portion B)								
CON20852	** Delay reason ***	42	04-Aug-20 A	24-Sep-20				
CON20710	Install sheet pile RW bay 1 to bay 2	24	21-Aug-20	17-Sep-20				
CON20730	ELS works to RW bay 1 to bay 2	90	18-Sep-20	07-Jan-21				
CON20910	Construct RW bay 14 to bay 16 base (L=19m)	42	25-Sep-20	16-Nov-20				
CON20170	Fabrication of NB steel post - along slope side	90	07-Oct-20	04-Jan-21				
CON20930	Construct RW bay 14 to bay 16 wall (L=19m)	42	19-Oct-20	07-Dec-20				
Construction Noise Semi-Enclosure SE2 (Portion C)								
CON21650	Construct piling fdn (CT4, 7nos, 5d/no, 1 team)	35	31-Jul-20 A	09-Sep-20				
CON21952	Remove central median for TTA diversion	42	31-Jul-20 A	17-Sep-20				
CON21650A	(NCE[TBA]) Inclement weather (21/7/2020 to 20/8/2020) affected to RIW2	8	10-Sep-20	18-Sep-20				
CON21954	Traffic diversion for SE2 (Bay 13 to Bay 21) extension	12	18-Sep-20	03-Oct-20				
CON21650B	(EWN070) Special measures due to COVID-19 from 3/8 to 8/8 [RIW2 CT4]	6	19-Sep-20	25-Sep-20				
CON21650C	Construct piling fdn (SE2 Bay4 to Bay12)	55	26-Sep-20	02-Dec-20				
CON21956	UU detection & SLG meeting	12	05-Oct-20	17-Oct-20				
CON21958	Utilities diversion	24	19-Oct-20	16-Nov-20				
CON21960	ELS for SE2 (Bay 13 to Bay 21)	48	17-Nov-20	14-Jan-21				
Road Improvement Works Location 3 (RIW3)								
Construction Works								
CON31050	(CE140) Cut slope works (CH0 to CH115) (L=115m, 10857m3, 30m3/d)	365	23-May-19 A	23-Dec-20				
CON31070	(CE140) Construct RWD3 (CH0 to CH60)	150	18-Dec-19 A	17-Sep-20				
CON31074	PM review & acceptance and slope stabilization measures (Stage 1)	180	11-Mar-20 A	17-Oct-20				
CON30810	Construct retaining wall RWD2 footing	90	21-May-20 A	15-Sep-20				
CON30654	(EWN 50, EWN52, EWN57, EWN58) JV Pending WSD confirm SMPR waterr	30	01-Jun-20 A	03-Sep-20				
CON30830	Construct retaining wall RWD2 wall	72	21-Jul-20 A	14-Oct-20				
CON30052	Condition survey at haul road B	60	21-Jul-20 A	28-Sep-20				

- Actual Work
- Remaining Work
- Milestone

Activity ID	Activity Name	Duration	Start	Finish	2020			
					Aug 32	Sep 33	Oct 34	Nov 35
CON30850	Construct slip road 4 utilities works & black fill & road works	72	18-Aug-20 A	13-Nov-20				
CON30290	Construct RWD1 (bay 1 to bay 7) pile cap (2 teams)	60	21-Aug-20	02-Nov-20				
CON30250	Construct mini pile at RWD1 (bay 8 to bay 14) (121nos, 1.4d/no, 2 teams)	81	21-Aug-20	26-Nov-20				
CON30252	ELS works at RWD1-Type 4	81	21-Aug-20	26-Nov-20				
CON30870	Construct slip road 4 road works	72	15-Sep-20	10-Dec-20				
CON30310	Construct RWD1 (bay 1 to bay 7) wall (2 teams)	60	18-Sep-20	30-Nov-20				
CON31310	Utilities works, drainage works & watermain (CH0 to CH115)	90	26-Sep-20	15-Jan-21				
CON30070	Form haul road B	42	29-Sep-20	19-Nov-20				
CON31330	Road works (CH0 to CH115)	90	22-Oct-20	08-Feb-21				
CON30330	Construct RWD1 (bay 1 to bay 7) utilities works & backfill (2 teams)	60	27-Oct-20	07-Jan-21				
CON30650	Watermain works on Sau Man Ping Road toward Lam Tim (Section 1)	84	27-Oct-20	04-Feb-21				
CON30530	Drainage & utilities works (bay 1 to bay 7)	60	30-Oct-20	11-Jan-21				
CON30130	Slope works at slope D1 (stage 2, 20% completed)	72	20-Nov-20	18-Feb-21				
Pedestrian Connectivity Facility (PC-E11)		376	28-Feb-20 A	07-Apr-21				
Construction Works		376	28-Feb-20 A	07-Apr-21				
CON43010	Maintenance temporary access form lin tak road to new bus-bus interchange	288	28-Feb-20 A	11-Dec-20				
CON42350	Construct lift tower 2 (2 teams) & backfill	60	22-Jun-20 A	01-Sep-20				
CON42294	Existing DN900 drainage pipe diversion	66	21-Aug-20	09-Nov-20				
CON42630	Construct covered-walkway between PC-E11 & BBI toilet	102	02-Sep-20	05-Jan-21				
CON42910	Application for power supply & energization (PC-E11)	144	02-Sep-20	26-Feb-21				
CON42670	Install glass & window to lift tower no 2	42	02-Sep-20	22-Oct-20				
CON42770	ABWF works @LT2 (inside 2nos lift shaft)	12	23-Oct-20	06-Nov-20				
CON42270	Construct U/G utilities & backfill	120	07-Nov-20	07-Apr-21				
CON42772	ABWF works @LT2 (Other than lift shaft area)	48	07-Nov-20	05-Jan-21				
CON42296	Construct type L manhole (2nos)	42	10-Nov-20	30-Dec-20				
CON42870	E&M works to PC-E11 @LT2 (inside 2nos lift shaft)	12	13-Nov-20	26-Nov-20				
Pedestrian Connectivity Facility (PC-E8)		555	25-Mar-19 A	04-Feb-21				
Construction Works		555	25-Mar-19 A	04-Feb-21				
CON41930	Application for power supply & energization (PC-E8)	156	25-Mar-19 A	01-Sep-20				
CON41130	Construct escalator pit P5>P6 (E11 & E12)	60	11-Jun-20 A	03-Sep-20				
CON41090	Construct escalator pit P3>P4 (E7 & E8)	60	06-Jul-20 A	12-Sep-20				
CON40590	ELS to E8-F8 (approx 1377m3, @57m3/d)	18	15-Aug-20 A	04-Sep-20				
CON41110	Construct escalator pit P4>P5 (E9 & E10)	33	21-Aug-20	28-Sep-20				
CON41270	Erect steel roof P5>P6	48	04-Sep-20	02-Nov-20				
CON41390	ABWF works (P5 to P6)	72	04-Sep-20	30-Nov-20				
CON40590A	Rock excavation to E8-F8 (additional duration due to higher rockhead level)	30	05-Sep-20	12-Oct-20				
CON40770	Construct footing E8-F3 (65m3) & backfilling	24	14-Sep-20	13-Oct-20				
CON41230	Erect steel roof P3>P4	48	14-Sep-20	11-Nov-20				
CON41650	2_ Install escalator (E8-E7 & E8-E8) (P3 to P4)	90	14-Sep-20	02-Jan-21				
CON41350	ABWF works (P3 to P4)	72	14-Sep-20	09-Dec-20				
CON41250	Erect steel roof P4>P5	48	29-Sep-20	26-Nov-20				
CON41170	Erect steel roof F9 & F1>P1	48	29-Sep-20	26-Nov-20				
CON41310	ABWF works (F9 & F1 to P1)	72	29-Sep-20	24-Dec-20				
CON41470	External finishing works (F9 & F1 to P1)	60	29-Sep-20	10-Dec-20				
CON41610	1_ Install escalator (E8-E1 & E8-E2) (F1 to P1)	90	29-Sep-20	18-Jan-21				
CON41430	ABWF works (P4 to P5)	72	29-Sep-20	24-Dec-20				
CON41590	External finishing works (P4 to P5)	60	29-Sep-20	10-Dec-20				
CON40590B	Rock mapping & analysis to E8-F8 (additional duration due to higher rockhead)	12	13-Oct-20	27-Oct-20				
CON40910	Construct pier E8-P2 (2 pour)	42	14-Oct-20	02-Dec-20				
CON41690	3A_ Install escalator (E8-E9 & E8-E10) (P4 to P5)	90	19-Oct-20	04-Feb-21				
CON41710	3B_ Install escalator (E8-E11 & E8-E12) (P5 to P6)	90	19-Oct-20	04-Feb-21				
CON40590C	Rock stabilization works to E8-F8 (additional duration due to higher rockhead l	18	28-Oct-20	17-Nov-20				
CON41770	E&M works (F9 & F1 to P1)	60	30-Oct-20	11-Jan-21				
CON41850	E&M works (P5 to P6)	60	30-Oct-20	11-Jan-21				
CON40870	Construct footing E8-F8 (72m3) & backfilling	24	18-Nov-20	15-Dec-20				
Pedestrian Connectivity Facility System A (SYA)		162	11-Aug-20 A	25-Feb-21				
Construction Works		162	11-Aug-20 A	25-Feb-21				
CON50250	Construct superstructure of lift tower to roof level (3m/pour, +144 to +165.7mPI)	162	11-Aug-20 A	25-Feb-21				
Pedestrian Connectivity Facility System B (SYB)		455	17-Apr-20 A	27-Nov-21				
Construction Works		455	17-Apr-20 A	27-Nov-21				
CON50859	Further review onto gasmain alignment (by Towngas)	130	17-Apr-20 A	19-Sep-20				
CON53274	TTA modification works	54	09-May-20 A	27-Aug-20				
CON53272	(EWN[TBA]) UU shifting - CLP's cable	78	09-May-20 A	27-Aug-20				
CON52190	Construct above ground structure SYB-ABT	90	12-Jun-20 A	24-Sep-20				
CON51670	Construct pile cap SYB-PC8 (94m3)	24	21-Aug-20	17-Sep-20				
CON53276	(EWN[TBA]) UU shifting - HGC's cable	12	28-Aug-20	10-Sep-20				
CON53278	(EWN[TBA]) UU shifting - HKBN's cable	12	28-Aug-20	10-Sep-20				
CON53280	(EWN[TBA]) UU shifting - CATV's cable	12	28-Aug-20	10-Sep-20				
CON53282	(EWN[TBA]) UU shifting - HKT's cable	12	28-Aug-20	10-Sep-20				
CON51290	Install sheet pile at SYB-PC6	12	07-Sep-20	19-Sep-20				

- Actual Work
- Remaining Work
- Milestone

Activity ID	Activity Name	Duration	Start	Finish	2020			
					Aug 32	Sep 33	Oct 34	Nov 35
CON51750	Construct pile cap SYB-PC7 (94m3)	24	08-Sep-20	07-Oct-20				
CON53284	Site clearance for mobilization	12	11-Sep-20	24-Sep-20				
CON51910	Construct pier SYB-P8 (2 pour)	42	18-Sep-20	09-Nov-20				
CON51310	Excavate & install support at SYB-PC6	30	21-Sep-20	28-Oct-20				
CON50859A	(NCE063) Inclement weather (21/5/2020 to 20/6/2020) on Sys B	12	21-Sep-20	06-Oct-20				
CON53286	UU detection & excavate trail pit	6	25-Sep-20	03-Oct-20				
CON50859B	(NCE066) Inclement weather (21/6/2020 to 20/7/2020) on Sys B	2	07-Oct-20	08-Oct-20				
CON51970	Construct pier SYB-P7 (2 pour)	42	08-Oct-20	26-Nov-20				
CON50859C	(NCE[TBA]) Inclement weather (21/7/2020 to 20/8/2020) on Sys B	8	09-Oct-20	17-Oct-20				
CON50859D	(EWN070) Special measures due to COVID-19 from 3/8 to 8/8 [SyB-PC2]	6	19-Oct-20	24-Oct-20				
CON50855	Gasmain diversion (Sys B) - Apply 2nd stage TTA & civil works for gasmain dive	12	27-Oct-20	09-Nov-20				
CON51050	Mobilisation piling rig plant to SYS-PC6	6	29-Oct-20	04-Nov-20				
CON51370	Install sheet pile at SYB-PC4	12	29-Oct-20	11-Nov-20				
CON51070	Pre-drill & construct piling fdn at SYB-PC6	50	05-Nov-20	05-Jan-21				
CON51810	Construct underground drainage pipe	312	10-Nov-20	27-Nov-21				
CON50856	Gasmain diversion (Sys B) - gasmain diversion works (by Towngas)	36	10-Nov-20	21-Dec-20				
CON51390	Excavate & install support at SYB-PC4	30	12-Nov-20	16-Dec-20				
Bus-Bus Interchange Public Toilet (BBI Toilet)		365	01-Apr-20 A	01-Apr-21				
Works related to section 10A - Establishment Works for Landscape Softworks in Section 10		365	01-Apr-20 A	01-Apr-21				
CON43370	Establishment Works for Landscape Softworks in Section 10 (Portion F1)	365	01-Apr-20 A	01-Apr-21				

- Actual Work
- Remaining Work
- Milestone