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 January 2022

(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/L045
Date : 17 February 2022

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 (January 2022)

Reference is made to the Monthly Environmental Monitoring and Audit (EM&A) Report of certified by the Environmental Team Leader in February 2022. 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. David Wong	By Email
	AECOM	Mr. Eric Wong	By Email
		Mr. Terrant Cheung	
	Wellab Limited	Dr. Priscilla Choy	By Email

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EXECUTIVE SUMMARY

Introduction

1. This is the 37th 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 January 2022 (hereinafter called "the reporting month").

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

- 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")
- Contract No.: YL/2020/02 – 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 (hereinafter called the "Contract 2")

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	4th, 10th, 14th, 20th, 26th and 31st January 2022
	24-hr TSP Monitoring	3rd, 7th, 13th, 19th, 25th and 31st January 2022
Construction Noise	$L_{eq30mins}$	4th, 10th, 20th, 26th and 31st January 2022
Water Quality	• Temperature • pH • Turbidity • Water depth • Salinity • Dissolved Oxygen (DO) • Suspended Solids (SS)	3rd, 5th, 7th, 10th, 12th, 14th, 17th, 19th, 21st, 24th, 26th, 28th, 31st January 2022
Ecological	Avifauna flight line survey	21st January 2022
	Mammal monitoring (by infra-red flash cameras)	Throughout the reporting month
Site Environmental Audit	Environmental protection and pollution control measures	5th, 12th, 19th, 26th, 31st January 2022

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 Project	Corrective Action
Air Quality	1-hr TSP	0	0	--	0	--
	24-hr TSP	0	0	--	0	--
Construction Noise	Daytime Leq(30min)	1	0	Refer to Section 11	0	Refer to Section 11
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. One Action Level exceedance was recorded due to the noise complaint received by EPD on 2nd January 2022. No Limit Level exceedance was recorded.

Water Quality

8. All water quality monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Ecological Monitoring

Avifauna

9. Avifauna monitoring was conducted as scheduled in the reporting month. Flight lines recorded were in general concentrated mainly on LMC Meander and adjacent areas including Ecological Area Zone (EA Zone) and along Shenzhen River. The vast majority of Great Cormorants using the flight line over the centre of LMC Loop. No significant impacts on the flight line were observed in the reporting month.

Mammals

10. Mammals monitoring was conducted in the reporting month. Eurasian Wild Pig (*Sus scrofa*) and Domestic Dog (*Canis lupus familiaris)* were captured by infra-red flash cameras.

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

Land Contamination

12. Decontamination for five arsenic-contaminated zones (LD01 - LD05) identified in LMC Loop was completed and the final Remediation Report was submitted and approved by EPD in accordance with Condition 2.16 of the EP-477/2013/A under Contract No. YL/2017/03.

13. No work related to land contamination was conducted in the reporting month.

Site Environmental Audit

14. 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 Project 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/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	5th, 12th, 19th, 26th, 31st January 2022
Contract No.: YL/2020/02 – 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	5th, 12th, 19th, 26th, 31st January 2022

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

Complaint Log

16. One environmental complaint related to construction noise was received in the reporting month.

Notification of Summons and Successful Prosecutions

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

Reporting Change

18. 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

19. Major site activities for the coming reporting months will include:

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) Completion of Wetland Compensation Areas at Portion 2 and 3 Outstanding Works (Hydro-seeding of pond bunds, vegetation, fencing, rectification of damaged trees and remaining site clearance.)

(b) Completion of Temporary Access Roads (TAR1, TAR2) Outstanding Works

(c) Commencement of TAR3 Construction

(d) Pre-drilling and Piling for Meander Bridge Foundation

(e) Meander Bridge – Formation of Access Road for Construction of Abutments and Piers

(f) Instrumentation Installation at Portion 15.2, Portion 15.2A, Portion 15.2B, Portion 15.3, Portion 15.4 and Portion 15.5

(g) Granular Fill Laying at Portion 15.5

(h) PVD Installation at Portion 7, Portion 8, Portion 15.1, Portion 15.2, Portion 15.2b

(i) General Fill to Surcharge Laying at Portion 7 and Portion 8

(j) Pre-condition survey and UU detection at Portion 6 (WCR)

(k) Subletting of Works for Road D1 & L1, Box Culverts and Meander Bridge and Sewage Treatment Works (STW) Buildings

(l) Subletting and Site Clearance of Western Connection Road (WCR)

(m) Road D1 Excavation and Granular Bedding

(n) Site Clearance and Pre-drilling at Box Culvert A1 at Portion 18A and Portion 18C

(o) Pai Lau Steel Decking Installation and Sheetpile Driving

(p) Pre-condition survey and UU detection at Portion 6 (WCR)

(q) WCR Stage 1 Construction: Demolition of Existing Structures, Excavation, DCM and Retaining Wall

Contract No.: YL/2020/02 – 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

(a) Tree Survey (Remaining frontier closed area) / Tree Felling

(b) Initial Survey

(c) Underground Utility Detection

(d) Pre-construction Condition Survey

(e) Erection of Contractor' s Site Office

(f) Pre-drilling and Trial Pits (DRL-P11, P12, P13 Abutment AP and AP01), (ST01-P02 & P03) & (CTFB-FBA-01, FBP-01, FBP-02 and FBP-05)

(g) Construction of Reedbed Cell No. 3A (Laying Geomembrane, drainage, filling of plant soil, planting of reed, hydroseeding, pilot test, commission of Reedbed Cell No. 3A and decommission of Reed Cell No. 3)

(h) Site Clearance and Forming Access for Cut Slopes CS1, CS2 and Retaining wall BPW1

(i) Erection of Temporary Noise Barrier (TNB 5, TNB 12 & TNB 17) along the Lok Ma Chau Road

(j) Box Culvert Diversion at Lok Ma Chau Road (Stage 1) subjected to TMLG and MTRC

(k) Demolition of Existing Structures along Lok Ma Chau Road

(l) Existing Cycle Track Subway Modification

(m) Construction of Retaining Wall

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 37th EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme in the period from 1st to 31st January 2022.

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. All construction works of Contract No. YL/2017/03 have been completed and the works were successfully handed over to AFCD and DSD on 30 December 2021.

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 Contract No.: YL/2020/02 – 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 (hereinafter called the "Contract 2") was awarded to China Road and Bridge Corporation (hereinafter called the "Contractor 3") in September 2021.

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

- 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")
- Contract No.: YL/2020/02 – 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 (hereinafter called the "Contract 2")

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

Table 2.1 Site Layout and Scope of Works under the Project

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 (Completed)	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 – 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) Site formation of 70ha for the Loop; b) Ground treatment by either surcharge and installation of vertical band drains or deep cement mixing method, and associated slopeworks, retaining wall, landscaping works; c) 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;	Figure 1b

Contract(s)	Scope of Works	Site Layout Plan
	d) Construction of bridge structure across old Shenzhen River meander; e) Temporary haul road linking Sai Kwo Road to the Loop; f) Ecological and environmental mitigation measures within the Loop including retention of reedbeds; g) Ecological and environmental mitigation measures outside the Loop including fishpond, off-site wetland and woodland compensation; and h) 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 No.: YL/2020/02 – 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	a) Remainder of Western Connection Road (WCR) comprising the following (excluding the first section WCR which is included in Contract 1) - Improvement of Lok Ma Chau (LMC) Road; - Provision of cycle track and footpath; - Construction of elevated cycle track cum footpath connecting Lok Ma Chau Road and Castle Peak Road – Chau Tau; - Associated noise mitigation measures; - Associated slope works, retaining wall and natural terrain mitigation works; and - Associated box culverts, drainage works and water works, street furniture and traffic aids, utilities and landscape works. b) LMC Road and San Tin Highway Connection - Construction of bridge structure connecting LMC Road and San Tin Highway; and - Junction Improvement works at Castle Peak Road and LMC Road. c) Construction of Direct Road Link (DRL) Phase 1 comprising a vehicular bridge structure with provision of covered pedestrian walkway linking LMC Station PT1 and Ha Wan Tsuen East Road.	Figure 1b

Project Organisation

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

Table 2.2 Key Contacts of the Project

Organization	Project 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
Lam Environmental Services Limited (LAM)	IEC	Mr. Raymond Dai	2839 5666	2882 3331
Contract No. YL/2020/01				
AECOM	Consultants	Mr. Eric Wong	9861 8664	TBA
CRCC-Kwan Lee-Paul Y. JV	Contractor	Site Agent – Mr. James Au	9879 8109	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- Mr. Ray Wong	9171 0919	27740197
Contract No. YL/2020/02				
AECOM	Consultants	Mr. Eric Wong	9861 8664	TBA
China Road and Bridge Corporation	Contractor	Site Agent – Raymond Suen	9779 8871	3996 9202
		Team Leader – Jackson Chan	9254 1635	3996 9202
		Team Leader – Billy Leung	9777 0799	3996 9202
		Deputy Team Leader – Roger Poon	9503 2488	3996 9202

		Senior Foreman – Po Hang Lam	9345 6134	3996 9202
		Senior Foreman – Ka Kit Chan	6088 7741	3996 9202
		Foreman – Philip Tse	5128 1232	3996 9202
		Environmental Officer – Calvin So	9724 6254	3996 9202
		Environmental Supervisor- Alice Ngai	9148 5688	3996 9202

Construction Programme

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

Summary of Construction Works Undertaken During Reporting Month

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

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) DCM Cluster Construction at Portion 7
(b) STW - IWPTB Foundation Pre-drilling
(c) Wetland Compensation Establishment Works and Ecological Monitoring
(d) Geotechnical Investigation (CPT) at Portion 15.2, Portion 15.3
(e) Ground leveling at Portion 18B, Portion 18C, Portion 18D, Portion 15.4
(f) Instrumentation Installation at Portion 18D,
(g) Portion 6 - WCR Site Clearance and UU detection
(h) Granular Fill at Portion 15.5
(i) PVD Installation at Portion 15.2b, Portion 19
(j) TAR1 T2 Railing, Road Lighting, Furniture, Beam Barrier and Footpath Concreting
(k) TAR2 Fencing, Drainage & Lamp Pole Installation
(l) TAR3 UU Detection and Site Formation
(m) Pre-drilling works for STW, Box Culvert and Meander Bridge

Contract No.: YL/2020/02 – 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

(a) Initial Survey
(b) Tree Survey

(c) Underground Utility Detection

(d) Temporary water supply/power supply

(e) Pre-construction condition survey

(f) Concrete Trial Mix 1st Plant trial conducted on 3-5 Jan 2022

(g) Pre-drilling works at ST01, CTFB and DRL

(h) Temporary Noise Barrier

(i) Retaining Wall BPW1 / CS1 / CS2 Site Clearance in progress

(j) Site clearance and forming of haul road at CTFB in progress

(k) Demolition of Existing Structures

(l) Construction of Reedbed Cell No. 3A (Laying Geomembrane & Drainage)

Status of Environmental Licences, Notifications and Permits

2.14 A summary of the relevant permits, licences, and/or notifications on environmental protection for the Project 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/2020/01 Contract No. YL/2020/02	EP-477/2013	22/11/2013	N/A	Valid
	EP-477/2013/A	12/08/2021	N/A	Valid
Construction Noise Permit (CNP)				
Contract No. YL/2020/01	GW-RN0901-21	9/12/2021	8/2/2022	Replaced by GW-RN0024-22 since 26/1/2022
	GW-RN0024-22	26/1/2022	25/3/2022	Valid
Contract No. YL/2020/02	--	--	--	--
Notification pursuant to Air Pollution Control (Construction Dust) Regulation				
Contract No. YL/2020/01	469726	21/07/2021	Till the Contract ends	Receipt acknowledged by EPD
Contract No. YL/2020/02	471916	20/09/2021	Till the Contract ends	Receipt acknowledged by EPD
Billing Account for Disposal of Construction Waste				
Contract No. YL/2020/01	7041333	27/07/2021	Till the Contract ends	Valid
Contract No. YL/2020/02	7041861	15/10/2021	Till the Contract ends	Valid
Registration of Chemical Waste Producer				
Contract No. YL/2020/01	WPN 5213-620-C4632-01	20/08/2021	Till the Contract ends	Valid

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
Contract No. YL/2020/02	WPN 5213-542-C1232-24	29/11/2021	Till the Contract ends	Valid
Effluent Discharge License under Water Pollution Control Ordinance				
Contract No. YL/2020/01	WT00039466-2021	22/12/2021	31/12/2026	Valid
Contract No. YL/2020/02	**--**	--	--	--

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 Project. **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 Project, 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	6
	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 Project 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

24-hour TSP Air Quality Monitoring

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	110.0	55.8 – 210.3	353	500
DMS – 2A	126.9	57.0 – 274.8	370	
DMS – 3	92.5	44.1 – 191.2	351	
DMS – 4A	98.0	41.0 – 172.9	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	76.1	50.4 – 109.8	184	260
DMS – 2A	81.8	44.6 – 115.6	166	
DMS – 3	48.7	13.7 – 75.3	166	
DMS – 4A	89.4	46.4 – 134.9	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. 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 traffic, exposed site area, site vehicle / equipment movement
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 general weather condition and 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 Project. Impact noise monitoring was conducted for at least once per week during the construction phase of the Project. **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 Project, 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	58.4	54.5 – 62.2	When one documented complaint is received.	75 dB(A)
NMS-2	67.9	66.3 – 68.9		
NMS-3	58.3	57.1 – 59.7		
NMS-4A	56.8	47.3 – 62.5		

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 Action and 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	Excavation works, loading and unloading works, site vehicle / equipment movement
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 Project, 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	2

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 Project

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 quality monitoring was conducted at IS6 in the reporting month due to the channel was dry.

IS6

5.36 Water quality monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Event and Action Plan

5.35 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 21st January 2022. Sunrise time at 7:05 am and the survey started at 6:35 am and lasted for 2 hours. The weather was fine throughout the survey.

Monitoring Result

6.14 Total number of birds observed was 629. Six species were included in the record of the flight line survey, including Black-faced Spoonbill, Little Egret, Great Egret, Grey Heron, Great Cormorant 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
Black-faced Spoonbill 黑臉琵鷺	9	0	0	9
Little Egret 小白鷺	60	10	38	12
Great Egret 大白鷺	18	4	5	9
Grey Heron 蒼鷺	1	1	0	0
Great Cormorant 普通鸕鷀	540	7	86	447
Black Kite 黑鳶	1	0	0	1
Total	629	22	129	478

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 6,805. **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
Black-faced Spoonbill 黑臉琵鷺	99
Little Egret 小白鷺	624
Great Egret 大白鷺	184
Grey Heron 蒼鷺	1
Great Cormorant 普通鸕鷀	5886
Black Kite 黑鳶	11
Total	6,805

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 including Ecological Area (EA) Zone and along Shenzhen River. The vast majority of Great Cormorants using the flight line over the centre of LMC Loop.

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 mammal, Eurasian Wild Pig (*Sus scrofa*) and Domestic Dog (*Canis lupus familiaris)* were captured by infra-red flash cameras. Summary of the monitoring results are presented in **Table 6.3**. Photographic records of the species from the cameras are presented in **Appendix R**.

Table 6.3 Summary of Monitoring Results for Mammals

Common Name	Species Name	Chinese Name	Conservation Status	Abundance		
				Camera A	Camera B	Camera C
Domestic Dog	*Canis lupus familiaris*	野狗	-	2	0	0
Eurasian Wild Pig	*Sus scrofa*	野豬		6	2	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.

7.5 No work related to land contamination was conducted in the reporting month.

8 WASTE MANAGEMENT

General

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

Solid and Liquid Waste Management Status

8.2 The amount of waste generated by the activities of the Project 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/2020/01	Inert	Reused in this Contract (Inert) (in '000 m^3)	1.472	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/2020/02		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	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)	1.730	NENT Landfill
Contract No. YL/2020/02		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)	0.131	NENT Landfill

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

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 Project site. The summaries of site audits are attached in **Appendix L**.

9.2 Site audits were conducted by ET with the representative of the Consultants, the Contractor and IEC on 5th, 12th, 19th, 26th, 31st January 2022 in the reporting month Summary of site audits under the Project 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/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	5th, 12th, 19th, 26th, 31st January 2022
Contract No.: YL/2020/02 – 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	5th, 12th, 19th, 26th, 31st January 2022

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/2020/01			
Water Quality	05/01/2022	The exposed slope at near the east side meander should be covered properly.	Improvement/ Rectification was observed during follow-up audit session on 12 January 2022.
	05/01/2022	To avoid the disposal of sediment at near the meander next to meander bridge.	Improvement/ Rectification was observed during follow-up audit session on 12 January 2022.
	12/01/2022	To enhance water mitigation measures around the stream and water channel at TAR1.	Improvement/ Rectification was observed during follow-up audit session on 19 January 2022.
	19/01/2022	To provide the slope protection works at near the pond at TAR1.	Follow up action is required for the next audit session.
	26/01/2022	To provide the slope protection works at near the pond at TAR1.	Improvement/ Rectification was observed during follow-up audit session on 31 January 2022.
Waste / Chemical Management	05/01/2022	Provide drip tray for the chemical containers at Portion 8.	Improvement/ Rectification was observed during follow-up audit session on 12 January 2022.
	05/01/2022	The oily water at the drip tray shall be cleared as chemical waste at Portion 8.	Improvement/ Rectification was observed during follow-up audit session on 12 January 2022.
	05/01/2022	Provide mitigation measures to avoid the land contamination from the repairing equipment at Portion 8.	Improvement/ Rectification was observed during follow-up audit session on 12 January 2022.
	26/01/2022	Drip tray should be provided for chemical storage. (Portion 8)	Improvement/ Rectification was observed during follow-up audit session on 31 January 2022.
Contract No. YL/2020/02			
Air Quality	26/01/2022	To ensure vehicles are cleaned properly off mud before leaving the site. (Reed bed 3A)	Improvement/ Rectification was observed during follow-up audit session on 31 January 2022.
	31/01/2022	Dusty stockpile at Fu Tai should be properly covered with tarpaulin.	Improvement/ Rectification was observed during follow-up audit session on 9 February 2022.
Water Quality	05/01/2022	The stockpile of sand and debris at near the water channel at TAR1shall be cleared / covered properly.	Improvement/ Rectification was observed during follow-up audit session on 19 January 2022.
	05/01/2022	Provide mitigation measure to avoid the muddy surface runoff discharge into the nearby nullah. (Fu Tai Site Area)	Improvement/ Rectification was observed during follow-up audit session on 19 January 2022.
	26/01/2022	To ensure vehicles are cleaned properly off mud before leaving the site. (Reed bed 3A).	Improvement/ Rectification was observed during follow-up audit session on 31 January 2022.
	31/01/2022	Slope near the nullah at TAR1 should be properly covered with tarpaulin.	Follow up action is required for the next audit session.
Landscape and Visual	19/01/2022	To provide the tree protection fencing for the retained trees at Reedbed 3A.	Improvement/ Rectification was observed during follow-up audit session on 26 January 2022.
	19/01/2022	The construction materials within the tree protection zone should be removed at LCS.	Improvement/ Rectification was observed during follow-up audit session on 26 January 2022.
	31/01/2022	Tarpaulin wrapping the particular tree	Follow up action is required for

Parameters	Date	Observations and Recommendations	Follow-up
		at Reed bed 3A should be properly removed.	the next audit session.
Ecology	05/01/2022	The stockpile of sand and debris at near the water channel at TAR1shall be cleared / covered properly.	Improvement/ Rectification was observed during follow-up audit session on 19 January 2022.
	12/01/2022	To remove the tarpaulin sheet and rope enclosed the retain trees at Reedbed 3A..	Improvement/ Rectification was observed during follow-up audit session on 19 January 2022.
	12/01/2022	Provide the tree protection zone for the retain tree at Reedbed 3A.	Improvement/ Rectification was observed during follow-up audit session on 19 January 2022.

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 Project 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	Ecological Area has been established under the Contract. 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;		
(d) creating a 23 m minimum width vegetated setback at the edges of the Loop along the southwestern and north-eastern sections of the meander;	N/A	Vegetated setback will be provided under Main Works Package 1
(e) installing 3m-high olive green fence around construction areas to allow or deter different animal passages where appropriate;	Yes	The Contractor was reminded to maintain and re-arrange the green fence around construction areas and ensure no disturbance to the exiting trees and reed marsh habitat.
(f) providing (i) permanent compensatory off-site wetland areas; and (ii) construction stage temporary compensatory off-site wetland areas during various construction stages of the Project, in advance of any corresponding wetland loss;	Yes	Creation of off-site wetland areas have been substantially completed.
(g) providing at least 0.4 ha woodland compensation area by planting trees and shrubs near Horn Hill, to compensate for the loss of woodland affected by the Western Connection Road (WCR) and other works of the Project;	N/A	To be implemented under Main Works Package 1
(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 works for noise barriers along Lok Ma Chau Road were completed under the Contract in October 2021. 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	Yes	**Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works**

EP Requirements	Compliance Status	Remarks
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) under this Condition shall be fully and properly implemented.		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 and approved in December 2021.
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 noise barriers (TNBs) along LMC Road were completed under the Contract in October 2021. (**Appendix N**) The remaining three 3m TNBs will be provided under the responsible works contract before the commencement of road widening works of Western Connection at the existing Lok Ma Chau Road.
(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	-

Ecological Mitigation Measures – Offsite Wetland Compensation Areas (OWCAs)

10.3 According to EIA Report, habitat loss and disturbance impacts are predicted for both construction and operation phase of the development of Lok Ma Chau Loop. All these impacts are expected to be compensated both temporarily (during construction phase) and permanently (during operation phase). Among other measures identified from EIA report to avoid, minimize and compensate for identified impacts, three areas of existing fishpond habitat (Areas 2, 7 and 9) were proposed in the EIA Report to provide OWCAs.

10.4 These Areas are located within a Priority Site for Enhanced Conservation, namely "Deep Bay wetlands outside the Ramsar site". Many of these fishponds are currently participating in the Nature Conservation Management Agreement Scheme in the Northwest New Territories, which has the objective of restoring and enhancing the conservation value of commercial fishponds in the area. In general, the activities involved in the establishment of OWCAs are in nature the same as those associated with commercial fishpond

management currently taking place in the area. Therefore, there are no direct implications for the ecological impacts OWCAs according to Section 12.7.9 of EIA report.

10.5 Under Environmental Permit (EP) number EP-477/2013/A, an Ecological Mitigation/ Habitat Creation and Management Plan (HCMP) is required for all habitat compensation measures required by the Project EIA. The OWCAs are established according to the HCMP which provides a framework and specifications for development and management of the OWCAs.

10.6 The OWCAs (Areas 2, 7 and 9) has been substantial completed and defect rectification works were conducted in the reporting month.

Ecological Mitigation Measures – Installation of 3m-high Olive Green Fence

10.7 In January 2022, the green fence around the future Ribbon Park Reedbed was properly maintained:

10.8 The Contractor was reminded to maintain and re-arrange the green fence around construction areas and ensure no disturbance to the exiting trees and reed marsh habitat.

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 and water quality monitoring.

11.3 One Action Level exceedance was recorded due to the noise complaint received by EPD on 2nd January 2022. No Limit Level exceedance for construction noise was recorded.

Summary of Environmental Complaint

11.4 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 P**.

11.5 There was one (1) environmental complaint received by EPD 2nd January 2022 concerning the noise from general construction work associated with the Lok Ma Chau Loop Development Project being carried out on 2.1.2022 at around 15:30 hours (i.e. within the restricted hours on Sunday). The details and status of the investigation are presented in Complaint Log as attached in **Appendix P**.

Table 11.1 Statistical Summary of Environmental Complaints

Reporting Period	**Environmental Complaint Statistics**		
	Frequency	**Cumulative**	**Project related complaint**
Jan 2019 – December 2021	7	8	1
January 2022	1		0

Summary of Notification of Summons and Successful Prosecutions

11.6 There was no prosecution or notification of summons received since the commencement of the Project. 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 Q**.

Table 11.2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Project related complaint
Jan 2019 – December 2021	0	0	0
January 2022	0		0

Table 11.3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Project related complaint
Jan 2019 – December 2021	0	0	0
January 2022	0		0

12 FUTURE KEY ISSUES

Key Issues in the Coming Months

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

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) Completion of Wetland Compensation Areas at Portion 2 and 3 Outstanding Works (Hydro-seeding of pond bunds, vegetation, fencing, rectification of damaged trees and remaining site clearance.)

(b) Completion of Temporary Access Roads (TAR1, TAR2) Outstanding Works

(c) Commencement of TAR3 Construction

(d) Pre-drilling and Piling for Meander Bridge Foundation

(e) Meander Bridge – Formation of Access Road for Construction of Abutments and Piers

(f) Instrumentation Installation at Portion 15.2, Portion 15.2A, Portion 15.2B, Portion 15.3, Portion 15.4 and Portion 15.5

(g) Granular Fill Laying at Portion 15.5

(h) PVD Installation at Portion 7, Portion 8, Portion 15.1, Portion 15.2, Portion 15.2b

(i) General Fill to Surcharge Laying at Portion 7 and Portion 8

(j) Pre-condition survey and UU detection at Portion 6 (WCR)

(k) Subletting of Works for Road D1 & L1, Box Culverts and Meander Bridge and Sewage Treatment Works (STW) Buildings

(l) Subletting and Site Clearance of Western Connection Road (WCR)

(m) Road D1 Excavation and Granular Bedding

(n) Site Clearance and Pre-drilling at Box Culvert A1 at Portion 18A and Portion 18C

(o) Pai Lau Steel Decking Installation and Sheetpile Driving

(p) Pre-condition survey and UU detection at Portion 6 (WCR)

(q) WCR Stage 1 Construction: Demolition of Existing Structures, Excavation, DCM and Retaining Wall

Contract No.: YL/2020/02 – 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

(a) Tree Survey (Remaining frontier closed area) / Tree Felling

(b) Initial Survey

(c) Underground Utility Detection

(d) Pre-construction Condition Survey

(e) Erection of Contractor' s Site Office

(f) Pre-drilling and Trial Pits (DRL-P11, P12, P13 Abutment AP and AP01), (ST01-P02 & P03) & (CTFB-FBA-01, FBP-01, FBP-02 and FBP-05)

(g) Construction of Reedbed Cell No. 3A (Laying Geomembrane, drainage, filling of plant soil, planting of reed, hydroseeding, pilot test, commission of Reedbed Cell No. 3A and decommission of Reed Cell No. 3)

(h) Site Clearance and Forming Access for Cut Slopes CS1, CS2 and Retaining wall BPW1

(i) Erection of Temporary Noise Barrier (TNB 5, TNB 12 & TNB 17) along the Lok Ma Chau Road

(j) Box Culvert Diversion at Lok Ma Chau Road (Stage 1) subjected to TMLG and MTRC

(k) Demolition of Existing Structures along Lok Ma Chau Road

(l) Existing Cycle Track Subway Modification

(m) Construction of Retaining Wall

12.2 Dust can be generated during construction works and exposed site area especially during dry, windy weather. During dry season, the Contractor should pay attention on the air quality mitigation measures as far as practicable to minimise the dust impact to the villages which are located adjacent to the Project works. The Contractor was also reminded to follow the Project Implementation Schedule in approved EIA report / EM&A Manual to implement appropriate dust control measure including "watering in all works areas once per hour during working hours to control fugitive dust impact, particularly during dry weather and covering any excavated or stockpile of dusty material by impervious sheets and spraying all dusty material with water immediately prior to any loading transfer operations to keep the dusty materials wet during material handling at the stockpile areas" as well as the relevant dust control practices as stipulated in the Air Pollution Control (Construction Dust) Regulation so that no adverse dust impact arising from the Project works site.

12.3 Ecology is also one of the key environmental issues during construction of the Project. Noise pollution has a negative impact on wildlife species by reducing habitat quality. Therefore, noise mitigation measures such as using quiet plants and noise barriers should be in place, where applicable. In addition, the Contractor was reminded to frequently check and maintain the acoustic materials wrapped on noisy part of PME and ensure no gaps between noise barriers; proactively identify any potential construction noise impact to NSRs and provide sufficient mitigation measures if necessary. All ecological mitigation measures recommended in the Project Implementation Schedule in EP / approved EIA report / EM&A Manual should be properly implemented and maintained as far as practicable.

12.4 In addition, the Contractor is also recommended to arrange early preparation of water quality mitigation measures for the upcoming wet season (i.e. March to October). 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 site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. Efficient silt removal facilities shall deploy to ensure all treated effluent from wastewater

treatment plant shall meet the requirements as stated in WPCO licences. The site drainage plan shall also be updated based on the site condition and construction programme.

Monitoring Schedule for the Next Month

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

Construction Programme for the Next Month

12.6 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 January 2022 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. No Action/Limit Level exceedance was recorded.

Construction Noise

13.4 All construction noise monitoring was conducted as scheduled in the reporting month. One Action Level exceedance was recorded due to the noise complaint received by EPD on 2nd January 2022. No Limit Level exceedance for construction noise was recorded.

Water Quality

13.5 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 including EA Zone and along Shenzhen River. The vast majority of Great Cormorants using the flight line over the centre of LMC Loop. No significant impacts on the flight line were observed in the reporting month.

Mammals

13.7 Mammals monitoring was conducted in the reporting month. Eurasian Wild Pig (*Sus scrofa*) and Domestic Dog (*Canis lupus familiaris)* were captured by infra-red flash cameras.

13.8 No Eurasian Otter was found in the reporting month.

Land Contamination

13.9 Decontamination for five arsenic-contaminated zones (LD01 - LD05) identified in LMC Loop was completed and the final Remediation Report was submitted and approved by EPD in accordance with Condition 2.16 of the EP-477/2013/A under Contract No. YL/2017/03.

13.10 No work related to land contamination was conducted in the reporting month.

Environmental Site Inspection

13.11 Environmental site inspections were conducted on 5th, 12th, 19th, 26th, 31st January 2022 by ET in the reporting month.

Environmental Complaints, Summons and Prosecutions

13.12 There was one (1) environmental complaint, no notification of summons or successful prosecution received in the reporting month.

13.13 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

13.14 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; and

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;
- To ensure the drainage facilities would not be clogged with sediment to avoid overflow during rainy season; and
- To designate the area for wheel washing and set up the associated drainage for water from a wheel wash.

Ecology Impact

- To maintain the 3m high olive green fence around the construction site;
- 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; and
- To avoid the impacts on avifauna and maintain the habitat for avifauna during the establishment of Reedbed 3A.

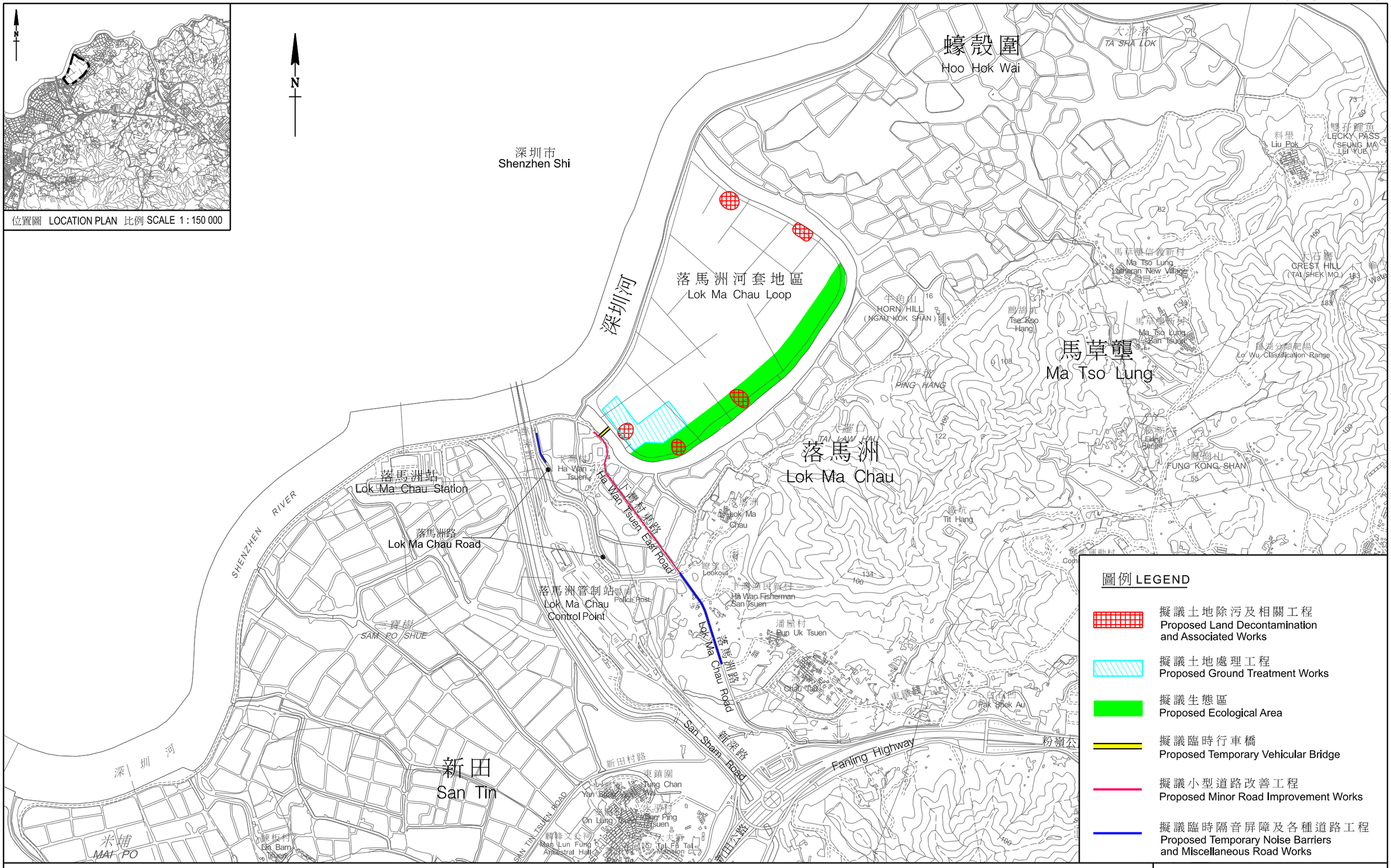
Waste/Chemical Management

- 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;
- To maintain the drip tray well to prevent oil and chemical leakage; and
- To avoid improper handling, storage and dispose of oil drums or chemical containers on site.

Landscape and Visual

- To erect and maintain the protection fencing and tree protection zone around the preserved trees.

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

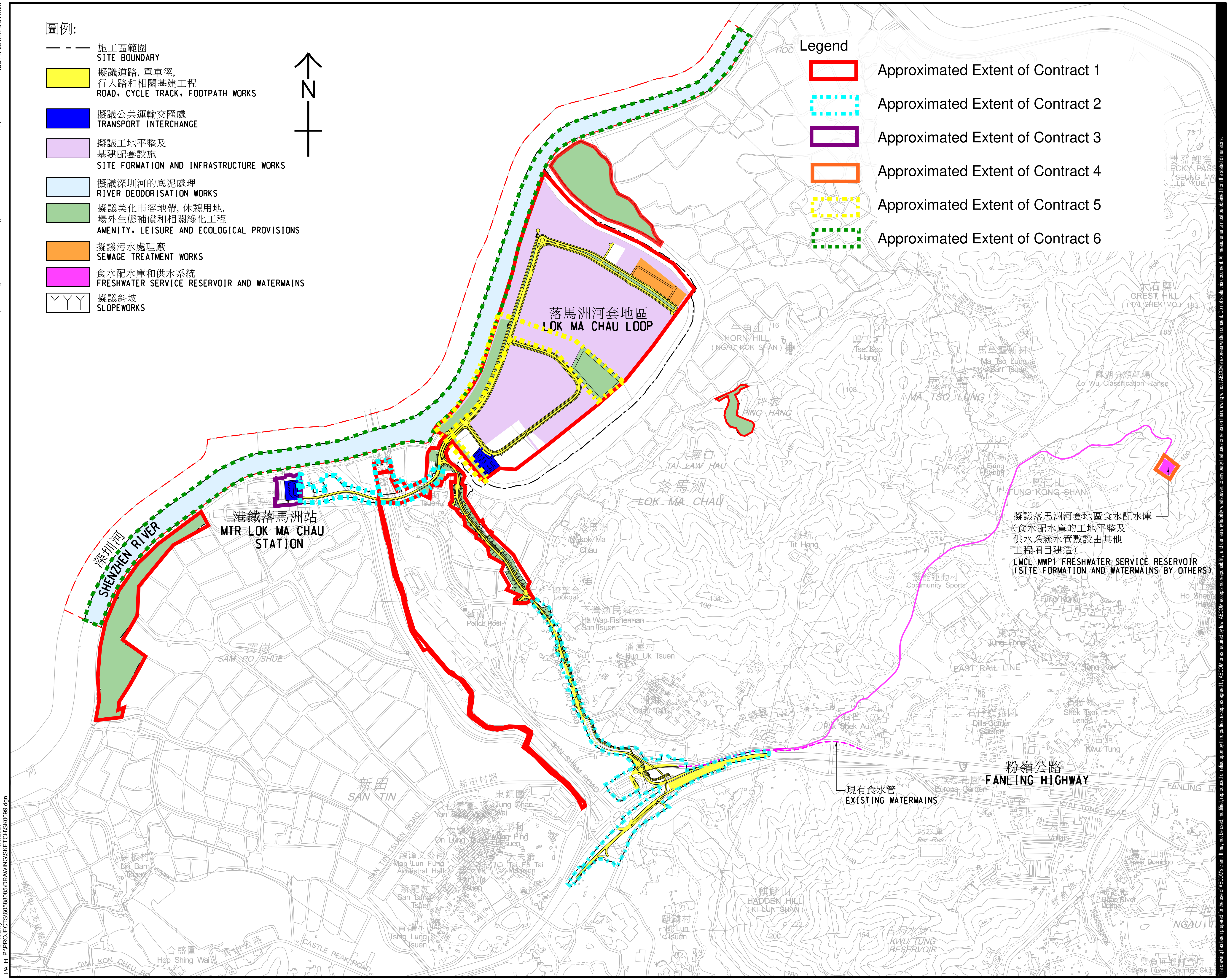
FIGURE 1 a

LAYOUT PLAN

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

1/2/2018

A3 420MM X 297MM



AECOM

PROJECT

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

CLIENT

土木工程拓展署
CEDD Civil Engineering and Development Department

CONSULTANT

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

I/R	DATE	DESCRIPTION	CHK.

STATUS

SCALE	DIMENSION UNIT
A1 1 : 8000	METRES

KEY PLAN

PROJECT NO.	CONTRACT NO.
60588085	CE 5/2018(CE)

SHEET TITLE

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

60588085/ SK0099

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:
5/5/2020
Plot File by: Tsuiwy
PATH: P:\PROJECTS\60588085\DRAWING\SKETCH\SK0099.dgn

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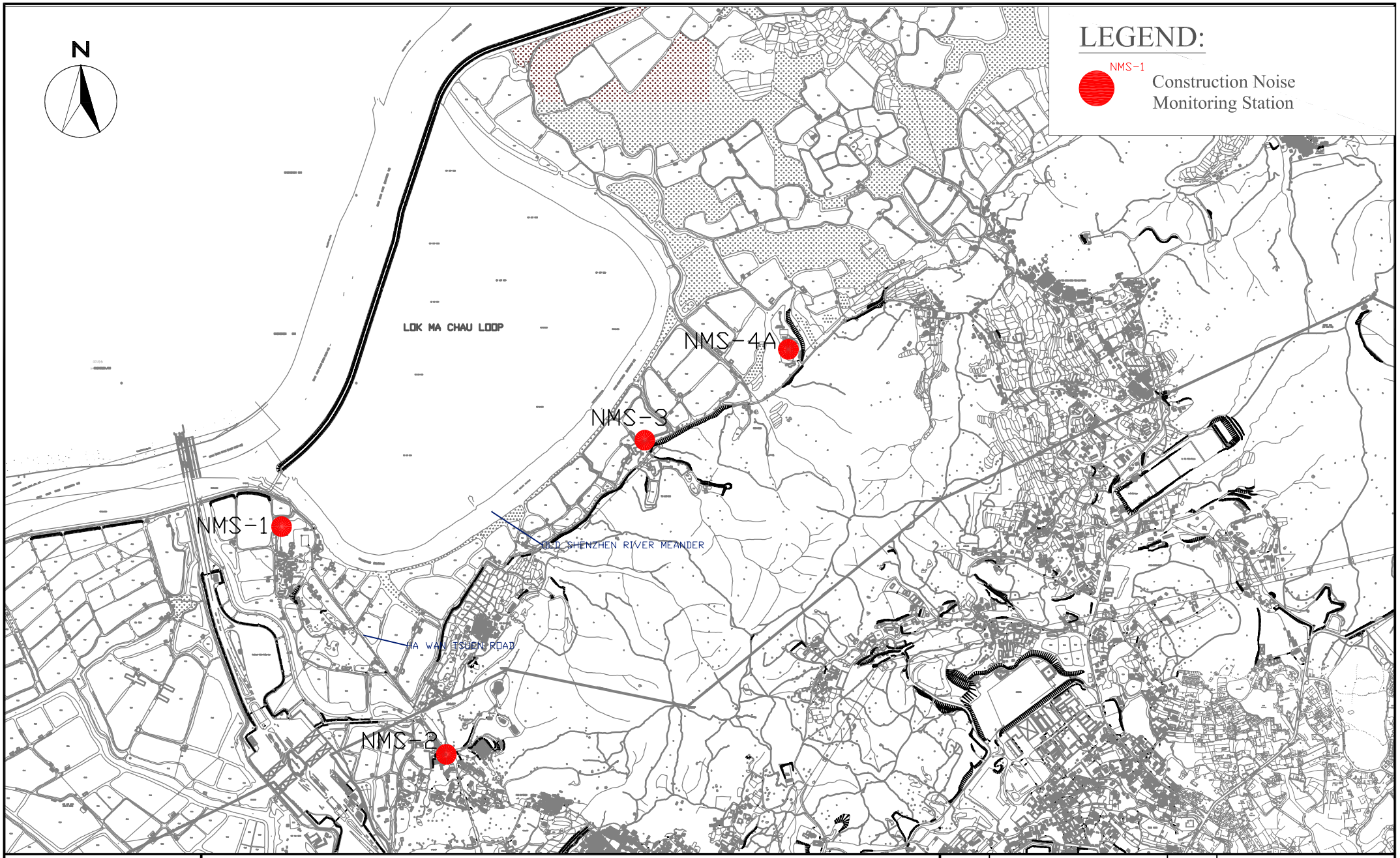
consulting . testing . research

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 –

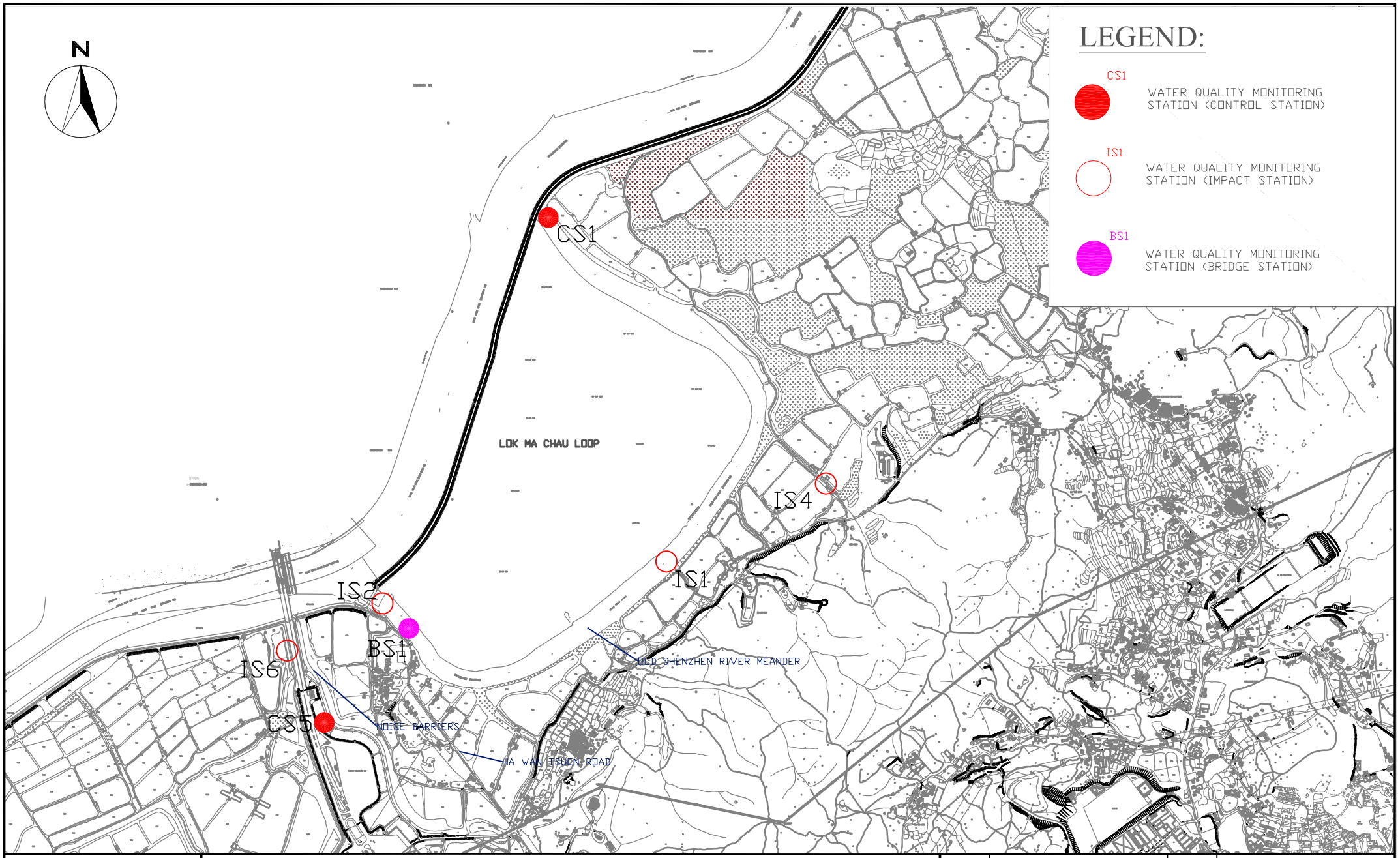


WELLAB 匯力
consulting . testing . research

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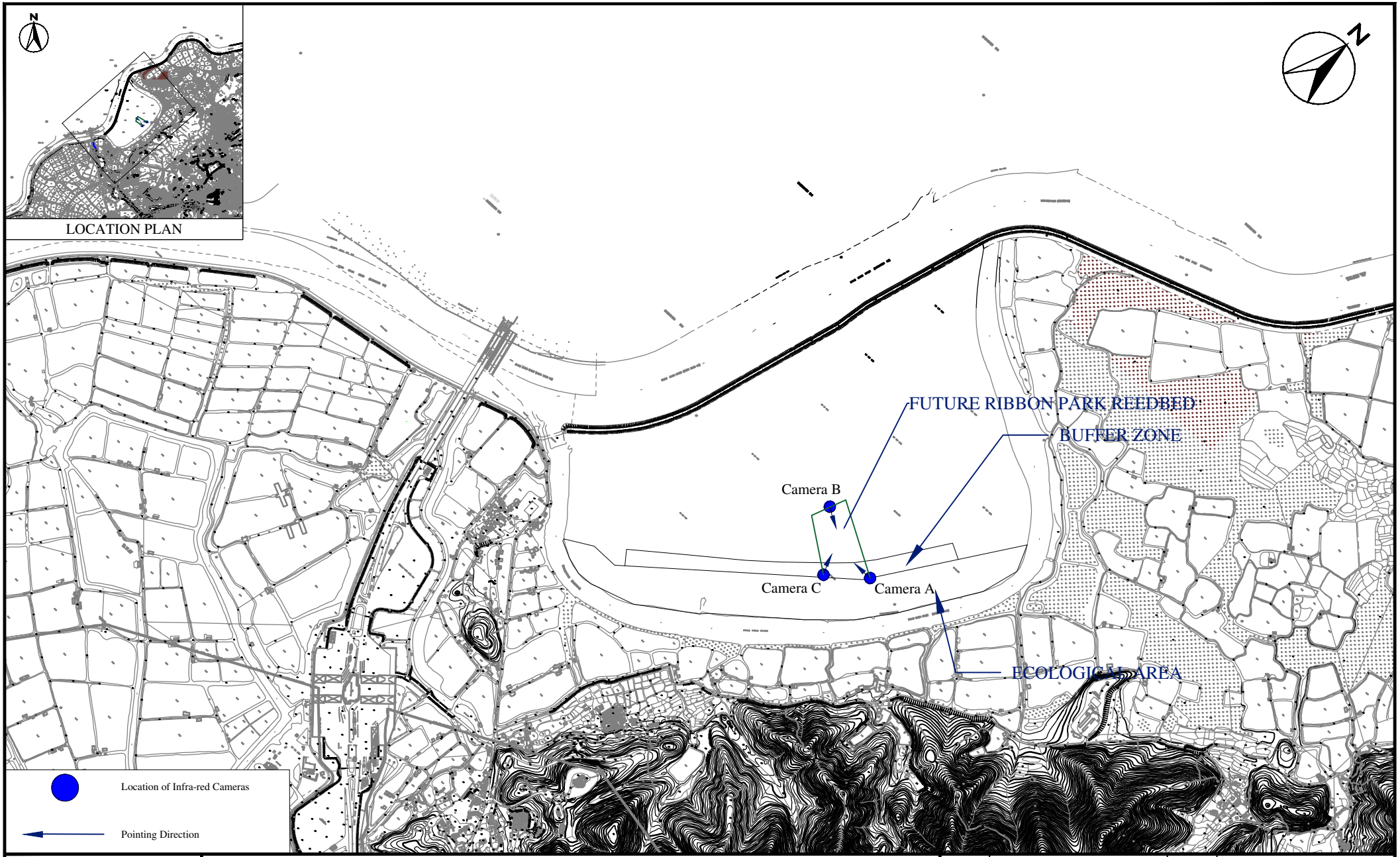
Service Contract No. WD/04/2020
Development of Lok Man Chau Loop: Main Work Package 1 - Environmental Team

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	-



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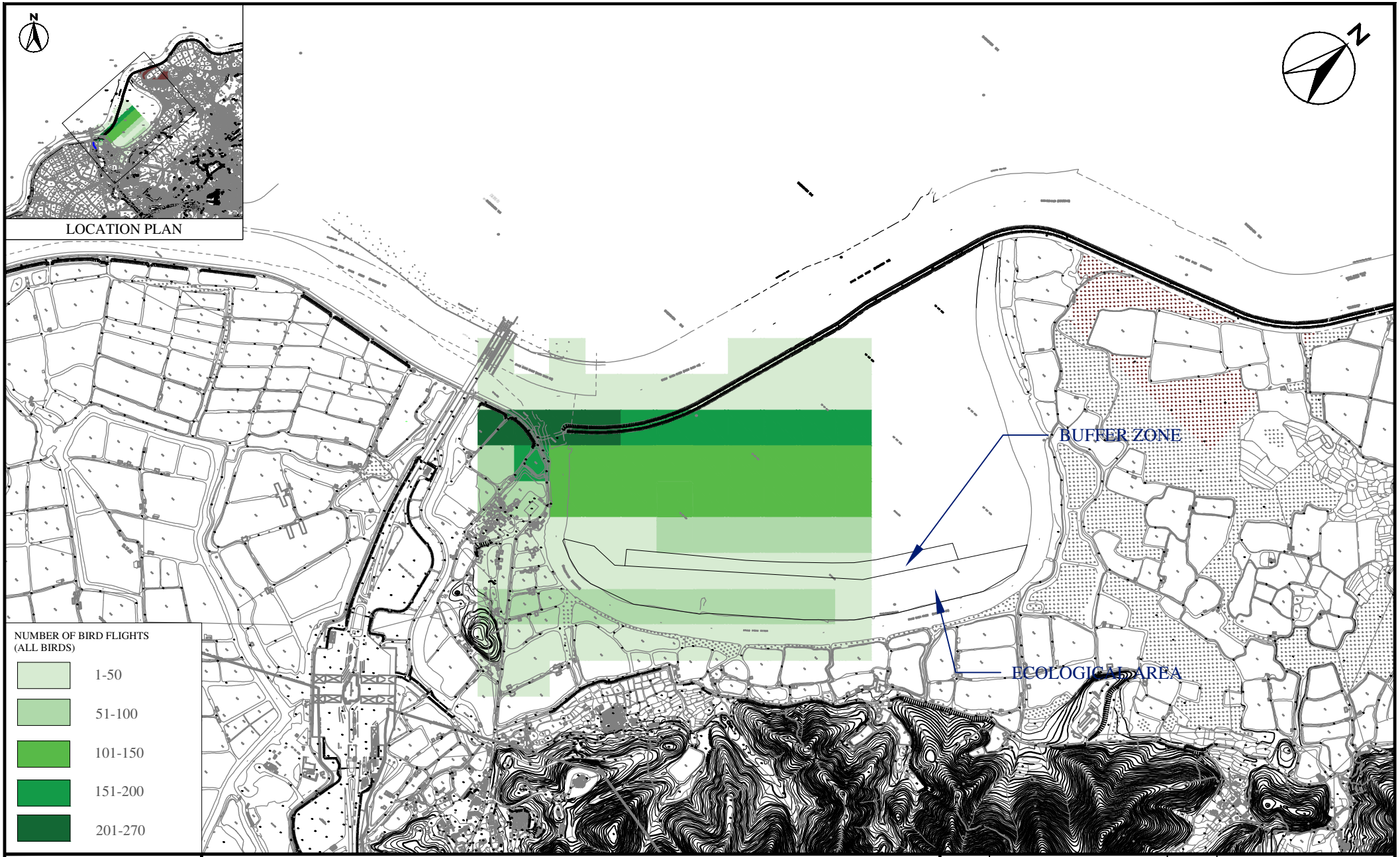
Service Contract No. WD/04/2020
Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team
Location of Ecological Monitoring

SCALE	1:14000 @A4	DATE	DEC 2021
CHECK	IT	DRAWN	ML
JOB No.	WMA 21009	FIGURE NO. Fig 5	REV -



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

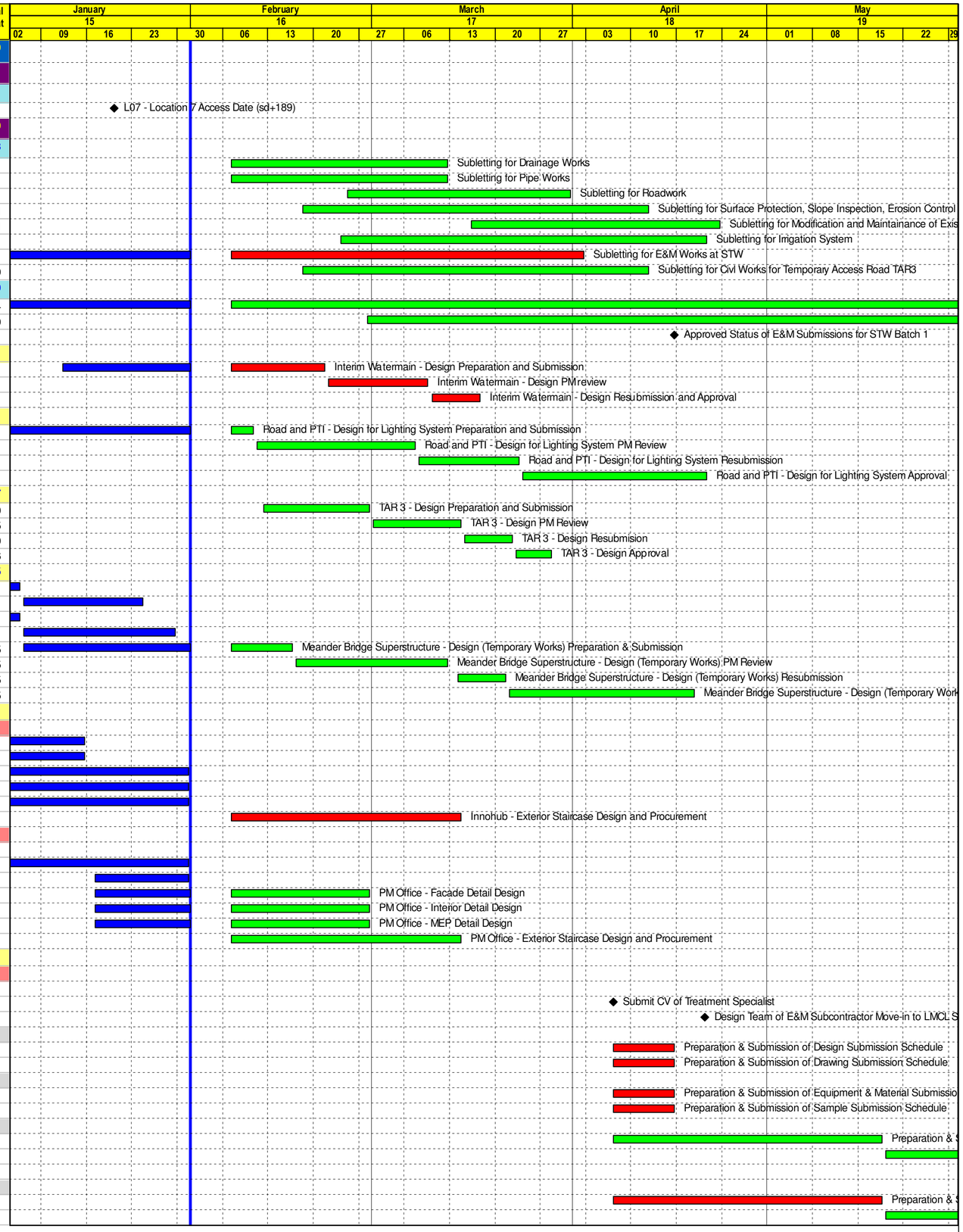
Flight Lines of All Bird Species

SCALE	1:14000 @A4	DATE	JAN 2022
CHECK	IT	DRAWN	ML
JOB No.	WMA 21009	FIGURE NO.	Fig 6
		REV	-

APPENDIX A
CONSTRUCTION PROGRAMME

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

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float
Contract No. YL/2020/01 - Detailed Programme Rev. 3		201	31-Aug-21 A	19-Mar-23	01-Oct-21	12-Nov-26	520
Contract Data Part 1		0	20-Jan-22 A	20-Jan-22 A	12-Nov-26	12-Nov-26	
Contract Access Dates to Part of the Site		0	20-Jan-22 A	20-Jan-22 A	12-Nov-26	12-Nov-26	
CL07	L07 - Location 7 Access Date (sd+189)	0	20-Jan-22 A		12-Nov-26		
Preliminary and Preparations		112	31-Aug-21 A	15-Jul-22	01-Feb-22	14-Sep-23	160
Subletting		187	01-Sep-21 A	23-Apr-22	09-Feb-22	21-Jun-23	343
PRE-310	Subletting for Drainage Works	30	07-Feb-22	12-Mar-22	29-Mar-22	07-May-22	43
PRE-315	Subletting for Pipe Works	30	07-Feb-22	12-Mar-22	29-Mar-22	07-May-22	43
PRE-325	Subletting for Roadwork	30	25-Feb-22	31-Mar-22	21-Apr-22	27-May-22	43
PRE-345	Subletting for Surface Protection, Slope Inspection, Erosion Control Mats, and Clay Lining	45	18-Feb-22	12-Apr-22	03-Sep-22	28-Oct-22	161
PRE-365	Subletting for Modification and Maintainance of Existing Boundary Patrol Road	30	16-Mar-22	23-Apr-22	30-Sep-22	05-Nov-22	161
PRE-385	Subletting for Irrigation System	45	24-Feb-22	21-Apr-22	20-Apr-22	14-Jun-22	43
PRE-395	Subletting for E&M Works at STW	173	01-Sep-21 A	02-Apr-22	09-Feb-22	06-Apr-22	2
PRE-410A	Subletting for Civl Works for Temporary Access Road TAR3	45	18-Feb-22	12-Apr-22	28-Apr-23	21-Jun-23	350
Design Submissions for the Works		112	31-Aug-21 A	15-Jul-22	01-Feb-22	14-Sep-23	160
PRE-435A	Prepare, Submit, Processing & Approval for Alternative Design for STW	255	31-Aug-21 A	15-Jul-22	11-Jul-22	10-Dec-22	124
PRE-460	Prepare, Submit, Processing & Approval for MiC and its Foundation for ADB of STW	90	28-Feb-22	20-Jun-22	04-Jul-22	19-Oct-22	100
PRE-465	Approved Status of E&M Submissions for STW Batch 1	0		16-Apr-22*		16-Apr-22	0
Interim Watermains		51	12-Jan-22 A	17-Mar-22	07-Feb-22	17-Mar-22	0
KD1-100	Interim Watermain - Design Preparation and Submission	30	12-Jan-22 A	21-Feb-22	07-Feb-22	21-Feb-22	0
KD1-110	Interim Watermain - Design PM review	14	22-Feb-22	09-Mar-22	22-Feb-22	09-Mar-22	0
KD1-120	Interim Watermain - Design Resubmission and Approval	7	10-Mar-22	17-Mar-22	10-Mar-22	17-Mar-22	0
Lighting System for Road and PTI		84	04-Jan-22 A	21-Apr-22	29-Mar-22	14-Jun-22	43
S7-710	Road and PTI - Design for Lighting System Preparation and Submission	28	04-Jan-22 A	10-Feb-22	29-Mar-22	01-Apr-22	43
S7-715	Road and PTI - Design for Lighting System PM Review	21	11-Feb-22	07-Mar-22	02-Apr-22	30-Apr-22	43
S7-720	Road and PTI - Design for Lighting System Resubmission	14	08-Mar-22	23-Mar-22	03-May-22	19-May-22	43
S7-725	Road and PTI - Design for Lighting System Approval	21	24-Mar-22	21-Apr-22	20-May-22	14-Jun-22	43
TAR3		17	12-Feb-22	28-Mar-22	22-Apr-23	07-Jun-23	157
KD2-102	TAR 3 - Design Preparation and Submission	14	12-Feb-22	28-Feb-22	22-Apr-23	09-May-23	350
KD2-103	TAR 3 - Design PM Review	14	01-Mar-22	14-Mar-22	10-May-23	23-May-23	435
KD2-104	TAR 3 - Design Resubmision	7	15-Mar-22	22-Mar-22	24-May-23	01-Jun-23	350
KD2-105A	TAR 3 - Design Approval	6	23-Mar-22	28-Mar-22	02-Jun-23	07-Jun-23	436
Meander Bridge		87	28-Dec-21 A	19-Apr-22	10-Jun-22	03-Feb-23	235
KD7-109	Meander Bridge Abutment - Design (Temporary Works) Resubmission	7	28-Dec-21 A	05-Jan-22 A	10-Jun-22	10-Jun-22	
KD7-110	Meander Bridge Abutment - Design (Temporary Works) Approval	16	06-Jan-22 A	24-Jan-22 A	10-Jun-22	10-Jun-22	
KD7-609	Meander Bridge Pier - Design (Temporary Works) Resubmission	7	28-Dec-21 A	05-Jan-22 A	25-Aug-22	25-Aug-22	
KD7-610	Meander Bridge Pier - Design (Temporary Works) Approval	21	06-Jan-22 A	29-Jan-22 A	25-Aug-22	25-Aug-22	
KD7-617	Meander Bridge Superstructure - Design (Temporary Works) Preparation & Submission	31	06-Jan-22 A	16-Feb-22	21-Nov-22	30-Nov-22	235
KD7-618	Meander Bridge Superstructure - Design (Temporary Works) PM Review	21	17-Feb-22	12-Mar-22	01-Dec-22	24-Dec-22	235
KD7-619	Meander Bridge Superstructure - Design (Temporary Works) Resubmission	7	14-Mar-22	21-Mar-22	28-Dec-22	05-Jan-23	235
KD7-620	Meander Bridge Superstructure - Design (Temporary Works) Approval	21	22-Mar-22	19-Apr-22	06-Jan-23	03-Feb-23	235
Site Office		68	16-Dec-21 A	14-Mar-22	07-Feb-22	11-Apr-22	23
Innohub / Reception & Atrium Module		56	03-Jan-22 A	14-Mar-22	07-Feb-22	14-Mar-22	0
PRE-0895	Innohub - Schematic for Approval	12	03-Jan-22 A	15-Jan-22 A	07-Feb-22	07-Feb-22	
PRE-0900	Innohub - Steel Structure Detail Design	12	03-Jan-22 A	15-Jan-22 A	07-Feb-22	07-Feb-22	
PRE-0910	Innohub - Facade Detail Design	25	03-Jan-22 A	31-Jan-22 A	07-Feb-22	07-Feb-22	
PRE-0915	Innohub - MEP Detail Design	25	03-Jan-22 A	31-Jan-22 A	28-Feb-22	28-Feb-22	
PRE-1005	Innohub - Interior Detail Design	25	03-Jan-22 A	31-Jan-22 A	07-Feb-22	07-Feb-22	
PRE-1045	Innohub - Exterior Staircase Design and Procurement	31	07-Feb-22	14-Mar-22	07-Feb-22	14-Mar-22	0
PM Site Office		68	16-Dec-21 A	14-Mar-22	07-Feb-22	11-Apr-22	23
PRE-0918	PM Office - Schematic for Approval	12	16-Dec-21 A	31-Dec-21 A	07-Feb-22	07-Feb-22	
PRE-0919	PM Office - Preparation Embed Design	25	03-Jan-22 A	31-Jan-22 A	19-Feb-22	19-Feb-22	
PRE-0920	PM Office - Steel Structure Detail Design	13	17-Jan-22 A	31-Jan-22 A	07-Feb-22	07-Feb-22	
PRE-0930	PM Office - Facade Detail Design	32	17-Jan-22 A	28-Feb-22	02-Mar-22	23-Mar-22	20
PRE-1025	PM Office - Interior Detail Design	32	17-Jan-22 A	28-Feb-22	02-Mar-22	23-Mar-22	20
PRE-1035	PM Office - MEP Detail Design	32	17-Jan-22 A	28-Feb-22	02-Mar-22	23-Mar-22	20
PRE-1055	PM Office - Exterior Staircase Design and Procurement	31	07-Feb-22	14-Mar-22	05-Mar-22	11-Apr-22	23
Sewage Treatment Works		311	01-Sep-21 A	08-Jul-22	01-Feb-22	30-Sep-22	84
STW - E&M		311	01-Sep-21 A	08-Jul-22	01-Feb-22	30-Sep-22	84
PRE-EM005	Subletting for E&M Subcontractor at STW	122	01-Sep-21 A	31-Dec-21 A	01-Feb-22	01-Feb-22	
PRE-EM010	Submit CV of Treatment Specialist	0	07-Apr-22		07-Apr-22		0
PRE-EM015	Design Team of E&M Subcontractor Move-in to LMCL Site Office	0	21-Apr-22*		29-Apr-22		9
Design Submission Schedule		10	07-Apr-22	16-Apr-22	07-Apr-22	16-Apr-22	0
PRE-EM020	Preparation & Submission of Design Submission Schedule	10	07-Apr-22	16-Apr-22	07-Apr-22	16-Apr-22	0
PRE-EM030	Preparation & Submission of Drawing Submission Schedule	10	07-Apr-22	16-Apr-22	07-Apr-22	16-Apr-22	0
Equipment & Material Submission Schedule		10	07-Apr-22	16-Apr-22	07-Apr-22	16-Apr-22	0
PRE-EM040	Preparation & Submission of Equipment & Material Submission Schedule	10	07-Apr-22	16-Apr-22	07-Apr-22	16-Apr-22	0
PRE-EM050	Preparation & Submission of Sample Submission Schedule	10	07-Apr-22	16-Apr-22	07-Apr-22	16-Apr-22	0
Inlet Works (Primary Treatment System)		93	07-Apr-22	08-Jul-22	21-May-22	21-Aug-22	44
PRE-EM070	Preparation & Submission of Inlet Works (Primary Treatment System)	42	07-Apr-22	18-May-22	21-May-22	01-Jul-22	44
PRE-EM080	Checking & Certification of Inlet Works (Primary Treatment System) by ICE	21	19-May-22	08-Jun-22	02-Jul-22	22-Jul-22	44
PRE-EM090	Review & Acceptance of Inlet Works (Primary Treatment System) by PM	30	09-Jun-22	08-Jul-22	23-Jul-22	21-Aug-22	44
Primary Sedimentation System		93	07-Apr-22	08-Jul-22	07-Apr-22	21-Aug-22	44
PRE-EM100	Preparation & Submission of Primary Sedimentation System	42	07-Apr-22	18-May-22	07-Apr-22	18-May-22	0
PRE-EM110	Checking & Certification of Primary Sedimentation System by ICE	21	19-May-22	08-Jun-22	02-Jul-22	22-Jul-22	44



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

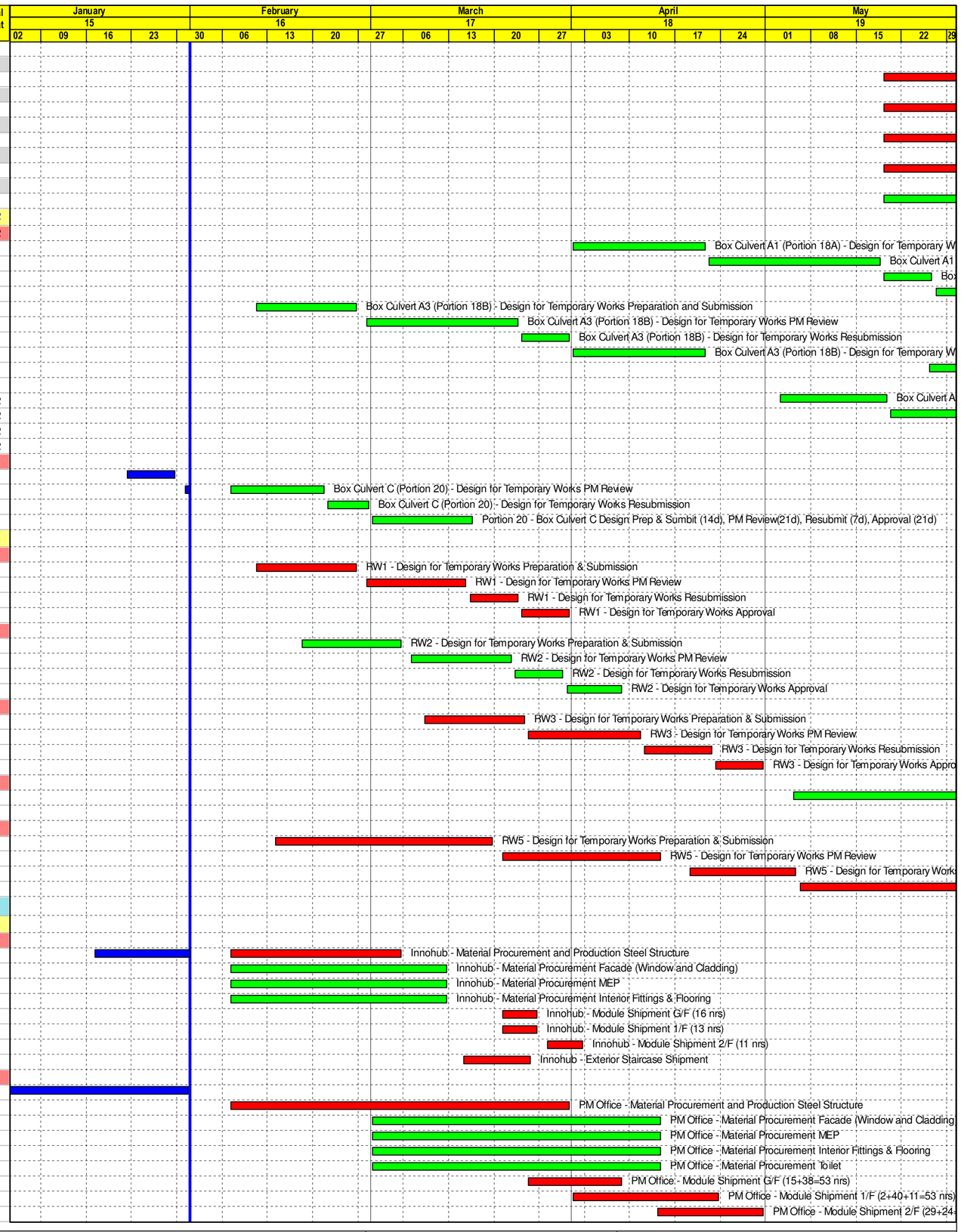
Three Month Rolling Programme

Project ID : YL-3MRP.06
Layout : YL-02 3MRP
Date : 07-Feb-22 / Page 1 of 9

Three Month Rolling Programme

Date	Revision	Checked	Approved
31-Jan-22	MPR No. 7		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float
PRE-EM120	Review & Acceptance of Primary Sedimentation System by PM	30	09-Jun-22	08-Jul-22	23-Jul-22	21-Aug-22	44
Bioreactor System		44	19-May-22	01-Jul-22	19-May-22	01-Jul-22	0
PRE-EM130	Preparation & submission of Bioreactor System	44	19-May-22	01-Jul-22	19-May-22	01-Jul-22	0
Membrane Filtration System		44	19-May-22	01-Jul-22	19-May-22	01-Jul-22	0
PRE-EM160	Preparation & Submission of UV Disinfection System	44	19-May-22	01-Jul-22	19-May-22	01-Jul-22	0
UV Disinfection System		44	19-May-22	01-Jul-22	19-May-22	01-Jul-22	0
PRE-EM190	Preparation & Submission of Blending and Thickening System	44	19-May-22	01-Jul-22	19-May-22	01-Jul-22	0
Blending and Thickening System		44	19-May-22	01-Jul-22	19-May-22	01-Jul-22	0
PRE-EM220	Preparation & Submission of Blending and Thickening System	44	19-May-22	01-Jul-22	19-May-22	01-Jul-22	0
Deodorization System		45	19-May-22	02-Jul-22	17-Aug-22	30-Sep-22	90
PRE-EM280	Preparation & Submission of Deodorization System Including Associated Duct Works	45	19-May-22	02-Jul-22	17-Aug-22	30-Sep-22	90
Box Culverts		132	22-Jan-22 A	09-Jul-22	08-Mar-22	14-Sep-23	352
Box Culvert A1. A2, A3		120	11-Feb-22	09-Jul-22	21-Mar-22	14-Sep-23	352
12A-102	Box Culvert A1 (Portion 18A) - Design for Temporary Works Preparation and Submission	14	01-Apr-22	21-Apr-22	18-Aug-22	02-Sep-22	111
12A-103	Box Culvert A1 (Portion 18A) - Design for Temporary Works PM Review	21	22-Apr-22	18-May-22	03-Sep-22	28-Sep-22	111
12A-104	Box Culvert A1 (Portion 18A) - Design for Temporary Works Resubmission	7	19-May-22	26-May-22	29-Sep-22	08-Oct-22	111
12A-105	Box Culvert A1 (Portion 18A) - Design for Temporary Works Approval	14	27-May-22	13-Jun-22	10-Oct-22	25-Oct-22	111
12B-102	Box Culvert A3 (Portion 18B) - Design for Temporary Works Preparation and Submission	14	11-Feb-22	26-Feb-22	21-Mar-22	06-Apr-22	32
12B-103	Box Culvert A3 (Portion 18B) - Design for Temporary Works PM Review	21	28-Feb-22	23-Mar-22	07-Apr-22	05-May-22	32
12B-104	Box Culvert A3 (Portion 18B) - Design for Temporary Works Resubmission	7	24-Mar-22	31-Mar-22	06-May-22	14-May-22	32
12B-106	Box Culvert A3 (Portion 18B) - Design for Temporary Works Approval	14	01-Apr-22	21-Apr-22	16-May-22	31-May-22	32
12C-107	Box Culvert A1 (Portion 18C) - Design for Temporary Works Preparation and Submission	14	26-May-22	11-Jun-22	26-Jul-22	10-Aug-22	50
12C-108	Box Culvert A1 (Portion 18C) - Design for Temporary Works PM Review	21	13-Jun-22	07-Jul-22	11-Aug-22	03-Sep-22	50
KD6-085	Box Culvert A2 (Portion 7) - Design for Temporary Works Preparation & Submission	14	03-May-22	19-May-22	12-Jul-23	27-Jul-23	352
KD6-090	Box Culvert A2 (Portion 7) - Design for Temporary Works PM Review	21	20-May-22	14-Jun-22	28-Jul-23	21-Aug-23	352
KD6-095	Box Culvert A2 (Portion 7) - Design for Temporary Works Resubmission	7	15-Jun-22	22-Jun-22	22-Aug-23	29-Aug-23	352
KD6-100	Box Culvert A2 (Portion 7) - Design for Temporary Works Approval	14	23-Jun-22	09-Jul-22	30-Aug-23	14-Sep-23	352
Box Culvert C		41	22-Jan-22 A	16-Mar-22	08-Mar-22	19-Apr-22	25
S9-202	Box Culvert C (Portion 20) - Design for Temporary Works Preparation & Submission	7	22-Jan-22 A	29-Jan-22 A	08-Mar-22	08-Mar-22	
S9-203	Box Culvert C (Portion 20) - Design for Temporary Works PM Review	14	31-Jan-22 A	21-Feb-22	08-Mar-22	22-Mar-22	25
S9-204	Box Culvert C (Portion 20) - Design for Temporary Works Resubmission	6	22-Feb-22	28-Feb-22	23-Mar-22	29-Mar-22	25
S9-205	Portion 20 - Box Culvert C Design Prep & Sumbit (14d), PM Review(21d), Resubmit (7d), Approval (21(	14	01-Mar-22	16-Mar-22	30-Mar-22	19-Apr-22	25
Retaining Walls		117	11-Feb-22	06-Jul-22	11-Feb-22	21-Jul-22	13
RW1		42	11-Feb-22	31-Mar-22	11-Feb-22	31-Mar-22	0
RW-140	RW1 - Design for Temporary Works Preparation & Submission	14	11-Feb-22	26-Feb-22	11-Feb-22	26-Feb-22	0
RW-150	RW1 - Design for Temporary Works PM Review	14	28-Feb-22	15-Mar-22	28-Feb-22	15-Mar-22	0
RW-160	RW1 - Design for Temporary Works Resubmission	7	16-Mar-22	23-Mar-22	16-Mar-22	23-Mar-22	0
RW-170	RW1 - Design for Temporary Works Approval	7	24-Mar-22	31-Mar-22	24-Mar-22	31-Mar-22	0
RW2		42	18-Feb-22	08-Apr-22	24-Mar-22	18-May-22	29
RW-200	RW2 - Design for Temporary Works Preparation & Submission	14	18-Feb-22	05-Mar-22	24-Mar-22	09-Apr-22	29
RW-210	RW2 - Design for Temporary Works PM Review	14	07-Mar-22	22-Mar-22	11-Apr-22	29-Apr-22	29
RW-220	RW2 - Design for Temporary Works Resubmission	7	23-Mar-22	30-Mar-22	30-Apr-22	10-May-22	29
RW-230	RW2 - Design for Temporary Works Approval	7	31-Mar-22	08-Apr-22	11-May-22	18-May-22	29
RW3		42	09-Mar-22	30-Apr-22	15-Mar-22	07-May-22	5
RW-300	RW3 - Design for Temporary Works Preparation & Submission	14	09-Mar-22	24-Mar-22	15-Mar-22	30-Mar-22	5
RW-310	RW3 - Design for Temporary Works PM Review	14	25-Mar-22	11-Apr-22	31-Mar-22	20-Apr-22	5
RW-320	RW3 - Design for Temporary Works Resubmission	7	12-Apr-22	22-Apr-22	21-Apr-22	28-Apr-22	5
RW-330	RW3 - Design for Temporary Works Approval	7	23-Apr-22	30-Apr-22	29-Apr-22	07-May-22	5
RW4		51	05-May-22	06-Jul-22	21-May-22	21-Jul-22	13
RW-400	RW4 - Design for Temporary Works Preparation & Submission	30	05-May-22	10-Jun-22	21-May-22	25-Jun-22	13
RW-410	RW4 - Design for Temporary Works PM Review	21	11-Jun-22	06-Jul-22	27-Jun-22	21-Jul-22	13
RW5		86	14-Feb-22	31-May-22	19-Feb-22	07-Jun-22	5
RW-500	RW5 - Design for Temporary Works Preparation & Submission	30	14-Feb-22	19-Mar-22	19-Feb-22	25-Mar-22	5
RW-510	RW5 - Design for Temporary Works PM Review	21	21-Mar-22	14-Apr-22	26-Mar-22	23-Apr-22	5
RW-520	RW5 - Design for Temporary Works Resubmission	14	19-Apr-22	05-May-22	25-Apr-22	12-May-22	5
RW-530	RW5 - Design for Temporary Works Approval	21	06-May-22	31-May-22	13-May-22	07-Jun-22	5
Fabrication and Delivery		93	03-Jan-22 A	30-Apr-22	07-Feb-22	13-May-22	9
Site Office		93	03-Jan-22 A	30-Apr-22	07-Feb-22	13-May-22	9
Innohub / Reception & Atrium Module		61	17-Jan-22 A	02-Apr-22	07-Feb-22	02-Apr-22	0
SO-1020	Innohub - Material Procurement and Production Steel Structure	37	17-Jan-22 A	05-Mar-22	07-Feb-22	05-Mar-22	0
SO-1050	Innohub - Material Procurement Facade (Window and Cladding)	30	07-Feb-22	12-Mar-22	21-Feb-22	26-Mar-22	12
SO-1060	Innohub - Material Procurement MEP	30	07-Feb-22	12-Mar-22	28-Feb-22	02-Apr-22	18
SO-1070	Innohub - Material Procurement Interior Fittings & Flooring	30	07-Feb-22	12-Mar-22	28-Feb-22	02-Apr-22	18
SO-1150	Innohub - Module Shipment G/F (16 nrs)	6	21-Mar-22	26-Mar-22	28-Mar-22	02-Apr-22	6
SO-1160	Innohub - Module Shipment 1/F (13 nrs)	6	21-Mar-22	26-Mar-22	21-Mar-22	26-Mar-22	0
SO-1170	Innohub - Module Shipment 2/F (11 nrs)	6	28-Mar-22	02-Apr-22	28-Mar-22	02-Apr-22	0
SO-1400	Innohub - Exterior Staircase Shipment	10	15-Mar-22	25-Mar-22	15-Mar-22	25-Mar-22	0
PM Site Office		93	03-Jan-22 A	30-Apr-22	07-Feb-22	13-May-22	9
SO-1025	PM Office - Preparation Embed Procurement	25	03-Jan-22 A	31-Jan-22 A	19-Feb-22	19-Feb-22	
SO-1030	PM Office - Material Procurement and Production Steel Structure	46	07-Feb-22	31-Mar-22	07-Feb-22	31-Mar-22	0
SO-1080	PM Office - Material Procurement Facade (Window and Cladding)	38	01-Mar-22	14-Apr-22	24-Mar-22	13-May-22	20
SO-1090	PM Office - Material Procurement MEP	38	01-Mar-22	14-Apr-22	24-Mar-22	13-May-22	20
SO-1100	PM Office - Material Procurement Interior Fittings & Flooring	38	01-Mar-22	14-Apr-22	24-Mar-22	13-May-22	20
SO-1110	PM Office - Material Procurement Toilet	38	01-Mar-22	14-Apr-22	24-Mar-22	13-May-22	20
SO-1370	PM Office - Module Shipment G/F (15+38=53 nrs)	12	25-Mar-22	08-Apr-22	25-Mar-22	08-Apr-22	0
SO-1380	PM Office - Module Shipment 1/F (2+40+11=53 nrs)	16	01-Apr-22	23-Apr-22	01-Apr-22	23-Apr-22	0
SO-1390	PM Office - Module Shipment 2/F (29+24=53 nrs)	12	14-Apr-22	30-Apr-22	14-Apr-22	30-Apr-22	0



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

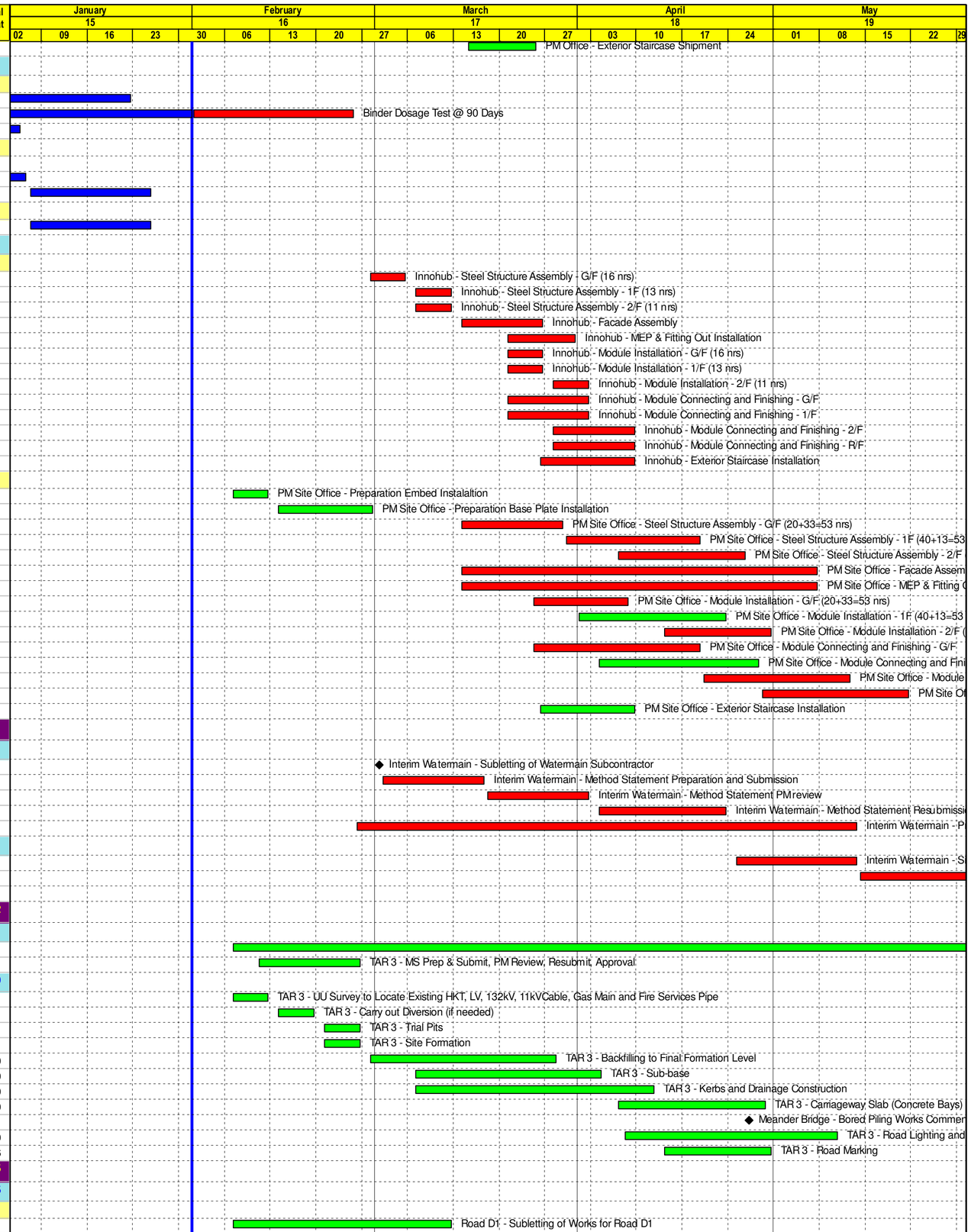
Three Month Rolling Programme

Project ID : YL-3MRP.06
Layout : YL-02 3MRP
Date : 07-Feb-22 / Page 2 of 9

Three Month Rolling Programme

Date	Revision	Checked	Approved
31-Jan-22	MPR No. 7		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float
SO-1410	PM Office - Exterior Staircase Shipment	10	15-Mar-22	25-Mar-22	12-Apr-22	26-Apr-22	23
Prerequisites for DCM Construction		32	28-Nov-21 A	25-Feb-22	01-Feb-22	25-Feb-22	0
DCM Laboratory Mix		32	28-Nov-21 A	25-Feb-22	01-Feb-22	25-Feb-22	0
PRE-420E	Binder Dosage Test @ 56 Days	56	28-Nov-21 A	22-Jan-22 A	01-Feb-22	01-Feb-22	
PRE-420F	Binder Dosage Test @ 90 Days	90	28-Nov-21 A	25-Feb-22*	01-Feb-22	25-Feb-22	0
PRE-421	Submission of Recommended Dosage for Site Trial	6	29-Dec-21 A	05-Jan-22 A	07-Feb-22	07-Feb-22	
Site Trial		14	20-Dec-21 A	25-Jan-22 A	07-Feb-22	07-Feb-22	
PRE-425	Plant Mobilization and Site Set-up	6	20-Dec-21 A	28-Dec-21 A	07-Feb-22	07-Feb-22	
PRE-430	Arrange Site Trial of DCM and Test Result Submission	7	29-Dec-21 A	06-Jan-22 A	07-Feb-22	07-Feb-22	
PRE-435	Post Coring and UCS Test	19	07-Jan-22 A	25-Jan-22 A	07-Feb-22	07-Feb-22	
On-Site Facilities		16	07-Jan-22 A	25-Jan-22 A	07-Feb-22	07-Feb-22	
PRE-440	Construction of DCM Onsite Facilities	16	07-Jan-22 A	25-Jan-22 A	07-Feb-22	07-Feb-22	
Site Office and Innohub		84	07-Feb-22	21-May-22	19-Feb-22	21-May-22	0
Innohub / Reception & Atrium Module		35	28-Feb-22	09-Apr-22	28-Feb-22	11-Apr-22	1
SO-1000	Innohub - Steel Structure Assembly - G/F (16 nrs)	6	28-Feb-22	05-Mar-22	28-Feb-22	05-Mar-22	0
SO-1120	Innohub - Steel Structure Assembly - 1F (13 nrs)	6	07-Mar-22	12-Mar-22	07-Mar-22	12-Mar-22	0
SO-1130	Innohub - Steel Structure Assembly - 2/F (11 nrs)	6	07-Mar-22	12-Mar-22	07-Mar-22	12-Mar-22	0
SO-1135	Innohub - Facade Assembly	12	14-Mar-22	26-Mar-22	14-Mar-22	26-Mar-22	0
SO-1136	Innohub - MEP & Fitting Out Installation	10	21-Mar-22	31-Mar-22	23-Mar-22	02-Apr-22	2
SO-1140	Innohub - Module Installation - G/F (16 nrs)	6	21-Mar-22	26-Mar-22	28-Mar-22	02-Apr-22	6
SO-1180	Innohub - Module Installation - 1/F (13 nrs)	6	21-Mar-22	26-Mar-22	21-Mar-22	26-Mar-22	0
SO-1190	Innohub - Module Installation - 2/F (11 nrs)	6	28-Mar-22	02-Apr-22	28-Mar-22	02-Apr-22	0
SO-1200	Innohub - Module Connecting and Finishing - G/F	12	21-Mar-22	02-Apr-22	28-Mar-22	11-Apr-22	6
SO-1210	Innohub - Module Connecting and Finishing - 1/F	12	21-Mar-22	02-Apr-22	28-Mar-22	11-Apr-22	6
SO-1220	Innohub - Module Connecting and Finishing - 2/F	11	28-Mar-22	09-Apr-22	28-Mar-22	09-Apr-22	0
SO-1230	Innohub - Module Connecting and Finishing - R/F	11	28-Mar-22	09-Apr-22*	28-Mar-22	09-Apr-22	0
SO-1420	Innohub - Exterior Staircase Installation	12	26-Mar-22	09-Apr-22	26-Mar-22	09-Apr-22	0
PM Site Office		84	07-Feb-22	21-May-22	19-Feb-22	21-May-22	0
SO-1010	PM Site Office - Preparation Embed Instalaltion	6	07-Feb-22	12-Feb-22	19-Feb-22	25-Feb-22	11
SO-1240	PM Site Office - Preparation Base Plate Installation	13	14-Feb-22	28-Feb-22	26-Feb-22	12-Mar-22	11
SO-1250	PM Site Office - Steel Structure Assembly - G/F (20+33=53 nrs)	14	14-Mar-22	29-Mar-22	14-Mar-22	29-Mar-22	0
SO-1260	PM Site Office - Steel Structure Assembly - 1F (40+13=53 nrs)	14	30-Mar-22	19-Apr-22	07-Apr-22	26-Apr-22	6
SO-1270	PM Site Office - Steel Structure Assembly - 2/F (27+26=53 nrs)	14	07-Apr-22	26-Apr-22	14-Apr-22	04-May-22	6
SO-1280	PM Site Office - Facade Assembly (211 nrs)	43	14-Mar-22	07-May-22	18-Mar-22	13-May-22	4
SO-1290	PM Site Office - MEP & Fitting Out Installation (211 nrs)	43	14-Mar-22	07-May-22	18-Mar-22	13-May-22	4
SO-1300	PM Site Office - Module Installation - G/F (20+33=53 nrs)	12	25-Mar-22	08-Apr-22	25-Mar-22	08-Apr-22	0
SO-1310	PM Site Office - Module Installation - 1F (40+13=53 nrs)	16	01-Apr-22	23-Apr-22	14-Apr-22	06-May-22	10
SO-1320	PM Site Office - Module Installation - 2/F (27+26=53 nrs)	12	14-Apr-22	30-Apr-22	14-Apr-22	30-Apr-22	0
SO-1330	PM Site Office - Module Connecting and Finishing - G/F	18	25-Mar-22	19-Apr-22	25-Mar-22	19-Apr-22	0
SO-1340	PM Site Office - Module Connecting and Finishing - 1/F	18	04-Apr-22	28-Apr-22	20-Apr-22	12-May-22	10
SO-1350	PM Site Office - Module Connecting and Finishing - 2/F	18	20-Apr-22	12-May-22	20-Apr-22	12-May-22	0
SO-1360	PM Site Office - Module Connecting and Finishing - R/F	18	29-Apr-22	21-May-22*	29-Apr-22	21-May-22	0
SO-1430	PM Site Office - Exterior Staircase Installation	12	26-Mar-22	09-Apr-22	27-Apr-22	12-May-22	23
Key Date KD1 - Interim Watermain		154	26-Feb-22	02-Sep-22	26-Feb-22	02-Sep-22	0
KD1 - Submissions		60	26-Feb-22	13-May-22	26-Feb-22	13-May-22	0
KD1-1000	Interim Watermain - Subletting of Watermain Subcontractor	0		01-Mar-22		01-Mar-22	0
KD1-1005	Interim Watermain - Method Statement Preparation and Submission	14	02-Mar-22	17-Mar-22	02-Mar-22	17-Mar-22	0
KD1-1010	Interim Watermain - Method Statement PM review	14	18-Mar-22	02-Apr-22	18-Mar-22	02-Apr-22	0
KD1-1015	Interim Watermain - Method Statement Resubmission and Approval	14	04-Apr-22	23-Apr-22	04-Apr-22	23-Apr-22	0
KD1-1020	Interim Watermain - Procurement and Delivery of Materials	60	26-Feb-22	13-May-22	26-Feb-22	13-May-22	0
KD1 - Construction		109	25-Apr-22	02-Sep-22	25-Apr-22	02-Sep-22	0
KD1-1025	Interim Watermain - Site Set-up	15	25-Apr-22	13-May-22	25-Apr-22	13-May-22	0
KD1-1030	Interim Watermain - CHIB0+000 to CHIB0+341 DN400 (341m) Excavation	34	14-May-22	23-Jun-22	14-May-22	23-Jun-22	0
KD1-1035	Interim Watermain - CHIB0+000 to CHIB0+297 DN400 (297m) Pipe Laying	60	24-Jun-22	02-Sep-22	24-Jun-22	02-Sep-22	0
Key Date KD2 - TAR 3		182	07-Feb-22	16-Sep-22	28-Apr-22	15-Jul-23	242
KD2 - Submission and Coordination		182	07-Feb-22	16-Sep-22	28-Apr-22	03-Dec-22	65
KD2-1000	TAR 3 - Consultation with CLP on Requirements for Delivery Route	182	07-Feb-22	16-Sep-22	28-Apr-22	03-Dec-22	65
KD2-1005	TAR 3 - MS Prep & Submit, PM Review, Resubmit, Approval	14	11-Feb-22	26-Feb-22	04-May-22	20-May-22	65
KD2 - Construction		74	07-Feb-22	10-May-22	28-Apr-22	15-Jul-23	350
KD2-1015	TAR 3 - UU Survey to Locate Existing HKT, LV, 132kV, 11kVCable, Gas Main and Fire Services Pipe	6	07-Feb-22	12-Feb-22	28-Apr-22	05-May-22	65
KD2-1020	TAR 3 - Carry out Diversion (if needed)	6	14-Feb-22	19-Feb-22	06-May-22	13-May-22	65
KD2-1025	TAR 3 - Trial Pits	6	21-Feb-22	26-Feb-22	14-May-22	20-May-22	65
KD2-1030	TAR 3 - Site Formation	6	21-Feb-22	26-Feb-22	14-May-22	20-May-22	65
KD2-1035	TAR 3 - Backfilling to Final Formation Level	25	28-Feb-22	28-Mar-22	09-May-23	07-Jun-23	350
KD2-1040	TAR 3 - Sub-base	25	07-Mar-22	04-Apr-22	16-May-23	14-Jun-23	350
KD2-1045	TAR 3 - Kerbs and Drainage Construction	31	07-Mar-22	12-Apr-22	16-May-23	21-Jun-23	350
KD2-1050	TAR 3 - Carriageway Slab (Concrete Bays)	17	07-Apr-22	29-Apr-22	16-Jun-23	07-Jul-23	350
KD2-1052	Meander Bridge - Bored Piling Works Commencement	0	27-Apr-22		18-May-22		16
KD2-1055	TAR 3 - Road Lighting and Street Furniture	23	08-Apr-22	10-May-22	17-Jun-23	15-Jul-23	350
KD2-1056	TAR 3 - Road Marking	12	14-Apr-22	30-Apr-22	03-Jul-23	15-Jul-23	356
Key Date KD3 - Road D1 and L1		115	26-Jan-22 A	24-Dec-22	07-Mar-22	17-Mar-24	175
KD3 - ROAD D1 Construction		115	26-Jan-22 A	24-Dec-22	07-Mar-22	17-Mar-24	175
KD3 - D1 - Submissions		120	07-Feb-22	05-Jul-22	29-Mar-22	29-Sep-22	73
KD3-1000	Road D1 - Subletting of Works for Road D1	30	07-Feb-22	12-Mar-22	29-Mar-22	07-May-22	43



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

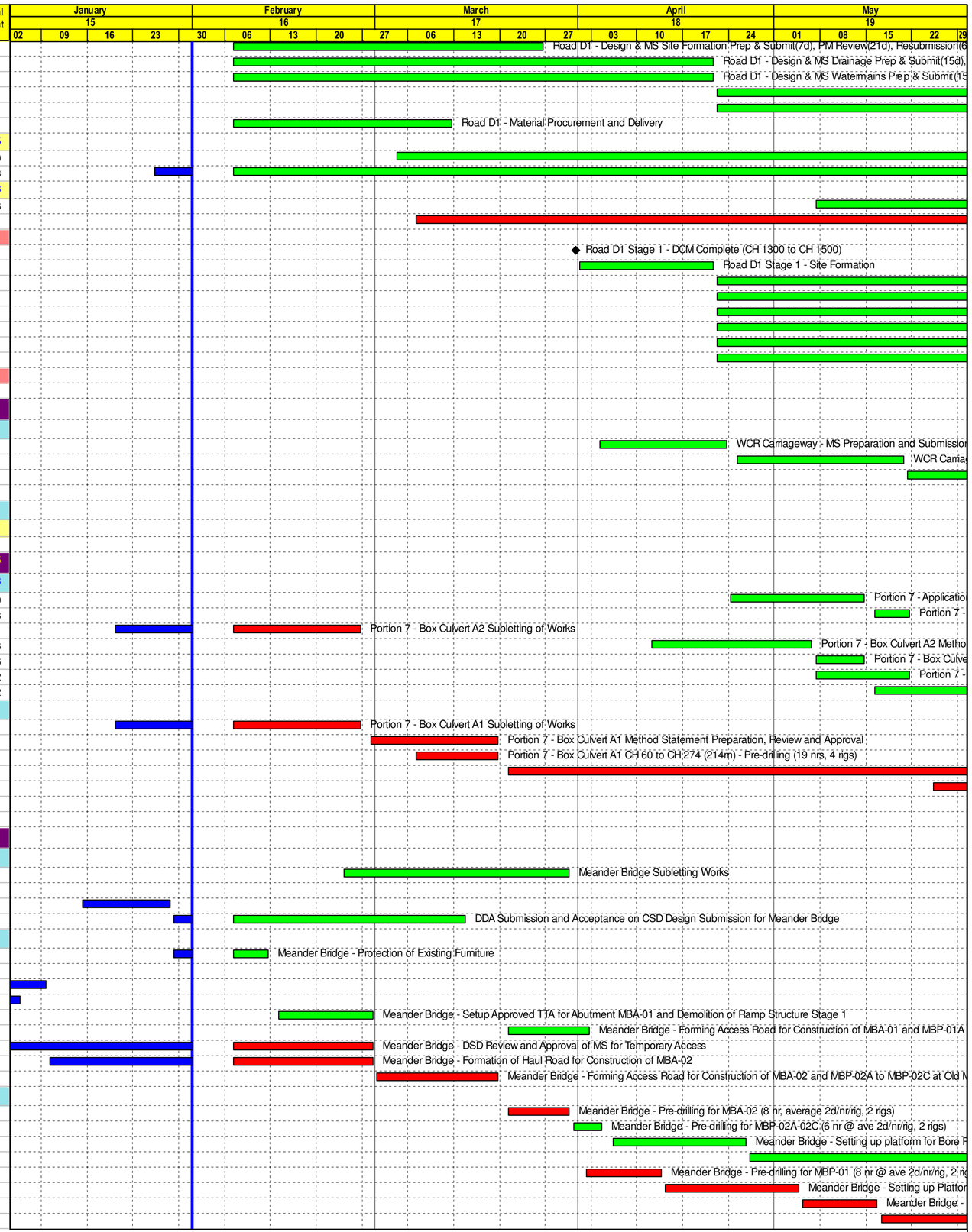
Three Month Rolling Programme

Project ID : YL-3MRP.06
Layout : YL-02 3MRP
Date : 07-Feb-22 / Page 3 of 9

Three Month Rolling Programme

Date	Revision	Checked	Approved
31-Jan-22	MPR No. 7		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float
KD3-1005	Road D1 - Design & MS Site Formation Prep & Submit(7d), PM Review(21d), Resubmission(6d), Apprc	42	07-Feb-22	26-Mar-22	29-Mar-22	23-May-22	43
KD3-1010	Road D1 - Design & MS Drainage Prep & Submit(15d), PM Review(21d), Resubmission(10d), Approval	60	07-Feb-22	21-Apr-22	29-Mar-22	14-Jun-22	43
KD3-1015	Road D1 - Design & MS Watermains Prep & Submit(15d), PM Review(21d), Resubmission(10d), Apprc	60	07-Feb-22	21-Apr-22	29-Mar-22	14-Jun-22	43
KD3-1020	Road D1 - Design & MS Road Paving & Marking Prep & Submit(15d), PM Review(21d), Resubmission(	60	22-Apr-22	05-Jul-22	21-Jul-22	29-Sep-22	73
KD3-1030	Road D1 - Design & MS Irrigation System Prep & Submit(15d), PM Review(21d), Resubmission(10d), A	60	22-Apr-22	05-Jul-22	21-Jul-22	29-Sep-22	73
KD3-1035	Road D1 - Material Procurement and Delivery	30	07-Feb-22	12-Mar-22	10-May-22	14-Jun-22	73
KD3 - D1 - DCM Works at Portion 7		115	26-Jan-22 A	24-Dec-22	15-Jun-22	17-Mar-24	175
KD3-1425	Portion 7 - Surcharging Works	275	04-Mar-22	03-Dec-22	17-Jun-23	17-Mar-24	470
KD3-1435	Portion 7 - DCM Works	270	26-Jan-22 A	24-Dec-22	15-Jun-22	08-May-23	103
KD3 - D1 - Construction		241	07-Mar-22	24-Dec-22	07-Mar-22	30-Dec-23	298
KD3-1445	Portion 7 - Complete Box Culvert A2	145	07-May-22	29-Oct-22	10-Jul-23	30-Dec-23	346
KD3-1455	Portion 7 - Complete Box Culvert A1	241	07-Mar-22	24-Dec-22	07-Mar-22	24-Dec-22	0
KD3 - Road D1 Stage 1 (CH 1300 to 1500)		74	31-Mar-22	05-Jul-22	27-May-22	24-Aug-22	43
KD3-2684	Road D1 Stage 1 - DCM Complete (CH 1300 to CH 1500)	0		31-Mar-22		27-May-22	43
KD3-2685	Road D1 Stage 1 - Site Formation	14	01-Apr-22	21-Apr-22	28-May-22	14-Jun-22	43
KD3-2695	Road D1 Stage 1 - Drainage	60	22-Apr-22	05-Jul-22	15-Jun-22	24-Aug-22	43
KD3-2705	Road D1 Stage 1 - Sewerage	60	22-Apr-22	05-Jul-22	15-Jun-22	24-Aug-22	43
KD3-2715	Road D1 Stage 1 - Watermains	60	22-Apr-22	05-Jul-22	15-Jun-22	24-Aug-22	43
KD3-2725	Road D1 Stage 1 - Utilities (Telecommunications and Cable TV Ducts)	60	22-Apr-22	05-Jul-22	15-Jun-22	24-Aug-22	43
KD3-2735	Road D1 Stage 1 - Utilities (11kV Cable)	60	22-Apr-22	05-Jul-22	15-Jun-22	24-Aug-22	43
KD3-2740	Road D1 Stage 1 - Utilities (Medium and Low Pressure Gas Mains)	60	22-Apr-22	05-Jul-22	15-Jun-22	24-Aug-22	43
KD3 - Road D1 Stage 2 (CH 1500 to 1850)		0	30-Jun-22	30-Jun-22	08-Aug-22	08-Aug-22	32
KD3-2804	Road D1 Stage 2 - DCM Complete (CH 1500 to CH 1850)	0		30-Jun-22		08-Aug-22	32
Key Date KD4 - WCR Carriageway + 1 Footpath		39	04-Apr-22	28-Jul-22	24-Jun-22	15-Sep-22	16
KD4 - Submissions		70	04-Apr-22	02-Jul-22	24-Jun-22	15-Sep-22	63
KD4-1000	WCR Carriageway - MS Preparation and Submission	14	04-Apr-22	23-Apr-22	24-Jun-22	11-Jul-22	63
KD4-1005	WCR Carriageway - MS PM Review	21	25-Apr-22	20-May-22	12-Jul-22	04-Aug-22	63
KD4-1010	WCR Carriageway - MS Resubmission	14	21-May-22	07-Jun-22	05-Aug-22	20-Aug-22	63
KD4-1015	WCR Carriageway - MS Approval	21	08-Jun-22	02-Jul-22	22-Aug-22	15-Sep-22	63
KD4 - Construction		24	30-Jun-22	28-Jul-22	04-Jul-22	30-Jul-22	2
Stage 1: Road D1 to WCR CH 1900		24	30-Jun-22	28-Jul-22	04-Jul-22	30-Jul-22	2
KD4-2090	Area 3 - Road Works	24	30-Jun-22	28-Jul-22	04-Jul-22	30-Jul-22	2
Key Date KD6 - Box Culverts A2 and A1 in Portion 7		63	20-Jan-22 A	25-Jul-22	07-Feb-22	21-Dec-23	195
KD6 - Box Culvert A2 (Including Border Patrol Road & Portion 7)		55	20-Jan-22 A	02-Jul-22	07-Feb-22	21-Dec-23	203
KD6-0500	Portion 7 - Application to Border Police for Boundary Patrol Road TTA	21	24-Apr-22	14-May-22	24-Nov-23	14-Dec-23	579
KD6-0550	Portion 7 - TTA Implementation and Road Diversion	6	16-May-22	21-May-22	15-Dec-23	21-Dec-23	473
KD6-1000	Portion 7 - Box Culvert A2 Subletting of Works	28	20-Jan-22 A	26-Feb-22	07-Feb-22	26-Feb-22	0
KD6-1005	Portion 7 - Box Culvert A2 Method Statement Submission and Approval	18	12-Apr-22	06-May-22	16-Jun-23	08-Jul-23	346
KD6-1010	Portion 7 - Box Culvert A2 Set up TTA (Border Patrol Road)	6	07-May-22	14-May-22	10-Jul-23	15-Jul-23	346
KD6-1015	Portion 7 - Box Culvert A2 Pre-drilling (8 nrs, 2 rigs)	12	07-May-22	21-May-22	17-Jul-23	29-Jul-23	352
KD6-1020	Portion 7 - Box Culvert A2 Socketed H-pile (64 nrs @ ave 2d/nr/rig, 3 rigs)	40	16-May-22	02-Jul-22	24-Jul-23	07-Sep-23	352
KD6 - Box Culvert A1		147	20-Jan-22 A	25-Jul-22	07-Feb-22	25-Jul-22	0
KD6-1065	Portion 7 - Box Culvert A1 Subletting of Works	28	20-Jan-22 A	26-Feb-22	07-Feb-22	26-Feb-22	0
KD6-1070	Portion 7 - Box Culvert A1 Method Statement Preparation, Review and Approval	18	28-Feb-22	19-Mar-22	28-Feb-22	19-Mar-22	0
KD6-1075	Portion 7 - Box Culvert A1 CH 60 to CH 274 (214m) - Pre-drilling (19 nrs, 4 rigs)	12	07-Mar-22	19-Mar-22	07-Mar-22	19-Mar-22	0
KD6-1080	Portion 7 - Box Culvert A1 CH 60 to CH 274 (214m) - Socketed H-pile (179 nrs @ ave 2d/nr/rig, 6 rigs)	61	21-Mar-22	07-Jun-22	21-Mar-22	07-Jun-22	0
KD6-1085	Portion 7 - Box Culvert A1 CH 60 to CH 274 (214m) - Piling Load Test	16	25-May-22	13-Jun-22	25-May-22	13-Jun-22	0
KD6-1090	Portion 7 - Box Culvert A1 CH 60 to CH 274 (214m) - Proof Drilling (4 rigs)	11	08-Jun-22	20-Jun-22	08-Jun-22	20-Jun-22	0
KD6-1095	Portion 7 - Box Culvert A1 CH 60 to CH 274 (214m) - Sheetpiling (2 rigs)	29	21-Jun-22	25-Jul-22	21-Jun-22	25-Jul-22	0
Key Date KD7 - Meander Bridge and CLP Transformer Delivery		133	26-Oct-21 A	10-Nov-22	07-Feb-22	11-Nov-22	0
KD7 - Submissions		177	15-Jan-22 A	24-Aug-22	16-Mar-22	24-Aug-22	0
KD7-1010	Meander Bridge Subletting Works	30	24-Feb-22	30-Mar-22	16-Mar-22	23-Apr-22	17
KD7-1175	MS - Bridge Abutment (Temporary Works) Prep & Submit (14d), PM Review (21d), Resubmit (7d), Appr	64	10-Jun-22	24-Aug-22	10-Jun-22	24-Aug-22	0
KD7-2025	AIP Submission and Acceptance on CSD Design Submission for Meander Bridge	12	15-Jan-22 A	28-Jan-22 A	04-Apr-22	04-Apr-22	
KD7-2035	DDA Submission and Acceptance on CSD Design Submission for Meander Bridge	33	29-Jan-22 A	14-Mar-22	04-Apr-22	16-May-22	48
KD7 - Preparation Works		58	26-Oct-21 A	02-Apr-22	07-Feb-22	13-Apr-22	4
KD7-1210	Meander Bridge - Protection of Existing Furniture	7	29-Jan-22 A	12-Feb-22	24-Feb-22	02-Mar-22	15
KD7-1220	Meander Bridge - Preparation of TTA scheme and Arrangement of 1st TMLG	50	26-Oct-21 A	28-Dec-21 A	07-Feb-22	07-Feb-22	
KD7-1230	Meander Bridge - Obtain Approval of TTA Scheme form TMLG and RWA from RMO	12	29-Dec-21 A	09-Jan-22 A	07-Feb-22	07-Feb-22	
KD7-1240	Meander Bridge - Trees removal and transplantation (5no. at MBA-01)	9	23-Dec-21 A	05-Jan-22 A	02-Apr-22	02-Apr-22	
KD7-1250	Meander Bridge - Setup Approved TTA for Abutment MBA-01 and Demolition of Ramp Structure Stage	13	14-Feb-22	28-Feb-22	03-Mar-22	17-Mar-22	15
KD7-1260	Meander Bridge - Forming Access Road for Construction of MBA-01 and MBP-01A to MBP-01C at Old	12	21-Mar-22	02-Apr-22	30-Mar-22	13-Apr-22	8
KD7-1265	Meander Bridge - DSD Review and Approval of MS for Temporary Access	47	29-Dec-21 A	28-Feb-22	07-Feb-22	28-Feb-22	0
KD7-1270	Meander Bridge - Formation of Haul Road for Construction of MBA-02	38	10-Jan-22 A	28-Feb-22	07-Feb-22	28-Feb-22	0
KD7-1280	Meander Bridge - Forming Access Road for Construction of MBA-02 and MBP-02A to MBP-02C at Old	17	01-Mar-22	19-Mar-22	01-Mar-22	19-Mar-22	0
KD7 - Foundation		191	21-Mar-22	10-Nov-22	21-Mar-22	11-Nov-22	1
KD7-1290	Meander Bridge - Pre-drilling for MBA-02 (8 nr, average 2d/nr/rig, 2 rigs)	9	21-Mar-22	30-Mar-22	21-Mar-22	30-Mar-22	0
KD7-1300	Meander Bridge - Pre-drilling for MBP-02A-02C (6 nr @ ave 2d/nr/rig, 2 rigs)	4	31-Mar-22	04-Apr-22	23-Apr-22	27-Apr-22	16
KD7-1310	Meander Bridge - Setting up platform for Bore Pile works for MBA02 and MBP02A-02C	15	06-Apr-22	26-Apr-22	28-Apr-22	17-May-22	16
KD7-1320	Meander Bridge - Bored Pile for MBA02 and MBP02A-02C, incl. testing (18nrs @ 10d/pile/rig)	148	27-Apr-22	24-Oct-22	18-May-22	11-Nov-22	16
KD7-1330	Meander Bridge - Pre-drilling for MBP-01 (8 nr @ ave 2d/nr/rig, 2 rig)	9	02-Apr-22	13-Apr-22	02-Apr-22	13-Apr-22	0
KD7-1335	Meander Bridge - Setting up Platform for Bored Pile Works for MBA01 and MBP01A-01C	14	14-Apr-22	04-May-22	14-Apr-22	04-May-22	0
KD7-1340	Meander Bridge - Pre-drilling for MBA-01A-01C (6 nr, average 2d/nr/rig, 1 rigs)	9	05-May-22	16-May-22	05-May-22	16-May-22	0
KD7-1360	Meander Bridge - Bored Pile for MBA01 and MBP01A-01C, incl. testing (18nrs @ 10d/pile/rig)	148	17-May-22	10-Nov-22	17-May-22	10-Nov-22	0



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

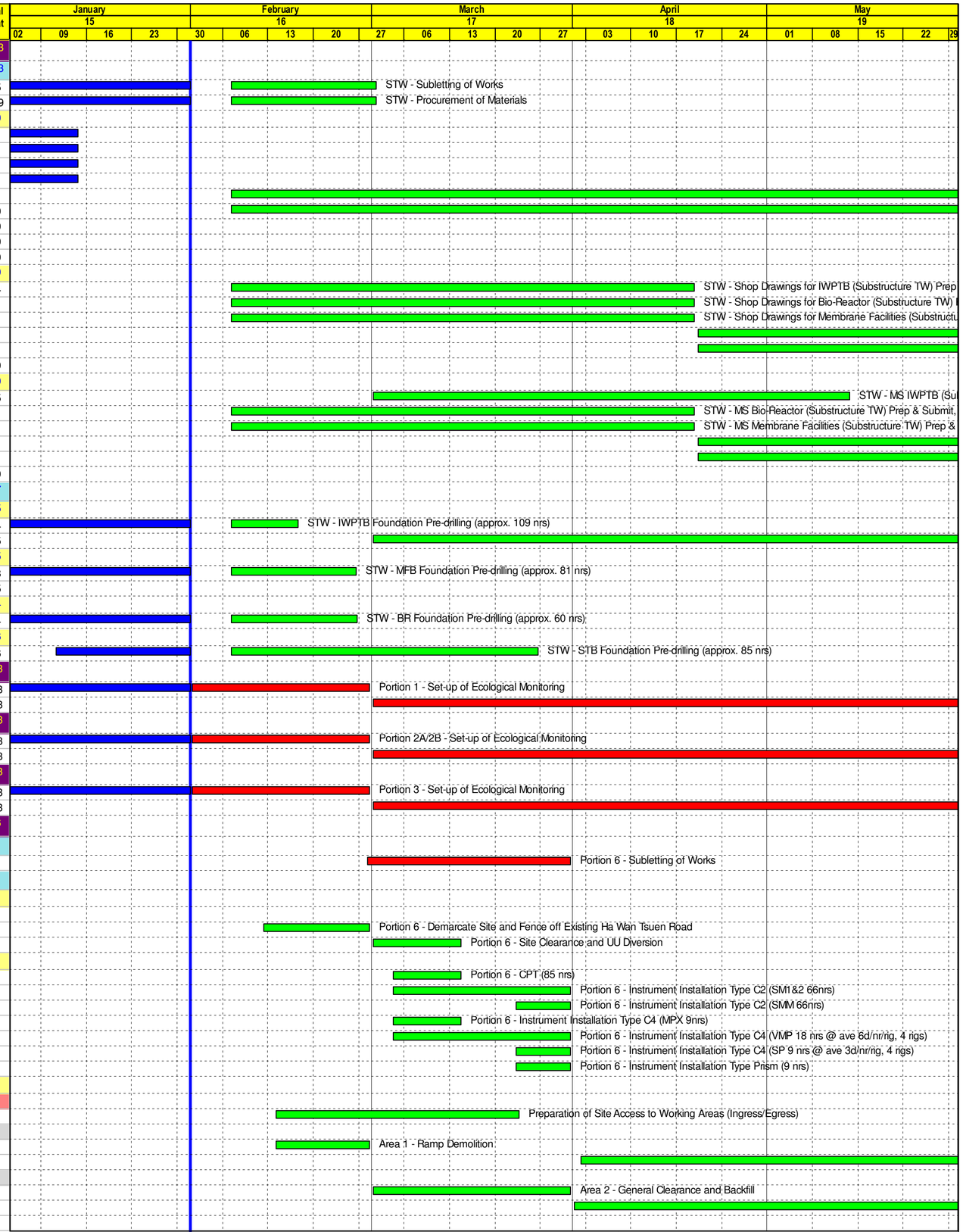
Three Month Rolling Programme

Project ID : YL-3MRP.06
Layout : YL-02 3MRP
Date : 07-Feb-22 / Page 4 of 9

Three Month Rolling Programme

Date	Revision	Checked	Approved
31-Jan-22	MPR No. 7		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float
Key Date KD8 - Sewage Treatment Works (STW) Buildings		288	05-Nov-21 A	28-Oct-22	28-Mar-22	11-Nov-26	1193
KD8 - Submissions		288	05-Nov-21 A	28-Oct-22	28-Mar-22	11-Nov-26	1193
KD8-1005	STW - Subletting of Works	47	30-Dec-21 A	01-Mar-22	17-Jun-22	11-Jul-22	105
KD8-1010	STW - Procurement of Materials	47	30-Dec-21 A	01-Mar-22	20-Oct-26	11-Nov-26	1389
KD8 - Design		288	05-Nov-21 A	28-Oct-22	28-Mar-22	17-May-23	160
KD8-1015	STW - Design IWPTB (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	05-Nov-21 A	14-Jan-22 A	11-Jul-22	11-Jul-22	
KD8-1020	STW - Design Bio-Reactor (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	05-Nov-21 A	14-Jan-22 A	28-Mar-22	28-Mar-22	
KD8-1025	STW - Design Membrane Facilities (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	05-Nov-21 A	14-Jan-22 A	07-Apr-22	07-Apr-22	
KD8-1030	STW - Design Sludge Treatment Blg (Substructure TW) Prep & Submit, PM Review, Resubmit, Approv	58	05-Nov-21 A	14-Jan-22 A	20-Apr-22	20-Apr-22	
KD8-1035	STW - Design Chem. Storage & FH Pump Room Prep & Submit (45d), PM Review (21d), Resubmit (2	108	07-Feb-22	20-Jun-22	20-Apr-22	27-Aug-22	58
KD8-1040	STW - Design DOU No. 3 (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), A	108	07-Feb-22	20-Jun-22	11-Jun-22	19-Oct-22	100
KD8-1045	STW - Design Admin Bldg (Foundation) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Appr	108	21-Jun-22	28-Oct-22	20-Oct-22	02-Mar-23	100
KD8-1050	STW - Design Admin Bldg (Foundation TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), A	108	21-Jun-22	28-Oct-22	31-Dec-22	17-May-23	160
KD8-1075	STW - Design Fence Wall (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d),	108	21-Jun-22	28-Oct-22	20-Oct-22	02-Mar-23	100
KD8 - Shop Drawings		216	07-Feb-22	28-Oct-22	28-Mar-22	02-Mar-23	100
KD8-3330	STW - Shop Drawings for IWPTB (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	07-Feb-22	19-Apr-22	11-Jul-22	16-Sep-22	124
KD8-3335	STW - Shop Drawings for Bio-Reactor (Substructure TW) Prep & Submit, PM Review, Resubmit, Appro	58	07-Feb-22	19-Apr-22	28-Mar-22	10-Jun-22	42
KD8-3340	STW - Shop Drawings for Membrane Facilities (Substructure TW) Prep & Submit, PM Review, Resubm	58	07-Feb-22	19-Apr-22	07-Apr-22	20-Jun-22	50
KD8-3345	STW - Shop Drawings for Sludge Treatment Blg (Substructure TW) Prep & Submit, PM Review, Resub	58	20-Apr-22	29-Jun-22	11-Jun-22	18-Aug-22	42
KD8-3350	STW - SD for Chem. Storage & FH Pump Room Prep & Submit (45d), PM Review (21d), Resubmit (21	108	20-Apr-22	27-Aug-22	11-Jun-22	19-Oct-22	42
KD8-3390	STW - SD for Fence Wall (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), A	108	21-Jun-22	28-Oct-22	20-Oct-22	02-Mar-23	100
KD8 - Method Statement		216	07-Feb-22	28-Oct-22	28-Mar-22	02-Mar-23	100
KD8-1330	STW - MS IWPTB (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	01-Mar-22	13-May-22	11-Jul-22	16-Sep-22	105
KD8-1335	STW - MS Bio-Reactor (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	07-Feb-22	19-Apr-22	28-Mar-22	10-Jun-22	42
KD8-1340	STW - MS Membrane Facilities (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	07-Feb-22	19-Apr-22	07-Apr-22	20-Jun-22	50
KD8-1345	STW - MS Sludge Treatment Blg (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	20-Apr-22	29-Jun-22	11-Jun-22	18-Aug-22	42
KD8-1350	STW - MS Chem. Storage & FH Pump Room Prep & Submit (45d), PM Review (21d), Resubmit (21d),	108	20-Apr-22	27-Aug-22	11-Jun-22	19-Oct-22	42
KD8-1390	STW - MS Fence Wall (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), App	108	21-Jun-22	28-Oct-22	20-Oct-22	02-Mar-23	100
KD8 - Construction		187	06-Dec-21 A	29-Jul-22	28-Jun-22	21-Feb-23	167
KD8 - Inlet Works and Primary Treatment Building (IWPTB)		147	06-Dec-21 A	11-Jun-22	28-Jun-22	17-Oct-22	105
KD8-2014	STW - IWPTB Foundation Pre-drilling (approx. 109 nrs)	55	06-Dec-21 A	17-Feb-22	28-Jun-22	09-Jul-22	114
KD8-2015	STW - IWPTB Foundation Socketed H-piles for IW PTB (109 nrs @ 2d/pile/rig, 2 rigs)	82	01-Mar-22	11-Jun-22	11-Jul-22	17-Oct-22	105
KD8 - Membrane Facility Building (MFB)		166	03-Jan-22 A	29-Jul-22	24-Sep-22	02-Dec-22	105
KD8-2004	STW - MFB Foundation Pre-drilling (approx. 81 nrs)	42	03-Jan-22 A	26-Feb-22	24-Sep-22	17-Oct-22	188
KD8-2005	STW - MFB Socketed H-piles for Membrane Facility Building (MFB) (52 nrs @ 1.5d/pile/rig, 2 rigs)	40	13-Jun-22	29-Jul-22	18-Oct-22	02-Dec-22	105
KD8 - Bio-Reactor (BRB)		50	22-Dec-21 A	26-Feb-22	09-Jan-23	02-Feb-23	274
KD8-1195	STW - BR Foundation Pre-drilling (approx. 60 nrs)	50	22-Dec-21 A	26-Feb-22	09-Jan-23	02-Feb-23	274
KD8 - Sludge Treatment Building (STB)		60	11-Jan-22 A	26-Mar-22	29-Dec-22	21-Feb-23	266
KD8-2352	STW - STB Foundation Pre-drilling (approx. 85 nrs)	60	11-Jan-22 A	26-Mar-22	29-Dec-22	21-Feb-23	266
Section 1A - Wetland Compensation Establishment Works at Portion 1		475	11-Nov-21 A	28-Feb-23	01-Oct-21	28-Oct-22	-123
S1A-1000	Portion 1 - Set-up of Ecological Monitoring	66	11-Nov-21 A	28-Feb-22	01-Oct-21	28-Oct-21	-123
S1A-2000	Portion 1 - Establishment Works and Ecological Monitoring	365	01-Mar-22	28-Feb-23	29-Oct-21	28-Oct-22	-123
Section 2A - Wetland Compensation Establishment Works at Portion 2A/2B		475	11-Nov-21 A	28-Feb-23	01-Oct-21	28-Oct-22	-123
S2A-1000	Portion 2A/2B - Set-up of Ecological Monitoring	66	11-Nov-21 A	28-Feb-22	01-Oct-21	28-Oct-21	-123
S2A-2000	Portion 2A/2B - Establishment Works and Ecological Monitoring	365	01-Mar-22	28-Feb-23	29-Oct-21	28-Oct-22	-123
Section 3A - Wetland Compensation Establishment Works at Portion 3		475	11-Nov-21 A	28-Feb-23	01-Oct-21	28-Oct-22	-123
S3A-1000	Portion 3 - Set-up of Ecological Monitoring	66	11-Nov-21 A	28-Feb-22	01-Oct-21	28-Oct-21	-123
S3A-2000	Portion 3 - Establishment Works and Ecological Monitoring	365	01-Mar-22	28-Feb-23	29-Oct-21	28-Oct-22	-123
Section 6 - Western Connection Road (WCR)		123	28-Oct-21 A	18-Oct-22	28-Feb-22	20-Dec-23	166
S6 WCR Submission		28	28-Feb-22	31-Mar-22	28-Feb-22	31-Mar-22	0
S6-1010A	Portion 6 - Subletting of Works	28	28-Feb-22	31-Mar-22	28-Feb-22	31-Mar-22	0
S6 WCR Works		123	28-Oct-21 A	18-Oct-22	01-Mar-22	10-Nov-22	9
S6 WCR: Preliminary and Demolition Works		110	28-Oct-21 A	14-Mar-22	07-Mar-22	12-Apr-22	24
S6-1074	Portion 6 - Demolition of Remaining Structures	54	28-Oct-21 A	31-Dec-21 A	07-Mar-22	07-Mar-22	
S6-1080	Portion 6 - Demarcate Site and Fence off Existing Ha Wan Tsuen Road	14	12-Feb-22	28-Feb-22	12-Mar-22	28-Mar-22	24
S6-1090	Portion 6 - Site Clearance and UU Diversion	12	01-Mar-22	14-Mar-22	29-Mar-22	12-Apr-22	24
S6 WCR: Instrumentation		24	04-Mar-22	31-Mar-22	01-Apr-22	04-May-22	24
S6-1020	Portion 6 - CPT (85 nrs)	9	04-Mar-22	14-Mar-22	01-Apr-22	12-Apr-22	24
S6-1040	Portion 6 - Instrument Installation Type C2 (SM1&2 66nrs)	24	04-Mar-22	31-Mar-22	01-Apr-22	04-May-22	24
S6-1060	Portion 6 - Instrument Installation Type C2 (SMM 66nrs)	8	23-Mar-22	31-Mar-22	25-Apr-22	04-May-22	24
S6-1110	Portion 6 - Instrument Installation Type C4 (MPX 9nrs)	9	04-Mar-22	14-Mar-22	01-Apr-22	12-Apr-22	24
S6-1120	Portion 6 - Instrument Installation Type C4 (VMP 18 nrs @ ave 6d/nr/rig, 4 rigs)	24	04-Mar-22	31-Mar-22	01-Apr-22	04-May-22	24
S6-1130	Portion 6 - Instrument Installation Type C4 (SP 9 nrs @ ave 3d/nr/rig, 4 rigs)	8	23-Mar-22	31-Mar-22	25-Apr-22	04-May-22	24
S6-1610	Portion 6 - Instrument Installation Type Prism (9 nrs)	8	23-Mar-22	31-Mar-22	25-Apr-22	04-May-22	24
S6 WCR: Construction Stage 1 and 1A		84	14-Feb-22	18-Oct-22	01-Mar-22	10-Nov-22	9
S1: Road D1 to WCR CH 1900		84	14-Feb-22	18-Oct-22	01-Mar-22	10-Nov-22	9
S6-3240	Preparation of Site Access to Working Areas (Ingress/Egress)	33	14-Feb-22	23-Mar-22	03-Mar-22	11-Apr-22	15
S1: Area 1		201	14-Feb-22	18-Oct-22	03-Mar-22	10-Nov-22	20
S6-3000	Area 1 - Ramp Demolition	13	14-Feb-22	28-Feb-22	03-Mar-22	17-Mar-22	15
S6-3090	Area 1 - Piling Works (for Meander Bridge)	160	02-Apr-22	18-Oct-22	30-Apr-22	10-Nov-22	20
S1: Area 2		99	01-Mar-22	02-Jul-22	29-Mar-22	30-Jul-22	24
S6-3100	Area 2 - General Clearance and Backfill	27	01-Mar-22	31-Mar-22	29-Mar-22	04-May-22	24
S6-3110	Area 2 - DCM4	58	01-Apr-22	15-Jun-22	05-May-22	14-Jul-22	24
S6-3120	Area 2 - Fill Slope	14	16-Jun-22	02-Jul-22	15-Jul-22	30-Jul-22	24



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

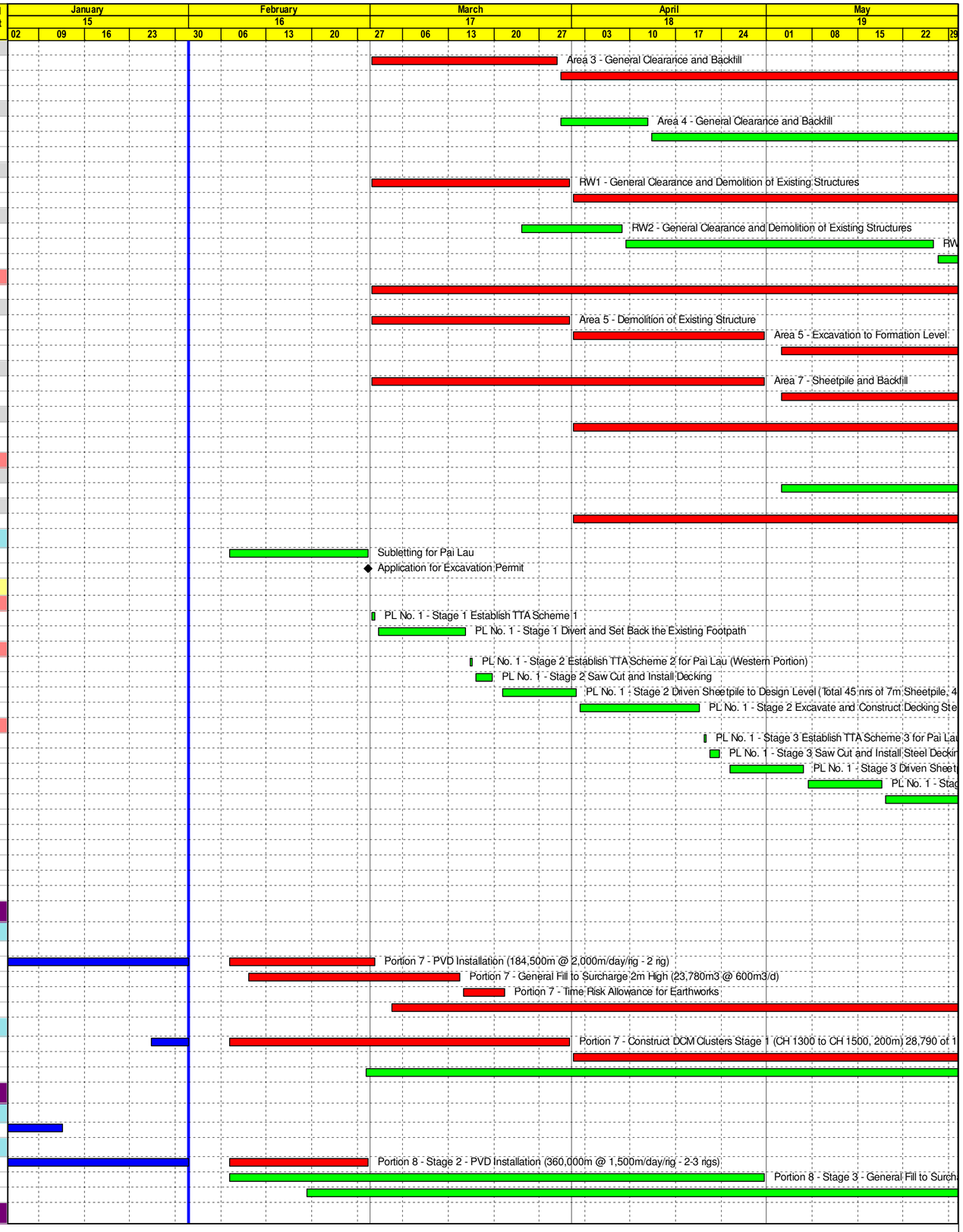
Three Month Rolling Programme

Project ID : YL-3MRP.06
Layout : YL-02 3MRP
Date : 07-Feb-22 / Page 5 of 9

Three Month Rolling Programme

Date	Revision	Checked	Approved
31-Jan-22	MPR No. 7		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float
S1: Area 3		97	01-Mar-22	29-Jun-22	03-Mar-22	02-Jul-22	2
S6-3130	Area 3 - General Clearance and Backfill	25	01-Mar-22	29-Mar-22	03-Mar-22	31-Mar-22	2
S6-3140	Area 3 - DCM5	58	30-Mar-22	13-Jun-22	01-Apr-22	15-Jun-22	2
S6-3150	Area 3 - Fill Slope	14	14-Jun-22	29-Jun-22	16-Jun-22	02-Jul-22	2
S1: Area 4		123	30-Mar-22	29-Aug-22	20-Apr-22	15-Sep-22	14
S6-3160	Area 4 - General Clearance and Backfill	11	30-Mar-22	12-Apr-22	20-Apr-22	03-May-22	14
S6-3170	Area 4 - Backfill and Sheetpile Installation	47	13-Apr-22	13-Jun-22	04-May-22	29-Jun-22	14
S6-3180	Area 4 - DCM6	65	14-Jun-22	29-Aug-22	30-Jun-22	15-Sep-22	14
S1: RW1		98	01-Mar-22	30-Jun-22	01-Mar-22	30-Jun-22	0
S6-3270	RW1 - General Clearance and Demolition of Existing Structures	27	01-Mar-22	31-Mar-22	01-Mar-22	31-Mar-22	0
S6-3290	RW1 - Open Excavation and Retaining Wall Construction	71	01-Apr-22	30-Jun-22	01-Apr-22	30-Jun-22	0
S1: RW2		110	24-Mar-22	08-Aug-22	03-May-22	12-Sep-22	29
S6-3200	RW2 - General Clearance and Demolition of Existing Structures	13	24-Mar-22	08-Apr-22	03-May-22	18-May-22	29
S6-3210	RW2 - Sheetpiling Installation and Excavation	36	09-Apr-22	26-May-22	19-May-22	30-Jun-22	29
S6-3220	RW2 - Open Excavation and Retaining Wall Construction	61	27-May-22	08-Aug-22	02-Jul-22	12-Sep-22	29
S1: WCR CH 1900 to CH 1650		150	01-Mar-22	31-Aug-22	01-Mar-22	06-Sep-22	5
S6-3420	Haul Road Construction CH 1900 to CH 1650	100	01-Mar-22	04-Jul-22	07-Mar-22	09-Jul-22	5
S1: Area 5		136	01-Mar-22	15-Aug-22	07-Mar-22	20-Aug-22	5
S6-3010	Area 5 - Demolition of Existing Structure	27	01-Mar-22	31-Mar-22	07-Mar-22	07-Apr-22	5
S6-3390	Area 5 - Excavation to Formation Level	22	01-Apr-22	30-Apr-22	08-Apr-22	07-May-22	5
S6-3400	Area 5 - RW3 Construction	87	03-May-22	15-Aug-22	10-May-22	20-Aug-22	5
S1: Area 7		110	01-Mar-22	15-Jul-22	01-Mar-22	15-Jul-22	0
S6-3440	Area 7 - Sheetpile and Backfill	49	01-Mar-22	30-Apr-22	01-Mar-22	30-Apr-22	0
S6-3450	Area 7 - DCM Works	61	03-May-22	15-Jul-22	03-May-22	15-Jul-22	0
S1: Area 9		123	01-Apr-22	31-Aug-22	08-Apr-22	06-Sep-22	5
S6-3490	Area 9 - Sheetpile and Backfill	46	01-Apr-22	31-May-22	08-Apr-22	07-Jun-22	5
S6-3500	Area 9 - RW5 Construction	77	01-Jun-22	31-Aug-22	08-Jun-22	06-Sep-22	5
S1: WCR CH 1650 to CH 1350		83	01-Apr-22	15-Jul-22	08-Apr-22	29-Jul-22	12
S1: Area 10		61	03-May-22	15-Jul-22	18-May-22	29-Jul-22	12
S6-3020	Area 10 - Sheetpile and Backfill	61	03-May-22	15-Jul-22	18-May-22	29-Jul-22	12
S1: Area 11		71	01-Apr-22	30-Jun-22	08-Apr-22	07-Jul-22	5
S6-3595	Area 11 - Sheetpile and Backfill	71	01-Apr-22	30-Jun-22	08-Apr-22	07-Jul-22	5
S6 WCR Pai Lau		52	07-Feb-22	07-Jul-22	28-Jul-23	20-Dec-23	200
S6-3860	Subletting for Pai Lau	19	07-Feb-22	28-Feb-22	28-Jul-23	18-Aug-23	434
S6-3865	Application for Excavation Permit	0		28-Feb-22		20-Sep-23	569
Pai Lau No.1 Construction (Location 15, LMC Road)		103	01-Mar-22	07-Jul-22	19-Aug-23	20-Dec-23	434
PL No.1 - TTA Stage 1, Set Back the Footpath		13	01-Mar-22	15-Mar-22	19-Aug-23	02-Sep-23	434
S6-3615	PL No. 1 - Stage 1 Establish TTA Scheme 1	1	01-Mar-22	01-Mar-22	19-Aug-23	19-Aug-23	434
S6-3665	PL No. 1 - Stage 1 Divert and Set Back the Existing Footpath	12	02-Mar-22	15-Mar-22	21-Aug-23	02-Sep-23	434
PL No.1 - TTA Stage 2, Steel Decking (Western Portion)		27	16-Mar-22	20-Apr-22	04-Sep-23	06-Oct-23	434
S6-3625	PL No. 1 - Stage 2 Establish TTA Scheme 2 for Pai Lau (Western Portion)	1	16-Mar-22	16-Mar-22	04-Sep-23	04-Sep-23	434
S6-3675	PL No. 1 - Stage 2 Saw Cut and Install Decking	3	17-Mar-22	19-Mar-22	05-Sep-23	07-Sep-23	434
S6-3685	PL No. 1 - Stage 2 Driven Sheetpile to Design Level (Total 45 nrs of 7m Sheetpile, 4nrs/d)	11	21-Mar-22	01-Apr-22	08-Sep-23	20-Sep-23	434
S6-3695	PL No. 1 - Stage 2 Excavate and Construct Decking Steel Frame (Western Portion)	12	02-Apr-22	20-Apr-22	21-Sep-23	06-Oct-23	434
PL No.1 - TTA Stage 3, Steel Decking (Easter Portion) and RC Footing		63	21-Apr-22	07-Jul-22	07-Oct-23	20-Dec-23	434
S6-3635	PL No. 1 - Stage 3 Establish TTA Scheme 3 for Pai Lau (Eastern Portion)	1	21-Apr-22	21-Apr-22	07-Oct-23	07-Oct-23	434
S6-3705	PL No. 1 - Stage 3 Saw Cut and Install Steel Decking	2	22-Apr-22	23-Apr-22	09-Oct-23	10-Oct-23	434
S6-3715	PL No. 1 - Stage 3 Driven Sheetpile to Design Level (Total 45nrs of 7m Sheetpile, 4nrs/d)	10	25-Apr-22	06-May-22	11-Oct-23	21-Oct-23	434
S6-3725	PL No. 1 - Stage 3 Excavate to Formation Level (+0.8mPD)	9	07-May-22	18-May-22	24-Oct-23	02-Nov-23	434
S6-3735	PL No. 1 - Stage 3 Fill 500mm thick Grade 200 Rock Fills	10	19-May-22	30-May-22	03-Nov-23	14-Nov-23	434
S6-3745	PL No. 1 - Stage 3 Install 0.125mm thick Polyethylene Sheeting	1	31-May-22	31-May-22	15-Nov-23	15-Nov-23	434
S6-3755	PL No. 1 - Stage 3 Place 75mm thick C20/20 Blinding Layer	2	01-Jun-22	02-Jun-22	16-Nov-23	17-Nov-23	434
S6-3765	PL No. 1 - Stage 3 RC Footing Set-out	1	04-Jun-22	04-Jun-22	18-Nov-23	18-Nov-23	434
S6-3775	PL No. 1 - Stage 3 RC Footing Formwork and Reinforcement Fixing with 150mm Kicker	18	06-Jun-22	25-Jun-22	20-Nov-23	09-Dec-23	434
S6-3785	PL No. 1 - Stage 3 RC Footing Concreting	3	27-Jun-22	29-Jun-22	11-Dec-23	13-Dec-23	434
S6-3795	PL No. 1 - Stage 3 Backfill Void Between ELS and RC Footing	6	30-Jun-22	07-Jul-22	14-Dec-23	20-Dec-23	434
Section 7 - Ground Treatment Works and Site Formation at Portion 7		179	20-Oct-21 A	04-Mar-23	07-Feb-22	08-May-24	168
S7 Ground Improvement - PVD/Surcharge		142	20-Oct-21 A	28-Nov-22	07-Feb-22	28-Nov-22	0
S7-1010	Portion 7 - Level Ground (79,100+1,100+1,670m3)	60	20-Oct-21 A	30-Dec-21 A	07-Feb-22	07-Feb-22	
S7-1090	Portion 7 - PVD Installation (184,500m @ 2,000m/day/rig - 2 rig)	45	03-Jan-22 A	01-Mar-22	07-Feb-22	01-Mar-22	0
S7-1100	Portion 7 - General Fill to Surcharge 2m High (23,780m3 @ 600m3/d)	28	10-Feb-22	14-Mar-22	10-Feb-22	14-Mar-22	0
S7-1110	Portion 7 - Time Risk Allowance for Earthworks	6	15-Mar-22	21-Mar-22	16-Mar-22	22-Mar-22	1
S7-1140	Portion 7 - Surcharge Period (9 months) (23,900m3)	270	04-Mar-22	28-Nov-22	04-Mar-22	28-Nov-22	0
S7 Ground Improvement - DCM		323	26-Jan-22 A	04-Mar-23	07-Feb-22	08-May-24	346
S7-1190	Portion 7 - Construct DCM Clusters Stage 1 (CH 1300 to CH 1500, 200m) 28,790 of 194,330 @ 180m	51	26-Jan-22 A	31-Mar-22	07-Feb-22	31-Mar-22	0
S7-1191	Portion 7 - Construct DCM Clusters Stage 2 (CH 1500 to CH 1850, 350m) 50,382 of 194,330 @ 180m	71	01-Apr-22	30-Jun-22	01-Apr-22	30-Jun-22	0
S7-1200	Portion 7 - General Fill (76,130-11,415=64,715m3 @ 900m3/d)	300	28-Feb-22	04-Mar-23	04-May-23	08-May-24	346
Section 8 - Ground Treatment Works and Site Formation at Portion 8		135	27-Oct-21 A	18-Nov-22	07-Feb-22	30-Nov-22	5
S8 STW - Submissions		56	05-Nov-21 A	12-Jan-22 A	18-Feb-22	18-Feb-22	
S8-1200	Portion 8 - MS Earthwork Preparation & Submission (14d), PM Review (21d), Resubmission (7d), Appr	56	05-Nov-21 A	12-Jan-22 A	18-Feb-22	18-Feb-22	
S8 STW - Site Formation		135	27-Oct-21 A	18-Nov-22	07-Feb-22	30-Nov-22	5
S8-1100	Portion 8 - Stage 2 - PVD Installation (360,000m @ 1,500m/day/rig - 2-3 rigs)	45	27-Oct-21 A	28-Feb-22	07-Feb-22	28-Feb-22	0
S8-1110	Portion 8 - Stage 3 - General Fill to Surcharge 2m High (26,615m3 @ 360m3/d)	68	07-Feb-22	30-Apr-22	18-Feb-22	14-May-22	10
S8-1140	Portion 8 - Stage 3 - Surcharge Period (9 months) (33,040m3)	273	19-Feb-22	18-Nov-22	03-Mar-22	30-Nov-22	12
Section 9 - Ground Treatment Works and Site Formation at Portion 20		150	20-Jan-22 A	19-Mar-23	08-Mar-22	27-Nov-23	99



CRCC - Kwan Lee - Paul Y. JV

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

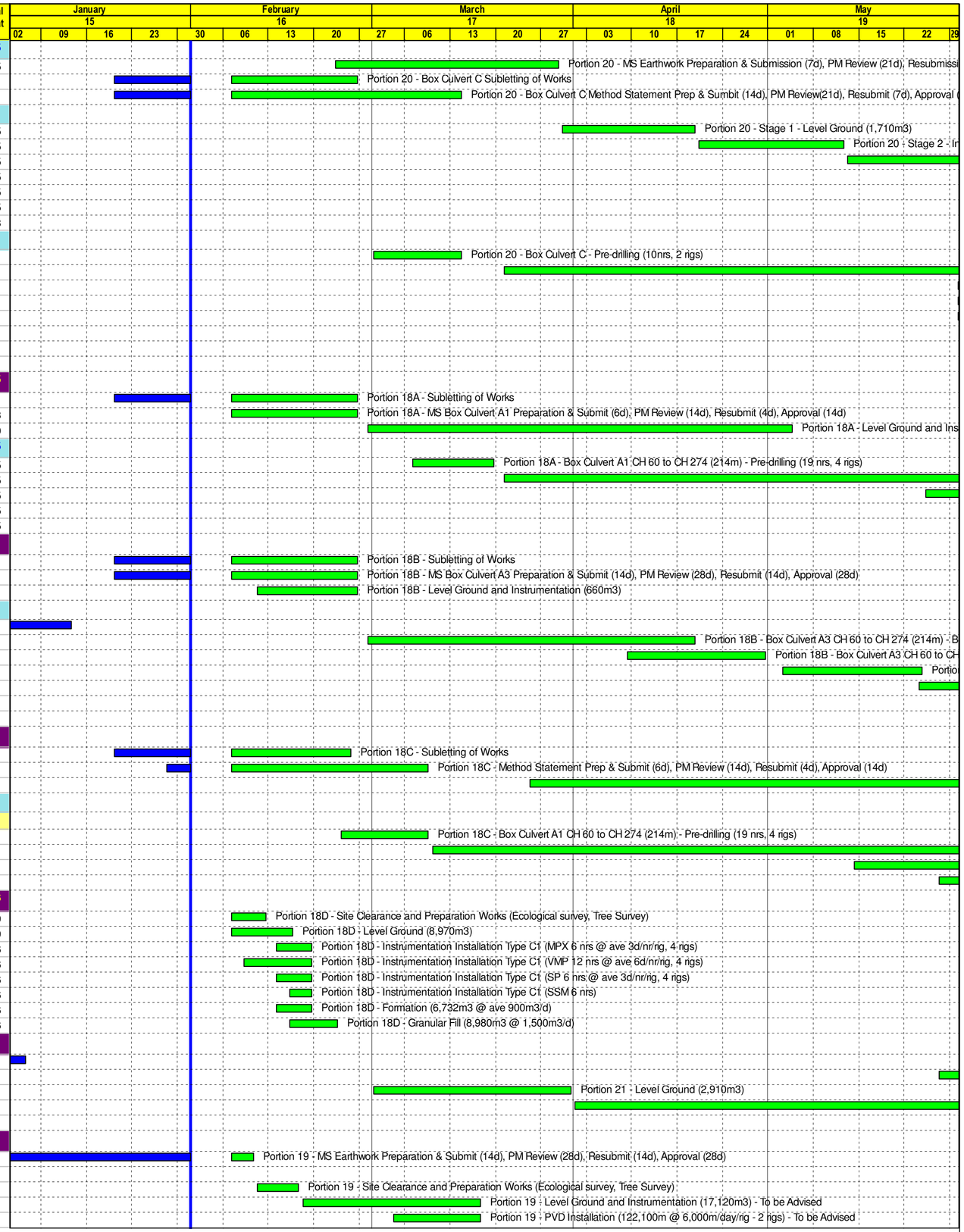
Contract YL/2020/01 - Lok Ma Chau Loop Main Works Package 1

Three Month Rolling Programme

Project ID : YL-3MRP.06
Layout : YL-02 3MRP
Date : 07-Feb-22 / Page 6 of 9

Three Month Rolling Programme			
Date	Revision	Checked	Approved
31-Jan-22	MPR No. 7		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float
S9 - Submission		54	20-Jan-22 A	29-Mar-22	08-Mar-22	07-Dec-22	205
S9-1060	Portion 20 - MS Earthwork Preparation & Submission (7d), PM Review (21d), Resubmission (7d), Appr	30	23-Feb-22	29-Mar-22	02-Nov-22	07-Dec-22	205
S9-1130	Portion 20 - Box Culvert C Subletting of Works	28	20-Jan-22 A	26-Feb-22	08-Mar-22	28-Mar-22	25
S9-1140	Portion 20 - Box Culvert C Method Statement Prep & Sumbit (14d), PM Review(21d), Resubmit (7d), A	41	20-Jan-22 A	14-Mar-22	08-Mar-22	13-Apr-22	25
S9 - Ground Treatment and Site Formation		125	30-Mar-22	19-Mar-23	07-Dec-22	27-Nov-23	99
S9-1020	Portion 20 - Stage 1 - Level Ground (1,710m3)	14	30-Mar-22	19-Apr-22	07-Dec-22	23-Dec-22	205
S9-1030	Portion 20 - Stage 2 - Instrumentation Installation Type C2 (INC 9nrs)	18	20-Apr-22	12-May-22	23-Dec-22	17-Jan-23	205
S9-1040	Portion 20 - Stage 2 - Instrumentation Installation Type C3 (SM1,SMM 6nrs)	18	13-May-22	02-Jun-22	17-Jan-23	11-Feb-23	205
S9-1070	Portion 20 - Stage 2 - PVD Installation (1,590m @ 6,000m/day/rig)	6	04-Jun-22	10-Jun-22	11-Feb-23	18-Feb-23	205
S9-1080	Portion 20 - Stage 3 - General Fill to FL (200m3 @ 300m3/d)	1	11-Jun-22	11-Jun-22	18-Feb-23	18-Feb-23	205
S9-1100	Portion 20 - Stage 3 - General Fill/Surcharge (300m3 @ 300m3/d)	6	11-Jun-22	18-Jun-22	20-Feb-23	25-Feb-23	205
S9-1110	Portion 20 - Stage 3 - Surcharge Period (9 months)	274	18-Jun-22	19-Mar-23	27-Feb-23	27-Nov-23	253
S9 - Box Culvert C		125	01-Mar-22	02-Aug-22	30-Mar-22	25-Aug-22	20
S9-1150	Portion 20 - Box Culvert C - Pre-drilling (10nrs, 2 rigs)	12	01-Mar-22	14-Mar-22	30-Mar-22	13-Apr-22	25
S9-1160	Portion 20 - Box Culvert C - Socketed H-pile (92 nrs @ ave 2d/nr/rig, 3 rigs)	60	21-Mar-22	06-Jun-22	14-Apr-22	29-Jun-22	20
S9-1170	Portion 20 - Box Culvert C - Piling Load Test	8	30-May-22	08-Jun-22	23-Jun-22	02-Jul-22	20
S9-1180	Portion 20 - Box Culvert C - Proof Drilling (2 rigs)	8	30-May-22	08-Jun-22	28-Jun-22	07-Jul-22	24
S9-1190	Portion 20 - Box Culvert C - Sheetpile	12	30-May-22	13-Jun-22	23-Jun-22	07-Jul-22	20
S9-1200	Portion 20 - Box Culvert C - ELS Installation	18	09-Jun-22	29-Jun-22	08-Jul-22	28-Jul-22	24
S9-1210	Portion 20 - Box Culvert C - Base Slab Construction	36	14-Jun-22	26-Jul-22	08-Jul-22	18-Aug-22	20
S9-1220	Portion 20 - Box Culvert C - Wall and Top Slab Construction (pour in one go)	30	28-Jun-22	02-Aug-22	22-Jul-22	25-Aug-22	20
Section 12A - Box Culvert A1 at Portion 18A		147	20-Jan-22 A	25-Jul-22	07-Apr-22	28-Nov-22	105
S12A-1000	Portion 18A - Subletting of Works	28	20-Jan-22 A	26-Feb-22	07-Apr-22	30-Apr-22	50
S12A-1010	Portion 18A - MS Box Culvert A1 Preparation & Submit (6d), PM Review (14d), Resubmit (4d), Approva	18	07-Feb-22	26-Feb-22	09-Jul-22	29-Jul-22	123
S12A-1020	Portion 18A - Level Ground and Instrumentation (2,460m3)	52	28-Feb-22	04-May-22	13-Sep-22	14-Nov-22	160
Section 12A - Construction		113	07-Mar-22	25-Jul-22	16-Jul-22	28-Nov-22	105
S12A-1040	Portion 18A - Box Culvert A1 CH 60 to CH 274 (214m) - Pre-drilling (19 nrs, 4 rigs)	12	07-Mar-22	19-Mar-22	16-Jul-22	29-Jul-22	105
S12A-1050	Portion 18A - Box Culvert A1 CH 60 to CH 274 (214m) - Socketed H-pile (179 nrs @ ave 2d/nr/rig, 6 ri	61	21-Mar-22	07-Jun-22	30-Jul-22	12-Oct-22	105
S12A-1060	Portion 18A - Box Culvert A1 CH 60 to CH 274 (214m) - Piling Load Test	16	25-May-22	13-Jun-22	28-Sep-22	18-Oct-22	105
S12A-1070	Portion 18A - Box Culvert A1 CH 60 to CH 274 (214m) - Proof Drilling (4 rigs)	11	08-Jun-22	20-Jun-22	13-Oct-22	25-Oct-22	105
S12A-1080	Portion 18A - Box Culvert A1 CH 60 to CH 274 (214m) - Sheetpiling (2 rigs)	29	21-Jun-22	25-Jul-22	26-Oct-22	28-Nov-22	105
Section 12B - Box Culvert A3 at Portion 18B (Over Underpass of HSITP)		205	30-Dec-21 A	12-Sep-22	07-Mar-22	12-Oct-22	24
S12B-1050	Portion 18B - Subletting of Works	28	20-Jan-22 A	26-Feb-22	07-Mar-22	26-Mar-22	24
S12B-1060	Portion 18B - MS Box Culvert A3 Preparation & Submit (14d), PM Review (28d), Resubmit (14d), Appr	28	20-Jan-22 A	26-Feb-22	07-Mar-22	26-Mar-22	24
S12B-1080	Portion 18B - Level Ground and Instrumentation (660m3)	14	11-Feb-22	26-Feb-22	11-Mar-22	26-Mar-22	24
Section 12B - Construction		205	30-Dec-21 A	12-Sep-22	28-Mar-22	12-Oct-22	24
S12B-1110	Portion 18B - Box Culvert A3 CH 60 to CH 274 (214m) - Pre-drilling (19 nrs, 4 rigs)	12	30-Dec-21 A	13-Jan-22 A	28-Mar-22	28-Mar-22	
S12B-1120	Portion 18B - Box Culvert A3 CH 60 to CH 274 (214m) - Bored Pile (4 nrs @ ave 10d/nr/rig, 1 rigs)	40	28-Feb-22	19-Apr-22	28-Mar-22	19-May-22	24
S12B-1130	Portion 18B - Box Culvert A3 CH 60 to CH 274 (214m) - Sonic Test/ Interface Coring / Full Depth Corin	16	09-Apr-22	30-Apr-22	13-May-22	31-May-22	24
S12B-1150	Portion 18B - Box Culvert A3 CH 60 to CH 274 (214m) - Sheetpiling (1 rigs)	18	03-May-22	24-May-22	01-Jun-22	22-Jun-22	24
S12B-1160	Portion 18B - Box Culvert A3 CH 60 to CH 274 (214m) - Excavation and ELS Installation	41	24-May-22	12-Jul-22	22-Jun-22	09-Aug-22	24
S12B-1170	Portion 18B - Box Culvert A3 CH 60 to CH 274 (214m) - Pile Head Treatment (i.e. Capping Plates)	76	14-Jun-22	12-Sep-22	13-Jul-22	12-Oct-22	24
S12B-1180	Portion 18B - Box Culvert A3 CH 60 to CH 274 (214m) - Foundation and Slab Construction	64	28-Jun-22	12-Sep-22	27-Jul-22	12-Oct-22	24
Section 12C - Box Culvert A1 at Portion 18C		109	20-Jan-22 A	09-Jun-22	07-Apr-22	21-Sep-22	87
S12C-1050	Portion 18C - Subletting of Works	27	20-Jan-22 A	25-Feb-22	07-Apr-22	29-Apr-22	50
S12C-1060	Portion 18C - Method Statement Prep & Submit (6d), PM Review (14d), Resubmit (4d), Approval (14d)	30	28-Jan-22 A	09-Mar-22	26-May-22	27-Jun-22	87
S12C-1070	Portion 18C - Level Ground and Instrumentation (15,350m3)	52	25-Mar-22	31-May-22	14-Jul-22	13-Sep-22	87
Section 12C - Construction		84	24-Feb-22	09-Jun-22	14-Jun-22	21-Sep-22	87
Section 12C - Box Culvert A1 (CH 60 to CH 274)		84	24-Feb-22	09-Jun-22	14-Jun-22	21-Sep-22	87
S12B-1500	Portion 18C - Box Culvert A1 CH 60 to CH 274 (214m) - Pre-drilling (19 nrs, 4 rigs)	12	24-Feb-22	09-Mar-22	14-Jun-22	27-Jun-22	87
S12B-1510	Portion 18C - Box Culvert A1 CH 60 to CH 274 (214m) - Socketed H-pile (179 nrs @ ave 2d/nr/rig, 6 ri	65	10-Mar-22	31-May-22	28-Jun-22	13-Sep-22	87
S12B-1520	Portion 18C - Box Culvert A1 CH 60 to CH 274 (214m) - Piling Load Test	16	14-May-22	01-Jun-22	26-Aug-22	14-Sep-22	87
S12B-1530	Portion 18C - Box Culvert A1 CH 60 to CH 274 (214m) - Proof Drilling (4 rigs)	11	27-May-22	09-Jun-22	08-Sep-22	21-Sep-22	87
Section 12D - Ground Treatment Works and Site Formation at Portion 18D		15	07-Feb-22	23-Feb-22	22-Jun-22	02-Sep-22	156
S12D-1085	Portion 18D - Site Clearance and Preparation Works (Ecological survey, Tree Survey)	6	07-Feb-22	12-Feb-22	22-Jun-22	28-Jun-22	109
S12D-1090	Portion 18D - Level Ground (8,970m3)	9	07-Feb-22	16-Feb-22	22-Jun-22	02-Jul-22	109
S12D-1100	Portion 18D - Instrumentation Installation Type C1 (MPX 6 nrs @ ave 3d/nr/rig, 4 rigs)	6	14-Feb-22	19-Feb-22	24-Aug-22	30-Aug-22	156
S12D-1110	Portion 18D - Instrumentation Installation Type C1 (VMP 12 nrs @ ave 6d/nr/rig, 4 rigs)	10	09-Feb-22	19-Feb-22	19-Aug-22	30-Aug-22	156
S12D-1120	Portion 18D - Instrumentation Installation Type C1 (SP 6 nrs @ ave 3d/nr/rig, 4 rigs)	6	14-Feb-22	19-Feb-22	24-Aug-22	30-Aug-22	156
S12D-1130	Portion 18D - Instrumentation Installation Type C1 (SSM 6 nrs)	4	16-Feb-22	19-Feb-22	26-Aug-22	30-Aug-22	156
S12D-1135	Portion 18D - Formation (6,732m3 @ ave 900m3/d)	6	14-Feb-22	19-Feb-22	24-Aug-22	30-Aug-22	156
S12D-1140	Portion 18D - Granular Fill (8,980m3 @ 1,500m3/d)	7	16-Feb-22	23-Feb-22	26-Aug-22	02-Sep-22	156
Section 13 - Ground Treatment Works and Site Formation at Portion 21		223	25-Sep-21 A	02-Jul-22	13-Apr-22	05-Sep-22	55
S13-1020	Portion 21 - MS DCM Prep & Submission (14d), PM Review (28d), Resubmission (14), Approval (28d)	84	25-Sep-21 A	06-Jan-22 A	13-Apr-22	13-Apr-22	
S13-1030	Portion 21 - MS Retaining Wall PW2 Prep & Submission (14d), PM Review (28d), Resubmission (14), A	30	27-May-22	02-Jul-22	02-Aug-22	05-Sep-22	55
S13-1050	Portion 21 - Level Ground (2,910m3)	27	01-Mar-22	31-Mar-22	11-May-22	11-Jun-22	55
S13-1060	Portion 21 - Construct DCM Clusters (1,140m3 @ 150m3/d/rig - 2 rigs)	58	01-Apr-22	15-Jun-22	13-Jun-22	19-Aug-22	55
S13-1070	Portion 21 - General Fill (6,520m3 @ 300m3/d)	14	16-Jun-22	02-Jul-22	20-Aug-22	05-Sep-22	55
Section 14 - Ground Treatment Works and Site Formation at Portion 19		106	24-Nov-21 A	27-Sep-22	08-Apr-22	04-Dec-22	25
S14-1010	Portion 19 - MS Earthwork Preparation & Submit (14d), PM Review (28d), Resubmit (14d), Approval (2	60	24-Nov-21 A	10-Feb-22	08-Apr-22	12-Apr-22	51
S14-1020	Portion 19 - Remove Material (150,000m3 @ 1,800m3/d - PS 1.129(2H)	84	20-Jun-22	27-Sep-22	25-Aug-22	03-Dec-22	56
S14-1025	Portion 19 - Site Clearance and Preparation Works (Ecological survey, Tree Survey)	6	11-Feb-22	17-Feb-22	13-Apr-22	22-Apr-22	51
S14-1030	Portion 19 - Level Ground and Instrumentation (17,120m3) - To be Advised	24	18-Feb-22	17-Mar-22	23-Apr-22	23-May-22	51
S14-1040	Portion 19 - PVD Installation (122,100m @ 6,000m/day/rig - 2 rigs) - To be Advised	12	04-Mar-22	17-Mar-22	10-May-22	23-May-22	51



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

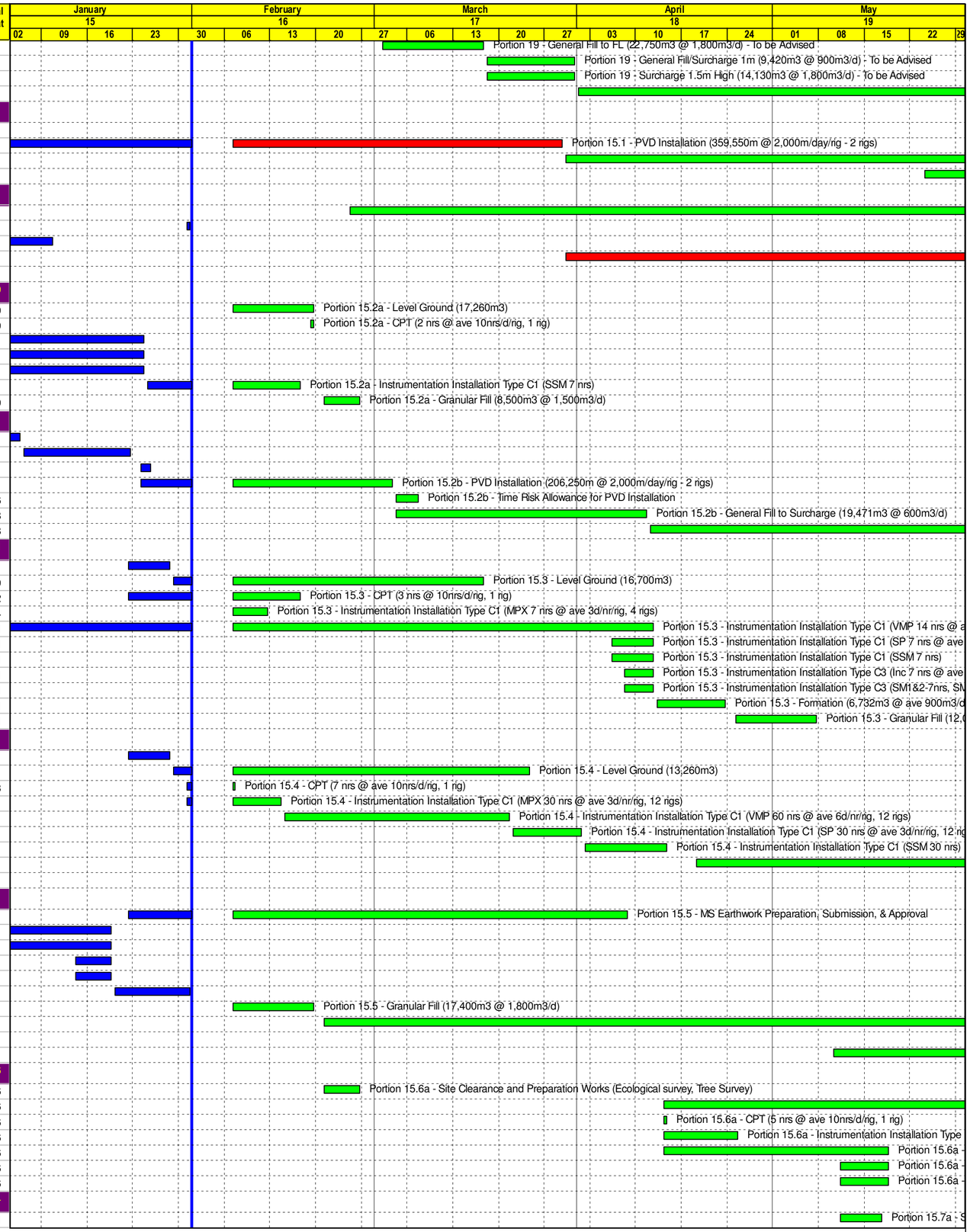
Three Month Rolling Programme

Project ID : YL-3MRP.06
Layout : YL-02 3MRP
Date : 07-Feb-22 / Page 7 of 9

Three Month Rolling Programme

Date	Revision	Checked	Approved
31-Jan-22	MPR No. 7		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float
S14-1050	Portion 19 - General Fill to FL (22,750m3 @ 1,800m3/d) - To be Advised	14	02-Mar-22	17-Mar-22	06-May-22	23-May-22	51
S14-1070	Portion 19 - General Fill/Surcharge 1m (9,420m3 @ 900m3/d) - To be Advised	12	18-Mar-22	31-Mar-22	24-May-22	07-Jun-22	51
S14-1080	Portion 19 - Surcharge 1.5m High (14,130m3 @ 1,800m3/d) - To be Advised	12	18-Mar-22	31-Mar-22	24-May-22	07-Jun-22	51
S14-1090	Portion 19 - Surcharge Period - To be Advised	180	01-Apr-22	27-Sep-22	08-Jun-22	04-Dec-22	68
Section 15.1 - Ground Treatment Works and Site Formation at Portion 15.1		167	06-Nov-21 A	17-Feb-23	10-Feb-22	25-Apr-23	26
S15.1-1070	Portion 15.1 - Instrumentation Installation Type C1 (VMP 20 nrs @ ave 6d/nr/rig, 4 rigs)	44	06-Nov-21 A	29-Dec-21 A	10-Feb-22	10-Feb-22	
S15.1-1110	Portion 15.1 - PVD Installation (359,550m @ 2,000m/day/rig - 2 rigs)	84	13-Dec-21 A	29-Mar-22	10-Feb-22	01-Apr-22	3
S15.1-1120	Portion 15.1 - General Fill to Surcharge 2m High (39,140m3 @ 600m3/d)	58	30-Mar-22	13-Jun-22	11-Jun-22	18-Aug-22	56
S15.1-1190	Portion 15.1 - Surcharge Period (9 months, 58,325m3)	270	24-May-22	17-Feb-23	30-Jul-22	25-Apr-23	67
Section 15.2 - Ground Treatment Works and Site Formation at Portion 15.2		182	15-Nov-21 A	02-Jul-22	16-Mar-22	21-Jul-22	16
S15.2-1030	Portion 15.2 - MS Earthwork Preparation, Submission, & Approval	78	25-Feb-22	02-Jun-22	16-Mar-22	22-Jun-22	16
S15.2-1050	Portion 15.2 - CPT (6 nrs @ ave 10nrs/day/rig, 1 rig)	1	31-Jan-22 A	31-Jan-22 A	02-Apr-22	02-Apr-22	
S15.2-1090	Portion 15.2 - Instrumentation Installation Type C1 (SSM 23 nrs)	46	15-Nov-21 A	10-Jan-22 A	02-Apr-22	02-Apr-22	
S15.2-1140	Portion 15.2 - PVD Installation (993,000m @ 3,000m/day/rig - 4 rigs)	74	30-Mar-22	02-Jul-22	02-Apr-22	06-Jul-22	3
S15.2-1180	Portion 15.2 - General Fill to Surcharge 2m High (16,563m3 @ 1,500m3/d)	24	04-Jun-22	02-Jul-22	23-Jun-22	21-Jul-22	16
Section 15.2a - Ground Treatment Works and Site Formation at Portion 15.2a		56	15-Dec-21 A	26-Feb-22	22-Jun-22	13-Jul-22	109
S15.2a-1040	Portion 15.2a - Level Ground (17,260m3)	12	07-Feb-22	19-Feb-22	22-Jun-22	06-Jul-22	109
S15.2a-1050	Portion 15.2a - CPT (2 nrs @ ave 10nrs/d/rig, 1 rig)	1	19-Feb-22	19-Feb-22	06-Jul-22	06-Jul-22	109
S15.2a-1060	Portion 15.2a - Instrumentation Installation Type C1 (MPX 7 nrs @ 3d/nr/rig, 4 rigs)	32	15-Dec-21 A	24-Jan-22 A	06-Jul-22	06-Jul-22	
S15.2a-1070	Portion 15.2a - Instrumentation Installation Type C1 (VMP 14 nrs @ 6d/nr/rig, 4 rigs)	31	16-Dec-21 A	24-Jan-22 A	06-Jul-22	06-Jul-22	
S15.2a-1080	Portion 15.2a - Instrumentation Installation Type C1 (SP 7 nrs @ ave 3d/nr/rig, 4 rigs)	30	17-Dec-21 A	24-Jan-22 A	06-Jul-22	06-Jul-22	
S15.2a-1090	Portion 15.2a - Instrumentation Installation Type C1 (SSM 7 nrs)	16	25-Jan-22 A	17-Feb-22	24-Jun-22	06-Jul-22	111
S15.2a-1100	Portion 15.2a - Granular Fill (8,500m3 @ 1,500m3/d)	6	21-Feb-22	26-Feb-22	07-Jul-22	13-Jul-22	109
Section 15.2b - Ground Treatment Works and Site Formation at Portion 15.2b		163	02-Oct-21 A	06-Jan-23	20-Apr-22	13-Jun-23	61
S15.2b-1030	Portion 15.2b - MS Earthwork Preparation, Submission, & Approval	78	02-Oct-21 A	05-Jan-22 A	20-Apr-22	20-Apr-22	
S15.2b-1040	Portion 15.2b - Level Ground (27,420m3)	15	06-Jan-22 A	22-Jan-22 A	17-May-22	17-May-22	
S15.2b-1050	Portion 15.2b - CPT (2 nr @ ave 10nr/d/rig, 1 rig)	2	24-Jan-22 A	25-Jan-22 A	17-May-22	17-May-22	
S15.2b-1110	Portion 15.2b - PVD Installation (206,250m @ 2,000m/day/rig - 2 rigs)	29	24-Jan-22 A	03-Mar-22	20-Apr-22	17-May-22	58
S15.2b-1120	Portion 15.2b - Time Risk Allowance for PVD Installation	3	04-Mar-22	07-Mar-22	27-Jul-22	29-Jul-22	116
S15.2b-1130	Portion 15.2b - General Fill to Surcharge (19,471m3 @ 600m3/d)	32	04-Mar-22	11-Apr-22	10-Aug-22	16-Sep-22	128
S15.2b-1160	Portion 15.2b - Surcharge Period (9 months) (33,400m3)	270	12-Apr-22	06-Jan-23	17-Sep-22	13-Jun-23	158
Section 15.3 - Ground Treatment Works and Site Formation at Portion 15.3		113	13-Dec-21 A	07-May-22	30-Jul-22	26-Oct-22	141
S15.3-1000	Portion 15.3 - Site Clearance and Preparation Works (Ecological survey, Tree Survey)	6	22-Jan-22 A	28-Jan-22 A	01-Sep-22	01-Sep-22	
S15.3-1040	Portion 15.3 - Level Ground (16,700m3)	36	29-Jan-22 A	17-Mar-22	01-Sep-22	13-Oct-22	169
S15.3-1050	Portion 15.3 - CPT (3 nrs @ 10nrs/d/rig, 1 rig)	18	22-Jan-22 A	17-Feb-22	17-Sep-22	28-Sep-22	182
S15.3-1060	Portion 15.3 - Instrumentation Installation Type C1 (MPX 7 nrs @ ave 3d/nr/rig, 4 rigs)	6	07-Feb-22	12-Feb-22	20-Sep-22	26-Sep-22	184
S15.3-1070	Portion 15.3 - Instrumentation Installation Type C1 (VMP 14 nrs @ ave 6d/nr/rig, 4 rigs)	95	13-Dec-21 A	12-Apr-22	30-Jul-22	05-Oct-22	141
S15.3-1080	Portion 15.3 - Instrumentation Installation Type C1 (SP 7 nrs @ ave 3d/nr/rig, 4 rigs)	6	06-Apr-22	12-Apr-22	27-Sep-22	05-Oct-22	141
S15.3-1090	Portion 15.3 - Instrumentation Installation Type C1 (SSM 7 nrs)	6	06-Apr-22	12-Apr-22	27-Sep-22	05-Oct-22	141
S15.3-1100	Portion 15.3 - Instrumentation Installation Type C3 (Inc 7 nrs @ ave 3d/nr/rig, 4 rigs)	4	08-Apr-22	12-Apr-22	29-Sep-22	05-Oct-22	141
S15.3-1110	Portion 15.3 - Instrumentation Installation Type C3 (SM1&2-7nrs, SMM-7nrs)	4	08-Apr-22	12-Apr-22	29-Sep-22	05-Oct-22	141
S15.3-1115	Portion 15.3 - Formation (6,732m3 @ ave 900m3/d)	7	13-Apr-22	23-Apr-22	06-Oct-22	13-Oct-22	141
S15.3-1120	Portion 15.3 - Granular Fill (12,080m3 @ 1,500m3/d)	11	25-Apr-22	07-May-22	14-Oct-22	26-Oct-22	141
Section 15.4 - Ground Treatment Works and Site Formation at Portion 15.4		136	22-Jan-22 A	14-Jul-22	22-Feb-22	29-Jul-22	13
S15.4-1000	Portion 15.4 - Site Clearance and Preparation Works (Ecological survey, Tree Survey)	6	22-Jan-22 A	28-Jan-22 A	22-Feb-22	22-Feb-22	
S15.4-1040	Portion 15.4 - Level Ground (13,260m3)	42	29-Jan-22 A	24-Mar-22	22-Feb-22	09-Apr-22	13
S15.4-1050	Portion 15.4 - CPT (7 nrs @ ave 10nrs/d/rig, 1 rig)	2	31-Jan-22 A	07-Feb-22	27-Jun-22	27-Jun-22	113
S15.4-1060	Portion 15.4 - Instrumentation Installation Type C1 (MPX 30 nrs @ ave 3d/nr/rig, 12 rigs)	8	31-Jan-22 A	14-Feb-22	22-Feb-22	01-Mar-22	13
S15.4-1070	Portion 15.4 - Instrumentation Installation Type C1 (VMP 60 nrs @ ave 6d/nr/rig, 12 rigs)	30	15-Feb-22	21-Mar-22	02-Mar-22	06-Apr-22	13
S15.4-1080	Portion 15.4 - Instrumentation Installation Type C1 (SP 30 nrs @ ave 3d/nr/rig, 12 rigs)	10	22-Mar-22	01-Apr-22	07-Apr-22	21-Apr-22	13
S15.4-1090	Portion 15.4 - Instrumentation Installation Type C1 (SSM 30 nrs)	10	02-Apr-22	14-Apr-22	22-Apr-22	04-May-22	13
S15.4-1095	Portion 15.4 - Formation (87,870m3 @ ave 1,800m3/d)	44	19-Apr-22	11-Jun-22	05-May-22	27-Jun-22	13
S15.4-1100	Portion 15.4 - Granular Fill (41,650m3 @ 1,500m3/d)	27	13-Jun-22	14-Jul-22	28-Jun-22	29-Jul-22	13
Section 15.5 - Ground Treatment Works and Site Formation at Portion 15.5		147	20-Dec-21 A	25-Jun-22	01-Apr-22	03-Sep-22	59
S15.5-1030	Portion 15.5 - MS Earthwork Preparation, Submission, & Approval	60	22-Jan-22 A	08-Apr-22	11-Apr-22	16-Jun-22	53
S15.5-1040	Portion 15.5 - Level Ground (5,950m3)	24	20-Dec-21 A	19-Jan-22 A	01-Apr-22	01-Apr-22	
S15.5-1070	Portion 15.5 - Instrumentation Installation Type C1 (VMP 26nrs @ ave 6d/nr/rig, 8 rigs)	24	20-Dec-21 A	19-Jan-22 A	01-Apr-22	01-Apr-22	
S15.5-1080	Portion 15.5 - Instrumentation Installation Type C1 (SP 13nrs @ ave 3d/nr/rig, 8 rigs)	5	14-Jan-22 A	19-Jan-22 A	01-Apr-22	01-Apr-22	
S15.5-1090	Portion 15.5 - Instrumentation Installation Type C1 (SSM 13nrs)	5	14-Jan-22 A	19-Jan-22 A	01-Apr-22	01-Apr-22	
S15.5-1095	Portion 15.5 - Formation (40,356 m3 @ ave 900m3/d)	10	20-Jan-22 A	31-Jan-22 A	01-Apr-22	01-Apr-22	
S15.5-1100	Portion 15.5 - Granular Fill (17,400m3 @ 1,800m3/d)	12	07-Feb-22	19-Feb-22	01-Apr-22	19-Apr-22	46
S15.5-1110	Portion 15.5 - PVD Installation (537,000m @ 2,000m/day/rig - 3 rigs)	83	21-Feb-22	04-Jun-22	20-Apr-22	29-Jul-22	46
S15.5-1115	Portion 15.5 - Time Risk Allowance for PVD Installation	8	06-Jun-22	14-Jun-22	26-Aug-22	03-Sep-22	69
S15.5-1120	Portion 15.5 - General Fill to Surcharge 2m High (109,956m3 @ 1,800m3/d)	40	10-May-22	25-Jun-22	13-Jul-22	27-Aug-22	53
Section 15.6a - Ground Treatment Works and Site Formation at Portion 15.6a		124	21-Feb-22	23-Jul-22	12-Nov-22	18-Apr-23	216
S15.6a-1000	Portion 15.6a - Site Clearance and Preparation Works (Ecological survey, Tree Survey)	6	21-Feb-22	26-Feb-22	12-Nov-22	18-Nov-22	216
S15.6a-1040	Portion 15.6a - Level Ground (144,240m3)	80	14-Apr-22	23-Jul-22	06-Jan-23	18-Apr-23	216
S15.6a-1050	Portion 15.6a - CPT (5 nrs @ ave 10nrs/d/rig, 1 rig)	1	14-Apr-22	14-Apr-22	06-Jan-23	06-Jan-23	216
S15.6a-1060	Portion 15.6a - Instrumentation Installation Type C1 (MPX 22 nrs @ ave 3d/nr/rig, 10 rigs)	7	14-Apr-22	25-Apr-22	06-Jan-23	13-Jan-23	216
S15.6a-1070	Portion 15.6a - Instrumentation Installation Type C1 (VMP 44 nrs @ ave 6d/nr/rig, 10 rigs)	25	14-Apr-22	18-May-22	06-Jan-23	08-Feb-23	216
S15.6a-1080	Portion 15.6a - Instrumentation Installation Type C1 (SP 22 nrs @ ave 3d/nr/rig, 10 rigs)	7	11-May-22	18-May-22	01-Feb-23	08-Feb-23	216
S15.6a-1090	Portion 15.6a - Instrumentation Installation Type C1 (SSM 22 nrs)	7	11-May-22	18-May-22	01-Feb-23	08-Feb-23	216
Section 15.7a - Ground Treatment Works and Site Formation at Portion 15.7a		46	11-May-22	05-Jul-22	18-Feb-23	20-Apr-23	234
S15.7a-1000	Portion 15.7a - Site Clearance and Preparation Works (Ecological survey, Tree Survey)	6	11-May-22	17-May-22	18-Feb-23	24-Feb-23	231



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

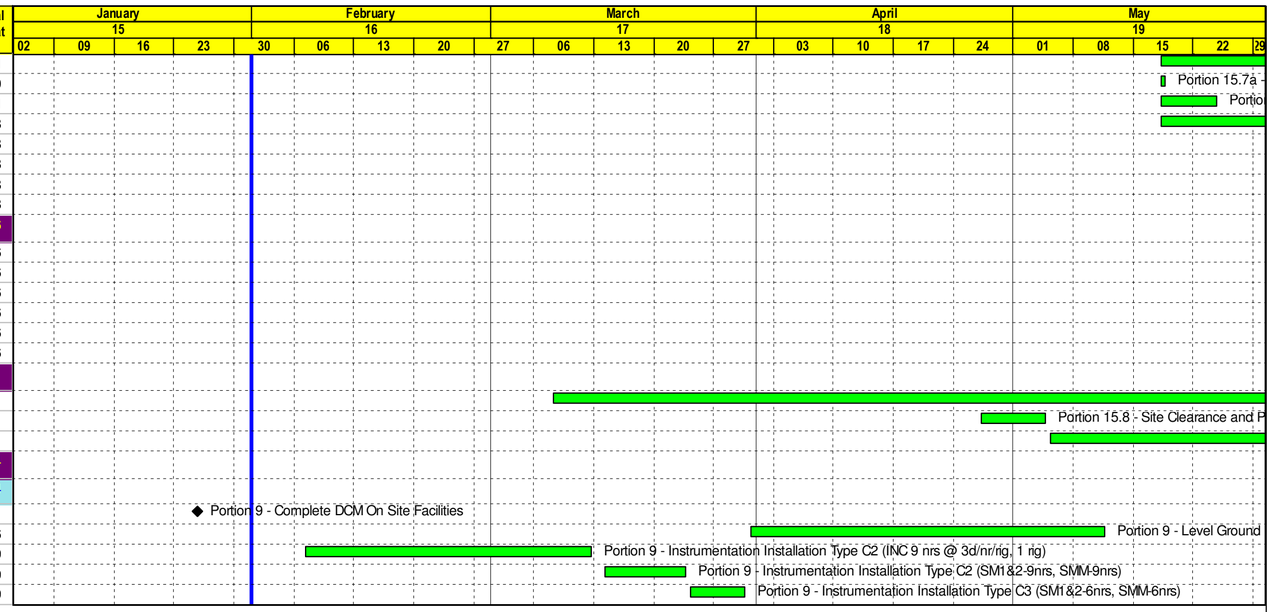
Three Month Rolling Programme

Project ID : YL-3MRP.06
Layout : YL-02 3MRP
Date : 07-Feb-22 / Page 8 of 9

Three Month Rolling Programme

Date	Revision	Checked	Approved
31-Jan-22	MPR No. 7		

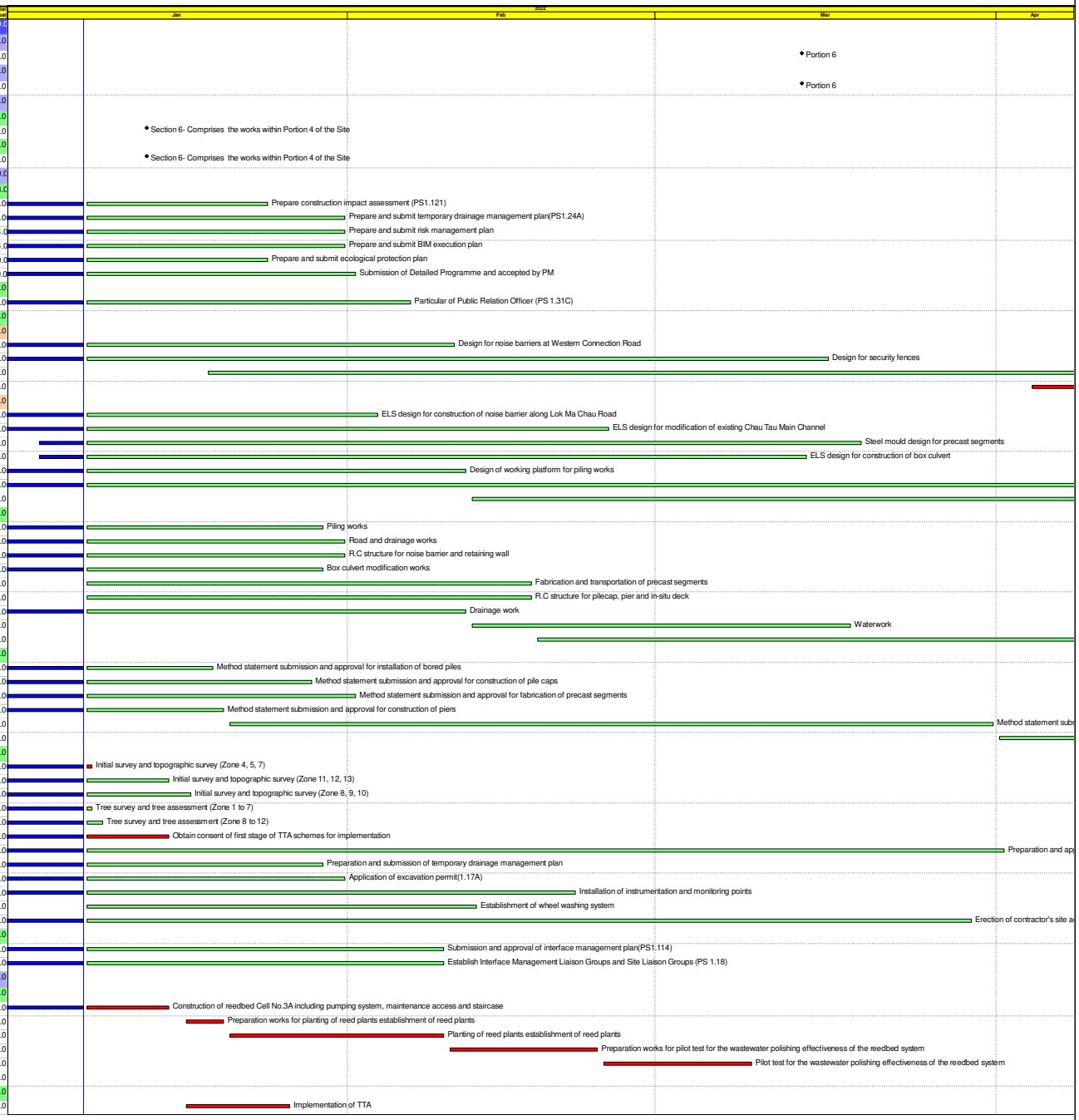
Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float
S15.7a-1040	Portion 15.7a - Level Ground (64,890m3)	40	18-May-22	05-Jul-22	25-Feb-23	17-Apr-23	231
S15.7a-1050	Portion 15.7a - CPT (4 nrs @ ave 10nrs/d/rig, 1 rig)	1	18-May-22	18-May-22	17-Apr-23	17-Apr-23	270
S15.7a-1060	Portion 15.7a - Instrumentation Installation Type C1 (MPX 16 nrs @ ave 3d/nr/rig, 8 rigs)	6	18-May-22	24-May-22	25-Feb-23	03-Mar-23	231
S15.7a-1070	Portion 15.7a - Instrumentation Installation Type C1 (VMP 32 nrs @ ave 6d/nr/rig, 8 rigs)	24	18-May-22	15-Jun-22	17-Mar-23	18-Apr-23	248
S15.7a-1080	Portion 15.7a - Instrumentation Installation Type C1 (SP 16 nrs @ ave 3d/nr/rig, 8 rigs)	6	11-Jun-22	17-Jun-22	14-Apr-23	20-Apr-23	248
S15.7a-1090	Portion 15.7a - Instrumentation Installation Type C1 (SSM 16 nrs)	4	14-Jun-22	17-Jun-22	17-Apr-23	20-Apr-23	248
S15.7a-1100	Portion 15.7a - Instrumentation Installation Type C2 (INC 1 nrs @ ave 3d/nr/rig, 1 rig)	3	15-Jun-22	17-Jun-22	18-Apr-23	20-Apr-23	248
S15.7a-1110	Portion 15.7a - Instrumentation Installation Type C2 (SM1&2-1nr, SMM-1nr)	1	17-Jun-22	17-Jun-22	20-Apr-23	20-Apr-23	248
Section 15.7b - Ground Treatment Works and Site Formation at Portion 15.7b		33	10-Jun-22	19-Jul-22	18-Feb-23	28-Mar-23	206
S15.7b-1000	Portion 15.7b - Site Clearance and Preparation Works (Ecological survey, Tree Survey)	6	10-Jun-22	16-Jun-22	18-Feb-23	24-Feb-23	206
S15.7b-1040	Portion 15.7b - Level Ground (11,270m3)	24	17-Jun-22	15-Jul-22	25-Feb-23	24-Mar-23	206
S15.7b-1050	Portion 15.7b - CPT (5 nrs @ ave 10nrs/d/rig, 1 rig)	1	17-Jun-22	17-Jun-22	25-Feb-23	25-Feb-23	206
S15.7b-1060	Portion 15.7b - Instrumentation Installation Type C1 (MPX 20 nrs @ ave 3d/nr/rig, 10 rigs)	6	18-Jun-22	24-Jun-22	27-Feb-23	04-Mar-23	206
S15.7b-1070	Portion 15.7b - Instrumentation Installation Type C1 (VMP 40 nrs @ ave 6d/nr/rig, 10 rigs)	20	25-Jun-22	19-Jul-22	06-Mar-23	28-Mar-23	206
S15.7b-1080	Portion 15.7b - Instrumentation Installation Type C1 (SP 20 nrs @ ave 3d/nr/rig, 10 rigs)	6	28-Jun-22	05-Jul-22	08-Mar-23	14-Mar-23	206
Section 15.8 - Reed Bed Area		225	08-Mar-22	07-Dec-22	07-Jun-22	08-Mar-23	71
PRE-335	Portion 15.8 - Prepare, Submit & Coordination for Reed Transplant	90	08-Mar-22	28-Jun-22	07-Jun-22	21-Sep-22	71
S15.8-1025	Portion 15.8 - Site Clearance and Preparation Works (Ecological survey, Tree Survey)	6	27-Apr-22	04-May-22	23-Jul-22	29-Jul-22	71
S15.8-1030	Portion 15.8 - Level Ground(55,630m3)	180	05-May-22	07-Dec-22	30-Jul-22	08-Mar-23	71
Section 16 - Works Not Covered by Other Sections of the Works		36	25-Jan-22 A	11-May-22	01-Feb-24	09-May-24	274
S16 Portion 9 of the Site - North Meander		36	25-Jan-22 A	11-May-22	01-Feb-24	09-May-24	274
S16-1030	Portion 9 - Complete DCM On Site Facilities	0		25-Jan-22 A		09-May-24	
S16-1040	Portion 9 - Level Ground (12,420+1,100m3)	30	31-Mar-22	11-May-22	02-Apr-24	08-May-24	396
S16-1050	Portion 9 - Instrumentation Installation Type C2 (INC 9 nrs @ 3d/nr/rig, 1 rig)	30	07-Feb-22	12-Mar-22	01-Feb-24	11-Mar-24	589
S16-1060	Portion 9 - Instrumentation Installation Type C2 (SM1&2-9nrs, SMM-9nrs)	9	14-Mar-22	23-Mar-22	12-Mar-24	21-Mar-24	589
S16-1070	Portion 9 - Instrumentation Installation Type C3 (SM1&2-6nrs, SMM-6nrs)	6	24-Mar-22	30-Mar-22	22-Mar-24	28-Mar-24	589



Contract No. YL/2020/02 – 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

Contract No. YL/2020/02 Western Connection Road Phase 2, Connection Roads to Fanling/San Tin Highway and DRL Phase 1

Activity ID	Activity Name	Actual Duration	Remaining Duration	Start	Finish	Total Float
Western Connection Road Phase 2, Connection Roads to Fanling/San Tin Highway and DRL Phase 1		115.0	196.0	15-Sep-21 A	22-Jul-22	1559.0
Contractual Required Access Date		0.0	0.0	14-Mar-22	14-Mar-22	0.0
ACD1140	Portion 6	0.0	0.0	14-Mar-22*		0.0
Planned Access Date		0.0	0.0	14-Mar-22	14-Mar-22	0.0
ACD1230	Portion 6	0.0	0.0	14-Mar-22*		0.0
Key Date and Section of the Works		0.0	0.0	13-Jan-22	13-Jan-22	0.0
Contractual Required Date for Section of the Works		0.0	0.0	13-Jan-22	13-Jan-22	0.0
SEW1050	Section 6- Comprises the works within Portion 4 of the Site	0.0	0.0		13-Jan-22*	0.0
Planned Achievement Date for Section of the Works		0.0	0.0	13-Jan-22	13-Jan-22	0.0
SEW1110	Section 6- Comprises the works within Portion 4 of the Site	0.0	0.0		13-Jan-22	0.0
General Submission,Preliminaries, Contractor's Design,Method Statement Submission and Approval		115.0	196.0	15-Sep-21 A	22-Jul-22	1559.0
General Submission		99.0	21.0	15-Sep-21 A	01-Feb-22	1483.0
GSS1010	Prepare construction impact assessment (PS1.121)	99.0	14.0	15-Sep-21 A	24-Jan-22	85.0
GSS1090	Prepare and submit temporary drainage management plan(PS1.24A)	99.0	20.0	15-Sep-21 A	31-Jan-22	158.0
GSS1150	Prepare and submit risk management plan	99.0	20.0	15-Sep-21 A	31-Jan-22	1484.0
GSS1170	Prepare and submit BIM execution plan	99.0	20.0	15-Sep-21 A	31-Jan-22	1484.0
GSS1180	Prepare and submit ecological protection plan	99.0	14.0	15-Sep-21 A	24-Jan-22	1490.0
GSS1185	Submission of Detailed Programme and accepted by PM	13.0	21.0	24-Dec-21 A	01-Feb-22	1199.0
Particular Submission of Key People and Specially Required Staff		115.0	30.0	15-Sep-21 A	06-Feb-22	94.0
KEY1120	Particular of Public Relation Officer (PS 1.31C)	115.0	30.0	15-Sep-21 A	06-Feb-22	94.0
Contractor's Design Submission and Approval		61.0	168.0	29-Oct-21 A	22-Jul-22	137.0
Major Permanent Works Design		61.0	168.0	29-Oct-21 A	22-Jul-22	108.0
MPW1010	Design for noise barriers at Western Connection Road	61.0	29.0	29-Oct-21 A	10-Feb-22	8.0
MPW1015	Design for security fences	22.0	58.0	14-Dec-21 A	16-Mar-22	218.0
MPW1020	Design for covered walkways at Cycle Track cum Footbridge with staircases	0.0	120.0	19-Jan-22	07-Jun-22	52.0
MPW1030	Aesthetic design of Pai Lau	0.0	95.0	04-Apr-22	22-Jul-22	0.0
Major Temporary Works Design		39.0	95.0	24-Nov-21 A	28-Apr-22	210.0
MTW1030	ELS design for construction of noise barrier along Lok Ma Chau Road	39.0	23.0	24-Nov-21 A	03-Feb-22	194.0
MTW1050	ELS design for modification of existing Chau Tau Main Channel	19.0	41.0	17-Dec-21 A	24-Feb-22	14.0
MTW1055	Steel mould design for precast segments	4.0	61.0	04-Jan-22 A	19-Mar-22	244.0
MTW1060	ELS design for construction of box culvert	4.0	56.0	04-Jan-22 A	14-Mar-22	19.0
MTW1065	Design of working platform for piling works	30.0	30.0	04-Dec-21 A	11-Feb-22	45.0
MTW1080	ELS design for construction of pilecap for bridge DRL,ST-01 and CTFB	10.0	85.0	28-Dec-21 A	16-Apr-22	45.0
MTW1100	ELS design for modification of existing subways	0.0	65.0	12-Feb-22	28-Apr-22	45.0
Subcontracting		40.0	95.0	23-Nov-21 A	28-Apr-22	438.0
MTW3080	Piling works	35.0	19.0	29-Nov-21 A	29-Jan-22	157.0
MTW3100	Road and drainage works	34.0	20.0	30-Nov-21 A	31-Jan-22	513.0
MTW3140	R.C structure for noise barrier and retaining wall	31.0	20.0	03-Dec-21 A	31-Jan-22	197.0
MTW3180	Box culvert modification works	40.0	19.0	23-Nov-21 A	29-Jan-22	56.0
MTW3220	Fabrication and transportation of precast segments	0.0	35.0	08-Jan-22	17-Feb-22	120.0
MTW3240	R.C structure for pilecap, pier and in-situ deck	0.0	35.0	08-Jan-22	17-Feb-22	71.0
MTW3270	Drainage work	34.0	30.0	30-Nov-21 A	11-Feb-22	199.0
MTW3280	Waterwork	0.0	30.0	12-Feb-22	18-Mar-22	236.0
MTW3300	Erection of precast segment	0.0	60.0	18-Feb-22	28-Apr-22	71.0
Method Statement Submission and Approval for Major Construction Works		99.0	113.0	15-Sep-21 A	19-May-22	295.0
MSS1040	Method statement submission and approval for installation of bored piles	99.0	10.0	15-Sep-21 A	19-Jan-22	166.0
MSS1060	Method statement submission and approval for construction of pile caps	39.0	18.0	24-Nov-21 A	28-Jan-22	242.0
MSS1065	Method statement submission and approval for fabrication of precast segments	9.0	21.0	29-Dec-21 A	01-Feb-22	284.0
MSS1070	Method statement submission and approval for construction of piers	19.0	11.0	17-Dec-21 A	20-Jan-22	397.0
MSS1080	Method statement submission and approval for modification of box culvert	0.0	60.0	21-Jan-22	31-Mar-22	4.0
MSS1090	Method statement submission and approval for modification of existing subways	0.0	42.0	01-Apr-22	19-May-22	27.0
Preliminaries		106.0	84.0	24-Sep-21 A	01-Apr-22	278.0
PRE1000	Initial survey and topographic survey (Zone 4, 5, 7)	86.0	1.0	24-Sep-21 A	08-Jan-22	0.0
PRE1004	Initial survey and topographic survey (Zone 11, 12, 13)	60.0	8.0	09-Nov-21 A	15-Jan-22	66.0
PRE1006	Initial survey and topographic survey (Zone 8, 9, 10)	60.0	10.0	09-Nov-21 A	17-Jan-22	70.0
PRE1010	Tree survey and tree assessment (Zone 1 to 7)	84.0	1.0	27-Sep-21 A	08-Jan-22	131.0
PRE1012	Tree survey and tree assessment (Zone 8 to 12)	82.0	2.0	18-Oct-21 A	09-Jan-22	72.0
PRE1016	Obtain consent of first stage of TTA schemes for implementation	44.0	7.0	15-Nov-21 A	15-Jan-22	0.0
PRE1020	Preparation and approval of TTA scheme and traffic impact assessment	66.0	84.0	03-Nov-21 A	01-Apr-22	220.0
PRE1025	Preparation and submission of temporary drainage management plan	41.0	19.0	18-Nov-21 A	29-Jan-22	197.0
PRE1030	Application of excavation permit(1.17A)	83.0	20.0	28-Sep-21 A	31-Jan-22	51.0
PRE1040	Installation of instrumentation and monitoring points	8.0	35.0	29-Dec-21 A	21-Feb-22	258.0
PRE1050	Establishment of wheel washing system	0.0	28.0	08-Jan-22	12-Feb-22	63.0
PRE1060	Erection of contractor's site accommodation	54.0	66.0	03-Nov-21 A	29-Mar-22	89.0
Interface Management Plan		93.0	25.0	15-Sep-21 A	09-Feb-22	130.0
PRE1070	Submission and approval of interface management plan(PS1.114)	93.0	25.0	15-Sep-21 A	09-Feb-22	130.0
PRE1080	Establish Interface Management Liaison Groups and Site Liaison Groups (PS 1.18)	93.0	25.0	15-Sep-21 A	09-Feb-22	130.0
Section 1 of the Works- Completion of the Works within Portion 1,2A,2B,3,5,7,8,9&10 of the Site		11.0	105.0	28-Dec-21 A	22-Apr-22	71.0
Construction of Reedbed No.3A including the Reedbed System and Reinstatement of Reedbed No.3		11.0	97.0	28-Dec-21 A	14-Apr-22	0.0
S010120	Construction of reedbed Cell No.3A including pumping system, maintenance access and staircase	9.0	7.0	28-Dec-21 A	15-Jan-22	0.0
S010140	Preparation works for planting of reed plants establishment of reed plants	0.0	4.0	17-Jan-22	20-Jan-22	0.0
S010140-1	Planting of reed plants establishment of reed plants	0.0	14.0	21-Jan-22	09-Feb-22	0.0
S010160	Preparation works for pilot test for the wastewater polishing effectiveness of the reedbed system	0.0	14.0	10-Feb-22	23-Feb-22	0.0
S010160-1	Pilot test for the wastewater polishing effectiveness of the reedbed system	0.0	14.0	24-Feb-22	09-Mar-22	0.0
S010180	Isolation of reedbed cell No.3	0.0	5.0	09-Apr-22	14-Apr-22	0.0
Taxi Holding Area		0.0	65.0	17-Jan-22	06-Apr-22	0.0
S010300	Implementation of TTA	0.0	9.0	17-Jan-22	26-Jan-22	0.0



Actual Work
Remaining Work
Critical Remaining Work
Milestone

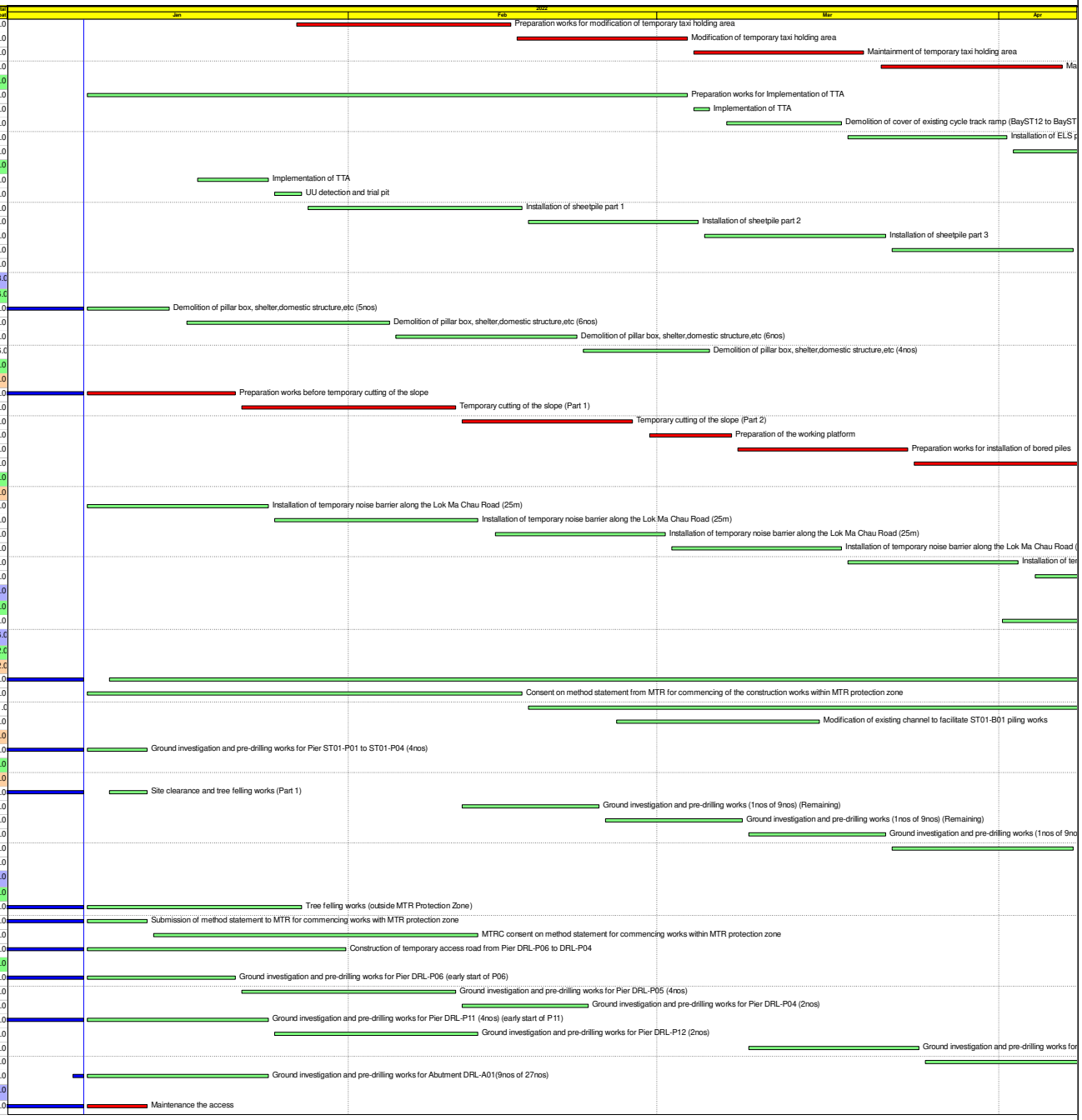
中國路橋工程有限責任公司
CHINA ROAD AND BRIDGE CORPORATION

Three Month Rolling Programme (Data Date : 08-Jan-22)

Date	Revision	Checked	Approved
15-Jan-22	0	KM	RS

Contract No. YL/2020/02 Western Connection Road Phase 2, Connection Roads to Fanling/San Tin Highway and DRL Phase 1

Activity ID	Activity Name	Actual Duration	Remaining Duration	Start	Finish	Total Float
S010300-1	Preparation works for modification of temporary taxi holding area	0.0	14.0	27-Jan-22	15-Feb-22	0.0
S010300-2	Modification of temporary taxi holding area	0.0	14.0	16-Feb-22	03-Mar-22	0.0
S010300-3	Maintainment of temporary taxi holding area	0.0	14.0	04-Mar-22	19-Mar-22	0.0
S010300-4	Maintainment of temporary taxi holding area	0.0	14.0	21-Mar-22	06-Apr-22	0.0
Existing Cycle Track Subway Modification		0.0	81.0	08-Jan-22	20-Apr-22	24.0
S011035	Preparation works for Implementation of TTA	0.0	44.0	08-Jan-22	03-Mar-22	24.0
S011035-1	Implementation of TTA	0.0	2.0	04-Mar-22	05-Mar-22	24.0
S011035-2	Demolition of cover of existing cycle track ramp (BayST12 to BayST14)	0.0	10.0	07-Mar-22	17-Mar-22	24.0
S011035-3	Installation of ELS part 1	0.0	13.0	18-Mar-22	01-Apr-22	24.0
S011035-3-1	Installation of ELS part 2	0.0	12.0	02-Apr-22	20-Apr-22	24.0
Retaining Walls		0.0	75.0	18-Jan-22	22-Apr-22	57.0
S011060	Implementation of TTA	0.0	6.0	18-Jan-22	24-Jan-22	57.0
S011060-1	UU detection and trial pit	0.0	3.0	25-Jan-22	27-Jan-22	57.0
S011060-2	Installation of sheetpile part 1	0.0	14.0	28-Jan-22	16-Feb-22	57.0
S011060-2-1	Installation of sheetpile part 2	0.0	14.0	17-Feb-22	04-Mar-22	57.0
S011060-2-2	Installation of sheetpile part 3	0.0	14.0	05-Mar-22	21-Mar-22	57.0
S011060-3	Excavation	0.0	14.0	22-Mar-22	07-Apr-22	57.0
S011060-4	Construction of Retaining Wall RW9(2 bays)	0.0	10.0	08-Apr-22	22-Apr-22	57.0
Section 2A of the Works-Completion of the Works at Lok Ma Chau Road within Portion 1,5 and 8		9.0	84.0	28-Dec-21 A	23-Apr-22	1338.0
Demolition of Existing Structure		7.0	46.0	30-Dec-21 A	05-Mar-22	1376.0
S02A100-2	Demolition of pillar box, shelter,domestic structure,etc (5nos)	7.0	7.0	30-Dec-21 A	15-Jan-22	84.0
S02A100-3	Demolition of pillar box, shelter,domestic structure,etc (6nos)	0.0	14.0	17-Jan-22	04-Feb-22	84.0
S02A100-4	Demolition of pillar box, shelter,domestic structure,etc (6nos)	0.0	14.0	05-Feb-22	21-Feb-22	84.0
S02A100-5	Demolition of pillar box, shelter,domestic structure,etc (4nos)	0.0	11.0	22-Feb-22	05-Mar-22	1376.0
Retaining Walls		9.0	75.0	28-Dec-21 A	09-Apr-22	0.0
Retaining Wall BP1		9.0	75.0	28-Dec-21 A	09-Apr-22	0.0
S02A710	Preparation works before temporary cutting of the slope	9.0	12.0	28-Dec-21 A	21-Jan-22	0.0
S02A720	Temporary cutting of the slope (Part 1)	0.0	14.0	22-Jan-22	10-Feb-22	0.0
S02A720-1	Temporary cutting of the slope (Part 2)	0.0	14.0	11-Feb-22	26-Feb-22	0.0
S02A720-2	Preparation of the working platform	0.0	7.0	28-Feb-22	07-Mar-22	0.0
S02A725	Preparation works for installation of bored piles	0.0	14.0	08-Mar-22	23-Mar-22	0.0
S02A725-1	Plant mobilization and set up(2 sets of rigs)	0.0	14.0	24-Mar-22	09-Apr-22	0.0
Noise Barriers		0.0	84.0	08-Jan-22	23-Apr-22	63.0
Temporary Noise Barrier		0.0	84.0	08-Jan-22	23-Apr-22	63.0
S02A680-1	Installation of temporary noise barrier along the Lok Ma Chau Road (25m)	0.0	14.0	08-Jan-22	24-Jan-22	63.0
S02A680-2	Installation of temporary noise barrier along the Lok Ma Chau Road (25m)	0.0	14.0	25-Jan-22	12-Feb-22	63.0
S02A680-3	Installation of temporary noise barrier along the Lok Ma Chau Road (25m)	0.0	14.0	14-Feb-22	01-Mar-22	63.0
S02A680-4	Installation of temporary noise barrier along the Lok Ma Chau Road (25m)	0.0	14.0	02-Mar-22	17-Mar-22	63.0
S02A680-5	Installation of temporary noise barrier along the Lok Ma Chau Road (25m)	0.0	14.0	18-Mar-22	02-Apr-22	63.0
S02A680-6	Installation of temporary noise barrier along the Lok Ma Chau Road (25m)	0.0	14.0	04-Apr-22	23-Apr-22	63.0
Section 2B of the Works-Completion of the Works at Junction of Castle Peak Road and Lok Ma Chau Road		0.0	12.0	01-Apr-22	19-Apr-22	3.0
Box Culvert Modification Works within Portion 10		0.0	12.0	01-Apr-22	19-Apr-22	3.0
S02B110	Installation of ELS (Part 1)	0.0	12.0	01-Apr-22	19-Apr-22	3.0
Section 2C of the Works- Completion of Substructure and Piling Works of ST01 and CTFB		47.0	110.0	22-Nov-21 A	27-Apr-22	1626.0
Substructure and Piling Works for Bridge ST01		47.0	104.0	22-Nov-21 A	21-Apr-22	1632.0
Preparation Works		47.0	104.0	22-Nov-21 A	21-Apr-22	1632.0
S02C100	Site clearance and tree felling works (outside MTR protection Zone)	38.0	81.0	22-Nov-21 A	21-Apr-22	191.0
S02C103	Consent on method statement from MTR for commencing of the construction works within MTR protection zone	0.0	40.0	08-Jan-22	16-Feb-22	25.0
S02C105	Site clearance and tree felling works (inside MTR protection Zone)	0.0	45.0	17-Feb-22	11-Apr-22	1331.0
S02C115	Modification of existing channel to facilitate ST01-B01 piling works	0.0	16.0	25-Feb-22	15-Mar-22	14.0
G.I and Pre-drilling		36.0	5.0	24-Nov-21 A	13-Jan-22	127.0
S02C120	Ground investigation and pre-drilling works for Pier ST01-P01 to ST01-P04 (4nos)	36.0	5.0	24-Nov-21 A	13-Jan-22	127.0
Substructure and Piling Works for CTFB		38.0	86.0	22-Nov-21 A	27-Apr-22	191.0
G.I and Pre-drilling		38.0	86.0	22-Nov-21 A	27-Apr-22	191.0
S02C640	Site clearance and tree felling works (Part 1)	38.0	4.0	22-Nov-21 A	13-Jan-22	191.0
S02C650	Ground investigation and pre-drilling works (1nos of 9nos) (Remaining)	0.0	11.0	11-Feb-22	23-Feb-22	191.0
S02C650-1	Ground investigation and pre-drilling works (1nos of 9nos) (Remaining)	0.0	11.0	24-Feb-22	08-Mar-22	191.0
S02C650-2	Ground investigation and pre-drilling works (1nos of 9nos) (Remaining)	0.0	11.0	09-Mar-22	21-Mar-22	191.0
S02C650-3	Ground investigation and pre-drilling works (2nos of 9nos) (Remaining)	0.0	14.0	22-Mar-22	07-Apr-22	191.0
S02C650-4	Ground investigation and pre-drilling works (2nos of 9nos) (Remaining)	0.0	14.0	08-Apr-22	27-Apr-22	191.0
Section 3 of the Works- Completion of the works of Direct Road Link within Portion 1,2A,2B, 5 and 9		85.0	94.0	15-Oct-21 A	11-Apr-22	380.0
Preparation Works		85.0	36.0	15-Oct-21 A	12-Feb-22	97.0
S033102	Tree felling works (outside MTR Protection Zone)	47.0	20.0	22-Nov-21 A	27-Jan-22	96.0
S033105	Submission of method statement to MTR for commencing works with MTR protection zone	85.0	6.0	15-Oct-21 A	13-Jan-22	97.0
S033115	MTRC consent on method statement for commencing works within MTR protection zone	0.0	30.0	14-Jan-22	12-Feb-22	97.0
S033120	Construction of temporary access road from Pier DRL-P06 to DRL-P04	36.0	20.0	24-Nov-21 A	31-Jan-22	43.0
G.I and Pre-drilling		36.0	76.0	24-Nov-21 A	11-Apr-22	306.0
S033130	Ground investigation and pre-drilling works for Pier DRL-P06 (early start of P06)	36.0	12.0	24-Nov-21 A	21-Jan-22	43.0
S033130-1	Ground investigation and pre-drilling works for Pier DRL-P05 (4nos)	0.0	14.0	22-Jan-22	10-Feb-22	43.0
S033130-2	Ground investigation and pre-drilling works for Pier DRL-P04 (2nos)	0.0	10.0	11-Feb-22	22-Feb-22	43.0
S033140	Ground investigation and pre-drilling works for Pier DRL-P11 (4nos) (early start of P11)	9.0	14.0	28-Dec-21 A	24-Jan-22	63.0
S033140-1	Ground investigation and pre-drilling works for Pier DRL-P12 (2nos)	0.0	14.0	25-Jan-22	12-Feb-22	63.0
S033140-2	Ground investigation and pre-drilling works for Pier DRL-P13 (2nos)	0.0	14.0	09-Mar-22	24-Mar-22	43.0
S033150	Ground investigation and pre-drilling works for Pier DRL-P7 (in MTR protection zone)upon implementation of TTA	0.0	14.0	25-Mar-22	11-Apr-22	43.0
S033180	Ground investigation and pre-drilling works for Abutment DRL-A01(9nos of 27nos)	1.0	14.0	07-Jan-22 A	24-Jan-22	368.0
Section 6 of the Works- Completion of the works within Portion 4 of the Site		73.0	5.0	11-Oct-21 A	13-Jan-22	0.0
S060100	Maintenance the access	73.0	5.0	11-Oct-21 A	13-Jan-22	0.0



Actual Work
Remaining Work
Critical Remaining Work
Milestone

中國路橋工程有限責任公司
CHINA ROAD AND BRIDGE CORPORATION

Three Month Rolling Programme (Data Date : 08-Jan-22)

Date	Revision	Checked	Approved
15-Jan-22	0	KM	RS

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. WMA21009/04/0004

Station	DMS-2A - Village House along Lok Ma Chau Road	Operator:	CH
Date:	25-Nov-21	Next Due Date:	24-Jan-22
Equipment No.:	WA-12-04	Serial No.	1659

Ambient Condition			
Temperature, Ta (K)	291.5	Pressure, Pa (mmHg)	767.6

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	3.45	60.83	7.7	2.82
2	9.7	3.16	55.88	6.8	2.65
3	7.5	2.78	49.17	5.1	2.29
4	5.0	2.27	40.19	3.6	1.93
5	3.6	1.93	34.14	2.5	1.61

By Linear Regression of Y on X

Slope , mw = 0.0456 **Intercept, bw = 0.0688**

Correlation coefficient* = 0.9986

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.99**

Remarks:

Conducted by: Ho Ka Chun Signature: [signature] Date: 25/11/2021

Checked by: Ma Man Hei Signature: [signature] Date: 25-11-2021

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High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

File No. WMA21009/04/0005

Station	DMS-2A - Village House along Lok Ma Chau Road	Operator:	CH
Date:	21-Jan-22	Next Due Date:	20-Mar-22
Equipment No.:	WA-12-04	Serial No.	1659

Ambient Condition			
Temperature, Ta (K)	290	Pressure, Pa (mmHg)	766.9

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	11.5	3.45	60.96	8.1	2.90
2	9.2	3.09	54.55	6.5	2.60
3	7.4	2.77	48.95	5.0	2.28
4	5.3	2.34	41.46	3.7	1.96
5	3.4	1.88	33.26	2.5	1.61

By Linear Regression of Y on X

Slope , mw = 0.0467 **Intercept, bw : 0.0323**

Correlation coefficient* = 0.9985

*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) = **4.02**

Remarks:

Conducted by: Ho Ka Chi Signature: [signature] Date: 21/1/2022

Checked by: Lee Man Hin Signature: [signature] Date: 21/1/2022

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High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

File No. WMA21009/24/0004

Station: DMS-3 - Village House along Old Border Road
Operator: CH
Date: 25-Nov-21
Next Due Date: 24-Jan-22
Equipment No.: WA-12-24
Serial No. 10576

Ambient Condition			
Temperature, Ta (K)	293.3	Pressure, Pa (mmHg)	767.5

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 = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
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	13.1	3.67	64.70	9.0	3.04
2	11.8	3.48	61.42	7.8	2.83
3	9.9	3.19	56.28	6.6	2.60
4	6.8	2.64	46.68	4.7	2.20
5	3.5	1.90	33.56	2.5	1.60

By Linear Regression of Y on X

Slope , mw = 0.0452 **Intercept, bw =** 0.0814

Correlation coefficient* = 0.9991

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.99**

Remarks:

Conducted by: Ho Ka Chun Signature: Date: 25/11/2021
Checked by: Lee Man Hin Signature: Date: 25-11-2021

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High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

File No. WMA21009/24/0005

Station: DMS-3 - Village House along Old Border Road
Operator: CH
Date: 21-Jan-22
Next Due Date: 20-Mar-22
Equipment No.: WA-12-24
Serial No. 10576

Ambient Condition			
Temperature, Ta (K)	291.3	Pressure, Pa (mmHg)	766.9

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	13.5	3.73	65.88	9.2	3.08
2	11.6	3.46	61.08	7.5	2.78
3	9.5	3.13	55.30	6.5	2.59
4	6.7	2.63	46.48	4.7	2.20
5	3.8	1.98	35.07	2.7	1.67

By Linear Regression of Y on X

Slope , mw = 0.0446 **Intercept, bw =** 0.1121

Correlation coefficient* = 0.9982

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.99**

Remarks:

Conducted by: Ho Ka Chu Signature: Date: 21/1/2022
Checked by: Lee Man Hei Signature: Date: 21/1/2022

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High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

File No. WMA21009/07/0004

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

Date: 25-Nov-21
Next Due Date: 24-Jan-22

Equipment No.: WA-12-07
Serial No. 1801

Ambient Condition			
Temperature, Ta (K)	295	Pressure, Pa (mmHg)	766.8

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	13.2	3.67	64.73	8.4	2.93
2	10.6	3.29	58.03	6.9	2.65
3	7.2	2.71	47.87	5.0	2.26
4	4.8	2.21	39.13	3.6	1.92
5	3.6	1.92	33.92	2.6	1.63

By Linear Regression of Y on X

Slope , mw = 0.0412 **Intercept, bw =** 0.2680

Correlation coefficient* = 0.9986

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.08**

Remarks:

Conducted by: Ho Ka Chu Signature: Date: 25/11/2021

Checked by: Lee Man Hei Signature: Date: 25-11-2021

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High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

File No. WMA21009/07/0005

Station: DMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill
Operator: CH
Date: 21-Jan-22
Next Due Date: 20-Mar-22
Equipment No.: WA-12-07
Serial No. 1801

Ambient Condition			
Temperature, Ta (K)	292	Pressure, Pa (mmHg)	767

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	13.4	3.72	65.56	8.2	2.91
2	10.8	3.34	58.88	6.9	2.67
3	7.7	2.82	49.76	5.2	2.31
4	5.3	2.34	41.32	3.8	1.98
5	3.1	1.79	31.66	2.4	1.57

By Linear Regression of Y on X

Slope , mw = 0.0394 **Intercept, bw =** 0.3413

Correlation coefficient* = 0.9996

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.02**

Remarks:

Conducted by: Ho Ka Chun Signature: Date: 21/1/2022
Checked by: Lee Wan Hei Signature: Date: 21/1/2022

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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.:	36237
Date of Issue:	2022-01-10
Date Received:	2022-01-07
Date Tested:	2022-01-07
Date Completed:	2022-01-10
Next Due Date:	2022-03-09
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)	1.121

****

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

PATRICK TSE
General Manager

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TEST REPORT

APPLICANT: **Wellab Limited**
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Room 1808, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	36237A
Date of Issue:	2022-01-10
Date Received:	2022-01-07
Date Tested:	2022-01-07
Date Completed:	2022-01-10
Next Due Date:	2022-03-09
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.	: X23808
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-02

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)	1.135

****

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TEST REPORT

APPLICANT: **Wellab Limited**
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Room 1808, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	35994B
Date of Issue:	2021-11-08
Date Received:	2021-11-05
Date Tested:	2021-11-05
Date Completed:	2021-11-08
Next Due Date:	2022-01-07
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)	1.087

****

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TEST REPORT

APPLICANT: **Wellab Limited**
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Room 1808, Technology Park,
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Test Report No.:	36237B
Date of Issue:	2022-01-10
Date Received:	2022-01-07
Date Tested:	2022-01-07
Date Completed:	2022-01-10
Next Due Date:	2022-03-09
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)	1.088

****

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TEST REPORT

APPLICANT: **Wellab Limited**
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Room 1808, Technology Park,
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Test Report No.:	36237C
Date of Issue:	2022-01-10
Date Received:	2022-01-07
Date Tested:	2022-01-07
Date Completed:	2022-01-10
Next Due Date:	2022-03-09
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.	: X23810
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-04

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)	1.114

****

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TEST REPORT

APPLICANT: **Wellab Limited**
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Room 1808, Technology Park,
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Test Report No.:	36236
Date of Issue:	2022-01-03
Date Received:	2021-12-31
Date Tested:	2021-12-31
Date Completed:	2022-01-03
Next Due Date:	2022-03-02
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)	1.083

****

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TEST REPORT

APPLICANT: **Wellab Limited**
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Room 1808, Technology Park,
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Test Report No.:	36236A
Date of Issue:	2022-01-03
Date Received:	2021-12-31
Date Tested:	2021-12-31
Date Completed:	2022-01-03
Next Due Date:	2022-03-02
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)	1.108

****

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TEST REPORT

APPLICANT: **Wellab Limited**
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Room 1808, Technology Park,
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Test Report No.:	35994D
Date of Issue:	2021-11-08
Date Received:	2021-11-05
Date Tested:	2021-11-05
Date Completed:	2021-11-08
Next Due Date:	2022-01-07
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)	1.080

****

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TEST REPORT

APPLICANT: **Wellab Limited**
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Room 1808, Technology Park,
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Test Report No.:	36237D
Date of Issue:	2022-01-10
Date Received:	2022-01-07
Date Tested:	2022-01-07
Date Completed:	2022-01-10
Next Due Date:	2022-03-09
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)	1.097

****

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TEST REPORT

APPLICANT: **Wellab Limited**
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Shatin, NT, Hong Kong

Test Report No.:	36236B
Date of Issue:	2022-01-03
Date Received:	2021-12-31
Date Tested:	2021-12-31
Date Completed:	2022-01-03
Next Due Date:	2022-03-02
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.	: X24479
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-08

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)	1.116

****

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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.:	34872
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.	: 570271
Equipment No.	: WN-01-01

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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Room 1701, Technology Park,
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Test Report No.:	34872A
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.	: 580004
Equipment No.	: WN-01-02

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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Room 1701, Technology Park,
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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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TEST REPORT

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

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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TEST REPORT

APPLICANT: **Wellab Limited**
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Room 1701, Technology Park,
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Test Report No.:	35909
Date of Issue:	2021-10-04
Date Received:	2021-10-02
Date Tested:	2021-10-02
Date Completed:	2021-10-04
Next Due Date:	2022-10-03
Page:	1 of 1

ATTN: **Ms. Meiling Tang**

Certificate of Calibration

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24803
Equipment No.	: N-09-03

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**
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Room 1701, Technology Park,
18 On Lai Street,
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Test Report No.:	35909A
Date of Issue:	2021-10-04
Date Received:	2021-10-02
Date Tested:	2021-10-02
Date Completed:	2021-10-04
Next Due Date:	2022-10-03
Page:	1 of 1

ATTN: **Ms. Meiling 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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TEST REPORT

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

ATTN: **Ms. Meiling Tang**

Test Report No.:	35811C
Date of Issue:	2021-09-20
Date Received:	2021-09-17
Date Tested:	2021-09-17
Date Completed:	2021-09-20
Next Due Date:	2022-03-19
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Weather Stations, Vantage Pro2
Manufacturer	: Davis Instruments
Model No.	: 6152CUK
Serial No.	: AK130520006

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

PATRICK TSE
Laboratory Manager

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WELLAB LIMITED
Room 1714, Technology Park
18 On Lai Street, Shatin
New Territories, Hong Kong
Tel: 2898 7388 Fax: 2898 7076
Website : www.wellab.com.hk

TEST REPORT

Test Report No.:	35811C
Date of Issue:	2021-09-20
Date Received:	2021-09-17
Date Tested:	2021-09-17
Date Completed:	2021-09-20
Next Due Date:	2022-03-19
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	135	0
180	180	0
225.3	225	0.3
270.2	270	0.2
315	315	0
360	360	0

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

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TEST REPORT

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

Test Report No.:	36157
Date of Issue:	2021-12-07
Date Received:	2021-12-06
Date Tested:	2021-12-06 to 2021-12-07
Date Completed:	2021-12-07

ATTN: **Miss Mei Ling Tang**

Certificate of Calibration

Item for calibration:

YSI EXO1 Multiparameter Sondes	Equipment No.: SW-08-31	
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO1 Sonde, 100 meter Depth, 4 Sensor ports	599502-24	16J100892
- EXO Optical DO Sensor, Ti	599100-01	16J100950
- EXO conductivity/Temperature Sensor, Ti	599870	16H100185
- EXO Turbidity Sensor, Ti	599101-01	18C102865
- EXO pH Sensor Assembly, Guarded, Ti	599701	16J100708

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

WELLAB LIMITED
Room 1714, Technology Park
18 On Lai Street, Shatin,
N.T., Hong Kong.
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Website: www.wellab.com.hk

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TEST REPORT

Test Report No.:	36157
Date of Issue:	2021-12-07
Date Received:	2021-12-06
Date Tested:	2021-12-06 to 2021-12-07
Date Completed:	2021-12-07
Page:	2 of 2

Certificate of Calibration

Results:

Conductivity performance checking

	Instrument Readings (µS/cm)	Accetance Criteria	Comment
KCl stock solution (12890 µS/cm)	13100	12246-13534	Pass

Temperature performance checking

Reference thermometer-E431 Readings (°C)	Instrument Readings (°C)	Correction (°C)	Comment
20.0	19.998	+0.002	N/A

pH performance checking

	Instrument Readings (pH unit)	Accetance Criteria	Comment
pH QC buffer 4.00	4.04	4.00 ± 0.10	Pass
pH QC buffer 6.86	6.87	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.21	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
7.84	8.02	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	10.13	9.0-11.0	Pass
50 NTU	48.66	45.0-55.0	Pass
100 NTU	101.4	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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TEST REPORT

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

Test Report No.:	36158
Date of Issue:	2021-12-14
Date Received:	2021-12-13
Date Tested:	2021-12-13 to 2021-12-14
Date Completed:	2021-12-14

ATTN: **Miss Mei Ling Tang**

Certificate of Calibration

Item for calibration:

YSI EXO1 Multiparameter Sondes	Equipment No.: SW-08-48	
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO1 Sonde, 100 meter Depth, 4 Sensor ports	599502-24	16J102319
- EXO Optical DO Sensor, Ti	599100-01	16J100972
- EXO conductivity/Temperature Sensor, Ti	599870	16C104838
- EXO Turbidity Sensor, Ti	599101-01	17K100340
- EXO pH Sensor Assembly, Guarded, Ti	599701	16J101302

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

Test Report No.:	36158
Date of Issue:	2021-12-14
Date Received:	2021-12-13
Date Tested:	2021-12-13 to 2021-12-14
Date Completed:	2021-12-14

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	19.999	+0.001	N/A

pH performance checking

	Instrument Readings (pH unit)	Accetance Criteria	Comment
pH QC buffer 4.00	4.06	4.00 ± 0.10	Pass
pH QC buffer 6.86	6.82	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.14	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	8.12	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	9.86	9.0-11.0	Pass
50 NTU	49.13	45.0-55.0	Pass
100 NTU	102.1	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**********

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 (January 2022)

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

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)

Service Contract No. WD/04/2020
Tentative Impact Monitoring Schedule (February 2022)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Feb	**2-Feb**	**3-Feb**	4-Feb	5-Feb
					1hr TSP X 3 24hr TSP Water Quality Monitoring	
6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb	12-Feb
	Water Quality Monitoring	24hr TSP	1hr TSP X 3 Noise Water Quality Monitoring		Water Quality Monitoring	
13-Feb	14-Feb	15-Feb	16-Feb	17-Feb	18-Feb	19-Feb
	24hr TSP Water Quality Monitoring	1hr TSP X 3 Noise	Water Quality Monitoring		Avifauna flight line survey 24hr TSP Water Quality Monitoring	
20-Feb	21-Feb	22-Feb	23-Feb	24-Feb	25-Feb	26-Feb
	1hr TSP X 3 Noise Water Quality Monitoring		Water Quality Monitoring	24hr TSP	1hr TSP X 3 Water Quality Monitoring	
27-Feb	28-Feb					
	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 ($\mu g/m^3$)
4-Jan-22	8:30	Sunny	85.0
4-Jan-22	9:30	Sunny	68.2
4-Jan-22	10:30	Sunny	144.0
10-Jan-22	8:10	Sunny	108.4
10-Jan-22	9:10	Sunny	128.8
10-Jan-22	10:10	Sunny	97.6
14-Jan-22	9:00	Cloudy	203.6
14-Jan-22	10:00	Cloudy	210.3
14-Jan-22	11:00	Cloudy	204.4
20-Jan-22	8:30	Sunny	85.8
20-Jan-22	9:30	Sunny	76.5
20-Jan-22	10:30	Sunny	104.4
26-Jan-22	9:00	Cloudy	76.4
26-Jan-22	10:00	Cloudy	60.4
26-Jan-22	11:00	Cloudy	55.8
31-Jan-22	8:45	Cloudy	105.0
31-Jan-22	9:45	Cloudy	82.0
31-Jan-22	10:45	Cloudy	82.9
		Minimum	55.8
		Maximum	210.3
		Average	110.0

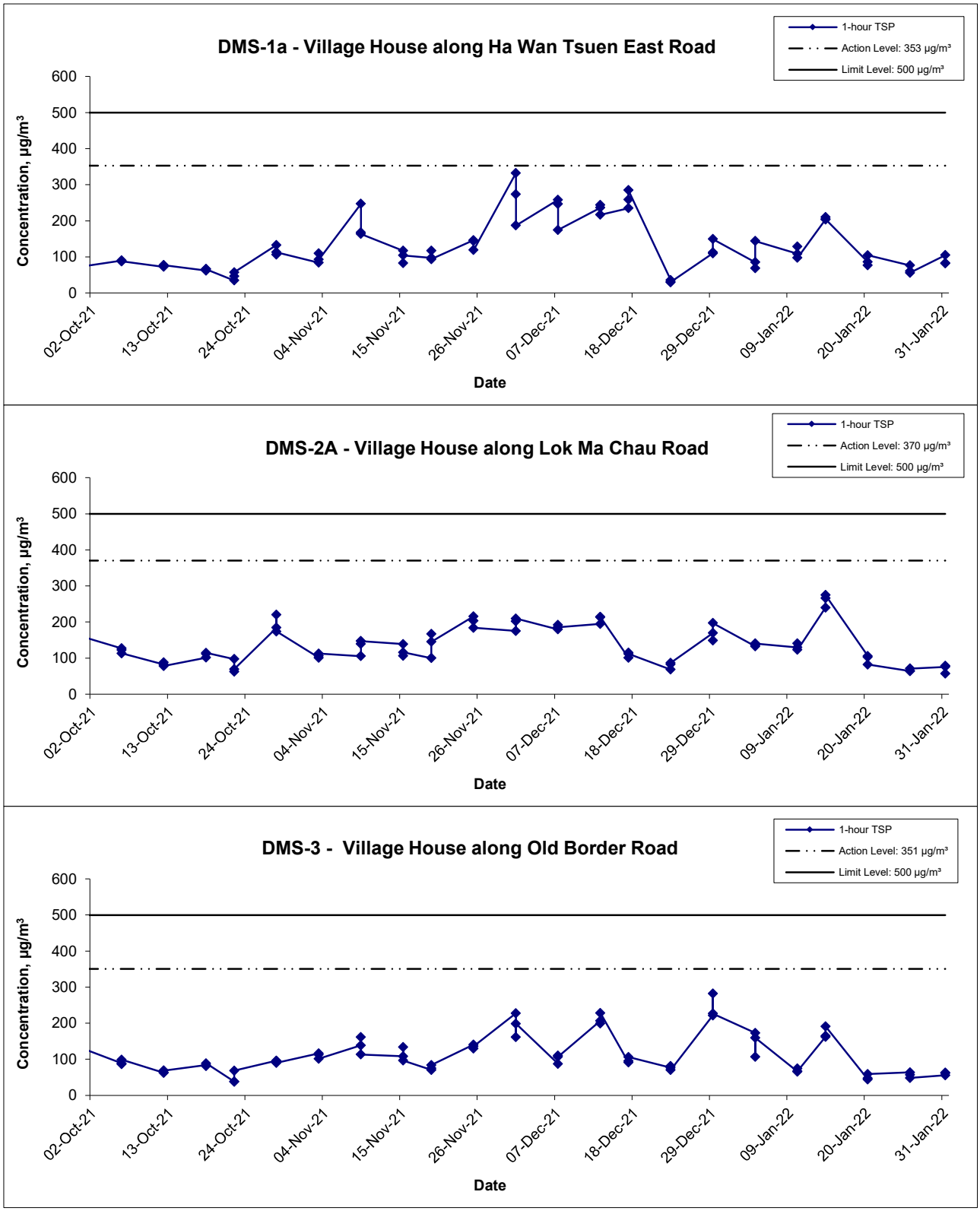
Location DMS-2A - Village House along Lok Ma Chau Road			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
4-Jan-22	13:00	Sunny	132.8
4-Jan-22	14:00	Sunny	136.3
4-Jan-22	15:00	Sunny	140.4
10-Jan-22	9:00	Cloudy	129.7
10-Jan-22	10:00	Cloudy	140.8
10-Jan-22	11:00	Cloudy	122.9
14-Jan-22	13:00	Cloudy	239.9
14-Jan-22	14:00	Cloudy	266.1
14-Jan-22	15:00	Cloudy	274.8
20-Jan-22	9:00	Sunny	105.7
20-Jan-22	10:00	Sunny	103.0
20-Jan-22	11:00	Sunny	81.9
26-Jan-22	13:00	Cloudy	64.2
26-Jan-22	14:00	Cloudy	63.6
26-Jan-22	15:00	Cloudy	71.0
31-Jan-22	13:00	Cloudy	75.8
31-Jan-22	14:00	Cloudy	78.4
31-Jan-22	15:00	Cloudy	57.0
		Minimum	57.0
		Maximum	274.8
		Average	126.9

Appendix E - 1-hour TSP Monitoring Results

Location DMS-3 - Village House along Old Border Road			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
4-Jan-22	8:55	Sunny	172.8
4-Jan-22	9:55	Sunny	106.9
4-Jan-22	10:55	Sunny	159.3
10-Jan-22	13:00	Cloudy	66.0
10-Jan-22	14:00	Cloudy	74.7
10-Jan-22	15:00	Cloudy	67.0
14-Jan-22	13:00	Cloudy	162.2
14-Jan-22	14:00	Cloudy	164.9
14-Jan-22	15:00	Cloudy	191.2
20-Jan-22	13:00	Sunny	44.1
20-Jan-22	14:00	Sunny	47.3
20-Jan-22	15:00	Sunny	58.9
26-Jan-22	13:00	Cloudy	63.7
26-Jan-22	14:00	Cloudy	56.9
26-Jan-22	15:00	Cloudy	48.2
31-Jan-22	13:00	Cloudy	55.4
31-Jan-22	14:00	Cloudy	62.0
31-Jan-22	15:00	Cloudy	62.8
		Minimum	44.1
		Maximum	191.2
		Average	92.5

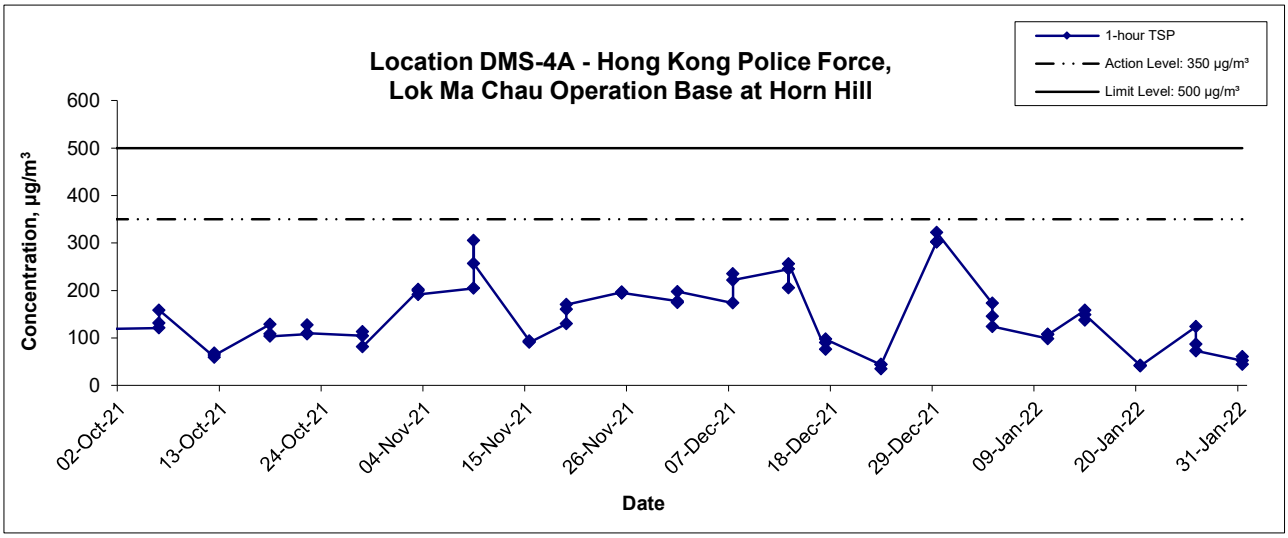
Location DMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
4-Jan-22	8:55	Sunny	172.9
4-Jan-22	9:55	Sunny	145.2
4-Jan-22	10:55	Sunny	124.0
10-Jan-22	13:00	Cloudy	98.4
10-Jan-22	14:00	Cloudy	107.5
10-Jan-22	15:00	Cloudy	106.7
14-Jan-22	8:45	Cloudy	158.0
14-Jan-22	9:45	Cloudy	137.3
14-Jan-22	10:45	Cloudy	148.9
20-Jan-22	13:25	Sunny	41.6
20-Jan-22	14:25	Sunny	42.0
20-Jan-22	15:25	Sunny	41.0
26-Jan-22	8:55	Cloudy	123.5
26-Jan-22	9:55	Cloudy	86.5
26-Jan-22	10:55	Cloudy	72.8
31-Jan-22	8:50	Cloudy	52.1
31-Jan-22	9:50	Cloudy	44.2
31-Jan-22	10:50	Cloudy	60.5
		Minimum	41.0
		Maximum	172.9
		Average	98.0

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: Jan 22	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 Jan 22	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 ($\mu g/m^3$)
3-Jan-22	9:00	Sunny	95.8
7-Jan-22	9:00	Sunny	90.1
13-Jan-22	9:00	Cloudy	109.8
19-Jan-22	9:00	Sunny	55.9
25-Jan-22	9:00	Cloudy	54.7
31-Jan-22	9:00	Cloudy	50.4
		Minimum	50.4
		Maximum	109.8
		Average	76.1

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			
3-Jan-22	Sunny	288.3	769.1	3.4821	3.6377	0.1556	864.1	888.1	24.0	1.226	1.228	1.227	1766.7	88.1
7-Jan-22	Sunny	289.9	769.0	3.5145	3.6981	0.1836	888.1	912.1	24.0	1.219	1.227	1.223	1761.3	104.2
13-Jan-22	Cloudy	288.4	769.0	3.4406	3.6448	0.2042	912.1	936.1	24.0	1.226	1.227	1.226	1766.1	115.6
19-Jan-22	Sunny	287.3	767.9	3.2703	3.4024	0.1321	936.1	960.1	24.0	1.225	1.231	1.228	1768.3	74.7
25-Jan-22	Cloudy	291.6	765.0	3.3965	3.5073	0.1108	960.1	984.1	24.0	1.209	1.211	1.210	1741.9	63.6
31-Jan-22	Cloudy	284.6	767.8	3.3283	3.4071	0.0788	984.1	1008.1	24.0	1.226	1.228	1.227	1766.8	44.6
													Min	44.6
													Max	115.6
													Average	81.8

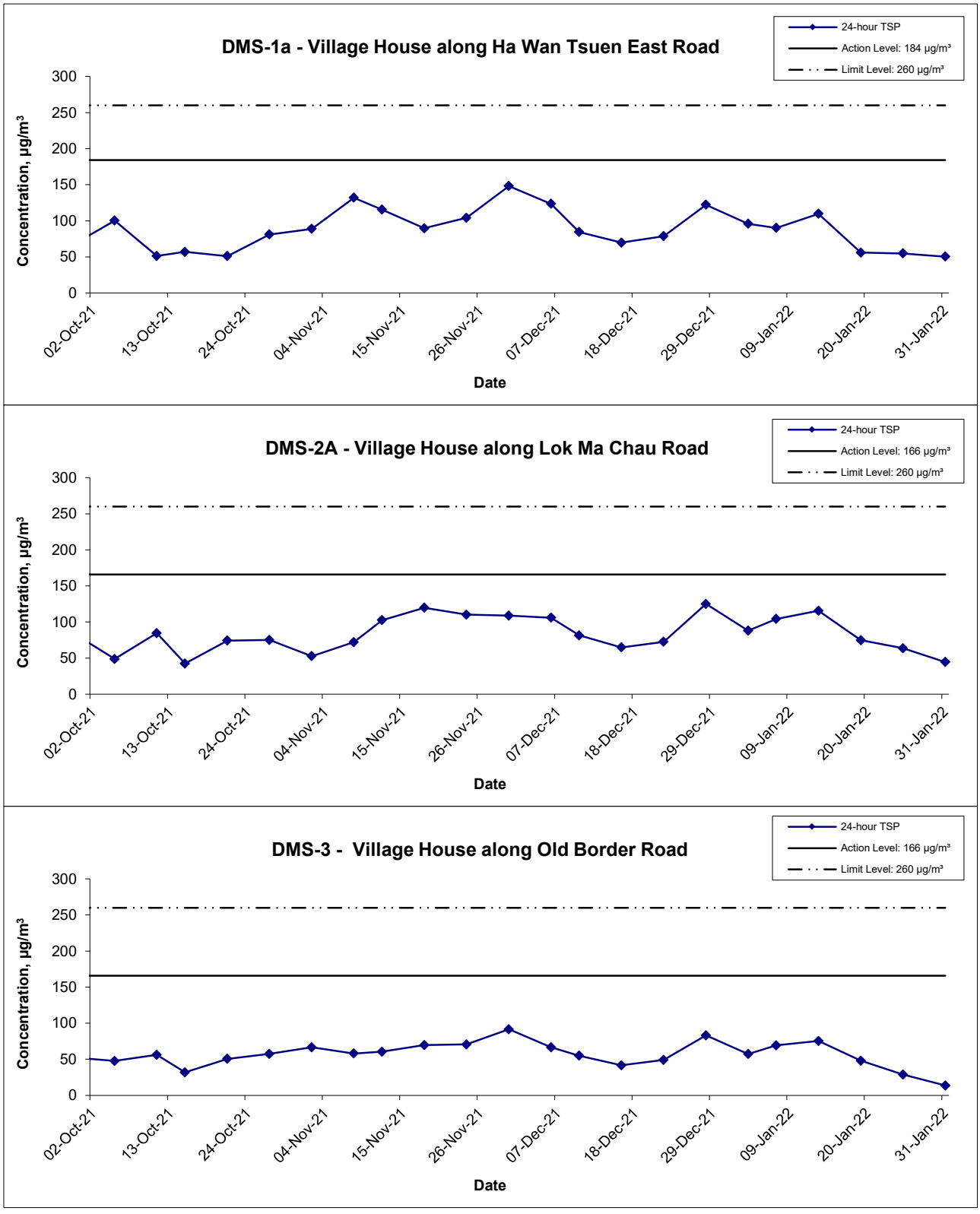
Location DMS-3 - Village House along Old Border Road

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			
3-Jan-22	Sunny	288.3	769.1	3.4893	3.5909	0.1016	1809.1	1833.1	24.0	1.229	1.231	1.230	1770.9	57.4
7-Jan-22	Sunny	294.6	766.8	3.5216	3.6426	0.1210	1833.1	1857.1	24.0	1.213	1.215	1.214	1748.3	69.2
13-Jan-22	Cloudy	288.4	769.0	3.4360	3.5693	0.1333	1857.1	1881.1	24.0	1.229	1.230	1.229	1770.3	75.3
19-Jan-22	Sunny	287.3	767.9	2.7648	2.8500	0.0852	1881.1	1905.1	24.0	1.228	1.234	1.231	1772.6	48.1
25-Jan-22	Cloudy	291.6	765.0	3.4168	3.4672	0.0504	1905.1	1929.1	24.0	1.215	1.217	1.216	1751.0	28.8
31-Jan-22	Cloudy	284.6	767.8	3.3056	3.3300	0.0244	1929.1	1953.1	24.0	1.233	1.235	1.234	1777.1	13.7
													Min	13.7
													Max	75.3
													Average	48.7

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

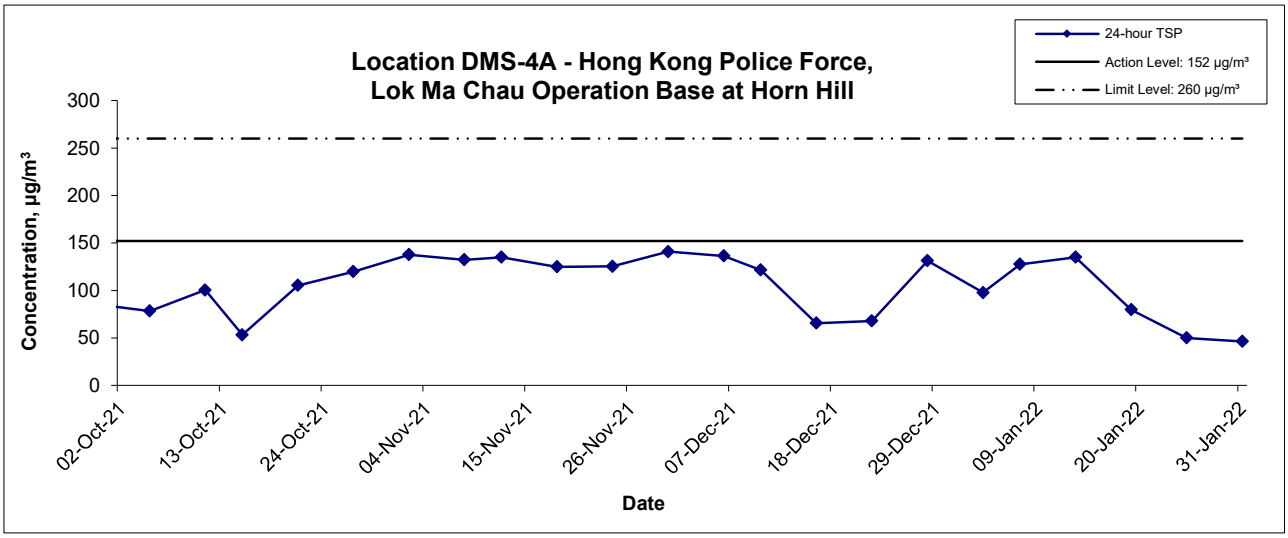
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
3-Jan-22	Sunny	288.3	769.1	3.5061	3.6805	0.1744	31369.3	31393.3	24.0	1.237	1.240	1.238	1783.4	97.8
7-Jan-22	Sunny	289.9	769.0	3.5016	3.7283	0.2267	31393.3	31417.3	24.0	1.230	1.239	1.234	1778.2	127.5
13-Jan-22	Cloudy	288.4	769.0	3.4288	3.6693	0.2405	31417.3	31441.3	24.0	1.237	1.239	1.238	1782.8	134.9
19-Jan-22	Sunny	287.3	767.9	3.3222	3.4646	0.1424	31441.3	31465.3	24.0	1.236	1.243	1.240	1785.3	79.8
25-Jan-22	Cloudy	291.6	765.0	3.4809	3.5682	0.0873	31465.3	31489.3	24.0	1.211	1.213	1.212	1745.1	50.0
31-Jan-22	Cloudy	284.6	767.8	3.3432	3.4255	0.0823	31489.3	31513.3	24.0	1.232	1.233	1.232	1774.6	46.4
													Min	46.4
													Max	134.9
													Average	89.4

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: Jan 22	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 Date Jan 22	Project No. WMA21009 Appendix F	WELLAB 匯力 consulting . testing . research

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}
4-Jan-22	Sunny	14:30	57.3	59.3	53.8	56.5	47.3
		14:35	55.9	57.4	53.0		
		14:40	56.1	57.9	53.3		
		14:45	58.2	59.4	54.0		
		14:50	55.7	57.1	53.8		
		14:55	55.0	57.0	52.0		
10-Jan-22	Sunny	11:30	59.7	60.2	58.9	58.4	
		11:35	59.4	59.9	58.9		
		11:40	59.7	60.3	58.8		
		11:45	59.4	60.0	58.8		
		11:50	56.1	59.5	50.2		
		11:55	52.0	53.7	50.2		
20-Jan-22	Sunny	09:25	63.3	66.2	57.9	62.2	
		09:30	62.8	65.9	53.1		
		09:35	60.5	63.6	55.2		
		09:40	61.9	65.1	56.1		
		09:45	62.5	64.9	55.6		
		09:50	61.7	65.3	55.3		
26-Jan-22	Cloudy	11:15	59.1	61.0	52.4	55.7	
		11:20	56.6	58.8	51.0		
		11:25	55.6	58.8	50.9		
		11:30	51.8	52.9	50.5		
		11:35	50.9	52.3	48.9		
		11:40	55.0	58.1	49.5		
31-Jan-22	Cloudy	10:20	54.7	56.1	47.5	54.5	
		10:25	55.4	58.5	49.5		
		10:30	55.2	57.8	49.8		
		10:35	53.8	55.9	49.2		
		10:40	54.0	57.4	47.1		
		10:45	53.9	51.6	45.1		

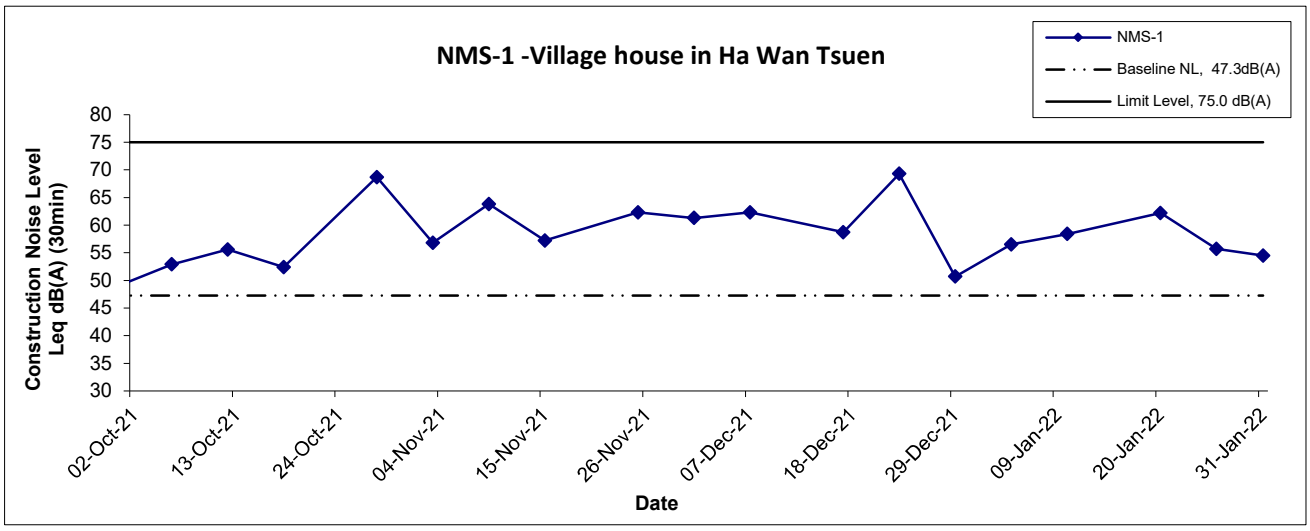
Location NMS-2 - Village house along existing Ha Wan Tsuen East Road							
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
4-Jan-22	Sunny	13:30	62.4	64.7	47.3	66.6	68.4
		13:35	64.5	66.0	47.8		
		13:40	69.9	69.3	46.3		
		13:45	64.7	66.6	49.3		
		13:50	65.9	67.3	56.9		
		13:55	68.0	71.0	51.1		
10-Jan-22	Cloudy	11:10	66.7	70.1	51.5	66.3	
		11:15	68.3	72.2	53.1		
		11:20	67.0	71.5	51.7		
		11:25	65.0	69.5	53.1		
		11:30	65.9	69.6	54.0		
		11:35	63.5	66.4	51.4		
20-Jan-22	Sunny	09:07	67.6	70.4	47.6	68.1	
		09:12	67.0	71.3	49.7		
		09:17	68.6	70.7	47.8		
		09:22	65.0	69.0	48.9		
		09:27	69.8	72.4	47.9		
		09:32	69.0	71.6	47.6		
26-Jan-22	Cloudy	14:10	69.0	71.8	51.9	68.9	
		14:15	69.5	73.2	52.7		
		14:20	68.5	71.7	50.4		
		14:25	67.2	71.6	55.0		
		14:30	68.8	71.8	55.8		
		14:35	69.8	73.9	54.2		
31-Jan-22	Cloudy	13:00	68.8	71.6	49.4	68.8	
		13:05	67.6	69.8	51.4		
		13:10	68.3	64.9	51.0		
		13:15	65.9	67.9	52.4		
		13:20	70.9	74.0	52.8		
		13:25	69.4	71.5	52.1		

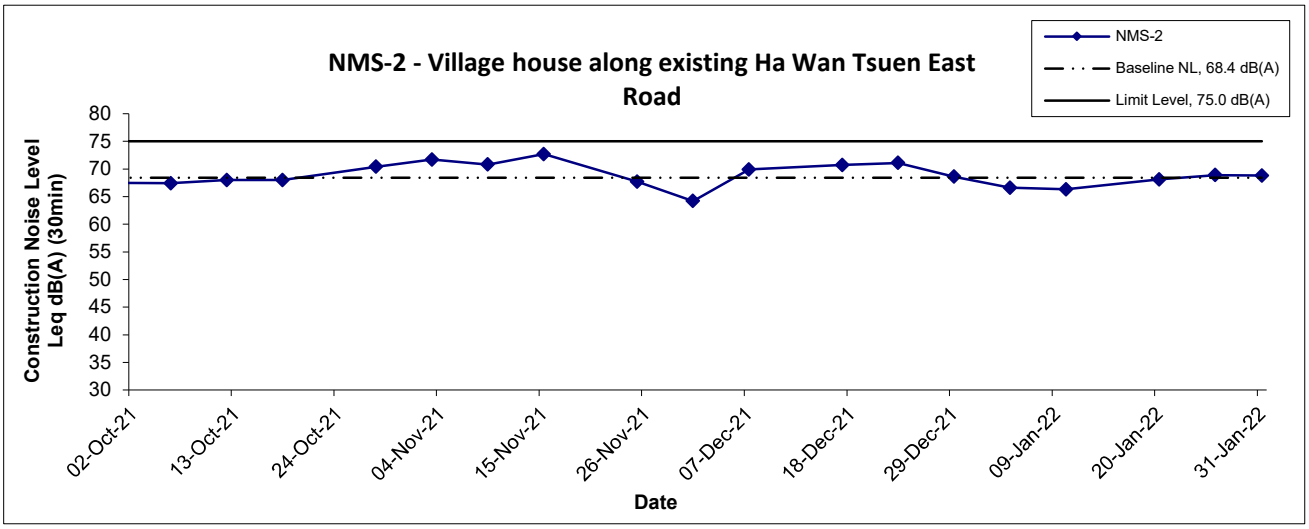
Appendix G - Noise Monitoring Results

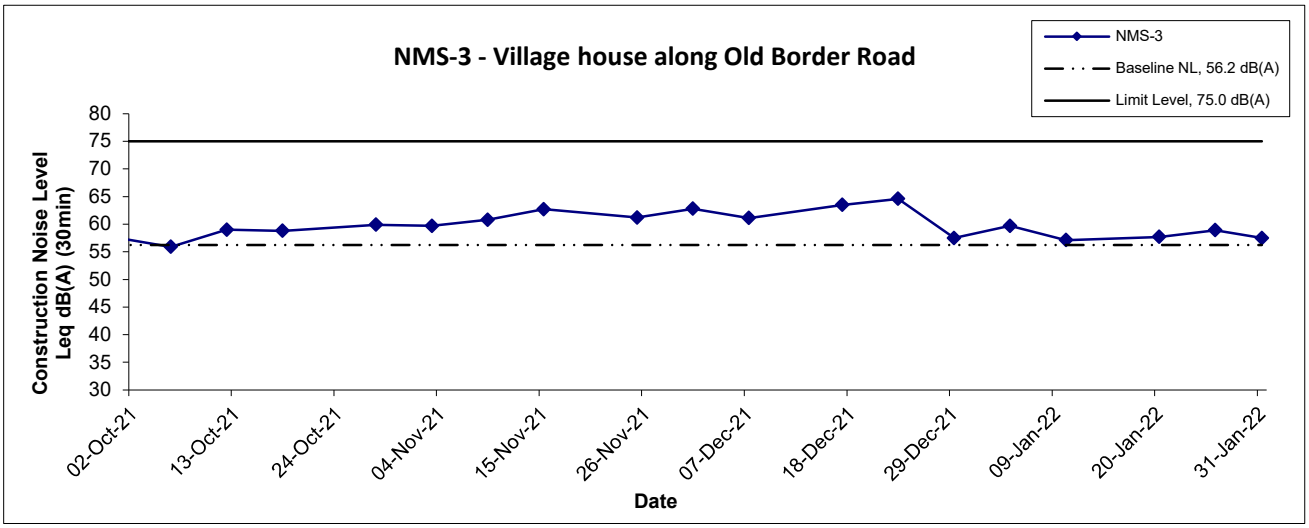
Location NMS-3 - Village house along Old Border Road							
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
4-Jan-22	Sunny	09:35	60.5	60.7	58.7	59.7	56.2
		09:40	60.6	61.7	59.0		
		09:45	59.3	60.0	58.1		
		09:50	59.1	60.0	58.1		
		09:55	59.1	60.0	58.1		
		10:00	59.1	60.0	58.3		
10-Jan-22	Cloudy	15:00	57.2	57.7	56.3	57.1	
		15:05	57.1	57.8	56.2		
		15:10	57.5	58.1	56.3		
		15:15	57.3	57.8	56.4		
		15:20	56.5	57.3	55.5		
		15:25	56.7	57.5	55.9		
20-Jan-22	Sunny	13:12	59.0	59.9	55.8	57.7	
		13:17	57.7	59.3	55.5		
		13:22	56.9	57.9	55.6		
		13:27	57.4	58.5	55.5		
		13:32	58.1	58.7	55.3		
		13:37	56.7	57.6	55.4		
26-Jan-22	Cloudy	13:30	59.2	60.2	57.7	58.9	
		13:35	59.3	60.2	57.8		
		13:40	58.8	59.2	57.6		
		13:45	59.4	59.8	58.0		
		13:50	58.4	58.8	57.6		
		13:55	58.2	58.9	57.5		
31-Jan-22	Cloudy	14:00	57.9	58.7	56.6	57.5	
		14:05	57.7	58.4	56.5		
		14:10	57.3	58.0	56.5		
		14:15	57.4	58.3	56.5		
		14:20	57.5	58.5	56.5		
		14:25	57.2	57.9	56.4		

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}
4-Jan-22	Sunny	09:25	44.8	47.0	41.7	47.3	52.5
		09:30	47.6	49.6	43.1		
		09:35	44.5	45.6	41.6		
		09:40	48.4	51.4	43.8		
		09:45	49.7	50.6	43.7		
		09:50	46.5	48.5	42.9		
10-Jan-22	Cloudy	14:45	50.1	50.2	48.6	49.3	
		14:50	49.5	50.8	44.9		
		14:55	46.8	48.3	45.0		
		15:00	48.0	48.0	45.3		
		15:05	51.1	50.3	46.1		
		15:10	48.9	50.7	46.4		
20-Jan-22	Sunny	13:35	51.5	52.6	44.2	47.3	
		13:40	47.5	50.0	41.8		
		13:45	44.7	47.2	41.9		
		13:50	44.4	46.2	41.9		
		13:55	44.4	46.5	41.9		
		14:00	46.3	48.9	41.6		
26-Jan-22	Cloudy	08:55	55.4	56.1	54.7	56.0	
		09:00	55.8	56.4	54.7		
		09:05	56.0	57.0	54.8		
		09:10	56.5	58.1	55.0		
		09:15	56.4	57.7	54.9		
		09:20	55.9	57.1	54.7		
31-Jan-22	Cloudy	11:00	64.9	65.3	64.2	62.5	
		11:05	64.7	65.1	64.3		
		11:10	60.9	61.3	60.1		
		11:15	60.5	61.0	60.0		
		11:20	60.4	61.1	59.8		
		11:25	60.5	61.6	59.8		

Noise Levels







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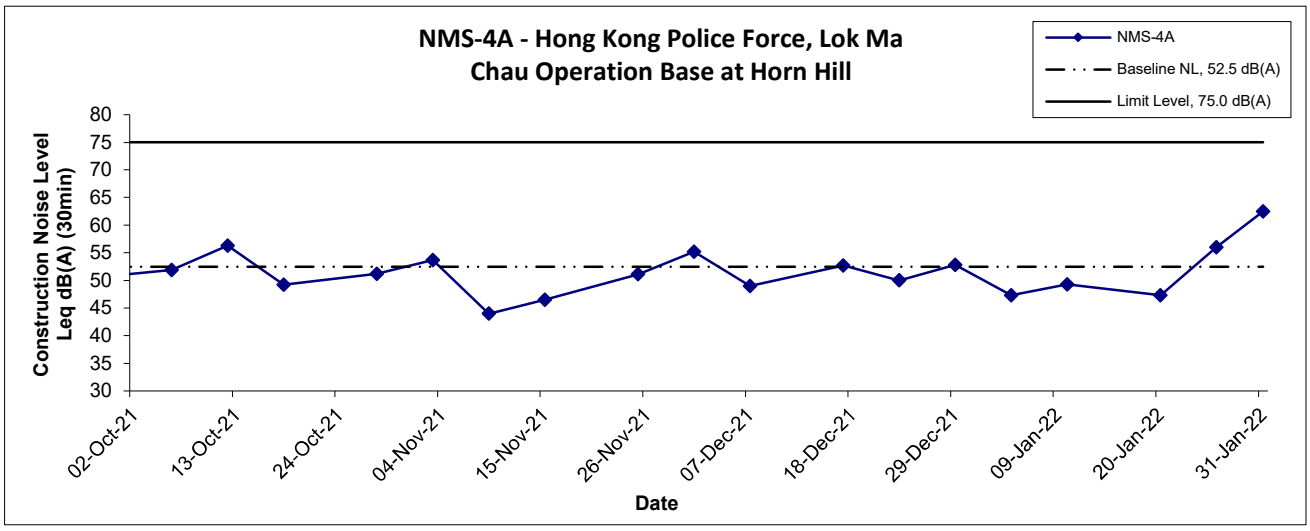
	Date: Jan 22	Appendix: G	

Noise Levels



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APPENDIX H
WATER QUALITY MONITORING RESULTS AND GRAPHICAL PRESENTATION

Water Quality Monitoring Results at CS1

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-Jan-22	Sunny	Calm	09:40	Middle	0.6	18.6 18.6	18.6	9.0 9.0	9.0	4.7 4.7	4.7	140.1 140.4	140.3	12.7 12.8	12.8	13.3 13.5	13.4	30 28	29.0
5-Jan-22	Sunny	Calm	08:01	Middle	0.5	20.3 20.3	20.3	9.0 9.0	9.0	4.8 4.8	4.8	125.2 125.4	125.3	11.0 11.0	11.0	20.2 20.2	20.2	33 35	34.0
7-Jan-22	Sunny	Calm	13:56	Middle	0.6	23.0 23.1	23.1	9.5 9.5	9.5	4.8 4.8	4.8	151.8 151.9	151.9	12.7 12.7	12.7	13.4 13.4	13.4	27 31	29.0
10-Jan-22	Cloudy	Calm	13:29	Middle	0.5	21.1 21.1	21.1	9.1 9.1	9.1	4.9 4.9	4.9	129.8 130.0	129.9	11.2 11.2	11.2	13.5 13.5	13.5	19 22	20.5
12-Jan-22	Cloudy	Calm	08:51	Middle	0.5	18.0 18.0	18.0	7.9 7.9	7.9	4.9 4.9	4.9	83.6 83.5	83.6	7.7 7.7	7.7	15.1 15.2	15.2	21 23	22.0
14-Jan-22	Cloudy	Calm	09:55	Middle	0.5	17.6 17.6	17.6	7.2 7.3	7.3	4.9 4.9	4.9	84.3 84.0	84.2	7.8 7.8	7.8	11.9 11.9	11.9	20 20	20.0
17-Jan-22	Cloudy	Calm	08:36	Middle	0.6	19.4 19.4	19.4	8.1 8.1	8.1	5.0 5.0	5.0	99.1 99.1	99.1	8.9 8.9	8.9	13.2 13.2	13.2	20 23	21.5
19-Jan-22	Sunny	Calm	09:00	Middle	0.6	18.1 18.1	18.1	7.4 7.4	7.4	5.4 5.4	5.4	66.4 66.2	66.3	6.1 6.1	6.1	14.0 14.1	14.1	23 20	21.5
21-Jan-22	Sunny	Calm	12:54	Middle	0.5	21.1 21.1	21.1	9.2 9.2	9.2	5.5 5.6	5.6	152.1 153.4	152.8	13.1 13.2	13.2	13.1 13.2	13.2	18 21	19.5
24-Jan-22	Cloudy	Calm	09:27	Middle	0.5	20.2 20.2	20.2	8.0 8.0	8.0	5.7 5.7	5.7	81.4 81.4	81.4	7.1 7.1	7.1	14.1 14.2	14.2	22 19	20.5
26-Jan-22	Cloudy	Calm	10:38	Middle	0.6	21.2 21.2	21.2	7.4 7.4	7.4	5.3 5.3	5.3	79.7 79.5	79.6	6.9 6.9	6.9	11.5 11.9	11.7	35 33	34.0
28-Jan-22	Cloudy	Calm	12:35	Middle	0.5	21.6 21.5	21.6	7.8 7.9	7.9	5.8 5.8	5.8	104.9 105.1	105.0	9.0 9.0	9.0	11.4 11.4	11.4	22 23	22.5
31-Jan-22	Cloudy	Calm	09:04	Middle	0.5	17.8 17.8	17.8	7.5 7.6	7.6	5.9 5.9	5.9	69.6 68.8	69.2	6.4 6.3	6.4	11.3 11.1	11.2	34 35	34.5

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

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-Jan-22	Sunny	Calm	10:54	Middle	0.1	19.6 19.6	19.6	8.6 8.6	8.6	0.9 0.9	0.9	106.4 106.4	106.4	9.7 9.7	9.7	11.6 11.7	11.7	15 13	14.0
5-Jan-22	Sunny	Calm	09:23	Middle	0.1	20.0 20.0	20.0	8.4 8.4	8.4	2.0 2.0	2.0	84.7 84.7	84.7	7.6 7.6	7.6	10.5 10.3	10.4	12 11	11.5
7-Jan-22	Sunny	Calm	15:09	Middle	0.2	22.5 22.5	22.5	8.6 8.6	8.6	1.8 1.8	1.8	90.8 90.5	90.7	7.8 7.8	7.8	30.9 30.4	30.7	26 24	25.0
10-Jan-22	Cloudy	Calm	14:40	Middle	0.1	21.5 21.5	21.5	9.5 9.5	9.5	0.6 0.6	0.6	119.0 119.0	119.0	10.5 10.5	10.5	13.7 13.8	13.8	14 12	13.0
12-Jan-22	Cloudy	Calm	10:32	Middle	0.2	16.4 16.4	16.4	8.9 8.9	8.9	0.9 0.9	0.9	124.5 124.4	124.5	12.1 12.1	12.1	6.1 6.1	6.1	6 6	6.0
14-Jan-22	Cloudy	Calm	11:19	Middle	0.1	16.5 16.5	16.5	8.3 8.3	8.3	0.6 0.6	0.6	118.5 118.6	118.6	11.5 11.5	11.5	30.2 29.2	29.7	27 25	26.0
17-Jan-22	Cloudy	Calm	10:24	Middle	0.2	18.9 18.9	18.9	8.2 8.2	8.2	0.9 0.9	0.9	85.5 85.7	85.6	7.9 7.9	7.9	8.1 8.2	8.2	11 9	10.0
19-Jan-22	Sunny	Calm	10:21	Middle	0.1	17.5 17.5	17.5	8.2 8.2	8.2	2.4 2.4	2.4	90.1 89.9	90.0	8.5 8.5	8.5	6.5 6.4	6.5	3 3	3.0
21-Jan-22	Sunny	Calm	14:10	Middle	0.2	21.5 21.5	21.5	8.3 8.3	8.3	1.7 1.7	1.7	80.3 80.2	80.3	7.0 7.0	7.0	33.3 33.2	33.3	24 26	25.0
24-Jan-22	Cloudy	Calm	10:39	Middle	0.1	21.5 21.6	21.6	8.2 8.2	8.2	1.4 1.4	1.4	106.7 106.8	106.8	9.3 9.3	9.3	6.2 5.9	6.1	4 3	3.5
26-Jan-22	Cloudy	Calm	11:58	Middle	0.2	22.5 22.5	22.5	9.0 9.0	9.0	1.0 1.0	1.0	143.3 143.2	143.3	12.4 12.3	12.4	5.0 5.3	5.2	10 11	10.5
28-Jan-22	Cloudy	Calm	13:51	Middle	0.1	22.3 22.3	22.3	9.1 9.1	9.1	1.4 1.4	1.4	138.9 139.0	139.0	12.0 12.0	12.0	10.3 10.3	10.3	23 27	25.0
31-Jan-22	Cloudy	Calm	10:23	Middle	0.1	14.5 14.5	14.5	8.4 8.4	8.4	0.1 0.1	0.1	99.4 99.0	99.2	10.1 10.1	10.1	371.1 355.0	363.1	23 19	21.0

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS1

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-Jan-22	Sunny	Calm	10:13	Middle	0.5	19.2 19.2	19.2	9.2 9.2	9.2	4.7 4.7	4.7	155.6 155.6	155.6	14.0 14.0	14.0	19.8 19.8	19.8	19 22	20.5
5-Jan-22	Sunny	Calm	08:32	Middle	0.5	20.0 20.0	20.0	8.8 8.8	8.8	5.2 5.2	5.2	129.3 129.3	129.3	11.4 11.4	11.4	15.3 15.3	15.3	21 22	21.5
7-Jan-22	Sunny	Calm	14:22	Middle	0.5	23.3 23.4	23.4	9.5 9.5	9.5	5.3 5.3	5.3	163.3 163.8	163.6	13.5 13.5	13.5	19.3 19.6	19.5	27 27	27.0
10-Jan-22	Cloudy	Calm	13:57	Middle	0.5	20.3 20.3	20.3	9.2 9.2	9.2	5.3 5.3	5.3	163.3 163.5	163.4	14.3 14.3	14.3	12.4 12.4	12.4	25 23	24.0
12-Jan-22	Cloudy	Calm	09:26	Middle	0.5	17.5 17.5	17.5	8.5 8.5	8.5	5.1 5.1	5.1	109.7 109.7	109.7	10.2 10.2	10.2	16.5 16.5	16.5	27 26	26.5
14-Jan-22	Cloudy	Calm	10:20	Middle	0.5	17.5 17.4	17.5	8.3 8.3	8.3	5.1 5.2	5.2	120.5 120.1	120.3	11.2 11.2	11.2	14.3 14.4	14.4	27 24	25.5
17-Jan-22	Cloudy	Calm	09:09	Middle	0.5	18.5 18.5	18.5	8.1 8.1	8.1	6.0 6.0	6.0	99.8 99.9	99.9	9.0 9.0	9.0	13.6 13.6	13.6	26 26	26.0
19-Jan-22	Sunny	Calm	09:33	Middle	0.5	17.6 17.6	17.6	7.9 7.9	7.9	5.9 5.9	5.9	96.1 96.1	96.1	8.9 8.9	8.9	12.2 12.2	12.2	19 21	20.0
21-Jan-22	Sunny	Calm	13:21	Middle	0.5	20.7 20.7	20.7	9.1 9.1	9.1	6.2 6.2	6.2	155.3 155.4	155.4	13.4 13.5	13.5	26.5 26.4	26.5	16 20	18.0
24-Jan-22	Cloudy	Calm	09:56	Middle	0.5	20.1 20.1	20.1	7.9 7.9	7.9	6.4 6.4	6.4	90.0 90.3	90.2	7.9 7.9	7.9	8.6 8.6	8.6	10 9	9.5
26-Jan-22	Cloudy	Calm	10:19	Middle	0.5	20.3 20.3	20.3	7.4 7.4	7.4	6.3 6.3	6.3	91.2 91.1	91.2	7.9 7.9	7.9	13.1 13.1	13.1	18 21	19.5
28-Jan-22	Cloudy	Calm	13:02	Middle	0.5	22.0 22.0	22.0	8.3 8.3	8.3	6.2 6.2	6.2	114.4 114.4	114.4	9.7 9.7	9.7	15.4 15.4	15.4	14 13	13.5
31-Jan-22	Cloudy	Calm	09:35	Middle	0.5	17.1 17.1	17.1	7.7 7.7	7.7	7.4 7.4	7.4	79.3 78.8	79.1	7.3 7.3	7.3	11.9 11.6	11.8	22 22	22.0

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

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-Jan-22	Sunny	Calm	10:37	Middle	0.1	19.8 19.8	19.8	9.4 9.5	9.5	2.5 2.5	2.5	147.6 148.2	147.9	13.3 13.3	13.3	22.0 21.8	21.9	31 35	33.0
5-Jan-22	Sunny	Calm	09:05	Middle	0.1	20.8 20.8	20.8	9.1 9.1	9.1	2.3 2.3	2.3	127.3 127.4	127.4	11.3 11.3	11.3	16.7 16.6	16.7	24 25	24.5
7-Jan-22	Sunny	Calm	14:45	Middle	0.2	23.4 23.5	23.5	8.4 8.4	8.4	0.1 0.1	0.1	80.9 80.8	80.9	6.9 6.9	6.9	30.1 29.7	29.9	38 37	37.5
10-Jan-22	Cloudy	Calm	14:23	Middle	0.1	21.9 21.9	21.9	8.1 8.0	8.1	3.6 3.6	3.6	85.2 85.1	85.2	7.3 7.3	7.3	28.5 29.6	29.1	37 35	36.0
12-Jan-22	Cloudy	Calm	09:59	Middle	0.1	18.4 18.4	18.4	7.8 7.8	7.8	4.7 4.7	4.7	74.0 73.9	74.0	6.8 6.7	6.8	15.8 15.8	15.8	15 17	16.0
14-Jan-22	Cloudy	Calm	10:43	Middle	0.1	17.8 17.8	17.8	8.3 8.3	8.3	5.5 5.5	5.5	115.2 115.3	115.3	10.6 10.6	10.6	20.2 20.2	20.2	30 29	29.5
17-Jan-22	Cloudy	Calm	10:04	Middle	0.1	19.4 19.4	19.4	8.2 8.2	8.2	5.6 5.6	5.6	106.2 106.2	106.2	9.5 9.5	9.5	21.5 22.4	22.0	36 30	33.0
19-Jan-22	Sunny	Calm	09:59	Middle	0.1	18.1 18.1	18.1	8.0 8.0	8.0	6.2 6.2	6.2	96.6 96.5	96.6	8.8 8.8	8.8	17.6 17.7	17.7	22 24	23.0
21-Jan-22	Sunny	Calm	13:48	Middle	0.1	21.8 21.8	21.8	8.2 8.2	8.2	7.8 7.8	7.8	75.6 75.6	75.6	6.3 6.3	6.3	30.4 30.2	30.3	22 21	21.5
24-Jan-22	Cloudy	Calm	10:17	Middle	0.1	21.5 21.5	21.5	7.9 7.9	7.9	6.6 6.6	6.6	91.0 91.0	91.0	7.7 7.7	7.7	20.0 20.7	20.4	22 22	22.0
26-Jan-22	Cloudy	Calm	10:54	Middle	0.1	20.8 20.8	20.8	8.0 8.0	8.0	5.7 5.7	5.7	104.6 105.0	104.8	9.1 9.1	9.1	11.2 11.1	11.2	11 13	12.0
28-Jan-22	Cloudy	Calm	13:23	Middle	0.1	22.3 22.3	22.3	8.2 8.2	8.2	6.8 6.8	6.8	103.0 103.0	103.0	8.6 8.6	8.6	16.4 16.7	16.6	27 29	28.0
31-Jan-22	Cloudy	Calm	10:01	Middle	0.1	16.3 16.3	16.3	7.8 7.8	7.8	7.2 7.2	7.2	87.6 90.1	88.9	8.2 8.5	8.4	18.1 18.4	18.3	20 23	21.5

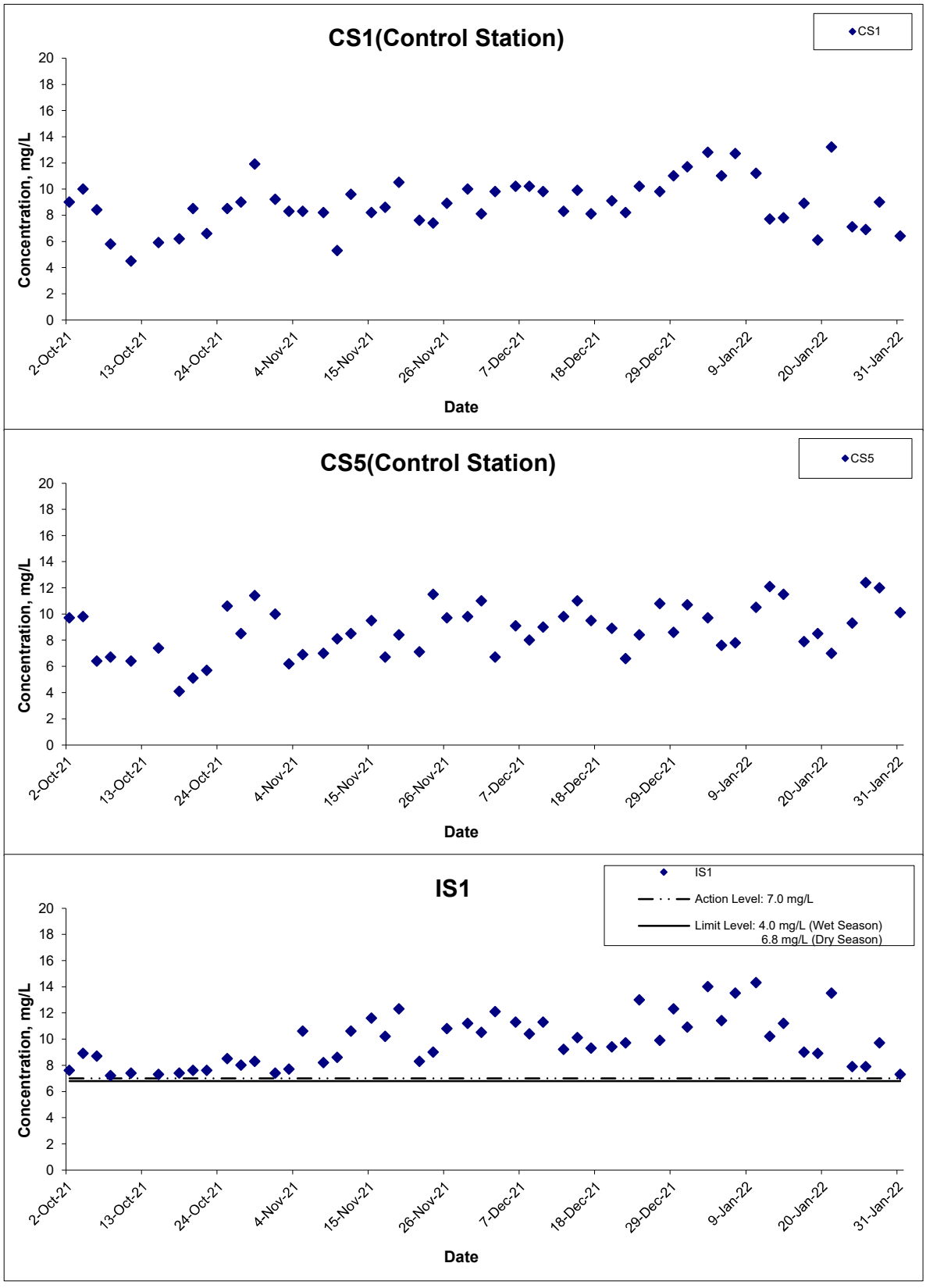
Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS4

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-Jan-22	Sunny	Calm	11:16	Middle	0.1	19.2 19.3	19.3	8.2 8.2	8.2	0.01 0.01	0.01	58.0 57.1	57.6	5.4 5.3	5.4	17.2 17.1	17.2	10 10	10.0
5-Jan-22	Sunny	Calm	09:43	Middle	0.1	18.9 18.9	18.9	8.0 8.0	8.0	0.3 0.3	0.3	52.0 51.8	51.9	4.8 4.8	4.8	10.8 10.6	10.7	7 6	6.5
7-Jan-22	Sunny	Calm	15:25	Middle	0.1	20.6 20.6	20.6	8.0 8.0	8.0	0.02 0.02	0.02	50.0 49.4	49.7	4.5 4.4	4.5	11.6 11.9	11.8	12 13	12.5
10-Jan-22	Cloudy	Calm	15:03	Middle	0.1	19.3 19.4	19.4	8.0 7.9	8.0	0.2 0.2	0.2	50.8 49.7	50.3	4.7 4.6	4.7	15.1 15.2	15.2	8 7	7.5
12-Jan-22	Cloudy	Calm	10:47	Middle	0.1	16.4 16.4	16.4	7.7 7.7	7.7	0.2 0.2	0.2	48.9 48.9	48.9	4.8 4.8	4.8	11.6 11.5	11.6	16 17	16.5
14-Jan-22	Cloudy	Calm	09:30	Middle	0.1	16.1 16.1	16.1	7.1 7.1	7.1	0.2 0.2	0.2	44.6 44.5	44.6	4.4 4.4	4.4	11.4 11.8	11.6	10 9	9.5
17-Jan-22	Cloudy	Calm	10:40	Middle	0.1	18.3 18.3	18.3	8.0 7.9	8.0	0.1 0.1	0.1	101.4 101.4	101.4	9.5 9.5	9.5	11.1 11.3	11.2	7 6	6.5
19-Jan-22	Sunny	Calm	10:43	Middle	0.1	16.6 16.6	16.6	7.8 7.8	7.8	0.2 0.2	0.2	43.9 43.8	43.9	4.3 4.3	4.3	8.7 8.6	8.7	11 11	11.0
21-Jan-22	Sunny	Calm	14:43	Middle	0.1	18.9 18.9	18.9	8.5 8.5	8.5	0.2 0.2	0.2	64.4 60.8	62.6	6.0 5.6	5.8	11.8 11.7	11.8	6 7	6.5
24-Jan-22	Cloudy	Calm	10:57	Middle	0.1	19.9 19.9	19.9	7.8 7.8	7.8	0.2 0.2	0.2	46.3 45.9	46.1	4.2 4.2	4.2	8.0 7.8	7.9	18 22	20.0
26-Jan-22	Cloudy	Calm	09:45	Middle	0.1	18.9 18.9	18.9	7.2 7.2	7.2	0.2 0.2	0.2	56.4 56.3	56.4	5.2 5.2	5.2	10.5 10.6	10.6	18 22	20.0
28-Jan-22	Cloudy	Calm	14:09	Middle	0.2	19.8 19.8	19.8	8.4 8.4	8.4	0.2 0.2	0.2	66.4 65.3	65.9	6.1 6.0	6.1	11.3 12.2	11.8	23 21	22.0
31-Jan-22	Cloudy	Calm	10:43	Middle	0.1	13.5 13.4	13.5	8.0 7.9	8.0	0.2 0.2	0.2	53.1 51.2	52.2	5.5 5.3	5.4	16.8 17.0	16.9	24 22	23.0

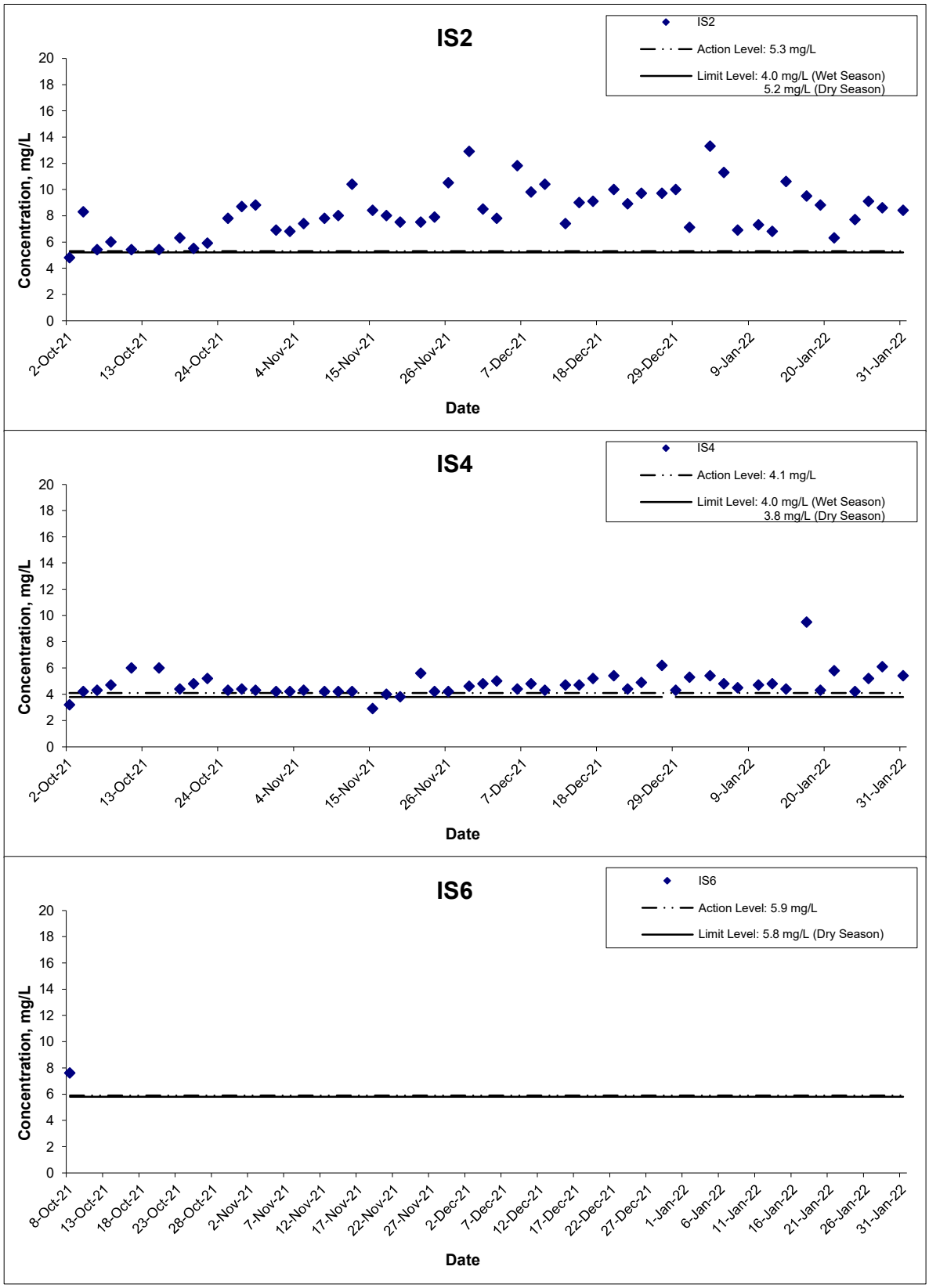
Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

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: Jan 22	Appendix: H	

Dissolved Oxygen



Title	Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team	Scale	N.T.S	Project No. WMA21009
	Graphical Presentation of Water Quality Monitoring Results	Date	Jan 22	Appendix H

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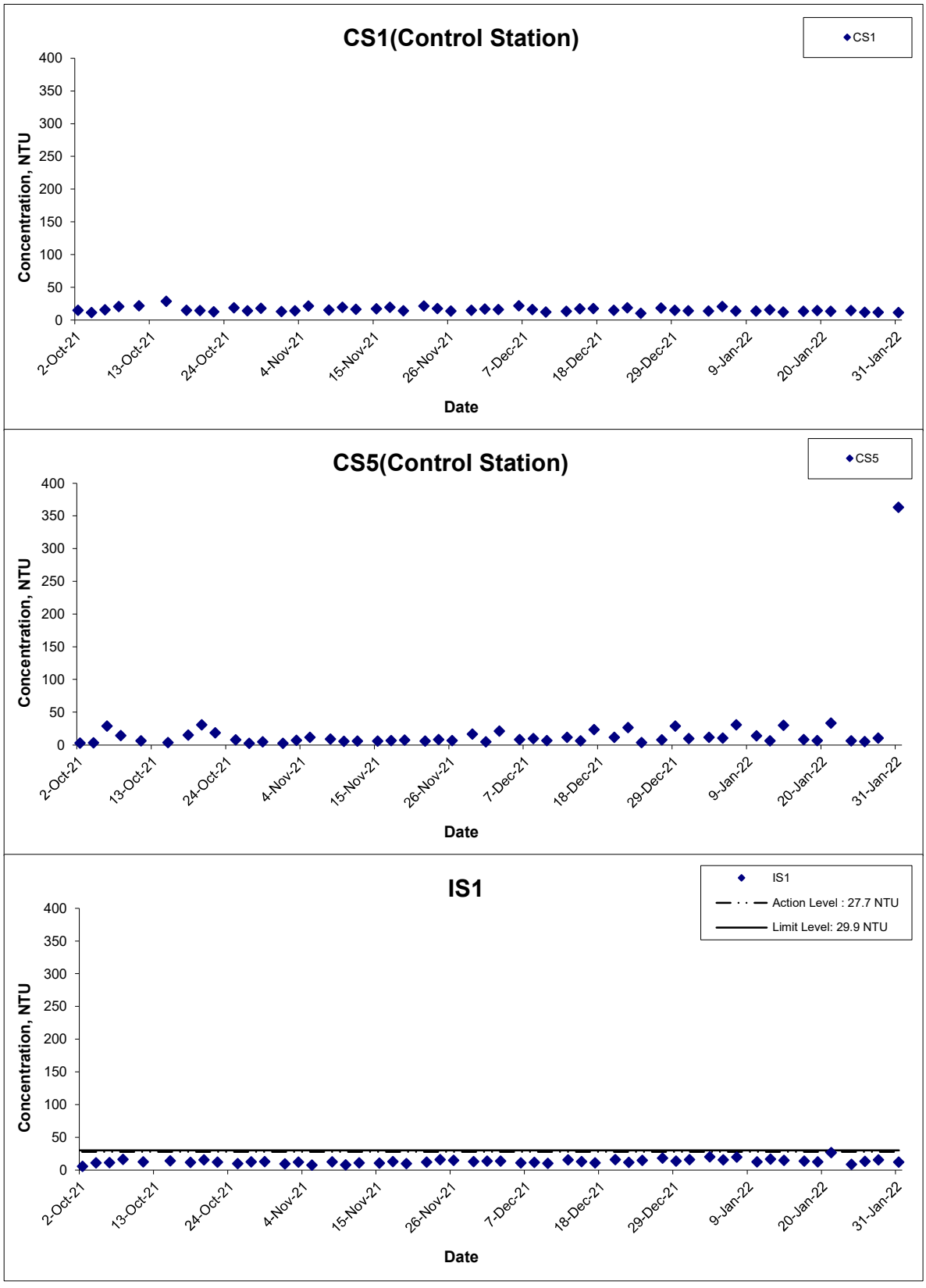
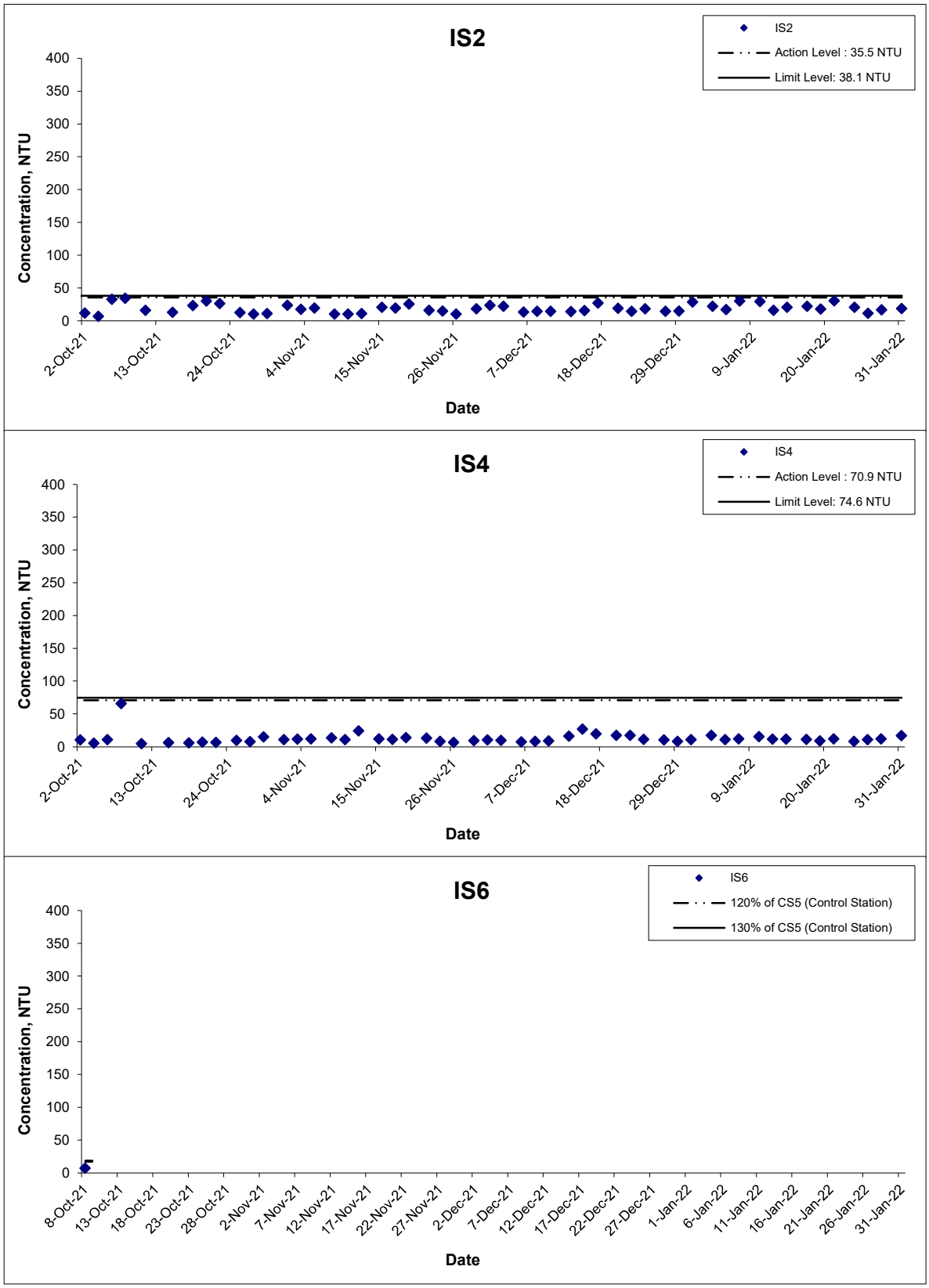
Turbidity



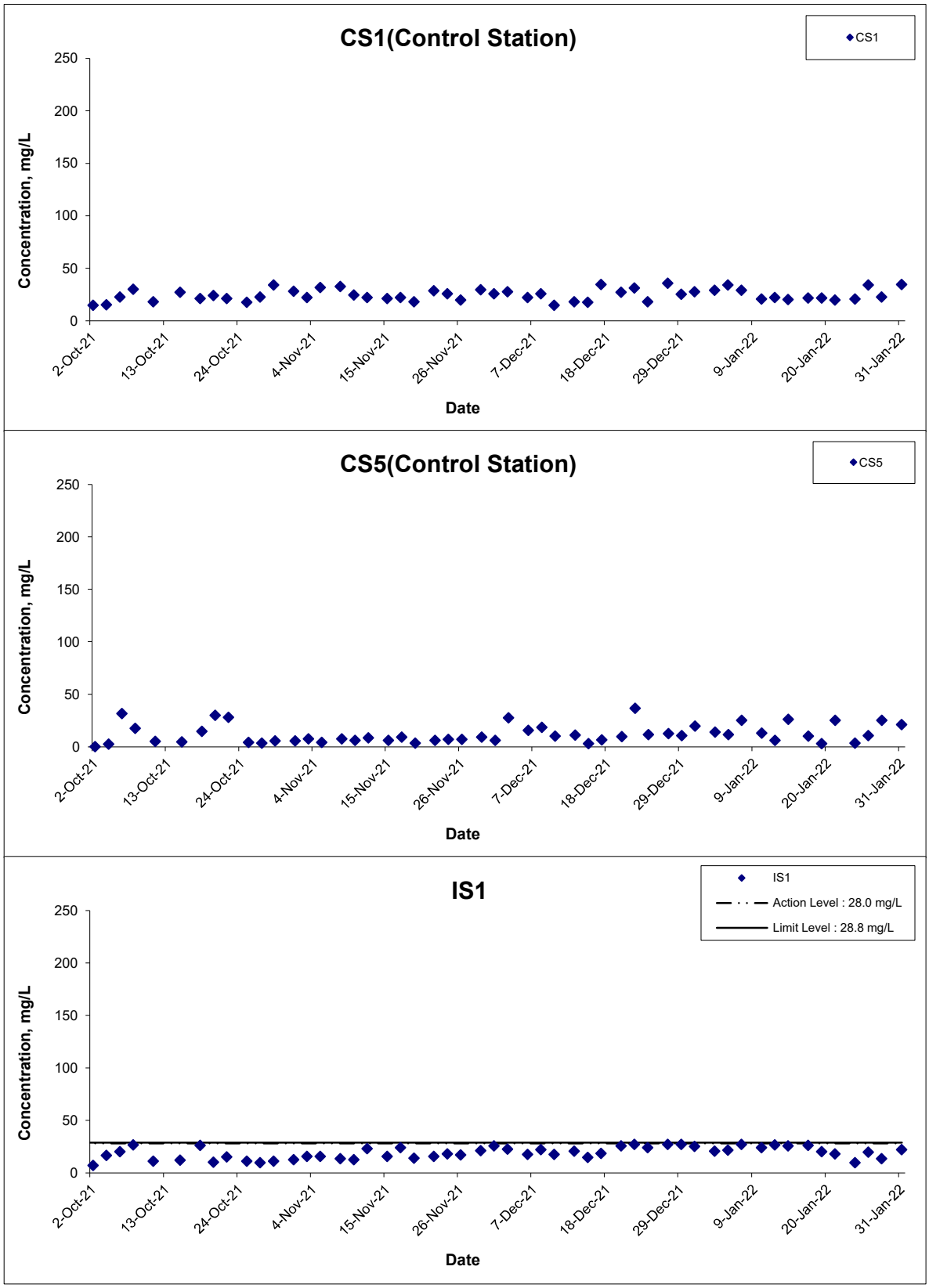
Title	Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: WMA21009	WELLAB 匯力 consulting . testing . research
		Date: Jan 22	Appendix: H	

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: Jan 22	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	Scale	N.T.S	Project No. WMA21009
	Graphical Presentation of Water Quality Monitoring Results	Date	Jan 22	Appendix H

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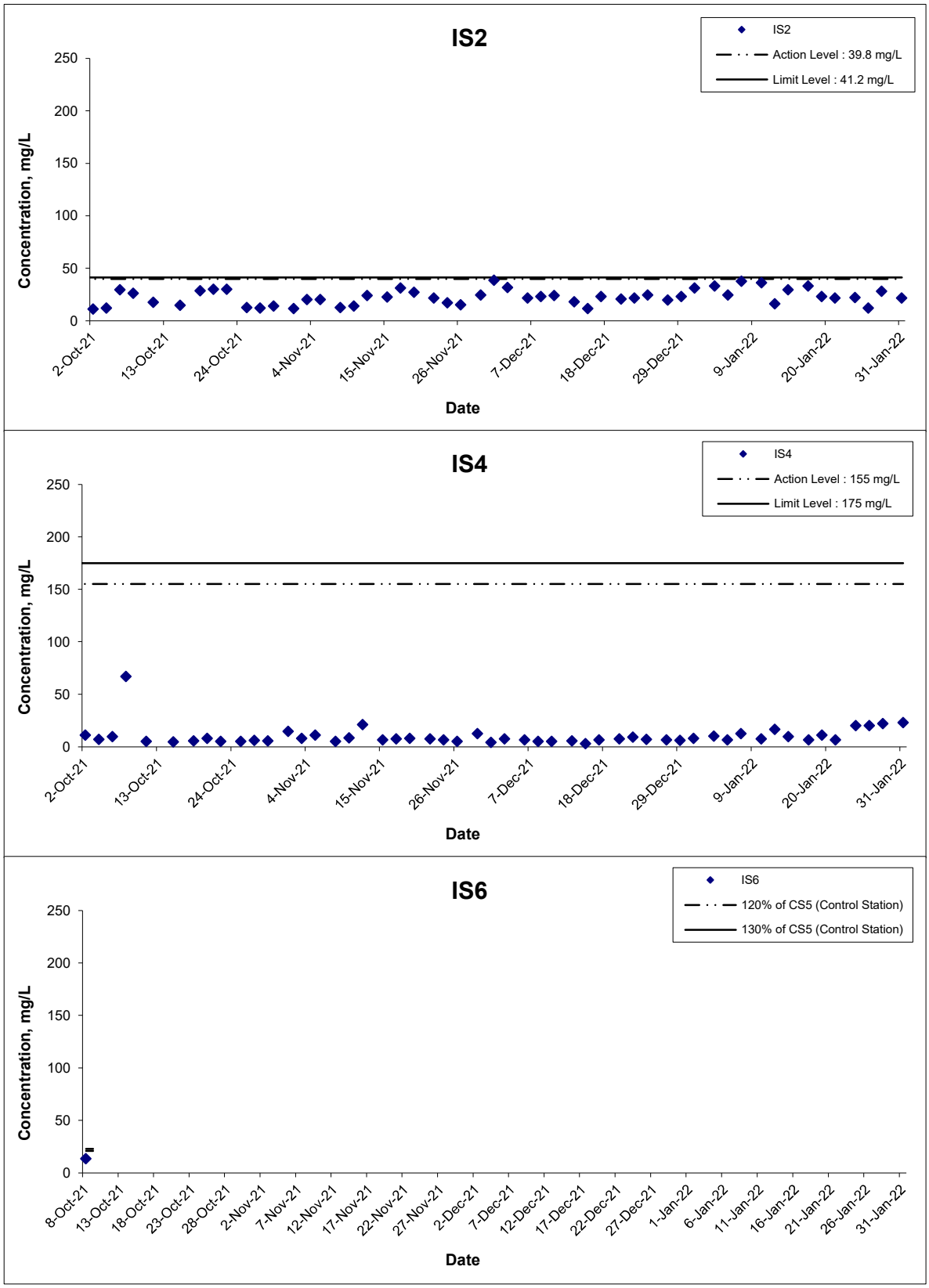
Suspended Solids



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	Project No. WMA21009	WELLAB 匯力 consulting . testing . research
		Date Jan 22	Appendix H	

APPENDIX I
WEATHER CONDITION

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
1-Jan-2022	00:00	0.0	SSW
1-Jan-2022	01:00	0.0	SSW
1-Jan-2022	02:00	0.4	SSW
1-Jan-2022	03:00	0.0	SSW
1-Jan-2022	04:00	0.0	SSW
1-Jan-2022	05:00	0.4	SSW
1-Jan-2022	06:00	0.4	SSW
1-Jan-2022	07:00	0.4	SSW
1-Jan-2022	08:00	0.0	SW
1-Jan-2022	09:00	0.0	SSW
1-Jan-2022	10:00	0.4	SSW
1-Jan-2022	11:00	0.0	WSW
1-Jan-2022	12:00	0.0	SSW
1-Jan-2022	13:00	0.0	---
1-Jan-2022	14:00	0.0	---
1-Jan-2022	15:00	0.0	---
1-Jan-2022	16:00	0.0	ESE
1-Jan-2022	17:00	0.0	---
1-Jan-2022	18:00	0.0	ESE
1-Jan-2022	19:00	0.0	---
1-Jan-2022	20:00	0.0	WSW
1-Jan-2022	21:00	0.0	---
1-Jan-2022	22:00	0.0	---
1-Jan-2022	23:00	0.0	W
2-Jan-2022	00:00	0.0	---
2-Jan-2022	01:00	0.0	---
2-Jan-2022	02:00	0.0	---
2-Jan-2022	03:00	0.0	---
2-Jan-2022	04:00	0.0	---
2-Jan-2022	05:00	0.0	---
2-Jan-2022	06:00	0.0	---
2-Jan-2022	07:00	0.0	---
2-Jan-2022	08:00	0.0	---
2-Jan-2022	09:00	0.4	SSW
2-Jan-2022	10:00	0.4	SSW
2-Jan-2022	11:00	0.4	SSE
2-Jan-2022	12:00	0.4	SSE
2-Jan-2022	13:00	0.4	SSE
2-Jan-2022	14:00	0.0	SSE
2-Jan-2022	15:00	0.4	SSW
2-Jan-2022	16:00	0.0	SSW
2-Jan-2022	17:00	0.0	SSW
2-Jan-2022	18:00	0.0	ENE
2-Jan-2022	19:00	0.0	---
2-Jan-2022	20:00	0.4	WSW
2-Jan-2022	21:00	0.0	SSW
2-Jan-2022	22:00	0.0	SSE
2-Jan-2022	23:00	0.0	SSW
3-Jan-2022	00:00	0.0	SSW
3-Jan-2022	01:00	0.4	WSW
3-Jan-2022	02:00	0.4	SSW
3-Jan-2022	03:00	0.0	SSW
3-Jan-2022	04:00	0.0	WSW
3-Jan-2022	05:00	0.4	WSW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
3-Jan-2022	06:00	0.0	SSW
3-Jan-2022	07:00	0.0	SW
3-Jan-2022	08:00	0.0	SSW
3-Jan-2022	09:00	0.4	SSW
3-Jan-2022	10:00	0.4	SSW
3-Jan-2022	11:00	0.4	SSW
3-Jan-2022	12:00	0.4	WSW
3-Jan-2022	13:00	0.4	SSW
3-Jan-2022	14:00	0.4	WNW
3-Jan-2022	15:00	0.4	WSW
3-Jan-2022	16:00	0.4	WNW
3-Jan-2022	17:00	0.0	SSW
3-Jan-2022	18:00	0.0	W
3-Jan-2022	19:00	0.0	WSW
3-Jan-2022	20:00	0.4	W
3-Jan-2022	21:00	0.0	WSW
3-Jan-2022	22:00	0.0	WSW
3-Jan-2022	23:00	0.0	WSW
4-Jan-2022	00:00	0.0	W
4-Jan-2022	01:00	0.0	W
4-Jan-2022	02:00	0.0	---
4-Jan-2022	03:00	0.0	W
4-Jan-2022	04:00	0.0	SSW
4-Jan-2022	05:00	0.4	SSW
4-Jan-2022	06:00	0.4	SSW
4-Jan-2022	07:00	0.0	SW
4-Jan-2022	08:00	0.0	SSW
4-Jan-2022	09:00	0.4	SSW
4-Jan-2022	10:00	0.4	SSW
4-Jan-2022	11:00	0.9	SSW
4-Jan-2022	12:00	1.8	SSW
4-Jan-2022	13:00	0.9	SSW
4-Jan-2022	14:00	0.4	SW
4-Jan-2022	15:00	0.9	WNW
4-Jan-2022	16:00	0.4	W
4-Jan-2022	17:00	0.0	W
4-Jan-2022	18:00	0.0	SSW
4-Jan-2022	19:00	0.0	---
4-Jan-2022	20:00	0.0	SSW
4-Jan-2022	21:00	0.0	SSW
4-Jan-2022	22:00	0.4	SSW
4-Jan-2022	23:00	0.4	SSW
5-Jan-2022	00:00	0.9	SSW
5-Jan-2022	01:00	0.4	SSW
5-Jan-2022	02:00	0.4	SSW
5-Jan-2022	03:00	0.4	SSW
5-Jan-2022	04:00	0.9	SSW
5-Jan-2022	05:00	0.0	SSW
5-Jan-2022	06:00	0.0	SSW
5-Jan-2022	07:00	0.0	WSW
5-Jan-2022	08:00	0.0	WSW
5-Jan-2022	09:00	0.0	SSW
5-Jan-2022	10:00	0.4	SSW
5-Jan-2022	11:00	0.4	SSW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
5-Jan-2022	12:00	0.4	SSW
5-Jan-2022	13:00	0.0	SSE
5-Jan-2022	14:00	0.0	SSE
5-Jan-2022	15:00	0.0	NE
5-Jan-2022	16:00	0.0	NE
5-Jan-2022	17:00	0.0	NE
5-Jan-2022	18:00	0.0	NE
5-Jan-2022	19:00	0.0	W
5-Jan-2022	20:00	1.3	WSW
5-Jan-2022	21:00	0.0	W
5-Jan-2022	22:00	0.4	W
5-Jan-2022	23:00	0.0	W
6-Jan-2022	00:00	0.0	SW
6-Jan-2022	01:00	0.0	SW
6-Jan-2022	02:00	0.0	WSW
6-Jan-2022	03:00	0.0	---
6-Jan-2022	04:00	0.0	WSW
6-Jan-2022	05:00	0.0	WSW
6-Jan-2022	06:00	0.0	---
6-Jan-2022	07:00	0.0	SSW
6-Jan-2022	08:00	0.4	SSW
6-Jan-2022	09:00	0.9	SSW
6-Jan-2022	10:00	0.9	SSW
6-Jan-2022	11:00	0.4	SSW
6-Jan-2022	12:00	0.4	SSW
6-Jan-2022	13:00	0.4	SSE
6-Jan-2022	14:00	0.4	SSW
6-Jan-2022	15:00	0.0	SSW
6-Jan-2022	16:00	0.0	SSW
6-Jan-2022	17:00	0.0	SSW
6-Jan-2022	18:00	0.4	W
6-Jan-2022	19:00	0.0	SW
6-Jan-2022	20:00	0.0	SSW
6-Jan-2022	21:00	0.0	SSW
6-Jan-2022	22:00	0.0	SSW
6-Jan-2022	23:00	0.4	SSW
7-Jan-2022	00:00	0.9	SSW
7-Jan-2022	01:00	0.4	SSW
7-Jan-2022	02:00	0.4	SSW
7-Jan-2022	03:00	0.0	SSW
7-Jan-2022	04:00	0.0	SSW
7-Jan-2022	05:00	0.0	WSW
7-Jan-2022	06:00	0.0	WSW
7-Jan-2022	07:00	0.0	SSW
7-Jan-2022	08:00	0.0	SW
7-Jan-2022	09:00	0.4	SSW
7-Jan-2022	10:00	0.0	SSW
7-Jan-2022	11:00	0.0	SSE
7-Jan-2022	12:00	0.0	SSW
7-Jan-2022	13:00	0.0	SSW
7-Jan-2022	14:00	0.0	SSE
7-Jan-2022	15:00	0.0	WSW
7-Jan-2022	16:00	0.0	SSW
7-Jan-2022	17:00	0.0	WSW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
7-Jan-2022	18:00	0.4	W
7-Jan-2022	19:00	0.4	W
7-Jan-2022	20:00	0.4	SSW
7-Jan-2022	21:00	0.0	SSW
7-Jan-2022	22:00	0.0	WSW
7-Jan-2022	23:00	0.0	WSW
8-Jan-2022	00:00	0.0	SSW
8-Jan-2022	01:00	0.4	SSW
8-Jan-2022	02:00	0.0	SSW
8-Jan-2022	03:00	0.0	SSW
8-Jan-2022	04:00	0.0	SSW
8-Jan-2022	05:00	0.0	WSW
8-Jan-2022	06:00	0.0	SSW
8-Jan-2022	07:00	0.0	SSW
8-Jan-2022	08:00	0.0	SSW
8-Jan-2022	09:00	0.4	SSW
8-Jan-2022	10:00	0.0	SSW
8-Jan-2022	11:00	0.0	SSW
8-Jan-2022	12:00	0.0	SSE
8-Jan-2022	13:00	0.0	SSW
8-Jan-2022	14:00	0.4	WSW
8-Jan-2022	15:00	0.0	NE
8-Jan-2022	16:00	0.0	NE
8-Jan-2022	17:00	0.0	NE
8-Jan-2022	18:00	0.0	NE
8-Jan-2022	19:00	0.4	WSW
8-Jan-2022	20:00	0.4	W
8-Jan-2022	21:00	0.0	W
8-Jan-2022	22:00	0.0	WNW
8-Jan-2022	23:00	0.0	WSW
9-Jan-2022	00:00	0.0	SW
9-Jan-2022	01:00	0.0	WSW
9-Jan-2022	02:00	0.0	W
9-Jan-2022	03:00	0.0	---
9-Jan-2022	04:00	0.0	WSW
9-Jan-2022	05:00	0.0	SSW
9-Jan-2022	06:00	0.0	WSW
9-Jan-2022	07:00	0.0	W
9-Jan-2022	08:00	0.0	SW
9-Jan-2022	09:00	0.0	SSW
9-Jan-2022	10:00	0.4	SSW
9-Jan-2022	11:00	0.4	SSW
9-Jan-2022	12:00	0.0	SSW
9-Jan-2022	13:00	0.0	S
9-Jan-2022	14:00	0.0	W
9-Jan-2022	15:00	0.0	SSE
9-Jan-2022	16:00	0.0	SSW
9-Jan-2022	17:00	0.0	SSE
9-Jan-2022	18:00	0.0	SSE
9-Jan-2022	19:00	0.0	WSW
9-Jan-2022	20:00	0.0	SSW
9-Jan-2022	21:00	0.4	SSW
9-Jan-2022	22:00	0.0	SSW
9-Jan-2022	23:00	0.4	SSW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
10-Jan-2022	00:00	0.4	SSW
10-Jan-2022	01:00	0.0	SSW
10-Jan-2022	02:00	0.0	SSW
10-Jan-2022	03:00	0.0	SSW
10-Jan-2022	04:00	0.0	SSW
10-Jan-2022	05:00	0.0	---
10-Jan-2022	06:00	0.0	SSW
10-Jan-2022	07:00	0.0	---
10-Jan-2022	08:00	0.0	SSW
10-Jan-2022	09:00	0.4	SSW
10-Jan-2022	10:00	0.4	SSW
10-Jan-2022	11:00	0.4	SSW
10-Jan-2022	12:00	0.4	SSW
10-Jan-2022	13:00	0.4	SSW
10-Jan-2022	14:00	0.0	WSW
10-Jan-2022	15:00	0.0	SSW
10-Jan-2022	16:00	0.0	SSW
10-Jan-2022	17:00	0.0	SSW
10-Jan-2022	18:00	0.4	SSW
10-Jan-2022	19:00	0.0	W
10-Jan-2022	20:00	0.0	---
10-Jan-2022	21:00	0.0	---
10-Jan-2022	22:00	0.0	W
10-Jan-2022	23:00	0.0	---
11-Jan-2022	00:00	0.0	SSE
11-Jan-2022	01:00	0.4	SSE
11-Jan-2022	02:00	0.0	SSE
11-Jan-2022	03:00	0.0	SSE
11-Jan-2022	04:00	0.0	SSW
11-Jan-2022	05:00	0.4	SSW
11-Jan-2022	06:00	0.4	SSW
11-Jan-2022	07:00	0.0	SSW
11-Jan-2022	08:00	0.4	SSW
11-Jan-2022	09:00	0.9	SSW
11-Jan-2022	10:00	0.4	SSW
11-Jan-2022	11:00	0.9	SSW
11-Jan-2022	12:00	1.3	SSW
11-Jan-2022	13:00	0.9	SSE
11-Jan-2022	14:00	0.0	SSE
11-Jan-2022	15:00	0.4	SSE
11-Jan-2022	16:00	0.0	SSW
11-Jan-2022	17:00	0.4	SSW
11-Jan-2022	18:00	0.4	SSW
11-Jan-2022	19:00	0.0	SSW
11-Jan-2022	20:00	0.0	SSW
11-Jan-2022	21:00	0.0	SSW
11-Jan-2022	22:00	0.4	SSW
11-Jan-2022	23:00	0.4	SSW
12-Jan-2022	00:00	0.4	SSW
12-Jan-2022	01:00	0.4	SSW
12-Jan-2022	02:00	0.0	SSW
12-Jan-2022	03:00	0.4	SSW
12-Jan-2022	04:00	0.4	SSW
12-Jan-2022	05:00	0.0	SSW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
12-Jan-2022	06:00	0.0	SSW
12-Jan-2022	07:00	0.0	SSW
12-Jan-2022	08:00	0.0	SSW
12-Jan-2022	09:00	0.0	SSW
12-Jan-2022	10:00	0.0	SSE
12-Jan-2022	11:00	0.0	SSW
12-Jan-2022	12:00	0.0	SSW
12-Jan-2022	13:00	0.0	WSW
12-Jan-2022	14:00	0.0	WSW
12-Jan-2022	15:00	0.4	WSW
12-Jan-2022	16:00	0.0	SSW
12-Jan-2022	17:00	0.0	SSW
12-Jan-2022	18:00	0.0	WSW
12-Jan-2022	19:00	0.0	SW
12-Jan-2022	20:00	0.0	---
12-Jan-2022	21:00	0.0	SSW
12-Jan-2022	22:00	0.0	WSW
12-Jan-2022	23:00	0.0	SSW
13-Jan-2022	00:00	0.0	SW
13-Jan-2022	01:00	0.0	SSE
13-Jan-2022	02:00	0.0	SSW
13-Jan-2022	03:00	0.0	SSE
13-Jan-2022	04:00	0.0	SSE
13-Jan-2022	05:00	0.0	SSW
13-Jan-2022	06:00	0.0	SSW
13-Jan-2022	07:00	0.0	SSW
13-Jan-2022	08:00	0.4	SSW
13-Jan-2022	09:00	0.4	SSW
13-Jan-2022	10:00	0.4	SSW
13-Jan-2022	11:00	0.4	SSE
13-Jan-2022	12:00	0.4	SSW
13-Jan-2022	13:00	0.4	SSE
13-Jan-2022	14:00	0.4	SSE
13-Jan-2022	15:00	0.4	SSE
13-Jan-2022	16:00	0.0	SSW
13-Jan-2022	17:00	0.4	SSW
13-Jan-2022	18:00	0.0	SSW
13-Jan-2022	19:00	0.0	SSW
13-Jan-2022	20:00	0.4	SSW
13-Jan-2022	21:00	0.0	SSW
13-Jan-2022	22:00	0.0	SSW
13-Jan-2022	23:00	0.4	SSW
14-Jan-2022	00:00	0.4	SSW
14-Jan-2022	01:00	0.4	SSW
14-Jan-2022	02:00	0.4	SSW
14-Jan-2022	03:00	0.0	SSW
14-Jan-2022	04:00	0.0	SSW
14-Jan-2022	05:00	0.0	SSW
14-Jan-2022	06:00	0.0	SSW
14-Jan-2022	07:00	0.4	SSW
14-Jan-2022	08:00	0.4	SSW
14-Jan-2022	09:00	1.3	SSW
14-Jan-2022	10:00	1.8	SSW
14-Jan-2022	11:00	0.9	SSW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
14-Jan-2022	12:00	0.9	SSW
14-Jan-2022	13:00	0.9	SSW
14-Jan-2022	14:00	0.9	SSW
14-Jan-2022	15:00	0.9	SSW
14-Jan-2022	16:00	0.9	SSW
14-Jan-2022	17:00	0.4	WSW
14-Jan-2022	18:00	0.4	SSW
14-Jan-2022	19:00	0.4	SSW
14-Jan-2022	20:00	0.9	SSW
14-Jan-2022	21:00	0.9	SSW
14-Jan-2022	22:00	0.0	WSW
14-Jan-2022	23:00	0.0	W
15-Jan-2022	00:00	0.0	SSW
15-Jan-2022	01:00	0.4	SSW
15-Jan-2022	02:00	0.4	SSW
15-Jan-2022	03:00	0.0	SSW
15-Jan-2022	04:00	0.0	SSW
15-Jan-2022	05:00	0.4	SSW
15-Jan-2022	06:00	0.4	SSW
15-Jan-2022	07:00	0.4	SSW
15-Jan-2022	08:00	0.9	SSW
15-Jan-2022	09:00	0.9	SSW
15-Jan-2022	10:00	0.9	SSW
15-Jan-2022	11:00	0.9	SSW
15-Jan-2022	12:00	0.9	SSW
15-Jan-2022	13:00	0.4	SSW
15-Jan-2022	14:00	0.9	SSW
15-Jan-2022	15:00	0.4	SW
15-Jan-2022	16:00	0.9	SSW
15-Jan-2022	17:00	0.9	SSW
15-Jan-2022	18:00	0.9	W
15-Jan-2022	19:00	0.4	WSW
15-Jan-2022	20:00	0.0	SSW
15-Jan-2022	21:00	0.0	SSW
15-Jan-2022	22:00	0.0	SSW
15-Jan-2022	23:00	0.0	SSW
16-Jan-2022	00:00	0.0	SSW
16-Jan-2022	01:00	0.4	SSW
16-Jan-2022	02:00	0.0	SSW
16-Jan-2022	03:00	0.4	SSW
16-Jan-2022	04:00	0.0	SSW
16-Jan-2022	05:00	0.0	SSW
16-Jan-2022	06:00	0.0	SSW
16-Jan-2022	07:00	0.0	WSW
16-Jan-2022	08:00	0.0	W
16-Jan-2022	09:00	0.0	SSW
16-Jan-2022	10:00	0.4	SSW
16-Jan-2022	11:00	0.9	SSW
16-Jan-2022	12:00	0.4	SSW
16-Jan-2022	13:00	0.9	WNW
16-Jan-2022	14:00	0.9	WNW
16-Jan-2022	15:00	0.0	WSW
16-Jan-2022	16:00	0.0	SSW
16-Jan-2022	17:00	0.0	WSW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
16-Jan-2022	18:00	0.9	WNW
16-Jan-2022	19:00	0.0	WSW
16-Jan-2022	20:00	0.0	WSW
16-Jan-2022	21:00	0.4	SSW
16-Jan-2022	22:00	0.0	SSW
16-Jan-2022	23:00	0.4	SSW
17-Jan-2022	00:00	1.3	SW
17-Jan-2022	01:00	1.3	SSW
17-Jan-2022	02:00	1.3	SSW
17-Jan-2022	03:00	0.9	SSW
17-Jan-2022	04:00	1.3	SSW
17-Jan-2022	05:00	0.9	SSW
17-Jan-2022	06:00	0.9	SSW
17-Jan-2022	07:00	0.4	SSW
17-Jan-2022	08:00	0.4	SSW
17-Jan-2022	09:00	0.4	WSW
17-Jan-2022	10:00	0.4	WSW
17-Jan-2022	11:00	0.0	WSW
17-Jan-2022	12:00	0.0	WSW
17-Jan-2022	13:00	0.0	SSW
17-Jan-2022	14:00	0.0	SSW
17-Jan-2022	15:00	0.0	SSE
17-Jan-2022	16:00	0.0	W
17-Jan-2022	17:00	0.0	WSW
17-Jan-2022	18:00	0.0	SSW
17-Jan-2022	19:00	0.0	WSW
17-Jan-2022	20:00	0.0	WSW
17-Jan-2022	21:00	0.0	SSW
17-Jan-2022	22:00	0.0	SSW
17-Jan-2022	23:00	0.0	SSW
18-Jan-2022	00:00	0.4	SSW
18-Jan-2022	01:00	0.0	WNW
18-Jan-2022	02:00	0.0	---
18-Jan-2022	03:00	0.0	---
18-Jan-2022	04:00	0.0	SSW
18-Jan-2022	05:00	0.0	SSW
18-Jan-2022	06:00	0.0	---
18-Jan-2022	07:00	0.0	SSE
18-Jan-2022	08:00	0.0	SSW
18-Jan-2022	09:00	0.4	SSW
18-Jan-2022	10:00	0.4	SSW
18-Jan-2022	11:00	0.0	SSW
18-Jan-2022	12:00	0.0	SSW
18-Jan-2022	13:00	0.0	SSW
18-Jan-2022	14:00	0.0	SSW
18-Jan-2022	15:00	0.0	SSW
18-Jan-2022	16:00	0.0	SSW
18-Jan-2022	17:00	0.0	SSW
18-Jan-2022	18:00	0.0	SSE
18-Jan-2022	19:00	0.0	SSE
18-Jan-2022	20:00	0.0	SSW
18-Jan-2022	21:00	0.0	SSE
18-Jan-2022	22:00	0.0	SSE
18-Jan-2022	23:00	0.0	SSW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
19-Jan-2022	00:00	0.0	SSW
19-Jan-2022	01:00	0.0	S
19-Jan-2022	02:00	0.0	SSW
19-Jan-2022	03:00	0.0	SSW
19-Jan-2022	04:00	0.0	SSE
19-Jan-2022	05:00	0.0	SSE
19-Jan-2022	06:00	0.0	---
19-Jan-2022	07:00	0.0	SSW
19-Jan-2022	08:00	0.4	SSW
19-Jan-2022	09:00	0.4	SSW
19-Jan-2022	10:00	0.9	SSW
19-Jan-2022	11:00	0.4	SSE
19-Jan-2022	12:00	0.4	SSW
19-Jan-2022	13:00	0.0	SSE
19-Jan-2022	14:00	0.0	SSE
19-Jan-2022	15:00	0.0	SSW
19-Jan-2022	16:00	0.0	SSE
19-Jan-2022	17:00	0.0	SSE
19-Jan-2022	18:00	0.0	SSE
19-Jan-2022	19:00	0.0	SSE
19-Jan-2022	20:00	0.0	SSE
19-Jan-2022	21:00	0.0	SSE
19-Jan-2022	22:00	0.0	SSW
19-Jan-2022	23:00	0.0	SSW
20-Jan-2022	00:00	0.0	SSW
20-Jan-2022	01:00	0.0	SSW
20-Jan-2022	02:00	0.0	SSW
20-Jan-2022	03:00	0.0	WSW
20-Jan-2022	04:00	0.0	WSW
20-Jan-2022	05:00	0.0	SW
20-Jan-2022	06:00	0.0	SW
20-Jan-2022	07:00	0.0	---
20-Jan-2022	08:00	0.0	SW
20-Jan-2022	09:00	0.0	SW
20-Jan-2022	10:00	0.0	SSE
20-Jan-2022	11:00	0.4	SSE
20-Jan-2022	12:00	0.4	SSW
20-Jan-2022	13:00	0.9	SSW
20-Jan-2022	14:00	0.4	SSW
20-Jan-2022	15:00	0.4	SSW
20-Jan-2022	16:00	0.4	WNW
20-Jan-2022	17:00	0.4	WSW
20-Jan-2022	18:00	0.0	SSW
20-Jan-2022	19:00	0.0	WSW
20-Jan-2022	20:00	0.4	W
20-Jan-2022	21:00	0.0	WSW
20-Jan-2022	22:00	0.0	SSW
20-Jan-2022	23:00	0.0	W
21-Jan-2022	00:00	0.0	W
21-Jan-2022	01:00	0.0	S
21-Jan-2022	02:00	0.0	SSW
21-Jan-2022	03:00	0.0	SSW
21-Jan-2022	04:00	0.0	SW
21-Jan-2022	05:00	0.0	---

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
21-Jan-2022	06:00	0.0	SW
21-Jan-2022	07:00	0.0	WSW
21-Jan-2022	08:00	0.0	SSW
21-Jan-2022	09:00	0.9	SSW
21-Jan-2022	10:00	0.9	SSW
21-Jan-2022	11:00	0.4	WSW
21-Jan-2022	12:00	0.4	WNW
21-Jan-2022	13:00	0.0	SSW
21-Jan-2022	14:00	0.9	W
21-Jan-2022	15:00	0.9	W
21-Jan-2022	16:00	0.4	WNW
21-Jan-2022	17:00	0.4	SSW
21-Jan-2022	18:00	0.4	SSW
21-Jan-2022	19:00	0.9	SSW
21-Jan-2022	20:00	0.4	SSW
21-Jan-2022	21:00	0.4	SSW
21-Jan-2022	22:00	0.4	SSW
21-Jan-2022	23:00	0.0	SSW
22-Jan-2022	00:00	0.0	SSW
22-Jan-2022	01:00	0.0	SSW
22-Jan-2022	02:00	0.4	SSW
22-Jan-2022	03:00	0.4	SSW
22-Jan-2022	04:00	0.0	WSW
22-Jan-2022	05:00	0.0	WSW
22-Jan-2022	06:00	0.0	SSW
22-Jan-2022	07:00	0.0	W
22-Jan-2022	08:00	0.0	SSW
22-Jan-2022	09:00	0.0	SSW
22-Jan-2022	10:00	0.0	---
22-Jan-2022	11:00	0.0	SSW
22-Jan-2022	12:00	0.0	SW
22-Jan-2022	13:00	0.4	SSW
22-Jan-2022	14:00	0.0	WSW
22-Jan-2022	15:00	0.0	SSW
22-Jan-2022	16:00	0.0	WNW
22-Jan-2022	17:00	0.0	SSW
22-Jan-2022	18:00	0.0	SSW
22-Jan-2022	19:00	0.4	SSW
22-Jan-2022	20:00	0.4	SSW
22-Jan-2022	21:00	0.9	SSW
22-Jan-2022	22:00	0.4	SSW
22-Jan-2022	23:00	0.4	SSW
23-Jan-2022	00:00	0.4	WSW
23-Jan-2022	01:00	0.4	SW
23-Jan-2022	02:00	0.4	SSW
23-Jan-2022	03:00	0.4	SSW
23-Jan-2022	04:00	0.4	SSW
23-Jan-2022	05:00	0.4	SSW
23-Jan-2022	06:00	0.4	SSW
23-Jan-2022	07:00	0.0	SSW
23-Jan-2022	08:00	0.0	SSW
23-Jan-2022	09:00	0.0	SSW
23-Jan-2022	10:00	0.0	SSW
23-Jan-2022	11:00	0.4	SSW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
23-Jan-2022	12:00	0.0	SSW
23-Jan-2022	13:00	0.0	SSE
23-Jan-2022	14:00	0.0	SSE
23-Jan-2022	15:00	0.0	W
23-Jan-2022	16:00	0.0	WSW
23-Jan-2022	17:00	0.0	W
23-Jan-2022	18:00	0.0	WSW
23-Jan-2022	19:00	0.0	---
23-Jan-2022	20:00	0.0	---
23-Jan-2022	21:00	0.0	---
23-Jan-2022	22:00	0.0	---
23-Jan-2022	23:00	0.0	WSW
24-Jan-2022	00:00	0.0	---
24-Jan-2022	01:00	0.0	SW
24-Jan-2022	02:00	0.0	---
24-Jan-2022	03:00	0.0	---
24-Jan-2022	04:00	0.0	WSW
24-Jan-2022	05:00	0.0	---
24-Jan-2022	06:00	0.0	WSW
24-Jan-2022	07:00	0.0	WSW
24-Jan-2022	08:00	0.0	W
24-Jan-2022	09:00	0.0	SSW
24-Jan-2022	10:00	0.0	SSW
24-Jan-2022	11:00	0.4	WSW
24-Jan-2022	12:00	0.4	SSW
24-Jan-2022	13:00	0.4	SSW
24-Jan-2022	14:00	0.0	SSW
24-Jan-2022	15:00	0.4	SSW
24-Jan-2022	16:00	0.4	WNW
24-Jan-2022	17:00	0.4	WSW
24-Jan-2022	18:00	0.0	WSW
24-Jan-2022	19:00	0.4	W
24-Jan-2022	20:00	0.4	SSW
24-Jan-2022	21:00	0.9	SSW
24-Jan-2022	22:00	0.4	SSW
24-Jan-2022	23:00	0.9	SSW
25-Jan-2022	00:00	1.3	SSW
25-Jan-2022	01:00	0.4	SSW
25-Jan-2022	02:00	0.4	SSW
25-Jan-2022	03:00	0.4	SSW
25-Jan-2022	04:00	0.4	WSW
25-Jan-2022	05:00	0.0	SSW
25-Jan-2022	06:00	0.0	W
25-Jan-2022	07:00	0.0	SSW
25-Jan-2022	08:00	0.0	WSW
25-Jan-2022	09:00	0.0	SSW
25-Jan-2022	10:00	0.4	SSW
25-Jan-2022	11:00	0.4	SSW
25-Jan-2022	12:00	0.0	SSW
25-Jan-2022	13:00	0.0	SSW
25-Jan-2022	14:00	0.0	SSW
25-Jan-2022	15:00	0.4	SSW
25-Jan-2022	16:00	0.0	SSW
25-Jan-2022	17:00	0.0	---

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
25-Jan-2022	18:00	0.0	SW
25-Jan-2022	19:00	0.0	WSW
25-Jan-2022	20:00	0.0	WSW
25-Jan-2022	21:00	0.0	WSW
25-Jan-2022	22:00	0.0	WSW
25-Jan-2022	23:00	0.0	WSW
26-Jan-2022	00:00	0.0	WSW
26-Jan-2022	01:00	0.0	WSW
26-Jan-2022	02:00	0.4	WSW
26-Jan-2022	03:00	0.0	WSW
26-Jan-2022	04:00	0.0	WSW
26-Jan-2022	05:00	0.0	WSW
26-Jan-2022	06:00	0.0	WSW
26-Jan-2022	07:00	0.4	SSW
26-Jan-2022	08:00	0.4	SSW
26-Jan-2022	09:00	0.4	SSW
26-Jan-2022	10:00	0.4	SSW
26-Jan-2022	11:00	0.0	SSW
26-Jan-2022	12:00	0.4	SSW
26-Jan-2022	13:00	0.4	SSW
26-Jan-2022	14:00	0.4	SSW
26-Jan-2022	15:00	0.0	WSW
26-Jan-2022	16:00	0.0	WNW
26-Jan-2022	17:00	0.0	WNW
26-Jan-2022	18:00	0.0	WNW
26-Jan-2022	19:00	0.0	WSW
26-Jan-2022	20:00	0.4	WSW
26-Jan-2022	21:00	0.0	WSW
26-Jan-2022	22:00	0.0	WSW
26-Jan-2022	23:00	0.0	WSW
27-Jan-2022	00:00	0.0	SSW
27-Jan-2022	01:00	0.0	SSW
27-Jan-2022	02:00	0.0	SSW
27-Jan-2022	03:00	0.4	SSW
27-Jan-2022	04:00	0.4	SSW
27-Jan-2022	05:00	0.0	SSW
27-Jan-2022	06:00	0.0	WSW
27-Jan-2022	07:00	0.0	WSW
27-Jan-2022	08:00	0.0	SSW
27-Jan-2022	09:00	0.0	SSW
27-Jan-2022	10:00	0.0	SSW
27-Jan-2022	11:00	0.0	SSW
27-Jan-2022	12:00	0.0	SSW
27-Jan-2022	13:00	0.0	SSE
27-Jan-2022	14:00	0.0	SSW
27-Jan-2022	15:00	0.0	WSW
27-Jan-2022	16:00	0.0	W
27-Jan-2022	17:00	0.0	WSW
27-Jan-2022	18:00	0.0	WSW
27-Jan-2022	19:00	0.0	---
27-Jan-2022	20:00	0.0	W
27-Jan-2022	21:00	0.4	WSW
27-Jan-2022	22:00	0.0	WSW
27-Jan-2022	23:00	0.0	WSW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
28-Jan-2022	00:00	0.0	WSW
28-Jan-2022	01:00	0.0	SSW
28-Jan-2022	02:00	0.0	SSW
28-Jan-2022	03:00	0.4	SSW
28-Jan-2022	04:00	0.0	SSW
28-Jan-2022	05:00	0.0	SW
28-Jan-2022	06:00	0.0	SSW
28-Jan-2022	07:00	0.0	SSW
28-Jan-2022	08:00	0.0	SSW
28-Jan-2022	09:00	0.0	SSW
28-Jan-2022	10:00	0.4	SSW
28-Jan-2022	11:00	0.4	SSW
28-Jan-2022	12:00	0.4	WSW
28-Jan-2022	13:00	0.4	WSW
28-Jan-2022	14:00	0.0	SSW
28-Jan-2022	15:00	0.4	WSW
28-Jan-2022	16:00	0.4	SSW
28-Jan-2022	17:00	0.4	SSW
28-Jan-2022	18:00	0.4	SSW
28-Jan-2022	19:00	0.9	SSW
28-Jan-2022	20:00	0.4	SSW
28-Jan-2022	21:00	0.0	SSW
28-Jan-2022	22:00	0.0	SSW
28-Jan-2022	23:00	0.4	SSW
29-Jan-2022	00:00	0.0	SSW
29-Jan-2022	01:00	0.4	SSW
29-Jan-2022	02:00	0.0	SSW
29-Jan-2022	03:00	0.0	---
29-Jan-2022	04:00	0.0	W
29-Jan-2022	05:00	0.0	W
29-Jan-2022	06:00	0.0	WSW
29-Jan-2022	07:00	0.0	SSW
29-Jan-2022	08:00	0.0	SSW
29-Jan-2022	09:00	0.4	SSW
29-Jan-2022	10:00	0.0	SSW
29-Jan-2022	11:00	0.0	SSE
29-Jan-2022	12:00	0.0	SSE
29-Jan-2022	13:00	0.0	SSE
29-Jan-2022	14:00	0.0	WSW
29-Jan-2022	15:00	0.0	WNW
29-Jan-2022	16:00	0.0	SW
29-Jan-2022	17:00	0.0	SSW
29-Jan-2022	18:00	0.0	N
29-Jan-2022	19:00	0.0	WNW
29-Jan-2022	20:00	0.0	S
29-Jan-2022	21:00	0.0	---
29-Jan-2022	22:00	0.0	S
29-Jan-2022	23:00	0.0	S
30-Jan-2022	00:00	0.0	SSE
30-Jan-2022	01:00	0.0	S
30-Jan-2022	02:00	0.0	SSE
30-Jan-2022	03:00	0.4	SSE
30-Jan-2022	04:00	0.4	SSE
30-Jan-2022	05:00	0.0	SSW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
30-Jan-2022	06:00	0.0	SSE
30-Jan-2022	07:00	0.4	SSW
30-Jan-2022	08:00	0.4	SSW
30-Jan-2022	09:00	0.4	SSW
30-Jan-2022	10:00	0.4	SSE
30-Jan-2022	11:00	0.9	SSW
30-Jan-2022	12:00	0.9	SSE
30-Jan-2022	13:00	0.9	SSW
30-Jan-2022	14:00	0.9	SSE
30-Jan-2022	15:00	0.4	SSE
30-Jan-2022	16:00	0.4	SSE
30-Jan-2022	17:00	0.9	SSW
30-Jan-2022	18:00	0.4	SSW
30-Jan-2022	19:00	0.4	SSW
30-Jan-2022	20:00	0.0	SSW
30-Jan-2022	21:00	0.4	SSW
30-Jan-2022	22:00	0.4	SSW
30-Jan-2022	23:00	0.4	SSW
31-Jan-2022	00:00	0.0	SSW
31-Jan-2022	01:00	0.0	SSW
31-Jan-2022	02:00	0.0	SSW
31-Jan-2022	03:00	0.4	SSE
31-Jan-2022	04:00	0.4	SSW
31-Jan-2022	05:00	0.4	SSW
31-Jan-2022	06:00	0.4	SSW
31-Jan-2022	07:00	0.4	SSW
31-Jan-2022	08:00	0.4	SSE
31-Jan-2022	09:00	0.4	SSW
31-Jan-2022	10:00	0.9	SSW
31-Jan-2022	11:00	0.9	SSW
31-Jan-2022	12:00	0.9	SSW
31-Jan-2022	13:00	0.4	SSW
31-Jan-2022	14:00	0.4	SSW
31-Jan-2022	15:00	0.4	SSW
31-Jan-2022	16:00	0.4	SSW
31-Jan-2022	17:00	0.4	SSW
31-Jan-2022	18:00	0.4	SSW
31-Jan-2022	19:00	0.0	SSW
31-Jan-2022	20:00	0.0	SSW
31-Jan-2022	21:00	0.4	SSW
31-Jan-2022	22:00	0.0	SSW
31-Jan-2022	23:00	0.0	SSW

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)	1	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

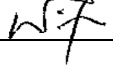
Contract No. YL/2020/01 - Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	220105
Date	5 January 2022 (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	
220105-R04	• The exposed slope at near the east side meander should be covered properly.	D8
220105-R05	• To avoid the disposal of sediment at near the meander next to meander bridge.	D18
	E. Waste / Chemical Management	
220105-R01	• Provide drip tray for the chemical containers at Portion 8.	E13
220105-R02	• The oily water at the drip tray shall be cleared as chemical waste at Portion 8.	E12
220105-R03	• Provide mitigation measures to avoid the land contamination from the repairing equipment at Portion 8.	E12
	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.: 211229), all environmental deficiencies have been improved/ rectified by the contractor.	

	Name	Signature	Date
Recorded by	Ivy Tam		5 January 2022
Checked by	Dr. Priscilla Choy		5 January 2022

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	220112
Date	12 January 2022 (Wednesday)
Time	14:15 – 15:15

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	
220112-R01	• To enhance water mitigation measures around the stream and water channel at TAR1.	D 4
	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.: 220105), all environmental deficiencies have been improved/ rectified by the contractor.	

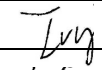
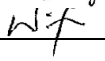
	Name	Signature	Date
Recorded by	Adrian Lam		19 January 2022
Checked by	Dr. Priscilla Choy		19 January 2022

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	220119
Date	19 January 2022 (Wednesday)
Time	15:15 – 16:15

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	
220119-R01	• To provide the slope protection works at near the pond at TAR1.	D8
	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.: 220112), all environmental deficiencies have been improved/ rectified by the contractor.	

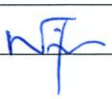
	Name	Signature	Date
Recorded by	Ivy Tam		19 January 2022
Checked by	Dr. Priscilla Choy		19 January 2022

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	220126
Date	26 January 2022 (Wednesday)
Time	11:00 – 12:15

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	
220126-R02	• To provide the slope protection works at near the pond at TAR1.	D8
	E. Waste / Chemical Management	
220126-R01	• Drip tray should be provided for chemical storage. (Portion 8)	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	
	• 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.: 220119), follow-up actions were required for item 220119-R01, which was renamed as 220126-R02.	

	Name	Signature	Date
Recorded by	Adrian Lam		27 January 2022
Checked by	Dr. Priscilla Choy		27 January 2022

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	220131
Date	31 January 2022 (Monday)
Time	13:45 – 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	
	• 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.: 220126), all environmental deficiencies were rectified/ improved by the contractor.	

	Name	Signature	Date
Recorded by	Adrian Lam		4 February 2022
Checked by	Dr. Priscilla Choy		4 February 2022

Contract No. YL/2020/02 – 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

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	220105
Date	5 January 2022 (Wednesday)
Time	15:30 – 16:15

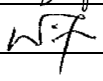
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
220105-R01	• The stockpile of sand and debris at near the water channel at TAR1shall be cleared / covered properly.	D9
220105-R02	• Provide mitigation measure to avoid the muddy surface runoff discharge into the nearby nullah. (Fu Tai Site Area)	D4
	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	
220105-R01	• The stockpile of sand and debris at near the water channel at TAR1shall be cleared / covered properly.	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.: 211229), all environmental deficiencies have been improved/ rectified by the contractor.	

	Name	Signature	Date
Recorded by	Ivy Tam		5 January 2022
Checked by	Dr. Priscilla Choy		5 January 2022

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	220112
Date	12 January 2022 (Wednesday)
Time	9:30 – 10:30

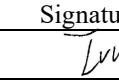
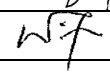
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
	• 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	
220112-R01	• To remove the tarpaulin sheet and rope enclosed the retain trees at Reedbed 3A..	G1
220112-R02	• Provide the tree protection zone for the retain tree at Reedbed 3A.	G1
	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.: 220105), follow up action is required for the item 220105-R01 and 220105-R02 which are renamed as 220112-R03 and 220112-R04 respectively.	

	Name	Signature	Date
Recorded by	Ivy Tam		12 January 2022
Checked by	Dr. Priscilla Choy		12 January 2022

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	220119
Date	19 January 2022 (Wednesday)
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	
220119-R01	• To provide the tree protection fencing for the retained trees at Reedbed 3A.	G1
220119-R02	• The construction materials within the tree protection zone should be removed at LCS.	G1
	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.: 220112), all environmental deficiencies have been improved/ rectified by the contractor.	

	Name	Signature	Date
Recorded by	Ivy Tam		19 January 2022
Checked by	Dr. Priscilla Choy		19 January 2022

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	220126
Date	26 January 2022 (Wednesday)
Time	9:30 – 10:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
220126 – R01	• To ensure vehicles are cleaned properly off mud before leaving the site. (Reed bed 3A)	B 6 & 9, D 13
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
220126 – R01	• To ensure vehicles are cleaned properly off mud before leaving the site. (Reed bed 3A)	B 6 & 9, D 13
	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.: 220119), all environmental deficiencies have been improved/ rectified by the contractor.	

	Name	Signature	Date
Recorded by	Adrian Lam		27 January 2022
Checked by	Dr. Priscilla Choy		27 January 2022

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	220131
Date	31 January 2022 (Monday)
Time	9:30 – 11:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
220131 – R01	• Dusty stockpile at Fu Tai should be properly covered with tarpaulin.	B 2
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
220131 – O01	• Slope near the nullah at TAR1 should be properly covered with tarpaulin.	D 9
	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	
220131 – R02	• Tarpaulin wrapping the particular tree at Reed bed 3A should be properly removed.	G 1
	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.: 220126), all environmental deficiencies have been improved/ rectified by the contractor.	

	Name	Signature	Date
Recorded by	Adrian Lam		4 February 2022
Checked by	Dr. Priscilla Choy		4 February 2022

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

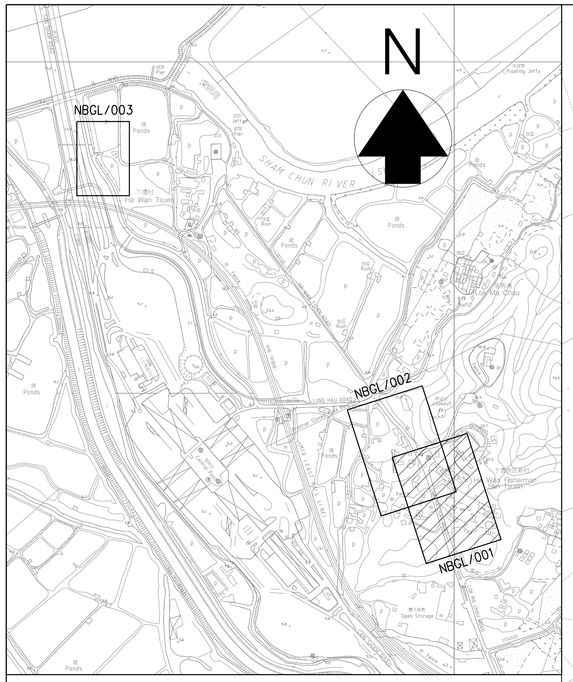
Remarks: ^ Compliance of mitigation measure

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

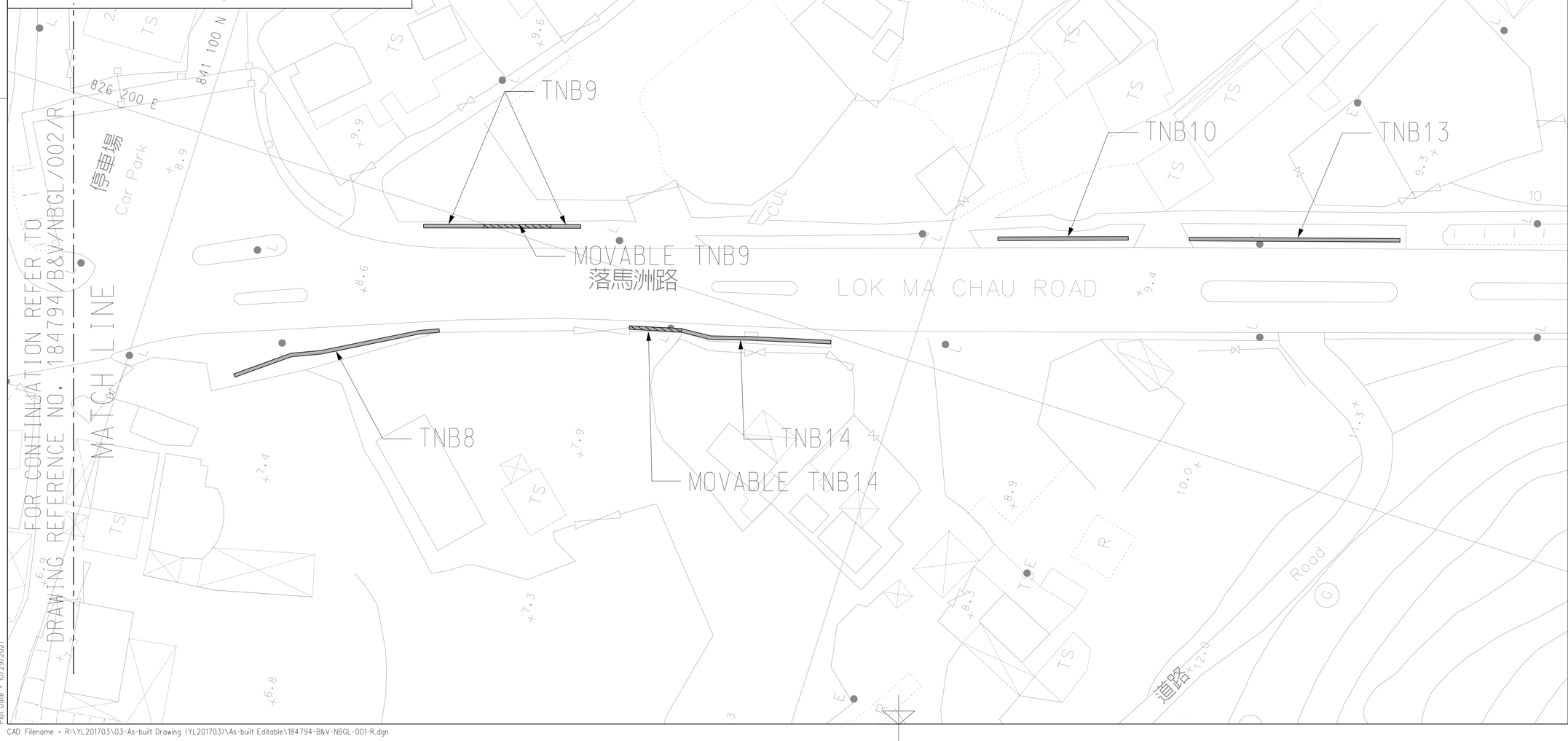
\# Recommendation was made during site audit but not yet improved/rectified by the contractor.

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
TEMPORARY NOISE BARRIERS



LOCATION PLAN
N.T.S.



NOTES:

1. FOR DETAILS OF NOISE BARRIER, PLEASE REFER TO DRAWING NO. 184794/B&V/NB15/001/R & NO. 184794/B&V/NB15/002/R.

LEGEND:

- 1.5m - HIGH TEMPORARY NOISE BARRIER
- 1.5m - HIGH MOVEABLE TEMPORARY NOISE BARRIER

WORK AS EXECUTED

DATE OF COMMENCEMENT : 22 JUN 2018
DATE OF COMPLETION :

核准
Approved

合約編號 Contract No. YL/2017/03

合約編號 Agreement No. CE 5/2014 (CE)

合約名稱 Contract title
DEVELOPMENT OF LOK MA CHAU LOOP: LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS

圖則名稱 Drawing title AS-CONSTRUCTED DRAWING
NOISE BARRIER - GENERAL LAYOUT PLAN
(SHEET 1 OF 3)

圖則參考編號 Drawing Reference No. 184794/NBGL/001/R	修訂 Revision –
合約圖則編號 Contract Drawing No.	修訂 Revision –

比例 Scale A1 1 : 300
A3 1 : 600

土木工程拓展署
CEDD Civil Engineering and Development Department

BINNIES HONG KONG LIMITED
賓尼斯工程顧問有限公司

Plot Date = 10/29/2021

CAD Filename = R:\YL201703\03-As-built Drawing (YL201703)\As-built Editable\184794-B&V-NBGL-001-R.dgn

LOCATION PLAN
N.T.S.

NOTES:

1. FOR DETAILS OF NOISE BARRIER, PLEASE REFER TO DRAWING NO. 184794/B&V/NB15/001/R & NO. 184794/B&V/NB15/002/R.

LEGEND:

- 1.5m - HIGH TEMPORARY NOISE BARRIER
- 1.5m - HIGH MOVEABLE TEMPORARY NOISE BARRIER

WORK AS EXECUTED

DATE OF COMMENCEMENT : 22 JUN 2018
DATE OF COMPLETION :

核准
Approved

合約編號
Contract No. YL/2017/03

合約編號
Agreement No. CE 5/2014 (CE)

合約名稱
Contract title
DEVELOPMENT OF LOK MA CHAU LOOP: LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS

圖則名稱
Drawing title AS-CONSTRUCTED DRAWING
NOISE BARRIER - GENERAL LAYOUT PLAN
(SHEET 2 OF 3)

圖則參考編號 Drawing Reference No. 184794/NBGL/002/R
修訂 Revision –

合約圖則編號
Contract Drawing No.
修訂 Revision –

比例 Scale
A1 1 : 300
A3 1 : 600

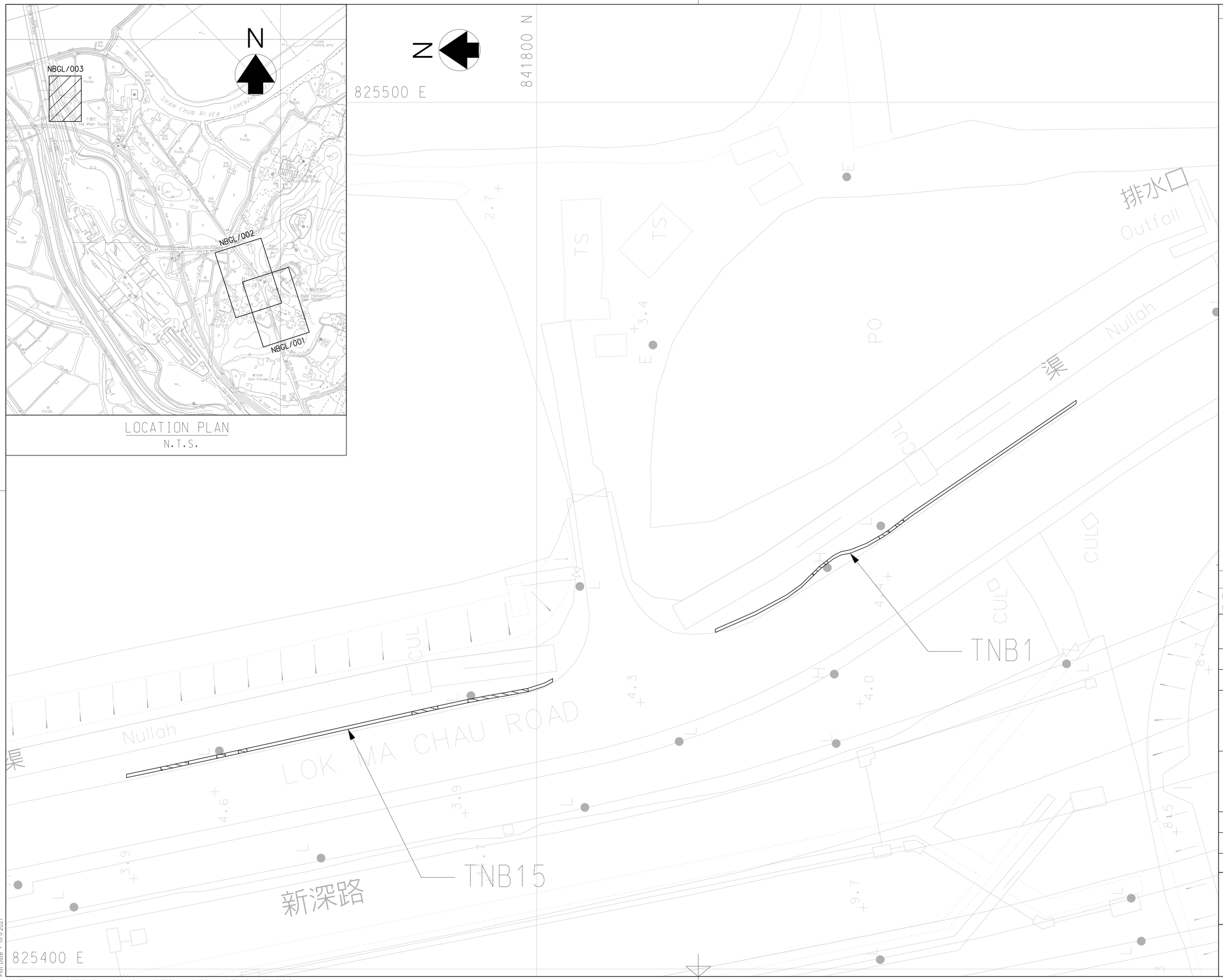
土木工程拓展署
CEDD Civil Engineering and Development Department

BINNIES HONG KONG LIMITED
賓尼斯工程顧問有限公司

Plot Date = 10/29/2021

CAD Filename = R:\YL201703\03-As-built Drawing (YL201703)\As-built Editable\184794-B&V-NBGL-002-R.dgn

LOCATION PLAN
N.T.S.



NOTE:

1. FOR DETAILS OF NOISE BARRIER, PLEASE REFER TO DRAWING NO. 184794/B&V/NB08/001/R.

LEGEND:

0.8m - HIGH TEMPORARY NOISE BARRIER (TYPE A)

0.8m - HIGH TEMPORARY NOISE BARRIER (TYPE B)

WORK AS EXECUTED

DATE OF COMMENCEMENT : 22 JUN 2018

DATE OF COMPLETION :

核准
Approved

合約編號
Contract No. YL/2017/03

合約編號
Agreement No. CE 5/2014 (CE)

合約名稱
Contract title

DEVELOPMENT OF LOK MA CHAU LOOP: LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS

圖則名稱
Drawing title AS-CONSTRUCTED DRAWING

NOISE BARRIER - GENERAL LAYOUT PLAN

(SHEET 3 OF 3)

圖則參考編號 Drawing Reference No. 184794/NBGL/003/R	修訂 Revision –
合約圖則編號 Contract Drawing No.	修訂 Revision –

比例 Scale A1 1 : 200
A3 1 : 400

土木工程拓展署
CEDD Civil Engineering and Development Department

BINNIES HONG KONG LIMITED
賓尼斯工程顧問有限公司

Plot Date = 11/1/2021

CAD Filename = R:\YL201703\03-As-built Drawing (YL201703)\As-built Editable\184794-B&V-NBGL-003-R.dgn

YL/2017/03
Development of Lok Ma Chau Loop – Land Decontamination and Advance Engineering Works
Record Photographs for Temporary Noise Barriers at Lok Ma Chau Road

TNB ID	Photo
TNB1	
TNB2 TNB11	
TNB3 TNB4	

YL/2017/03
Development of Lok Ma Chau Loop – Land Decontamination and Advance Engineering Works
Record Photographs for Temporary Noise Barriers at Lok Ma Chau Road

TNB ID	Photo
TNB6	
TNB7	
TNB8	

YL/2017/03
Development of Lok Ma Chau Loop – Land Decontamination and Advance Engineering Works
Record Photographs for Temporary Noise Barriers at Lok Ma Chau Road

TNB ID	Photo
TNB9	
TNB10	
TNB13	

YL/2017/03
Development of Lok Ma Chau Loop – Land Decontamination and Advance Engineering Works
Record Photographs for Temporary Noise Barriers at Lok Ma Chau Road

TNB ID	Photo
TNB14	
TNB15	

APPENDIX O
WASTE GENERATION IN THE REPORTING MONTH

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

Monthly Summary Waste Flow Table for 2022 (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 '000m^3)
Jan-22	1.472	0.000	1.472	0.000	0.000	0.000	0.000	0.000	0.000	76.140	0.000	1.730
Feb-22												
Mar-22												
Apr-22												
May-22												
Jun-22												
Sub-total	1.472	0.000	1.472	0.000	0.000	0.000	0.000	0.000	0.000	76.140	0.000	1.730
Jul-22												
Aug-22												
Sep-22												
Oct-22												
Nov-22												
Dec-22												
Total	1.472	0.000	1.472	0.000	0.000	0.000	0.000	0.000	0.000	76.140	0.000	1.730

Remarks:

1.Assume the density of soil fill=2.0 tonnes/m3
2.Assume the density of rock and broken concrete=2.5 tonnes/m3
3.Assume the density of refuse = 1.5 tonnes/m3
4. The inert C&D material except slurry and bentonite are disposed at Tuen Mun 38
5. The slurry and bentonite are disposed at Tseung Kuwn O 137.
6.The non-inert C&D wastes, including general refuse are disposed at NENT

Contract No. YL/2020/02 – 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

Monthly Summary Waste Flow Table for 2022 (year)

Name of Person completing the record: Calvin So (EO)

Project : Development of Lok Ma Chau Loop: Main Works Package 1– Contract 2, Western Connection Road Phase 2, Connection Roads in Fanling / San Tin Highway and Direct Road Link Phase 1

Contract No.: YL/2020/02

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m^3)
Jan	0.000	0.000	0.000	0.000	0.000	0.458	0.000	0.000	0.000	0.000	0.131
Feb	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Apr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
May	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Jun	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sub-total	0.000	0.000	0.000	0.000	0.000	0.458	0.000	0.000	0.000	0.000	0.131
Jul	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aug	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sep	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Oct	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nov	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Dec	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	0.000	0.000	0.000	0.458	0.000	0.000	0.000	0.000	0.131

Note:

1. For non-inert portion of C&D material, assume the density of 1 m^3 general refuse is equal to 200 kg.
2. For inert portion of C&D material, assume 6 m^3 per each full-filled dump truck.
3. All values are round off to the third decimal places.

APPENDIX P
COMPLAINT LOGS

Appendix P - Complaint Log

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

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

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 / Contract No.: YL/2020/02 – 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

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Fining	Status
COM-2021-10-01	11 October 2021	EPD	EPD File Ref.: N07/RN/00024120-21	EPD received a public complaint on 11 October 2021. The complainant alleged the following: (a) Discharge of muddy water from construction sites of "Development of Lok Ma Chau Loop" project to Shenzhen River in the morning of 8 October 2021; and, (b) Use of powered mechanical equipment (including excavators and dump trucks) in the construction sites of "Development of Lok Ma Chau Loop" project on Sunday.	(a) Water Quality Non-project related According to the interim report, wastewater treatment facilities and relevant mitigation measures were properly implemented and there is no direct evidence to demonstrate the muddy discharge was inducted by the Contract. Further preventive measures, such as increasing the height of the temporary drainage by using sandbag and providing the earth bund with geo-textile along the site boundary, were implemented on 12 October 2021 in order to avoid muddy water from leaking into Shen Zhen River. (b) Noise Project related Typhoon No. 8 (Tropical cyclone: Lion Rock) was hoisted on 9 October 2021. Severe rainfall was recorded due to the adverse weather. To avoid leakage of the muddy water into the meander of the Shenzhen River, JV mobilized an excavator and dump truck to clear the blockage as an emergency measure. ET reminded the Contractor to update the site drainage	Interim report was submitted to EPD on 29 Oct 2021

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Fining	Status
					plan according to the construction programme and closely check the effectiveness of the implemented mitigation measures on site so that the EP, EIA and EM&A manual recommendation and requirements are complied with. In addition, the Contractor was also reminded to prepare a contingency plan for emergency environmental incidents.	
COM-2021-11-01	15 November 2021	EPD	EPD File Ref.: N06/RN/00027302-21	EPD received a public complaint on 15 November 2021. The complainant concerned about the dust nuisance in the construction sites of "Development of Lok Ma Chau Loop" project.	According to the interim report, dust mitigation measures have been properly implemented on site: - Haul road of the main site have been paved with concrete and the speed of the vehicle has been restricted to below 8kmper hour within the construction area to minimize fugitive dust emission. - Wheel washing fallibilities have been established at the location where the vehicles into the haul road in order to keep clear of any loose surface material. - Mist spray and water trucks have been provided to water the paved haul road regularly and at least once per hour on exposed work site. - Water spray has been provided during the handling of the fill material at the site and all the dusty loads transported to, from and between site location have been covered. - Induction training and tool box talk have been provided to the site staff and workers regarding the dust suppression measure. - Temporary covers have been provided to stockpile of the dusty materials and the exposed slope.	Interim report was submitted to EPD on 25 Nov 2021

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Fining	Status
					Further preventive measures, establishment of the automatic water spray system along the haul road and increasing the amount of the mist spray machine to enhance the efficiency of the dust suppression measures will also be provided.	
COM-2022-01-01	2 January 2022	EPD	EPD File Ref.: N06/RN/000000184-22	EPD received a public complaint by phone in Jan 2022 regarding noise from general construction work associated with the Lok Ma Chau Loop Development Project being carried out on 2.1.2022 at around 15:30 hours (i.e. within the restricted hours on Sunday).	According to the location under complaint, the work was likely carried out within the work site of "Direct Road Link to MTR Lok Ma Chau Station" and/or "Western Connection Road". Therefore, interim reports were submitted by Contract No.: YL/2020/01 and YL/2020/02 respectively:- <u>Contract No.: YL/2020/01</u> According to the site diary, no construction work was carried out during restricted hours at the location under complaint for YL/2020/01 on 2 January 2022. For prevention measure, Permit –to –Work system has been implemented for all the construction works being conducted in the restricted hours to enhance site control. All the construction works need to inform JV at least one day in advance. In addition, all staff and workers involved in the site operation during the restricted hours have to obtain a valid site pass and display to the security guards when entering site area for the enhancement of the site security system. Based on the above information and investigation findings, the noise complaint is not related to the	Interim report was submitted to EPD on 14 Feb 2022

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Fining	Status
					construction works of the Contract YL/2020/01. <u>Contract No.: YL/2020/02</u> According to the site diary, no construction work was carried out during restricted hours at the location under complaint on 2 January 2022 for YL/2020/02. Nevertheless, construction team was reminded to strictly follow the requirement stated in the issued construction noise permit when construction work is required during restricted hours. Based on the above information and investigation findings, the noise complaint is not related to the construction works of the Contract YL/2020/02.	

APPENDIX Q
SUMMARY OF SUCCESSFUL PROSECUTION

Appendix Q - Summary of Successful Prosecution

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

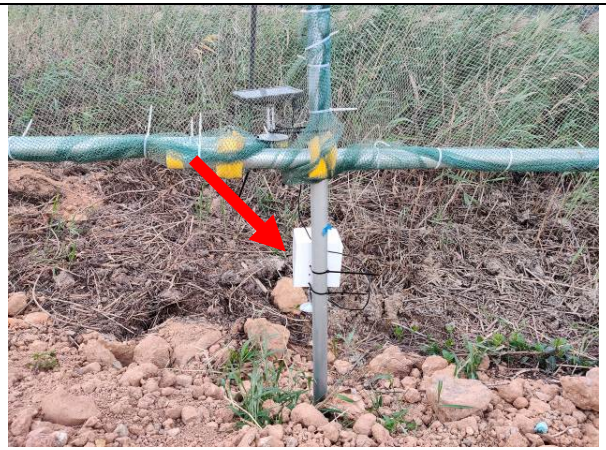
Appendix R – Photographic Records of Ecological Monitoring (Otter and Mammals)

Camera A

Position of camera

Eurasian Wild Pig (*Sus scrofa*)

Domestic Dog (*Canis lupus familiaris)*

Camera B	
	
Position of camera	
	
Eurasian Wild Pig (*Sus scrofa*)	Eurasian Wild Pig (*Sus scrofa*)

Camera C	
	
Position of camera	