Civil Engineering and Development Department

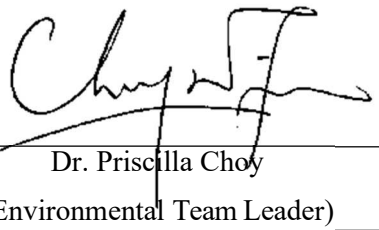
Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team

Environmental Permit No.: EP-477/2013/A - Development of Lok Ma Chau Loop

Monthly Environmental Monitoring and Audit Report for August 2021

(Version 1.0)

Certified By



Dr. Priscilla Choy
(Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

WELLAB accepts no responsibility for changes made to this report by third parties.

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Our ref.: LES/J2021-04/CS/L022
Date : 14 September 2021

By Post & Email

Civil Engineering and Development Department
West Development Office
West Division (5)
26/F, Tsuen Wan Government Office,
38 Sai Lau Kok Road, Tsuen Wan,
New Territories

Attn: Ms. JIM Wing Yan, Eva

Dear Ms. JIM,

Agreement No. WD/01/2020
Development of Lok Ma Chau Loop: Main Works Package 1 – Independent Environmental Checker

Verification of Monthly EM&A Report (Aug 2021)

Reference is made to the Monthly Environmental Monitoring and Audit (EM&A) Report of certified by the Environmental Team Leader on 14 September 2021. We hereby verify the captioned submission in accordance with Clause 3.4 of the Environmental Permit No. EP-477/2013/A for the project of Development of Lok Ma Chau Loop.

Should you have any query, please feel free to contact the undersigned.

Yours faithfully,
For and On Behalf Of
Lam Environmental Services Limited

Raymond Dai
Independent Environmental Checker

c.c.	Binnies Hong Kong Limited	Mr. Terrant Cheung	By Email
	AECOM	Mr. Samuel Chan	By Email
	Wellab Limited	Dr. Priscilla Choy	By Email

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EXECUTIVE SUMMARY

Introduction

1. This is the 32nd Monthly Environmental Monitoring and Audit (EM&A) Report prepared for Environmental Permit No.: EP-477/2013/A - Development of Lok Ma Chau Loop (hereinafter called "the Project"). This report documents the findings of Environmental Monitoring and Audit (EM&A) works conducted in the period from 1st to 31st August 2021 (hereinafter called "the reporting month").

2. During the reporting month, the following Works Contracts were undertaken for the Project:

- Contract No. YL/2017/03 – Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works (hereinafter called the "Contract")
- Contract No. YL/2020/01 - Lok Ma Chau Loop Main Works Package 1 Contract 1 - Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 (hereinafter called the "Contract 1")

Environmental Monitoring and Audit Activities

3. A summary of the EM&A activities in the reporting month is listed in **Table I** below:

Table I Summary Table for EM&A Activities in the Reporting Month

Environmental Aspect	Monitoring Parameter	Date
Air Quality	1-hr Total Suspended Particulates (TSP) Monitoring	3rd , 9th , 13th , 19th , 25th and 31st August 2021
	24-hr TSP Monitoring	2rd , 6th , 12th , 18th, *19th , 24th and 30th August 2021
Construction Noise	$L_{eq30mins}$	3rd , 9th , 19th , 25th and 31st August 2021
Water Quality	• Temperature • pH • Turbidity • Water depth • Salinity • Dissolved Oxygen (DO) • Suspended Solids (SS)	3rd, 5th , 7th , 9th , 11th , 13th , 16th , 18th , 20th, 23rd, 25th, 27th , 30th August 2021
Ecological	Avifauna flight line survey	27th August 2021
	Mammal monitoring (by infra-red flash cameras)	Throughout the reporting month
Site Environmental Audit	Environmental protection and pollution control measures	6th, 11th, 18th, 25th August 2021

Remark: * Dust meter at DMS-1a was found toppled over and 24-hr TSP monitoring was re-scheduled to 19 August 2021

Breaches of Action and Limit Levels

4. Summary of the environmental exceedances of the reporting month is tabulated in **Table II**.

Table II Summary Table for Environmental Exceedances in the Reporting Month

Environmental Monitoring	Parameter	Action Level	Limit Level	Event & Action		
				Investigation Result	No. of Exceedance related to the Construction Works of the Contract	Corrective Action
Air Quality	1-hr TSP	0	0	--	0	--
	24-hr TSP	0	0	--	0	--
Construction Noise	Daytime Leq(30min)	0	0	--	0	--
Water Quality	DO	0	0	--	0	--
	Turbidity	0	0	--	0	--
	SS	0	0	--	0	--

1-hour TSP Monitoring

5. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hour TSP Monitoring

6. All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise

7. All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Water Quality

8. No water monitoring was conducted at IS6 in the reporting month as the channel was dry. The water quality monitoring would resume once there is water flow at IS6. Other water quality monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Ecological Monitoring

Avifauna

6.13 Avifauna monitoring was conducted as scheduled in the reporting month. Flight lines recorded were in general concentrated mainly on LMC Meander and adjacent areas and along Shenzhen River. No significant impacts on the flight line were observed in the reporting month.

Mammals

9. Mammals monitoring was conducted in the reporting month. Only brown rat (*Rattus norvegicus*) was captured by infra-red flash cameras.

10. No Eurasian Otter was found in the reporting month.

Contaminated Soil Remediation

11. Decontamination for all Hotspots (LD01 - LD05) was completed and backfilling of treated soil was completed on 31 May 2021. The final Remediation Report including the results of hotpsot LD-004 was submitted to EPD on 28 June 2021, in accordance with Condition 2.16 of the EP-477/2013/A. The final Remediation Report was approved by EPD with minor comments in August 2021.

Site Environmental Audit

12. In the reporting month, weekly joint site inspections to evaluate the site environmental performance had been carried out by the representatives of the Consultants, Independent Environmental Checker (IEC), Environmental Team (ET) and the Contractors. The date(s) of the weekly site environmental audit conducted under the Contracts are summarized in **Table III**.

Table III Summary Table for Site Environmental Audit in the Reporting Month

Contract(s)	Date(s) of Site Environmental Audit
Contract No. YL/2017/03 – Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works	6th, 11th, 18th, 25th August 2021
Contract No. YL/2020/01 - Lok Ma Chau Loop Main Works Package 1 Contract 1 - Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1	6th, 11th, 18th, 25th August 2021

13. No non-compliance was recorded during the site inspections.

Complaint Log

14. No environmental complaint was received in the reporting month.

Notification of Summons and Successful Prosecutions

15. No notification of summons or successful prosecution was received in the reporting month.

Reporting Change

16. This report has been prepared in compliance with the reporting requirements for the subsequent monthly EM&A Report as required by the EM&A Manual for Development of Lok Ma Chau Loop (EM&A Manual). No reporting change was made in the reporting month.

Future Key Issues

17. Major site activities for the coming reporting month will include:

Contract No. YL/2017/03 – Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works

(a) Outstanding works of approach ramps and temporary vehicular bridge;

(b) Maintenance works for freshwater marsh and reed bed;

(c) Minor works at Ecological Area;

(d) Construction of Temporary Noise Barriers at Lok Ma Chau Road;

(e) Backfiling clean soil of LD-004

Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 – Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1

(a) Relocation of surcharge at Portion 7, Portion 17A-D; and

(b) Site clearance at Areas 2, 7 & 9.

1 INTRODUCTION

1.1 Wellab Limited (WELLAB) was appointed by the Civil Engineering and Development Department (CEDD) under Service Contract No. WD/04/2020 as the Environmental Team to undertake the Environmental Monitoring and Audit (EM&A) programme for the Works Contracts under Main Works Package 1 and the remaining works under Contract No. YL/2017/03 – Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works to ensure that the environmental performance of the Works Contracts comply with the requirements specified in the Environmental Permit (EP), Environmental Monitoring & Audit (EM&A) Manual, Environmental Impact Assessment (EIA) Report of the Project and other relevant statutory requirements.

Purpose of the report

1.2 This is the 32nd EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme in the period from 1st to 31st August 2021.

Structure of the report

1.3 The structure of the report is as follows:
Section 1: **Introduction -** purpose and structure of the report.

Section 2: **Project Information** - summarises background and scope of the Project, site description, project organisation and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licences during the reporting month.

Section 3: **Air Quality Monitoring -** summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequencies, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 4: **Noise Monitoring -** summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequencies, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 5: **Water Quality Monitoring -** summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequencies, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 6: **Ecological Monitoring -** summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequencies, monitoring locations and monitoring results.

Section 7 **Land Contamination -** summarises the remediation works progress for contamination soil and relevant submission.

Section 8 **Waste Management –** summarises the implementation status of waste management.

Section 9: **Environmental Site Inspection -** summarises the audit findings of the weekly site inspections undertaken within the reporting month.

Section 10: **Implementation Status of Environmental Mitigation Measures -**

summarises the compliance status of environmental mitigation measures.

Section 11: **Environmental Non-conformance -** summarises any monitoring exceedance, environmental complaints, environmental summons and successful prosecutions within the reporting month.

Section 12: **Future Key Issues -** summarises the impact forecast and monitoring schedule for the next three months.

Section 13: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

2.1 The development at Lok Man Chau (LMC) Loop is one of the ten major infrastructure projects for economic growth of the Hong Kong Special Administrative Region (HKSAR). The HKSAR Government would work with the Shenzhen authorities to tap the land resources of the LMC Loop to meet future development needs and consolidate the strategic position of both cities in the Pan-Pearl River Delta region. The Project is to develop LMC Loop with higher education as the leading land use, complemented by high-tech research and development facilities and cultural and creative industries.

2.2 The planning and engineering study for the Loop development is a designated project (DP) classified under Item 1 Schedule 3 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499). In October 2013, the EIA Report (AEIAR-176/2013) of the Project was approved by the Director of Environmental Protection pursuant to the EIA Ordinance in accordance with the EIA Study Brief (No. ESB-201/2008 and ESB-238/2011) and the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM). The Environmental Permit (EP) (EP no.: EP-477/2013) was also granted in November 2013.

2.3 Pursuant to Section 13 of the EIAO, the Director of Environmental Protection amends the Environmental Permit (No. EP-477/2013) based on the Application No. VEP- 595/2021 and the environmental Permit (Permit No. E EP-477/2013/A) was issued on 12 August 2021 for Development of Lok Ma Chau Loop.

2.4 The Loop development is implemented by three works packages in stages, namely: Advance Works, Main Works Package 1 (MWP1) and Main Works Package 2 (MWP2).

2.5 Contract No. YL/2017/03 – Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works (hereinafter called the "Contract") was awarded to Sang Hing – Kuly Joint Venture (hereinafter called the "Contractor 1") in June 2018 for the Advance Works.

2.6 For MWP1, there will be a total of 5 Works Contracts and the contract packaging is shown below.

1) Contract 1 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 – Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1
2) Contract 2 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway and Direct Road Link Phase 1
3) Contract 3 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 – Direct Road Link Phase 2
4) Contract 4 - Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 4 –Fresh Water Service Reservoir and Associated Waterworks
5) Contract 5 - Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 5 – Landscaping Works within Lok Ma Chau Loop

2.7 Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 – Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 (hereinafter called the "Contract 1") was awarded to CRCC-Kwan Lee-Paul Y. JV (hereinafter called the "Contractor 2") in July 2021.

2.8 During the reporting month, the following Works Contracts were undertaken for the

Project:

- Contract No. YL/2017/03 – Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works (hereinafter called the "Contract")
- Contract No. YL/2020/01 - Lok Ma Chau Loop Main Works Package 1 Contract 1 - Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 (hereinafter called the "Contract 1")

2.9 The layout of the construction works under the Contracts and the scope of works under the Contracts are summarized in **Table 2.1**.

Table 2.1 Site Layout and Scope of Works under the Contracts

Contract(s)	**Scope of Works**	**Site Layout Plan**
Contract No. YL/2017/03 – Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works	a) Land decontamination treatment within the Loop; b) Establishment of an Ecological Area (EA) within the Loop; c) Construction of a temporary access to the Loop; d) Minor improvement works to Ha Wan Tsuen East Road and other ancillary works; e) Construction of temporary noise barriers and miscellaneous road works along Lok Ma Chau Road; f) Ground treatment works to the first batch of land parcels within the Loop for development of buildings and associated facilities for Phase 1 of the Hong Kong – Shenzhen Innovation and Technology Park and development of the western electricity substation; and g) Implementation of environmental mitigation measures for the works mentioned in the items (a) to (f) above.	Figure 1a
Contract No. YL/2020/01 - Lok Ma Chau Loop Main Works Package 1 Contract 1 - Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1	h) Site formation of 70ha for the Loop; i) Ground treatment by either surcharge and installation of vertical band drains or deep cement mixing method, and associated slopeworks, retaining wall, landscaping works; j) Construction of internal roads (Road D1 and Road L1), Public Transport Interchange (PTI) and associated drainage and sewerage works, waterworks, street lighting, utilities (including interim water main), street furniture and traffic aids, etc. within the Loop; k) Construction of bridge structure across old Shenzhen River meander; l) Temporary haul road linking Sai Kwo Road to the Loop; m) Ecological and environmental mitigation measures within the Loop including retention of reedbeds; n) Ecological and environmental mitigation measures outside the Loop including fishpond, off-site wetland and woodland compensation; and	Figure 1b

Contract(s)	Scope of Works	Site Layout Plan
	o) Construction of Western Connection Road (WCR) Phase 1 (section along existing Ha Wan Tsuen East Road) - Widening of Ha Wan Tsuen East Road; - Provision of cycle track and footpath; - Associated site formation and ground treatment works; - Utilities; and - Associated noise mitigation measures.	

Contract Organisation

2.10 Different parties with different levels of involvement in the Contracts organization. The key personnel contact names and numbers are summarised in **Table 2.2**.

Table 2.2 Key Contacts of the Contract

Organization	Contract Role	Contact Person	Tel No.	Fax No.
CEDD	Project Proponent	Mr. K.W. Luk	2417 6397	2412 0358
WELLAB	ET	Dr. Priscilla Choy – ET Leader	2898 7388	2898 7076
		Ivy Tam – Deputy ET Leader	2898 7388	2898 7076
Lam Environmental Services Limited (LAM)	IEC	Mr. Raymond Dai	2839 5666	2882 3331
Contract No. YL/2017/03				
Binnies Hong Kong Limited	Consultants	Mr. David Wong	2601 3988	2452 5170
SKJV	Contractor	Project Director - Mr. Alan Sung	9051 4060	2452 5170
		Senior Project Manager - Mr. Raymond Yau	9858 1820	
		Deputy Project Manager - Mr. Alex Po	9369 0403	2452 5170
		Site Agent - TBA	TBA	TBA
		Environmental Officer - Mr. Nam Kam Pui	6448 8963	2452 5170
		Environmental Supervisor - Mr. Hung Hin Yuen	9250 5290	2452 5170

Contract No. YL/2020/01				
AECOM	Consultants	Mr. Samuel Chan	5443 1812	TBA
CRCC-Kwan Lee-Paul Y. JV	Contractor	Site Agent - Mr. Ken Ko	5517 9707	2774 0197
		JV Representative - Mr. Alvin Chan	9105 6863	2774 0197
		Team Leader - Mr. Jack Chu	9775 3008	2774 0197
		Team Leader - Mr. Desmond Tang	5188 0815	2774 0197
		Section Agent - Mr. S M Ma	6628 6221	2774 0197
		Superintendent - Mr. Y K Poon	9177 8196	2774 0197
		Superintendent - Mr. Ray Wong	9171 0919	2774 0197
		Environmental Officer – M. Lila Lui	5261 0378	27740197
		Environmental Supervisor- TBA	TBA	TBA

Construction Programme

2.11 A copy of Contractor's construction programmes are provided in **Appendix A**.

Summary of Construction Works Undertaken During Reporting Month

2.12 The major site activities undertaken in the reporting month included:

Contract No. YL/2017/03 – Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works

(a) Outstanding works of approach ramps and temporary vehicular bridge;

(b) Maintenance works for freshwater marsh and reed bed;

(c) Minor works at Ecological Area;

(d) Construction of Temporary Noise Barriers at Lok Ma Chau Road;

(e) Backfiling clean soil of LD-004.

Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 – Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1

(a) Relocation of surcharge at Portion 7, Portion 17A-D; and

(b) Site clearance at Areas 2, 7 & 9.

Status of Environmental Licences, Notifications and Permits

2.13 A summary of the relevant permits, licences, and/or notifications on environmental protection for the Contracts is presented in **Table 2.3**.

Table 2.3 Status of Environmental Licences, Notifications and Permits

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
Environmental Permit (EP)				
Contract No. YL/2017/03, Contract No. YL/2020/01	EP-477/2013	22/11/2013	N/A	Valid
	EP-477/2013/A	12/8/2021	N/A	Valid
Construction Noise Permit (CNP)				
Contract No. YL/2017/03	--	--	--	--
Contract No. YL/2020/01	--	--	--	--
Notification pursuant to Air Pollution Control (Construction Dust) Regulation				
Contract No. YL/2017/03	435754	15/8/2018	Till the Contract ends	Receipt acknowledged by EPD
Contract No. YL/2020/01	469726	21/07/2021	Till the Contract ends	Receipt acknowledged by EPD
Billing Account for Disposal of Construction Waste				
Contract No. YL/2017/03	7031266	16/08/2018	Till the Contract ends	Valid
Contract No. YL/2020/01	7041333	27/7/2021	Till the Contract ends	Valid
Registration of Chemical Waste Producer				
Contract No. YL/2017/03	WPN 5213-542-S4120-01	08/08/2018	Till the Contract ends	Valid
Contract No. YL/2020/01	Application Ref. No.: 469725	Pending for Approval		
Effluent Discharge License under Water Pollution Control Ordinance				
Contract No. YL/2017/03	WT00032414-2018	28/08/2019	31/08/2024	Valid
	WT00037496-2021	16/04/2021	30/04/2026	Valid
Contract No. YL/2020/01	Application Ref. No.: 469729	Pending for Approval		

3 AIR QUALITY MONITORING

Monitoring Requirements

3.1 In accordance with the EM&A Manual for Development of Lok Ma Chau Loop (EM&A Manual), impact 1-hour Total Suspended Particulates (TSP) and 24-hour TSP monitoring were conducted to monitor the air quality for the Contract. **Appendix B** shows the established Action/Limit Levels for the air quality monitoring work.

3.2 Impact 1-hour TSP monitoring was conducted for at least three times every 6 days, while impact 24-hour TSP monitoring was conducted for at least once every 6 days at 4 air quality monitoring stations.

Monitoring Location

3.3 Impact air quality monitoring was conducted at the 4 monitoring stations under the Contract, as shown in **Figure 2**. **Table 3.1** describes the location of the air quality monitoring stations.

Table 3.1 Location of Air Quality Monitoring Stations

Monitoring Station	Location
DMS-1a (see Note 1)	Village House along Ha Wan Tsuen East Road
DMS-2A (see Note 2)	Village House along Lok Ma Chau Road
DMS-3	Village House along Old Border Road
DMS-4A (see Note 3)	Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill

Notes:

1. In view of the disturbance concerned by the villagers near the original air quality monitoring location DMS-1, an alternative location (DMS-1a) was proposed which was verified by IEC and agreed by EPD.
2. Monitoring at DMS-2 (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (DMS-2A) was proposed which was verified by IEC and agreed by EPD.
3. Proposed replacement monitoring location for Air Sensitive Receiver (ASR) MTL-20 – Village house in Ma Tso Lung (DMS-4A) as no work would be conducted near ASR MTL-20 due to exclusion of the original Eastern Connection Road (ECR) which was verified by IEC and agreed by EPD.

Monitoring Equipment

3.4 **Table 3.2** summarises the equipment used in the impact air monitoring programme. Copies of calibration certificates are attached in **Appendix C**.

Table 3.2 Air Quality Monitoring Equipment

Monitoring Station(s)	Equipment	Model and Make	Quantity
DMS-2A DMS-3 DMS-4A	HVS Sampler for 24-hour TSP monitoring	TISCH Model: TE-5170	3
	1-hour TSP Dust Meter	Met One Instruments: AEROCET-831	5
	Calibrator	TISCH Model: TE-5025A	1

Monitoring Station(s)	Equipment	Model and Make	Quantity
(1) DMS-1a	Dust Meter for 1-hour and 24-hour TSP monitoring	Met One Instruments: AEROCET-831	2
DMS-4A	Wind Anemometer	DAVIS Model: Vantage PRO2 6152CUK	1

Remark: (1) The power supply from the Village House at DMS-1a is not secured for operation of HVS. Therefore, dust meter for 24-hr TSP monitoring at DMS-1a is proposed to ensure the monitoring data collection.

Monitoring Parameters and Frequencies

3.5 **Table 3.3** summarises the monitoring parameters and frequencies of impact dust monitoring during the course of the Contract activities. The air quality monitoring schedule for the reporting month is shown in **Appendix D**.

Table 3.3 Impact Air Quality Monitoring Parameters and Frequencies

Parameters	Frequency
1-hr TSP	Three times in every 6 days
24-hr TSP	Once per 6 days

Monitoring Methodology and Quality Assurance/Quality Control (QA/QC) Procedure

<u>24-hour TSP Air Quality Monitoring</u>

Instrumentation

3.6 HVSs completed with appropriate sampling inlets were employed for 24-hour TSP monitoring. Each sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

HVS Installation

3.7 The following guidelines were adopted during the installation of HVS:

- A horizontal platform with appropriate support was provided to secure the samplers against gusty wind;
- No two samplers were placed less than 2 metres apart;
- The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protruded above the sampler;
- A minimum of 2 metres of separation from walls, parapets and penthouses was required for rooftop samples;
- A minimum of 2 metres separation from any supporting structure, measured horizontally was required;
- No furnaces or incineration flues were nearby;
- Airflow around the sampler was unrestricted;
- The samplers were more than 20 metres from the drip line;

- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring;
- Permission and access to the monitoring stations had been obtained to set up the samplers; and
- A secured supply of electricity was provided to operate the samplers.

Filters Preparation

3.8 Wellab Limited was the HOKLAS accredited laboratory (HOKLAS Registration No.083) and responsible for the preparation of 24-hr conditioned and pre-weighed filter papers for the monitoring team.

3.9 All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±5%. A convenient working RH was 40%.

3.10 Wellab Limited has comprehensive QA and QC programmes.

Operating/Analytical Procedures

3.11 Operating/analytical procedures for the air quality monitoring were highlighted as follows:

- Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 m^3/min. and 1.4 m^3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50;
- The power supply was checked to ensure the sampler worked properly;
- On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air quality monitoring station;
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen;
- The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges;
- The shelter lid was closed and secured with the aluminum strip;
- The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper could be found out by using the filter number);
- After sampling, the filter was removed and kept in a clean and tightly sealed plastic bag. The filter paper was then returned to the Wellab Limited for reconditioning in the humidity-controlled chamber followed by accurate weighting by an electronic balance with a readout down to 0.1mg. The elapsed time was also recorded; and
- Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ±3°C; the RH should be < 50% and not vary by more than ±5%. A convenient working RH is 40%. Weighing results were returned for further analysis of TSP concentrations collected by each filter.

Maintenance/Calibration

3.12 The following maintenance/calibration was required for the HVS:

- The high-volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition; and
- All HVSs were calibrated (five-point calibration) using Calibration Kit prior to the commencement of the baseline monitoring and thereafter at bi-monthly intervals.

1-hour and 24-hour TSP Air Quality Monitoring

3.13 The measuring procedures of the dust meter are in accordance with the Manufacturer's Instruction Manual as follows:

(AEROCET-831)

- The 1-hour dust meter is placed at least 1.3 meters above ground.
- Press and hold the Power key momentarily to power on the unit and make sure that the battery level was not flash or in low level.
- Allow the instrument to stand for about 3 second to display the Sample Screen minutes.
- Press the START / STOP key to run the internal vacuum pump for 1 minute and ready to use.
- Use the select dial to select the PM range and press the START / STOP key to start a measurement.
- Finally, push the START/STOP key to stop the measuring after 1 hour sampling.
- For 24-hour TSP monitoring, the hold time was set for collection of 24-hour TSP samples. A separate automotive battery was used to support the dust meter for 24-hour TSP monitoring.
- Information such as sampling date, time, value and site condition were recorded during the monitoring period.
- All data were recorded in the data logger for further data processing.

Maintenance/Calibration

3.14 The following maintenance/calibration is required for the direct dust meters:

- Check and calibrate the meter by HVS to check the validity and accuracy of the results measured by direct reading method prior to the commencement of the baseline monitoring. Dust meter will be checked and calibrated at bi-monthly intervals throughout the air quality monitoring period, if necessary.

Results and Observations

3.15 The monitoring results for 1-hour TSP and 24-hour TSP are summarised in **Table 3.4 and 3.5** respectively. Detailed monitoring results and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendix E and F** respectively.

Table 3.4 Summary Table of 1-hour TSP Monitoring Results during the Reporting Month

Monitoring Station	Concentration (µg/m³)		Action Level, µg/m³	Limit Level, µg/m³
	Average	Range		
DMS – 1a	63.2	23.5 – 127.0	353	500
DMS – 2A	56.0	24.2 – 103.3	370	
DMS – 3	58.0	27.6 – 100.5	351	
DMS – 4A	43.9	22.5 – 86.3	350	

Table 3.5 Summary Table of 24-hour TSP Monitoring Results during the Reporting Month

Monitoring Station	Concentration (µg/m³)		Action Level, µg/m³	Limit Level, µg/m³
	Average	Range		
DMS – 1a	81.4	29.8 – 147.7	184	260
DMS – 2A	54.1	40.2 – 81.1	166	
DMS – 3	34.1	22.8 – 49.3	166	
DMS – 4A	28.1	17.2 – 38.9	152	

3.16 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

3.17 All 24-hour TSP monitoring was conducted as scheduled in the reporting month except DMS-1a as dust meter was found toppled over on 18 August 2021 and 24-hr TSP monitoring was re-scheduled to 19 August 2021. No Action/Limit Level exceedance was recorded.

3.18 According to our field observations, the major dust source identified at the designated air quality monitoring stations in the reporting month are as follows:

Table 3.6 Observation at Air Quality Monitoring Stations

Monitoring Station	Major Dust Source
DMS-1a	Road works at Ha Wan Tsuen East Road and road traffic
DMS-2A	Road traffic
DMS-3	Road traffic
DMS-4A	Road traffic

3.19 The wind speed and wind direction were recorded by the installed Wind Anemometer set at DMS-4A. The location is shown in **Figure 2**.

3.20 The wind data for the reporting month are summarised in **Appendix I**.

Event and Action Plan

3.21 Should any project related non-compliance of the criteria occur, action in accordance with the Action Plan in **Appendix J** shall be carried out.

4 NOISE MONITORING

Monitoring Requirements

4.1 In accordance with EM&A Manual, four noise monitoring stations, namely NMS-1, NMS-2, NMS-3 and NMS-4A were selected for impact monitoring for the Contract. Impact noise monitoring was conducted for at least once per week during the construction phase of the Contract. **Appendix B** shows the established Action / Limit Levels for the noise monitoring works.

Monitoring Location

4.2 Impact noise monitoring was conducted at the 4 monitoring stations under the Contract, as shown in **Figure 3**. **Table 4.1** describes the locations of the noise monitoring stations.

Table 4.1 Location of Noise Monitoring Stations

Monitoring Station	Location	Measurement
NMS-1	Village house in Ha Wan Tsuen	Façade Measurement
NMS-2	Village house along existing Ha Wan Tsuen	Free Field
NMS-3	Village house along Old Border Road	Free Field
NMS-4A(see Note 1)	Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill	Free Field measurement

Notes:

1. Proposed replacement monitoring location for Noise Sensitive Receiver (NSR) MTL-20 – Village house in Ma Tso Lung (DMS-4A) as no work would be conducted near NSR MTL-20 due to exclusion of the original ECR.

Monitoring Equipment

4.3 **Table 4.2** summarises the noise monitoring equipment. Copies of calibration certificates are provided in **Appendix C**.

Table 4.2 Noise Monitoring Equipment

Equipment	Model	Quantity
Integrating Sound Level Meter	BSWA 308	4
Calibrator	B&K 4231 & SVANTEK SV 30A	2

Monitoring Parameters, Frequency and Duration

4.4 **Table 4.3** summarises the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix D**.

Table 4.3 Noise Monitoring Parameters, Duration and Frequency

Monitoring Stations	Parameter	Duration	Frequency
NMS-1 NMS-2 NMS-3 NMS-4A	L10(30 min.) dB(A) L90(30 min.) dB(A) Leq(30 min.) dB(A) (as six consecutive Leq, 5min readings)	0700-1900 hrs on normal weekdays	Once per week

Remarks:
A-weighted equivalent continuous sound pressure level (L_{eq}). It is the constant noise level which, under a given situation and time period, contains the same acoustic energy as the actual time-varying noise level.
L_{10} is the level exceeded for 10% of the time. For 10% of the time, the sound or noise has a sound pressure level above L_{10}.
L_{90} is the level exceeded for 90% of the time. For 90% of the time, the noise level is above this level.

Monitoring Methodology and QA/QC Procedures

- The microphone head of the sound level meter was positioned at 1m from the exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acted as a reflecting surface;
- The battery condition was checked to ensure the correct functioning of the meter;
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - frequency weighting : A
  - time weighting : Fast
  - time measurement : L_{eq}(30 min.) dB(A) (as six consecutive $L_{eq, 5min}$ readings) during non-restricted hours (i.e. 0700-1900 hrs on normal weekdays)
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re- calibration or repair of the equipment;
- During the monitoring period, the L_{eq}, L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet;
- Noise measurement was paused temporarily during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible and observation record during measurement period should be provided; and
- Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s. The wind speed should be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

Maintenance and Calibration

4.5 The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.

4.6 The sound level meter and calibrator were checked and calibrated at yearly intervals.

4.7 Immediately prior to and following each noise measurement, the accuracy of the sound level meter should be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements would be accepted as valid only if the calibration levels before and after the noise measurement agreed to within 1.0 dB.

Results and Observations

4.8 The noise monitoring results are summarised in **Table 4.4**. Detailed monitoring results and graphical presentations of noise monitoring are shown in **Appendix G**.

Table 4.4 Summary Table of Noise Monitoring Results during the Reporting Month

Monitoring Station	Noise Level, $L_{eq\ (30min)}$		Action Level	Limit Level
	Average	Range		
NMS-1	53.7	47.9 – 58.9	When one documented complaint is received.	75 dB(A)
NMS-2	68.7	66.5 – 71.1		
NMS-3	59.5	50.1 – 62.2		
NMS-4A	54.7	51.5 – 56.6		

Remark: +3dB(A) façade correction included
If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

4.9 All noise monitoring was conducted as scheduled in the reporting month. No complaint was received during the reporting month. No Action/Limit Level exceedance was recorded.

4.10 According to our field observations, the major noise source identified at the designated noise monitoring stations in the reporting month are as follows:

Table 4.5 Observation at Noise Monitoring Stations

Monitoring Station	Major Noise Source
NMS-1	Road traffic
NMS-2	Road traffic
NMS-3	Road traffic
NMS-4A	Road traffic

Event and Action Plan

4.11 Should any project related non-compliance of the criteria occur, action in accordance with the Action Plan in **Appendix J** shall be carried out.

5 WATER QUALITY MONITORING

Monitoring Requirements

5.1 According to EM&A Manual, impact water quality monitoring shall be carried out three days per week during the construction period. The interval between two sets of monitoring shall not be less than 36 hours.

5.2 Replicate in-situ measurements and samples collected from each independent sampling event shall be collected to ensure a robust statistically interpretable database.

5.3 Impact water quality monitoring was conducted at three depths (i.e. 1m below surface, mid-depth and 1m above river bed, except where the water depth was less than 6m, mid-depth station might be omitted. Should the water depth be less than 3m, only the mid-depth station was monitored) dissolved oxygen (DO) concentration, DO saturation, suspended solids (SS), turbidity, pH, salinity and temperature were monitored in accordance with the requirements set out in the EM&A Manual.

5.4 **Appendix B** shows the established Action and Limit Levels for the water quality monitoring work.

Monitoring Locations

5.5 Impact water quality monitoring was conducted at 6 monitoring stations under the Contract, which is summarised in **Table 5.1**. The location of monitoring stations are shown in **Figure 4**.

5.6 Based on the updated construction programme under Contract No. YL/2017/03, the water-based construction works for temporary vehicular bridge was completed on 7th April 2021 which was confirmed by Engineer Representative under Contract No. YL/2017/03 via email dated 15th June 2021. The additional monitoring station, BS1 was therefore proposed to be deleted from the water quality monitoring proramme starting from 28th June 2021. Other water quality monitoring stations remain unchanged. This Proposal for Update of Water Quality Monitoring Stations was verified by IEC and agreed by EPD via email dated 22nd June 2021.

Table 5.1 Location for Water Quality Monitoring Stations

Monitoring Station	Location	Nature of the Location
CS1	Control Station at Old Shenzhen River	Control Station at Meander
IS1	Impact Station at Old Shenzhen River	Impact Station at Meander
IS2	Impact Station at Old Shenzhen River	Impact Station at Meander
IS4	Impact Station at Ping Hang Stream	Reference Station
CS5	Control Station at south of Lung Hau	Control Station for IS6
IS6	Impact Station near Lung Hau Road	Impact Station
(1) BS1	Impact Station at Old Shenzhen River Meander	Additional impact station for temporary vehicular bridge

Note:

1. Terminated starting from 28th June 2021 according to Proposal for Update of Water Quality Monitoring Stations (approved by EPD on 22nd June 2021).

Monitoring Equipment

Instrumentation

5.7 A multi-parameter meters (Model YSI EXO) were used to measure DO, turbidity, salinity, pH and temperature.

DO and Temperature Measuring Equipment

5.8 The instrument for measuring DO and temperature was portable and weatherproof complete with cable, sensor, comprehensive operation manuals and use DC power source. It was capable of measuring:

- A DO level in the range of 0-20 mg/L and 0-200% saturation; and
- A temperature of 0-45 degree Celsius.

5.9 It had a membrane electrode with automatic temperature compensation complete with a cable.

5.10 Sufficient stocks of spare electrodes and cables were available for replacement where necessary.

5.11 Salinity compensation was built-in in the DO equipment.

Turbidity

5.12 Turbidity was measured in-situ by the nephelometric method. The instrument was portable and weatherproof using a DC power source complete with cable, sensor and comprehensive operation manuals. The equipment was capable of measuring turbidity between 0-1000 NTU. The probe cable was not less than 25m in length. The meter was calibrated in order to establish the relationship between NTU units and the levels of SS. The turbidity measurement was carried out on split water sample collected from the same depths of SS samples.

Sampler

5.13 A water sampler, consisting of a transparent Polyvinyl Chloride (PVC) of a capacity of not less than two litres which could be effectively sealed with cups at both ends was used. The water sampler had a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler was at the selected water depth. In addition, a self-made sampling bucket was also used for sampling at the monitoring station with shallow water.

Water Depth Detector

5.14 A portable, battery-operated echo sounder was used for the determination of water depth at each designated monitoring station.

pH

5.15 The instrument was consisting of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It was readable to 0.1pH in a range of 0 to 14. Standard buffer solutions of at least pH 7 and pH 10 were used for calibration of the instrument before and after use.

Salinity

5.16 A portable salinometer capable of recording salinity within the range of 0-40 ppt was used for salinity measurements.

Sample Container and Storage

5.17 Following collection, water samples for laboratory analysis were stored in high density polythene bottles (250ml/1L) with no preservatives added, packed in ice (cooled to 4°C without being frozen) and kept in dark during both on-site temporary storage and shipment to the testing laboratory. The samples were delivered to the laboratory as soon as possible and the laboratory determination work was started within 24 hours after collection of the water samples. Sufficient volume of samples was collected to achieve the detection limit.

5.18 **Table 5.2** also summarises the type of sampling bottle and preservation method for laboratory testing.

Table 5.2 Types of Sampling Bottle and Preservation Method

Parameter	Preservation Method	Type of Sample Container
Total SS	Refrigerate	1 litre plastic bottle

Calibration of In-Situ Instruments

5.19 All in-situ monitoring instruments were checked, calibrated and certified by Wellab Limited before use, and subsequently re-calibrated at 3-month intervals throughout all stages of the water quality monitoring programme. Responses of sensors and electrodes were checked with certified standard solutions before each use. Wet bulb calibration for a DO meter was carried out before measurement at each monitoring event.

5.20 For the on-site calibration of field equipment (Multi-parameter Water Quality System), the BS 1427:2009, "Guide to on-site test methods for the analysis of waters" was observed.

5.21 Sufficient stocks of spare parts were maintained for replacement when necessary. Backup monitoring equipment was also being made available so that monitoring could proceed uninterrupted even when some equipment was under maintenance, calibration, etc.

5.22 The equipment used for impact water quality monitoring is shown in **Table 5.3** and copies of the calibration certificates are shown in **Appendix C**. All the monitoring equipment complied with the requirements set out in the EM&A Manual.

Table 5.3 Water Quality Monitoring Equipment

Equipment	Model and Make	Quantity
Sonar Water Depth Detector	Garmin Fishfinder 140 / Garmin Striker plus 4	1
Water Sampler	A 2-litre transparent PVC cylinder with latex cups at both ends or self-made sampling bucket	1
Multi-parameter Water Quality System	YSI EXO 1	1

Monitoring Parameters and Frequency

5.23 **Table 5.4** summarises the monitoring parameters, monitoring depths and frequency of the water quality monitoring. The water quality monitoring schedule for the reporting month is

shown in **Appendix D**.

Table 5.4 Water Quality Monitoring Parameters, Depths and Frequency

Monitoring Station	Parameter (unit)	Depth	Frequency
CS1, IS1, IS2, IS4, CS5, IS6	• Temperature(°C) • pH (pH unit) • turbidity (NTU) • water depth (m) • salinity (ppt) • DO (mg/L and % of saturation) • SS (mg/L)	• 3 water depths: 1m below water surface, mid-depth and 1m above river bed. • If the water depth was less than 3m, mid-depth sampling only. • If water depth was less than 6m, mid-depth might be omitted.	• 3 days per week during the construction period of the Contract

5.24 Monitoring location/position, time, water depth, sampling depth, pH, salinity, DO saturation, water temperature, tidal stages, weather conditions and any special phenomena or work underway nearby were recorded.

Monitoring Methodology

Instrumentation

5.25 A multi-parameter meters (Model YSI EXO) were used to measure DO, turbidity, salinity, pH and temperature.

Operating/Analytical Procedures

5.26 At each measurement, two consecutive measurements of DO concentration, DO saturation, salinity, turbidity, pH and temperature were taken. The probes were retrieved out of the water after the first measurement and then re-deployed for the second measurement. Where the difference in the values between the first and second readings of each set was more than 25% of the value of the first readings, this set of readings was discarded and further readings were taken.

Laboratory Analytical Methods

5.27 The testing of all parameters was conducted by Wellab Limited for the water samples and comprehensive QA and QC procedures were in place in order to ensure the quality and consistency of results. The testing method, reporting limit and detection limit are provided in **Table 5.5**.

Table 5.5 Laboratory Analysis Method for Water Samples

Determinant	Instrumentation	Analytical Method	Limit of Reporting	Detection Limit
SS	Weighing	APHA 17ed 2540 D	2.5 mg/L	0.5 mg/L

Remark: The limit of reporting, 2.5mg/L has been adopted during baseline water quality monitoring stage

QA/QC Requirements

Decontamination Procedures

5.28 Water sampling equipment used during the course of the monitoring programme was decontaminated by manual washing and rinsed clean seawater/distilled water after each sampling event. All disposal equipment was discarded after sampling.

Sampling Management and Supervision

5.29 All sampling bottles were labelled with the sample identity laboratory number and sampling date. Water samples were dispatched to the testing laboratory for analysis as soon as possible after the sampling. All samples were stored in a cool box and kept at less than 4°C but without frozen. All water samples were handled under chain of custody protocols and relinquished to the laboratory representatives at locations specified by the laboratory.

5.30 The laboratory determination work was started as soon as possible after collection of the water samples.

QC Measures for Sample Testing

5.31 The sample testing and following QC programme were performed by Wellab Limited for every batch of 20 samples:

- ✧ One method blank; and
- ✧ One set of QC samples.

Maintenance and Calibration

5.32 All in-situ monitoring instruments were checked, calibrated and certified by Wellab Limited before use, and subsequently re-calibrated at 3-month intervals throughout all stages of the water quality monitoring programme.

Results and Observations

5.33 The monitoring results and graphical presentation of water quality at the monitoring stations are shown in **Appendix H.**

5.34 The summary of exceedance recorded in the reporting month is shown in **Appendix K** and summarised in the **Table 5.6**.

Table 5.6 Summary of Water Quality Exceedances

Station	Exceedance Level	DO	Turbidity	SS	Total Number of Non-project Related Exceedances	Total Number of project Related Exceedances
IS1	Action Level	0	0	0	0	0
	Limit Level	0	0	0	0	0
IS2	Action Level	0	0	0	0	0
	Limit Level	0	0	0	0	0
IS4	Action Level	0	0	0	0	0
	Limit Level	0	0	0	0	0
Total	Action Level	0	0	0	0	0
	Limit Level	0	0	0	0	0

5.35 No water monitoring was conducted at IS6 in the reporting month as the channel was dry. The water monitoring will resume once there is water flow at IS6. Other water quality monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Event and Action Plan

5.36 Should any project related non-compliance of the criteria occur, action in accordance with the Action Plan in **Appendix J** shall be carried out.

6 ECOLOGICAL MONITORING

Monitoring Requirements (Avifauna Monitoring)

Monitoring Requirements

6.1 As required under Section 11.4.1.1 of EM&A Manual, flight line corridor survey was required from the beginning of work until 12 months after the establishment of the Ecological Area or completion of work on the Western Connection Road, whichever was the later.

6.2 The purpose of the survey was to identify the number and species composition of birds using the flight line and monitor if there was any impact from construction works.

Monitoring Frequency

6.3 Flight line survey is required to be carried out on monthly basis.

Monitoring Location

6.4 The flight line corridor survey work should be carried out at the Lok Ma Chau Lookout, according to Section 11.4.1.1 of the EM&A Manual. The location at Lok Ma Chau Lookout is shown in **Figure 5.**

Monitoring Methodology

6.5 Flight lines of birds through the area were surveyed once monthly at Lok Ma Chau Lookout, adjacent to the Loop.

6.6 Observations were carried out at Lok Ma Chau Lookout for two hours from 30 minutes before sunrise in the early morning.

6.7 During the survey, the surveyor marked on a standard map for the estimated location of the flight path used by waterbird species, birds of prey or other larger species of conservation interest passing through the area. Flights involving short hops from point to point were not recorded. The focus was on the flight line corridor over the Loop or the southwest section of old Shenzhen River meander.

6.8 During the survey, species generally commensal with man (e.g. Black-collared Starling), common and widespread in HK (e.g. Crested Myna) or small in size and not prone to following flight lines en masse (e.g. Barn Swallow) were ignored in order to concentrate on species of conservation interest and/or those prone to using flight lines (e.g. large waterbirds).

6.9 For each observation of birds in flight, the number, the species and their height above the ground were recorded. Height above the ground was estimated in relation to the level of the Loop and adjacent fish pond area, and/or the location of the observer.

6.10 Given the difficulty of accurately measuring height above ground from a distance, three height classes were used: 10m, 20m and 30m or above. In practice, this means birds were assigned to ranges of 5-15m (10m height class), 15-25m (20m height class) and 25m or above (30m height class). Approximate heights of observation points were 40m at Lok

Ma Chau Lookout.

6.11 Flight line locations marked on the maps were then overlain with a 100m grid, each square having a unique number.

6.12 The number of birds of each species passing through each 100m grid (the number of "bird-flights") and their height above ground were then entered into an Excel spreadsheet. These data were then mapped, and on the figures produced a greater intensity of colour indicated a higher number of birds, as shown in **Figure 6.**

Monitoring Day

6.13 The flight line survey was carried out on 27th August 2021. Sunrise time at 6:04 am and the survey started at 5:34 am and lasted for 2 hours. The weather was fine throughout the survey.

Monitoring Result

6.14 Total number of birds observed was 211. Six species were included in the record of the flight line survey, including Little Egret, Great Egret, Chinese Pond Heron, Black-crowned Night Heron, Grey Heron and Black Kite. **Table 6.1** shows the summary of the number of birds observed in this Survey.

Table 6.1 Number of Birds Observed

Species	Number of Birds	Height class 1	Height Class 2	Height Class 3
Little Egret 小白鷺	147	75	13	59
Great Egret 大白鷺	35	1	11	23
Chinese Pond Heron 池鷺	18	13	5	0
Black-crowned Night Heron 夜鷺	2	2	0	0
Grey Heron 蒼鷺	5	3	1	1
Black Kite 黑鳶	4	0	0	4
Total	211	94	30	87

6.15 The total number of bird-flights (number of birds of each species passing through each 100m square) observed across all 100m grid squares was 1,545. **Table 6.2** shows the number of bird-flights for the six species respectively.

Table 6.2 Number of Bird-flights

Species	Total number of Bird-Flights
Little Egret 小白鷺	1123
Great Egret 大白鷺	280
Chinese Pond Heron 池鷺	85
Black-crowned Night Heron 夜鷺	2
Grey Heron 蒼鷺	29
Black Kite 黑鳶	26
Total	1,545

6.16 The distribution of flight line usage in this survey is shown in **Figure 6**.

6.17 Flight lines were in general concentrated mainly on LMC Meander and adjacent areas and along Shenzhen River.

6.18 No significant impact on the flight line was observed in the reporting month.

Monitoring Requirements (Mammals)

Monitoring Requirements

6.19 As required under Section 11.4.1.2 of the EM&A Manual, monitoring of mammals was required for Eurasian Otter, other mammals and dogs during the site formation and establishment period of Ecological Area.

6.20 The purpose of the monitor was to observe the connectivity between the existing reed marsh and the Ecological Area, and if there was any sign of otter and mammals around the Ecological Area.

Monitoring Location

6.21 Three cameras were placed where accessible, facing towards the Ecological Area and the Loop. The location of cameras are subject to the project progress and result of the survey. The location of cameras are shown in **Figure 5**.

Monitoring Methodology

6.22 Monitoring of Eurasians Otter was notoriously difficult due to their secretive and nocturnal habits in Hong Kong. Therefore, remote-sensing (infra-red flash) cameras were used to detect any signs of Eurasian Otter and mammals.

Monitoring Result

6.23 No Eurasians Otter was recorded during the reporting month. Other mammals, only brown rat (*Rattus norvegicus*) was captured by the infrared camera. Summary of the monitoring results are presented in **Table 6.3**. Photographic records of the species from the cameras are presented in **Appendix Q**.

Table 6.3 Summary of Monitoring Results for Mammals

Common Name	Species Name	Chinese Name	Conservation Status	Abundance		
				Camera A	Camera B	Camera C
Brown Rat	*Rattus norvegicus*	褐鼠	-	0	1	0

7 LAND CONTAMINATION

General

7.1 According to the EM&A Manual Section 8.2 and the details of the remediation and associated testing referred to in Chapter 8 of the EIA Report (AEIAR-176/2013), five (5) arsenic-contaminated zones were identified within the Loop. The estimated depth and volume of contaminated soil for each remediation zone are listed in **Table 7.1** below.

Table 7.1 Detailed Contamination Information for Designated Remediation Areas

Contamination Zone ID in EIA	Contamination Hot Spot	Estimated Vertical Extent of Contamination	Estimated Thickness (m)	Estimated Area of Contamination Zone (m^2)	Estimated Volume of Contaminated Soil (m^3)
A-S24	LD-001	2.5m to 4.0m below existing ground level	1.5	4001	6002
A-SG10	LD-002	4.0m to 5.5m below existing ground level	1.5	3520	5280
A-S20	LD-003	2.5m to 4.0m below existing ground level	1.5	4989	7484
A-S03	LD-004-A	2.5m to 4.0m below existing ground level	1.5	4580	6870
A-S03a1	LD-004-B	4.0m to 5.5m below existing ground level	1.5	4452	6678
A-S03c1	LD-004-C	1.0m to 2.5m below existing ground level	1.5	5601	8402
A-S01	LD-005	2.5m to 5.5m below existing ground level	3.0	5576	16728

7.2 Based on the Contract requirements, "Solidification / Stabilisation" was the recommended treatment method to remediate all contaminated soils and Portland cement was proposed to be used for the contaminated soil treatment. The target of soil remediation is listed in **Table 7.2**.

Table 7.2 Contaminant Solidification & Stabilisation Target for Cement Solidification / Stabilisation (CS/S)

Contaminant	Toxicity Characteristic Leaching Procedure (TCLP) Limit of Arsenic	Unconfined Compressive Strength (UCS)
Metal – Arsenic	≤5 mg/L	≥1 Mpa

7.3 Trial of CS/S was undertaken between April and June 2019 and the second trial was conducted in August 2019. According to trial performance results, cement / soil ratios of 10% and 7.5% could achieve the remediation target and these ratios had been adopted for

the subsequent remediation work. The proposed cement/soil ratios were accepted by relevant parties before the remediation work started. The contaminated soil excavation and remediation commenced on site in mid-July 2019.

Remediation Work Progress in the Reporting Month

7.4 As advised by the Contractor, Decontamination for all Hotspots (LD01 - LD05) was completed and backfilling of treated soil was completed on 31 May 2021. After completion of remediation works at each hot spots, Interim Remediation Reports (IRR) would be prepared by the Land Contamination Specialist and submitted to EPD in accordance with Condition 2.16 of the EP-477/2013/A. The status of IRRs are summarised below.

(a) IRR for hot spot LD-001 endorsed by EPD on 6th January 2020
(b) IRR for hot spot LD-003 endorsed by EPD on 18th March 2020
(c) IRR for hot spot LD-002 commented by EPD on 3rd September 2020 and resubmitted by Contractor on 16th September 2020
(d) IRR for hot spot LD-005 endorsed by EPD on 23rd October 2020
(e) Final Remediation Report including the result of hotpsot LD-004 was submitted to EPD on 28th June 2021. The final Remediation Report was approved by EPD with minor comments in August 2021.

8 WASTE MANAGEMENT

General

8.1 Waste management was carried out in accordance with the Waste Management Plan (WMP) for the Contract.

Solid and Liquid Waste Management Status

8.2 The amount of waste generated by the activities of the Contract in the reporting month are shown **Table 8.1**.

Table 8.1 Quantities of Waste Generated in the Reporting Month

Contract(s)	Waste Type		Quantity this month	Disposal / Dumping Grounds
Contract No. YL/2017/03	Inert	Reused in this Contract (Inert) (in '000 m^3)	0	N/A
		Reused in other Contracts/ Projects (Inert) (in '000 m^3)	0	N/A
		Disposal as Public Fill (Inert) (in '000 m^3)	0	N/A
Contract No. YL/2020/01		Reused in this Contract (Inert) (in '000 m^3)	0	N/A
		Reused in other Contracts/ Projects (Inert) (in '000 m^3)	0	N/A
		Disposal as Public Fill (Inert) (in '000 m^3)	0	N/A
Contract No. YL/2017/03	Non-inert	Recycled Metal ('000kg)	0	N/A
		Recycled Paper / Cardboard Packing ('000kg)	0	N/A
		Recycled Plastic ('000kg)	0	N/A
		Chemical Wastes ('000kg)	0	N/A
		General Refuses ('000m^3)	0.07	NENT Landfill
Contract No. YL/2020/01		Recycled Metal ('000kg)	0	N/A
		Recycled Paper / Cardboard Packing ('000kg)	0	N/A
		Recycled Plastic ('000kg)	0	N/A
		Chemical Wastes ('000kg)	0	N/A
		General Refuses ('000m^3)	0	N/A

8.3 The amount of wastes generated by the construction works of the Contracts in Waste Flow Table during the reporting month is shown in **Appendix N**.

9 ENVIRONMENTAL SITE INSPECTION

Site Audits

9.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures on the Contract site. The summaries of site audits are attached in **Appendix L**.

9.2 A joint site audit with the representative of the Consultants, the Contractor, IEC and ET were conducted on 6th, 11th, 18th, 25th August 2021 by ET in the reporting month. Summary of site audits under the Contracts are presented in **Table 9.1.** The details of observations during site audit are shown in **Table 9.2.**

Table 9.1 Summary of Site Audits

Contract(s)	Date(s) of Site Environmental Audit
Contract No. YL/2017/03 – Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works	6th, 11th, 18th, 25th August 2021
Contract No. YL/2020/01 - Lok Ma Chau Loop Main Works Package 1 Contract 1 - Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1	6th, 11th, 18th, 25th August 2021

9.3 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarised in **Table 9.2**.

Table 9.2 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Contract No. YL/2017/03			
Air Quality	11/8/2021	Cover the stockpile of dusty materials when not in use at Pond E.	Improvement/ Rectification was observed during follow-up audit session on 18 August 2021.
Ecology	6/8/2021	The Contractor (Advance Works) / Engineer was reminded to closely liaise with the interface Contractor to settle the issue of discharging surface runoff to the EA Zone.	Improvement/ Rectification was observed during follow-up audit session on 18 August 2021.
	11/8/2021	Maintain good housekeeping and clear construction materials at Pond B.	Improvement/ Rectification was observed during follow-up audit session on 18 August 2021.
	11/8/2021	Cover the stockpile of dusty materials when not in use at Pond E.	Improvement/ Rectification was observed during follow-up audit session on 18 August 2021.
	11/8/2021	The Contractor (Advance Works) / Engineer was reminded to closely liaise with the interface Contractor to settle the issue of discharging surface runoff to the EA Zone.	Improvement/ Rectification was observed during follow-up audit session on 18 August 2021.

Parameters	Date	Observations and Recommendations	Follow-up
Contract No. YL/2017/03			
Water Quality	11/8/2021	Cover the stockpile of dusty materials when not in use at Pond E.	Improvement/ Rectification was observed during follow-up audit session on 18 August 2021.
Waste / Chemical Management	11/8/2021	Provide drip tray for chemical storage at Pond E.	Improvement/ Rectification was observed during follow-up audit session on 18 August 2021.
Contract No. YL/2020/01			
Ecology	6/8/2021	To establish a system for supervising the works to ensure the PMEs only operating between 0900 and 1700 near old Shenzhen River or other identified important ecologically sensitive areas (if any).	Improvement/ Rectification was observed during follow-up audit session on 11 August 2021.
Water Quality	6/8/2021	To establish the site drainage system so that the muddy surface runoff can be diverted to treatment facilities.	Follow up action is required for the next audit session.
	11/8/2021	Clear the soil materials and avoid blockage of gully at site entrance.	Follow up action is required for the next audit session.
	11/8/2021	Properly direct and treat wheel washing water in treatment facility.	Follow up action is required for the next audit session.
	11/8/2021	To establish the site drainage system so that the muddy surface runoff can be diverted to treatment facilities.	Follow up action is required for the next audit session.
	18/8/2021	To improve the temporary site drainage system at the site entrance so that the muddy surface runoff has a designated channel to the interim gully before entering the sedimentation facilities.	Follow up action is required for the next audit session.
	18/8/2021	Properly clear the wheel washing facility to ensure it can function effectively.	Follow up action is required for the next audit session.
	18/8/2021	To establish the site drainage system so that the muddy surface runoff can be diverted to treatment facilities especially at the excavation area.	Follow up action is required for the next audit session.
	25/8/2021	To improve the temporary site drainage system at the site entrance so that the muddy surface runoff has a designated channel to the interim gully before entering the sedimentation facilities.	Follow up action is required for the next audit session.
	25/8/2021	Properly clear the wheel washing facility to ensure it can function effectively.	Follow up action is required for the next audit session.
	25/8/2021	To establish the site drainage system so that the muddy surface runoff can be diverted to treatment facilities especially at the excavation area.	Follow up action is required for the next audit session.

10 IMPEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

10.1 According to the EIA Report, EP and the EM&A Manual, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Environmental Mitigation Implementation Schedule is provided in **Appendix M**.

10.2 The Compliance status of Ecological and Noise Mitigation Measures related to the Contract according to EP Condition 2.7 and 2.9 respectively are summarized in **Table 10.1**.

Table 10.1 Compliance status of Ecological and Noise Mitigation Measures (EP Condition 2.7 and 2.9)

EP Requirements	Compliance Status	Remarks
Submission and Measures to Mitigate Ecological Impact		
EP Condition 2.7 To reduce the ecological impact during construction and operation stages of the Project, a series of ecological mitigation measures shall be implemented as conforming to the relevant information and recommendations, including those described in Section 12.7 (Ecological Mitigation Measures), contained in the EIA Report. The key ecological mitigation measures shall include:		
(a) conducting pre-construction search for any otter holts/dens and herpetofaunal species of conservation concern in construction sites, with remedial measures such as setting of no works area around otter holts/den and translocation of important species identified, if any;	Yes	**Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works** The pre-construction search has been carried out in November 2018 before the Advance Works commencement. No otter holts/dens and herpetofauna species of conservation concern were identified. **Development of Lok Ma Chau Loop Main Works Package 1 Contract 1 - Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1** The pre-construction search has been carried out at Area, 2, 7 & 9 as well as LMC Loop and WCR site areas in May / June 2021 and June / July 2021 respectively before the Works commencement. No otter holts/dens and herpetofauna species of conservation concern were identified.
(b) creating and establishing an Ecological Area, approximately 12.78 ha. in size, containing reed marsh and marsh habitat prior to total clearance of reed marsh in the Loop, including a lowrise building buffer zone of 50m width from the Ecological Area, with appropriate screenplanting;	Yes	Low-rise building buffer zone and screenplanting which will be provided under Main Works Package 1.
(c) stabilising the bank of the old Shenzhen River meander of the Loop, approximately 3.5 km long,	Yes	The EA design has implemented these measures.

EP Requirements	Compliance Status	Remarks
including re-vegetation upon completion of the works and various ecological designs, such as practicability of installation of otter holts and provision of potential feeding area and spraint locations for otters in the stabilised bank;		
(e) installing 3m-high olive green fence around construction areas to allow or deter different animal passages where appropriate;	Yes	The 3m-high olive green fence has been provided progressively during the construction phase of the Advance Works which has been handover to Contractor 1. The Contractor was reminded to maintain the green fence regularly and ensure no disturbance to the exiting trees and reed marsh habitat.
(h) carrying out outside dry-season (from November to February next year), the construction works associated with the site formation in the Ecological Area, stabilization of the bank of the old Shenzhen River meander, Western Connection Road along Ha Wan Tsuen Road, to minimise disturbances to migratory birds/water birds;	Yes	-
(i) using powered mechanical equipment for construction works only during the period 9am to 5pm at and near the old Shenzhen River meander and other identified important ecologically sensitive areas, if any;	Yes	-
(j) prohibiting use of direct lighting on the old Shenzhen River meander and controlling nighttime lighting to reduce potential ecological impact;	Yes	-
(k) implementing measures to minimise magnitude of construction runoff and to avoid/minimise the potential impact of spillage events, if any; and	Yes	-
(l) using opaque noise barriers along the proposed roads and using appropriate glass and façade treatment for buildings in the Loop to minimise the mortality of fast-moving wildlife (e.g. birds).	Yes	The temporary opaque noise barriers along LMC Road were constructed in progress. Façade treatment for buildings in the Loop will be provided under the responsible works packages.
Four hard copies and two electronic copies of an Ecological Mitigation / Habitat Creation and Management Plan shall be, at least one month before the commencement of corresponding parts of the works of the Project, deposited with the Director. The Plan(s) shall show the design details, locations, implementation programme, maintenance and management schedules, and drawings in the scale of 1:1,000 or other appropriate scale of the ecological mitigation measures of the Project. Before submission to the Director, the Plan(s) shall be certified by the ET Leader and verified by the IEC as conforming to the relevant information and recommendations contained in the EIA Report. All measures recommended in the finalised submission(s)	Yes	**Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works** The HCMP has been submitted and approved under the EP condition 2.7. **Development of Lok Ma Chau Loop Main Works Package 1 – Design and Construction** The HCMP has been submitted under the EP condition 2.7. Comments were received from EPD after consulting

EP Requirements	Compliance Status	Remarks
under this Condition shall be fully and properly implemented.		AFCD on 22 June 21 (ref.: ( ) in EP2/G/S3/152 Pt.10) and the revision of the HCMP is in progress.
EP Condition 2.9 To mitigate construction stage noise impact, the following noise mitigation measures shall be implemented during the construction stage of the Project:		
(a) temporary noise barriers shall be installed along the construction access roads to screen the construction traffic noise and noisy construction activities and equipment during different construction stages of the Project as described in Table 1 and Figures 2a, 2b, 3a and 3b of this Permit;	Yes	The temporary opaque noise barriers along LMC Road were constructed in progress.
(b) use of movable noise barriers, noise enclosures and quiet powered mechanical equipment for the noisy construction activities and equipment as described in Table 1 and with reference to the typical designs as shown in Figure 4 of this Permit;	Yes	-
(c) concrete lorry mixer(s) shall be operated at least 25 m away from the noise sensitive receivers (NSRs) No. HWTR-6 and HWTR-11 at the Western Connection Road as shown in Figures 2b and 3b as described in Table 1 of this Permit to avoid exceedance due to cumulative construction noise; and	Yes	-
(d) no percussive piling nor blasting by explosive shall be implemented in the Project.	Yes	-

11 ENVIRONMENTAL NON-CONFORMANCE (EXCEEDANCES)

Summary of Exceedances

11.1 Summary of exceedances is provided in **Appendix K**.

11.2 No Action/Limit Level exceedance was recorded for air quality, construction noise and water quality.

Summary of Environmental Complaint

11.3 No environmental related complaint was received in the reporting month. The statistical summary table of the environmental complaints is presented in **Table 11.1**. The Complaint Log is attached in **Appendix O**.

Table 11.1 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Project related complaint
Jan 2019 – July 2021	5	5	0
August 2021	0		0

Summary of Notification of Summons and Successful Prosecutions

11.4 There was no prosecution or notification of summons received since the commencement of the Contract. The statistical summary table of the summons and prosecution are presented in **Table 11.2** and **11.3** respectively. Summary of successful prosecution as attached in **Appendix P**.

Table 11.2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Project related complaint
Jan 2019 – July 2021	0	0	0
August 2021	0		0

Table 11.3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	**Cumulative**	**Project related complaint**
Jan 2019 – July 2021	0	0	0
August 2021	0		0

12 FUTURE KEY ISSUES

Key Issues in the Coming Month

12.1 Major site activities for the coming reporting month will include:

Contract No. YL/2017/03 – Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works

(a) Outstanding works of approach ramps and temporary vehicular bridge;

(b) Maintenance works for freshwater marsh and reed bed;

(c) Minor works at Ecological Area;

(d) Construction of Temporary Noise Barriers at Lok Ma Chau Road;

(e) Backfiling clean soil of LD-004.

Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 – Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1

(a) Relocation of surcharge at Portion 7, Portion 17A-D; and

(b) Site clearance at Areas 2, 7 & 9.

Monitoring Schedule for the Next Month

12.2 The tentative environmental monitoring schedule for the next month is shown in **Appendix D**.

Construction Programme for the Next Month

12.3 A tentative construction programmes are provided in **Appendix A**.

13 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

13.1 The EM&A Report presents the EM&A works undertaken in August 2021 in accordance with EM&A Manual.

Air Quality

1-hour TSP Monitoring

13.2 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hour TSP Monitoring

13.3 All 24-hour TSP monitoring was conducted as scheduled in the reporting month except DMS-1a as dust meter was found toppled over on 18 August 2021 and 24-hr TSP monitoring was re-scheduled to 19 August 2021. No Action/Limit Level exceedance was recorded.

Construction Noise

13.4 All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Water Quality

13.5 No water monitoring was conducted at IS6 in the reporting month as the channel was dry. The water quality monitoring would resume once there is water flow at IS6. Other water quality monitoring was conducted as scheduled in the Reporting Month. No Action/Limit Level exceedance was recorded.

Ecological Monitoring

Avifauna

13.6 Avifauna monitoring was conducted as scheduled in the reporting month. Flight lines recorded were in general concentrated mainly on LMC Meander and adjacent areas and along Shenzhen River. No significant impacts on the flight line were observed in the reporting month.

Mammals

13.7 Mammals monitoring was conducted in the reporting month. Only brown rat (*Rattus norvegicus*) was captured by infra-red flash cameras.

13.8 No Eurasian Otter was found in the reporting month.

Land Contamination

13.9 Decontamination for all Hotspots (LD01 - LD05) was completed and backfilling of treated soil was completed on 31 May 2021. The final Remediation Report including the result of

hotpsot LD-004 was submitted to EPD, in accordance with Condition 2.16 of the EP-477/2013/A on 28th June 2021. The final Remediation Report was approved by EPD with minor comments in August 2021.

Environmental Site Inspection

13.10 Environmental site inspections were conducted on 6th, 11th, 18th, 25th August 2021 by ET in the reporting month.

Environmental Complaints, Summons and Prosecutions

13.11 There was no environmental complaint, no notification of summons or successful prosecution received in the reporting month.

13.12 The ET would keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

13.13 According to the environmental audit performed in the reporting month, the following recommendations were made:

Air Quality Impact

- To enhance the dust suppression measures such as water spraying on all haul roads and exposed work site area;
- To maintain the impervious material to cover the stockpile of dusty materials.

Noise Impact

- To inspect the noise sources inside the site;
- To space out noisy equipment and position the equipment as far away as possible from sensitive receivers; and
- To provide temporary noise barriers for operations of noisy equipment near the noise sensitive receivers, if necessary.

Water Impact

- To prevent any surface runoff discharge into the old Shenzhen River meander or stream;
- To review and implement temporary drainage system;
- To identify any wastewater discharges from site;
- To remove the sand or dusty material away from the EA zone, old Shenzhen River meander or stream;
- To divert all the water generated from construction site to de-silting facilities with enough handling capacity before discharge;
- To review the capacity of de-silting facilities for discharge; and
- To ensure the drainage facilities would not be clogged with sediment to avoid overflow during rainy season.

Ecology Impact

- To maintain the 3m high olive green fence around the construction site; and

- To ensure the powered mechanical equipment for construction works only during the period 9am to 5pm at and near the old Shenzhen River meander and other identified important ecologically sensitive areas, if any.

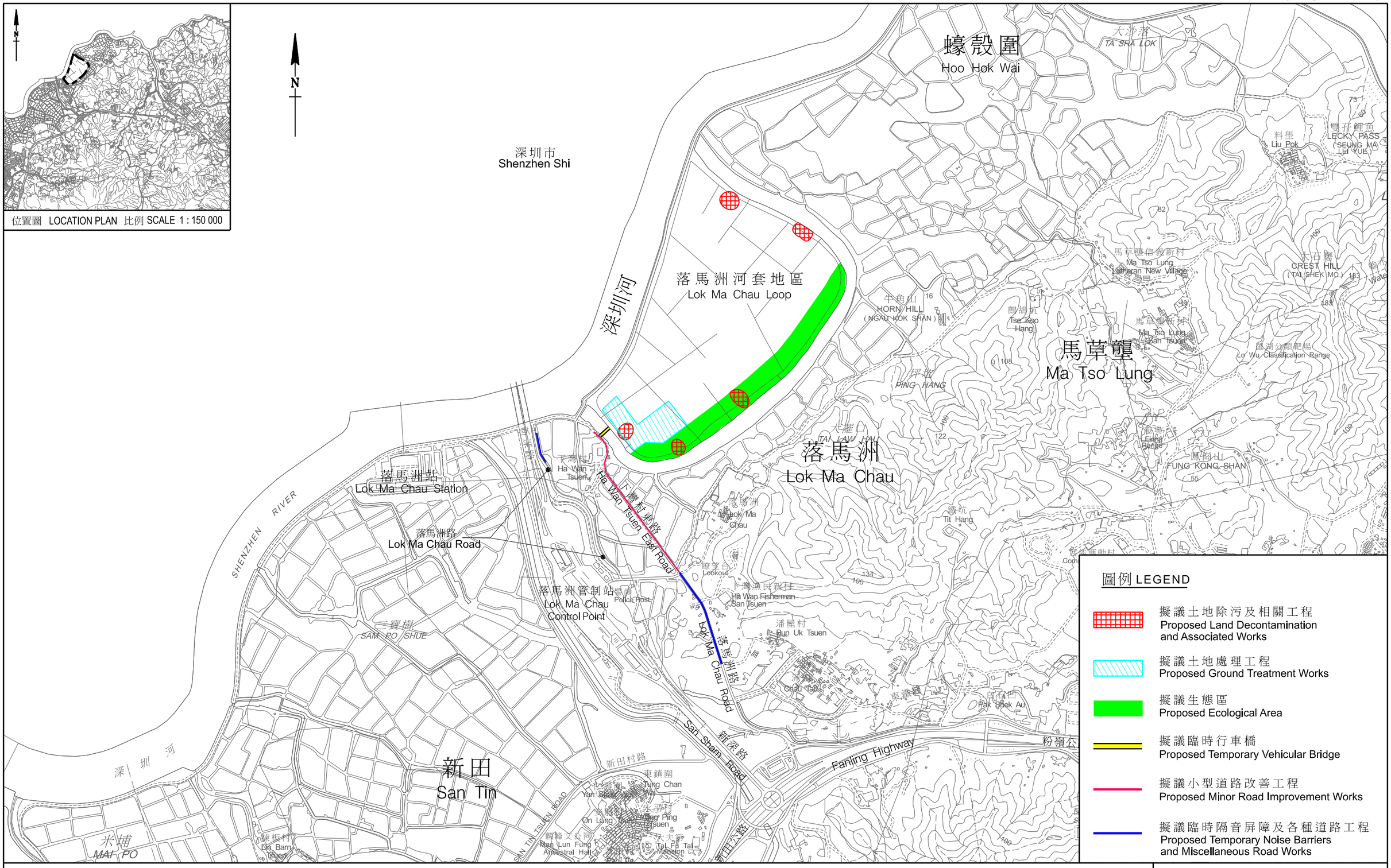
Fisheries Impact

- To ensure the sheet pile/barrier wall with impermeable lining erected by non-percussive piling method (e.g. Press-in method) for some fish ponds which will be partly affected by construction works.

Waste/Chemical Management

- To check for any accumulation of waste materials or rubbish on site;
- To carry out inspection of dump trucks at site exit to ensure inert and non-inert C&D materials are properly segregated before delivering off site;
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the site; and
- To avoid improper handling, storage and dispose of oil drums or chemical containers on site.

FIGURE(S)



圖例 LEGEND

- 擬議土地除污及相關工程 Proposed Land Decontamination and Associated Works
- 擬議土地處理工程 Proposed Ground Treatment Works
- 擬議生態區 Proposed Ecological Area
- 擬議臨時行車橋 Proposed Temporary Vehicular Bridge
- 擬議小型道路改善工程 Proposed Minor Road Improvement Works
- 擬議臨時隔音屏障及各種道路工程 Proposed Temporary Noise Barriers and Miscellaneous Road Works

工務計劃項目第748CL號—落馬洲河套地區發展：土地除污及前期工程

PWP ITEM No. 748CL-DEVELOPMENT OF LOK MA CHAU LOOP : LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS

FIGURE 1 a

LAYOUT PLAN

R:\Sketch-WDO\W1\W1-008\W1-008.dgn

1/2/2018

A3 420MM X 297MM

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

圖例:

- 施工區範圍 SITE BOUNDARY
- 擬議道路，單車徑，行人路和相關基建工程 ROAD, CYCLE TRACK, FOOTPATH WORKS
- 擬議公共運輸交匯處 TRANSPORT INTERCHANGE
- 擬議工地平整及基建配套設施 SITE FORMATION AND INFRASTRUCTURE WORKS
- 擬議深圳河的底泥處理 RIVER DEODORISATION WORKS
- 擬議美化市容地帶，休憩用地，場外生態補償和相關綠化工程 AMENITY, LEISURE AND ECOLOGICAL PROVISIONS
- 擬議污水處理廠 SEWAGE TREATMENT WORKS
- 食水配水庫和供水系統 FRESHWATER SERVICE RESERVOIR AND WATERMAINS
- 擬議斜坡 SLOPEWORKS

N

Legend

- Approximated Extent of Contract 1
- Approximated Extent of Contract 2
- Approximated Extent of Contract 3
- Approximated Extent of Contract 4
- Approximated Extent of Contract 5
- Approximated Extent of Contract 6

落馬洲河套地區
LOK MA CHAU LOOP

港鐵落馬洲站
MTR LOK MA CHAU STATION

深圳河
SHENZHEN RIVER

擬議落馬洲河套地區食水配水庫
(食水配水庫的工地平整及供水系統水管敷設由其他工程項目建造)
LMCL MWP1 FRESHWATER SERVICE RESERVOIR (SITE FORMATION AND WATERMAINS BY OTHERS)

現有食水管
EXISTING WATERMAINS

粉嶺公路
FANLING HIGHWAY

HOC

牛角山 HORN HILL (NGAU KOK SHAN)

鵝頸坑 Tse Koo Hang

馬草壟 MA TSO LUNG

Ma Tso Lung San Tsuen

鹿湖分類配場 Lo Wu Classification Range

大石鷹 CREST HILL (TAI SHEK MO)

雙孖鯉魚 TWIN CARP'S BACK (SEUNG MA LEI YUE)

坪坑 PING HANG

大罅口 TAI LAW HAU

落馬洲 LOK MA CHAU

Lok Ma Chau

Tit Hang

Lookout

Police Post

下灣漁民新村 Ha Wan Fisherman San Tsuen

潘屋村 Pun Uk Tsuen

洲頭 Chau Tau

二聖樹 SAM PO SHUE

新田 SAN TIN

SAN SHAM ROAD

SAN TIN TSUEN ROAD

東鎮圍 Tung Chan Wai

Yan Shau Wai

On Lung Tsuen

Ping Ha Tsuen

Man Lun Fung Ancestral Hall

Tai Fo Tai Mansion

San Tin Tsuen

新龍村 San Lung Tsuen

青龍村 Tsing Lung Tsuen

Kit Lun Tsuen

麒麟山 HADDEN HILL (KI LUN SHAN)

KWU TUNG RESERVOIR

合盛圍 Hop Shing Wai

TAM KON CHAU RD

CASTLE PEAK ROAD

Kin Barn Tsuen

Fung Kong Shan

Tung Fong

EAST RAIL LINE

Tung Kok

Pak Shek Au

Dills Corner Garden

Shek Tsai Leng

Kwu Tung

Fung Kong Shan

Ho Sheung Heung

Fung Hong

Kwu Tung Road

Valais

Ser. Res.

Europa Garden

Cross Borough

Bear River Country Club

牛潭尾 NGAU TAM MEI

AECOM

PROJECT
項目

DEVELOPMENT OF LOK MA CHAU LOOP MAIN WORKS PACKAGE 1 DESIGN AND CONSTRUCTION

CLIENT
業主

土木工程拓展署 Civil Engineering and Development Department

CONSULTANT
工程顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核

STATUS
狀況

SCALE 比例: A1 1 : 8000

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60588085

CONTRACT NO. 合約編號: CE 5/2018(CE)

SHEET TITLE
圖紙名稱

落馬洲河套地區發展 -
第一期主體工程 -
工程平面圖（圖一）
PROJECT LAYOUT (Figure 1b)

SHEET NUMBER
圖紙編號

60588085/ SK0099

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5/5/2020

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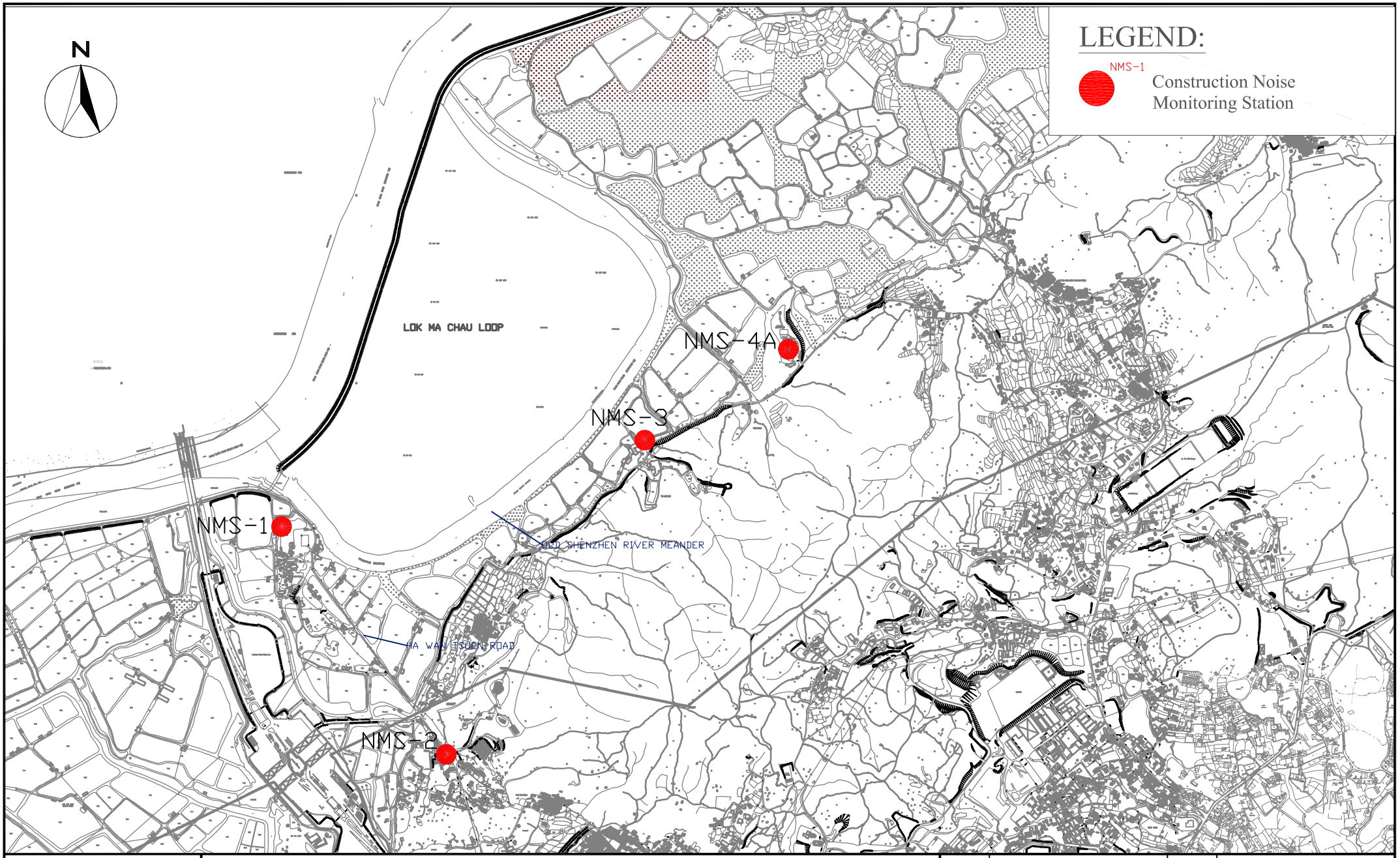
consulting . testing . research

Service Contract No. WD/04/2020
Development of Lok Man Chau Loop: Main Work Package 1 - Environmental Team
Location of Air Quality Monitoring Stations

SCALE	1:400 A4	DATE	May 2021
CHECK	PC	DRAWN	IT
JOB No.	WMA21009	FIGURE NO. Fig 2	REV –



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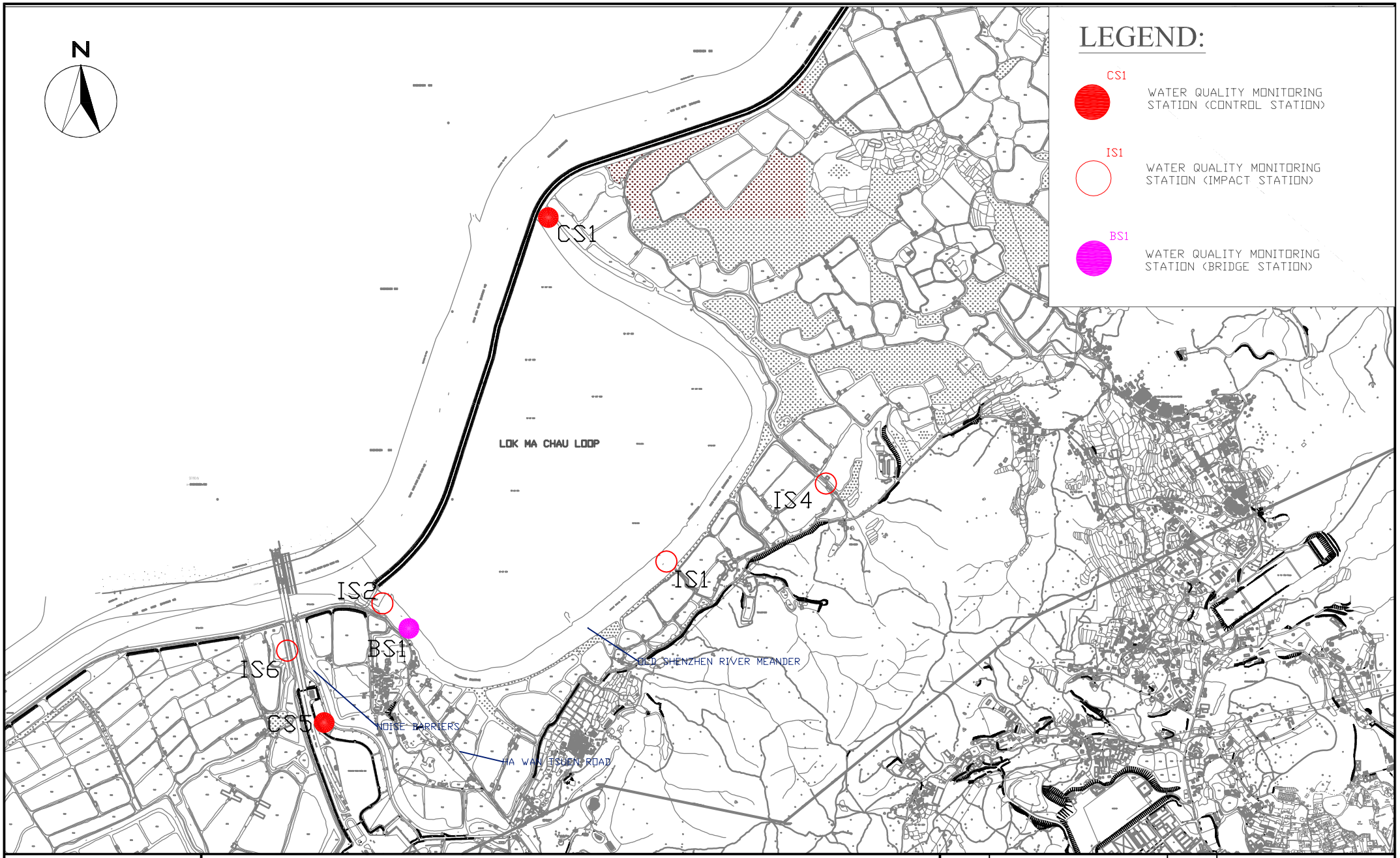
Service Contract No. WD/04/2020
Development of Lok Man Chau Loop: Main Work Package 1 - Environmental Team

Location of Noise Monitoring Stations

SCALE	1:400 A4	DATE	May 2021
CHECK	PC	DRAWN	IT
JOB No.	WMA 21009	FIGURE NO.	Fig 3
		REV	-



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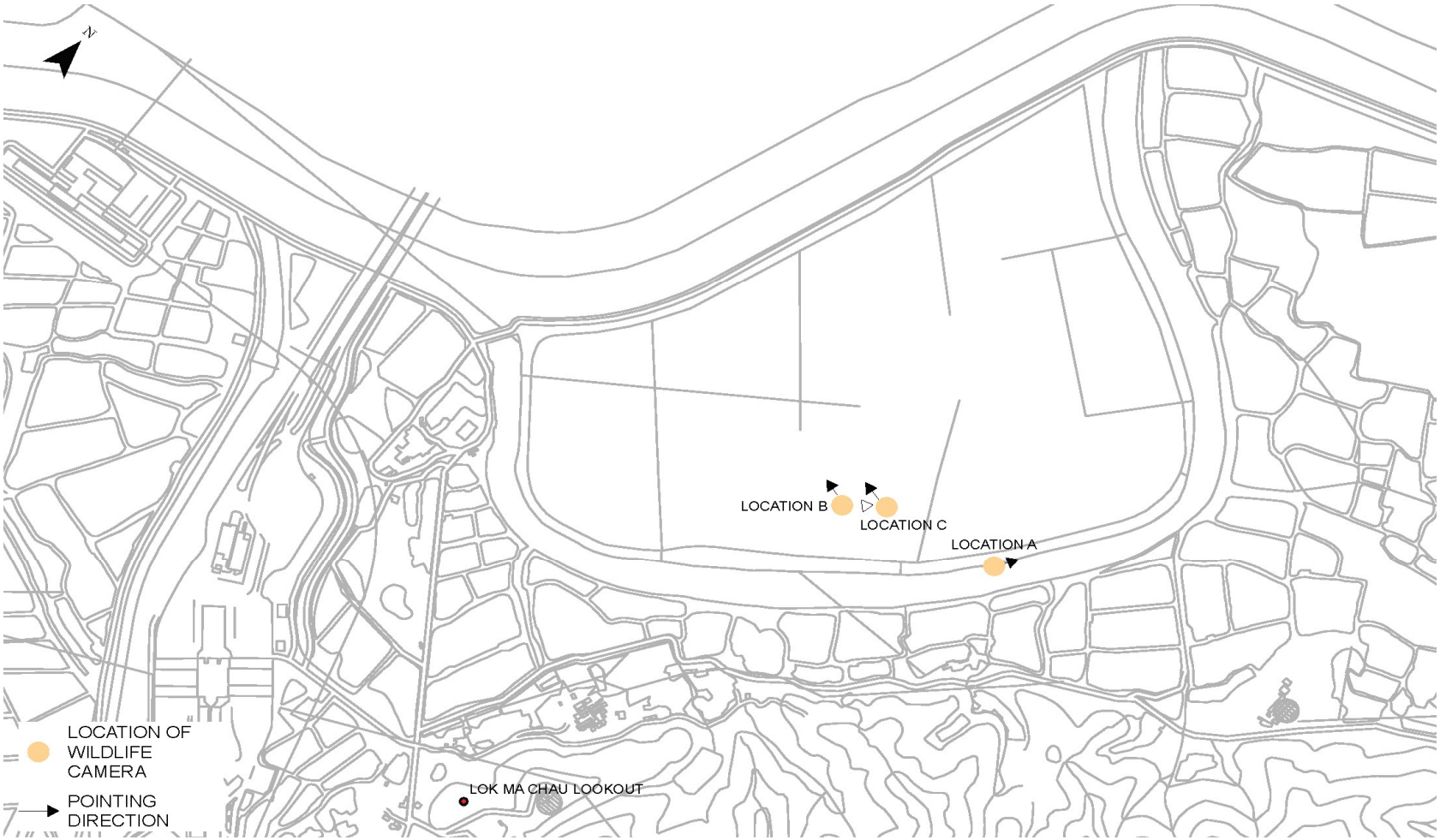
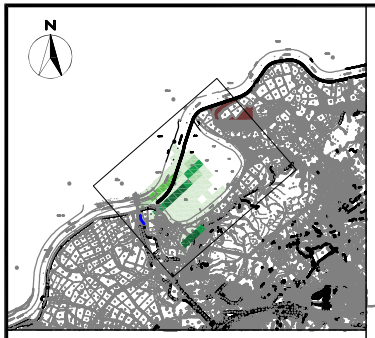
Service Contract No. WD/04/2020
Development of Lok Man Chau Loop: Main Work Package 1 - Environmental Team

Location of Water Quality Monitoring Stations

SCALE	1:400 A4	DATE	May 2021
CHECK	PC	DRAWN	IT
JOB No.	WMA 21009	FIGURE NO.	Fig 4
		REV	-



Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop Main Work Package 1 - Environmental Team Locations of Ecological Monitoring	Scale: N.T.S Date: Aug-21	Project No.: WMA21009 Figure: 5	WELLAB 匯力 consulting . testing . research



LOCATION PLAN

N

BUFFER ZONE

ECOLOGICAL AREA

NUMBER OF BIRD FLIGHTS
(ALL BIRDS)

1-20

21-30

31-40

41-60

61-70

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Service Contract No. WD/04/2020
Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team
Flight Lines of All Bird Species

SCALE	1:14000 @A4	DATE	AUG 2021
CHECK	IT	DRAWN	ML
JOB No.	WMA 21009	FIGURE NO. Fig 2	REV -

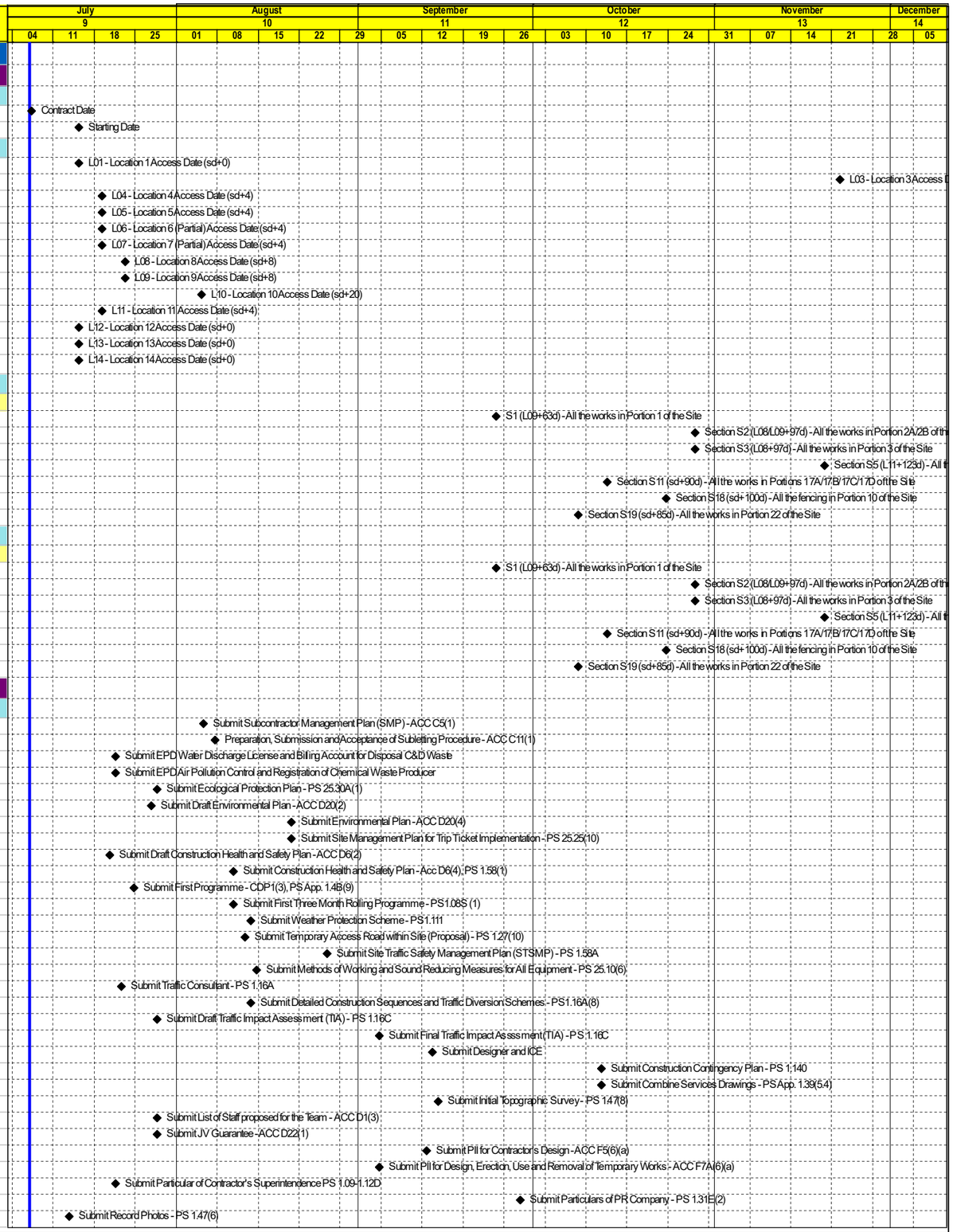
APPENDIX A
CONSTRUCTION PROGRAMME

Sang Hing - Kuly Joint Venture
Contract No. YL/2017/03
Development of Lok Ma Chau Loop：Land Decontamination and Advance Engineering Works

3-Month Rolling Programme for the Works

ITEM	WORKS DESCRIPTION	YEAR 2021					
		Jul		Aug		Sept	
1	TEMPORARY VEHICULAR BRIDGE AND APPROACH RAMP						
2	TEMPORARY NOISE BARRIER AT LOK MA CHAU ROAD						
3	ADDITIONAL GROUND TREATMENT WORK						
4	MINOR WORKS AT ECOLOGICAL AREA & CONSTRUCTION OF ECOLOGICAL FEATURES						
5	ROAD IMPROVEMENT WORKS OF HWTER						

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish
Contract No. YL/2020/01 - First Three Month Rolling Programme						
Contract Data Part 1						
General						
G0-CD	Contract Date	0	07-Jul-21		07-Jul-21	
G1-SD	Starting Date	0	15-Jul-21		15-Jul-21	
Access Dates to Part of the Site						
L01	L01 - Location 1 Access Date (sd+0)	0	15-Jul-21*		15-Jul-21	
L03	L03 - Location 3 Access Date (sd+130)	0	22-Nov-21		15-Jun-22	
L04	L04 - Location 4 Access Date (sd+4)	0	19-Jul-21		27-Aug-21	
L05	L05 - Location 5 Access Date (sd+4)	0	19-Jul-21		27-Aug-21	
L06-1	L06 - Location 6 (Partial) Access Date (sd+4)	0	19-Jul-21		27-Aug-21	
L07-1	L07 - Location 7 (Partial) Access Date (sd+4)	0	19-Jul-21		27-Aug-21	
L08	L08 - Location 8 Access Date (sd+8)	0	23-Jul-21		23-Jul-21	
L09	L09 - Location 9 Access Date (sd+8)	0	23-Jul-21		23-Jul-21	
L10	L10 - Location 10 Access Date (sd+20)	0	05-Aug-21		16-Dec-23	
L11	L11 - Location 11 Access Date (sd+4)	0	19-Jul-21		12-Aug-21	
L12	L12 - Location 12 Access Date (sd+0)	0	15-Jul-21		15-Jul-21	
L13	L13 - Location 13 Access Date (sd+0)	0	15-Jul-21		18-Aug-21	
L14	L14 - Location 14 Access Date (sd+0)	0	15-Jul-21		09-Aug-21	
Contract Completion Dates						
Section Completions						
S01	S1 (L09+63d) - All the works in Portion 1 of the Site	0		24-Sep-21*		24-Sep-21
S02	Section S2 (L08/L09+97d) - All the works in Portion 2A/2B of the Site	0		28-Oct-21*		28-Oct-21
S03	Section S3 (L08+97d) - All the works in Portion 3 of the Site	0		28-Oct-21*		28-Oct-21
S05	Section S5 (L11+123d) - All the works in Portion 5 and TAR 1 within Portion 6 and 21 of the Site	0		19-Nov-21*		19-Nov-21
S11	Section S11 (sd+90d) - All the works in Portions 17A/17B/17C/17D of the Site	0		13-Oct-21*		13-Oct-21
S18	Section S18 (sd+100d) - All the fencing in Portion 10 of the Site	0		23-Oct-21*		23-Oct-21
S19	Section S19 (sd+85d) - All the works in Portion 22 of the Site	0		08-Oct-21*		08-Oct-21
Planned Completion Dates						
Planned Section Completions						
PPS01	S1 (L09+63d) - All the works in Portion 1 of the Site	0		24-Sep-21		24-Sep-21
PPS02	Section S2 (L08/L09+97d) - All the works in Portion 2A/2B of the Site	0		28-Oct-21		28-Oct-21
PPS03	Section S3 (L08+97d) - All the works in Portion 3 of the Site	0		28-Oct-21		28-Oct-21
PPS05	Section S5 (L11+123d) - All the works in Portion 5 and TAR 1 within Portion 6 and 21 of the Site	0		19-Nov-21		19-Nov-21
PPS11	Section S11 (sd+90d) - All the works in Portions 17A/17B/17C/17D of the Site	0		13-Oct-21		13-Oct-21
PPS18	Section S18 (sd+100d) - All the fencing in Portion 10 of the Site	0		23-Oct-21		23-Oct-21
PPS19	Section S19 (sd+85d) - All the works in Portion 22 of the Site	0		08-Oct-21		08-Oct-21
Preliminary and Preparations						
Submissions and Subletting						
PRE-010	Submit Subcontractor Management Plan (SMP) - ACC C5(1)	0		05-Aug-21*		05-Aug-21
PRE-020	Preparation, Submission and Acceptance of Subletting Procedure - ACC C11(1)	0		07-Aug-21*		07-Aug-21
PRE-090	Submit EPD Water Discharge License and Billing Account for Disposal C&D Waste	0		21-Jul-21*		22-Jul-21
PRE-095	Submit EPD Air Pollution Control and Registration of Chemical Waste Producer	0		21-Jul-21*		22-Jul-21
PRE-100	Submit Ecological Protection Plan - PS 25.30A(1)	0		28-Jul-21*		30-Jul-21
PRE-104	Submit Draft Environmental Plan - ACC D20(2)	0		27-Jul-21*		27-Jul-21
PRE-105	Submit Environmental Plan - ACC D20(4)	0		20-Aug-21*		20-Aug-21
PRE-106	Submit Site Management Plan for Trip Ticket Implementation - PS 25.25(10)	0		20-Aug-21*		20-Aug-21
PRE-109	Submit Draft Construction Health and Safety Plan - ACC D6(2)	0		20-Jul-21*		20-Jul-21
PRE-110	Submit Construction Health and Safety Plan - Acc D6(4), PS 1.58(1)	0		10-Aug-21*		10-Aug-21
PRE-115	Submit First Programme - CDP1(3), PS App. 1.4B(9)	0		24-Jul-21*		24-Jul-21
PRE-120	Submit First Three Month Rolling Programme - PS1.08S (1)	0		10-Aug-21*		10-Aug-21
PRE-121	Submit Weather Protection Scheme - PS1.111	0		13-Aug-21*		13-Aug-21
PRE-125	Submit Temporary Access Road within Site (Proposal) - PS 1.27(10)	0		12-Aug-21*		12-Aug-21
PRE-130	Submit Site Traffic Safety Management Plan (STSMP) - PS 1.58A	0		26-Aug-21*		26-Aug-21
PRE-135	Submit Methods of Working and Sound Reducing Measures for All Equipment - PS 25.10(6)	0		14-Aug-21*		14-Aug-21
PRE-140	Submit Traffic Consultant - PS 1.16A	0		22-Jul-21*		22-Jul-21
PRE-142	Submit Detailed Construction Sequences and Traffic Diversion Schemes - PS1.16A(8)	0		13-Aug-21*		13-Aug-21
PRE-145	Submit Draft Traffic Impact Assessment (TIA) - PS 1.16C	0		28-Jul-21*		28-Jul-21
PRE-146	Submit Final Traffic Impact Asssment(TIA) -PS 1.16C	0		04-Sep-21*		04-Sep-21
PRE-150	Submit Designer and ICE	0		13-Sep-21		16-Oct-21
PRE-155	Submit Construction Contingency Plan - PS 1.140	0		12-Oct-21*		12-Oct-21
PRE-160	Submit Combine Services Drawings - PS App. 1.39(5.4)	0		12-Oct-21*		12-Oct-21
PRE-165	Submit Initial Topographic Survey - PS 1.47(8)	0		14-Sep-21*		14-Sep-21
PRE-166	Submit List of Staff proposed for the Team - ACC D1(3)	0		28-Jul-21*		28-Jul-21
PRE-167	Submit JV Guarantee - ACC D22(1)	0		28-Jul-21*		28-Jul-21
PRE-168	Submit PII for Contractor's Design - ACC F5(6)(a)	0		12-Sep-21*		12-Sep-21
PRE-169	Submit PII for Design, Erection, Use and Removal of Temporary Works - ACC F7A(6)(a)	0		04-Sep-21*		04-Sep-21
PRE-170	Submit Particular of Contractor's Superintendence PS 1.09-1.12D	0		21-Jul-21*		21-Jul-21
PRE-171	Submit Particulars of PR Company - PS 1.31E(2)	0		28-Sep-21*		28-Sep-21
PRE-172	Submit Record Photos - PS 1.47(6)	0		13-Jul-21*		13-Jul-21



CRCC - Kwan Lee - Paul Y. JV

Remaining Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Contract YL/2020/01 - Lok Ma Chau Loop Main Works Package 1

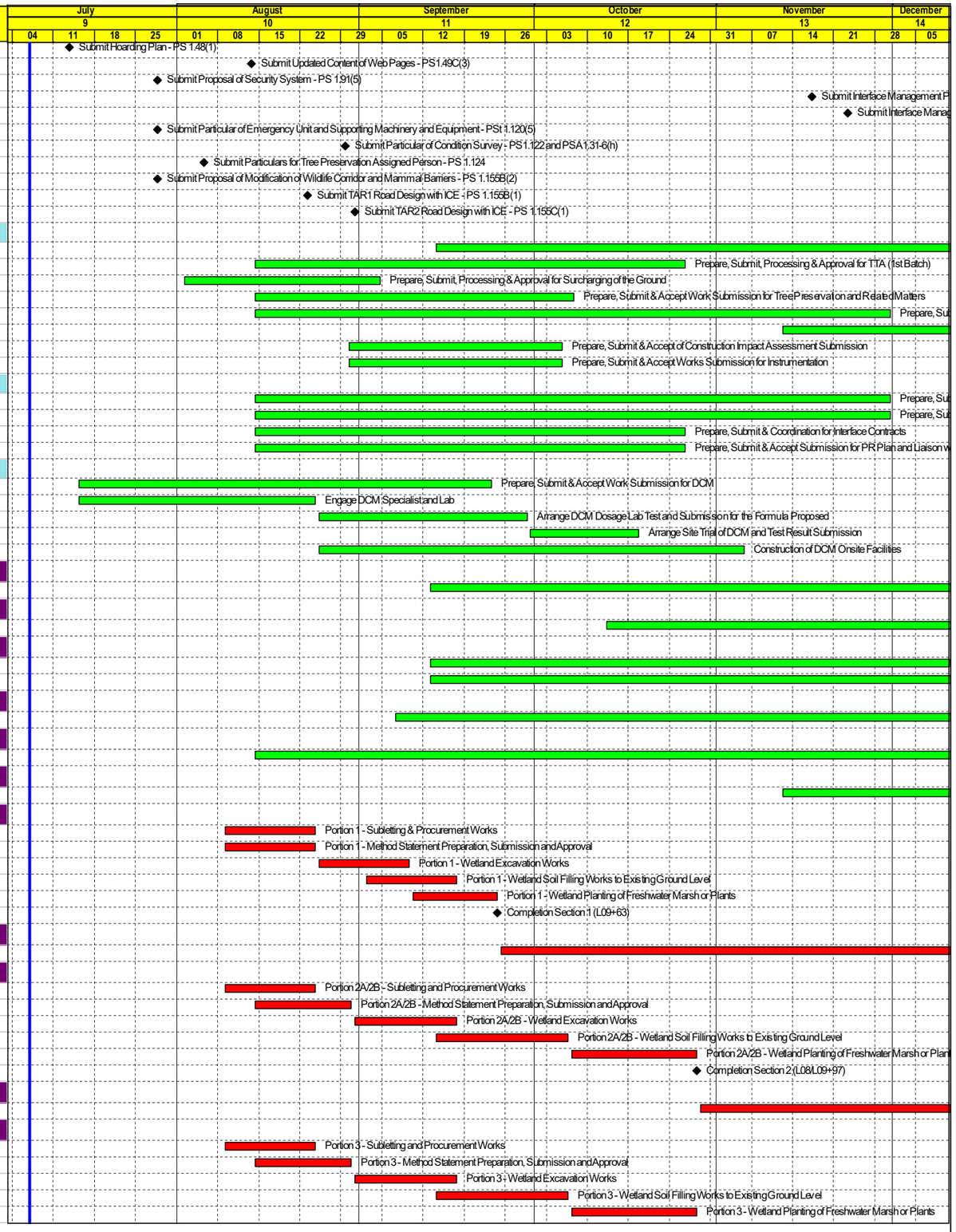
First Three Month Rolling Programme (PS1.08S(1))

Project ID : YL-3MRP.01r1
Layout : YL202001 3MRP
Date : 03-Sep-21 / Page 1 of 5

First Three Month Rolling Programme

Date	Revision	Checked	Approved
20-Aug-21	Rev. 1		
06-Aug-21	Rev. 0		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish
PRE-173	Submit Hoarding Plan - PS 1.48(1)	0		13-Jul-21*		13-Jul-21
PRE-174	Submit Updated Content of Web Pages - PS1.49C(3)	0		13-Aug-21*		13-Aug-21
PRE-175	Submit Proposal of Security System - PS 1.91(5)	0		28-Jul-21*		28-Jul-21
PRE-176	Submit Interface Management Plan for Interface Issue with CLP - PSA1.27B-1.6	0		17-Nov-21*		15-Dec-21
PRE-177	Submit Interface Management Plan for HSITP - PSA1.27D-1.6	0		23-Nov-21*		22-Dec-21
PRE-178	Submit Particular of Emergency Unit and Supporting Machinery and Equipment - PSt 1.120(5)	0		28-Jul-21*		28-Jul-21
PRE-179	Submit Particular of Condition Survey - PS1.122 and PSA1.31-6(h)	0		29-Aug-21		01-Sep-21
PRE-180	Submit Particulars for Tree Preservation Assigned Person - PS 1.124	0		05-Aug-21*		05-Aug-21
PRE-181	Submit Proposal of Modification of Wildlife Corridor and Mammal Barriers - PS 1.155B(2)	0		28-Jul-21*		28-Jul-21
PRE-182	Submit TAR1 Road Design with ICE - PS 1.155B(1)	0		23-Aug-21*		24-Sep-21
PRE-183	Submit TAR2 Road Design with ICE - PS 1.155C(1)	0		31-Aug-21*		24-Sep-21
Design Submissions for the Works						
PRE-210	Prepare, Submit, Processing & Approval for Alternative Design for STW	217	14-Sep-21	14-Jun-22	16-Oct-21	14-Jul-22
PRE-220	Prepare, Submit, Processing & Approval for TTA (1st Batch)	60	14-Aug-21	26-Oct-21	31-Aug-26	11-Nov-26
PRE-240	Prepare, Submit, Processing & Approval for Surcharging of the Ground	30	02-Aug-21	04-Sep-21	07-Oct-26	11-Nov-26
PRE-250	Prepare, Submit & Accept Work Submission for Tree Preservation and Related Matters	45	14-Aug-21	07-Oct-21	17-Sep-26	11-Nov-26
PRE-260	Prepare, Submit, Processing & Approval for Noise Barrier for Public Transportation Interchange (PTI)	90	14-Aug-21	30-Nov-21	31-Aug-23	16-Dec-23
PRE-270	Prepare, Submit, Processing & Approval for MiC and its Foundation for ADB of SWTW	200	12-Nov-21	21-Jul-22	10-Dec-21	18-Aug-22
PRE-280	Prepare, Submit & Accept of Construction Impact Assessment Submission	30	30-Aug-21	05-Oct-21	02-Sep-21	08-Oct-21
PRE-285	Prepare, Submit & Accept Works Submission for Instrumentation	30	30-Aug-21	05-Oct-21	02-Sep-21	08-Oct-21
Coordination						
PRE-330	Prepare, Submit & Coordination for AFCD for realignment of Existing Olive Green Fence	90	14-Aug-21	30-Nov-21	27-Jul-26	11-Nov-26
PRE-335	Prepare, Submit & Coordination for Reed Transplant	90	14-Aug-21	30-Nov-21	27-Jul-26	11-Nov-26
PRE-340	Prepare, Submit & Coordination for Interface Contracts	60	14-Aug-21	26-Oct-21	31-Aug-26	11-Nov-26
PRE-350	Prepare, Submit & Accept Submission for PR Plan and Liaison with Villager's Representatives	60	14-Aug-21	26-Oct-21	31-Aug-26	11-Nov-26
Prerequisites for DCM Construction						
PRE-400	Prepare, Submit & Accept Work Submission for DCM	60	15-Jul-21	23-Sep-21	31-Aug-26	11-Nov-26
PRE-410	Engage DCM Specialist and Lab	35	15-Jul-21	24-Aug-21	02-Aug-21	10-Sep-21
PRE-420	Arrange DCM Dosage Lab Test and Submission for the Formula Proposed	30	25-Aug-21	29-Sep-21	02-Oct-21	06-Nov-21
PRE-430	Arrange Site Trial of DCM and Test Result Submission	14	30-Sep-21	18-Oct-21	08-Nov-21	23-Nov-21
PRE-440	Construction of DCM Onsite Facilities	60	25-Aug-21	05-Nov-21	11-Sep-21	23-Nov-21
Key Date KD1 - Interim Watermain						
KD1-100	Interim Watermain - Subletting and Procurement Works	90	13-Sep-21	31-Dec-21	18-Sep-21	07-Jan-22
Key Date KD2 - TAR 3						
KD2-100	TAR 3 - Subletting and Procurement Works	90	13-Oct-21	29-Jan-22	20-Oct-21	10-Feb-22
Key Date KD3 - Road D1 and L1						
KD3-100	Road D1 - Subletting and Procurement Works	74	13-Sep-21	10-Dec-21	25-Sep-21	22-Dec-21
KD3-500	Road L1 - Subletting and Procurement Works	80	13-Sep-21	17-Dec-21	28-Sep-21	04-Jan-22
Key Date KD4 - WCR Carriageway + 1 Footpath						
KD4-100	WCR Carriageway - Subletting, Design and Procurement Works	300	07-Sep-21	14-Sep-22	17-Sep-21	24-Sep-22
Key Date KD7 - CLP Transformer Delivery Enabling Works						
KD7-200	Meander Bridge - Subletting, Preparation and Procurement Works	200	14-Aug-21	21-Apr-22	26-Aug-21	04-May-22
Key Date KD8 - Sewage Treatment Buildings						
KD8-100	STB - Preparation and Procurement Works	320	12-Nov-21	12-Dec-22	10-Dec-21	12-Jan-23
Section 1 - Wetland Compensation Works at Portion 1						
S1-100	Portion 1 - Subletting & Procurement Works	14	09-Aug-21	24-Aug-21	09-Aug-21	24-Aug-21
S1-110	Portion 1 - Method Statement Preparation, Submission and Approval	14	09-Aug-21	24-Aug-21	09-Aug-21	24-Aug-21
S1-200	Portion 1 - Wetland Excavation Works	14	25-Aug-21	09-Sep-21	25-Aug-21	09-Sep-21
S1-210	Portion 1 - Wetland Soil Filling Works to Existing Ground Level	14	02-Sep-21	17-Sep-21	02-Sep-21	17-Sep-21
S1-220	Portion 1 - Wetland Planting of Freshwater Marsh or Plants	12	10-Sep-21	24-Sep-21	10-Sep-21	24-Sep-21
S1-A	Completion Section 1 (L09+63)	0		24-Sep-21		24-Sep-21
Section 1A - Wetland Compensation Establishment Works at Portion 1						
S1A-300	Portion 1 - Establishment Works and Ecological Monitoring	365	25-Sep-21	24-Sep-22	25-Sep-21	24-Sep-22
Section 2 - Wetland Compensation Works at Portion 2A/2B						
S2-100	Portion 2A/2B - Subletting and Procurement Works	14	09-Aug-21	24-Aug-21	09-Aug-21	24-Aug-21
S2-110	Portion 2A/2B - Method Statement Preparation, Submission and Approval	14	14-Aug-21	30-Aug-21	14-Aug-21	30-Aug-21
S2-200	Portion 2A/2B - Wetland Excavation Works	16	31-Aug-21	17-Sep-21	31-Aug-21	17-Sep-21
S2-210	Portion 2A/2B - Wetland Soil Filling Works to Existing Ground Level	18	14-Sep-21	06-Oct-21	14-Sep-21	06-Oct-21
S2-220	Portion 2A/2B - Wetland Planting of Freshwater Marsh or Plants	18	07-Oct-21	28-Oct-21	07-Oct-21	28-Oct-21
S2-A	Completion Section 2 (L08/L09+97)	0		28-Oct-21		28-Oct-21
Section 2A - Wetland Compensation Establishment Works at Portion 2A/2B						
S2-300	Portion 2A/2B - Establishment Works and Ecological Monitoring	365	29-Oct-21	28-Oct-22	29-Oct-21	28-Oct-22
Section 3 - Wetland Compnesation Works at Portion 3						
S3-100	Portion 3 - Subletting and Procurement Works	14	09-Aug-21	24-Aug-21	09-Aug-21	24-Aug-21
S3-110	Portion 3 - Method Statement Preparation, Submission and Approval	14	14-Aug-21	30-Aug-21	14-Aug-21	30-Aug-21
S3-200	Portion 3 - Wetland Excavation Works	16	31-Aug-21	17-Sep-21	31-Aug-21	17-Sep-21
S3-210	Portion 3 - Wetland Soil Filling Works to Existing Ground Level	18	14-Sep-21	06-Oct-21	14-Sep-21	06-Oct-21
S3-220	Portion 3 - Wetland Planting of Freshwater Marsh or Plants	18	07-Oct-21	28-Oct-21	07-Oct-21	28-Oct-21



CRCC - Kwan Lee - Paul Y. JV

- Remaining Level of Effort
- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone

Contract YL/2020/01 - Lok Ma Chau Loop Main Works Package 1

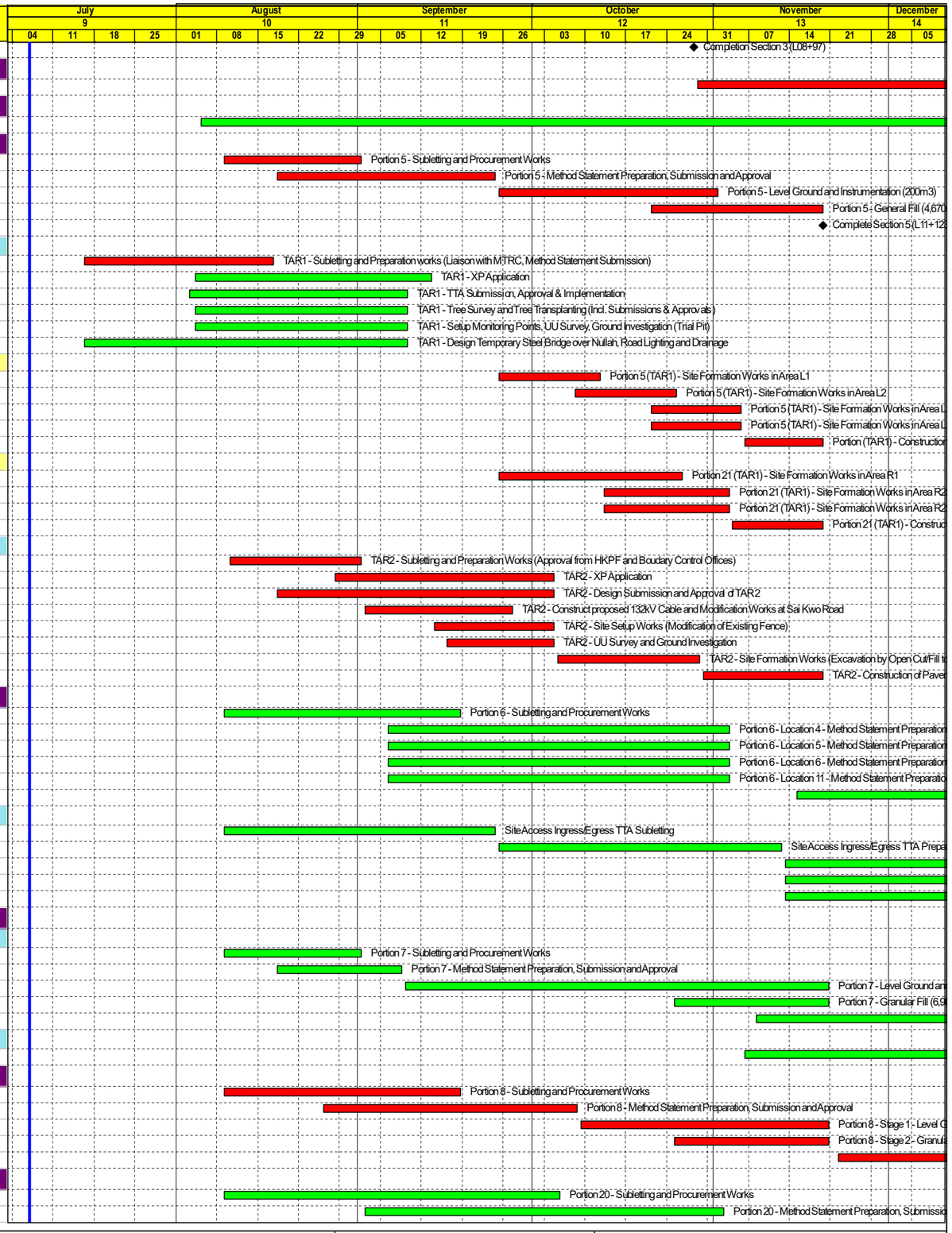
First Three Month Rolling Programme (PS1.08S(1))

Project ID : YL-3MRP.01r1
Layout : YL202001 3MRP
Date : 03-Sep-21 / Page 2 of 5

First Three Month Rolling Programme

Date	Revision	Checked	Approved
20-Aug-21	Rev. 1		
06-Aug-21	Rev. 0		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish
S3-A	Completion Section 3 (L08+97)	0		28-Oct-21		28-Oct-21
Section 3A - Wetland Compensation Establishment Works at Portion 3						
S3A-300	Portion 3 - Establishment Works and Ecological Monitoring	365	29-Oct-21	28-Oct-22	29-Oct-21	28-Oct-22
Section 4 - Woodland Copmensation Works at Portion 4						
S4-100	Portion 4 - Subletting, Preparation and Procurement Works	130	05-Aug-21	10-Jan-22	16-Dec-23	30-May-24
Section 5 - Temporary Access Road (TAR1 & TAR2)						
S5-100A	Portion 5 - Subletting and Procurement Works	21	09-Aug-21	01-Sep-21	09-Aug-21	01-Sep-21
S5-100B	Portion 5 - Method Statement Preparation, Submission and Approval	32	18-Aug-21	24-Sep-21	18-Aug-21	24-Sep-21
S5-110	Portion 5 - Level Ground and Instrumentation (200m3)	30	25-Sep-21	01-Nov-21	25-Sep-21	01-Nov-21
S5-130	Portion 5 - General Fill (4,670m3 @ 450m3/d)	26	21-Oct-21	19-Nov-21	21-Oct-21	19-Nov-21
S5-A	Complete Section 5 (L11+123d) - All the works in Portion 5 and TAR1 w/in Portion 6 and 21 of the Site	0		19-Nov-21		19-Nov-21
Temporary Access Road 1 (TAR1)						
S5-140.05	TAR1 - Subletting and Preparation works (Liaison with MTRC, Method Statement Submission)	28	16-Jul-21	17-Aug-21	16-Jul-21	17-Aug-21
S5-140.10	TAR1 - XP Application	35	04-Aug-21	13-Sep-21	14-Aug-21	24-Sep-21
S5-140.15	TAR1 - TTA Submission, Approval & Implementation	33	03-Aug-21	09-Sep-21	17-Aug-21	24-Sep-21
S5-140.20	TAR1 - Tree Survey and Tree Transplanting (Incl. Submissions & Approvals)	32	04-Aug-21	09-Sep-21	18-Aug-21	24-Sep-21
S5-140.30	TAR1 - Setup Monitoring Points, UU Survey, Ground Investigation (Trial Pit)	32	04-Aug-21	09-Sep-21	18-Aug-21	24-Sep-21
S5-140.40	TAR1 - Design Temporary Steel Bridge over Nullah, Road Lighting and Drainage	48	16-Jul-21	09-Sep-21	30-Jul-21	24-Sep-21
Site Formation Works in Area (L) at Portion 5						
S5-L1.00	Portion 5 (TAR1) - Site Formation Works in Area L1	14	25-Sep-21	12-Oct-21	25-Sep-21	12-Oct-21
S5-L2.00	Portion 5 (TAR1) - Site Formation Works in Area L2	14	08-Oct-21	25-Oct-21	08-Oct-21	25-Oct-21
S5-L3a.00	Portion 5 (TAR1) - Site Formation Works in Area L3a	14	21-Oct-21	05-Nov-21	21-Oct-21	05-Nov-21
S5-L3b.00	Portion 5 (TAR1) - Site Formation Works in Area L3b	14	21-Oct-21	05-Nov-21	21-Oct-21	05-Nov-21
S5-LF.00	Portion (TAR1) - Construction of Pavement, Kerb Type K1, Footpath, Road Marking & Traffic Sign, Type2 Settlement Marker	12	06-Nov-21	19-Nov-21	06-Nov-21	19-Nov-21
Site Formation Works in Area (R) at Portion 6 & 21						
S5-R1.00	Portion 21 (TAR1) - Site Formation Works in Area R1	25	25-Sep-21	26-Oct-21	25-Sep-21	26-Oct-21
S5-R2a.00	Portion 21 (TAR1) - Site Formation Works in Area R2a	18	13-Oct-21	03-Nov-21	13-Oct-21	03-Nov-21
S5-R2b.00	Portion 21 (TAR1) - Site Formation Works in Area R2b	18	13-Oct-21	03-Nov-21	13-Oct-21	03-Nov-21
S5-RF.00	Portion 21 (TAR1) - Construction of Pavement, Kerb TypeK1, Footpath,Road Marking & Traffic Sign, Type2 Settlement Marker	14	04-Nov-21	19-Nov-21	04-Nov-21	19-Nov-21
Temporary Access Road 2 (TAR2)						
S5-T2.10	TAR2 - Subletting and Preparation Works (Approval from HKPF and Boudary Control Offices)	20	10-Aug-21	01-Sep-21	10-Aug-21	01-Sep-21
S5-T2.20	TAR2 - XP Application	30	28-Aug-21	04-Oct-21	28-Aug-21	04-Oct-21
S5-T2.30	TAR2 - Design Submission and Approval of TAR2	39	18-Aug-21	04-Oct-21	18-Aug-21	04-Oct-21
S5-T2.40	TAR2 - Construct proposed 132kV Cable and Modification Works at Sai Kwo Road	21	02-Sep-21	27-Sep-21	02-Sep-21	27-Sep-21
S5-T2.50	TAR2 - Site Setup Works (Modification of Existing Fence)	16	14-Sep-21	04-Oct-21	14-Sep-21	04-Oct-21
S5-T2.60	TAR2 - UU Survey and Ground Investigation	14	16-Sep-21	04-Oct-21	16-Sep-21	04-Oct-21
S5-T2.70	TAR2 - Site Formation Works (Excavation by Open Cut/Fill to Final Formation Level)	21	05-Oct-21	29-Oct-21	05-Oct-21	29-Oct-21
S5-T2.80	TAR2 - Construction of Pavement, Street Furnitures, Road Marking & Traffic Sign, etc.	18	30-Oct-21	19-Nov-21	30-Oct-21	19-Nov-21
Section 6 - Western Connection Road (WCR)						
S6-050	Portion 6 - Subletting and Procurement Works	36	09-Aug-21	18-Sep-21	27-Aug-21	09-Oct-21
S6-100	Portion 6 - Location 4 - Method Statement Preparation, Submisison and Approval	48	06-Sep-21	03-Nov-21	03-Jan-22	04-Mar-22
S6-101	Portion 6 - Location 5 - Method Statement Preparation, Submisison and Approval	48	06-Sep-21	03-Nov-21	25-Sep-21	22-Nov-21
S6-102	Portion 6 - Location 6 - Method Statement Preparation, Submisison and Approval	48	06-Sep-21	03-Nov-21	26-Jan-22	28-Mar-22
S6-104	Portion 6 - Location 11 - Method Statement Preparation, Submisison and Approval	48	06-Sep-21	03-Nov-21	25-Sep-21	22-Nov-21
S6-110	Portion 6 - Level Ground and Instrumentation (2,000m3)	112	15-Nov-21	02-Apr-22	23-Nov-21	12-Apr-22
Temporary Traffic Arrangement (TTA)						
TTA-100	SiteAccess Ingress/Egress TTA Subletting	40	09-Aug-21	24-Sep-21	17-Aug-21	04-Oct-21
TTA-105	SiteAccess Ingress/Egress TTA Preparation, Submission and Approval	40	25-Sep-21	12-Nov-21	05-Oct-21	20-Nov-21
TTA-110	SiteAccess Ingress/Egress TTA Implementation	733	13-Nov-21	13-May-24	22-Nov-21	22-May-24
TTA-300	Ch. 1850 to 1970 Temporary Road Construction	46	13-Nov-21	08-Jan-22	06-Jun-22	29-Jul-22
TTA-400	LMCR Junction Stage 1 TTA Submission/Approval/Implementation	30	13-Nov-21	17-Dec-21	14-Oct-22	17-Nov-22
Section 7 - Ground Treatment Works and Site Formation at Portion 7						
Ground Improvement - PVD/Surcharge						
S7-100	Portion 7 - Subletting and Procurement Works	21	09-Aug-21	01-Sep-21	12-Aug-21	04-Sep-21
S7-105	Portion 7 - Method Statement Preparation, Submission and Approval	19	18-Aug-21	08-Sep-21	21-Aug-21	11-Sep-21
S7-110	Portion 7 - Level Ground and Instrumentation (4,210+12,590m3)	60	09-Sep-21	20-Nov-21	13-Sep-21	24-Nov-21
S7-120	Portion 7 - Granular Fill (6,980m3 @ 300m3/d)	24	25-Oct-21	20-Nov-21	28-Oct-21	24-Nov-21
S7-130	Portion 7 - PVD Installation (180,670m @ 6,000m/day/rig - 1 rig)	30	08-Nov-21	11-Dec-21	11-Nov-21	15-Dec-21
Ground Improvement - DCM						
S7-310	Portion 7 - Construct DCM Clusters (191,400m3 @ 360m3/day/auger - 2 auger)	266	06-Nov-21	03-Oct-22	24-Nov-21	21-Oct-22
Section 8 - Ground Treatment Works and Site Formation at Portion 8						
S8-100	Portion 8 - Subletting and Procurement Works	36	09-Aug-21	18-Sep-21	09-Aug-21	18-Sep-21
S8-105	Portion 8 - Method Statement Preparation, Submission and Approval	36	26-Aug-21	08-Oct-21	26-Aug-21	08-Oct-21
S8-110	Portion 8 - Stage 1 - Level Ground and Instrumentation (21,300m3)	36	09-Oct-21	20-Nov-21	09-Oct-21	20-Nov-21
S8-120	Portion 8 - Stage 2 - Granular Fill (7,060m3 @ 300m3/d)	24	25-Oct-21	20-Nov-21	25-Oct-21	20-Nov-21
S8-130	Portion 8 - Stage 2 - PVD Installation (176,880m @ 6,000m/day/rig - 1 rig)	30	22-Nov-21	28-Dec-21	22-Nov-21	28-Dec-21
Section 9 - Ground Treatment Works and Site Formation at Portion 9						
S9-100	Portion 20 - Subletting and Procurement Works	48	09-Aug-21	05-Oct-21	17-Aug-21	13-Oct-21
S9-105	Portion 20 - Method Statement Preparation, Submission and Approval	50	02-Sep-21	02-Nov-21	10-Sep-21	10-Nov-21



CRCC - Kwan Lee - Paul Y. JV

Remaining Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Contract YL/2020/01 - Lok Ma Chau Loop Main Works Package 1

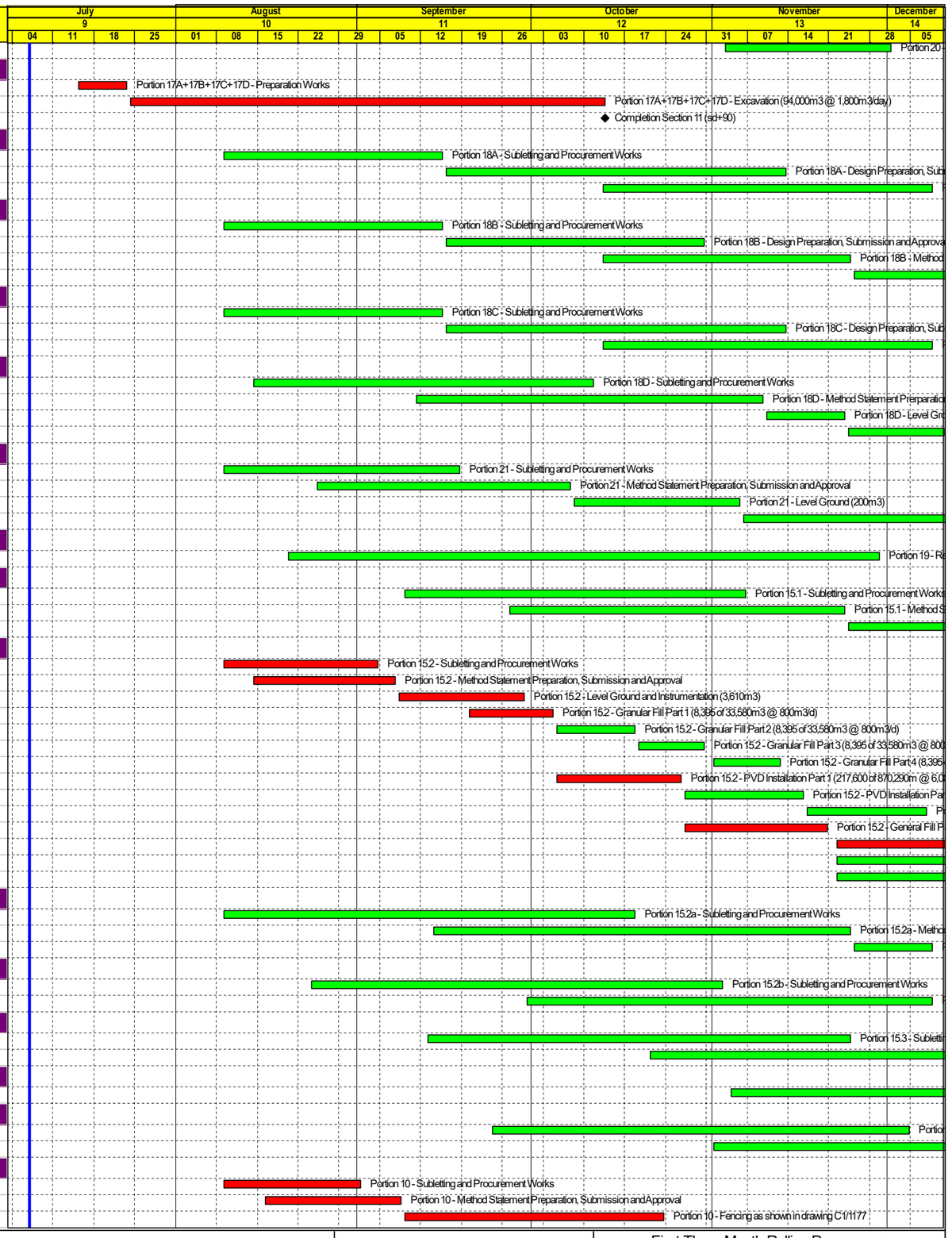
First Three Month Rolling Programme (PS1.08S(1))

Project ID : YL-3MRP.01r1
Layout : YL202001 3MRP
Date : 03-Sep-21 / Page 3 of 5

First Three Month Rolling Programme

Date	Revision	Checked	Approved
20-Aug-21	Rev. 1		
06-Aug-21	Rev. 0		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish
S9-110	Portion 20 - Stage 1 - Level Ground and Instrumentation (470+110m3)	25	03-Nov-21	01-Dec-21	11-Nov-21	09-Dec-21
Section 11 - Ground Treatment Works and Site Formation at Portion 17						
11-100	Portion 17A+17B+17C+17D - Preparation Works	8	15-Jul-21	23-Jul-21	15-Jul-21	23-Jul-21
11-110	Portion 17A+17B+17C+17D - Excavation (94,000m3 @ 1,800m3/day)	68	24-Jul-21	13-Oct-21	24-Jul-21	13-Oct-21
S11-A	Completion Section 11 (sd+90)	0		13-Oct-21		13-Oct-21
Section 12A - Box Culvert A1 at Portion 18A						
12A-100	Portion 18A - Subletting and Procurement Works	33	09-Aug-21	15-Sep-21	16-Oct-21	23-Nov-21
12A-105	Portion 18A - Design Preparation, Submission and Approval	48	16-Sep-21	13-Nov-21	24-Nov-21	21-Jan-22
12A-110	Portion 18A - Method Statement Preparation, Submission and Approval	48	13-Oct-21	08-Dec-21	18-Dec-21	21-Feb-22
Section 12B - Box Culvert A2 at Portion 18B						
12B-100	Portion 18B - Subletting and Procurement Works	33	09-Aug-21	15-Sep-21	18-Aug-21	25-Sep-21
12B-105	Portion 18B - Design Preparation, Submission and Approval	36	16-Sep-21	30-Oct-21	27-Sep-21	09-Nov-21
12B-110	Portion 18B - Method Statement Preparation, Submission and Approval	36	13-Oct-21	24-Nov-21	23-Oct-21	03-Dec-21
12B-200	Portion 18B - Level Ground and Instrumentation (500m3)	54	25-Nov-21	29-Jan-22	04-Dec-21	14-Feb-22
Section 12C - Box Culvert A1 at Portion 18C						
12C-100	Portion 18C - Subletting and Procurement Works	33	09-Aug-21	15-Sep-21	16-Oct-21	23-Nov-21
12C-105	Portion 18C - Design Preparation, Submisison and Approval	48	16-Sep-21	13-Nov-21	24-Nov-21	21-Jan-22
12C-110	Portion 18C - Method Statement Preparation, Submission and Approval	48	13-Oct-21	08-Dec-21	18-Dec-21	21-Feb-22
Section 12D - Ground Treatment Works and Site Formation at Portion 18D						
12D-100	Portion 18D - Subletting and Procurement Works	48	14-Aug-21	11-Oct-21	27-Aug-21	25-Oct-21
12D-105	Portion 18D - Method Statement Prerparation, Submission and Approval	48	11-Sep-21	09-Nov-21	25-Sep-21	22-Nov-21
12D-110	Portion 18D - Level Ground and Instrumentation (2,400m3)	12	10-Nov-21	23-Nov-21	23-Nov-21	06-Dec-21
12D-120	Portion 18D - Granular Fill (8,980m3 @ 600m3/d)	15	24-Nov-21	10-Dec-21	19-Jan-22	10-Feb-22
Section 13 - Ground Treatment Works and Site Formation at Portion 21						
13-100	Portion 21 - Subletting and Procurement Works	36	09-Aug-21	18-Sep-21	18-Nov-21	31-Dec-21
13-105	Portion 21 - Method Statement Preparation, Submission and Approval	36	25-Aug-21	07-Oct-21	04-Dec-21	18-Jan-22
13-110	Portion 21 - Level Ground (200m3)	24	08-Oct-21	05-Nov-21	19-Jan-22	21-Feb-22
13-200	Portion 21 - Retaing Wall PW2	260	06-Nov-21	24-Sep-22	22-Feb-22	06-Jan-23
Section 14 - Ground Treatment Works and Site Formation at Portion 19						
14-200	Portion 19 - Remove Material (150,000m3 @ 1,800m3/d - PS 1.129(2H)	84	20-Aug-21	29-Nov-21	30-Aug-21	08-Dec-21
Section 15.1 - Ground Treatment Works and Site Formation at Portion 15.1						
15.1-100	Portion 15.1 - Subletting and Procurement Works	48	09-Sep-21	06-Nov-21	30-Oct-21	24-Dec-21
15.1-105	Portion 15.1 - Method Statement Preparation, Submission and Approval	48	27-Sep-21	23-Nov-21	16-Nov-21	13-Jan-22
15.1-210	Portion 15.1 - Level Ground and Instrumentation	24	24-Nov-21	21-Dec-21	14-Jan-22	16-Feb-22
Section 15.2 - Ground Treatment Works and Site Formation at Portion 15.2						
15.2-100	Portion 15.2 - Subletting and Procurement Works	24	09-Aug-21	04-Sep-21	09-Aug-21	04-Sep-21
15.2-105	Portion 15.2 - Method Statement Preparation, Submission and Approval	21	14-Aug-21	07-Sep-21	14-Aug-21	07-Sep-21
15.2-210	Portion 15.2 - Level Ground and Instrumentation (3,610m3)	18	08-Sep-21	29-Sep-21	08-Sep-21	29-Sep-21
15.2-220	Portion 15.2 - Granular Fill Part 1 (8,395 of 33,580m3 @ 800m3/d)	11	20-Sep-21	04-Oct-21	20-Sep-21	04-Oct-21
15.2-221	Portion 15.2 - Granular Fill Part 2 (8,395 of 33,580m3 @ 800m3/d)	11	05-Oct-21	18-Oct-21	19-Oct-21	30-Oct-21
15.2-222	Portion 15.2 - Granular Fill Part 3 (8,395 of 33,580m3 @ 800m3/d)	11	19-Oct-21	30-Oct-21	13-Nov-21	25-Nov-21
15.2-223	Portion 15.2 - Granular Fill Part 4 (8,395 of 33,580m3 @ 800m3/d)	11	01-Nov-21	12-Nov-21	09-Dec-21	21-Dec-21
15.2-230	Portion 15.2 - PVD Installation Part 1 (217,600 of 870,290m @ 6,000m/day/rig - 2 rigs)	18	05-Oct-21	26-Oct-21	05-Oct-21	26-Oct-21
15.2-231	Portion 15.2 - PVD Installation Part 2 (217,600 of 870,290m @ 6,000m/day/rig - 2 rigs)	18	27-Oct-21	16-Nov-21	01-Nov-21	20-Nov-21
15.2-232	Portion 15.2 - PVD Installation Part 3 (217,600 of 870,290m @ 6,000m/day/rig - 2 rigs)	18	17-Nov-21	07-Dec-21	26-Nov-21	16-Dec-21
15.2-240	Portion 15.2 - General Fill Part 1 (39,900m3 of 159,390m3 @ 1,800m3/d)	22	27-Oct-21	20-Nov-21	27-Oct-21	20-Nov-21
15.2-241	Portion 15.2 - General Fill Part 2 (39,900m3 of 159,390m3 @ 1,800m3/d)	22	22-Nov-21	16-Dec-21	22-Nov-21	16-Dec-21
15.2-250	Portion 15.2 - General Fill/Surcharge 1m Part 1 (16,800 of 67,150m3 @ 900m3/d)	19	22-Nov-21	13-Dec-21	23-Nov-21	14-Dec-21
15.2-260	Portion 15.2 - Surcharge 1.5m High Part 1 (25,200 of 100,725m3 @ 900m3/d)	28	22-Nov-21	23-Dec-21	23-Nov-21	24-Dec-21
Section 15.2a - Ground Treatment Works and Site Formation at Portion 15.2a						
15.2a-100	Portion 15.2a - Subletting and Procurement Works	58	09-Aug-21	18-Oct-21	20-Aug-21	29-Oct-21
15.2a-105	Portion 15.2a - Method Statement Preparation, Submission and Approval	59	14-Sep-21	24-Nov-21	27-Sep-21	06-Dec-21
15.2a-210	Portion 15.2a - Level Ground and Instrumentation (1,610m3)	12	25-Nov-21	08-Dec-21	07-Dec-21	20-Dec-21
Section 15.2b - Ground Treatment Works and Site Formation at Portion 15.2b						
15.2b-100	Portion 15.2b - Subletting and Procurement Works	58	24-Aug-21	02-Nov-21	04-Sep-21	13-Nov-21
15.2b-105	Portion 15.2b - Method Statement Preparation, Submission and Approval	58	30-Sep-21	08-Dec-21	13-Oct-21	20-Dec-21
Section 15.3 - Ground Treatment Works and Site Formation at Portion 15.3						
15.3-100	Portion 15.3 - Subletting and Approval	60	13-Sep-21	24-Nov-21	25-Sep-21	06-Dec-21
15.3-105	Portion 15.3 - Method Statement Preparation, Submission and Approval	60	21-Oct-21	31-Dec-21	02-Nov-21	13-Jan-22
Section 15.4 - Ground Treatment Works and Site Formation at Portion 15.4						
15.4-100	Portion 15.4 - Preparation Works	90	04-Nov-21	25-Feb-22	16-Nov-21	09-Mar-22
Section 15.5 - Ground Treatment Works and Site Formation at Portion 15.5						
15.5-100	Portion 15.5 - Subletting and Procurement Works	60	24-Sep-21	04-Dec-21	21-Oct-21	31-Dec-21
15.5-105	Portion 15.5 - Method Statement Preparation, Submission and Approval	60	01-Nov-21	12-Jan-22	25-Nov-21	11-Feb-22
Section 18 - Fencing at Portion 10						
18-100	Portion 10 - Subletting and Procurement Works	21	09-Aug-21	01-Sep-21	09-Aug-21	01-Sep-21
18-105	Portion 10 - Method Statement Preparation, Submission and Approval	21	16-Aug-21	08-Sep-21	16-Aug-21	08-Sep-21
18-200	Portion 10 - Fencing as shown in drawing C1/1177	36	09-Sep-21	23-Oct-21	09-Sep-21	23-Oct-21



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- Remaining Level of Effort
- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone

Contract YL/2020/01 - Lok Ma Chau Loop Main Works Package 1

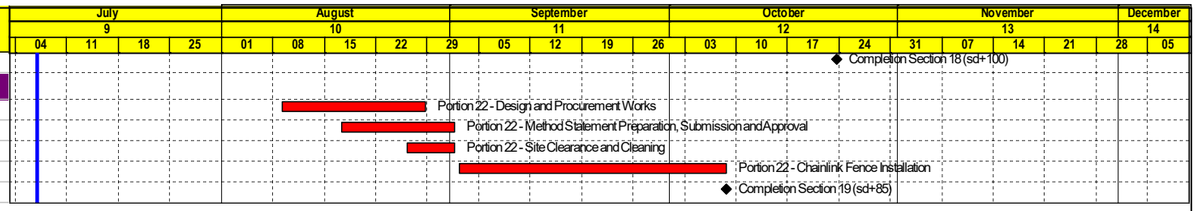
First Three Month Rolling Programme (PS1.08S(1))

Project ID : YL-3MRP.01r1
Layout : YL202001 3MRP
Date : 03-Sep-21 / Page 4 of 5

First Three Month Rolling Programme

Date	Revision	Checked	Approved
20-Aug-21	Rev. 1		
06-Aug-21	Rev. 0		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish
S18-A	Completion Section 18 (sd+100)	0		23-Oct-21		23-Oct-21
Section 19 - Chainlink Fence at Portion 22						
19-100	Portion 22 - Design and Procurement Works	18	09-Aug-21	28-Aug-21	09-Aug-21	28-Aug-21
19-105	Portion 22 - Method Statement Preparation, Submission and Approval	14	17-Aug-21	01-Sep-21	17-Aug-21	01-Sep-21
19-110	Portion 22 - Site Clearance and Cleaning	6	26-Aug-21	01-Sep-21	26-Aug-21	01-Sep-21
19-200	Portion 22 - Chainlink Fence Installation	30	02-Sep-21	08-Oct-21	02-Sep-21	08-Oct-21
S19-A	Completion Section 19 (sd+85)	0		08-Oct-21		08-Oct-21



APPENDIX B
ACTION AND LIMIT LEVELS

Appendix B - Action and Limit Levels

Table B-1 Action and Limit Levels for 1-Hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/m^3
DMS – 1a	353	500
DMS – 2A	370	
DMS – 3	351	
DMS – 4A	350	

Table B-2 Action and Limit Levels for 24-Hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/m^3
DMS – 1	184	260
DMS – 2A	166	
DMS – 3	166	
DMS – 4A	152	

Table B-3 Action and Limit Levels for Construction Noise

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

Noted: If works are to be carried during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.
(*) reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.

Table B-4 Action and Limit Levels for Water Quality

Parameter (unit)	Water Depth	Action Level	Limit Level
DO (mg/L)	Depth average	IS1: 7.0 / NA(4) IS2: 5.3 / NA(4) IS4: 4.1 / NA(4) IS6: 5.9 BS1:3.9 / NA(4)	IS1: 6.8 or 4(4) IS2: 5.2 or 4(4) IS4: 3.8 or 4(4) IS6: 5.8 BS1: 3.7 or 4(4)
Turbidity (NTU)	Depth average	IS1: 27.7 IS2: 35.5 IS4: 70.9 BS1:29.9	IS1: 29.9 IS2: 38.1 IS4: 74.6 BS1:32.6
		IS6: 120% of upstream control station (CS5)	IS6: 130% of upstream control station (CS5)
SS (mg/L)	Depth average	IS1: 28.0 IS2: 39.8 IS4: 155 BS1:36.5	IS1: 28.8 IS2: 41.2 IS4: 175 BS1:36.9
		IS6: 120% of upstream control station (CS5)	IS6: 130% of upstream control station (CS5)

Note:
(1) Depth-averaged was calculated by taking the arithmetic means of reading of all three depths
(2) For DO, non-compliance of the water quality limit would occur when monitoring result at impact stations was lower that the limit.
(3) For SS & turbidity, non-compliance of the water quality limits would occur when monitoring result at impact stations was higher than the limits.
(4) The proposal of adopting 4 mg/L as the Limit Level of DO for the period from April to September due to seasonal change of DO was accepted by EPD via email on 10 Dec 2019.

APPENDIX C
COPIES OF CALIBRATION CERTIFCATES

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High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

File No. WMA21009/04/0002

Station DMS-2A - Village House along Lok Ma Chau Road
Operator: CH
Date: 30-Jul-21
Next Due Date: 29-Sep-21
Equipment No.: WA-12-04
Serial No. 1659

Ambient Condition			
Temperature, Ta (K)	300	Pressure, Pa (mmHg)	754

Orifice Transfer Standard Information					
Serial No.	0993	Slope, mc	0.0569	Intercept, bc	-0.01398
Last Calibration Date:	28-Jan-21	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	28-Jan-22	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.5	3.37	59.43	7.6	2.74
2	9.6	3.08	54.32	6.4	2.51
3	7.4	2.70	47.72	5.0	2.22
4	4.6	2.13	37.68	3.1	1.75
5	3.5	1.86	32.90	2.4	1.54

By Linear Regression of Y on X

Slope , mw = 0.0454 **Intercept, bw =** 0.0433

Correlation coefficient* = 0.9999

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.04**

Remarks:

Conducted by: Ho Ka Man Signature: Date: 30/7/2021
Checked by: Leo Man Hin Signature: Date: 30/7/2021

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High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

File No. WMA21009/24/0002

Station DMS-3 - Village House along Old Border Road
Operator: CH
Date: 30-Jul-21
Next Due Date: 29-Sep-21
Equipment No.: WA-12-24
Serial No. 10576

Ambient Condition			
Temperature, Ta (K)	300.5	Pressure, Pa (mmHg)	753.8

Orifice Transfer Standard Information					
Serial No.	0993	Slope, mc	0.0569	Intercept, bc	-0.01398
Last Calibration Date:	28-Jan-21	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	28-Jan-22	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	14.2	3.74	65.95	8.9	2.96
2	11.4	3.35	59.12	7.4	2.70
3	9.7	3.09	54.55	6.3	2.49
4	6.4	2.51	44.36	4.4	2.08
5	3.2	1.77	31.44	2.2	1.47

By Linear Regression of Y on X

Slope , mw = 0.0431 **Intercept, bw =** 0.1380

Correlation coefficient* = 0.9993

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.03**

Remarks:

Conducted by: Ho Ka Chun Signature: Date: 30/7/2021
Checked by: LEE MAN HEI Signature: Date: 30/7/2021

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High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

File No. WMA21009/07/0002

Station DMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill

Operator: CH

Date: 30-Jul-21

Next Due Date: 29-Sep-21

Equipment No.: WA-12-07

Serial No. 1801

Ambient Condition			
Temperature, Ta (K)	300.7	Pressure, Pa (mmHg)	753.7

Orifice Transfer Standard Information					
Serial No.	0993	Slope, mc	0.0569	Intercept, bc	-0.01398
Last Calibration Date:	28-Jan-21	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	28-Jan-22	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	13.2	3.60	63.57	8.4	2.87
2	10.7	3.24	57.26	6.7	2.57
3	7.1	2.64	46.69	5.0	2.22
4	4.6	2.13	37.63	3.2	1.77
5	3.4	1.83	32.38	2.3	1.50

By Linear Regression of Y on X

Slope , mw = **0.0428** **Intercept, bw =** **0.1526**

Correlation coefficient* = **0.9972**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

mw x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **4.04**

Remarks:

Conducted by: Hoka chun Signature: [signature] Date: 30/7/2021

Checked by: LEE MAN HEI Signature: [signature] Date: 30/7/2021

TISCH Environmental

RECALIBRATION DUE DATE:
January 28, 2022

Certificate of Calibration

Calibration Certification Information					
Cal. Date:	January 28, 2021	**Rootsmeter S/N:** 438320	**Ta:** 294	°K	
Operator:	Jim Tisch		**Pa:** 763.5	mm Hg	
Calibration Model #:	TE-5025A	**Calibrator S/N:** **0993**			

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4160	3.3	2.00
2	3	4	1	0.9980	6.4	4.00
3	5	6	1	0.8890	8.0	5.00
4	7	8	1	0.8500	8.8	5.50
5	9	10	1	0.7020	12.9	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0139	0.7160	1.4271	0.9957	0.7032	0.8776
1.0098	1.0118	2.0182	0.9916	0.9936	1.2411
1.0076	1.1334	2.2564	0.9895	1.1131	1.3875
1.0066	1.1842	2.3666	0.9885	1.1629	1.4553
1.0011	1.4261	2.8542	0.9831	1.4004	1.7551
QSTD	**m=**	**2.00902**	**QA**	**m=**	**1.25802**
	b=	**-0.01398**		**b=**	**-0.00860**
	r=	**0.99997**		**r=**	**0.99997**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg
Key	
ΔH: calibrator manometer reading (in H2O)	
ΔP: rootsmeter manometer reading (mm Hg)	
Ta: actual absolute temperature (°K)	
Pa: actual barometric pressure (mm Hg)	
b: intercept	
m: slope	

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

Tisch Environmental, Inc.
145 South Miami Avenue
Village of Cleves, OH 45002

www.tisch-env.com
TOLL FREE: (877)263-7610
FAX: (513)467-9009

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TEST REPORT

APPLICANT: **Wellab Limited**
(EM&A Department)
Room 1808, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	35376
Date of Issue:	2021-07-05
Date Received:	2021-07-02
Date Tested:	2021-07-02
Date Completed:	2021-07-05
Next Due Date:	2021-09-04
Page:	1 of 1

ATTN: **Ms. Meiling Tang**

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23807
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-01

Test Conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.102

****

PREPARED AND CHECKED BY:
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PATRICK TSE
General Manager

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TEST REPORT

APPLICANT: **Wellab Limited**
(EM&A Department)
Room 1808, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	35376B
Date of Issue:	2021-07-05
Date Received:	2021-07-02
Date Tested:	2021-07-02
Date Completed:	2021-07-05
Next Due Date:	2021-09-04
Page:	1 of 1

ATTN: **Ms. Meiling Tang**

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23809
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-03

Test Conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.105

****

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Patrick Tse
PATRICK TSE
General Manager

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TEST REPORT

APPLICANT: **Wellab Limited**
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Room 1808, Technology Park,
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Shatin, NT, Hong Kong

Test Report No.:	35375A
Date of Issue:	2021-06-28
Date Received:	2021-06-25
Date Tested:	2021-06-25
Date Completed:	2021-06-28
Next Due Date:	2021-08-27
Page:	1 of 1

ATTN: **Ms. Meiling Tang**

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X24477
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-06

Test Conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.097

****

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General Manager

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TEST REPORT

APPLICANT: **Wellab Limited**
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Room 1808, Technology Park,
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Test Report No.:	35376D
Date of Issue:	2021-07-05
Date Received:	2021-07-02
Date Tested:	2021-07-02
Date Completed:	2021-07-05
Next Due Date:	2021-09-04
Page:	1 of 1

ATTN: **Ms. Meiling Tang**

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X24475
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-07

Test Conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.082

****

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TEST REPORT

APPLICANT: **Wellab Limited**
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Room 1808, Technology Park,
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Shatin, NT, Hong Kong

Test Report No.:	35659
Date of Issue:	2021-08-30
Date Received:	2021-08-27
Date Tested:	2021-08-27
Date Completed:	2021-08-30
Next Due Date:	2021-10-29
Page:	1 of 1

ATTN: **Ms. Meiling Tang**

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X24476
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-05

Test Conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.097

****

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TEST REPORT

APPLICANT: **Wellab Limited**
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Room 1701, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	34872C
Date of Issue:	2021-03-08
Date Received:	2021-03-05
Date Tested:	2021-03-05
Date Completed:	2021-03-08
Next Due Date:	2022-03-07
Page:	1 of 1

ATTN: **Mr. W. K. Tang**

Certificate of Calibration

Item for calibration:

Description	: Sound Level Meter
Manufacturer	: BSWA
Model No.	: BSWA 308
Serial No.	: 580006
Equipment No.	: WN-01-04

Test conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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General Manager

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TEST REPORT

APPLICANT: **Wellab Limited**
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Test Report No.:	34872D
Date of Issue:	2021-03-08
Date Received:	2021-03-05
Date Tested:	2021-03-05
Date Completed:	2021-03-08
Next Due Date:	2022-03-07
Page:	1 of 1

ATTN: **Mr. W. K. Tang**

Certificate of Calibration

Item for calibration:

Description	: Sound Level Meter
Manufacturer	: BSWA
Model No.	: BSWA 308
Serial No.	: 580007
Equipment No.	: WN-01-05

Test conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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TEST REPORT

APPLICANT: **Wellab Limited**
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Test Report No.:	34872E
Date of Issue:	2021-03-08
Date Received:	2021-03-05
Date Tested:	2021-03-05
Date Completed:	2021-03-08
Next Due Date:	2022-03-07
Page:	1 of 1

ATTN: **Mr. W. K. Tang**

Certificate of Calibration

Item for calibration:

Description	: Sound Level Meter
Manufacturer	: BSWA
Model No.	: BSWA 308
Serial No.	: 580008
Equipment No.	: WN-01-06

Test conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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General Manager

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TEST REPORT

APPLICANT: **Wellab Limited**
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Room 1701, Technology Park,
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Test Report No.:	34873A
Date of Issue:	2021-03-15
Date Received:	2021-03-12
Date Tested:	2021-03-12
Date Completed:	2021-03-15
Next Due Date:	2022-03-14
Page:	1 of 1

ATTN: **Mr. W. K. Tang**

Certificate of Calibration

Item for calibration:

Description	: Sound Level Meter
Manufacturer	: BSWA
Model No.	: BSWA 308
Serial No.	: 580013
Equipment No.	: WN-01-09

Test conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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PATRICK TSE
General Manager

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TEST REPORT

APPLICANT: **Wellab Limited**
(EM&A Department)
Room 1701, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	33963
Date of Issue:	2020-08-21
Date Received:	2020-08-19
Date Tested:	2020-08-19
Date Completed:	2020-08-21
Next Due Date:	2021-08-20
Page:	1 of 1

ATTN: **Mr. W. K. Tang**

Certificate of Calibration

Item for Calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2412367
Equipment No.	: N-02-03

Test Conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1dB
At 114 dB SPL	114.0	114.0 ± 0.1dB

Remark: This report supersedes the one dated 2019-08-20 with certificate number 31951.

****

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General Manager

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TEST REPORT

APPLICANT: **Wellab Limited**
(EM&A Department)
Room 1701, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	34136A
Date of Issue:	2020-10-03
Date Received:	2020-09-29
Date Tested:	2020-09-29
Date Completed:	2020-10-03
Next Due Date:	2021-10-02
Page:	1 of 1

ATTN: **Mr. W. K. Tang**

Certificate of Calibration

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24780
Equipment No.	: N-09-05

Test conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

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General Manager

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TEST REPORT

APPLICANT: **Wellab Limited**
(EM&A Department)
Room 1808, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Ms. Meiling Tang**

Test Report No.:	35374
Date of Issue:	2021-05-17
Date Received:	2021-05-14
Date Tested:	2021-05-14
Date Completed:	2021-05-17
Next Due Date:	2021-11-16
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Weather Stations, Vantage Pro2
Manufacturer	: Davis Instruments
Model No.	: 6152CUK
Serial No.	: AK130520007

Test conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70 %

Test Specifications:

1. Performance check of anemometer
2. Performance check of wind direction sensor

Methodology:

In-house method with reference anemometer

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

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TEST REPORT

Test Report No.:	35374
Date of Issue:	2021-05-17
Date Received:	2021-05-14
Date Tested:	2021-05-14
Date Completed:	2021-05-17
Next Due Date:	2021-11-16
Page:	2 of 2

Results:

1. Performance check of anemometer

Air Velocity, m/s		Difference D (m/s)
Instrument Reading (V1)	Reference Value (V1)	D = V1 – V2
2.00	2.00	0.00

2. Performance check of wind direction sensor

Wind Direction (°)		Difference D (°)
Instrument Reading (W1)	Reference Value (W2)	D = W1 - W2
0	0	0
45	45	0
90.1	90	0.1
135.2	135	0.2
180	180	0
225.4	225	0.4
270	270	0
315	315	0
360	360	0

**********END OF REPORT**********

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WELLAB LIMITED
Room 1701, Technology Park,
18 On Lai Street, Shatin,
N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Wellab Limited (EM&A)**
RM 1808, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

ATTN: **Miss Mei Ling Tang**

Test Report No.:	35322
Date of Issue:	2021-06-22
Date Received:	2021-06-21
Date Tested:	2021-06-21 to 2021-06-22
Date Completed:	2021-06-22
Page:	1 of 2

Certificate of Calibration

Item for calibration:

YSI EXO1 Multiparameter Sondes	Equipment No.:	SW-08-42
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO1 Sonde, 100 meter Depth, 4 Sensor ports	599502-24	16J102314
- EXO Optical DO Sensor, Ti	599100-01	16J100949
- EXO conductivity/Temperature Sensor, Ti	599870	17A105111
- EXO Turbidity Sensor, Ti	599101-01	16J101144
- EXO pH Sensor Assembly, Guarded, Ti	599701	16J101306

Test conditions:

Room Temperature : 17-22 degree Celsius
Relative Humidity : 40-70%

Test Specifications:

Performance checking for Conductivity, Temperature, pH, Dissolved oxygen (D.O.) and Turbidity

Methodology:

According to manufacturer instruction manual, APHA 20e 4500-O C

****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
General Manager

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TEST REPORT

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Certificate of Calibration

Results:

Conductivity performance checking

	Instrument Readings (μS/cm)	Accetance Criteria	Comment
KCl stock solution (12890 μS/cm)	12800	12246-13534	Pass

Temperature performance checking

Reference thermometer-E431 Readings (°C)	Instrument Readings (°C)	Correction (°C)	Comment
20.0	19.996	+0.004	N/A

pH performance checking

	Instrument Readings (pH unit)	Accetance Criteria	Comment
pH QC buffer 4.00	4.00	4.00 ± 0.10	Pass
pH QC buffer 6.86	6.88	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.17	9.18 ± 0.10	Pass

D.O. performance checking

	Instrument Readings (mg/L)	Accetance Criteria	Comment
Zero DO soultion	0.09	<0.1mg/L	Pass

Winkler Titration value (mg/L)	Instrument Readings (mg/L)	Accetance Criteria	Comment
8.00	8.18	Difference between Titration value and instrument reading <0.2mg/L	Pass

Turbidity performance checking

Turbidity stock solution	Instrument Readings (NTU)	Accetance Criteria	Comment
10 NTU	9.28	9.0-11.0	Pass
50 NTU	51.70	45.0-55.0	Pass
100 NTU	101.6	90.0-110.0	Pass

Depth performance checking

Water Depth	Instrument Readings (m)	Accetance Criteria	Comment
0.5 meter	0.50	0.45-0.55	Pass

**********END OF REPORT**********

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APPENDIX D
ENVIRONMENTAL MONITORING SCHEDULES

Service Contract No. WD/04/2020
Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team
Impact Monitoring Schedule (August 2021)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Aug	2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug
	24hr TSP	1hr TSP X 3 Noise Water Quality Monitoring		Water Quality Monitoring	24hr TSP	Water Quality Monitoring
8-Aug	9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug
	1hr TSP X 3 Noise Water Quality Monitoring		Water Quality Monitoring	24hr TSP	1hr TSP X 3 Water Quality Monitoring	
15-Aug	16-Aug	17-Aug	18-Aug	19-Aug	20-Aug	21-Aug
	Water Quality Monitoring		*24hr TSP (except DMS-1a) Water Quality Monitoring	1hr TSP X 3 Noise 24hr TSP (DMS-1a)	Water Quality Monitoring	
22-Aug	23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug
	Water Quality Monitoring	24hr TSP	1hr TSP X 3 Noise Water Quality Monitoring		Avifauna flight line survey Water Quality Monitoring	
29-Aug	30-Aug	31-Aug				
	24hr TSP Water Quality Monitoring	1hr TSP X 3 Noise				

Air Quality Monitoring Station
DMS-1a - Village House along Ha Wan Tsuen East Road
DMS-2A - Village house along Lok Ma Chau Road
DMS-3 - Village house along Old Border Road
DMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill

Noise Monitoring Station
NMS-1 - Village House in Ha Wan Tsuen
NMS-2 - Village house along existing Ha Wan Tsuen East Road
NMS-3 - Village house along Old Border Road
NMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill

Water Quality Monitoring Station
CS1 - Control Station at Old Shenzhen River Meander
IS1 - Impact Station at Old Shenzhen River Meander
IS2 - Impact Station at Old Shenzhen River Meander
IS4 - Impact Station for at Ping Hang Stream
CS5 - Control Station at channel at south of Lung Hau Road
IS6 - Impact Station next to Lung Hau Road
BS1 - Impact Station at Old Shenzhen River Meander
(Terminated starting from 28 June 2021- approved by EPD via email dated 22 June 2021)

Remark: * Dust meter at DMS-1a was found toppled over and 24-hr TSP monitoring was re-scheduled to 19 August 2021

Service Contract No. WD/04/2020
Tentative Impact Monitoring Schedule (September 2021)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Sep	2-Sep	3-Sep	4-Sep
			Water Quality Monitoring		24hr TSP Water Quality Monitoring	
5-Sep	6-Sep	7-Sep	8-Sep	9-Sep	10-Sep	11-Sep
	1hr TSP X 3 Noise Water Quality Monitoring		Water Quality Monitoring	24hr TSP	1hr TSP X 3 Water Quality Monitoring	
12-Sep	13-Sep	14-Sep	15-Sep	16-Sep	17-Sep	18-Sep
	Water Quality Monitoring		24hr TSP Water Quality Monitoring	1hr TSP X 3 Noise	Avifauna flight line survey Water Quality Monitoring	
19-Sep	20-Sep	21-Sep	**22-Sep**	23-Sep	24-Sep	25-Sep
	24hr TSP	1hr TSP X 3 Noise Water Quality Monitoring		Water Quality Monitoring	24hr TSP	Water Quality Monitoring
26-Sep	27-Sep	28-Sep	29-Sep	30-Sep		
	1hr TSP X 3	Water Quality Monitoring	24hr TSP	1hr TSP X 3 Noise Water Quality Monitoring		

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Air Quality Monitoring Station
DMS-1a - Village House along Ha Wan Tsuen East Road
DMS-2A - Village house along Lok Ma Chau Road
DMS-3 - Village house along Old Border Road
DMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill

Noise Monitoring Station
NMS-1 - Village House in Ha Wan Tsuen
NMS-2 - Village house along existing Ha Wan Tsuen East Road
NMS-3 - Village house along Old Border Road
NMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill

Water Quality Monitoring Station
CS1 - Control Station at Old Shenzhen River Meander
IS1 - Impact Station at Old Shenzhen River Meander
IS2 - Impact Station at Old Shenzhen River Meander
IS4 - Impact Station for at Ping Hang Stream
CS5 - Control Station at channel at south of Lung Hau Road
IS6 - Impact Station next to Lung Hau Road
BS1 - Impact Station at Old Shenzhen River Meander
(Terminated starting from 28 June 2021- approved by EPD via email dated 22 June 2021)

APPENDIX E
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix E - 1-hour TSP Monitoring Results

Location DMS-1a - Village House along Ha Wan Tsuen East Road			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
3-Aug-21	9:00	Cloudy	74.3
3-Aug-21	10:00	Cloudy	57.8
3-Aug-21	11:00	Cloudy	53.4
9-Aug-21	8:51	Cloudy	68.7
9-Aug-21	9:51	Cloudy	72.7
9-Aug-21	10:51	Cloudy	80.2
13-Aug-21	8:00	Cloudy	39.9
13-Aug-21	9:00	Cloudy	43.4
13-Aug-21	10:00	Cloudy	36.2
19-Aug-21	8:00	Cloudy	92.3
19-Aug-21	9:00	Cloudy	96.8
19-Aug-21	10:00	Cloudy	127.0
25-Aug-21	8:00	Cloudy	27.3
25-Aug-21	9:00	Cloudy	23.5
25-Aug-21	10:00	Cloudy	26.6
31-Aug-21	13:15	Rainy	70.3
31-Aug-21	14:15	Rainy	73.5
31-Aug-21	15:15	Rainy	74.3
		Minimum	23.5
		Maximum	127.0
		Average	63.2

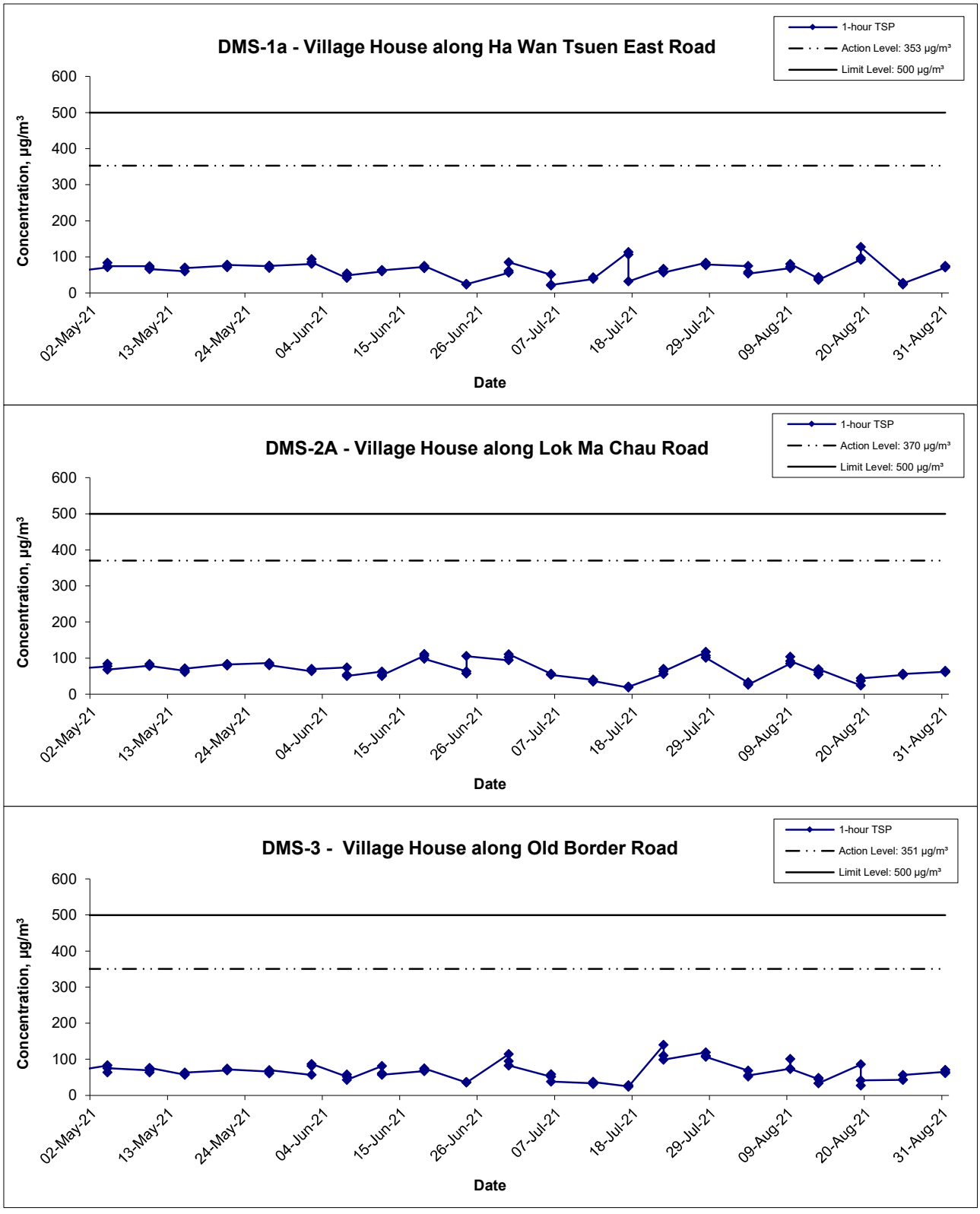
Location DMS-2A - Village House along Lok Ma Chau Road			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
3-Aug-21	13:00	Cloudy	32.6
3-Aug-21	14:00	Cloudy	28.9
3-Aug-21	15:00	Cloudy	26.1
9-Aug-21	13:03	Cloudy	84.9
9-Aug-21	14:03	Cloudy	103.3
9-Aug-21	15:03	Cloudy	91.5
13-Aug-21	13:00	Cloudy	60.4
13-Aug-21	14:00	Cloudy	54.2
13-Aug-21	15:00	Cloudy	69.3
19-Aug-21	13:00	Cloudy	24.2
19-Aug-21	14:00	Cloudy	36.7
19-Aug-21	15:00	Cloudy	44.0
25-Aug-21	13:00	Cloudy	53.0
25-Aug-21	14:00	Cloudy	56.6
25-Aug-21	15:00	Cloudy	55.8
31-Aug-21	8:45	Cloudy	61.7
31-Aug-21	9:45	Cloudy	64.3
31-Aug-21	10:45	Cloudy	61.2
		Minimum	24.2
		Maximum	103.3
		Average	56.0

Appendix E - 1-hour TSP Monitoring Results

Location DMS-3 - Village House along Old Border Road			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
3-Aug-21	8:55	Cloudy	68.3
3-Aug-21	9:55	Cloudy	52.2
3-Aug-21	10:55	Cloudy	54.9
9-Aug-21	8:37	Cloudy	74.0
9-Aug-21	9:37	Cloudy	100.5
9-Aug-21	10:37	Cloudy	73.3
13-Aug-21	9:00	Cloudy	44.7
13-Aug-21	10:00	Cloudy	48.4
13-Aug-21	11:00	Cloudy	33.5
19-Aug-21	8:45	Cloudy	85.7
19-Aug-21	9:45	Cloudy	27.6
19-Aug-21	10:45	Cloudy	41.5
25-Aug-21	13:00	Cloudy	42.7
25-Aug-21	14:00	Cloudy	43.4
25-Aug-21	15:00	Cloudy	56.2
31-Aug-21	13:00	Rainy	65.4
31-Aug-21	14:00	Rainy	70.4
31-Aug-21	15:00	Rainy	61.8
		Minimum	27.6
		Maximum	100.5
		Average	58.0

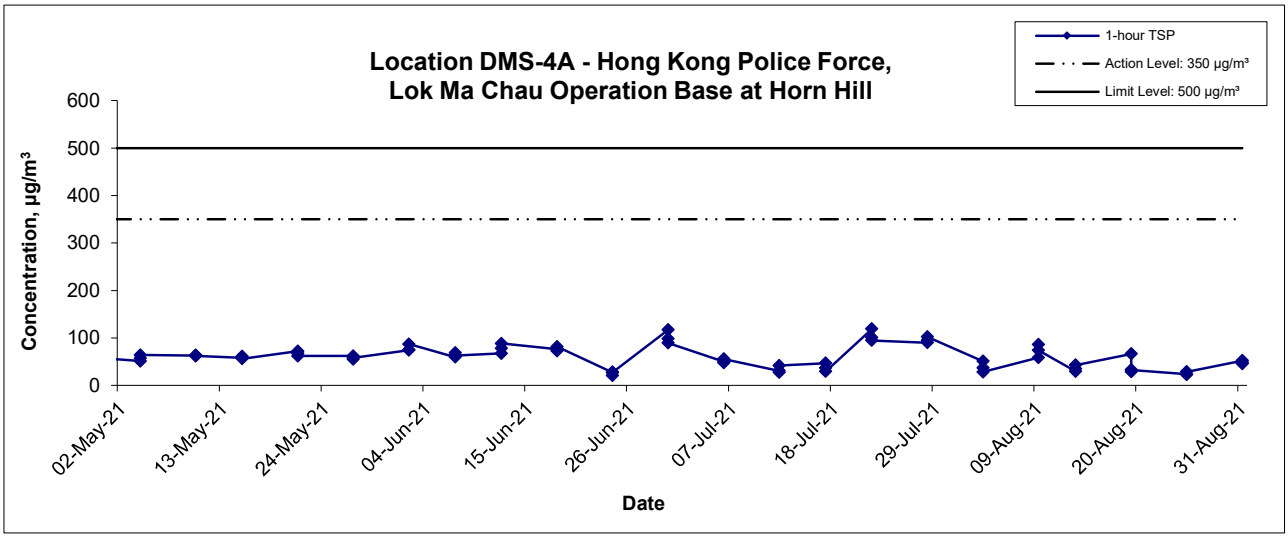
Location DMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
3-Aug-21	8:50	Cloudy	50.9
3-Aug-21	9:50	Cloudy	37.0
3-Aug-21	10:50	Cloudy	28.3
9-Aug-21	8:31	Cloudy	58.6
9-Aug-21	9:31	Cloudy	86.3
9-Aug-21	10:31	Cloudy	73.7
13-Aug-21	8:30	Cloudy	29.5
13-Aug-21	9:30	Cloudy	35.0
13-Aug-21	10:30	Cloudy	42.7
19-Aug-21	8:51	Cloudy	66.3
19-Aug-21	9:51	Cloudy	28.5
19-Aug-21	10:51	Cloudy	32.6
25-Aug-21	8:49	Cloudy	23.4
25-Aug-21	9:49	Cloudy	22.5
25-Aug-21	10:49	Cloudy	28.5
31-Aug-21	9:00	Cloudy	52.0
31-Aug-21	10:00	Cloudy	48.0
31-Aug-21	11:00	Cloudy	45.5
		Minimum	22.5
		Maximum	86.3
		Average	43.9

1-hour TSP Concentration Levels



Title: Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of 1-hour TSP Monitoring Results	Scale: N.T.S Date: Aug 21	Project No.: WMA21009 Appendix: E	WELLAB 匯力 consulting . testing . research

1-hour TSP Concentration Levels



Title	Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S	Project No. WMA21009	WELLAB 匯力 consulting . testing . research
		Date Aug 21	Appendix E	

APPENDIX F
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix F - 24-hour TSP Monitoring Results

Location DMS-1a - Village House along Ha Wan Tsuen East Road			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
2-Aug-21	9:00	Cloudy	105.4
6-Aug-21	9:10	Sunny	147.7
12-Aug-21	8:00	Cloudy	64.3
19-Aug-21	8:00	Cloudy	86.9
24-Aug-21	9:00	Sunny	29.8
30-Aug-21	9:00	Fine	54.0
		Minimum	29.8
		Maximum	147.7
		Average	81.4

Appendix F - 24-hour TSP Monitoring Results

Location DMS-2A - Village House along Lok Ma Chau Road

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
2-Aug-21	Cloudy	300.7	751.5	3.4819	3.5813	0.0994	192.0	216.0	24.0	1.205	1.209	1.207	1739.1	57.2
6-Aug-21	Cloudy	300.3	751.3	3.4960	3.6371	0.1411	216.0	240.0	24.0	1.207	1.208	1.208	1739.2	81.1
12-Aug-21	Cloudy	300.6	759.3	3.4659	3.5617	0.0958	240.0	264.0	24.0	1.214	1.214	1.214	1747.7	54.8
18-Aug-21	Cloudy	299.6	758.9	3.5308	3.6191	0.0883	264.0	288.0	24.0	1.213	1.218	1.215	1750.3	50.4
24-Aug-21	Cloudy	300.6	758.6	3.4968	3.5671	0.0703	288.0	312.0	24.0	1.213	1.213	1.213	1746.9	40.2
30-Aug-21	Cloudy	300.7	761.1	3.5477	3.6187	0.0710	312.0	336.0	24.0	1.216	1.214	1.215	1749.6	40.6
													Min	40.2
													Max	81.1
													Average	54.1

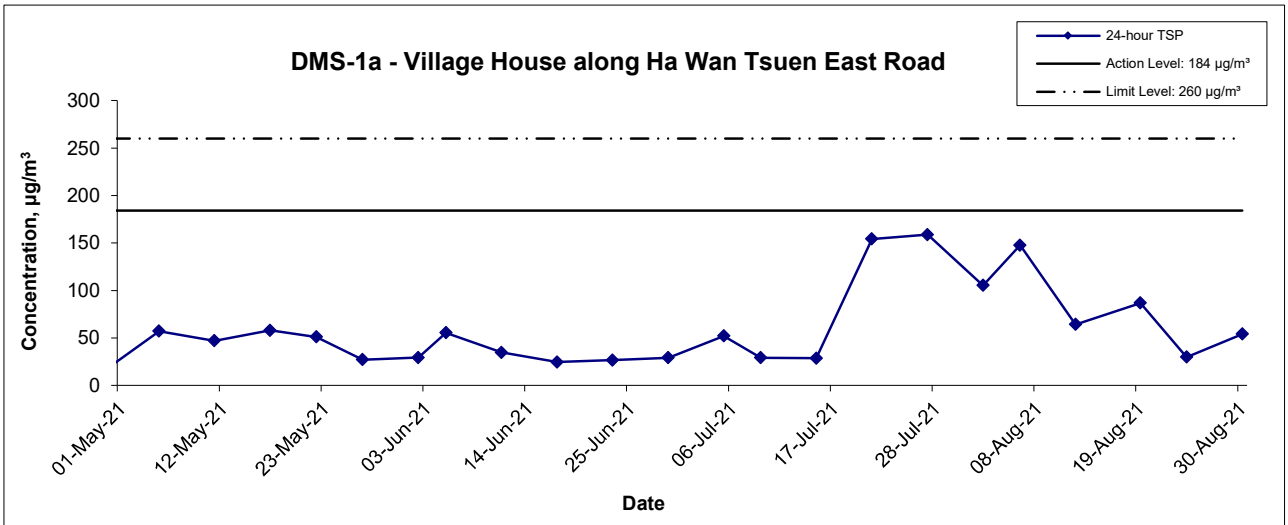
Location DMS-3 - Village House along Old Border Road

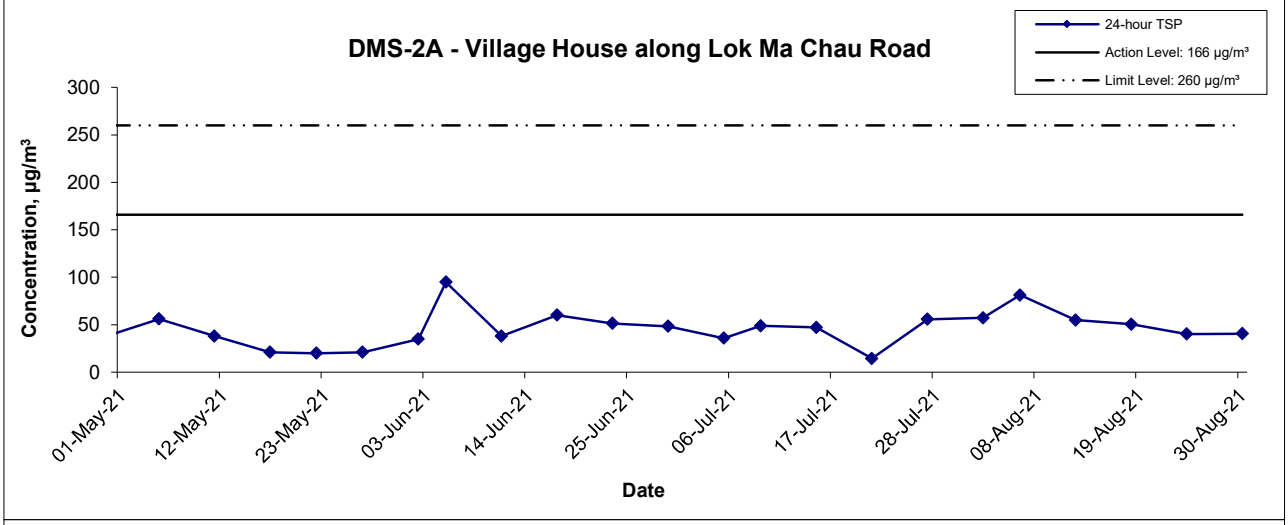
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
2-Aug-21	Cloudy	300.7	751.5	3.4855	3.5323	0.0468	1136.0	1160.0	24.0	1.208	1.211	1.209	1741.6	26.9
6-Aug-21	Cloudy	300.3	751.3	3.5045	3.5892	0.0847	1160.0	1184.0	24.0	1.210	1.210	1.210	1742.4	48.6
12-Aug-21	Cloudy	300.6	759.3	3.5191	3.5647	0.0456	1184.6	1208.6	24.0	1.216	1.216	1.216	1751.4	26.0
18-Aug-21	Cloudy	299.6	758.9	3.4750	3.5615	0.0865	1208.6	1232.6	24.0	1.216	1.221	1.218	1754.2	49.3
24-Aug-21	Cloudy	300.6	758.6	3.4714	3.5113	0.0399	1232.6	1256.6	24.0	1.216	1.216	1.216	1750.6	22.8
30-Aug-21	Cloudy	300.7	761.1	3.4883	3.5425	0.0542	1256.9	1280.9	24.0	1.218	1.217	1.218	1753.4	30.9
													Min	22.8
													Max	49.3
													Average	34.1

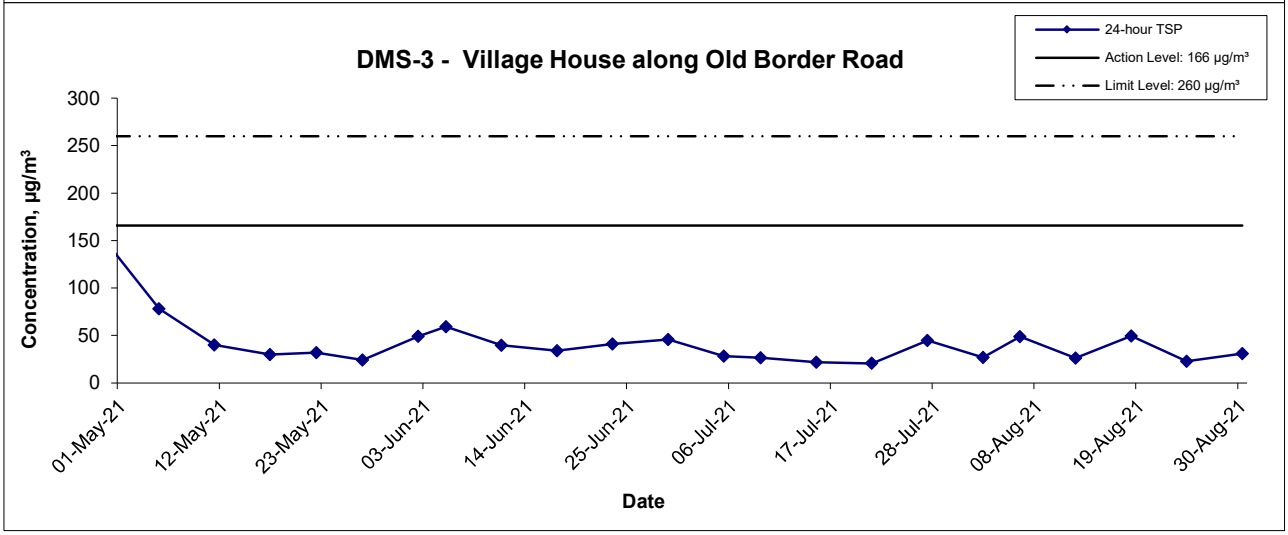
Location DMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
2-Aug-21	Cloudy	300.7	751.5	3.4808	3.5412	0.0604	30697.1	30721.1	24.0	1.206	1.210	1.208	1739.9	34.7
6-Aug-21	Cloudy	300.3	751.3	3.2867	3.3544	0.0677	30721.2	30745.2	24.0	1.209	1.209	1.209	1740.7	38.9
12-Aug-21	Cloudy	300.6	759.3	3.4820	3.5218	0.0398	30745.2	30769.2	24.0	1.215	1.215	1.215	1749.8	22.7
18-Aug-21	Cloudy	299.6	758.9	3.4916	3.5357	0.0441	30769.2	30793.2	24.0	1.214	1.220	1.217	1752.5	25.2
24-Aug-21	Cloudy	300.6	758.6	3.4857	3.5158	0.0301	30793.2	30817.2	24.0	1.215	1.215	1.215	1748.9	17.2
30-Aug-21	Cloudy	300.7	761.1	3.5103	3.5629	0.0526	30817.2	30841.2	24.0	1.217	1.216	1.217	1751.8	30.0
													Min	17.2
													Max	38.9
													Average	28.1

24-hour TSP Concentration Levels

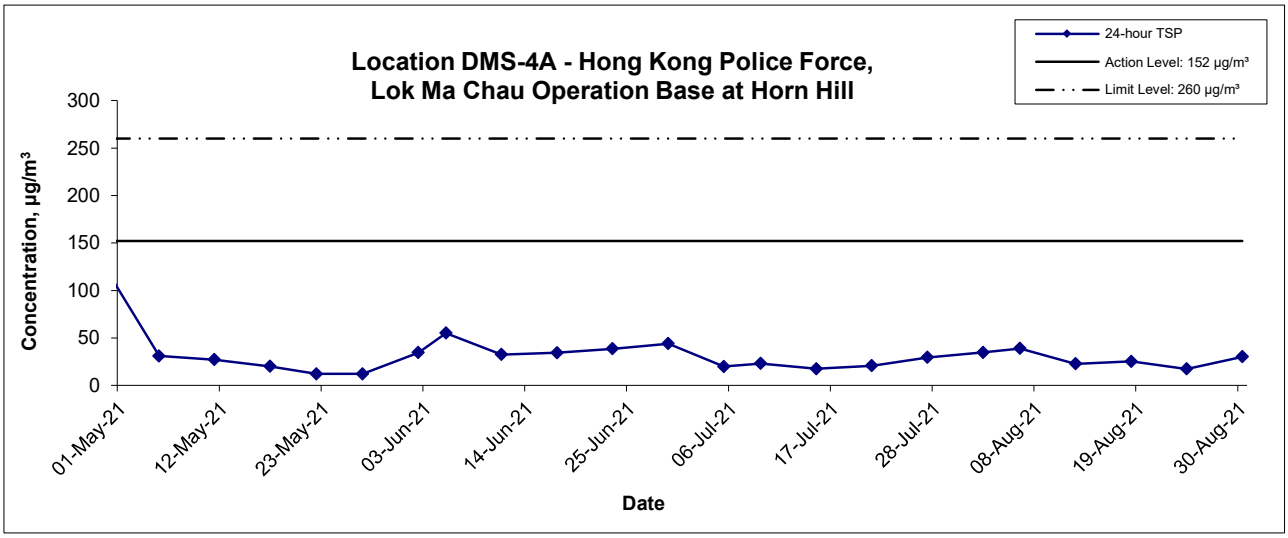






Title: Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S	Project No.: WMA21009	WELLAB 匯力 consulting . testing . research
	Date: Aug 21	Appendix: F	

24-hour TSP Concentration Levels



Title	Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. WMA21009	WELLAB 匯力 consulting . testing . research
		Date Aug 21	Appendix F	

APPENDIX G
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix G - Noise Monitoring Results

Location NMS-1 -Village house in Ha Wan Tsuen							
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
3-Aug-21	Cloudy	13:18	59.0	61.7	54.2	58.9	47.3
		13:23	61.2	62.6	59.5		
		13:28	59.2	60.8	56.8		
		13:33	58.5	59.9	56.5		
		13:38	57.8	59.5	55.9		
		13:43	56.5	58.6	53.6		
9-Aug-21	Cloudy	13:06	50.1	54.5	44.9	49.3	
		13:11	47.2	48.5	44.2		
		13:16	51.7	54.8	46.3		
		13:21	49.8	51.8	46.3		
		13:26	47.1	48.4	44.1		
		13:31	47.7	47.9	44.0		
19-Aug-21	Cloudy	13:10	53.5	54.9	52.2	52.6	
		13:15	52.8	54.0	50.8		
		13:20	51.1	52.4	49.8		
		13:25	52.7	54.2	51.0		
		13:30	52.3	53.9	50.7		
		13:35	52.6	54.4	50.3		
25-Aug-21	Sunny	11:25	50.8	52.7	46.4	48.8	
		11:30	49.4	51.5	46.9		
		11:35	50.1	51.2	46.4		
		11:40	47.1	49.4	43.6		
		11:45	46.0	46.7	41.9		
		11:50	47.3	47.9	42.9		
31-Aug-21	Cloudy	15:20	49.7	52.6	46.4	47.9	
		15:25	46.7	48.1	45.2		
		15:30	47.4	49.3	45.4		
		15:35	46.9	48.0	45.3		
		15:40	48.1	49.5	46.0		
		15:45	47.8	49.2	45.8		

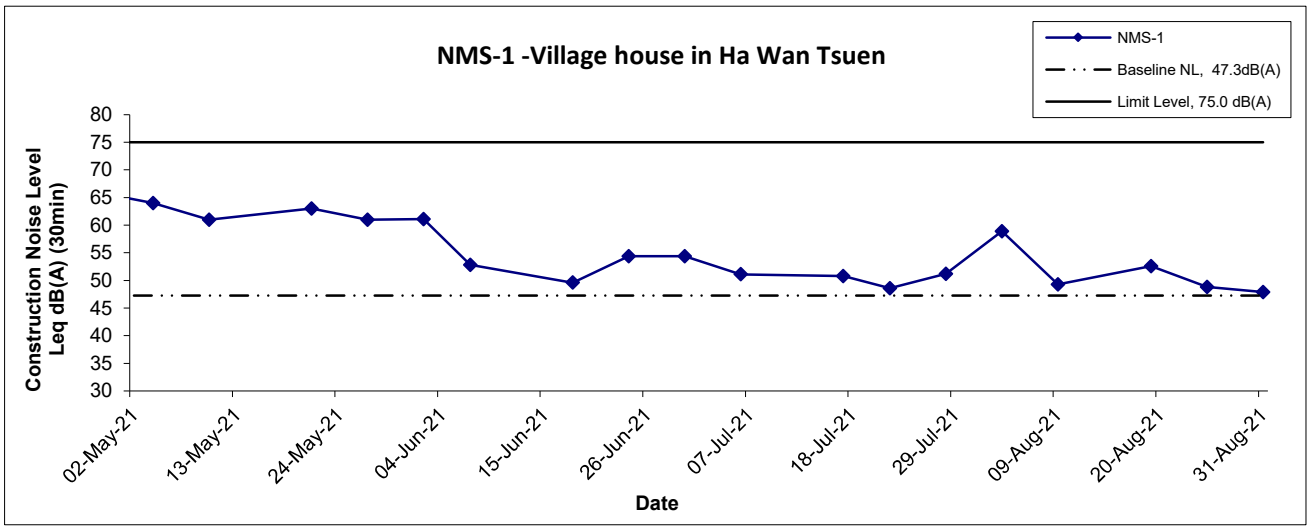
Location NMS-2 - Village house along existing Ha Wan Tsuen East Road							
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
3-Aug-21	Cloudy	13:19	67.8	59.2	56.3	70.1	68.4
		13:24	72.8	76.4	59.8		
		13:29	72.0	73.0	57.9		
		13:34	68.3	65.4	58.0		
		13:39	68.3	67.5	55.3		
		13:44	68.6	69.5	51.3		
9-Aug-21	Cloudy	13:00	66.6	67.9	56.5	66.8	
		13:05	63.0	64.2	56.6		
		13:10	64.2	65.4	53.9		
		13:15	66.2	66.6	53.8		
		13:20	68.5	69.2	49.1		
		13:25	69.1	72.5	50.6		
19-Aug-21	Cloudy	13:03	64.7	66.2	54.3	66.5	
		13:08	66.9	70.1	53.7		
		13:13	68.1	67.1	53.1		
		13:18	65.6	67.0	51.8		
		13:23	65.2	63.9	48.1		
		13:28	67.4	71.6	52.2		
25-Aug-21	Sunny	13:04	68.9	71.3	50.1	71.1	
		13:09	68.3	70.3	50.2		
		13:14	68.7	69.0	50.7		
		13:19	71.4	75.8	50.6		
		13:24	75.7	79.6	54.2		
		13:29	66.7	69.7	50.9		
31-Aug-21	Cloudy	10:10	66.1	66.2	52.2	66.9	
		10:05	64.4	65.2	52.2		
		10:00	69.6	69.9	52.6		
		09:55	66.9	67.9	52.3		
		09:50	68.4	68.9	51.1		
		09:45	62.4	65.6	51.5		

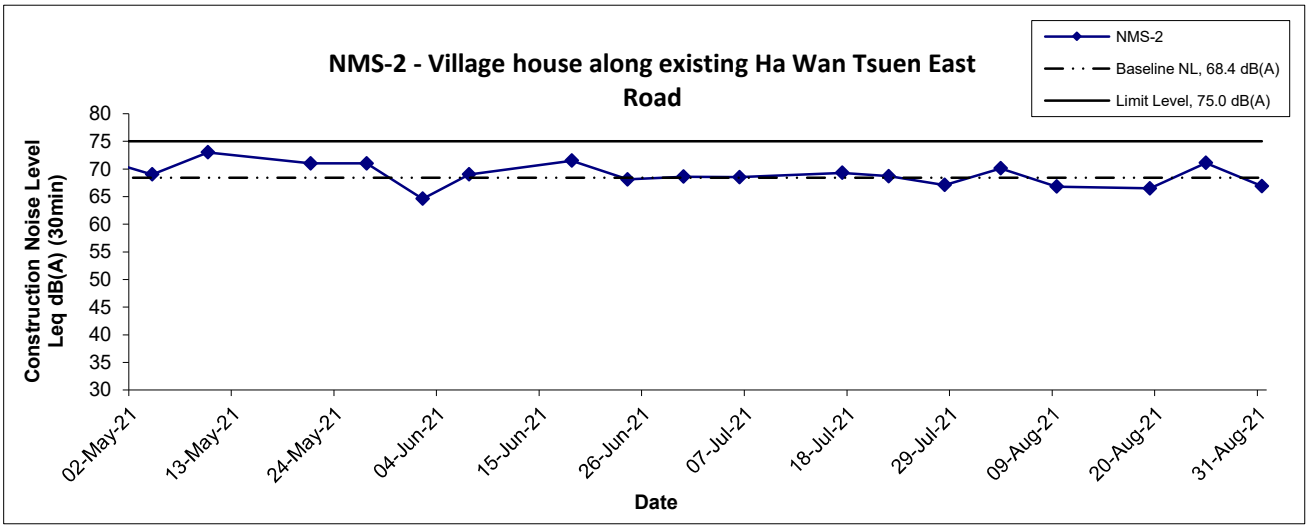
Appendix G - Noise Monitoring Results

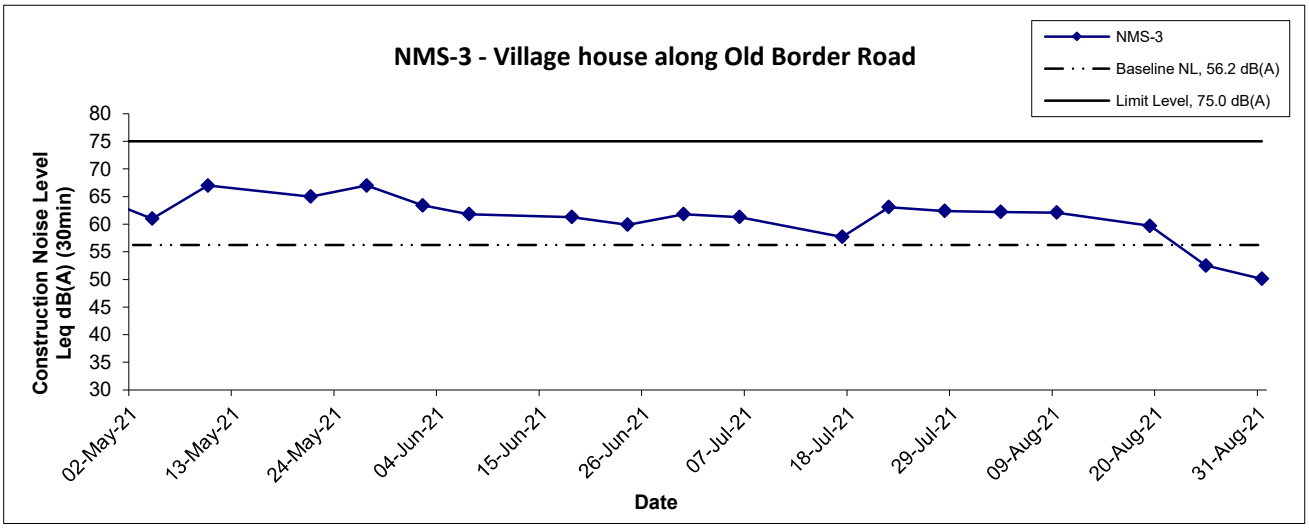
Location NMS-3 - Village house along Old Border Road							
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
3-Aug-21	Cloudy	09:07	62.1	62.5	61.8	62.2	56.2
		09:12	62.3	62.8	61.9		
		09:17	62.5	62.9	61.0		
		09:22	62.1	62.5	62.8		
		09:27	62.1	62.4	61.7		
		09:32	62.2	62.6	61.8		
9-Aug-21	Cloudy	08:41	62.2	62.4	61.7	62.1	
		08:46	62.1	62.4	61.7		
		08:51	62.3	62.6	61.6		
		08:56	62.0	62.3	61.5		
		09:01	61.9	62.6	61.3		
		09:06	61.9	62.2	61.6		
19-Aug-21	Cloudy	09:20	59.8	61.0	59.0	59.7	
		09:25	60.5	61.1	58.9		
		09:30	59.5	60.1	58.8		
		09:35	59.6	60.7	58.8		
		09:40	60.1	62.4	58.8		
		09:45	58.8	59.9	57.9		
25-Aug-21	Cloudy	13:05	52.6	54.1	51.3	52.5	
		13:10	52.0	53.1	50.9		
		13:15	50.0	53.2	50.9		
		13:20	53.7	57.4	51.0		
		13:25	53.1	55.0	51.2		
		13:30	52.7	54.7	51.1		
31-Aug-21	Cloudy	15:05	50.9	51.2	43.3	50.1	
		15:10	49.5	52.6	44.1		
		15:15	46.6	48.0	44.2		
		15:20	46.4	47.9	44.5		
		15:25	52.8	56.7	44.6		
		15:30	50.9	51.2	43.3		

Location NMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill							
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
3-Aug-21	Cloudy	10:03	57.0	58.7	53.0	56.6	52.5
		10:08	55.3	57.5	52.7		
		10:13	57.5	59.7	52.9		
		10:18	57.2	60.2	52.5		
		10:23	55.6	56.4	54.5		
		10:28	56.7	58.6	54.7		
9-Aug-21	Cloudy	08:36	55.5	56.5	53.8	55.4	
		08:41	55.6	56.3	53.8		
		08:46	55.9	57.7	54.1		
		08:51	55.4	56.8	54.2		
		08:56	54.7	56.3	50.5		
		09:01	55.4	56.5	54.5		
19-Aug-21	Cloudy	10:41	50.7	51.1	49.6	51.5	
		10:46	51.0	53.8	49.4		
		10:51	53.9	56.7	49.4		
		10:56	49.7	50.4	49.1		
		11:01	50.7	52.4	49.6		
		11:06	51.9	53.6	49.8		
25-Aug-21	Sunny	09:00	58.4	59.2	54.9	55.2	
		09:05	57.8	59.3	52.1		
		09:10	53.6	55.5	51.5		
		09:15	51.6	53.1	49.8		
		09:20	50.5	51.2	49.7		
		09:25	53.4	54.7	51.4		
31-Aug-21	Cloudy	09:10	56.0	57.9	50.1	52.7	
		09:15	52.4	54.4	50.4		
		09:20	51.8	53.5	50.0		
		09:25	50.5	51.6	50.1		
		09:30	52.2	53.9	49.9		
		09:35	50.8	52.0	49.6		

Noise Levels







Title	Scale	Project No.
Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of Construction Noise Monitoring Results	N.T.S	WMA21009
	Date: Aug 21	Appendix: G

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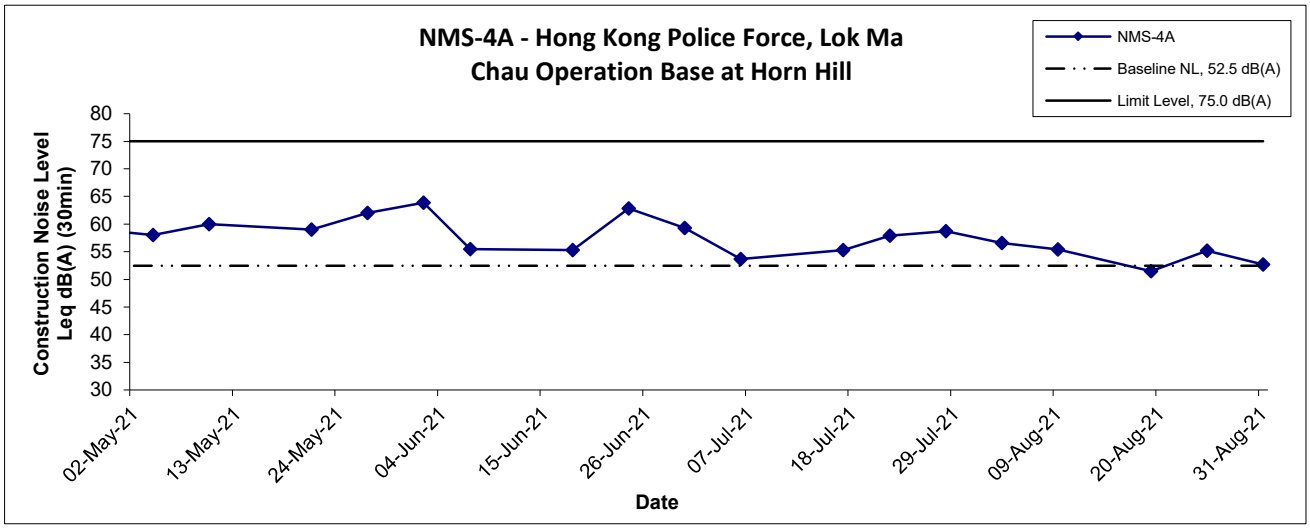
Noise Levels



Title	Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. WMA21009	WELLAB 匯力 consulting . testing . research
		Date Aug 21	Appendix G	

APPENDIX H
WATER QUALITY MONITORING RESULTS AND GRAPHICAL PRESENTATION

Water Quality Monitoring Results at CS1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)		Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
3-Aug-21	Cloudy	Calm	10:07	Middle	0.7	32.0 32.0	32.0	7.7 7.7	7.7	1.6 1.6	1.6	98.0 98.0	98.0	7.1 7.1	7.1	13.3 13.2	13.3	23 23	23.0
5-Aug-21	Rainy	Calm	12:52	Middle	0.6	30.5 30.5	30.5	7.5 7.5	7.5	1.5 1.5	1.5	89.7 89.7	89.7	6.7 6.7	6.7	17.9 17.8	17.9	20 20	20.0
7-Aug-21	Cloudy	Calm	07:44	Middle	0.6	29.0 29.0	29.0	7.3 7.3	7.3	1.2 1.2	1.2	40.1 39.6	39.9	3.1 3.0	3.1	42.4 41.9	42.2	20 22	21.0
9-Aug-21	Rainy	Calm	09:49	Middle	0.6	29.9 29.9	29.9	7.4 7.4	7.4	1.3 1.3	1.3	82.0 81.8	81.9	6.2 6.2	6.2	26.0 26.0	26.0	20 24	22.0
11-Aug-21	Rainy	Calm	12:06	Middle	0.6	33.5 33.5	33.5	8.5 8.5	8.5	1.3 1.3	1.3	196.2 197.0	196.6	13.9 14.0	14.0	15.4 15.4	15.4	22 26	24.0
13-Aug-21	Cloudy	Calm	10:07	Middle	0.7	32.7 32.7	32.7	7.8 7.8	7.8	0.8 0.8	0.8	111.0 111.1	111.1	8.0 8.0	8.0	17.5 17.3	17.4	12 15	13.5
16-Aug-21	Rainy	Calm	08:33	Middle	0.6	30.8 30.8	30.8	7.6 7.7	7.7	1.3 1.3	1.3	122.2 122.6	122.4	9.1 9.1	9.1	15.3 15.3	15.3	18 18	18.0
18-Aug-21	Sunny	Calm	13:34	Middle	0.7	35.1 35.1	35.1	9.0 9.0	9.0	1.3 1.3	1.3	166.1 166.1	166.1	11.4 11.5	11.5	10.6 10.8	10.7	12 14	13.0
20-Aug-21	Sunny	Calm	09:31	Middle	0.6	31.5 31.5	31.5	7.6 7.6	7.6	1.2 1.2	1.2	101.1 101.0	101.1	7.4 7.4	7.4	16.8 16.8	16.8	17 15	16.0
23-Aug-21	Sunny	Calm	07:57	Middle	0.6	31.9 31.9	31.9	7.7 7.7	7.7	1.2 1.2	1.2	100.7 100.8	100.8	7.3 7.3	7.3	14.2 14.1	14.2	16 14	15.0
25-Aug-21	Sunny	Calm	10:11	Middle	0.6	32.8 32.4	32.6	7.9 8.0	8.0	1.3 1.3	1.3	82.5 78.3	80.4	5.9 5.7	5.8	15.4 16.9	16.2	51 55	53.0
27-Aug-21	Rainy	Calm	08:55	Middle	0.6	31.8 31.8	31.8	7.8 7.8	7.8	1.3 1.3	1.3	79.1 79.1	79.1	5.8 5.8	5.8	15.9 16.0	16.0	17 18	17.5
30-Aug-21	Sunny	Calm	11:00	Middle	0.6	32.4 32.4	32.4	8.8 8.8	8.8	1.3 1.3	1.3	161.6 162.0	161.8	11.6 11.7	11.7	14.4 14.3	14.4	16 14	15.0

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at CS5 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)		Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
3-Aug-21	Cloudy	Calm	11:37	Middle	0.1	30.8	30.9	8.3	8.3	0.5	0.5	114.6	114.8	8.5	8.5	7.3	7.3	5	4.5
						30.9		8.3		0.5		114.9		8.5		7.2		4	
5-Aug-21	Rainy	Calm	14:07	Middle	0.1	29.5	29.5	7.4	7.4	0.5	0.5	78.6	78.6	6.0	6.0	10.3	10.6	9	9.0
						29.5		7.4		0.5		78.5		6.0		10.8		9	
7-Aug-21	Cloudy	Calm	08:52	Middle	0.1	28.1	28.1	7.5	7.5	0.2	0.2	80.6	80.6	6.3	6.3	32.6	32.6	17	18.0
						28.1		7.4		0.2		80.5		6.3		32.5		19	
9-Aug-21	Rainy	Calm	11:49	Middle	0.2	29.3	29.3	7.2	7.2	0.2	0.2	57.4	57.4	4.4	4.4	58.9	59.0	38	37.0
						29.3		7.2		0.2		57.4		4.4		59.0		36	
11-Aug-21	Rainy	Calm	13:26	Middle	0.2	30.5	30.5	7.8	7.8	0.2	0.2	78.9	78.9	5.9	5.9	11.5	11.5	11	11.0
						30.5		7.8		0.2		78.8		5.9		11.4		11	
13-Aug-21	Cloudy	Calm	11:29	Middle	0.2	30.5	30.5	7.5	7.5	0.3	0.3	48.1	48.0	3.6	3.6	22.8	22.8	15	13.5
						30.5		7.5		0.3		47.9		3.6		22.7		12	
16-Aug-21	Rainy	Calm	10:07	Middle	0.1	30.2	30.2	8.1	8.1	0.5	0.5	120.3	120.3	9.0	9.0	36.2	36.1	41	46.0
						30.2		8.1		0.5		120.3		9.0		35.9		51	
18-Aug-21	Sunny	Calm	14:58	Middle	0.1	36.6	36.6	9.3	9.3	0.5	0.5	152.8	152.9	10.3	10.3	5.5	5.5	7	7.5
						36.6		9.3		0.5		153.0		10.3		5.4		8	
20-Aug-21	Sunny	Calm	11:17	Middle	0.1	29.6	29.6	7.5	7.5	0.2	0.2	56.4	56.4	4.3	4.3	19.9	20.0	9	10.0
						29.6		7.5		0.2		56.3		4.3		20.0		11	
23-Aug-21	Sunny	Calm	09:23	Middle	0.2	30.4	30.4	7.6	7.6	0.3	0.3	54.7	54.7	4.1	4.1	46.6	46.5	47	46.5
						30.4		7.5		0.3		54.7		4.1		46.4		46	
25-Aug-21	Sunny	Calm	11:30	Middle	0.2	30.9	30.9	7.6	7.6	0.3	0.3	55.9	55.9	4.2	4.2	48.1	48.4	28	29.0
						30.9		7.6		0.3		55.8		4.2		48.6		30	
27-Aug-21	Rainy	Calm	10:33	Middle	0.2	29.3	29.3	8.4	8.4	0.1	0.1	97.5	97.5	7.5	7.5	9.8	9.8	6	6.0
						29.3		8.4		0.1		97.5		7.5		9.7		6	
30-Aug-21	Sunny	Calm	12:23	Middle	0.2	35.1	35.1	9.3	9.3	0.4	0.4	170.6	170.3	11.8	11.8	5.8	5.7	4	4.0
						35.1		9.3		0.4		170.0		11.8		5.5		4	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)		Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
3-Aug-21	Cloudy	Calm	10:56	Middle	0.5	31.5 31.5	31.5	7.3 7.3	7.3	1.0 1.0	1.0	87.5 87.4	87.5	6.4 6.4	6.4	13.2 13.1	13.2	12 13	12.5
5-Aug-21	Rainy	Calm	13:23	Middle	0.5	29.4 29.4	29.4	7.2 7.2	7.2	0.8 0.8	0.8	74.6 74.3	74.5	5.7 5.7	5.7	19.4 19.1	19.3	21 20	20.5
7-Aug-21	Cloudy	Calm	08:09	Middle	0.5	29.4 29.4	29.4	7.2 7.2	7.2	0.8 0.8	0.8	70.0 69.9	70.0	5.3 5.3	5.3	27.1 27.0	27.1	15 14	14.5
9-Aug-21	Rainy	Calm	10:25	Middle	0.5	30.4 30.4	30.4	6.3 6.3	6.3	0.6 0.6	0.6	74.1 74.1	74.1	5.5 5.5	5.5	13.1 13.2	13.2	8 8	8.0
11-Aug-21	Rainy	Calm	12:35	Middle	0.5	33.2 33.2	33.2	7.4 7.4	7.4	0.8 0.8	0.8	120.0 119.9	120.0	8.6 8.6	8.6	21.4 21.6	21.5	17 15	16.0
13-Aug-21	Cloudy	Calm	10:35	Middle	0.5	31.2 31.2	31.2	7.5 7.5	7.5	0.9 0.9	0.9	89.7 89.2	89.5	6.6 6.6	6.6	11.8 11.8	11.8	8 8	8.0
16-Aug-21	Rainy	Calm	09:05	Middle	0.5	30.2 30.2	30.2	6.9 6.9	6.9	0.8 0.8	0.8	78.7 78.6	78.7	5.9 5.9	5.9	8.9 8.9	8.9	7 8	7.5
18-Aug-21	Sunny	Calm	14:06	Middle	0.5	36.4 36.4	36.4	7.1 7.1	7.1	0.9 0.9	0.9	98.6 98.6	98.6	6.7 6.7	6.7	10.4 10.3	10.4	7 7	7.0
20-Aug-21	Sunny	Calm	10:02	Middle	0.5	30.7 30.6	30.7	6.8 6.8	6.8	0.8 0.8	0.8	57.7 57.0	57.4	4.3 4.2	4.3	8.9 9.0	9.0	7 8	7.5
23-Aug-21	Sunny	Calm	08:29	Middle	0.5	31.6 31.6	31.6	7.4 7.4	7.4	1.0 1.0	1.0	82.2 81.9	82.1	6.0 6.0	6.0	6.9 6.9	6.9	6 5	5.5
25-Aug-21	Sunny	Calm	10:41	Middle	0.5	31.7 31.8	31.8	7.1 7.1	7.1	1.0 1.0	1.0	59.1 58.5	58.8	4.3 4.3	4.3	9.1 9.2	9.2	9 9	9.0
27-Aug-21	Rainy	Calm	09:36	Middle	0.4	30.3 30.3	30.3	7.3 7.3	7.3	1.1 1.1	1.1	87.7 87.5	87.6	6.6 6.5	6.6	23.8 23.8	23.8	16 14	15.0
30-Aug-21	Sunny	Calm	11:32	Middle	0.5	33.4 33.5	33.5	6.5 6.4	6.5	0.9 0.9	0.9	81.2 81.1	81.2	5.8 5.8	5.8	8.8 9.0	8.9	5 5	5.0

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS2 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)		Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
3-Aug-21	Cloudy	Calm	11:16	Middle	0.1	31.3 31.3	31.3	7.3 7.3	7.3	1.0 1.0	1.0	67.9 67.6	67.8	5.0 5.0	5.0	14.2 14.1	14.2	15 16	15.5
5-Aug-21	Rainy	Calm	13:43	Middle	0.1	29.3 29.3	29.3	7.2 7.2	7.2	0.7 0.7	0.7	64.5 64.2	64.4	4.9 4.9	4.9	32.7 32.9	32.8	33 27	30.0
7-Aug-21	Cloudy	Calm	08:29	Middle	0.1	29.4 29.4	29.4	7.3 7.3	7.3	0.3 0.3	0.3	60.1 60.0	60.1	4.6 4.6	4.6	28.3 28.3	28.3	22 28	25.0
9-Aug-21	Rainy	Calm	11:24	Middle	0.1	31.1 31.1	31.1	7.3 7.3	7.3	0.2 0.2	0.2	68.4 68.4	68.4	5.1 5.1	5.1	34.1 34.3	34.2	36 40	38.0
11-Aug-21	Rainy	Calm	12:57	Middle	0.1	32.4 32.4	32.4	7.5 7.5	7.5	0.1 0.1	0.1	76.5 76.3	76.4	5.6 5.5	5.6	27.5 27.7	27.6	22 18	20.0
13-Aug-21	Cloudy	Calm	10:56	Middle	0.1	31.0 31.1	31.1	7.6 7.6	7.6	0.7 0.7	0.7	79.2 79.0	79.1	5.9 5.8	5.9	19.6 19.6	19.6	14 14	14.0
16-Aug-21	Rainy	Calm	09:37	Middle	0.1	30.7 30.7	30.7	7.2 7.1	7.2	0.8 0.8	0.8	65.8 64.8	65.3	4.9 4.8	4.9	11.6 11.6	11.6	10 11	10.5
18-Aug-21	Sunny	Calm	14:29	Middle	0.1	34.3 34.4	34.4	7.5 7.5	7.5	0.8 0.8	0.8	96.9 97.0	97.0	6.8 6.8	6.8	11.7 11.5	11.6	14 12	13.0
20-Aug-21	Sunny	Calm	10:50	Middle	0.1	31.4 31.4	31.4	7.7 7.7	7.7	0.6 0.6	0.6	79.5 79.2	79.4	5.9 5.8	5.9	31.3 31.5	31.4	18 16	17.0
23-Aug-21	Sunny	Calm	08:53	Middle	0.1	31.6 31.6	31.6	7.5 7.5	7.5	0.6 0.6	0.6	83.6 83.1	83.4	6.1 6.1	6.1	30.1 30.1	30.1	20 23	21.5
25-Aug-21	Sunny	Calm	11:07	Middle	0.1	32.0 32.0	32.0	7.5 7.5	7.5	0.5 0.5	0.5	72.1 71.9	72.0	5.3 5.2	5.3	34.7 34.7	34.7	30 33	31.5
27-Aug-21	Rainy	Calm	10:14	Middle	0.1	31.8 31.8	31.8	7.6 7.6	7.6	0.9 0.9	0.9	97.5 97.4	97.5	7.1 7.1	7.1	11.7 11.7	11.7	17 18	17.5
30-Aug-21	Sunny	Calm	11:55	Middle	0.1	33.0 33.1	33.1	8.2 8.3	8.3	0.9 0.9	0.9	150.0 150.2	150.1	10.7 10.7	10.7	9.6 9.8	9.7	21 19	20.0

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

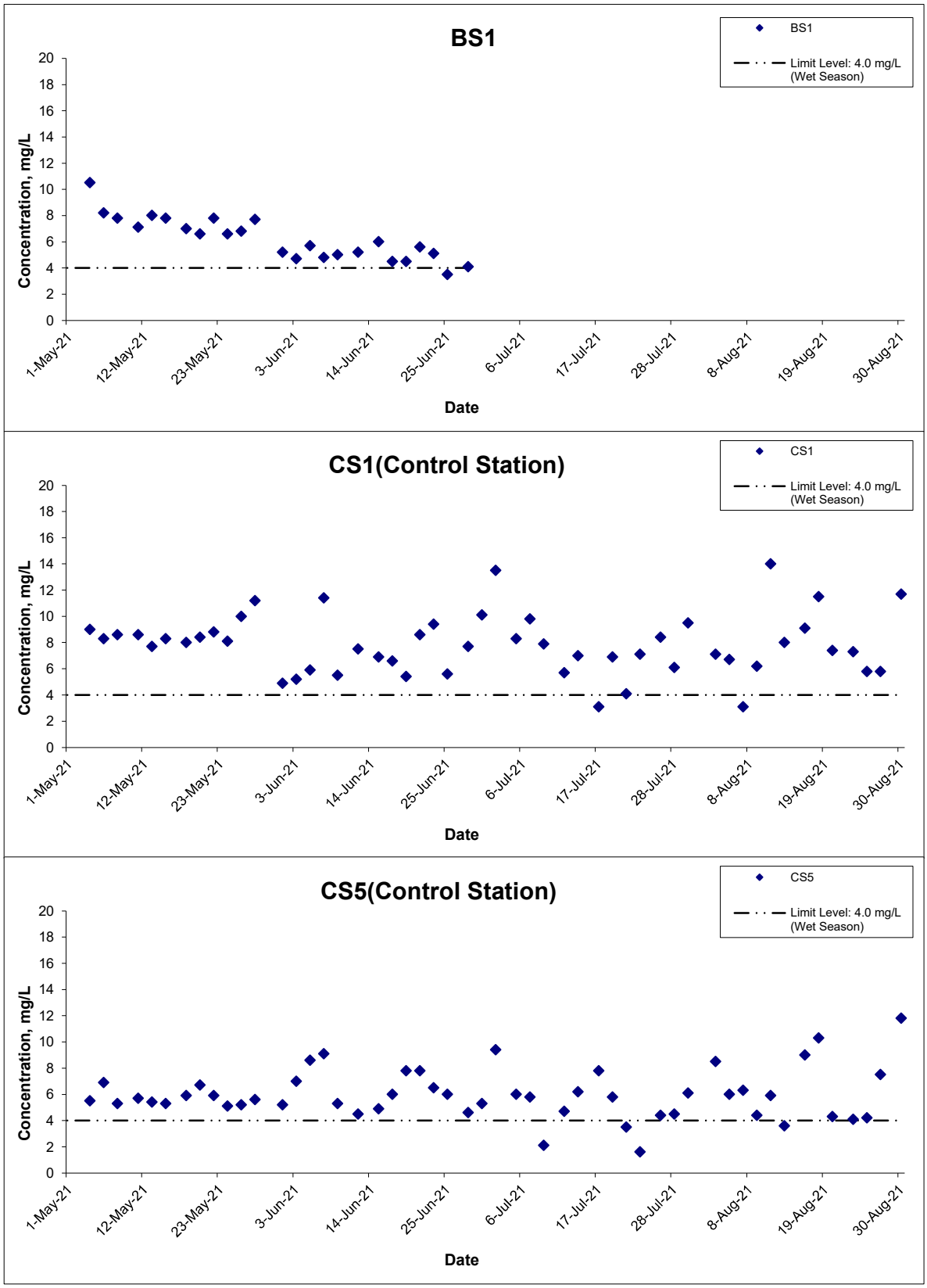
Water Quality Monitoring Results at IS4 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)		Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
3-Aug-21	Cloudy	Calm	11:56	Middle	0.1	27.4 27.4	27.4	7.4 7.3	7.4	0.1 0.1	0.1	55.6 54.6	55.1	4.4 4.3	4.4	17.7 17.6	17.7	13 14	13.5
5-Aug-21	Rainy	Calm	14:28	Middle	0.1	27.4 27.4	27.4	7.3 7.2	7.3	0.0 0.0	0.0	67.5 67.4	67.5	5.3 5.3	5.3	5.6 5.6	5.6	3 3	3.0
7-Aug-21	Cloudy	Calm	09:11	Middle	0.1	27.5 27.5	27.5	7.1 7.1	7.1	0.0 0.0	0.0	67.6 67.5	67.6	5.3 5.3	5.3	4.5 4.5	4.5	<2.5 <2.5	<2.5
9-Aug-21	Rainy	Calm	12:08	Middle	0.1	28.0 28.0	28.0	7.1 7.0	7.1	0.1 0.1	0.1	71.2 71.0	71.1	5.6 5.6	5.6	2.9 2.8	2.9	<2.5 <2.5	<2.5
11-Aug-21	Rainy	Calm	13:52	Middle	0.1	30.0 30.0	30.0	7.1 7.1	7.1	0.1 0.1	0.1	63.6 63.5	63.6	4.8 4.8	4.8	7.0 7.0	7.0	4 4	4.0
13-Aug-21	Cloudy	Calm	11:46	Middle	0.1	27.8 27.8	27.8	7.2 7.2	7.2	0.1 0.1	0.1	53.8 53.4	53.6	4.2 4.2	4.2	4.7 4.7	4.7	6 7	6.5
16-Aug-21	Rainy	Calm	10:30	Middle	0.1	27.7 27.8	27.8	7.4 7.4	7.4	0.1 0.1	0.1	58.7 58.3	58.5	4.6 4.6	4.6	15.1 15.3	15.2	7 7	7.0
18-Aug-21	Sunny	Calm	15:19	Middle	0.1	29.5 29.5	29.5	7.4 7.3	7.4	0.1 0.1	0.1	59.9 59.3	59.6	4.6 4.5	4.6	3.6 3.6	3.6	3 3	3.0
20-Aug-21	Sunny	Calm	11:36	Middle	0.1	27.2 27.3	27.3	7.1 7.1	7.1	0.1 0.1	0.1	59.4 59.1	59.3	4.7 4.7	4.7	2.3 2.3	2.3	5 6	5.5
23-Aug-21	Sunny	Calm	09:43	Middle	0.1	27.0 27.0	27.0	7.0 7.0	7.0	0.1 0.1	0.1	52.8 53.3	53.1	4.2 4.3	4.3	4.9 4.9	4.9	22 20	21.0
25-Aug-21	Sunny	Calm	11:54	Middle	0.1	30.1 30.2	30.2	7.1 7.1	7.1	0.1 0.1	0.1	57.2 56.9	57.1	4.3 4.3	4.3	8.0 8.1	8.1	6 6	6.0
27-Aug-21	Rainy	Calm	10:54	Middle	0.1	27.1 27.1	27.1	7.0 7.0	7.0	0.1 0.1	0.1	54.6 54.4	54.5	4.3 4.3	4.3	8.2 8.1	8.2	6 6	6.0
30-Aug-21	Sunny	Calm	12:47	Middle	0.1	29.6 29.7	29.7	7.3 7.3	7.3	0.1 0.1	0.1	54.7 54.3	54.5	4.2 4.1	4.2	7.8 7.9	7.9	6 6	6.0

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

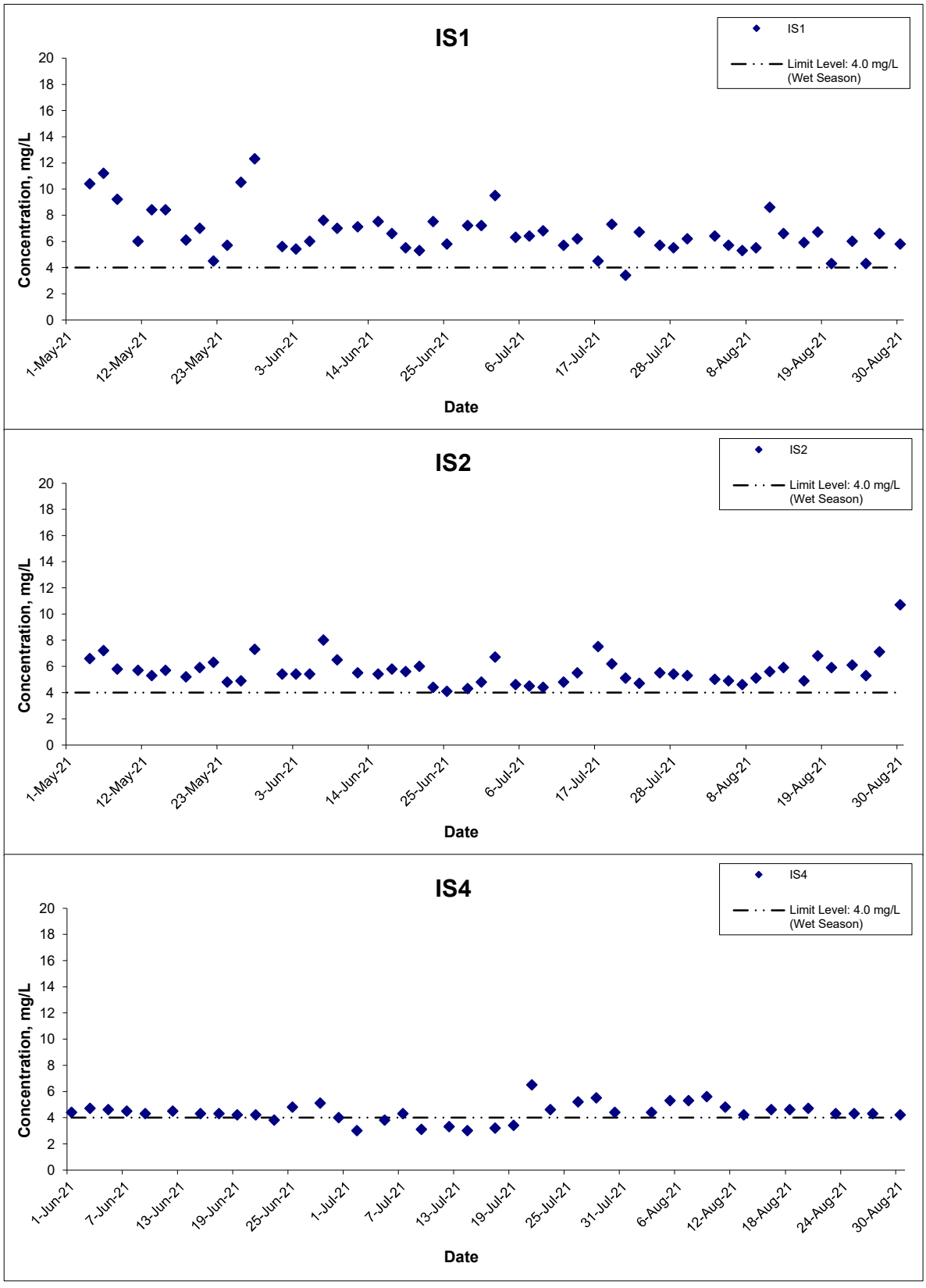
Dissolved Oxygen



Remark: BS1 was terminated starting from 28th June 2021 according to Proposal for Update of Water Quality Monitoring Stations (approved by EPD on 22nd June 2021)

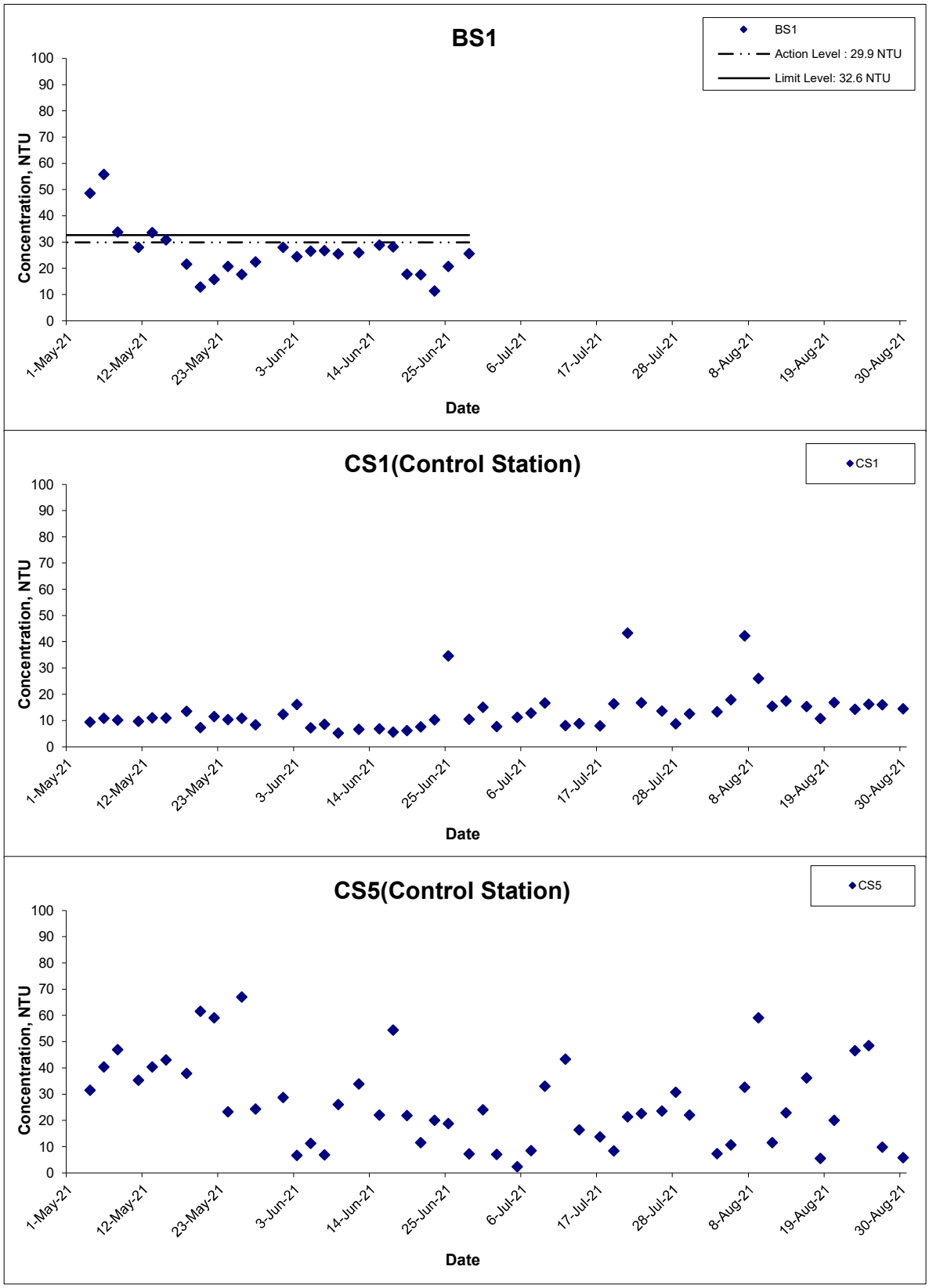
Title		Scale	Project No.	
	Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team	N.T.S	WMA21009	WELLAB 匯力 consulting . testing . research
	Graphical Presentation of Water Quality Monitoring Results	Date: Aug 21	Appendix: H	

Dissolved Oxygen



Title: Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: WMA21009	WELLAB 匯力 consulting . testing . research
	Date: Aug 21	Appendix: H	

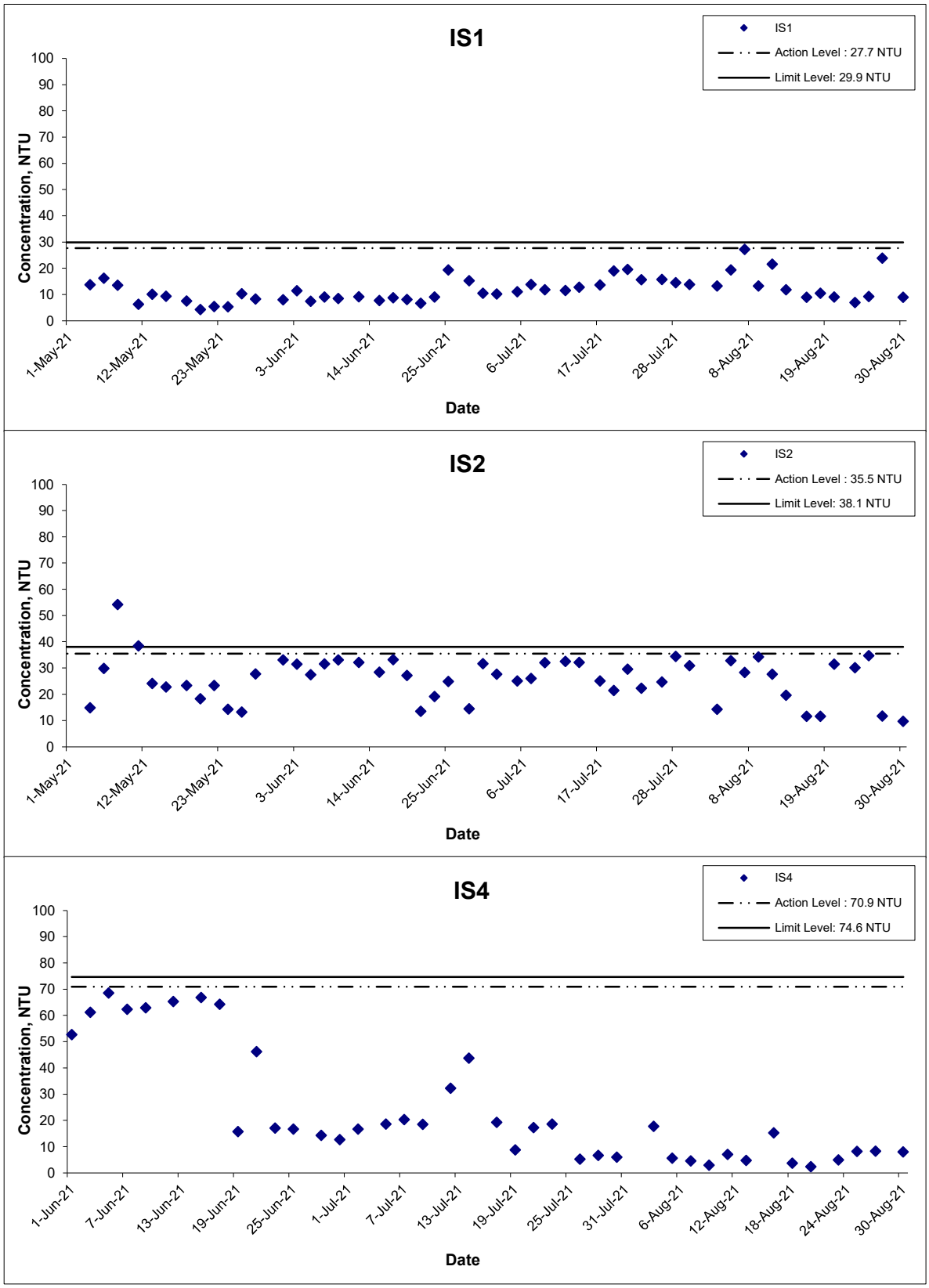
Turbidity



Remark: BS1 was terminated starting from 28th June 2021 according to Proposal for Update of Water Quality Monitoring Stations (approved by EPD on 22nd June 2021)

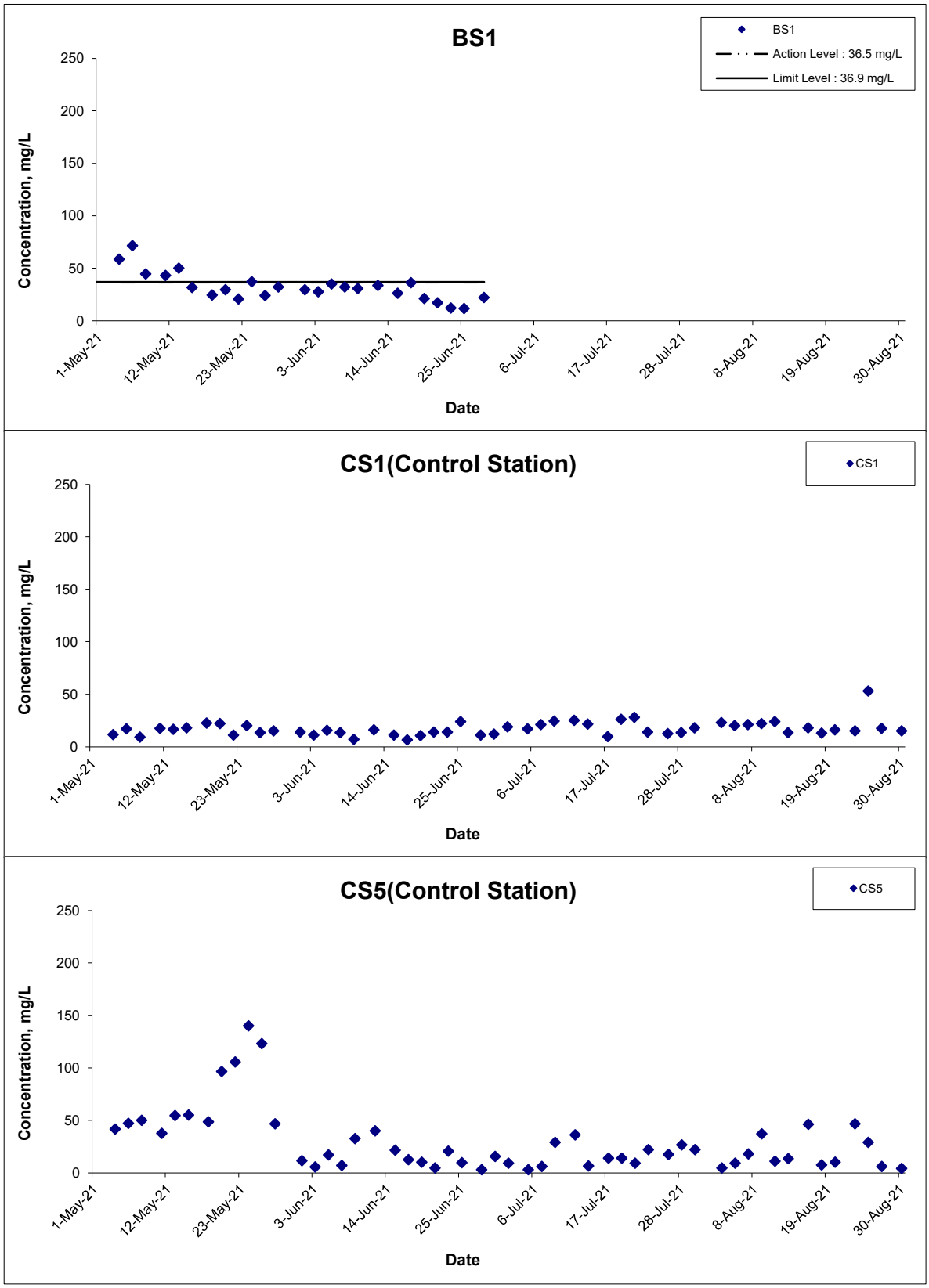
Title		Scale	Project No.	
	Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team	N.T.S	WMA21009	WELLAB 匯力 consulting . testing . research
	Graphical Presentation of Water Quality Monitoring Results	Date: Aug 21	Appendix: H	

Turbidity



Title	Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. WMA21009	WELLAB 匯力 consulting . testing . research
		Date Aug 21	Appendix H	

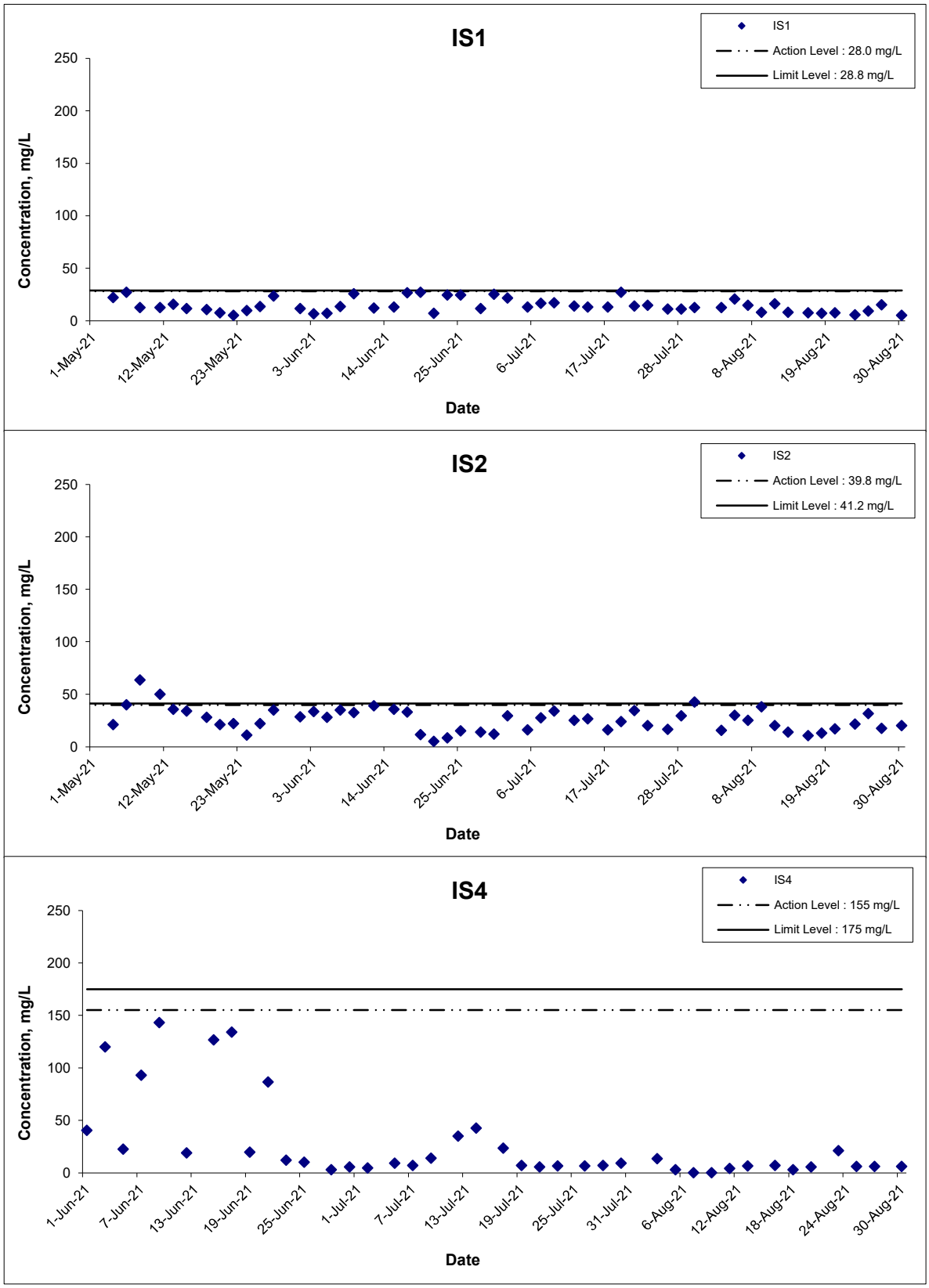
Suspended Solids



Remark: BS1 was terminated starting from 28th June 2021 according to Proposal for Update of Water Quality Monitoring Stations (approved by EPD on 22nd June 2021)

Title		Scale	Project No.	
	Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team	N.T.S	WMA21009	WELLAB 匯力 consulting . testing . research
	Graphical Presentation of Water Quality Monitoring Results	Date: Aug 21	Appendix: H	

Suspended Solids



Remark: The graphical point at zero concentration is presented as <2.5 mg/L

Title: Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Aug 21	Project No.: WMA21009 Appendix: H	WELLAB 匯力 consulting . testing . research

APPENDIX I
WEATHER CONDITION

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
1-Aug-2021	00:00	0.0	NNE
1-Aug-2021	01:00	0.0	NNW
1-Aug-2021	02:00	0.0	NNW
1-Aug-2021	03:00	0.0	---
1-Aug-2021	04:00	0.0	---
1-Aug-2021	05:00	0.0	---
1-Aug-2021	06:00	0.0	NE
1-Aug-2021	07:00	0.0	NNE
1-Aug-2021	08:00	0.0	---
1-Aug-2021	09:00	0.0	NE
1-Aug-2021	10:00	0.0	ENE
1-Aug-2021	11:00	0.0	ENE
1-Aug-2021	12:00	0.0	ENE
1-Aug-2021	13:00	0.0	NE
1-Aug-2021	14:00	0.0	NE
1-Aug-2021	15:00	0.4	NE
1-Aug-2021	16:00	0.4	ENE
1-Aug-2021	17:00	0.0	NE
1-Aug-2021	18:00	0.0	---
1-Aug-2021	19:00	0.0	NE
1-Aug-2021	20:00	0.0	NNE
1-Aug-2021	21:00	0.0	NNE
1-Aug-2021	22:00	0.0	NE
1-Aug-2021	23:00	0.0	---
2-Aug-2021	00:00	0.0	---
2-Aug-2021	01:00	0.0	NNW
2-Aug-2021	02:00	0.0	NNE
2-Aug-2021	03:00	0.0	---
2-Aug-2021	04:00	0.0	---
2-Aug-2021	05:00	0.0	---
2-Aug-2021	06:00	0.0	---
2-Aug-2021	07:00	0.0	N
2-Aug-2021	08:00	0.0	---
2-Aug-2021	09:00	0.0	NNE
2-Aug-2021	10:00	0.0	NNE
2-Aug-2021	11:00	0.0	NE
2-Aug-2021	12:00	0.0	NE
2-Aug-2021	13:00	0.0	NE
2-Aug-2021	14:00	0.0	NE
2-Aug-2021	15:00	0.0	NE
2-Aug-2021	16:00	0.0	NE
2-Aug-2021	17:00	0.4	NE
2-Aug-2021	18:00	0.0	SSW
2-Aug-2021	19:00	0.0	SSW
2-Aug-2021	20:00	0.0	W
2-Aug-2021	21:00	0.0	WNW
2-Aug-2021	22:00	0.0	---
2-Aug-2021	23:00	0.0	WNW
3-Aug-2021	00:00	0.0	WNW
3-Aug-2021	01:00	0.0	WSW
3-Aug-2021	02:00	0.4	W
3-Aug-2021	03:00	0.0	WSW
3-Aug-2021	04:00	0.0	WSW
3-Aug-2021	05:00	0.0	WSW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
3-Aug-2021	06:00	0.4	SW
3-Aug-2021	07:00	0.4	WSW
3-Aug-2021	08:00	0.4	SSW
3-Aug-2021	09:00	0.4	SSW
3-Aug-2021	10:00	0.4	WSW
3-Aug-2021	11:00	0.0	S
3-Aug-2021	12:00	1.3	SW
3-Aug-2021	13:00	1.3	SW
3-Aug-2021	14:00	1.3	SW
3-Aug-2021	15:00	1.3	SW
3-Aug-2021	16:00	1.8	SW
3-Aug-2021	17:00	1.8	SW
3-Aug-2021	18:00	1.3	SW
3-Aug-2021	19:00	0.9	WSW
3-Aug-2021	20:00	0.9	WSW
3-Aug-2021	21:00	0.9	WSW
3-Aug-2021	22:00	0.9	W
3-Aug-2021	23:00	0.9	WSW
4-Aug-2021	00:00	1.3	W
4-Aug-2021	01:00	0.9	SW
4-Aug-2021	02:00	0.0	---
4-Aug-2021	03:00	0.0	SSW
4-Aug-2021	04:00	0.0	---
4-Aug-2021	05:00	0.0	---
4-Aug-2021	06:00	0.0	S
4-Aug-2021	07:00	0.0	S
4-Aug-2021	08:00	0.0	SSW
4-Aug-2021	09:00	0.0	SSE
4-Aug-2021	10:00	0.4	S
4-Aug-2021	11:00	0.4	S
4-Aug-2021	12:00	0.0	S
4-Aug-2021	13:00	0.0	S
4-Aug-2021	14:00	0.0	SW
4-Aug-2021	15:00	0.0	NE
4-Aug-2021	16:00	0.0	NE
4-Aug-2021	17:00	1.3	W
4-Aug-2021	18:00	0.0	WNW
4-Aug-2021	19:00	1.3	WNW
4-Aug-2021	20:00	0.4	ENE
4-Aug-2021	21:00	0.0	---
4-Aug-2021	22:00	0.4	W
4-Aug-2021	23:00	0.0	NNE
5-Aug-2021	00:00	0.0	NNE
5-Aug-2021	01:00	0.0	---
5-Aug-2021	02:00	0.0	---
5-Aug-2021	03:00	0.0	---
5-Aug-2021	04:00	0.0	NNE
5-Aug-2021	05:00	0.0	NE
5-Aug-2021	06:00	0.0	NNE
5-Aug-2021	07:00	0.0	NNE
5-Aug-2021	08:00	0.0	ENE
5-Aug-2021	09:00	0.0	ENE
5-Aug-2021	10:00	0.0	ENE
5-Aug-2021	11:00	0.4	ENE

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
5-Aug-2021	12:00	0.4	ENE
5-Aug-2021	13:00	0.4	ENE
5-Aug-2021	14:00	0.4	ENE
5-Aug-2021	15:00	0.0	NE
5-Aug-2021	16:00	0.0	---
5-Aug-2021	17:00	0.0	ENE
5-Aug-2021	18:00	0.0	ENE
5-Aug-2021	19:00	0.0	---
5-Aug-2021	20:00	0.0	---
5-Aug-2021	21:00	0.0	---
5-Aug-2021	22:00	0.0	---
5-Aug-2021	23:00	0.0	NE
6-Aug-2021	00:00	0.0	SW
6-Aug-2021	01:00	0.4	W
6-Aug-2021	02:00	0.0	NNE
6-Aug-2021	03:00	0.0	N
6-Aug-2021	04:00	0.0	NE
6-Aug-2021	05:00	0.0	---
6-Aug-2021	06:00	0.0	---
6-Aug-2021	07:00	0.0	---
6-Aug-2021	08:00	0.0	NE
6-Aug-2021	09:00	0.0	ENE
6-Aug-2021	10:00	0.0	ENE
6-Aug-2021	11:00	0.0	ENE
6-Aug-2021	12:00	0.4	ENE
6-Aug-2021	13:00	0.4	ENE
6-Aug-2021	14:00	0.4	ENE
6-Aug-2021	15:00	0.0	NE
6-Aug-2021	16:00	0.0	ENE
6-Aug-2021	17:00	0.0	ENE
6-Aug-2021	18:00	0.0	---
6-Aug-2021	19:00	0.0	---
6-Aug-2021	20:00	0.0	---
6-Aug-2021	21:00	0.0	---
6-Aug-2021	22:00	0.0	NNW
6-Aug-2021	23:00	0.0	---
7-Aug-2021	00:00	0.0	ENE
7-Aug-2021	01:00	0.0	NE
7-Aug-2021	02:00	0.0	ENE
7-Aug-2021	03:00	0.0	NNE
7-Aug-2021	04:00	0.0	---
7-Aug-2021	05:00	0.0	---
7-Aug-2021	06:00	0.0	NE
7-Aug-2021	07:00	0.0	NE
7-Aug-2021	08:00	0.0	WNW
7-Aug-2021	09:00	0.0	ENE
7-Aug-2021	10:00	0.0	---
7-Aug-2021	11:00	0.0	---
7-Aug-2021	12:00	0.0	ENE
7-Aug-2021	13:00	0.4	ENE
7-Aug-2021	14:00	0.4	W
7-Aug-2021	15:00	0.0	SW
7-Aug-2021	16:00	0.0	SSW
7-Aug-2021	17:00	0.0	W

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
7-Aug-2021	18:00	0.0	W
7-Aug-2021	19:00	0.0	---
7-Aug-2021	20:00	0.0	---
7-Aug-2021	21:00	0.0	NNE
7-Aug-2021	22:00	0.0	NNW
7-Aug-2021	23:00	0.0	---
8-Aug-2021	00:00	0.0	---
8-Aug-2021	01:00	0.0	---
8-Aug-2021	02:00	0.0	---
8-Aug-2021	03:00	0.0	---
8-Aug-2021	04:00	0.0	---
8-Aug-2021	05:00	0.0	NW
8-Aug-2021	06:00	0.0	NW
8-Aug-2021	07:00	0.0	---
8-Aug-2021	08:00	0.0	---
8-Aug-2021	09:00	0.0	NE
8-Aug-2021	10:00	0.0	ENE
8-Aug-2021	11:00	0.0	NE
8-Aug-2021	12:00	0.0	ENE
8-Aug-2021	13:00	0.4	ENE
8-Aug-2021	14:00	0.4	ENE
8-Aug-2021	15:00	0.0	S
8-Aug-2021	16:00	0.4	W
8-Aug-2021	17:00	0.0	ENE
8-Aug-2021	18:00	0.0	---
8-Aug-2021	19:00	0.0	WNW
8-Aug-2021	20:00	0.0	W
8-Aug-2021	21:00	0.0	---
8-Aug-2021	22:00	0.0	---
8-Aug-2021	23:00	0.0	---
9-Aug-2021	00:00	0.0	WNW
9-Aug-2021	01:00	0.4	WNW
9-Aug-2021	02:00	0.4	W
9-Aug-2021	03:00	0.0	WNW
9-Aug-2021	04:00	0.0	WNW
9-Aug-2021	05:00	0.0	W
9-Aug-2021	06:00	0.0	SW
9-Aug-2021	07:00	0.4	W
9-Aug-2021	08:00	0.0	WNW
9-Aug-2021	09:00	0.0	WNW
9-Aug-2021	10:00	0.4	NW
9-Aug-2021	11:00	0.4	NW
9-Aug-2021	12:00	0.4	ENE
9-Aug-2021	13:00	0.4	NE
9-Aug-2021	14:00	0.4	NW
9-Aug-2021	15:00	0.4	NW
9-Aug-2021	16:00	0.0	NW
9-Aug-2021	17:00	0.0	NNE
9-Aug-2021	18:00	0.0	NE
9-Aug-2021	19:00	0.4	W
9-Aug-2021	20:00	0.4	WNW
9-Aug-2021	21:00	0.0	W
9-Aug-2021	22:00	0.9	W
9-Aug-2021	23:00	0.4	W

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
10-Aug-2021	00:00	0.0	WSW
10-Aug-2021	01:00	0.0	WSW
10-Aug-2021	02:00	0.4	W
10-Aug-2021	03:00	0.0	---
10-Aug-2021	04:00	0.0	---
10-Aug-2021	05:00	0.0	WNW
10-Aug-2021	06:00	0.0	---
10-Aug-2021	07:00	0.0	SW
10-Aug-2021	08:00	0.0	W
10-Aug-2021	09:00	0.0	SW
10-Aug-2021	10:00	0.0	---
10-Aug-2021	11:00	0.4	W
10-Aug-2021	12:00	0.4	W
10-Aug-2021	13:00	0.4	WNW
10-Aug-2021	14:00	0.0	ENE
10-Aug-2021	15:00	0.4	NE
10-Aug-2021	16:00	0.0	NE
10-Aug-2021	17:00	0.0	NE
10-Aug-2021	18:00	0.0	---
10-Aug-2021	19:00	0.0	W
10-Aug-2021	20:00	0.0	W
10-Aug-2021	21:00	0.0	W
10-Aug-2021	22:00	0.4	WNW
10-Aug-2021	23:00	0.0	SSW
11-Aug-2021	00:00	0.0	WSW
11-Aug-2021	01:00	0.0	WSW
11-Aug-2021	02:00	0.0	WNW
11-Aug-2021	03:00	0.0	---
11-Aug-2021	04:00	0.0	WSW
11-Aug-2021	05:00	0.0	---
11-Aug-2021	06:00	0.0	W
11-Aug-2021	07:00	0.0	W
11-Aug-2021	08:00	0.0	---
11-Aug-2021	09:00	0.0	N
11-Aug-2021	10:00	0.0	NE
11-Aug-2021	11:00	0.0	ENE
11-Aug-2021	12:00	0.0	ENE
11-Aug-2021	13:00	0.0	ENE
11-Aug-2021	14:00	0.0	ENE
11-Aug-2021	15:00	0.0	ESE
11-Aug-2021	16:00	0.0	NNW
11-Aug-2021	17:00	0.0	NNW
11-Aug-2021	18:00	0.0	NE
11-Aug-2021	19:00	0.0	---
11-Aug-2021	20:00	0.0	---
11-Aug-2021	21:00	0.0	---
11-Aug-2021	22:00	0.4	W
11-Aug-2021	23:00	0.0	WNW
12-Aug-2021	00:00	0.0	WNW
12-Aug-2021	01:00	0.0	NNE
12-Aug-2021	02:00	0.0	NW
12-Aug-2021	03:00	0.0	WNW
12-Aug-2021	04:00	0.0	W
12-Aug-2021	05:00	0.0	W

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
12-Aug-2021	06:00	0.0	WNW
12-Aug-2021	07:00	0.0	WNW
12-Aug-2021	08:00	0.0	---
12-Aug-2021	09:00	0.0	---
12-Aug-2021	10:00	0.0	---
12-Aug-2021	11:00	0.0	ENE
12-Aug-2021	12:00	0.0	NE
12-Aug-2021	13:00	0.0	WSW
12-Aug-2021	14:00	0.0	S
12-Aug-2021	15:00	0.0	SSW
12-Aug-2021	16:00	0.0	ENE
12-Aug-2021	17:00	0.0	NE
12-Aug-2021	18:00	0.0	NE
12-Aug-2021	19:00	0.0	WNW
12-Aug-2021	20:00	0.0	WNW
12-Aug-2021	21:00	0.0	WNW
12-Aug-2021	22:00	0.0	W
12-Aug-2021	23:00	0.0	---
13-Aug-2021	00:00	0.0	---
13-Aug-2021	01:00	0.0	---
13-Aug-2021	02:00	0.0	NW
13-Aug-2021	03:00	0.0	---
13-Aug-2021	04:00	0.0	---
13-Aug-2021	05:00	0.0	WNW
13-Aug-2021	06:00	0.0	W
13-Aug-2021	07:00	0.0	WNW
13-Aug-2021	08:00	0.0	---
13-Aug-2021	09:00	0.0	---
13-Aug-2021	10:00	0.0	E
13-Aug-2021	11:00	0.0	NNE
13-Aug-2021	12:00	0.0	NE
13-Aug-2021	13:00	0.0	ENE
13-Aug-2021	14:00	0.0	NE
13-Aug-2021	15:00	0.0	ENE
13-Aug-2021	16:00	0.0	ENE
13-Aug-2021	17:00	0.0	NE
13-Aug-2021	18:00	0.0	NE
13-Aug-2021	19:00	0.0	---
13-Aug-2021	20:00	0.0	---
13-Aug-2021	21:00	0.0	NE
13-Aug-2021	22:00	0.0	NE
13-Aug-2021	23:00	0.0	N
14-Aug-2021	00:00	0.0	ENE
14-Aug-2021	01:00	0.0	---
14-Aug-2021	02:00	0.0	NE
14-Aug-2021	03:00	0.0	W
14-Aug-2021	04:00	0.0	NE
14-Aug-2021	05:00	0.0	NNE
14-Aug-2021	06:00	0.0	NE
14-Aug-2021	07:00	0.0	NE
14-Aug-2021	08:00	0.0	NE
14-Aug-2021	09:00	0.0	---
14-Aug-2021	10:00	0.0	---
14-Aug-2021	11:00	0.0	NE

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
14-Aug-2021	12:00	0.0	NNE
14-Aug-2021	13:00	0.0	NE
14-Aug-2021	14:00	0.0	ENE
14-Aug-2021	15:00	0.0	NE
14-Aug-2021	16:00	0.0	NE
14-Aug-2021	17:00	0.0	NE
14-Aug-2021	18:00	0.0	NNE
14-Aug-2021	19:00	0.0	---
14-Aug-2021	20:00	0.0	---
14-Aug-2021	21:00	0.0	---
14-Aug-2021	22:00	0.0	N
14-Aug-2021	23:00	0.0	---
15-Aug-2021	00:00	0.0	N
15-Aug-2021	01:00	0.0	NW
15-Aug-2021	02:00	0.0	---
15-Aug-2021	03:00	0.0	NW
15-Aug-2021	04:00	0.0	W
15-Aug-2021	05:00	0.4	W
15-Aug-2021	06:00	0.0	ENE
15-Aug-2021	07:00	0.0	---
15-Aug-2021	08:00	0.0	---
15-Aug-2021	09:00	0.0	SW
15-Aug-2021	10:00	0.0	WNW
15-Aug-2021	11:00	0.0	NE
15-Aug-2021	12:00	0.0	NE
15-Aug-2021	13:00	0.0	NE
15-Aug-2021	14:00	0.4	NW
15-Aug-2021	15:00	0.9	W
15-Aug-2021	16:00	0.4	ENE
15-Aug-2021	17:00	0.4	WNW
15-Aug-2021	18:00	0.0	WNW
15-Aug-2021	19:00	0.0	W
15-Aug-2021	20:00	0.0	NW
15-Aug-2021	21:00	0.0	WNW
15-Aug-2021	22:00	0.0	W
15-Aug-2021	23:00	0.9	W
16-Aug-2021	00:00	0.4	W
16-Aug-2021	01:00	1.3	W
16-Aug-2021	02:00	0.4	W
16-Aug-2021	03:00	0.0	WNW
16-Aug-2021	04:00	0.0	---
16-Aug-2021	05:00	0.0	W
16-Aug-2021	06:00	0.9	W
16-Aug-2021	07:00	0.0	WSW
16-Aug-2021	08:00	0.0	WSW
16-Aug-2021	09:00	0.4	SW
16-Aug-2021	10:00	0.0	ENE
16-Aug-2021	11:00	0.0	NE
16-Aug-2021	12:00	0.0	NNE
16-Aug-2021	13:00	0.0	SW
16-Aug-2021	14:00	0.0	W
16-Aug-2021	15:00	0.0	ENE
16-Aug-2021	16:00	0.0	NE
16-Aug-2021	17:00	0.0	ENE

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
16-Aug-2021	18:00	0.0	---
16-Aug-2021	19:00	0.0	N
16-Aug-2021	20:00	0.0	---
16-Aug-2021	21:00	0.0	---
16-Aug-2021	22:00	0.0	---
16-Aug-2021	23:00	0.0	---
17-Aug-2021	00:00	0.4	WNW
17-Aug-2021	01:00	0.0	WNW
17-Aug-2021	02:00	0.0	---
17-Aug-2021	03:00	0.0	---
17-Aug-2021	04:00	0.0	---
17-Aug-2021	05:00	0.0	WNW
17-Aug-2021	06:00	0.0	---
17-Aug-2021	07:00	0.0	---
17-Aug-2021	08:00	0.0	---
17-Aug-2021	09:00	0.0	---
17-Aug-2021	10:00	0.0	---
17-Aug-2021	11:00	0.0	NE
17-Aug-2021	12:00	0.0	ENE
17-Aug-2021	13:00	0.0	ENE
17-Aug-2021	14:00	0.0	ENE
17-Aug-2021	15:00	0.0	ENE
17-Aug-2021	16:00	0.0	ENE
17-Aug-2021	17:00	0.0	ENE
17-Aug-2021	18:00	0.0	---
17-Aug-2021	19:00	0.0	---
17-Aug-2021	20:00	0.0	ENE
17-Aug-2021	21:00	0.0	---
17-Aug-2021	22:00	0.0	---
17-Aug-2021	23:00	0.0	---
18-Aug-2021	00:00	0.0	NNE
18-Aug-2021	01:00	0.0	---
18-Aug-2021	02:00	0.0	---
18-Aug-2021	03:00	0.0	---
18-Aug-2021	04:00	0.0	---
18-Aug-2021	05:00	0.0	N
18-Aug-2021	06:00	0.0	---
18-Aug-2021	07:00	0.0	---
18-Aug-2021	08:00	0.0	---
18-Aug-2021	09:00	0.0	---
18-Aug-2021	10:00	0.0	ENE
18-Aug-2021	11:00	0.0	NE
18-Aug-2021	12:00	0.0	ENE
18-Aug-2021	13:00	0.0	ENE
18-Aug-2021	14:00	0.0	ENE
18-Aug-2021	15:00	0.4	SW
18-Aug-2021	16:00	0.9	W
18-Aug-2021	17:00	0.0	WSW
18-Aug-2021	18:00	0.4	W
18-Aug-2021	19:00	0.9	W
18-Aug-2021	20:00	0.0	W
18-Aug-2021	21:00	0.4	WNW
18-Aug-2021	22:00	0.0	WNW
18-Aug-2021	23:00	0.0	WNW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
19-Aug-2021	00:00	0.4	WSW
19-Aug-2021	01:00	0.0	SW
19-Aug-2021	02:00	0.0	---
19-Aug-2021	03:00	0.0	SW
19-Aug-2021	04:00	0.4	W
19-Aug-2021	05:00	0.0	WNW
19-Aug-2021	06:00	0.4	W
19-Aug-2021	07:00	0.4	WNW
19-Aug-2021	08:00	0.0	SW
19-Aug-2021	09:00	0.0	SW
19-Aug-2021	10:00	0.0	SSE
19-Aug-2021	11:00	0.0	NW
19-Aug-2021	12:00	0.9	NW
19-Aug-2021	13:00	0.0	SW
19-Aug-2021	14:00	0.0	WNW
19-Aug-2021	15:00	0.0	SW
19-Aug-2021	16:00	0.0	SSW
19-Aug-2021	17:00	0.0	ENE
19-Aug-2021	18:00	0.0	---
19-Aug-2021	19:00	0.0	SSE
19-Aug-2021	20:00	0.0	---
19-Aug-2021	21:00	0.4	WNW
19-Aug-2021	22:00	0.0	NW
19-Aug-2021	23:00	0.0	NW
20-Aug-2021	00:00	0.0	NW
20-Aug-2021	01:00	0.0	---
20-Aug-2021	02:00	0.0	---
20-Aug-2021	03:00	0.0	WNW
20-Aug-2021	04:00	0.0	WNW
20-Aug-2021	05:00	0.0	WNW
20-Aug-2021	06:00	0.0	---
20-Aug-2021	07:00	0.0	---
20-Aug-2021	08:00	0.0	---
20-Aug-2021	09:00	0.0	---
20-Aug-2021	10:00	0.0	---
20-Aug-2021	11:00	0.0	ENE
20-Aug-2021	12:00	0.4	ENE
20-Aug-2021	13:00	0.4	ENE
20-Aug-2021	14:00	0.0	ENE
20-Aug-2021	15:00	0.0	NE
20-Aug-2021	16:00	0.0	NE
20-Aug-2021	17:00	0.0	NE
20-Aug-2021	18:00	0.0	ENE
20-Aug-2021	19:00	0.0	---
20-Aug-2021	20:00	0.0	N
20-Aug-2021	21:00	0.0	---
20-Aug-2021	22:00	0.0	---
20-Aug-2021	23:00	0.0	NNE
21-Aug-2021	00:00	0.0	N
21-Aug-2021	01:00	0.0	NE
21-Aug-2021	02:00	0.0	---
21-Aug-2021	03:00	0.0	---
21-Aug-2021	04:00	0.0	---
21-Aug-2021	05:00	0.0	---

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
21-Aug-2021	06:00	0.0	---
21-Aug-2021	07:00	0.0	N
21-Aug-2021	08:00	0.0	NE
21-Aug-2021	09:00	0.0	ENE
21-Aug-2021	10:00	0.0	ENE
21-Aug-2021	11:00	0.0	ENE
21-Aug-2021	12:00	0.0	ENE
21-Aug-2021	13:00	0.0	NE
21-Aug-2021	14:00	0.0	ENE
21-Aug-2021	15:00	0.0	NE
21-Aug-2021	16:00	0.0	ENE
21-Aug-2021	17:00	0.0	NE
21-Aug-2021	18:00	0.0	ENE
21-Aug-2021	19:00	0.0	NE
21-Aug-2021	20:00	0.0	NE
21-Aug-2021	21:00	0.0	NE
21-Aug-2021	22:00	0.0	---
21-Aug-2021	23:00	0.0	---
22-Aug-2021	00:00	0.0	NNE
22-Aug-2021	01:00	0.0	N
22-Aug-2021	02:00	0.0	N
22-Aug-2021	03:00	0.0	ENE
22-Aug-2021	04:00	0.0	---
22-Aug-2021	05:00	0.0	---
22-Aug-2021	06:00	0.0	NE
22-Aug-2021	07:00	0.0	---
22-Aug-2021	08:00	0.0	ENE
22-Aug-2021	09:00	0.0	ENE
22-Aug-2021	10:00	0.4	ENE
22-Aug-2021	11:00	0.4	ENE
22-Aug-2021	12:00	0.4	ENE
22-Aug-2021	13:00	0.0	ENE
22-Aug-2021	14:00	0.0	ENE
22-Aug-2021	15:00	0.0	ENE
22-Aug-2021	16:00	0.0	NE
22-Aug-2021	17:00	0.4	NNE
22-Aug-2021	18:00	0.0	NE
22-Aug-2021	19:00	0.0	NNE
22-Aug-2021	20:00	0.0	N
22-Aug-2021	21:00	0.0	NNE
22-Aug-2021	22:00	0.0	NNE
22-Aug-2021	23:00	0.0	NE
23-Aug-2021	00:00	0.0	NE
23-Aug-2021	01:00	0.0	NE
23-Aug-2021	02:00	0.0	E
23-Aug-2021	03:00	0.0	ENE
23-Aug-2021	04:00	0.0	ENE
23-Aug-2021	05:00	0.0	ENE
23-Aug-2021	06:00	0.0	---
23-Aug-2021	07:00	0.0	---
23-Aug-2021	08:00	0.0	---
23-Aug-2021	09:00	0.0	---
23-Aug-2021	10:00	0.0	ENE
23-Aug-2021	11:00	0.0	ENE

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
23-Aug-2021	12:00	0.0	ENE
23-Aug-2021	13:00	0.0	NNE
23-Aug-2021	14:00	0.0	NE
23-Aug-2021	15:00	0.4	ENE
23-Aug-2021	16:00	0.0	NE
23-Aug-2021	17:00	0.0	NE
23-Aug-2021	18:00	0.0	NE
23-Aug-2021	19:00	0.0	NNE
23-Aug-2021	20:00	0.0	NNW
23-Aug-2021	21:00	0.0	---
23-Aug-2021	22:00	0.0	NNW
23-Aug-2021	23:00	0.0	---
24-Aug-2021	00:00	0.0	NNW
24-Aug-2021	01:00	0.0	---
24-Aug-2021	02:00	0.0	---
24-Aug-2021	03:00	0.0	NW
24-Aug-2021	04:00	0.0	NW
24-Aug-2021	05:00	0.0	---
24-Aug-2021	06:00	0.0	NW
24-Aug-2021	07:00	0.0	---
24-Aug-2021	08:00	0.0	---
24-Aug-2021	09:00	0.0	NE
24-Aug-2021	10:00	0.0	ENE
24-Aug-2021	11:00	0.4	ENE
24-Aug-2021	12:00	0.0	ENE
24-Aug-2021	13:00	0.4	ENE
24-Aug-2021	14:00	0.0	SSW
24-Aug-2021	15:00	0.0	ENE
24-Aug-2021	16:00	0.0	ENE
24-Aug-2021	17:00	0.0	NNE
24-Aug-2021	18:00	0.0	NE
24-Aug-2021	19:00	0.0	NNE
24-Aug-2021	20:00	0.0	NNE
24-Aug-2021	21:00	0.0	NNE
24-Aug-2021	22:00	0.0	N
24-Aug-2021	23:00	0.0	NW
25-Aug-2021	00:00	0.0	---
25-Aug-2021	01:00	0.0	---
25-Aug-2021	02:00	0.0	---
25-Aug-2021	03:00	0.0	---
25-Aug-2021	04:00	0.0	WNW
25-Aug-2021	05:00	0.0	WNW
25-Aug-2021	06:00	0.0	WSW
25-Aug-2021	07:00	0.0	WSW
25-Aug-2021	08:00	0.0	W
25-Aug-2021	09:00	0.0	WSW
25-Aug-2021	10:00	0.0	SW
25-Aug-2021	11:00	0.0	SW
25-Aug-2021	12:00	0.0	SSW
25-Aug-2021	13:00	0.4	WNW
25-Aug-2021	14:00	0.4	WNW
25-Aug-2021	15:00	0.4	W
25-Aug-2021	16:00	0.4	SW
25-Aug-2021	17:00	0.0	WNW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
25-Aug-2021	18:00	0.0	SW
25-Aug-2021	19:00	0.0	W
25-Aug-2021	20:00	0.0	W
25-Aug-2021	21:00	0.0	WSW
25-Aug-2021	22:00	0.0	SSW
25-Aug-2021	23:00	0.0	---
26-Aug-2021	00:00	0.0	SW
26-Aug-2021	01:00	0.0	WSW
26-Aug-2021	02:00	0.0	WSW
26-Aug-2021	03:00	0.0	WSW
26-Aug-2021	04:00	0.0	W
26-Aug-2021	05:00	0.0	W
26-Aug-2021	06:00	0.0	WNW
26-Aug-2021	07:00	0.0	WSW
26-Aug-2021	08:00	0.0	SW
26-Aug-2021	09:00	0.0	WNW
26-Aug-2021	10:00	0.0	WSW
26-Aug-2021	11:00	0.4	W
26-Aug-2021	12:00	0.4	WNW
26-Aug-2021	13:00	1.3	WNW
26-Aug-2021	14:00	1.3	WNW
26-Aug-2021	15:00	0.9	WNW
26-Aug-2021	16:00	0.9	SW
26-Aug-2021	17:00	1.3	W
26-Aug-2021	18:00	0.4	WSW
26-Aug-2021	19:00	0.0	WSW
26-Aug-2021	20:00	0.0	WNW
26-Aug-2021	21:00	0.0	WSW
26-Aug-2021	22:00	0.0	SW
26-Aug-2021	23:00	0.0	WSW
27-Aug-2021	00:00	0.0	SW
27-Aug-2021	01:00	0.4	WSW
27-Aug-2021	02:00	0.0	W
27-Aug-2021	03:00	0.0	W
27-Aug-2021	04:00	0.4	W
27-Aug-2021	05:00	0.0	W
27-Aug-2021	06:00	0.0	WSW
27-Aug-2021	07:00	0.0	W
27-Aug-2021	08:00	0.4	SSW
27-Aug-2021	09:00	0.0	W
27-Aug-2021	10:00	0.4	WSW
27-Aug-2021	11:00	0.9	SW
27-Aug-2021	12:00	0.9	SW
27-Aug-2021	13:00	0.4	WSW
27-Aug-2021	14:00	0.4	WSW
27-Aug-2021	15:00	0.9	SW
27-Aug-2021	16:00	1.3	SW
27-Aug-2021	17:00	1.3	SW
27-Aug-2021	18:00	0.4	W
27-Aug-2021	19:00	0.0	W
27-Aug-2021	20:00	0.0	W
27-Aug-2021	21:00	0.0	W
27-Aug-2021	22:00	0.0	WNW
27-Aug-2021	23:00	0.0	NW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
28-Aug-2021	00:00	0.4	WNW
28-Aug-2021	01:00	0.0	WNW
28-Aug-2021	02:00	0.0	W
28-Aug-2021	03:00	0.9	W
28-Aug-2021	04:00	0.4	W
28-Aug-2021	05:00	0.0	W
28-Aug-2021	06:00	0.0	W
28-Aug-2021	07:00	0.0	---
28-Aug-2021	08:00	0.0	SW
28-Aug-2021	09:00	0.4	SW
28-Aug-2021	10:00	0.4	SW
28-Aug-2021	11:00	0.9	SW
28-Aug-2021	12:00	1.3	SW
28-Aug-2021	13:00	0.9	SW
28-Aug-2021	14:00	0.0	SSW
28-Aug-2021	15:00	0.0	WSW
28-Aug-2021	16:00	0.4	SW
28-Aug-2021	17:00	0.9	SW
28-Aug-2021	18:00	0.4	SW
28-Aug-2021	19:00	0.4	W
28-Aug-2021	20:00	0.9	W
28-Aug-2021	21:00	0.4	WNW
28-Aug-2021	22:00	0.0	WNW
28-Aug-2021	23:00	0.0	WNW
29-Aug-2021	00:00	0.0	---
29-Aug-2021	01:00	0.0	W
29-Aug-2021	02:00	0.4	W
29-Aug-2021	03:00	0.4	W
29-Aug-2021	04:00	0.4	W
29-Aug-2021	05:00	0.4	WSW
29-Aug-2021	06:00	0.4	SSW
29-Aug-2021	07:00	0.0	SW
29-Aug-2021	08:00	0.4	SW
29-Aug-2021	09:00	0.4	W
29-Aug-2021	10:00	0.0	SW
29-Aug-2021	11:00	0.9	W
29-Aug-2021	12:00	0.9	WNW
29-Aug-2021	13:00	0.9	W
29-Aug-2021	14:00	0.9	SW
29-Aug-2021	15:00	1.3	SW
29-Aug-2021	16:00	0.9	SW
29-Aug-2021	17:00	1.3	SW
29-Aug-2021	18:00	0.4	SW
29-Aug-2021	19:00	0.4	WSW
29-Aug-2021	20:00	0.0	SW
29-Aug-2021	21:00	0.0	SW
29-Aug-2021	22:00	0.0	SW
29-Aug-2021	23:00	0.0	---
30-Aug-2021	00:00	0.0	WSW
30-Aug-2021	01:00	0.0	---
30-Aug-2021	02:00	0.0	---
30-Aug-2021	03:00	0.0	WSW
30-Aug-2021	04:00	0.0	WSW
30-Aug-2021	05:00	0.0	W

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
30-Aug-2021	06:00	0.0	W
30-Aug-2021	07:00	0.0	WSW
30-Aug-2021	08:00	0.0	SW
30-Aug-2021	09:00	0.4	SW
30-Aug-2021	10:00	0.9	SW
30-Aug-2021	11:00	0.4	SW
30-Aug-2021	12:00	0.9	SW
30-Aug-2021	13:00	0.9	SW
30-Aug-2021	14:00	1.8	WNW
30-Aug-2021	15:00	1.8	WNW
30-Aug-2021	16:00	0.9	WNW
30-Aug-2021	17:00	0.4	SW
30-Aug-2021	18:00	0.4	SW
30-Aug-2021	19:00	0.4	W
30-Aug-2021	20:00	0.4	SW
30-Aug-2021	21:00	0.4	SW
30-Aug-2021	22:00	0.0	NW
30-Aug-2021	23:00	0.0	NW
31-Aug-2021	00:00	0.0	---
31-Aug-2021	01:00	0.0	---
31-Aug-2021	02:00	0.0	---
31-Aug-2021	03:00	0.0	NW
31-Aug-2021	04:00	0.0	SW
31-Aug-2021	05:00	0.0	W
31-Aug-2021	06:00	0.0	W
31-Aug-2021	07:00	0.0	S
31-Aug-2021	08:00	0.0	SW
31-Aug-2021	09:00	0.0	SW
31-Aug-2021	10:00	0.0	SW
31-Aug-2021	11:00	0.0	SSW
31-Aug-2021	12:00	0.4	WSW
31-Aug-2021	13:00	0.4	SW
31-Aug-2021	14:00	0.0	WSW
31-Aug-2021	15:00	0.0	---
31-Aug-2021	16:00	0.0	WSW
31-Aug-2021	17:00	0.0	WSW
31-Aug-2021	18:00	0.0	WSW
31-Aug-2021	19:00	0.4	W
31-Aug-2021	20:00	0.0	WSW
31-Aug-2021	21:00	0.0	W
31-Aug-2021	22:00	0.4	W
31-Aug-2021	23:00	0.4	SW

APPENDIX J
EVENT ACTION PLANS

Appendix J Event / Action Plan for 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 IEC,ER and Contractor; 3. Repeat measurement to confirm finding; and 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, investigate the causes of exceedance and propose remedial measures 2. Rectify any unacceptable practice and implement remedial measures; and 3. Amend working methods agreed with ER if appropriate.
2. Exceedance for two or more consecutive samples	Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC,ER and Contractor; 3. Advise the ER and Contractor on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC, ER and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; and 8. If exceedance stops, cease additional monitoring.	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 ET and ER on the effectiveness of the proposed remedial measures; and 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; and 3. Supervise and ensure remedial measures properly implemented.	1. Identify source, investigate the causes of exceedance and propose remedial measures 2. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 3. Implement the agreed proposals; and 4. Amend proposal if appropriate.

LIMIT LEVEL				
1.Exceedance for one sample	Identify source, investigate the causes of exceedanceand propose remedial measures; 2. Inform ER, Contractor, IEC 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, ER and Contractor on possible remedial measures; 4. Advise the ER and ET on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; and 3. Supervise and ensure remedial measures properly implemented.	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 4. Implement the agreed proposals; and 5. Amend proposal if appropriate.
2.Exceedance for two or more consecutive samples	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, Contractor 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 ET; 2. Check Contractor's working method; 3. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and 5. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise and ensure remedial measures properly implemented; and 5. 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, investigate the causes of exceedance and propose remedial measures; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 4. Implement the agreed proposals; 5. Resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event / Action Plan for Construction Noise

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
Action Level	Notify IEC, ER and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented	1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals.
Limit Level	. Identify source; 2. Inform IEC, ER, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 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. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures properly implemented; 5. 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. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event and Action Plan for Water Quality

	Action			
Event	**ET**	**IEC**	**ER**	**Contractor**
Action level being exceeded by one sampling day	. Inform IEC, Contractor and ER; 2. Check monitoring data, all plant, equipment and Contractor's working methods; and 3. Discuss remedial measures with IEC and Contractor and ER.	1. Discuss with ET, ER and Contractor on the implemented mitigation measures; 2. Review proposals on remedial measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the implemented mitigation measures; 2. Make agreement on the remedial measures to be implemented; 3. Supervise the implementation of agreed remedial measures.	1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4.Check all plant and equipment; 5. Consider changes of working methods; 6. Discuss with ER, ET and IEC and purpose remedial measures to IEC and ER; and 7. Implement the agreed mitigation measures.
Action level being exceeded by two or more consecutive sampling days	Repeat in-situ measurement on next day of exceedance to confirm findings; 2. Inform IEC, contractor and ER; 3. Check monitoring data, all plant, equipment and Contractor's working methods; 4. Discuss remedial measures with IEC, contractor and ER 5. Ensure remedial measures are implemented	1. Discuss with ET, Contractor and ER on the implemented mitigation measures; 2. Review the proposed remedial measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures.	1. Discuss with ET, IEC and Contractor on the proposed mitigation measures; 2. Make agreement on the remedial measures to be implemented ; and 3. Discuss with ET, IEC and Contractor on the effectiveness of the implemented remedial measures.	1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment and consider changes of working methods; 5. Discuss with ET, IEC and ER and submit proposal of remedial measures to ER and IEC within 3 working days of notification; and 6. Implement the agreed mitigation measures.
Limit level being exceeded by one	Repeat measurement on next day of exceedance to confirm findings;	1. Discuss with ET, Contractor and ER on the implemented mitigation	1. Discuss with ET, IEC and Contractor on the implemented remedial	1. Identify source(s) of impact; 2. Inform the ER and confirm notification of

	Action			
Event	**ET**	**IEC**	**ER**	**Contractor**
sampling day	2. Inform IEC, contractor and ER; 3. Rectify unacceptable practice; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Consider changes of working methods; 6. Discuss mitigation measures with IEC, ER and Contractor; and 7. Ensure the agreed remedial measures are implemented	measures; 2. Review the proposed remedial measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures.	measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the remedial measures to be implemented; and 4. Discuss with ET, IEC and Contractor on the effectiveness of the implemented remedial measures.	the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment and consider changes of working methods; 5. Discuss with ET, IEC and ER and submit proposal of additional mitigation measures to ER and IEC within 3 working days of notification; and 6. Implement the agreed remedial measures.
Limit level being exceeded by two or more consecutive sampling days	Inform IEC, contractor and ER; 2. Check monitoring data, all plant, equipment and Contractor's working methods; 3. Discuss mitigation measures with IEC, ER and Contractor; and 4. Ensure mitigation measures are implemented; and 5. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days	1. Discuss with ET, Contractor and ER on the implemented mitigation measures; 2. Review the proposed remedial measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures.	1. Discuss with ET, IEC and Contractor on the implemented remedial measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the remedial measures to be implemented; 4. Discuss with ET and IEC on the effectiveness of the implemented mitigation measures; and 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the dredging activities until no exceedance of Limit level.	1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment and consider changes of working methods; 5. Discuss with ET, IEC and ER and submit proposal of additional mitigation measures to ER and IEC within 3 working days of notification; and 6. Implement the agreed remedial measures. 7. As directed by the ER, to slow down or stop all or part of the dredging activities until no exceedance of Limit level.

Abbreviations: ET – Environmental Team, IEC – Independent Environmental Checker, ER – Engineer's Representative

Each step of actions required shall be implemented within 1 working day unless otherwise specified or agreed with EPD.

APPENDIX K
SUMMARY OF EXCEEDANCE

Appendix K Exceedance Report

(A) Exceedance Report for Air Quality

Environmental Monitoring	Parameter	No. of non-project related Exceedance		No. of Exceedance related to the Construction Activities of the Project	
		Action Level	Limit Level	Action Level	Limit Level
Air Quality	1-hr TSP	0	0	0	0
	24-hr TSP	0	0	0	0

(B) Exceedance Report for Construction Noise

Environmental Monitoring	Parameter	No. of non-project related Exceedance		No. of Exceedance related to the Construction Activities of the Project	
		Action Level	Limit Level	Action Level	Limit Level
Noise	L_{eq}(30 min.) dB(A)	0	0	0	0

(C) Exceedance Report for Water Quality

Environmental Monitoring	Parameter	No. of non-project related Exceedance		No. of Exceedance related to the Construction Activities of the Project	
		Action Level	Limit Level	Action Level	Limit Level
Water Quality	Dissolved Oxygen (DO)	0	0	0	0
	Turbidity	0	0	0	0
	Suspended Solids (SS)	0	0	0	0

APPENDIX L
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210806
Date	6 August 2021 (Friday)
Time	9:30 – 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
210806-R01	• The Contractor (Advance Works) / Engineer was reminded to closely liaise with the interface Contractor to settle the issue of discharging surface runoff to the EA Zone.	H12
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	Follow-up on previous audit section (Ref. No.: 210730), all environmental deficiency was rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Ivy Tam	Ivy	6 August 2021
Checked by	Dr. Priscilla Choy		6 August 2021

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210811
Date	11 August 2021 (Wednesday)
Time	13:00 – 14:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
210811-R02	• Cover the stockpile of dusty materials when not in use at Pond E.	B2
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
210811-R02	• Cover the stockpile of dusty materials when not in use at Pond E.	D8
	E. Waste / Chemical Management	
210811-R03	• Provide drip tray for chemical storage at Pond E.	E13
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
210811-R01	• Maintain good housekeeping and clear construction materials at Pond B.	H13
210811-R02	• Cover the stockpile of dusty materials when not in use at Pond E.	H3
210811-R04	• The Contractor (Advance Works) / Engineer was reminded to closely liaise with the interface Contractor to settle the issue of discharging surface runoff to the EA Zone.	H12
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	Follow-up on previous audit section (Ref. No.: 210806), follow up action is required for the item 210806-R01 which is renamed as 210811-R04.	

	Name	Signature	Date
Recorded by	Kenneth Leung		11 August 2021
Checked by	Dr. Priscilla Choy		11 August 2021

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210818
Date	18 August 2021 (Wednesday)
Time	13:40 – 14:10

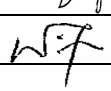
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	Follow-up on previous audit section (Ref. No.: 210811), all environmental deficiency was rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kenneth Leung		18 August 2021
Checked by	Dr. Priscilla Choy		18 August 2021

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210825
Date	25 August 2021 (Wednesday)
Time	13:30 – 14:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	Follow-up on previous audit section (Ref. No.: 210818), no major environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Ivy Tam		25 August 2021
Checked by	Dr. Priscilla Choy		25 August 2021

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210806
Date	6 August 2021 (Friday)
Time	9:30 – 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
210806-R01	• To establish the site drainage system so that the muddy surface runoff can be diverted to treatment facilities.	D1, D2, D3i, ii, D4, D5
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
210806-R02	• To establish a system for supervising the works to ensure the PMEs only operating between 0900 and 1700 near old Shenzhen River or other identified important ecologically sensitive areas (if any).	H10 & 11
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	• Follow-up on previous audit section (Ref. No.: 210730), follow up action is required for the item 210730-R01 which is renamed as 210806-R02.	

	Name	Signature	Date
Recorded by	Ivy Tam		6 August 2021
Checked by	Dr. Priscilla Choy		6 August 2021

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	210811
Date	11 August 2021 (Wednesday)
Time	14:00 – 15:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
210811-R01	• Clear the soil materials and avoid blockage of gully at site entrance.	D 7
210811-R02	• Properly direct and treat wheel washing water in treatment facility.	D 7
210811-R03	• To establish the site drainage system so that the muddy surface runoff can be diverted to treatment facilities.	D1, D2, D3i, ii, D4, D5
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	• Follow-up on previous audit section (Ref. No.: 210806), follow up action is required for the item 210806-R01 which is renamed as 210811-R03.	

	Name	Signature	Date
Recorded by	Kenneth Leung		11 August 2021
Checked by	Dr. Priscilla Choy		11 August 2021

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210818
Date	18 August 2021 (Wednesday)
Time	15:00 – 15:20

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
210818-R01	• To improve the temporary site drainage system at the site entrance so that the muddy surface runoff has a designated channel to the interim gully before entering the sedimentation facilities.	D1, 2, 3i, 3ii., 4, 5, 7
210818-R02	• Properly clear the wheel washing facility to ensure it can function effectively.	D13ii, iii, iv.
210818-R03	• To establish the site drainage system so that the muddy surface runoff can be diverted to treatment facilities especially at the excavation area.	D1, 2, 3i, 3ii., 4, 5, 7
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	• Follow-up on previous audit section (Ref. No.: 210811), follow up action is required for the item 210811-R01 to R03 which are renamed as 210818-R01 and 210818-R03 respectively.	

	Name	Signature	Date
Recorded by	Ivy Tam		18August 2021
Checked by	Dr. Priscilla Choy		18August 2021

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210825
Date	25 August 2021 (Wednesday)
Time	14:30 – 15:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
210825-R04	• To enhance the dust suppression measures on site to avoid the dust impact.	B2
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
210825-R01	• To improve the temporary site drainage system at the site entrance so that the muddy surface runoff has a designated channel to the interim gully before entering the sedimentation facilities.	D1, 2, 3i, 3ii., 4, 5, 7
210825-R02	• Properly clear the wheel washing facility to ensure it can function effectively.	D13ii, iii, iv.
210825-R03	• To establish the site drainage system so that the muddy surface runoff can be diverted to treatment facilities especially at the excavation area.	D1, 2, 3i, 3ii., 4, 5, 7
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	• Follow-up on previous audit section (Ref. No.: 210818), follow up action is required for the item 210818-R01 to R03 which are renamed as 210825-R01 to R03 respectively.	

	Name	Signature	Date
Recorded by	Ivy Tam	Ivy	25 August 2021
Checked by	Dr. Priscilla Choy		25 August 2021

APPENDIX M
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
Construction Dust Impact							
S3.8	D1-DP1/DP2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road is proposed to achieve dust removal efficiency of 92.1%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.6 L/m2 to achieve the respective dust removal efficiencies	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	^
S3.8	D2-DP1/DP2	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation • All vehicles shall be shut down in intermittent use • Only well-maintained plant should be operated on-site to avoid emission of dark smoke • Valid No-Road Mobile Machinery (NRMM) labels should be provided to regulated machines	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	^ ^ ^
S3.8	D2-DP1/DP2	• Following dust suppression measures should also be incorporated by the Contractor to control the dust nuisance throughout the construction Phase • 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 materials 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 be extend beyond the pedestrian barriers, fencing or traffic cones; • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty material do not leak from	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	^ * ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		the vehicle; • Where practicable, vehicle washing facilities with 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					^ ^ ^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		impervious sheeting or placed in an area sheltered on the top and the 3 sides; • 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; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; 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.					N/A N/A ^
S3.8	D4-DP1/DP2	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	^
Construction Noise Impact							
S4.8	N-CP1-DP1/DP2	Implement the following good site management practices: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; silencers or mufflers on construction	Control construction airborne noise	Contractor	All construction sites	Construction stage	^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		equipment should be properly fitted and maintained during the construction works; • Mobile plant should be sited as far away from NSRs as possible and practicable; • Material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.					^ ^
S4.8	N-CP2-DP1/DP2	Install temporary site hoarding (approx 2.4m high) located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites where practicable	Construction phase	^
S4.8	N-CP3-DP1/DP2	Install movable noise barriers and full enclosure, screen the noisy plants including air compressor and generator.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction phase	^
S4.8	N-CP4-DP1/DP2	Use of “Quiet” Plant and Working Methods	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction phase	^
S4.8	N-CP5-DP1/DP2	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction phase	^
S4.8	N-CP6-DP2	Setting the concrete lorry mixer at around 25m away from the existing NSRs along Ha Wan Tsuen Road and Lok Ma Chau Road	Reduce the noise levels from concrete lorry mixer	Contractor	Sections with NSRs along Ha Wan Tsuen Road and Lok	Construction phase	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
					Ma Chau Road		
S4.8	N-CP8-DP2	Provide temporary noise barrier during construction phase.	Control airborne noise from construction access road traffic	Contractor	Refer to Figure 4-8 of the EIA report	Construction phase	^
S4.8	N-CP7-DP2/N-CP6-DP1	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction phase	^
Water Quality Impact (Construction Phase)							
S5.7	W1-CP-DP1/DP2	Construction Runoff and Site Drainage In accordance with the Practice Note for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN 1/94), construction phase mitigation measures, where appropriate, should include the following: • Update and implementation of Stormwater Pollution Control Plan • At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. • Diversion of natural stormwater should be provided as far	Minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction phase	^ * *

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		as possible. The design of temporary on-site drainage should prevent runoff going through site surface, construction machinery and equipments in order to avoid or minimize polluted runoff. Sedimentation tanks with sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m3 capacities, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity shall be flexible and able to handle multiple inputs from a variety of sources and suited to applications where the influent is pumped. • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a silt/sediment trap. The silt/sediment traps should be incorporated in the permanent drainage channels to enhance deposition rates. • The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94. The detailed design of the sand/silt traps should be undertaken by the contractor prior to the commencement of construction. • Construction works should be programmed to minimize surface excavation works during the rainy seasons (April to September). All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.					* ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		• All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, it should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • All open stockpiles of construction materials (for example, aggregates, sand and fill material) of should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarized in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events. • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the					^ ^ * ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheelwash bay to prevent vehicle tracking of soil and silty water to public roads and drains. • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. • Regular environmental audit on the construction site should be carried out in order to prevent any malpractices. Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the meander, wetlands and fish ponds.					^ * ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
S5.7	W3-CP-DP1/DP2	*Groundwater from Contaminated Area* • No mitigation measure is required for groundwater treatment in LMC Loop. • Additional investigation is required to identify if contaminated groundwater is found. • If the investigation results indicated that the groundwater to be generated from construction works would be contaminated, the contaminated groundwater should be either discharged into recharged wells, or properly treated in compliance with the requirements of Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters. • If recharged well method were used, the groundwater quality in the recharged well should not be affected by recharging operation, i.e. the pollution levels of the recharged groundwater should not be higher than that in the recharging wells. • If treatment and discharge method were used, the design of wastewater treatment facilities, such as active carbon and petrol interceptor, should be submitted to the EPD and a discharge license should be obtained under the WPCO through the Regional Offices of EPD.	Minimize groundwater quality impact from contaminated area	Contractor	Areas where contamination is found.	Construction phase	N/A N/A N/A N/A N/A
S5.7	W3-CP-DP1/DP2	*Sewage from Workforce* • Portable chemical toilets and sewage holding tanks should be provided for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets to cater 0.15m3/day/employed populations and be responsible for appropriate disposal and maintenance.	Minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction phase	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		• Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project. • Regular environmental audit on the construction site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site.					^ ^
S5.7	W4-CP-DP1	*Riverbanks Formation* • In order to prevent sediment transport during riverbank works, deployment of silt curtain should be implemented, especially when construction works encroach or occur in close distance to water body. It is recommended to carry out all the riverbank works within a cofferdam or diaphragm wall. • Water quality of the Shenzhen River and the meander would be monitored to ensure effectiveness of the implemented mitigation measures.	Minimize water quality impact from riverbank works	Contractor	Riverbank works	Construction Phase	^ ^
S5.7	W1-CP-BR	*Bio-remediation in Shenzhen River* • Water quality monitoring and audit is recommended to ensure that the proposed bio-remediation operation would not result in adverse water quality impact. Details of the water quality monitoring programme are presented in the EM&A Manual. If unacceptable water quality impact in the receiving water is recorded, additional measures such as slowing down, or rescheduling of works should be implemented as necessary.	Minimize water quality impact from bio-remediation of Shenzhen River	Contractor	Shenzhen River where practicable	Construction phase	N/A
S5.7	W5-	*Construction of Bridge Crossing* • Good site management as stipulated in ProPECC PN1/94	Minimize water quality	Contractor	Construction	Construction	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
	CP-DP2	should be fully implemented to avoid polluted liquid or solid wastes from falling into the WSRs. • All the fishponds will be drained and no fishpond will be affected by bridge crossing. • In the meander, cofferdam or diaphragm walls should be deployed for protecting fish ponds or nearby rivers during bridge pier construction and or road widening work at fishponds. • For the low level viaducts crossing the small streams at Ma Tso Lung, Ping Hang and channel near Lung Hau Road, precast structures will be used such that there will be no construction work in the water streams, and thus, to avoid direct water quality impacts.	impact from construction of bridge crossing		sites for bridge crossing where practicable	phase	N/A N/A N/A
Waste Management (Construction Waste)							
S7.6	WM1-DP1/DP2	<u>*Waste Reduction Measures*</u> Waste reduction is best achieved at the planning and design phase, as well as by ensuring the implementation of good site practices. The following recommendations are proposed to achieve reduction: • Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal; • proper storage and site practices to minimize the potential for damage and contamination of construction materials; • plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; • sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions	Reduce waste generation	Contractor	All construction sites where practicable	Construction phase	^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		(i.e. soil, broken concrete, metal etc.); • provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.					^
S7.6	WM2-DP1/DP2	Prepare Waste Management Plan and submit to the Engineer for approval	Minimize waste generation during construction	Contractor	All construction sites	Construction phase	^
S7.6	WM2-DP1/DP2	*Good Site Practice* The following good site practices are recommended throughout the construction activities: • Nomination of an approved personnel, such as a site manager, to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; • Training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling; • Provision of sufficient waste disposal points and regular collection for 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;	Minimize waste generation during construction	Contractor	All construction sites	Construction phase	^ ^ ^ ^ ^
S7.6	WM4-DP1/DP2	*Storage of Waste* The following recommendation should be implemented to minimize the impacts: • Waste such as soil should be handled and stored well to	Minimize waste generation during construction	Contractor	All construction sites	Construction phase	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		ensuresecure containment; • Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; • Different locations should be designated to stockpile each material to enhance reuse;					* ^
S7.6	WM5-DP1/DP2	<u>*Collection and Transportation of Waste*</u> The following recommendation should be implemented to minimize the impacts: • Remove waste in timely manner; • Employ the trucks with cover or enclosed containers for waste transportation; • Obtain relevant waste disposal permits from the appropriate authorities; and • Disposal of waste should be done at licensed waste disposal facilities.	Minimize waste impact from storage	Contractor	All construction sites	Construction phase	^ ^ ^ ^
S7.6	WM6-DP1/DP2	<u>*Excavated and C&D Material*</u> Wherever practicable, C&D materials should be segregated from other wastes to avoid contamination and ensure acceptability at Public Fill Reception Facilities areas or reclamation sites. The following mitigation measures should be implemented in handling the excavated and C&D materials: • Maintain temporary stockpiles and reuse excavated fill material for backfilling; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; and • Implement a trip-ticket system for each works contract to	Minimize waste impacts from excavated and C&D material	Contractor	All construction sites	Construction phase	^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		ensure that the disposal of C&D materials are properly documented and verified. The recommended C&D materials handling should include: • On-site Sorting of C&D Materials • Reuse of C&D Materials • Use of Standard Formwork and Planning of Construction Materials Purchasing • Provision of Wheel Wash Facilities Details refer to Section 7.6.1.4 of the EIA report.					^ ^ ^ ^
S7.6	WM7-DP1/DP2	*Contaminated Soil* As a precaution, it is recommended that standard good site practice should be implemented during the construction phase to minimize any potential exposure to contaminated soils or groundwater. The details of mitigation measures to minimize the potential environmental implications arising from the handling of contaminated materials refer to Land Contamination Section.	Remediate contaminated soil	Contractor	All construction sites where applicable	Construction phase	N/A
S7.6	WM8-DP1/DP2	*Chemical Waste* • If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producers. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in	Control the chemical waste and ensure proper storage, handling and disposal	Contractor	All construction sites	Construction phase	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		accordance with the Waste Disposal (Chemical Waste) (General) Regulation.					
S7.6	WM9-DP1/DP2	*General Waste* • General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling. • Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean. • A reputable waste collector should be employed to remove general refuse on a daily basis.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction phase	^ ^ ^
S7.6	WM10-DP1/DP2	*Sewage* • The WMP should document the locations and number of portable chemical toilets depending on the number of workers, land availability, site condition and activities. • Regularly collection by licensed collectors should be arranged to minimize potential environmental impacts.	Minimize production of sewage impacts	Contractor	All construction sites	Construction phase	^ ^
S7.6	WM11-DP2	*Sediment* The following mitigation measures are recommended during transportation and stockpiling: • stockpiling area(s) must be properly designed and closed to the dredging locations as far as possible; • Stockpiling area(s) should be lined with impermeable	Minimize waste impacts from sediment	Contractor	All construction sites	Construction phase	N/A N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		sheeting and bunded; • stockpiles should be properly covered by impermeable sheeting; • vehicles delivering the sediments should be covered, and truck bodies and tailgates should be sealed to prevent any discharge during transportation; • bulk earth moving equipments should be utilized as much as possible to minimize workers' handling and contact of the excavated materials; and • personal protective clothing should be provided to site workers. In case contamination of excavated materials is confirmed after testing, the mitigation measures described in Land Contamination Impacts section should also be implemented to minimize potential environmental impacts.					N/A N/A N/A N/A
Land Contamination							
S8.7	LC1-DP2	*Remediation of arsenic-contaminated soil* • "Solidification/Stabilization" (S/S) treatment method was proposed for the remediation of arsenic-contaminated soil. Toxicity Characteristic Leaching Procedure (TCLP) test should be undertaken after S/S in order to ensure that the contaminant will not leach to the environment. Unconfined Compressive Strength (UCS) test should be conducted, and not less than 1MPa should be met prior to the backfilling	To remediate arsenic-contaminated soil	Project Proponent/ Contractor	LMC Loop, contaminated area	Prior to commencement of construction works within the contaminated area	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		or stockpiled for future reuse within the study area. Off-site disposal or reuse of the solidified material is not allowed.					
S8.7	LC1-DP1/DP2	*Excavation and Transportation* • Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; • In case the soil to be excavated is situated beneath the groundwater table, it may be necessary to lower the groundwater table by installing well points or similar means; • Excavation should be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils; • Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be properly covered by impermeable sheeting to reduce dust emission during dry season or contaminated run-off during rainy season. Watering should be avoided on stockpiles of contaminated soil to minimize contaminated runoff; • Supply of suitable clean backfill material after excavation, if required; • Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or contaminated run-off, and truck bodies and tailgates should be sealed to prevent any discharge during transport or	To minimise the potential environmental impacts arising from the handling of contaminated materials	Contractor	Contaminated area		N/A N/A N/A N/A N/A N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		during wet season; • Speed control for the trucks carrying contaminated materials should be enforced; and • Vehicle wheel washing facilities at the site's exit points should be established and used.					N/A N/A
S8.7	LC3-DP1/DP2	*Solidification/Stabilization* • The loading, unloading, handling, transfer or storage of cement should be carried out in an enclosed system; • Mixing process and other associated material handling activities should be properly scheduled to minimise potential noise impact and dust emission; • The mixing facilities should be sited as far apart as practicable from the nearby noise sensitive receivers; • Mixing of contaminated soil and cement / water / other additive(s) should be undertaken at a solidification plant to minimise the potential for leaching; • Runoff from the solidification / stabilization area should be prevented by constructing a concrete bund along the perimeter of the solidification / stabilization area; • The run-off contained in the concrete bund area along the perimeter of the paved solidification / stabilization area, if any, will be collected, stored and used for the mixing process of cement / contaminated soil; • If stockpile of treated soil is required, the stockpiling site(s)	To minimize the potential environmental impacts arising from the handling of contaminated materials	Contractor	Contaminated area	The course of remediation	N/A N/A N/A N/A N/A N/A N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		should be lined with impermeable sheeting and bunded. • Stockpiles should be properly covered by impermeable sheeting to reduce dust emission during dry season or site run-off during rainy season; and If necessary, there should be clear and separated areas for stockpiling of untreated and treated materials.					N/A
Landscape and Visual Impact (Construction Phase)							
S11.5.4 Table11.5 .9	L-CP1-DP1	*Preservation and Protection of Existing Trees (Good Site Practice)* • The proposed works should avoid disturbance to the existing trees within and close to the works areas. The tree preservation proposals shall be coordinated with the layout and design of the engineering and architectural works at detailed design phase for further retention of individual trees. • It is recommended that a full detailed tree survey and felling application will be undertaken and submitted for approval by the relevant government departments in accordance with ETWB TCW No. 3/2006, 'Tree Preservation'. This will be conducted during the detailed design phase of the project and submitted to DLO for approval. The methodology and scope including the programme for the tree survey and felling application are also subject to the approval of the relevant authorities. • Trees which are not in conflict with the proposals would be	Avoid disturbance and protection of existing trees	Detailed design consultant/ Contractor	Within project site	Detailed design and construction phase	^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		retained and shall be protected by means of fencing during construction phase to prevent damage to tree canopies and root zones from vehicles and storage of materials. • Specifications for the protection of existing trees will be provided during the preparation of the detailed tree survey by Detailed Design consultants at detailed design and construction phase.					^
S11.5.4 Table 11.5.9	L-CP2-DP1/DP2	*Works Area and Temporary Works Areas (Good Site Practice)* • The construction sequence and construction programme shall be optimized in order to minimize the duration of impact. • Construction site controls shall be enforced including the storage of materials, the location and appearance of site accommodation and site storage; and the careful design of site lighting to prevent light spillage. • The temporary works areas shall be restored to its original condition or enhanced through the introduction of new amenity areas or planting areas following the completion of the construction phase.	Minimize landscape impacts	Contractor	The whole project area where applicable	Construction phase	^ ^ ^
	L-CP3-DP1/DP2	*Advance Implementation of Mitigation Planting* • Replanting of existing / disturbed vegetation shall be undertaken at the earliest possible stage of the construction phase of the project using predominantly native plant species although ornamental species may be used for	Minimize landscape impacts	Contractor	The whole project area where applicable	Construction phase	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		roadside planting and amenity areas.					
	L-CP4-DP1/DP2	<u>*Transplantation of Existing Trees*</u> • Some specimens have relatively higher amenity value which are in conflict with the proposals shall be considered for transplantation. For trees affected by the proposed infrastructure works the final receptor sites shall be preferably adjacent to their current locations alongside of the alignment to retain their contribution to the local landscape context. For the LMC Loop the receptor locations will be selected to allow the trees to be moved directly to their final locations in accordance with the detailed landscape proposals. • The transplanting proposals are subject to review at the detailed design phase and to agreement-in-principle with the relevant management and maintenance agents and/or government departments. The implementation programme for the proposed works shall reserve sufficient time for the advanced tree transplanting preparation works to enhance the survival of the transplanted trees. • The transplanting proposals will be subject to the findings of the detailed tree survey and felling application to be undertaken by the detailed design consultants and following approval by the relevant departments.	Minimize landscape impacts	Contractor	The whole project area where applicable	Construction phase	^ ^ ^
	L-CP6-	<u>*Creation of Wetland and Landscape Buffer*</u>	Compensation of the loss	Project	The whole	Detailed design,	

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
	DP1/DP2	• The existing reedbed acquired for development areas for the project will be reinstated as part of the Ecological Area. The reinstatement shall be undertaken at the earliest possible stage during the construction phase of the project. • Creation of 12.78ha of Ecological Area (EA) containing reed marsh and marsh will be created at the southern portion of the LMC Loop, and a 50m width landscape buffer area will be set up in between the EA and the development area. Wetland creation concepts please refer to Figure 11.9zf and Chapter 12 Ecology Impact Assessment of this EIA. • Native tree and shrub mix will be utilised for the creation of landscape buffer along northern edge of EA to support the creation of avifauna habitat from ecologist perspectives as well as enhance the aesthetic and landscape diversity within the LMC Loop Development. • Creation of minimum 11.72 Ha. of permanent compensatory off-site wetland areas at Sam Po Shue and Hoo Hok Wai. For the potential locations for off-site wetlands please refer to Figure 11.9zf and 11.9zh, Chapter 2 Project Description and Chapter 12 Ecology Impact Assessment of this EIA.	of landscape resources	Proponent/ Detailed design consultant/ Contractor/ Operator	project area where applicable	construction and operational phases	^ ^ ^ N/A
	V-CP5-DP1/DP2	*Coordination with Concurrent Projects* • Coordinated implementation programme with concurrent projects to minimise impacts and where possible reduce the period of disturbance.	Minimize landscape impacts	Contractor	The whole project area where applicable	Construction phase	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
Ecology (Construction Phase)							
S12.7	E1-DP1	*Disturbance to Fish Ponds at HHW* • Development set back a minimum of 23m from the edge Meander. • Management of fish pond habitat to enhance ecological value to twice existing value, in order to compensate for disturbance to large waterbirds. • Creation and establishment will occur prior to commencement of substantive works associated with any element of the project for which fish pond compensation is required. *Construction phase* • Erection of a 3m high, dull green site boundary fence to minimise disturbance to wetland habitats caused by human activity in LMC Loop.	On the disturbance to fish ponds at HHW	Detailed design consultant/ Contractor	Fish ponds at HHW and LMC	Detailed design, construction phase	N/A N/A N/A ^
S12.7	E2-DP1	*Construction run-off* • Temporary sewerage and drainage will be designed and installed to collect wastewater and prevent it from entering nearby water bodies; • Proper locations well away from nearby water bodies will be used for temporary storage of materials (i.e. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction debris and spoil, and these will be identified before commencement of works;	Minimise the indirect impact from the increasing suspended solids and pollutants in LMC Meander	Contractor	Seawall,	During construction	^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		• To prevent muddy water entering nearby water bodies, work sites close to nearby water bodies will be isolated, using such items as sandbags or silt curtains with lead edge at bottom and properly supported props. Other protective measures will also be taken to ensure that no pollution or siltation occurs to the water gathering grounds of the work site; • If temporary access along a riverbed is unavoidable, this will be kept to the minimum in width and length. Temporary river crossings will be supported on stilts above the river bed; • Stockpiling of construction materials, if necessary, will be properly covered and located away from nearby water bodies; • Construction debris and spoil will be covered and/or properly disposed of as soon as possible to avoid being washed into nearby water bodies; • Construction effluent, site run-off and sewage will be properly collected and/or treated. Wastewater from any construction site will be minimised via the following in descending order: reuse, recycling and treatment; • Proper locations for discharge outlets of wastewater treatment facilities well away from sensitive receivers will be identified (i.e. treated wastewater will not be discharged into LMC Meander, natural streams, marsh, reedbed, active or					^ ^ ^ * ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		abandoned fish ponds); • Adequate lateral support will be erected where necessary in order to prevent soil/mud from slipping into the Ecological Area or LMC Meander; • Site boundary will be clearly marked and any works beyond the boundary strictly prohibited; • Regular water monitoring and site audit will be carried out at adequate points along LMC Meander, and at the outfalls of the natural streams around LMC Loop. If the monitoring and audit results show that pollution occurs, adequate measures including temporarily cessation of works will be considered.					^ ^ ^
S12.7	E3-DP1/DP2	*Pollutant Runoff to Downstream areas from Accidental Spillage* • Prepare an emergency contingency plan The plan will include, but not be limited to, the following: - Potential emergency situations; - Chemicals or hazardous materials used on-site (and their location); - Emergency response team; - Emergency response procedures; - List of emergency telephone hotlines; - Locations and types of emergency response equipment; - Training plan and testing for effectiveness.	Minimize indirect impact from pollutant runoff to downstream areas from accidental spillage	Contractor/ Operator	Area within project site near streams	Construction phase and operation phase	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
S12.7	E4-DP1/DP2	• Use opaque, non-transparent, non-reflective noise barriers for all developments associated with the Project. • Design of buildings should not incorporate use of night-time lighting at or near top of buildings, highly reflective materials should not be used where vegetation is adjacent and glass surfaces should not be angled upwards in a way that reflects the sky. Unnecessary lighting should be eliminated. Appropriate glass and façade treatments should be used where required to minimise impact. Unnecessary lighting should be avoided. These include the following: • Fritting, or the placement of ceramic lines or dots on glass, has little effect on the human-perceived transparency of the window but creates a visual barrier to birds outside. This treatment also has the advantage of reducing air conditioning loads by lowering heat gain, while still allowing light transmission for interior spaces. It is most successful when the frits are applied on the outside surface. Frosted glass has similar effects. • Angled glass may be used only for smaller panes in buildings with a limited amount of glass. • The use of glass that reflects UV light (primarily visible to birds, but not to humans) acts to reduce collision. • Film and art treatment allow glass surfaces to be used a	Minimize the mortality impacts on birds	Developer / Detailed design consultant/ contractor/ operator	Area within project site	Detailed design, construction and operation phases	^ ^ ^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		medium of expression, often related to the nature and use of the building, as well indicating to birds their impenetrability. • Lightweight external screens can be added to windows or become a façade element of larger buildings, and are suitable where non-operable windows are prevalent, which is often the case in modern buildings in HK. In terms of reducing night-time mortality impacts, eliminating unnecessary lighting is one of the easiest methods, and has the added advantage of saving energy and expense. Potential impacts of nocturnal avian collision with buildings should be minimised by not creating sky glow from the use of night-time lighting at or near the top of buildings or other structures. In addition to avoiding uplighting, light spillage should be minimised, while green and blue lights should be used where possible. As far as possible, lights should be controlled by motion sensors, and building operations should be managed in such a way as reduce or eliminate night lighting near windows. The potential advantages of removing unnecessary lighting in terms of reducing the carbon footprint of the LMC Loop development are obvious.					^
S12.7	E5-DP1/DP2	• Minimize loss of natural vegetation along LMC Meander, and suitable replacement planting with possible installation of otter holts and the provision of potential feeding area and spraint locations for otters in the stabilized bank subject to detailed design. • No significant change to velocity of water flow, water level or water quality.	Minimize impacts on Eurasian Otter	Detailed design consultant/ Contractor	Construction site within the project	Detailed design, construction phase	^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		• No direct lighting on Meander. • 3m high, dull green site boundary fence for all developments associated with the project. • Pre-construction surveys for otter holts or natal dens will be conducted in LMC Loop before the commencement of construction works. Work in the area of any otter holt found to cease pending examination by experienced Ecologist. If in use for breeding, works in the area will temporarily stop until end of breeding activity. • No construction activities within 100m of LMC Meander between one hour prior to sunset and one hour after sunrise. • Provision of compensatory reed marsh in the Ecological Area in LMC Loop, including open water channels and islands within the reed marsh, both of which features are considered to be used by the species.					^ ^ ^ * ^
S12.7	E8-DP2	• Refer to E2 and E3	Prevent impacts on Rose Bitterling, small snakehead and *Somanniathelphus zanklon*	Contractor	Within project site	Construction phase	N/A
S12.7	E10-DP1	• Preserve undisturbed, semi-natural habitat conditions of LMC Meander and adjacent areas of LMC Loop up to approximately 150m in width in order to avoid disturbance	Minimize impacts on flight line corridor from LMC Loop development	Developer / Detailed design	Within project site	Detailed design, construction and operation	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		to core part of flight line corridor. • This area to comprise an Ecological Area largely constituting reed marsh and a 50m wide buffer zone densely planted with shrubs and trees. Small number of low buildings (max 14mPD high, except the building height of on-site STW is 15mPD high) allowed in inner 25m of this area at a plot ratio of 0.1. • At Ha Wan Tsuen entry point for many birds to LMC Loop area provide a wider Ecological Area to minimize disturbance from nearby buildings. • Further minimisation of impact by maintaining a lower building height in areas adjacent to the buffer zone for the EA. In addition, the sewage treatment works, which is located near the point where many birds cross from the Meander to HHW, should not exceed 15mPD.		consultant/ Contractor/ Operator		phases	^ N/A N/A
S12.7	E11-DP1	• Employ site boundary fence as long as possible. Use of movable barrier for more intense site formation activity. Provision of fencing with 30cm gap between the existing reed marsh and LMC Meander during the establishment period of Ecological Area and the gap will be closed once established. • Restrict work to period from 0900h to 1700h. All major works along the edge of LMC Meander and in the Ecological Area will be conducted in the wet season.	Minimize disturbance impacts of mitigation provisions	Contractor	Within project site	Construction phase	^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
S12.7	E12-DP1/DP2	• Minimal night-time lighting • No direct light on Meander	Minimize impacts on LMC Meander	Contractor/ Operator	All	Construction and operation phases	^ ^
S12.7	E13-DP2	• Construction limited to wet season between the hours of 9am and 5pm. • Use of opaque visual/noise barriers and planting of trees shrubs along length of road adjacent to fish ponds. • Compensatory habitat management elsewhere to mitigate wetland loss.	Minimize impacts from the construction and operation disturbance impacts	Contractor/ Operator	Pond habitat along alignment (mainly Ha Wan Tsuen Road)	Construction and operation phases	* ^ ^
S12.7	E16-DP1	• Provision of compensatory reed marsh in the Ecological Area will provide habitat suitable for Common Evening Hawker. • Measures designed to protect other fauna and water quality will generally benefit odonata.	Protect Odonata	Project Proponent/ Detailed design consultant/ Contractor Operator	Ecological area	EA established prior to construction and manage at all phases	^ ^
S12.7	E14-DP2	• Replacement planting of native tree species relevant to Deep Bay area and the area impacted. Planting to occur in tandem with that required for woodland loss arising	Minimize the ecological impacts	Contractor	Woodland and shrubland habitat along Ha Wan Tsuen Road	Construction phase	^
S12.7	E15-DP2	• Use noise/visual barriers to minimise disturbance. • Construction activities should not be carried out before 0900h or after 1700h in order to minimise disturbance to the	Minimize impacts on flight line corridor from Western Connection	Contractor	Construction site from Western	Construction phase	^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		flight line corridor (and to mammals).	Road		Connection Road		
S12.7	E16-DP2	• Use of opaque visual/noise barriers and roadside planting of trees and shrubs to minimize disturbance impacts.	Minimize impacts on flight line corridor from Western Connection Road	Project Proponent/ Detailed design consultant/ Contractor Operator	Construction site from Western Connection Road	Detailed design, construction and operation phases	^
Fisheries (Construction Phase)							
S13.7	F4-	• Reprovision of replacement Artificial Reefs(of the same volume as the existing ARs inside Marine Exclusion Zone)	Mitigate water quality impacts on the existing ARs	Project proponent	To be determined	Construction phase or operation phase	N/A
S11.7	F2	• Reduce re-suspension of sediments • Limit dredging and works fronts. • Good site practices • Strict enforcement of no marine dumping • Spill response plan	Minimise marine water quality impacts	Contractor	Seawall	During construction	N/A N/A N/A N/A N/A

Remarks: ^ Compliance of mitigation measure

* Recommendation was made during site audit but improved/rectified by the contractor

\# Recommendation was made during site audit but not yet improved/rectified by the contractor.

N/A Not Applicable at this stage as no such site activities were conducted in the reporting period (e.g. concrete batching plan, barging point, seawall dredging and filling, bored piling, landscaping works etc)

APPENDIX N
WASTE GENERATION IN THE REPORTING MONTH

生興 － 豐利聯營
Sang Hing – Kuly Joint Venture

Monthly Summary Waste Flow Table for 2021 **Contract No.: YL/2017/03**

Month in Year 2021	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated	Hard Rock and Large Borken Concrete	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics (See note 3)	Chemical Waste	Other, e.g. Yard Waste	Other, e.g. general refuse
	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000m^3]
Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.12
Feb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.08
Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.12
Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.07
May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.04
June	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.05
July	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.07
August	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.07
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 (*)	0 (*)	0.00	0.00	0.62

Note: (1) Conversion to 1000m^3 for general refuse is number of truck dumped multiply by 13.5 m3 (volumn of rubbish skip on site)
(2) Conversion to 1000m^3 for Inert C&D is weight in 1000kg multiply by 0.0005
(3) Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material
(*) Represents the waste generated is negligible

Year 2019 (Jan - Dec)	Actual Quantities of Inert C&D Materials Generated						Actual Quantities of C&D Wastes Generated					
	Total Quantity Generated	Hard Rock and Large Borken Concrete	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics (See note 3)	Chemical Waste	Other, e.g. Yard Waste	Other, e.g. general refuse
	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000m^3]
TOTAL	0.0	0.0	149.0	0.0	0.0	100.5	0.0	0 (*)	0 (*)	0.13	0.00	1.49
Year 2020 (Jan - Dec)	Actual Quantities of Inert C&D Materials Generated						Actual Quantities of C&D Wastes Generated					
	Total Quantity Generated	Hard Rock and Large Borken Concrete	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics (See note 3)	Chemical Waste	Other, e.g. Yard Waste	Other, e.g. general refuse
	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000m^3]
TOTAL	0.0	0.0	101.0	0.0	0.0	54.7	0.0	0 (*)	0 (*)	0.11	17.80	0.94

Refer to Notes above.

Monthly Summary Waste Flow Table for 2021 (year)

Name of Person completing the record: Lila Lui (EO)

Development of Lok Ma Chau Loop : Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Contract No.: YL/2020/01

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)	Yard Waste	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 '000kg)	(in '000 kg)
Jan-21												
Feb-21												
Mar-21												
Apr-21												
May-21												
Jun-21												
Sub-total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Jul-21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aug-21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sep-21												
Oct-21												
Nov-21												
Dec-21												
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

APPENDIX O
COMPLAINT LOG

Appendix O - Complaint Log

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Complaint Nature	Investigation Fining	Status
1	9-Sep-19	EPD	EPD Ref: 25222-19	Water quality and air quality	Non-project related	Interim report was submitted to EPD on 23 Sep 2019
2	11-Oct-19	EPD	EPD Ref: 28550-19	Air quality	Non-project related	Interim report was submitted to EPD on 6 Nov 2019
3	30-Oct-19	EPD	EPD Ref: 30478-19	Air quality	Non-project related	Interim report was submitted to EPD 14 Nov 2019
4	10-Dec-19	1823 (CEDD)	1823 Case no: 2-6145710343	Noise and air quality	Non-project related	Final reply to 1823 on 24 Dec 2019. IR prepared by Contractor was agreed by IEC and ET
5	5-Mar-21	1823	1823 Case no: 3-6641544979	Air quality	Non-project related	Final reply to 1823 on 11 Mar 2021. IR prepared by Contractor was agreed by IEC and ET

APPENDIX P
SUMMARY OF SUCCESSFUL PROSECUTION

Appendix P - Summary of Successful Prosecution

Date of Successful Prosecution	Details of the Successful Prosecution	Status	Follow Up
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APPENDIX Q
PHOTO RECORDS OF ECOLOGICAL SURVEY (MAMMALS)

Appendix Q – Photographic Records of Ecological Monitoring (Otter and Mammals)	
Camera A	
Position of camera	

Camera B	
Position of camera	Brown Rat (*Rattus norvegicus*)

Camera C	
Position of camera	