JOB NO.: TCS00975/18

CEDD CONTRACT AGREEMENT NO. EDO/04/2018 - ENVIRONMENTAL TEAM FOR CROSS BAY LINK, TSEUNG KWAN O

MONTHLY ENVIRONMENTAL MONITORING & AUDITING REPORT OF THE PROJECT – JULY 2021

PREPARED FOR
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT (CEDD)

Date	Reference No.	Prepared By	Certified By
11 August 2021	TCS00975/18/600/R0564v2		
		Martin Li (Environmental Consultant)	Tam Tak Wing (Environmental Team Leader)

Version	Date	Remarks
1	6 August 2021	First Submission
2	11 August 2021	Amended against IEC's comment

Our ref: PL-202108018

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

Attention: Mr. Conrad NG

12 August 2021

Dear Sir,

Contract No. NE/2017/07 & NE/2017/08
Cross Bay Link, Tseung Kwan O
Monthly EM&A Report for July 2021

I refer to the email of the ET concerning the Monthly EM&A Report for July 2021 (Version 2) with Ref. No. TCS00975/18/600/R0564v2. We have no adverse comment on it and verify the captioned according to Conditions 1.9 and 4.4 of Environmental Permit with No. EP-459-2013.

Yours faithfully,

Li Wai Ming Kevin
Independent Environmental Checker

cc. Mr. T.W. TAM (ETL)
Ms. Sheri S.Y. LEUNG (CEDD)

EXECUTIVE SUMMARY

ES01 Civil Engineering and Development Department (hereafter referred as "CEDD") is the Project Proponent and the Permit Holder of the Project Cross Bay Link, Tseung Kwan O (hereinafter referred as "the Project") which is a Designated Project to be implemented under Environmental Permit number EP-459/2013 (hereinafter referred as "the EP-459/2013" or "the EP").

ES02 AUES was awarded the CEDD Contract Agreement No. EDO/04/2018 - Environmental Team for Cross Bay Link, Tseung Kwan O (hereinafter called "the Service Contract"). The Services under the Service Contract is to provide environmental monitoring and audit (EM&A) services for the Works Contracts pursuant to the requirement of Environmental Team (ET) under the Approved EM&A Manual to ensure that the environmental performance of the Works Contracts comply with the requirement specified in the EM&A Manual and EIA Report of Agreement No. CE 43/2008 (HY) Cross Bay Link, Tseung Kwan O - Investigation and other relevant statutory requirements.

ES03 To facilitate management, the proposed Works of the project was divided into two Civil Engineering and Development Department (CEDD) Works contracts included *Contract 1 (Contract No. NE/2017/07)* and *Contract 2 (Contract No. NE/2017/08).* The date for commencement of Contract 1 was ***3rd December 2018*** while the date for commencement of Contract 2 was ***17th January 2019***.

ES04 According to the Approved Environmental Monitoring & Audit (EM&A) Manual, air quality, noise and water quality monitoring are required to be conducted during the construction phase of the Project. As part of the EM&A programme, baseline monitoring shall undertake before the Project construction work commencement to determine the ambient environment condition. The baseline air quality, background noise and water quality monitoring has been carried out between ***21st September 2018*** and ***13th November 2018*** at the designated and interim locations. The baseline monitoring report under the EP-459/2013 has been compiled by the ET and verified by Independent Environmental Checker (hereinafter the "IEC') prior submitted to EPD on ***19th November 2018*** for endorsement.

ES05 This is the **32nd** Monthly EM&A report presenting the monitoring results and inspection findings for the reporting period from ***1*** to ***31 July 2021*** (hereinafter 'the Reporting Period').

CONSTRUCTION WORKS CONDUCTED AT THE REPORTING MONTH

ES06 The major construction activities of Contract 1 (Contract No. NE/2017/07) undertaken in this Reporting Period are:-

- Predrilling, Pilling Work at Portion I
- Precast Pier and box girder installation at Portion II
- Stage Concrete for pile caps at portion II
- ABWF works, E&M Work and External Work at Portion V Plant Room Building

ES07 The major construction activities of Contract 2 (Contract No. NE/2017/08) undertaken in this Reporting Period are:-

- Excavation (Portion III,VI)
- Drainage Installation (Portion VI)
- Footing construction(Portion VI)
- Excavation & RC works (Superstructure) (Portion III)
- RC construction for U-trough(Portion III)
- Seawall modification
- ELS & manhole construction at SMH012 &SMH011,lift shaft
- Noise barrier installation(Portion VI)
- Backfilling (Portion VI)

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES08 Environmental monitoring activities under the EM&A program in this Reporting Period are summarized in the following table.

Table ES-4 Summary Environmental Monitoring Activities Undertaken in the Reporting Period

Issues	Environmental Monitoring Parameters / Inspection		Sessions
Air Quality	1-Hour TSP		36
	24-Hr TSP		10
Construction Noise	Leq (30min) Daytime		12
	Leq (5min) Evening(Note 1)		0
	Leq (5min) Night(Note 1)		0
Water Quality	Marine Water Sampling(Note 2) (Note 3)		0
Inspection / Audit	Contract 1	ET Regular Environmental Site Inspection	4
		Joint site audit with Project Consultant and IEC	1
	Contract 2	ET Regular Environmental Site Inspection	4
		Joint site audit with Project Consultant and IEC	1

Note 1 Total sessions are counted by every 3 consecutive Leq5min
Note 2 Total sessions are counted by monitoring days
Note 3 Since the marine construction works that requires marine water quality monitoring as stated in the EM&A Manual were completed, the impact water quality monitoring was ceased with effect from 1 May 2020.

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES09 No air quality monitoring exceedance was recorded in this Reporting Period. For construction noise monitoring, **five (5)** noise complaints (which triggered Action Level) were recorded in this Reporting Period. The statistics of environmental exceedance and investigation of exceedance are summarized in the following table.

Table ES-5 Summary Environmental Monitoring Parameter Exceedance in the Reporting Period

Environmental Issues	Monitoring Parameters	Action Level	Limit Level	Event & Action	
				Investigation Results	Corrective Actions
Air Quality	1-Hour TSP	0	0	--	--
	24-Hr TSP	0	0	--	--
Construction Noise	Leq_{30min} Daytime	**5**	0	Four (4) Project Related; One (1) Invalid	Although the complaints were considered related to the Project, the Contractor has strictly followed the CNP requirement.
	Leq_{5min} Evening	0	0	--	--
	Leq_{5min} Night	0	0	--	--
Water Quality (Marine Water)	DO	0	0	--	--
	Turbidity	0	0	--	--
	SS	0	0	--	--

ENVIRONMENTAL COMPLAINT

ES10 In the reporting period, five (5) environmental complaints were recorded for the Project. The statistics of environmental complaint are summarized in the following table.

Table ES-6 Summary Environmental Complaint Records in the Reporting Period

Reporting Period	Contract	Environmental Complaint Statistics			Related with the Works Contract(s)
		Frequency	Cumulative	Complaint Nature	
1 – 31 July 2021	1	5	23	Noise	Four (4) Project Related; One (1) Invalid
	2	0	13	NA	NA

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES11 No environmental summons or prosecutions was received in this Reporting Period for the Project. The statistics of environmental summons or prosecutions are summarized in the following tables.

Table ES-7 Summary Environmental Summons Records in the Reporting Period

Reporting Period	Contract	Environmental Summons Statistics			Related with the Works Contract(s)
		Frequency	Cumulative	Complaint Nature	
1 – 31 July 2021	1	0	0	NA	NA
	2	0	0	NA	NA

Table ES-8 Summary Environmental Prosecutions Records in the Reporting Period

Reporting Period	Contract	Environmental Prosecution Statistics			Related with the Works Contract(s)
		Frequency	Cumulative	Complaint Nature	
1 – 31 July 2021	1	0	0	NA	NA
	2	0	0	NA	NA

REPORTING CHANGE

ES12 There is no reporting change made for this monthly report.

SITE INSPECTION BY EXTERNAL PARTIES

ES13 No site inspection was undertaken by AFCD within the Reporting Period. EPD inspection was undertaken on 6 July 2021 for Contract 1 and 22 July 2021 for Contract 2.

FUTURE KEY ISSUES

ES14 Due to wet season has approached, the Contractor was reminded that all the works being undertaken must fulfill environmental statutory requirements and to paid attention to water quality mitigation measures to prevent surface runoff into nearby water bodies or public areas.

ES15 Construction noise would be the key environmental issue as Lohas Park Phase 4 & 6 were already available for resident occupation. The noise mitigation measures such as use of quiet plants and installation of temporary noise barrier at the construction noise predominate area should be fully implemented in accordance with the EM&A requirement.

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1. INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 Civil Engineering and Development Department (hereafter referred as "CEDD") is the Project Proponent and the Permit Holder of the Project Cross Bay Link, Tseung Kwan O (hereinafter referred as "the Project") which is a Designated Project to be implemented under Environmental Permit number EP-459/2013 (hereinafter referred as "the EP-459/2013" or "the EP").

1.1.2 AUES was awarded the CEDD Contract Agreement No. EDO/04/2018 - Environmental Team for Cross Bay Link, Tseung Kwan O (hereinafter called "the Service Contract"). The Services under the Service Contract is to provide environmental monitoring and audit (EM&A) services for the Works Contracts pursuant to the requirement of Environmental Team (ET) under the Approved EM&A Manual to ensure that the environmental performance of the Works Contracts comply with the requirement specified in the EM&A Manual and EIA Report of Agreement No. CE 43/2008 (HY) Cross Bay Link, Tseung Kwan O - Investigation and other relevant statutory requirements.

1.1.3 To facilitate management, the proposed Works of ***Cross Bay Link, Tseung Kwan O*** (hereinafter called "the Project') was divided into two Civil Engineering and Development Department (CEDD) Works contracts included *Contract 1 (Contract No. NE/2017/07)* and *Contract 2 (Contract No. NE/2017/08).* The details of each contract Works are summarized below and the delineation of each contract is shown in ***Appendix A***.

Contract 1 (Contract No. NE/2017/07)

(i) 400m section of marine viaducts of steel deck sections including the Eternal Arch Bridge;
(ii) 600m section of marine viaducts of concrete deck sections;
(iii) An E&M Plantroom and associated building services; and
(iv) E&M provisions.

Contract 2 (Contract No. NE/2017/08)

(i) Elevated deck structures along Road D9;
(ii) A 210m section of cycle track and footpath ramp bridge;
(iii) A 630m section of noise semi-enclosure covering the entire length of Road D9, and;
(iv) Lift, staircase, modification of existing seawall along Road D9, landscaping and miscellaneous works.

1.1.4 The date for commencement of Contract 1 is ***3rd December 2018*** while the date for commencement of Contract 2 is ***17th January 2019***.

1.1.5 As part of the EM&A programme, baseline monitoring shall be undertaken before the Project construction work commencement to determine the ambient environmental condition. The baseline air quality, background noise and water quality monitoring has been carried out between ***21st September 2018*** and ***13th November 2018*** at the designated and interim locations. The baseline monitoring report under the EP-459/2013 has been compiled by the ET and verified by Independent Environmental Checker (hereinafter the "IEC') prior submitted to EPD on ***19th November 2018*** for endorsement.

1.1.6 This is the **32nd** Monthly EM&A report presenting the monitoring results and inspection findings for the reporting period from ***1*** to ***31 July 2021*** (hereinafter 'the Reporting Period').

1.2 REPORT STRUCTURE

1.2.1 The Environmental Monitoring and Audit (EM&A) Monthly Report is structured into the following sections:-

Section 1	*Introduction*
Section 2	*Project Organization and Construction Progress*
Section 3	*Summary of Impact Monitoring Requirements*
Section 4	*Air Quality Monitoring*
Section 5	*Construction Noise Monitoring*

2. PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS AND SUBMISSION

2.1 PROJECT ORGANIZATION

2.1.1 The project organization is shown in ***Appendix B***. The responsibilities of respective parties are:

The Project Consultant

2.1.2 The Project Consultant (hereinafter "the Consultant") is responsible for overseeing the construction works and for ensuring that the works are undertaken by the Contractor in accordance with the specification and contract requirements. The duties and responsibilities of the Consultant with respect to EM&A are:

- Monitor the Contractors' compliance with contract specifications, including the implementation and operation of the environmental mitigation measures and their effectiveness
- Monitor Contractors', ET's and IEC's compliance with the requirements in the Environmental Permit (EP) and EM&A Manual
- Facilitate ET's implementation of the EM&A programme
- Participate in joint site inspection by the ET and IEC
- Oversee the implementation of the agreed Event / Action Plan in the event of any exceedance
- Adhere to the procedures for carrying out complaint investigation

The Contractor(s) of Works Contract(s)

2.1.3 There will be one contractor for each individual works contract. The Contractor(s) should report to the Consultant. The duties and responsibilities of the Contractor are:

- Comply with the relevant contract conditions and specifications on environmental protection
- Participate in the site inspections by the ET and IEC, and undertake any corrective actions
- Provide information / advice to the ET regarding works programme and activities which may contribute to the generation of adverse environmental impacts
- Submit proposals on mitigation measures in case of exceedances of Action and Limit levels in accordance with the Event / Action Plans
- Implement measures to reduce impact where Action and Limit levels are exceeded
- Adhere to the procedures for carrying out complaint investigation

Environmental Team (ET)

2.1.4 ET shall not be in any way an associated body of the Contractor(s) and employed by the Permit Holder (i.e., CEDD) to conduct the EM&A programme. The ET should be managed by the ET Leader. The ET Leader shall be a person who has at least 7 years' experience in EM&A and has relevant professional qualifications. Suitable qualified staff should be included in the ET, and resources for the implementation of the EM&A programme should be allocated in time under the Contract(s), to enable fulfillment of the Project's EM&A requirements as specified in the EM&A Manual during construction of the Project. ET shall report to the Project Proponent and the duties shall include:

- Conduct baseline monitoring, impact monitoring and post-construction monitoring and the associated in-situ and laboratory tests to monitor various environmental parameters as required in the EM&A Manual and the EP
- Analyze the environmental monitoring and audit data, review the success of EM&A programme and the adequacy of mitigation measures implemented, confirm the validity of the EIA predictions and identify any adverse environmental impacts arising
- Carry out regular site inspection to investigate and audit the Contractors' site practice, equipment/plant and work methodologies with respect to pollution control and environmental mitigation, and effect proactive action to pre-empt problems
- Monitor compliance with conditions in the EP, environmental protection, pollution prevention and control regulations and contract specifications
- Audit environmental conditions on site

- Report on the environmental monitoring and audit results to EPD, the Consultant, the IEC and Contractor(s) or their delegated representatives
- Recommend suitable mitigation measures to the Contractor in the case of exceedance of Action and Limit levels in accordance with the Event and Action Plans
- Liaise with the IEC on all environmental performance matters and timely submit all relevant EM&A proforma for approval by IEC
- Advise the Contractor(s) on environmental improvement, awareness, enhancement measures etc., on site
- Adhere to the procedures for carrying out complaint investigation
- Set up a dedicated web site where the project information, all environmental monitoring and audit data and reports described in Condition 5.2 of the EP, and all finalized submissions and plans required under the EP are to be placed for public inspection
- Upload the environmental monitoring results to the dedicated web site in accordance with requirements of the EP and EM&A Manual
- To carry out the Operational Phase Landfill Gas monitoring during effluent drainage system maintenance for one year

Independent Environmental Checker (IEC)

2.1.5 IEC will be employed for this Project. The Independent Environmental Checker (IEC) should not be in any way an associated body of the Contractor(s) or the ET for the Project. The IEC should be employed by the Permit Holder (i.e., CEDD) prior to the commencement of the construction of the Project. The IEC should have at least 7 years' experience in EM&A and have relevant professional qualifications. The duty of IEC should be:

- Provide proactive advice to the Project Consultant and the Project Proponent on EM&A matters related to the project, independent from the management of construction works, but empowered to audit the environmental performance of construction
- Review and audit all aspects of the EM&A programme implemented by the ET
- Review and verify the monitoring data and all submissions in connection with the EP and EM&A Manual submitted by the ET
- Arrange and conduct regular, at least monthly site inspections of the works during construction phase, and ad hoc inspections if significant environmental problems are identified
- Check compliance with the agreed Event / Action Plan in the event of any exceedance
- Check compliance with the procedures for carrying out complaint investigation
- Check the effectiveness of corrective measures
- Feedback audit results to ET by signing off relevant EM&A proforma
- Check that the mitigation measures are effectively implemented
- Report the works conducted, the findings, recommendation and improvement of the site inspections, after reviewing ET's and Contractor's works, and advices to the Project Consultant and Project Proponent on a monthly basis

2.2 CONSTRUCTION PROGRESS

2.2.1 3-month rolling construction program of the each Works Contract is enclosed in ***Appendix C***; and the major construction activities undertaken in the Reporting Period is presented in below sub-sections.

Contract 1 (Contract No. NE/2017/07)

2.2.2 The major construction activities of Contract 1 undertaken in this Reporting Period are:-

- Predrilling, Pilling Work at Portion I
- Precast Pier and box girder installation at Portion II
- Stage Concrete for pile caps at portion II
- ABWF works, E&M Work and External Work at Portion V Plant Room Building

Contract 2 (Contract No. NE/2017/08)

2.2.3 The major construction activities of Contract 2 undertaken in this Reporting Period are:-

- Excavation (Portion III,VI)
- Drainage Installation (Portion VI)
- Footing construction(Portion VI)
- Excavation & RC works (Superstructure) (Portion III)
- RC construction for U-trough(Portion III)
- Seawall modification
- ELS & manhole construction at SMH012 &SMH011,lift shaft
- Noise barrier installation(Portion VI)
- Backfilling (Portion VI)

2.3 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

2.3.1 The required documents list below shall be to submit to EPD for retention:

Table 2-1 Documents Submission under Environmental Permit Requirement

EP condition	Submission to EPD	Requirement	Situation
1.11	Commencement date of construction of the Project	no later than 1 month prior to the commencement of construction of the Project	• Contract 1 notified EPD on 19 Oct 2018 • Contract 2 notified EPD on 12 Dec 2018
2.3	The date of setting up the Community Liaison Group (CLG), the membership, the terms of reference and the contact details	At least 1 month before the commencement of construction of the Project	• CLG setting has submitted to EPD on 9 Oct 2018
2.4	Management Organization of Main Construction Companies	No later than 2 weeks before the commencement of construction of the Project	• Management Organization of Contract 1 was submitted to EPD on 2 October 2018 • Management Organization of Contract 2 was submitted to EPD on 12 December 2018
2.5	Waste Management Plan (WMP)	No later than 1 month before commencement of construction of the Project	• WMP of Contract 1 was submitted to EPD in 11 October 2018 • WMP of Contract 2 was submitted to EPD in 14 December 2018
2.6	Landscape Mitigation Plan (LSMP)	No later than 1 month before commencement of construction of the Project	• LSMP was submitted on 1 Nov 2018
2.7	Detailed Qualitative Landfill Gas Hazards Assessment (QLGHA)	No later than 1 month before commencement of construction of the Project	• QLGHA of the Project was submitted to EPD on 1 November 2018

2.3.2 Upon completed baseline monitoring, a Baseline Monitoring Report was verified by IEC on 19 November 2018 and submitted to EPD on that day for endorsement.

2.3.3 The notification of Project dedicated web site to EPD was made on 9 January 2019 (http://www.envcbltko.hk/).

2.3.4 Summary of the relevant permits, licenses, and/or notifications on environmental protection for the Project are presented in ***Table 2-2***.

Table 2-2 Status of Environmental Licenses and Permits of the Project Works (Contract 1)

Item	Description	License/Permit Status			
		Permit no./ Account no./ Ref. no.	Valid Period		Status
			From	To	
1	Notification pursuant to Air pollution Control (Construction Dust) Regulation	--	--	--	Notified on 11 July 2018
2	Chemical Waste Producer Registration	5213-839-C1232-19	28 Aug 2018	N/A	--
3	Water Pollution Control Ordinance - Discharge License	WT00032842-2018	1 Mar 2019	31 Mar 2024	Valid until 31 March 2024
		WT00034178-2019	15 Jul 2019	31 Jul 2024	Valid until 31 July 2024
4	Billing Account for Disposal of Construction Waste	7031412	24 Jul 2018	N/A	--
5	Construction Noise Permit	GW-RE0575-21	9 Jun 2021	8 Aug 2021	Valid until 8 Aug 2021

Table 2-3 Status of Environmental Licenses and Permits of the Project Works (Contract 2)

Item	Description	License/Permit Status			
		Permit no./ Account no./ Ref. no.	Valid Period		Status
			From	To	
1	Notification pursuant to Air pollution Control (Construction Dust) Regulation	--	--	--	Notified on 31 October 2018
2	Chemical Waste Producer Registration	5213-839-B2500-04	22 Nov 2018	N/A	--
3	Water Pollution Control Ordinance - Discharge License	WT00034244-2019	8 Jul 2019	31 Jul 2024	Valid until 31 July 2024
4	Billing Account for Disposal of Construction Waste	7032702	8 Nov 2018	N/A	--
5	Construction Noise Permit	GW-RE0453-21	14 May 2021	13 Nov 2021	Valid until 13 Nov 2021

3. SUMMARY OF ENVIRONMENTAL MONITORING PROGRAMMES AND REQUIREMENTS

3.1 GENERAL

3.1.1 The Environmental Monitoring and Audit Programmes and requirements are set out in the Approved EM&A manual. Environmental issues such as air quality, construction noise and water quality were identified as the key issues during the construction phase of the Project. A summary of EM&A programmes and requirements are presented in the sub-sections below.

3.2 MONITORING PARAMETERS

3.2.1 Monitoring parameters of air quality, noise and water quality are summarized in ***Table 3-1***.

Table 3-1 Summary of EM&A Requirements

Environmental Issue	Parameters
Air Quality	• 1-hour TSP by Real-Time Portable Dust Meter; and • 24-hour TSP by High Volume Air Sampler
Noise	• Leq (30min) in six consecutive Leq(5 min) between 07:00-19:00 on normal weekdays • Supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.
Water Quality	• In-situ measurement – Dissolved Oxygen (DO) concentration (mg/L) & saturation (%), pH, Salinity (mg/L), Temperature (ºC) and Turbidity (NTU); and • Laboratory analysis – SS (mg/L)

3.3 MONITORING LOCATIONS

Air Quality and Construction Noise

3.3.1 According to the Approved EM&A Manual Section 5.4 and Section 6.3, three (3) representative air sensitive receivers (ASR) and four (4) representative noise sensitive receivers were designated as monitoring stations. The designated air quality and noise monitoring locations are listed in ***Table 3-2*** and ***Table 3-3,*** and illustrated in ***Appendix D***.

Table 3-2 Designated Air Quality Monitoring Location recommended in EM&A Manual

ID	Location in the EM&A Manual	Currently Situation
AM1	Tung Wah Group of Hospitals Aided Primary School & Secondary School	Not yet construct
AM2	Lohas Park Stage 2 (Planned Development in Area 86)	Available for resident occupation in February 2021
AM3	Lohas Park Stage 3 (Planned Development in Area 86)	Under Construction

Table 3-3 Designated Construction Noise Monitoring Location recommended by EM&A Manual

ID	Location	Currently Situation
CNMS-1	Lohas Park Stage 1(Planned Development in Area 86, Package 4) (Southeast facade)	Available for resident occupation in November 2019
CNMS-2	Lohas Park Stage 1 (Planned Development in Area 86, Package 6) (Southeast facade)	Available for resident occupation in February 2021
CNMS-3	Lohas Park Stage 3 (Planned Development in Area 86,Package 11) (West facade)	Under Construction
CNMS-4	Tung Wah Group of Hospitals Aided Primary School & Secondary School (Southwest facade)	Not yet construct

3.3.2 As observed and confirmed by ET and IEC during the joint site visit on 29th August 2018, the designated air quality and noise monitoring locations are under construction or yet to construct. It is considered that these designated locations are not appropriate to perform air quality and noise monitoring. In this regard, alternative locations were proposed as interim arrangement to carry out

air quality and noise monitoring before occupation of the designated monitoring location. A letter enclosed with the alternative location proposal and IEC verification (Our Ref: TCS00975/18/300/L0038) was sent to EPD on 19th October 2018 and the proposal was agreed by EPD. Therefore, air quality and construction noise impact monitoring would be performed at the agreed alternative locations until the designated sensitive receivers occupied and granted the premises.

3.3.3 1-Hour TSP air quality and construction noise monitoring was commenced in February 2021 regarding the handover of residential units to purchases for LP6. However, the installation of High Volume Sampler (HVS) for 24-Hour TSP is still pending approval from LP6 property management team. Therefore, an interim alternative monitoring location AM2a was proposed near the LP 6 for the 24-Hour TSP monitoring during the request of HVS installation is being reviewed by LP6 Property Management Office.

3.3.4 The designated and interim alternative monitoring location for impact air quality and noise monitoring in the Reporting Period are summarized in Table 3-4 and illustrated in ***Appendix D***.

Table 3-4 Designated and interim alternative location for air quality and noise monitoring in the Reporting Period

Location ID	Monitoring Parameter	Location
AM2	1-Hour TSP Air Quality	Lohas Park Phase 6
AM2a	24-Hour TSP Air Quality	Near Lohas Park Phase 6
AM4	1-Hour TSP Air Quality	Podium of Lohas Park Phase 2A (Le Prestige)
AM5	24-Hour TSP Air Quality	Boundary of Site Office near Junction of Wan Po Road and Wan O Road
CNMS-1	Noise (L_{eq}, L_{10} & L_{90})	Podium of Lohas Park Package 4
CNMS-2	Noise (L_{eq}, L_{10} & L_{90})	Lohas Park Package 6
CNMS-5	Noise (L_{eq}, L_{10} & L_{90})	Podium of Lohas Park Phase 2A (Le Prestige)

Remark: Since 24-Hour TSP Air Quality monitoring is not granted at AM4 Lohas Park Phase 2A, the 24-Hour TSP monitoring was therefore proposed at AM5 which is located at the boundary of the project site office.

Water Quality

3.3.5 According to Table 7.1 of the approved EM&A Manual Section 7.4, two Control Stations (C3 & C4), six (6) sensitive receivers (CC1, CC2, CC3, CC4, CC13 & SWI1) and one (1) Gradient station (I1) are recommended to perform water quality monitoring. Details and coordinate of these water quality monitoring stations are described in ***Table 3-5*** and the locations is shown in ***Appendix D.***

Table 3-5 Location of Water Quality Monitoring Station

Station	Coordinates		Description
	Easting	Northing	
CC1	843201	816416	**Sensitive Receiver** – Coral Sites at Chiu Keng Wan
CC2	844076	817091	**Sensitive Receiver** – Coral Sites at Junk Bay
CC3	844606	817941	**Sensitive Receiver** – Coral Sites at Junk Island
CC4	845444	815595	**Sensitive Receiver** – Coral Sites at Fat Tong Chau West
CC13	844200	817495	**Sensitive Receiver** – Coral Sites at Junk Bay near Chiu Keng Wan
SWI1	845512	817442	**Sensitive Receiver** – Tseung Kwan O Salt Water Intake
C3	843821	816211	**Control Station** (Ebb Tide) – within Junk Bay
C4	844621	815770	**Control Station** (Flood Tide) – within Junk Bay
I1	844602	817675	**Gradient Station** – in between Lam Tin Tunnel (LTT) and CBL

3.4 MONITORING FREQUENCY AND PERIOD

3.4.1 To according with the approved *EM&A Manual*, impact monitoring requirements are presented as follows.

Air Quality Monitoring

3.4.2 Air quality impact monitoring frequency is as follows:

- Once every 6 days of 24-hour TSP and 3 times of 1-hour TSP monitoring; during course of

works throughout the construction period

Construction Noise Monitoring

3.4.3 Construction noise monitoring frequency is as follows:

- One set of $Leq_{(30min)}$ measurements in a weekly basis between 07:00 and 19:00 hours on normal weekdays during course of works as throughout the construction period
- If construction works are extended to include works during the hours of 1900-0700, additional weekly impact monitoring shall be carried out during evening and night-time works. Applicable permits under the NCO shall be obtained by the Contractor.

Water Quality (Marine Water) Monitoring

3.4.4 Marine water impact monitoring frequency is as follows:

- Three days a week, at mid ebb and mid flood tides during course of pile excavation works for the bridge pier foundations underway. Moreover, the intervals between 2 consecutive sets of monitoring day shall not be less than 36 hours.

3.5 MONITORING EQUIPMENT

Air Quality Monitoring

3.5.1 The 24-hour and 1-hour TSP levels shall be measured by following the standard high volume sampling method as set out in the *Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50),* Appendix *B*. If the ET proposes to use a direct reading dust meter to measure 1-hour TSP levels, it shall submit sufficient information to the IEC to prove that the instrument is capable of achieving a comparable results to the HVS. The instrument should be calibrated regularly, and the 1-hour sampling shall be determined on yearly basis by the HVS to check the validity and accuracy of the results measured by direct reading method. The filter paper of 24-hour TSP measurement shall be determined by HOKLAS accredited laboratory. The equipment used for air quality monitoring is listed in ***Table 3-6***.

Table 3-6 Air Quality Monitoring Equipment

Equipment		Model
24-hour TSP	High Volume Air Sampler	TISCH High Volume Air Sampler, HVS Model TE-5170
	Calibration Kit	TISCH Model TE-5025A (S/N: 1612)
1- hour TSP	Portable Dust Meter	Laser Dust Monitor Sibata LD-3B Laser Dust Monitor (S/N: 3Y6503 & 366410)

Noise Monitoring

3.5.2 Sound level meter in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring. The sound level meter shall be checked using an acoustic calibrator. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in ms^{-1}. Noise equipment will be used for impact monitoring is listed in ***Table 3-7***.

Table 3-7 Construction Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	Rion NL-52 (S/N:00142581)
Calibrator	Rion NC-74 (S/N:34246492)
Portable Wind Speed Indicator	Anemometer AZ Instrument 8908

Water Quality Monitoring

3.5.3 For water quality monitoring, the equipment should fulfill the requirement under the Approved *EM&A Manual Section 7.2*. The requirement is summarized below:

- ***Dissolved Oxygen and Temperature Measuring Equipment*** – The instrument should be a portable, weatherproof dissolved oxygen measuring instrument completed with cable, sensor, comprehensive operation manuals, and should be operable from a DC power source. It

should be capable of measuring: dissolved oxygen levels in the range of 0-20 mg/L and 0-200% saturation; and a temperature of 0-45 degrees Celsius. It should have a membrane electrode with automatic temperature compensation complete with a cable of not less than 35 m in length. Sufficient stocks of spare electrodes and cable should be available for replacement where necessary.

- ***Turbidity Measurement Equipment*** – The instrument shall be a portable, weatherproof turbidity-measuring instrument complete with comprehensive operation manual. The equipment shall use a DC power source. It shall have a photoelectric sensor capable of measuring turbidity between 0-1000 NTU.
- ***Salinity Measurement Instrument*** – A portable salinometer capable of measuring salinity in the range of 0-40 ppt should be provided for measuring salinity of the water at each monitoring location.
- ***Water Depth Detector*** – A portable, battery-operated echo sounder should be used for the determination of water depth at each designated monitoring station. A detector affixed to the bottom of the works boat, if the same vessel is to be used throughout the monitoring programme, is preferred.
- ***Positioning Device*** – hand-held or boat-fixed type digital Global Positioning System (GPS) with way point bearing indication or other equipment instrument of similar accuracy, should be provided and used during water quality monitoring to ensure the monitoring vessel is at the correct location before taking measurements.
- ***Water Sampling Equipment*** – A water sampler, consisting of a transparent PVC or glass cylinder of not less than two liters, which can be effectively sealed with cups at both ends, should be used. The water sampler should have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth.

3.5.4 Equipment used for water quality impact monitoring is listed in ***Table 3-8***.

Table 3-8 Water Monitoring Equipment

Equipment	Model
A Digital Global Positioning System	GPS12 Garmin
Water Depth Detector	Eagle Sonar CUDA 300
Water Sampler	A 2-litre transparent PVC cylinder with latex cups at both ends
Thermometer & DO meter	YSI ProDSS Digital Sampling System Water Quality Meter
pH meter	
Turbidimeter	
Salinometer	
Sample Container	High density polythene bottles (provided by laboratory)
Storage Container	'Willow' 33-litter plastic cool box with Ice pad

3.6 MONITORING PROCEDURES

Air Quality

1-hour TSP

3.6.1 The 1-hour TSP monitor was a brand named "*Sibata LD-3 Laser Dust monitor Particle Mass Profiler & Counter*" which is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90° light scattering. The 1-hour TSP monitor consists of the following:

(a.) A pump to draw sample aerosol through the optic chamber where TSP is measured;

(b.) A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum reliability; and

(c.) A built-in data logger compatible with Windows based program to facilitate data collection, analysis and reporting.

24-hour TSP

3.6.2 The equipment used for 24-hour TSP measurement is TISCH, Model TE-5170 TSP High Volume Air Sampler, which complied with *EPA Code of Federal Regulation, Appendix B to Part 50*. The

High Volume Air Sampler (HVS) consists of the following:

(a.) An anodized aluminum shelter;
(b.) A 8"x10" stainless steel filter holder;
(c.) A blower motor assembly;
(d.) A continuous flow/pressure recorder;
(e.) A motor speed-voltage control/elapsed time indicator;
(f.) A 7-day mechanical timer, and
(g.) A power supply of 220v/50 Hz

3.6.3 For HVS for 24-hour TSP monitoring, the HVS is mounted in a metallic cage with a top for protection and also it is sat on the existing ground or the roof of building. The flow rate of the HVS between 0.6m^3/min and 1.7m^3/min will be properly set in accordance with the manufacturer's instruction to within the range recommended in *EPA Code of Federal Regulation, Appendix B to Part 50*. Glass Fiber Filter 8" x 10" of TE-653 will be used for 24-Hour TSP monitoring and would be supplied by laboratory. The general procedures of sampling are described as below:-

- A horizontal platform with appropriate support to secure the samples against gusty wind should be provided;
- No two samplers should be placed less than 2 meters apart;
- The distance between the sampler and an obstacle, such as building, must be at least twice the height that the obstacle protrudes above the sample;
- A minimum of 2 meters of separation from any supporting structure, measured horizontally is required;
- Before placing any filter media at the HVS, the power supply will be checked to ensure the sampler work properly;
- The filter paper will be set to align on the screen of HVS to ensure that the gasket formed an air tight seal on the outer edges of the filter. Then filter holder frame will be tightened to the filter hold with swing bolts. The holding pressure should be sufficient to avoid air leakage at the edge.
- The mechanical timer will be set for a sampling period of 24 hours (00:00 mid-night to 00:00 mid-night next day). Information will be recorded on the field data sheet, which would be included the sampling data, starting time, the weather condition at current and the filter paper ID with the initial weight;
- After sampling, the filter paper will be collected and transfer from the filter holder of the HVS to a sealed envelope and sent to a local HOKLAS accredited laboratory for quantifying.

3.6.4 All the sampled 24-hour TSP filters will be kept in normal air conditioned room conditions, i.e. 70% HR (Relative Humidity) and 25^{o}C, for six months prior to disposal.

3.6.5 The HVS used for 24-hour TSP monitoring will be calibrated in two months interval for in accordance with the manufacturer's instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A) to establish a relationship between the follow recorder meter reading in cfm (cubic feet per minute) and the standard flow rate, Qstd, in m^3/min. Motor brushes of HVS will be regularly replaced. The calibration certificates of the air quality monitoring equipment used for the impact monitoring and the HOKLAS accredited certificate of laboratory was provided in Appendix G.

Noise Monitoring

3.6.6 As referred to in the Technical Memorandum (TM) issued under the NCO, sound level meters in compliance with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications shall be used for carrying out the noise monitoring. Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

3.6.7 All noise measurements will be performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (Leq). $Leq_{(30\ min)}$ in six consecutive $Leq_{(5\ min)}$ measurements will be used as the monitoring parameter for the time period between 07:00-19:00 hours on weekdays throughout the construction period.

3.6.8 The sound level meter will be mounted on a tripod at a height of 1.2 m and placed at the assessment point and oriented such that the microphone is pointed to the site with the microphone facing perpendicular to the line of sight. The windshield will be fitted for all measurements. Where a measurement is to be carried out at a building, the assessment point would normally be at a position 1 m from the exterior of the building façade. Where a measurement is to be made for noise being received at a place other than a building, the assessment point would be at a position 1.2 m above the ground in a free-field situation, i.e. at least 3.5 m away from reflective surfaces such as adjacent buildings or walls.

3.6.9 Immediately prior to and following each noise measurement the accuracy of the sound level meter will be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements will be accepted as valid only if the calibration level from before and after the noise measurement agrees to within 1.0 dB.

3.6.10 Noise measurements will not be made in fog, rain, wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s. The wind speed will be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

3.6.11 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis. The calibration certificates of noise monitoring equipment used for the impact monitoring was provided in Appendix G.

Marine Water Quality

3.6.12 Marine water quality monitoring would be conducted at all designated locations in accordance with Table 7.1 of the approved EM&A Manual. The procedures of water sampling, in-situ measurement and chemical analysis are described as below:

- A Global Positioning System (GPS) will be used to ensure that the correct location was selected prior to sample collection. A portable, battery-operated echo sounder was used for the determination of water depth at each designated monitoring station.
- The marine water sampler will be lowered into the water body at a predetermined depth. The trigger system of the sampler is activated with a messenger and opening ends of the sampler are closed accordingly then the sample of water is collected.
- During the sampling, the sampling container will be rinsed to use a portion of the marine water sample before the water sample is transferred to the container. Upon sampling completion, the container will be sealed with a screw cap.
- Before the sampling process, general information such as the date and time of sampling, weather condition and tidal condition as well as the personnel responsible for the monitoring will be recorded on the monitoring field data sheet.
- In-situ measurement including water temperature, turbidity, dissolved oxygen, salinity, pH and water depth will be recorded at the identified monitoring station and depth. At each station, marine water samples will be collected at three depths: 1m below water surface, 1m above sea bottom and at mid-depth when the water depth exceeds 6m. Samples at 1m below water surface and 1m above sea bottom will be collected when the water depth is between 3m and 6m. And sample at mid-depth will be taken when the water depth is below 3m.
- For the in-situ measurement, two consecutive measurements of sampling depth, temperature, dissolved oxygen, salinity, turbidity and pH concentration will be measured at the sea. The YSI ProDSS Multifunctional Meter will be retrieved out of the water after the first measurement and then re-deployed for the second measurement. Where the difference in the value between the first and second readings of each set is more than 25% of the value of

the first reading, the reading is discarded and further readings is taken.

- Marine water sample will be collected by using a water sampler. The high-density polythene bottles will be filled after the water sample collected from the sea. Before the water sample being fills into the sampling bottles, the sampling bottles will be pre-rinsed with the same water sample. The sampling bottles will then be packed in cool-boxes (cooled at $4^{O}C$ without being frozen), and delivered to HOKLAS accredited laboratory for the chemical analysis as followed APHA *Standard Methods for the Examination of Water and Wastewater* 19ed 2540D, unless otherwise specified.

3.6.13 Before each round of monitoring, the dissolved oxygen probe will be calibrated by wet bulb method; a zero check in distilled water will be performed with the turbidity and salinity probes. The turbidity probe also will be checked with a standard solution of known NTU and known value of the pH standard solution were used to check the accuracy of pH value before each monitoring day. Moreover, all in-situ measurement equipment used marine water monitoring will be calibrated at three months interval.

Laboratory Analysis

3.6.14 All water samples included the duplicate samples, was tested with chemical analysis as specified in the EM&A Manual by a HOKALS accredited laboratory - ALS Technichem (HK) Pty Ltd. The chemicals analysis method and reporting limit show ***Table 3-9***.

Table 3-9 Testing Method and Reporting Limit of the Chemical Analysis

Parameter	ALS Method Code	In-house Method Reference (1)	Reporting Limit
Total Suspended Solids	EA025	APHA 2540D	1 mg/L

Note:
1. The exact method shall depend on the laboratory accredited method. APHA = Standard Methods for the Examination of Water and Wastewater by the American Public Health Association.

3.6.15 The determination works will start within 24 hours after collection of the water samples or within the holding time as advised by the laboratory.

Meteorological Information

3.6.16 The meteorological information including wind direction, wind speed, humidity and temperature etc. of impact monitoring is extracted from the closest Tseung Kwan O Hong Kong Observatory Station. Moreover, the data of rainfall and air pressure would be extracted from King's Park Station.

3.6.17 For marine water quality monitoring, tidal information would be referred to tide gauge at Tai Miu Wan.

3.7 DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

3.7.1 The baseline results form the basis for determining the environmental acceptance criteria for the impact monitoring. A summary of the Action/Limit (A/L) Levels for air quality, construction noise and water quality are shown in ***Tables 3-10***, ***3-11*** and ***3-12*** respectively.

Table 3-10 Action & Limit Levels of Air Quality (1-Hour & 24-Hr TSP)

Monitoring Station	Action Level (μg /m³)		Limit Level (μg/m³)	
	1-Hour TSP	24-Hr TSP	1-Hour TSP	24-Hr TSP
AM2	278	NA	500	NA
AM2a	NA	190	NA	260
AM4	278	NA	500	NA
AM5	NA	190	NA	260
Note: 1-Hour & 24-Hr TSP of Action Level = (Average Baseline Results × 1.3 + Limit level)/2				

Table 3-11 Action and Limit Levels for Construction Noise, dB(A)

Monitoring Location	Action Level	Limit Level
CNMS-1 **CNMS-2** **CNMS-5**	**Time Period: 0700-1900 hours on normal weekdays (Leq30min)**	
	When one or more documented complaints are received	***75*** dB(A)
	Time Period: 1900-2300 hours on all days (Leq15min)	
	When one or more documented complaints are received	***55*** dB(A)

Remarks:

1. *Construction noise monitoring will be resumed at the designated locations CNMS-2, CNMS-3 and CNMS4 once they are available and permission are granted;*
2. *The designated locations CNMS-2 and CNMS-3 are located at residential building which are still under construction, Limit Level of 75dB(A) will be adopted until they are occupied;*
3. *The designated location CNMS-4 is located at planned school and still not yet to construction. When the school occupied and operated, Limit Level of 70dB(A) should be adopted and should be reduced to 65dB(A) during examination period; and*
4. *If construction works are required during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority shall be followed.*

Table 3-12 Action and Limit Levels for Water Quality

Monitoring Station	Depth Average of SS (mg/L)			
	Action Level		Limit Level	
CC1	7.8	**OR** 120% of upstream control station at the same tide of the same day (Control Station C3 at Ebb tide and Control Station C4 at Flood tide), whichever is higher	9.3	**OR** 130% of upstream control station at the same tide of the same day (Control Station C3 at Ebb tide and Control Station C4 at Flood tide) , whichever is higher
CC2	9.0		9.2	
CC3	8.2		9.0	
CC4	13.8		15.4	
CC13	8.9		10.3	
SWI1	8 mg/L		10 mg/L	

Monitoring Location	Dissolved Oxygen (mg/L)			
	Depth Average of Surface and Mid-depth		Bottom	
	Action Level	Limit Level	Action Level	Limit Level
CC1	5.8	5.7	5.3	5.2
CC2	5.8	5.7	5.3	5.1
CC3	5.5	5.4	4.9	4.7
CC4	5.7	5.7	5.5	5.4
CC13	5.6	5.5	5.3	5.2
SWI1	5.4	4.8	5.1	5.0

Monitoring Location	Depth Average of Turbidity (NTU)			
	Action Level		Limit Level	
CC1	5.8	**OR** 120% of upstream control station at the same tide of the same day (Control Station C3 at Ebb tide and Control Station C4 at Flood tide) , whichever is higher	6.0	**OR** 130% of upstream control station at the same tide of the same day (Control Station C3 at Ebb tide and Control Station C4 at Flood tide) , whichever is higher
CC2	4.6		5.5	
CC3	4.8		5.4	
CC4	6.1		7.1	
CC13	6.0		6.3	
SWI1	6.1		7.1	

3.7.2 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan which presented in ***Appendix E.***

3.8 DATA MANAGEMENT AND DATA QA/QC CONTROL

3.8.1 All monitoring data will be handled by the ET's in-house data recording and management system. The monitoring data recorded in the equipment will be downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data will input into a computerized database properly maintained by the ET. The laboratory results will be input directly into the computerized database and checked by personnel other than those who input the data.

3.8.2 For monitoring parameters that require laboratory analysis, the local laboratory shall follow the QA/QC requirements as set out under the HOKLAS scheme for the relevant laboratory tests.

4. AIR QUALITY MONITORING

4.1 GENERAL

4.1.1 As notified that Lohas Park Package 6 was available for resident occupation in late January 2021, air quality monitoring at designated monitoring location AM2 was therefore commenced in February 2021. Since the installation of High Volume Sampler for 24-Hour TSP monitoring is still under review by Property Management Team of Lohas Park Package 6, an interim alternative monitoring location AM2a was proposed for the 24-Hour TSP monitoring and was commenced on 13 July 2021 upon agreed by ER and IEC.

4.1.2 In the Reporting Period, 1-Hour TSP monitoring was performed at designated monitoring location AM2 and interim alternative monitoring locations AM4, and 24-Hr TSP of air quality monitoring was performed at interim alternative monitoring locations AM2a and AM5. The air quality monitoring schedule is presented in ***Appendix F***.

4.1.3 Valid calibration certificates of monitoring equipment are shown in ***Appendix G*** and the monitoring results are summarized in the following sub-sections

4.2 RESULTS OF AIR QUALITY MONITORING IN THE REPORTING MONTH

4.2.1 During the Reporting Period, ***36*** sessions of 1-hour TSP and ***10*** sessions of 24-hours TSP monitoring were carried out and the monitoring results are summarized in ***Table 4-1*** and ***Table 4-2***. The detailed 24-hour TSP monitoring data are presented in ***Appendix H*** and the relevant graphical plots are shown in ***Appendix I***.

Table 4-1 1-Hour TSP Air Quality Impact Monitoring Results for AM4 and 24-Hour TSP Air Quality Impact Monitoring Results for AM5

AM5		AM4				
24-Hr TSP (μg/m³)		1-Hour TSP (μg/m³)				
Date	**Meas. Result**	**Date**	**Start Time**	**1st Meas.**	**2nd Meas.**	**3rd Meas.**
2-Jul-21	26	3-Jul-21	9:27	73	65	68
7-Jul-21	34	8-Jul-21	13:07	69	71	77
13-Jul-21	38	14-Jul-21	13:14	73	66	75
19-Jul-21	24	20-Jul-21	9:36	80	77	68
24-Jul-21	77	26-Jul-21	9:06	75	70	78
30-Jul-21	35	31-Jul-21	9:21	74	63	69
Average (Range)	**39 (24 – 77)**	Average (Range)		**72 (63 – 80)**		

Table 4-2 1-Hour TSP Air Quality Impact Monitoring Results for AM2

AM2a		AM2				
24-Hr TSP (μg/m³)		1-Hour TSP (μg/m³)				
Date	**Meas. Result**	**Date**	**Start Time**	**1st Meas.**	**2nd Meas.**	**3rd Meas.**
13-Jul-21	103	3-Jul-21	9:13	83	75	78
19-Jul-21	24	8-Jul-21	13:19	79	84	88
24-Jul-21	50	14-Jul-21	13:01	84	79	74
30-Jul-21	28	20-Jul-21	9:45	76	71	72
--	--	26-Jul-21	9:20	81	75	79
--	--	31-Jul-21	9:09	76	80	83
Average (Range)	**51 (24 – 103)**	Average (Range)		**79 (71 – 88)**		

4.2.2 As shown in ***Table 4-1*** and ***Table 4-2***, all the 1-hour TSP and 24-hour TSP monitoring results were below the Action / Limit Levels. No Notification of Exceedance (NOE) was issued in this Reporting Period.

4.2.3 The meteorological data during impact monitoring period is summarized in ***Appendix J***.

5. CONSTRUCTION NOISE MONITORING

5.1 GENERAL

5.1.1 In the Reporting Period, construction noise quality monitoring was performed at designated monitoring location **CNMS-1 & CNMS-2,** and interim alternative monitoring location **CNMS-5**. The construction noise monitoring schedule is presented in ***Appendix F***.

5.1.2 Valid calibration certificates of monitoring equipment is shown in ***Appendix G*** and the construction noise monitoring results are summarized in the following sub-sections:

5.2 RESULTS OF NOISE MONITORING

5.2.1 ***12*** sessions of daytime construction noise monitoring were performed at both the designated monitoring location CNMS-1 & CNMS-2 and the interim alternative location CNMS-5 in the reporting period. The daytime noise monitoring results are summarized in ***Table 5-1*** to ***Table 5-3.*** The detailed noise monitoring data are presented in ***Appendix H*** and the relevant graphical plots are shown in ***Appendix I***.

Table 5-1 Daytime Construction Noise Impact Monitoring Results at CNMS-1

Date	Time	Measurement Result (dB(A))	
		$L_{eq30min}$	Façade Correction
8-Jul-21	13:06	70.6	NA
14-Jul-21	14:30	68.1	NA
20-Jul-21	10:19	64.3	NA
26-Jul-21	9:19	68.5	NA

Table 5-2 Daytime Construction Noise Impact Monitoring Results at CNMS-2

Date	Time	Measurement Result (dB(A))	
		$L_{eq30min}$	Façade Correction
8-Jul-21	13:42	66.1	NA
14-Jul-21	13:47	64.5	NA
20-Jul-21	9:41	66.6	NA
26-Jul-21	9:58	70.8	NA

Table 5-3 Daytime Construction Noise Impact Monitoring Results at CNMS-5

Date	Time	Measurement Result (dB(A))	
		$L_{eq30min}$	Façade Correction
8-Jul-21	14:28	66.8	NA
14-Jul-21	13:04	67.4	NA
20-Jul-21	10:58	66.1	NA
26-Jul-21	10:42	65.5	NA

5.2.2 As shown in ***Table 5-1*** to ***Table 5-3***, all the measured results were below 75dB(A) of the acceptance criteria. No adverse weather condition which may affect the monitoring result was encountered during the course of noise monitoring in the reporting period.

6. WATER QUALITY MONITORING

6.1 GENERAL

6.1.1 According to the approved EM&A Manual Section 7.6.1, the impact marine water quality monitoring work shall be carried out during the CBL piling and pile excavation works (marine construction activity) of the Project. Impact marine water quality monitoring was commenced in December 2018 when CBL piling and pile excavation works started.

6.1.2 As confirmed, all the marine piling and piling excavation work were completed in January 2020 and all pile cap installation work was completed in mid-March 2020. Due to the marine construction works that requires marine water quality monitoring as stated in the EM&A Manual were completed, the impact water quality monitoring was ceased with effect from 1 May 2020 and IEC has no particular comment on this arrangement.

6.1.3 No impact water quality monitoring was therefore carried out in the reporting period.

7. WASTE MANAGEMENT

7.1 GENERAL WASTE MANAGEMENT

7.1.1 Waste management would be carried out by an on-site Environmental Officer or an Environmental Consultant from time to time.

7.2 RECORDS OF WASTE QUANTITIES

7.2.1 All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste; and
- General Refuse

7.2.2 According to the information provided by Contractor of Contract 1 and Contract 2, waste disposal was made in the Reporting period are summarized in ***Tables 7-1*** and ***7-2***.

Table 7-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Contract 1		Contract 2	
	Quantity	Disposal Location	Quantity	Disposal Location
Total C&D Materials (Inert) (‘000m^3)	0.060	-	0.147	-
Reused in this Contract (Inert) (‘000m^3)	0	-	0	-
Reused in other Projects (Inert) (‘000m^3)	0	-	0	-
Disposal as Public Fill (Inert) (‘000m^3)	0.060	TKO 137	0.147	TKO 137
Imported Fill (‘000m^3)	0	-	0	-

Table 7-2 Summary of Quantities of C&D Wastes

Type of Waste	Contract 1		Contract 2	
	Quantity	Disposal Location	Quantity	Disposal Location
Recycled Metal (‘000kg)	0	-	0.002	Collected by licensed collector
Recycled Paper / Cardboard Packing (‘000kg)	0.155	Collected by paper recycling company	0.150	Collected by paper recycling company
Recycled Plastic (‘000kg)	0	-	0.030	Collected by licensed collector
Chemical Wastes (‘000kg)	0	-	0	-
General Refuses (‘000m^3)	0.204	NENT	0.019	NENT

7.2.3 The Monthly Summary Waste Flow Table of the Contracts 1 and Contract 2 are shown in ***Appendix K***.

8. SITE INSPECTION

8.1 REQUIREMENTS

8.1.1 According to the approved EM&A Manual, the environmental site inspection shall be formulation by ET Leader. Weekly environmental site inspections should carry out to confirm the environmental performance.

8.2 FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH

Contract 1

8.2.1 In this Reporting Month, weekly joint site inspection to evaluate site environmental performance for the *Contract 1* was carried out by the Project Consultant, ET and the Contractor on ***7, 14, 20 & 28 July 2021***. Moreover, the Independent Environmental Checker (IEC) monthly site inspection was conducted on ***14 July 2021***.

8.2.2 The findings / deficiencies of ***Contract 1*** that observed during the weekly site inspection are listed in ***Table 8-1*** and the site layout plan was provided in **Appendix A**.

Table 8-1 Site Observations of the Contract 1 (Contract No. NE/2017/07)

Date	Findings / Deficiencies	Follow-Up Status
7 July 2021	• No adverse environmental issue was observed.	NA
14 July 2021	Observation: • Drip tray should be provided for chemical storage on-site. (Portion II, E7)	• Chemical storage on-site was removed.
20 July 2021	Observation: • Drip tray should be provided for chemical storage on-site. (Portion V) • Chemical leakage from the container during the rainstorm should be cleaned. (Works Area A)	• Chemical storage on-site was removed. • Chemical leakage from the container during the rainstorm was cleaned.
28 July 2021	Observation: • Drip tray should be provided for chemical storage on-site. (Portion II-W5)	• Chemical storage on-site was removed.

Contract 2

8.2.3 In this Reporting Month, weekly joint site inspection to evaluate site environmental performance for the *Contract 2* were carried out by the Project Consultant, ET and the Contractor on n ***7, 14, 20 & 28 July 2021***. Moreover, the Independent Environmental Checker (IEC) monthly site inspection was conducted on ***14 July 2021***.

8.2.4 The findings / deficiencies of ***Contract 2*** that observed during the weekly site inspection are listed in ***Table 8-2*** and the site layout plan was provided in **Appendix A**.

Table 8-2 Site Observations of the Contract 2 (Contract No. NE/2017/08)

Date	Findings / Deficiencies	Follow-Up Status
7 July 2021	Observation: • Drip tray should be provided for chemical storage on-site. (Portion VI)	• The chemical container was removed.
14 July 2021	Observation: • Drip tray should be provided for chemical storage on-site. (Portion V) • Housekeeping should be improved. General refuse scattered on-site should be cleaned. (Portion III)	• The chemical containers were removed. • Housekeeping was improved.

Date	Findings / Deficiencies	Follow-Up Status
20 July 2021	• No adverse environmental issue was observed.	• NA
28 July 2021	Observation: • Proper dust mitigation measures should be provided for stockpile of loose materials storage on-site.. (Portion VI)	• The stockpile has been covered with tarphaulin sheet.

8.3 IMPLEMENTATION STATUS OF SURFACE RUNOFF MITIGATION MEASURES

8.3.1 During the inspection of the reporting month, implementation of surface runoff mitigation measures were observed in both Contracts. The surface runoff mitigation measures observed during the weekly site inspection of Contract 1 and Contract 2 are summarized below and the photo recorded was provided in **Appendix L**.

Contract 1 (Contract No. NE/2017/07)

8.3.2 The surface runoff mitigation measures of Contract 1 implemented in this Reporting Period are:-

- Treatment facilities was installed at site to treat the site generated water prior discharge.

Contract 2 (Contract No. NE/2017/08)

8.3.3 The surface runoff mitigation measures of Contract 2 implemented in this Reporting Period are:-

- Treatment facilities was installed at site to treat the site generated water prior discharge.

8.3.4 Overall, the surface runoff mitigation measures of Contract 1 and Contract 2 observed during the inspection of the reporting period are efficient.

9. LANDFILL GAS MONITORING

9.1 GENERAL REQUIREMENT

9.1.1 Pursuant to Section 13 of the Project's EM&A Manual, landfill gas monitoring shall perform during excavation work within the 250m Consultation Zone of Tseung Kwan O Stage II & III Landfill. For landfill gas monitoring requirements, pre entry and routine measurement shall be undertaken in accordance with the *Factories and Industrial Undertaking (Confined Spaces) Regulation*.

9.1.2 According to Environmental Mitigation Implementation Schedule (EMIS) S14.7.6, portable monitoring equipment can be used to conduct landfill gas monitoring. Moreover, the frequency and areas to be monitored should be set down prior to commencement of the works either by the Safety Officer or by an appropriately qualified person.

9.2 LIMIT LEVELS AND EVENT AND ACTION PLAN

9.2.1 In event of the trigger levels specified in Table 14.6 of the EIA report being exceeded, a person, such as the Safety Officer, shall be nominated, with deputies, to be responsible for dealing with any emergency which may occur due to LFG. In an emergency situation the nominated person, or his deputies, shall have the necessary authority and shall ensure that the confined space is evacuated and the necessary works implemented for reducing the concentrations of gas. The Limit levels and relevant Action Plans for landfill gas detected in utilities and any on-site areas following construction is listed in ***Table 9-1***.

Table 9-1 Actions in the Event of Landfill Gas Being Detected in Excavations

Parameter	Limit Level	Actions
Methane	>10% LEL (i.e. >0.5% by volume)	• Post "No Smoking" signs • Prohibit hot works • Ventilate to restore methane to <10% LEL
	>20% LEL (i.e. >1% by volume)	• Stop excavation works • Evacuate personnel/prohibit entry • Increase ventilation to restore methane to <10% LEL
Carbon dioxide	>0.5%	• Ventilate to restore carbon dioxide to <0.5%
	>1.5%	• Stop excavation works • Evacuate personnel/prohibit entry • Increase ventilation to restore carbon dioxide to <0.5%
Oxygen	<19%	Ventilation to restore oxygen >19%
	<18%	• Stop excavation works • Evacuate personnel/prohibit entry • Increase ventilation to restore oxygen to >19%

9.2.2 In the event of the trigger levels specified in Table 9-1 being exceeded, the Safety Officer shall be responsible for dealing with any emergency which may occur due to landfill gas.

9.3 LANDFILL GAS MONITORING

9.3.1 In the Reporting Period, landfill gas monitoring was conducted at the zone Wan O Road which excavation work of Contract 2 was carried out. A Crowcon gas detector was used for the landfill gas monitoring and the valid calibration certificate is presented in **Appendix G**.

9.3.2 There were a total of ***27*** days monitoring were carried by the Safety Officer or an approved and qualified persons. The results of landfill gas measurement are summarized in ***Table 9-2***. Moreover, database of monitoring result is attached in **Appendix H**.

Table 9-2 Summary of Landfill Gas Measurement Results

Landfill Gas Parameter	Action Level	Limit Level	Detectable at LMR	
			Min	Max
Methane	>10% LEL (>0.5% v/v)	>20% LEL (>1% v/v)	0.0%	0.0%
Oxygen	<19%	<18%	20.6%	20.7%
Carbon Dioxide	>0.5%	>1.5%	0.0%	0.0%

9.3.3 The measurement results shown that slightly methane and Carbon Dioxide concentration were detected, oxygen concentration measured was over 19.0 %. No exceedance was triggered and therefore no corrective action was required accordingly.

10. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

10.1 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

10.1.1 In the Reporting Period, five (5) environmental complaints were received for the Project. Besides, no summons and prosecution under the EM&A Programme was lodged for the project. Investigation for the complaints was undertaken by the ET and presented below.

Complaint received on 25 June 2021(Last Reporting Period)

10.1.2 A complaint was received by 1823 regarding operation of work barge and light pollution on 25 June 2021 at 00:01.

10.1.3 According to the works schedule of Contract 1, no marine work was conducted on 24 June 2021 night time (23:00 – 07:00). The Contractor of Contract 1 (CRBC) advised that the illumination (e.g. flashlight, headlight) on the crane barge is required for safety reason - to keep the barge being visible and to avoid collision by other marine vessel.

10.1.4 In order to minimize the light nuisance to the public, the Contractor has already kept the illumination on the crane barge to a minimum at night.

10.1.5 The Investigation conducted by the ET revealed that the complaint is related to the Project since the concern barge is belong to Contract 1 of the Project. However, no marine work was carried out at the complaint period and the illumination on the crane barge was kept to a minimum. Nevertheless, the Contractor were reminded to implement the environmental mitigation measures as far as practicable to reduce the environmental impact arise from the construction site.

Complaint received on 30 June 2021(Last Reporting Period)

10.1.6 A complaint was received by 1823 regarding the muddy water observed near the construction site at Road D9 waterfront 26 June 2021.

10.1.7 As advised by the Contractor of Contract 2, formwork erection and rebar fixing work were carried out at Portion VI near Lohas Park Phase 4 on 26 June 2021.

10.1.8 WetSep were provided as water mitigation measures by the Contractor to treat any wastewater and surface runoff prior to discharge. Although no wastewater was generated from the formwork erection and rebar fixing work, surface runoff was generated due to rainy weather. According to Contractor's record, all the surface runoff was treated by the WetSep prior to discharge and the WetSep was functioning properly on 26 June 2021. Besides, during the weekly inspection by ET on 23 June 2021, muddy water was also observed in Junk Bay being discharged from the box culvert. No muddy water discharged from site was found during the inspection.

10.1.9 The Investigation conducted by the ET revealed that the complaint is not related to the Project since all the wastewater generated was treated prior to discharge and the source of the muddy water was unlikely from the Project.

Complaint received on 11 July 2021

10.1.10 A complaint was received by 1823 regarding the operation of work barge at Junk Bay 11 July 2021 at around 12:24.

10.1.11 As advised by the Contractor of Contract 1, load test was carried out by a crane barge at Junk Bay at E2 which is within the working area 2 of the issued CNP. According to the issued CNP, one crane barge is allowed to operate in working area 2 between 0900 – 2200 hours during general holiday (including Sunday). Besides, during the load test carried out by the crane barge, there is no other operation at the working area 2 which requires PME and may create noise nuisance during the complaint period. It is confirmed by RSS that only one group of powered mechanical equipment stated in the issued CNP was used by CRBC during the load test.

10.1.12 The Investigation conducted by the ET revealed that the complaint is related to Contract 1 of the Project. However, it is allowed to operate the crane barge on Sunday 0900 – 2200 hours according to the issued CNP and the Contractor has strictly followed the CNP requirement.

Complaint received on 11 July 2021

10.1.13 A complaint was received by 1823 regarding the operation of work barge at Junk Bay 11 July 2021 at around 12:18.

10.1.14 As advised by the Contractor of Contract 1, load test was carried out by a crane barge at Junk Bay at E2 which is within the working area 2 of the issued CNP. According to the issued CNP, one crane barge is allowed to operate in working area 2 between 0900 – 2200 hours during general holiday (including Sunday). Besides, during the load test carried out by the crane barge, there is no other operation at the working area 2 which requires PME and may create noise nuisance during the complaint period. It is confirmed by RSS that only one group of powered mechanical equipment stated in the issued CNP was used by CRBC during the load test.

10.1.15 The Investigation conducted by the ET revealed that the complaint is related to Contract 1 of the Project. However, it is allowed to operate the crane barge on Sunday 0900 – 2200 hours according to the issued CNP and the Contractor has strictly followed the CNP requirement.

Complaint received on 11 July 2021

10.1.16 A complaint was received by 1823 regarding the operation of work barge at Junk Bay 11 July 2021 at around 12:37.

10.1.17 As advised by the Contractor of Contract 1, load test was carried out by a crane barge at Junk Bay at E2 which is within the working area 2 of the issued CNP. According to the issued CNP, one crane barge is allowed to operate in working area 2 between 0900 – 2200 hours during general holiday (including Sunday). Besides, during the load test carried out by the crane barge, there is no other operation at the working area 2 which requires PME and may create noise nuisance during the complaint period. It is confirmed by RSS that only one group of powered mechanical equipment stated in the issued CNP was used by CRBC during the load test.

10.1.18 The Investigation conducted by the ET revealed that the complaint is related to Contract 1 of the Project. However, it is allowed to operate the crane barge on Sunday 0900 – 2200 hours according to the issued CNP and the Contractor has strictly followed the CNP requirement.

Complaint received on 11 July 2021

10.1.19 A complaint was received by EPD regarding the operation of work barge at Junk Bay on Sunday 11 July 2021 at around 02:50.

10.1.20 According to the works schedule of Contract 1, no marine work was conducted on 11 July 2021 during the complaint period. The Contractor of Contract 1 (CRBC) advised that the illumination (e.g. flashlight, headlight) on the crane barge is required for safety reason - to keep the barge being visible and to avoid collision by other marine vessel.

10.1.21 The Investigation conducted by the ET revealed that the complaint is related to the Project since the concern barge is belong to Contract 1 of the Project. However, the complaint was considered not valid since no marine work was carried out at the complaint period.

Complaint received on 16 July 2021

10.1.22 A complaint was received by EPD regarding the operation of work barge at Junk Bay on Sunday 16 July 2021 at 01:04.

10.1.23 As advised by the Contractor of Contract 1, welding work was conducted within the steel Arch Bridge in Junk Bay which is within the working area 3 of the issued CNP with the use of one welding machine and one generator during the complaint period. According to the issued CNP, welding work is allowed to operate in working area 3 between 2300 – 0700 hours during any day. Besides, it is confirmed by RSS that only one group of powered mechanical equipment stated in the issued CNP was used by CRBC during the welding work.

10.1.24 The Investigation conducted by the ET revealed that the complaint is related to Contract 1 of the Project. However, it is allowed to operate the welding machine in working area 3 between 2300 –

0700 hours during any day according to the issued CNP and the Contractor has strictly followed the CNP requirement.

10.1.25 The statistical summary table of environmental complaint is presented in ***Tables 10-1, 10-2*** and ***10-3***.

Table 10-1 Statistical Summary of Environmental Complaints

Reporting Period	Contract	Environmental Complaint Statistics			Related with the Works Contract(s)
		Frequency	Cumulative	Complaint Nature	
1 – 31 July 2021	1	5	23	Noise	Four (4) Project Related; One (1) Invald
	2	0	13	NA	NA

Table 10-2 Statistical Summary of Environmental Summons

Reporting Period	Contract	Environmental Summons Statistics		
		Frequency	Cumulative	Summons Nature
1 – 31 July 2021	1	0	0	NA
	2	0	0	NA

Table 10-3 Statistical Summary of Environmental Prosecution

Reporting Period	Contract	Environmental Prosecution Statistics		
		Frequency	Cumulative	Prosecution Nature
1 – 31 July 2021	1	0	0	NA
	2	0	0	NA

11. IMPLEMENTATION STATUS OF MITIGATION MEASURES

11.1 GENERAL REQUIREMENTS

11.1.1 The environmental mitigation measures that recommended in the Implementation Schedule for Environmental Mitigation Measures (ISEMM) in the approved EM&A Manual covered the issues of dust, noise, water and waste and they are summarized presented in ***Appendix M.***

11.1.2 The Contractors had been implementing the required environmental mitigation measures according to the Environmental Monitoring and Audit Manual subject to the site condition. Environmental mitigation measures generally implemented by the Contractors in this Reporting Month are summarized in ***Table 11-1*** and photo record of water mitigation measure was provided in **Appendix L**.

Table 11-1 Environmental Mitigation Measures in the Reporting Month

Issues	Environmental Mitigation Measures
Construction Noise	• Regularly to maintain all plants, so only the good condition plants were used on-site ; • If possible, all mobile plants onsite operation has located far from NSRs; • When machines and plants (such as trucks) were not in using, it was switched off; • Wherever possible, plant was prevented oriented directly the nearby NSRs; • Provided quiet powered mechanical equipment to use onsite; • Weekly noise monitoring was conducted to ensure construction noise meet the criteria.
Air Quality	• Stockpile of dusty material was covered entirely with impervious sheeting or sprayed with water so as to maintain the entire surface wet; • The construction plants regularly maintained to avoid the emissions of black smoke; • The construction plants switched off when it not in use; • Water spraying on haul road and dry site area was provided regularly; • Where a vehicle leaving the works site is carrying a load of dusty materials, the load has covered entirely with clean impervious sheeting; and • Before any vehicle leaving the works site, wheel watering has been performed.
Water Quality	• Debris and refuse generated on-site collected daily; • Oils and fuels were stored in designated areas; • The chemical waste storage as sealed area provided; • Site hoarding with sealed foot were provided surrounding the boundary of working site to prevent wastewater or site surface water runoff get into public areas; and • Portable chemical toilets were provided on-site. A licensed contractor was regularly disposal and maintenance of these facilities. • Silt curtain was installed and maintained in accordance with EP condition
Waste and Chemical Management	• Excavated material reused on site as far as possible to minimize off-site disposal. • Scrap metals or abandoned equipment should be recycled if possible; • Waste arising kept to a minimum and be handled, transported and disposed of in a suitable manner; • Disposal of C&D wastes to any designated public filling facility and/or landfill followed a trip ticket system; and • Chemical waste handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.
General	• The site is generally kept tidy and clean. • Mosquito control is performed to prevent mosquito breeding on site.

11.2 TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

11.2.1 Tentative construction activities to be undertaken in **August 2021** should be included:-

Contract 1

- Construction Cast in-situ diaphragm, installation of second Batch of Precast Deck and side span within Portion II, III, IV and VI
- E&M installation work and external work within Portion V
- Pre-Drilling, Bored Piling, Pile Cap Construction and Pier construction within Portion I

Contract 2

- Excavation (Portion III,VI)
- Drainage Installation (Portion VI)
- Footing construction(Portion VI)
- Excavation & RC works (Superstructure) (Portion III)
- RC construction for U-trough(Portion III)
- Seawall modification
- ELS & manhole construction at SMH012 &SMH011,lift shaft
- Noise barrier installation(Portion VI)
- Backfilling (Portion VI)

11.3 IMPACT FORECAST

11.3.1 Potential environmental impacts arising from the works of the Contracts 1 and Contract 2 include:

- Construction waste
- Air quality
- Construction noise
- Water quality

11.3.2 Environmental mitigation measures shall be properly implemented and maintained as per the Mitigation Implementation Schedule in **Appendix M** to ensure site environmental performance is acceptable.

12. CONCLUSIONS AND RECOMMENDATIONS

12.1 CONCLUSIONS

12.1.1 This is the monthly EM&A report as presented the monitoring results and inspection findings for the reporting period from ***1*** to ***31 July 2021***.

12.1.2 In the Reporting Period, five (5) construction noise action level exceedance was recorded. Investigations were undertaken by ET. The daytime construction noise action level exceedances triggered was Project related.

12.1.3 In this Reporting Period, no 1-Hour TSP or 24-Hr TSP air quality monitoring exceedance was recorded. No NOE or the associated corrective actions were therefore issued.

12.1.4 In the Reporting Period, five (5) environmental complaints were recorded for the Project with respect to the construction noise arising from the Project. Investigations for the noise complaints were undertaken by ET and indicated that four (4) noise complaint are Project related and One (1) is invalid. Although the complaints were considered related to the Project, the Contractor has strictly followed the CNP requirement.

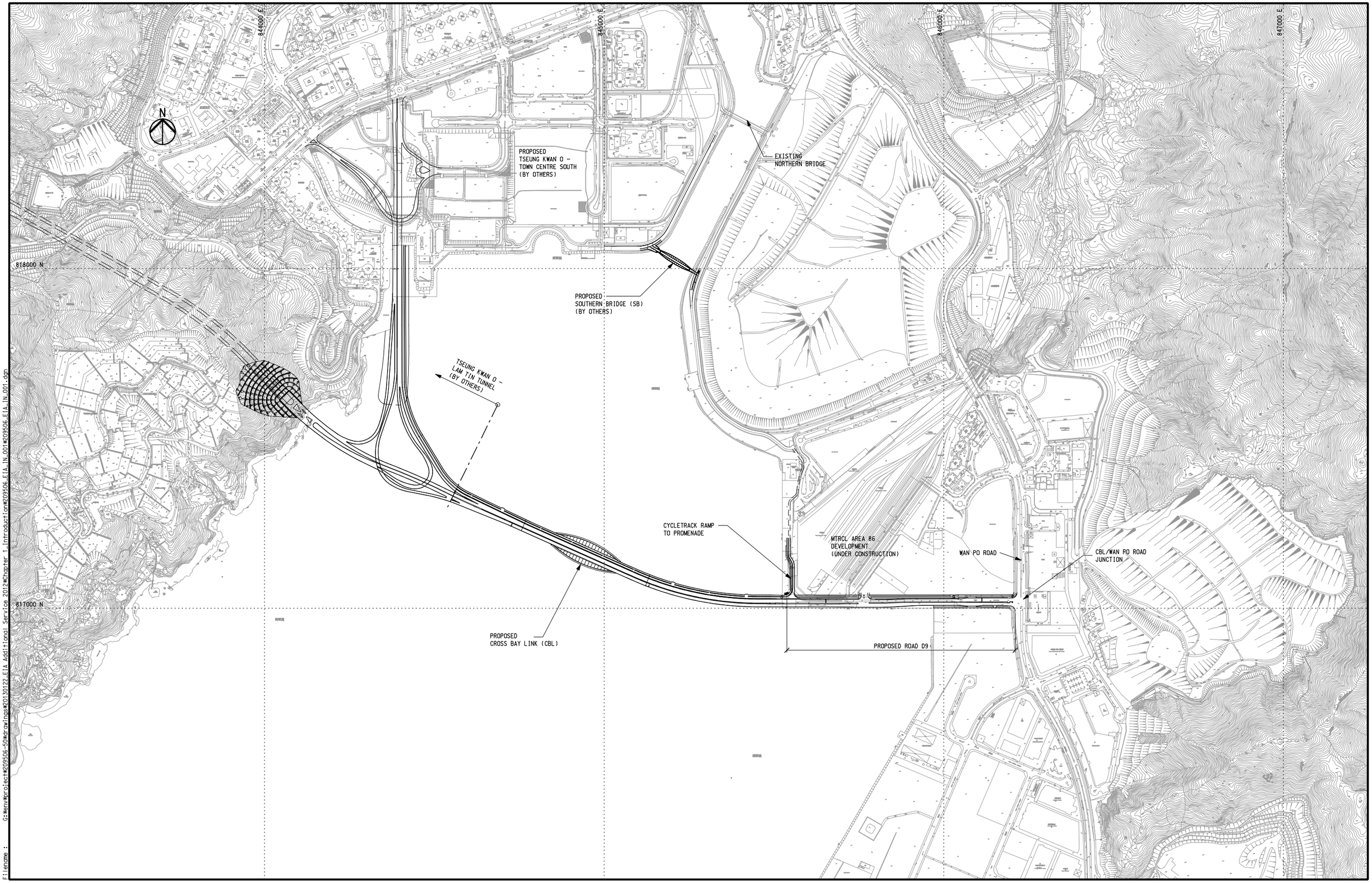
12.2 RECOMMENDATIONS

12.2.1 Due to wet season has approached, the Contractor was reminded that all the works being undertaken must fulfill environmental statutory requirements and to paid attention to water quality mitigation measures to prevent surface runoff into nearby water bodies or public areas.

12.2.2 Construction noise would be the key environmental issue as Lohas Park Phase 4 & 6 were already available for resident occupation. The noise mitigation measures such as use of quiet plants and installation of temporary noise barrier at the construction noise predominate area should be fully implemented in accordance with the EM&A requirement.

Appendix A

Project Layout Plan



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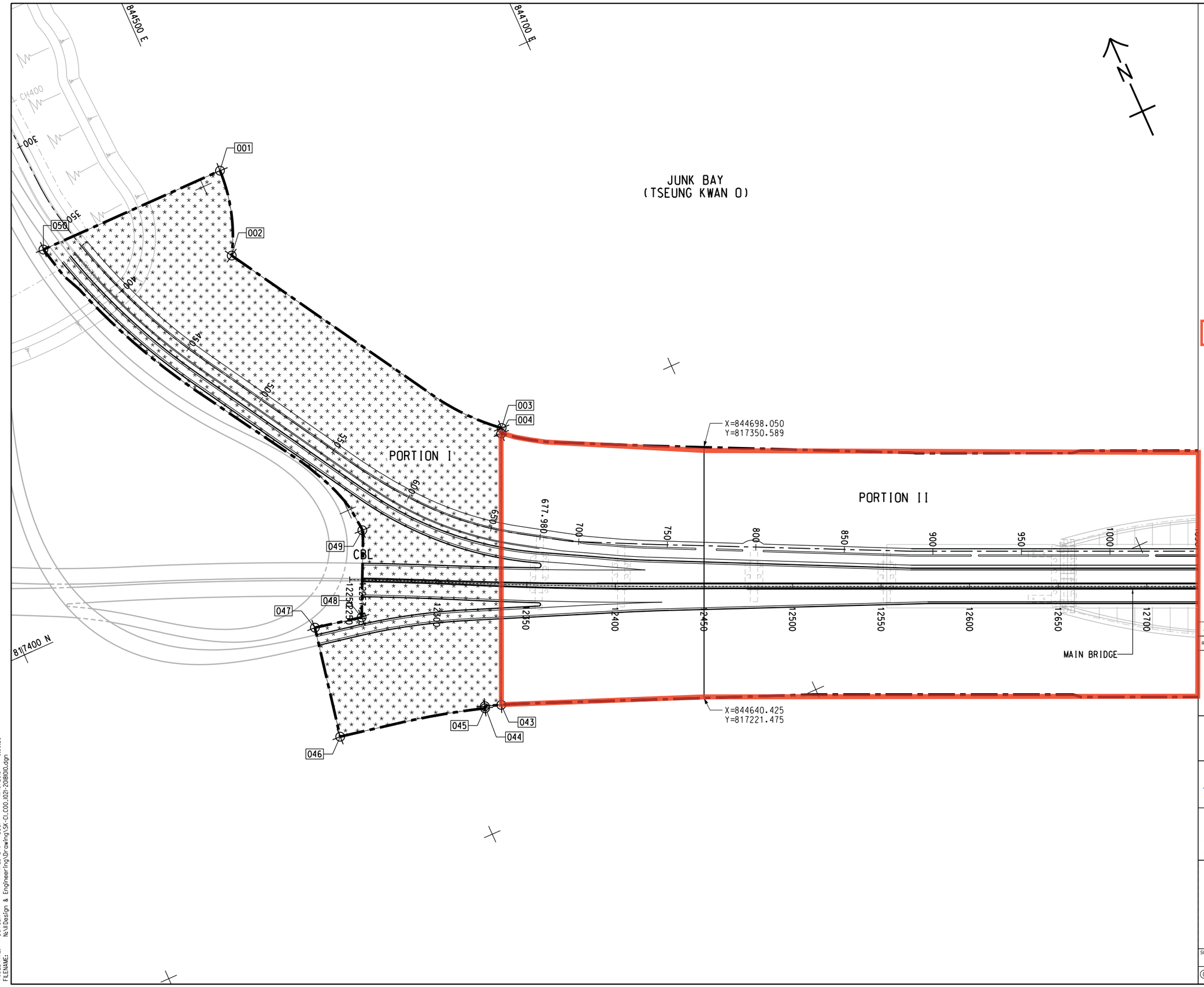
土木工程拓展署 Civil Engineering and Development Department	ARUP Ove Arup & Partners Hong Kong Limited	Job Title: **Agreement No. CE 43/2008(HY) Cross Bay Link, Tseung Kwan O – Investigation**
Drawing Title: GENERAL LAYOUT PLAN		

Rev.	Description	Date
B	SECOND ISSUE	01/13
A	FIRST ISSUE	07/11

Drawn: GL	Date: 01/13
Checked: JP	Approved: ST
Scale: 1:5000 on A1 & 1:10000 on A3	
Drawing No.: 209506/EIA/IN/001	
Status: FINAL	Rev.: B



NOTES:

1. ALL SETTING OUT POINTS SHOWN ON THIS SET OF DRAWINGS ARE FOR REFERENCE ONLY. THE EXACT LIMIT OF SITE BOUNDARY SHALL BE VERIFIED AND DETERMINED BY THE CONTRACTOR ON SITE.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60329339/C1/COO/1022 AND 1023.

LEGEND:

- SITE BOUNDARY
- PORTION I
- PORTION II
- PORTION III
- PORTION IV
- PORTION V
- PORTION VI
- PORTION VII
- WORKS AREA A
- WORKS AREA B
- Works area under Contract 1

Rev	Amendment	By	Chk.	App.	Date
A	FIRST ISSUE	HK	KN	AC	19/09/18

PROJECT MANAGER:

PROJECT MANAGER:

土木工程拓展署
Civil Engineering and Development Department

SUPERVISOR:

AECOM

CONTRACTOR:

中國路橋工程有限責任公司
China Road and Bridge Corp.

CONTRACT NO. AND TITLE:

Contract No. NE/2017/07

CROSS BAY LINK, TSEUNG KWAN O - MAIN BRIDGE AND ASSOCIATED WORKS

DRAWING TITLE:

SCALE @ A1
1 : 1000

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002	844498.695	817557.993
003	844598.186	817407.065
004	844596.769	817404.339
005	845132.374	817153.641
006	845500.00	817088.580
007	845524.969	817088.226
008	845524.909	817236.307
009	845558.095	817236.307
010	845558.095	817195.885
011	845550.234	817174.288
012	845550.219	817158.042
013	845562.850	817139.744
014	845562.850	817035.700
015	845550.850	817035.670
016	845524.969	817035.670
017	846030.606	817036.089
018	846030.604	817038.387
019	846200.700	817038.418
020	846200.700	817038.796
021	846205.200	817042.796
022	846205.200	817138.796
023	846245.180	817138.796
024	846246.698	816900.099
025	846206.155	816900.099

SETTING OUT POINTS		
POINTS	EASTING	NORTHING
026	846204.700	816926.589
027	846199.263	816926.590
028	846144.269	816926.589
029	846091.080	816926.744
030	845969.970	816926.504
031	846199.197	816975.364
032	846188.983	816993.582
033	846144.274	816999.997
034	846144.274	817000.722
035	846091.204	817000.679
036	845970.070	817000.581
037	845970.069	817000.099
038	845550.850	817000.099
039	845524.969	817000.099
040	845550.850	816953.291
041	845500.00	816952.636
042	845076.990	817029.022
043	844534.373	817264.536
044	844525.572	817267.627
045	844525.199	817266.527
046	844444.018	817285.203
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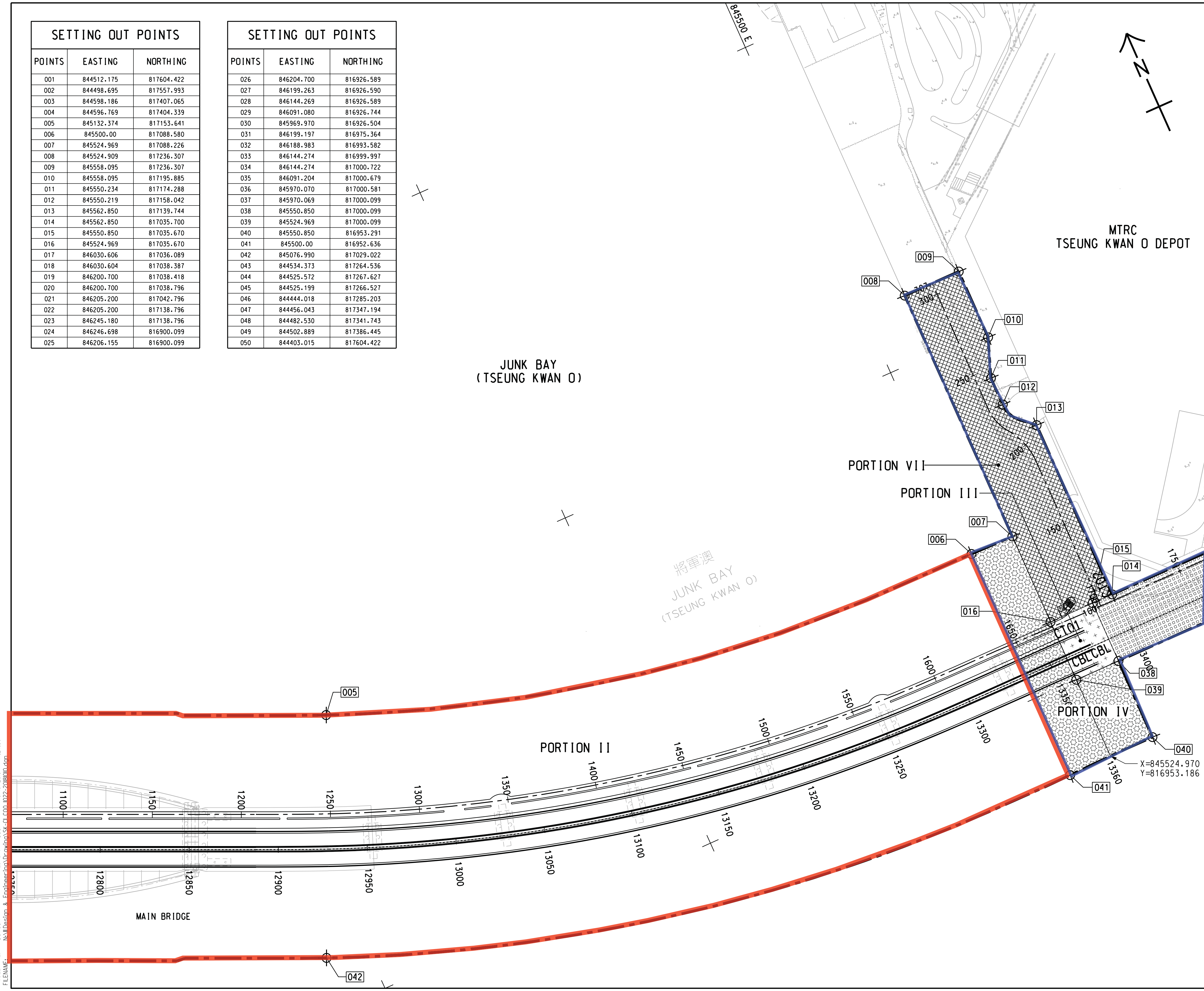
050	844403.015	817604.422



NOTE:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60329339/C1/C00/1021 AND 1023.

LEGEND:

Works area under Contract 1

Works area under Contract 2

Rev	Amendment	By	Chk.	App.	Date

PROJECT MANAGER:

土木工程拓展署
Civil Engineering and Development Department

SUPERVISOR:

AECOM

CONTRACTOR:

中國路橋工程有限責任公司
China Road and Bridge Corp.

CONTRACT NO. AND TITLE:

Contract No. NE/2017/07

CROSS BAY LINK, TSEUNG KWAN O - MAIN BRIDGE AND ASSOCIATED WORKS

DRAWING TITLE:

SCALE @ A1

DRAWING NO:

NOTE:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60329339/C1/C00/1021 AND 1022.

LEGEND:

Works area under Contract 1

Works area under Contract 2

845700 E

845900 E

846100 E

N

MTRC
TSEUNG KWAN O DEPOT

817200 N

LOHAS PARK

CUT LINE B-B
SEE DRAWING NO. 60329339/C1/C00/1022

PORTION VI

817000 N

E=845869.991
N=817000.014

E=845869.970
N=816926.504

Loading & Unloading Marine Area

100m

WORKS AREA A

WORKS AREA B

PORTION V

JUNK BAY
(TSEUNG KWAN O)

816800 N

017 018 019 020 021 022 023 024 025 026 027 028 029 030 031 032 033 034 035 036 037

Rev	Amendment	By	Chk.	App.	Date

PROJECT MANAGER:

PROJECT MANAGER:

土木工程拓展署
Civil Engineering and Development Department

SUPERVISOR:

AECOM

CONTRACTOR:

中國路橋工程有限責任公司
China Road and Bridge Corp.

CONTRACT NO. AND TITLE:

Contract No. NE/2017/07

CROSS BAY LINK, TSEUNG KWAN O - MAIN BRIDGE AND ASSOCIATED WORKS

DRAWING TITLE:

SCALE @ A1

DRAWING NO:

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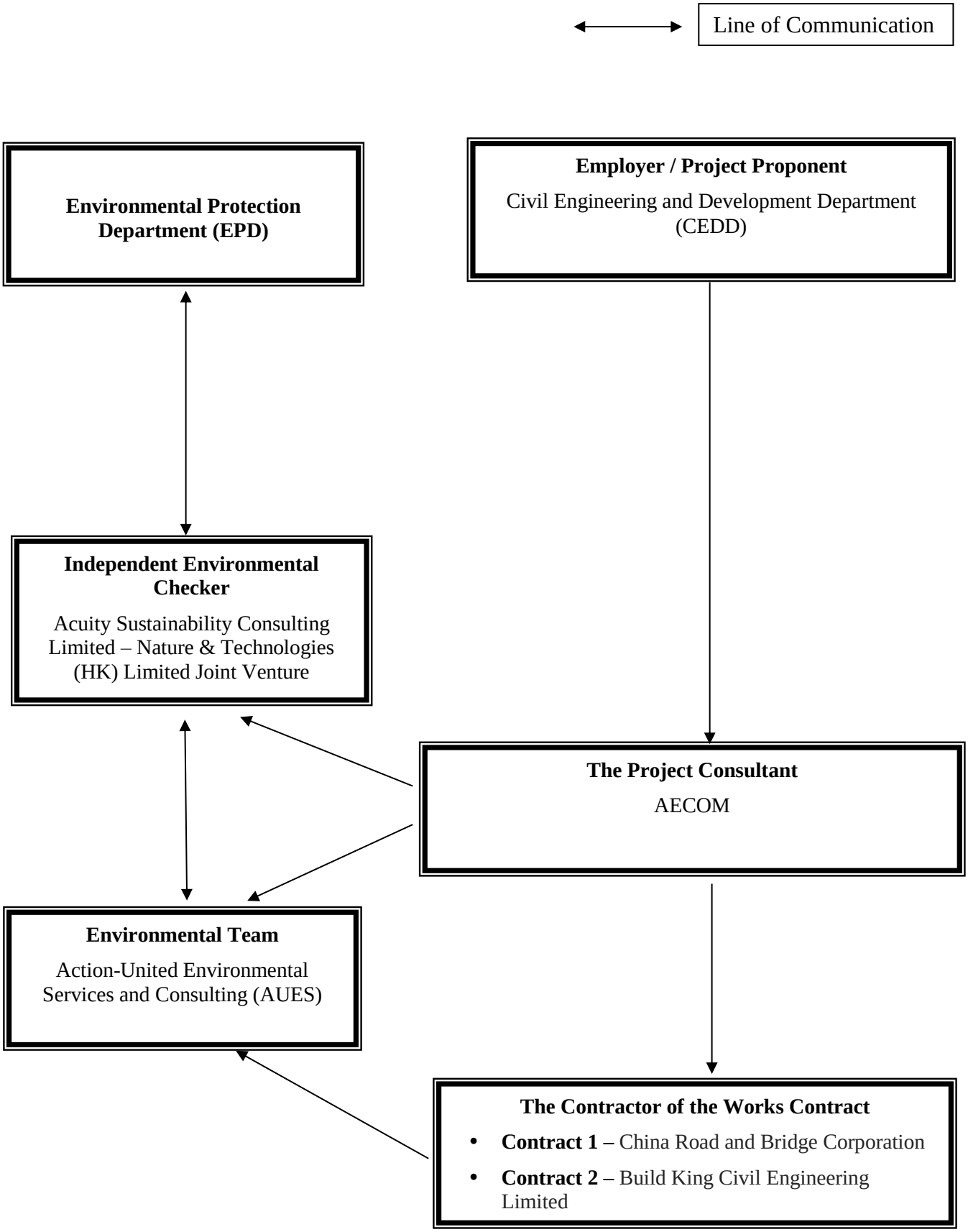
Appendix B

Project Organization Chart & Contact Details of Key Personnel for the Project

Project Organization Structure



Contact Details of Key Personnel for the Project

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
CEDD	Project Proponent	CK Lam	2301 1398	2714 5174
CEDD	Project Proponent	Sheri Leung	2301 1398	2714 5174
AECOM	Senior Resident Engineer	Jackie Chan	3595 8045	3596 6118
AECOM	Resident Engineer	Kingman Chan	3595 8045	3596 6118
ASC – N&T JV	Independent Environmental Checker	Kevin Li	2698 6833	2698 9383
ASC – N&T JV	Senior Environmental Consultant	Tandy Tse	2698 6833	2698 9383
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Martin Li	2959 6059	2959 6079
CRBC	Site Agent	Raymond Suen	9779 8871	2283 1689
CRBC	Environmental Officer	Calvin So	9724 6254	2283 1689
CRBC	Environmental Supervisor	Alice Ngai	9148 5688	2283 1689
Build King	Site Agent	Stephen Leung	9071 7657	TBA
Build King	Environmental Officer	Michael Lam	6476 4299	TBA
Build King	Environmental Supervisor	Kenneth Hung	6170 9304	TBA

Legend:

CEDD (Employer) – Civil Engineering and Development Department

AECOM (Project Consultant) – AECOM Asia Co. Ltd.

ASC – N&T JV (IEC) – Acuity Sustainability Consulting Limited – Nature & Technologies (HK) Limited Joint Venture

AUES (ET) – Action-United Environmental Services & Consulting

CRBC (the Main Contractor of the Works Contract 1) – China Road and Bridge Corporation

Build King (the Main Contractor of the Works Contract 2) - Build King Civil Engineering Limited

Appendix C

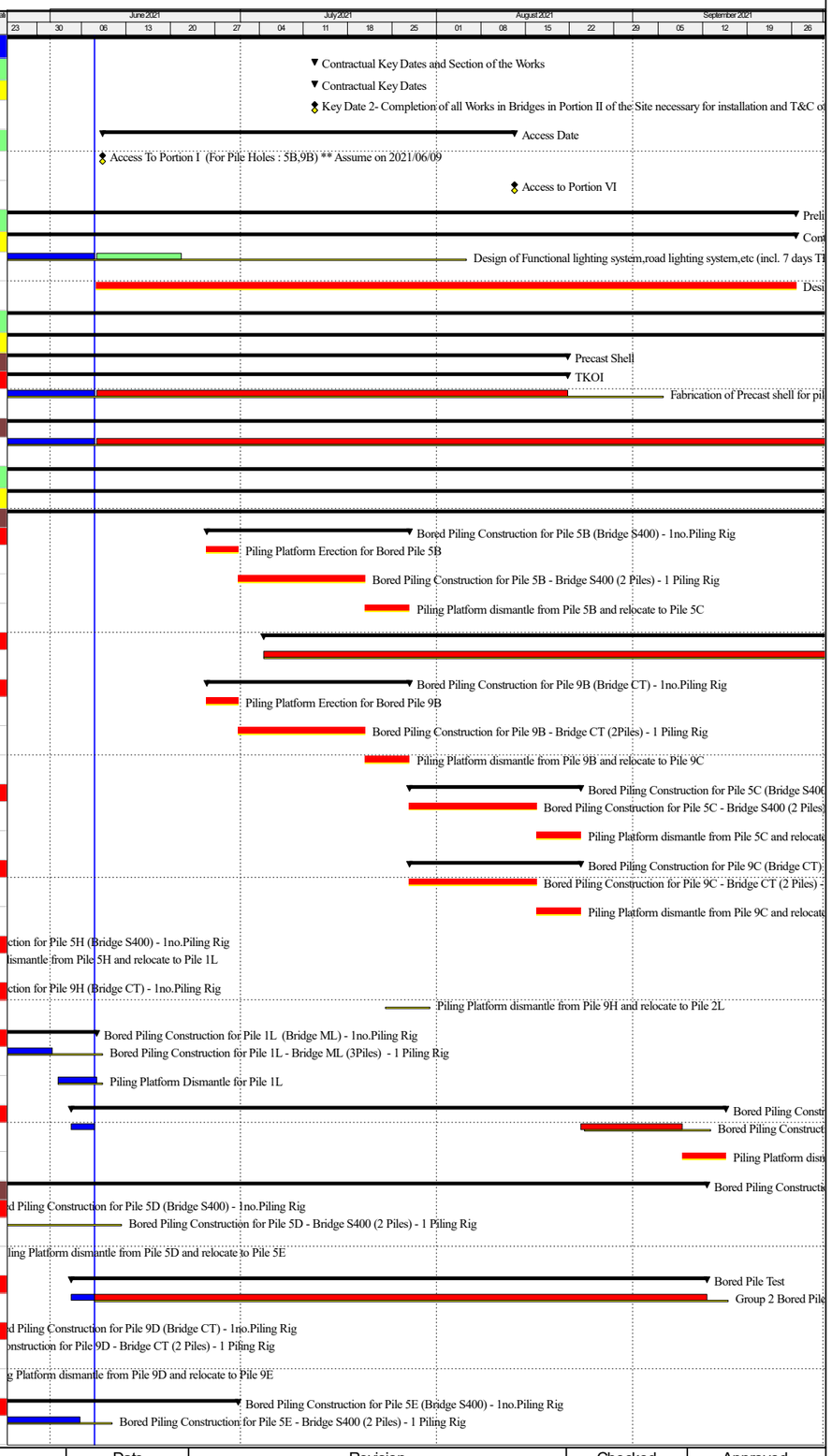
3-Month Rolling Construction Programme

Contract 1

Data Date :08-Jun-21
Sheet 1of 5

Contract No. NE/2017/07 Cross Bay Link, Tseng Kwan O - Main Bridge and Associated Works

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Planned Start	Finish	Planned Finish	Total Float	Activity % Complete	TRA	Variance - Finish Date
Cross Bay Link,Tseung Kwan O Main Bridge and Associated Works		490	200	24-Apr-20 A	07-Sep-20	24-Dec-21	09-Jan-22	560			16
Contractual Key Dates and Section of the Works		0	0	12-Jul-21	12-Jul-21	12-Jul-21	12-Jul-21	0			0
Contractual Key Dates		0	0	12-Jul-21	12-Jul-21	12-Jul-21	12-Jul-21	0			0
KDS1240	Key Date 2- Completion of all Works in Bridges in Portion II of the Site necessary for installation and T&C of the TCSS	0	0			12-Jul-21*	12-Jul-21	0	0%	0	0
Access Date		65	65	09-Jun-21	09-Jun-21	13-Aug-21	13-Aug-21	0			0
PAD1030	Access To Portion I (For Pile Holes : 5B,9B) ** Assume on 2021/06/09	0	0	09-Jun-21*	09-Jun-21			-145	0%		0
PAD1110	Access to Portion VI	0	0	13-Aug-21*	13-Aug-21			0	0%	0	0
Preliminaries, Contractor's Design & Method Statement Submission & Approval		149	111	24-Apr-20 A	01-May-21	26-Sep-21	26-Sep-21	-11			0
Contractor's Design Submission and Approval		149	111	24-Apr-20 A	01-May-21	26-Sep-21	26-Sep-21	-11			0
CDS1140	Design of Functional lighting system,road lighting system,etc (incl. 7 days TRA)	97	14	24-Apr-20 A	01-May-21	21-Jun-21	05-Aug-21	86	85.57%	7	45
CDS1230	Design of cycle rack (incl. 14 days TRA)	111	111	08-Jun-21	08-Jun-21	26-Sep-21	26-Sep-21	-58	0%	14	0
Precasting & Fabrication Works		366	200	09-Dec-20 A	09-Jan-21	24-Dec-21	09-Jan-22	-55			16
Fabrication of Precast Shell and Precast Segments		366	200	09-Dec-20 A	09-Jan-21	24-Dec-21	09-Jan-22	-55			16
Precast Shell		240	75	09-Dec-20 A	09-Jan-21	21-Aug-21	05-Sep-21	-69			15
TKOI		240	75	09-Dec-20 A	09-Jan-21	21-Aug-21	05-Sep-21	-69			15
P-PS3145	Fabrication of Precast shell for pile cap of TKO entrustment work (total 17nos)	240	75	09-Dec-20 A	09-Jan-21	21-Aug-21	05-Sep-21	-69	68.75%	21	15
Precast Segments (TKOI Entrustment Works)		276	200	05-Jan-21 A	09-Apr-21	24-Dec-21	09-Jan-22	-55			16
P-PF1180	Fabrication and Pre-stressing of Precast segments for TKOI Viaduct (total 326nos) (incl. 21 days TRA)	276	200	05-Jan-21 A	09-Apr-21	24-Dec-21	09-Jan-22	-55	27.54%	0	16
Section 1 of the Works- All Works within Portion I of the Site (Entrusted Works of TKOI Viaduct)		174	127	28-Apr-21 A	22-Apr-21	12-Oct-21	12-Oct-21	-106			0
Bored Piling Works		174	127	28-Apr-21 A	22-Apr-21	12-Oct-21	12-Oct-21	-108			0
Bored Piling Construction Group 1 - 2 Nos. Bored Piling Rig		161	109	05-May-21 A	05-May-21	12-Oct-21	12-Oct-21	-108			0
Bored Piling Construction for Pile 5B (Bridge S400) - 1no.Piling Rig		32	32	25-Jun-21	25-Jun-21	27-Jul-21	27-Jul-21	-145			0
S1-BP-10010	Piling Platform Erection for Bored Pile 5B	5	5	25-Jun-21	25-Jun-21	30-Jun-21	30-Jun-21	-145	0%		0
S1-BP-10020	Bored Piling Construction for Pile 5B - Bridge S400 (2 Piles) - 1 Piling Rig	20	20	30-Jun-21	30-Jun-21	20-Jul-21	20-Jul-21	-145	0%		0
S1-BP-10030	Piling Platform dismantle from Pile 5B and relocate to Pile 5C	7	7	20-Jul-21	20-Jul-21	27-Jul-21	27-Jul-21	-145	0%		0
Bored Pile Test		100	100	04-Jul-21	04-Jul-21	12-Oct-21	12-Oct-21	-116			0
S1-BP-10210	Group 1 Bored Pile Test and Dismantle All Platform	100	100	04-Jul-21	04-Jul-21	12-Oct-21	12-Oct-21	-116	0%		0
Bored Piling Construction for Pile 9B (Bridge CT) - 1no.Piling Rig		32	32	25-Jun-21	25-Jun-21	27-Jul-21	27-Jul-21	-145			0
S1-BP-10040	Piling Platform Erection for Bored Pile 9B	5	5	25-Jun-21	25-Jun-21	30-Jun-21	30-Jun-21	-145	0%		0
S1-BP-10050	Bored Piling Construction for Pile 9B - Bridge CT (2Piles) - 1 Piling Rig	20	20	30-Jun-21	30-Jun-21	20-Jul-21	20-Jul-21	-145	0%		0
S1-BP-10060	Piling Platform dismantle from Pile 9B and relocate to Pile 9C	7	7	20-Jul-21	20-Jul-21	27-Jul-21	27-Jul-21	-145	0%		0
Bored Piling Construction for Pile 5C (Bridge S400) - 1no.Piling Rig		27	27	27-Jul-21	27-Jul-21	23-Aug-21	23-Aug-21	-145			0
S1-BP-10070	Bored Piling Construction for Pile 5C - Bridge S400 (2 Piles) - 1 Piling Rig	20	20	27-Jul-21	27-Jul-21	16-Aug-21	16-Aug-21	-145	0%		0
S1-BP-10080	Piling Platform dismantle from Pile 5C and relocate to Pile 5H	7	7	16-Aug-21	16-Aug-21	23-Aug-21	23-Aug-21	-145	0%		0
Bored Piling Construction for Pile 9C (Bridge CT) - 1no.Piling Rig		27	27	27-Jul-21	27-Jul-21	23-Aug-21	23-Aug-21	-145			0
S1-BP-10090	Bored Piling Construction for Pile 9C - Bridge CT (2 Piles) - 1 Piling Rig	20	20	27-Jul-21	27-Jul-21	16-Aug-21	16-Aug-21	-145	0%		0
S1-BP-10100	Piling Platform dismantle from Pile 9C and relocate to Pile 9H	7	7	16-Aug-21	16-Aug-21	23-Aug-21	23-Aug-21	-145	0%		0
Bored Piling Construction for Pile 5H (Bridge S400) - 1no.Piling Rig		7	0	05-May-21 A	05-May-21	08-May-21 A	12-May-21				3
S1-BP-10120	Piling Platform dismantle from Pile 5H and relocate to Pile 1L	7	0	05-May-21 A	05-May-21	08-May-21 A	12-May-21		100%		3
Bored Piling Construction for Pile 9H (Bridge CT) - 1no.Piling Rig		7	0	05-May-21 A	24-Jul-21	08-May-21 A	31-Jul-21				83
S1-BP-10140	Piling Platform dismantle from Pile 9H and relocate to Pile 2L	7	0	05-May-21 A	24-Jul-21	08-May-21 A	31-Jul-21		100%		83
Bored Piling Construction for Pile 1L (Bridge ML) - 1no.Piling Rig		30	0	10-May-21 A	10-May-21	08-Jun-21 A	09-Jun-21				1
S1-BP-10150	Bored Piling Construction for Pile 1L - Bridge ML (3Piles) - 1 Piling Rig	30	0	10-May-21 A	10-May-21	01-Jun-21 A	09-Jun-21		100%		8
S1-BP-10160	Piling Platform Dismantle for Pile 1L	7	0	02-Jun-21 A	02-Jun-21	08-Jun-21 A	09-Jun-21		100%		1
Bored Piling Construction for Pile 2L (Bridge S200) - 1no.Piling Rig		22	23	04-Jun-21 A	24-Aug-21	15-Sep-21	15-Sep-21	-116			0
S1-BP-10170	Bored Piling Construction for Pile 2L - Bridge S200 (2Piles) - 1 Machine	20	16	04-Jun-21 A	24-Aug-21	08-Sep-21	13-Sep-21	-116	20%		5
S1-BP-10180	Piling Platform dismantle from 2L and relocate to 2K (2Piles)	7	7	08-Sep-21	08-Sep-21	15-Sep-21	15-Sep-21	-116	0%		0
Bored Piling Construction Group 2 - 2 Nos. Bored Piling Rig		147	97	28-Apr-21 A	22-Apr-21	12-Sep-21	16-Sep-21	-92			3
Bored Piling Construction for Pile 5D (Bridge S400) - 1no.Piling Rig		27	0	28-Apr-21 A	15-May-21	20-May-21 A	12-Jun-21				22
S1-BP-10230	Bored Piling Construction for Pile 5D - Bridge S400 (2 Piles) - 1 Piling Rig	20	0	28-Apr-21 A	23-May-21	14-May-21 A	12-Jun-21		100%		28
S1-BP-10240	Piling Platform dismantle from Pile 5D and relocate to Pile 5E	7	0	15-May-21 A	15-May-21	20-May-21 A	22-May-21		100%		2
Bored Pile Test		100	97	04-Jun-21 A	08-Jun-21	12-Sep-21	16-Sep-21	-100			3
S1-BP-10400	Group 2 Bored Pile Test and Dismantle All Platform	100	97	04-Jun-21 A	08-Jun-21	12-Sep-21	16-Sep-21	-100	3.25%		3
Bored Piling Construction for Pile 9D (Bridge CT) - 1no.Piling Rig		29	0	28-Apr-21 A	22-Apr-21	20-May-21 A	20-May-21				0
S1-BP-10260	Bored Piling Construction for Pile 9D - Bridge CT (2 Piles) - 1 Piling Rig	20	0	28-Apr-21 A	22-Apr-21	12-May-21 A	12-May-21		100%		-1
S1-BP-10270	Piling Platform dismantle from Pile 9D and relocate to Pile 9E	7	0	13-May-21 A	13-May-21	20-May-21 A	20-May-21		100%		0
Bored Piling Construction for Pile 5E (Bridge S400) - 1no.Piling Rig		24	5	21-May-21 A	21-May-21	30-Jun-21	14-Jun-21	-86			-16
S1-BP-10280	Bored Piling Construction for Pile 5E - Bridge S400 (2 Piles) - 1 Piling Rig	20	0	21-May-21 A	21-May-21	05-Jun-21 A	10-Jun-21		100%		5



Remaining Level of Effort
Primary Baseline
Actual Work
Remaining Work
Critical Remaining Work
Baseline Milestone
Milestone
Summary

CRBC
Three Month Rolling Programme

Date	Revision	Checked	Approved
08-Jun-21	Monthly updated on 08 June 2021		

Data Date :08-Jun-21
Sheet 2of 5

Contract No. NE/2017/07 Cross Bay Link, Tseng Kwan O - Main Bridge and Associated Works

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Planned Start	Finish	Planned Finish	Total Float	Activity % Complete	TRA	Variance - Finish Date
S1-BP-10290	Piling Platform dismantle from Pile 5E and relocate to Pile 5F	7	5	07-Jun-21 A	07-Jun-21	30-Jun-21	14-Jun-21	-86	28.57%		-16
Bored Piling Construction for Pile 9E (Bridge CT) - 1no.Piling Rig		45	4	21-May-21 A	21-May-21	29-Jun-21	05-Jul-21	-85			6
S1-BP-10300	Bored Piling Construction for Pile 9E - Bridge S400 (2 Piles) - 1 Piling Rig	20	0	21-May-21 A	21-May-21	04-Jun-21 A	10-Jun-21		100%		5
S1-BP-10310	Piling Platform dismantle from Pile 9E and relocate to Pile 9F	7	4	05-Jun-21 A	28-Jun-21	29-Jun-21	05-Jul-21	-85	42.86%		6
Bored Piling Construction for Pile 5G (Bridge S400) - 1no.Piling Rig		27	27	30-Jun-21	30-Jun-21	27-Jul-21	27-Jul-21	-45			0
S1-BP-10360	Bored Piling Construction for Pile 5G - Bridge S400 (2 Piles) - 1 Piling Rig	20	20	30-Jun-21	30-Jun-21	20-Jul-21	20-Jul-21	-45	0%		0
S1-BP-10370	Piling Platform dismantle from 5G	7	7	20-Jul-21	20-Jul-21	27-Jul-21	27-Jul-21	-45	0%		0
Bored Piling Construction for Pile 9G (Bridge CT) - 1no.Piling Rig		27	27	29-Jun-21	29-Jun-21	26-Jul-21	26-Jul-21	-58			0
S1-BP-10380	Bored Piling Construction for Pile 9G - Bridge CT (2 Piles) - 1 Piling Rig	20	20	29-Jun-21	29-Jun-21	19-Jul-21	19-Jul-21	-58	0%		0
S1-BP-10390	Piling Platform dismantle from 9G	7	7	19-Jul-21	19-Jul-21	26-Jul-21	26-Jul-21	-58	0%		0
Pile Cap Construction		84	84	30-Jun-21	30-Jun-21	22-Sep-21	22-Sep-21	-88			0
Pile Cap Construction Group 1 - 2 Construction Teams		28	28	23-Aug-21	23-Aug-21	20-Sep-21	20-Sep-21	-133			0
Pile Cap Construction for Pile Cap 5B (Bridge S400) - 1 Construction Team		28	28	23-Aug-21	23-Aug-21	20-Sep-21	20-Sep-21	-145			0
S1-PC-10010	Precast Shell Preparation Work For Pile Cap 5B (1 Pile Cap) - 1 Construction Team	14	14	23-Aug-21	23-Aug-21	06-Sep-21	06-Sep-21	-145	0%		0
S1-PC-10020	Precast Shell Installation and Pile Head Trimming for Pile Cap 5B (1 Pile Cap) - 1 Construction Team	14	14	06-Sep-21	06-Sep-21	20-Sep-21	20-Sep-21	-145	0%		0
Pile Cap Construction for Pile Cap 9B (Bridge CT) - 1 Construction Team		28	28	23-Aug-21	23-Aug-21	20-Sep-21	20-Sep-21	-145			0
S1-PC-10040	Precast Shell Preparation Work For Pile Cap 9B (1 Pile Cap) - 1 Construction Team	14	14	23-Aug-21	23-Aug-21	06-Sep-21	06-Sep-21	-145	0%		0
S1-PC-10050	Precast Shell Installation and Pile Head Trimming For Pile Cap 9B (1 Pile Cap) - 1 Construction Team	14	14	06-Sep-21	06-Sep-21	20-Sep-21	20-Sep-21	-145	0%		0
Pile Cap Construction for Pile Cap 5C (Bridge S400) - 1 Construction Team		14	14	06-Sep-21	06-Sep-21	20-Sep-21	20-Sep-21	-133			0
S1-PC-10070	Precast Shell Preparation Work For Pile Cap 5C (1 Pile Cap) - 1 Construction Team	14	14	06-Sep-21	06-Sep-21	20-Sep-21	20-Sep-21	-133	0%		0
Pile Cap Construction for Pile Cap 9C (Bridge CT) - 1 Construction Team		14	14	06-Sep-21	06-Sep-21	20-Sep-21	20-Sep-21	-133			0
S1-PC-10100	Precast Shell Preparation Work For Pile Cap 9C (1 Pile Cap) - 1 Construction Team	14	14	06-Sep-21	06-Sep-21	20-Sep-21	20-Sep-21	-133	0%		0
Pile Cap Construction Group 2 - 2 Construction Teams		84	84	30-Jun-21	30-Jun-21	22-Sep-21	22-Sep-21	-88			0
Pile Cap Construction for Pile Cap 5D (Bridge S400) - 1 Construction Team		35	35	30-Jun-21	30-Jun-21	04-Aug-21	04-Aug-21	-86			0
S1-PC-10310	Precast Shell Preparation Work For Pile Cap 5D (1 Pile Cap) - 1 Construction Team	14	14	30-Jun-21	30-Jun-21	14-Jul-21	14-Jul-21	-86	0%		0
S1-PC-10320	Precast Shell Installation and Pile Head Trimming For Pile Cap 5D (1 Pile Cap) - 1 Construction Team	14	14	14-Jul-21	14-Jul-21	28-Jul-21	28-Jul-21	-86	0%		0
S1-PC-10330	Rebar Fixing and Pile Cap Concreting For Pile Cap 5D (1 Pile Cap) - 1 Construction Team	7	7	28-Jul-21	28-Jul-21	04-Aug-21	04-Aug-21	-86	0%		0
Pile Cap Construction for Pile Cap 9D (Bridge CT) - 1 Construction Team		35	35	30-Jun-21	30-Jun-21	04-Aug-21	04-Aug-21	-86			0
S1-PC-10340	Precast Shell Preparation Work For Pile Cap 9D (1 Pile Cap) - 1 Construction Team	14	14	30-Jun-21	30-Jun-21	14-Jul-21	14-Jul-21	-86	0%		0
S1-PC-10350	Precast Shell Installation and Pile Head Trimming For Pile Cap 9D (1 Pile Cap) - 1 Construction Team	14	14	14-Jul-21	14-Jul-21	28-Jul-21	28-Jul-21	-86	0%		0
S1-PC-10360	Rebar Fixing and Pile Cap Concreting For Pile Cap 9D (1 Pile Cap) - 1 Construction Team	7	7	28-Jul-21	28-Jul-21	04-Aug-21	04-Aug-21	-86	0%		0
Pile Cap Construction for Pile Cap 5E (Bridge S400) - 1 Construction Team		35	35	14-Jul-21	14-Jul-21	18-Aug-21	18-Aug-21	-79			0
S1-PC-10370	Precast Shell Preparation Work For Pile Cap 5E (1 Pile Cap) - 1 Construction Team	14	14	14-Jul-21	14-Jul-21	28-Jul-21	28-Jul-21	-79	0%		0
S1-PC-10380	Precast Shell Installation and Pile Head Trimming For Pile Cap 5E (1 Pile Cap) - 1 Construction Team	14	14	28-Jul-21	28-Jul-21	11-Aug-21	11-Aug-21	-79	0%		0
S1-PC-10390	Rebar Fixing and Pile Cap Concreting For Pile Cap 5E (1 Pile Cap) - 1 Construction Team	7	7	11-Aug-21	11-Aug-21	18-Aug-21	18-Aug-21	-79	0%		0
Pile Cap Construction for Pile Cap 9E (Bridge CT) - 1 Construction Team		35	35	14-Jul-21	14-Jul-21	18-Aug-21	18-Aug-21	-79			0
S1-PC-10400	Precast Shell Preparation Work For Pile Cap 9E (1 Pile Cap) - 1 Construction Team	14	14	14-Jul-21	14-Jul-21	28-Jul-21	28-Jul-21	-79	0%		0
S1-PC-10410	Precast Shell Installation and Pile Head Trimming For Pile Cap 9E (1 Pile Cap) - 1 Construction Team	14	14	28-Jul-21	28-Jul-21	11-Aug-21	11-Aug-21	-79	0%		0
S1-PC-10420	Rebar Fixing and Pile Cap Concreting For Pile Cap 9E (1 Pile Cap) - 1 Construction Team	7	7	11-Aug-21	11-Aug-21	18-Aug-21	18-Aug-21	-79	0%		0
Pile Cap Construction for Pile Cap 5G (Bridge S400) - 1 Construction Team		28	28	25-Aug-21	25-Aug-21	22-Sep-21	22-Sep-21	-88			0
S1-PC-10430	Precast Shell Preparation Work For Pile Cap 5G (1 Pile Cap) - 1 Construction Team	14	14	25-Aug-21	25-Aug-21	08-Sep-21	08-Sep-21	-88	0%		0
S1-PC-10440	Precast Shell Installation and Pile Head Trimming For Pile Cap 5G (1 Pile Cap) - 1 Construction Team	14	14	08-Sep-21	08-Sep-21	22-Sep-21	22-Sep-21	-88	0%		0
Pile Cap Construction for Pile Cap 9G (Bridge CT) - 1 Construction Team		28	28	25-Aug-21	25-Aug-21	22-Sep-21	22-Sep-21	-88			0
S1-PC-10460	Precast Shell Preparation Work For Pile Cap 9G (1 Pile Cap) - 1 Construction Team	14	14	25-Aug-21	25-Aug-21	08-Sep-21	08-Sep-21	-88	0%		0
S1-PC-10470	Precast Shell Installation and Pile Head Trimming For Pile Cap 9G (1 Pile Cap) - 1 Construction Team	14	14	08-Sep-21	08-Sep-21	22-Sep-21	22-Sep-21	-88	0%		0
Pier Construction		49	49	04-Aug-21	04-Aug-21	22-Sep-21	22-Sep-21	-86			0
Pier Construction Group 2 - 2 Construction Teams		49	49	04-Aug-21	04-Aug-21	22-Sep-21	22-Sep-21	-86			0
Pier Construction for Pier 5D (8.936m) (Bridge S400) - 1 Construction Team		21	21	04-Aug-21	04-Aug-21	25-Aug-21	25-Aug-21	-86			0
S1-PP-10210	Section 1 Pier 5D (2.936m)- Bridge S400 - 1 Construction Team	9	9	04-Aug-21	04-Aug-21	13-Aug-21	13-Aug-21	-86	0%		0
S1-PP-10220	Section 2 Pier 5D (3.5m)- Bridge S400 - 1 Construction Team	12	12	13-Aug-21	13-Aug-21	25-Aug-21	25-Aug-21	-86	0%		0
Pier Construction for Pier 9D (10.338m) (Bridge CT) - 1 Construction Team		21	21	04-Aug-21	04-Aug-21	25-Aug-21	25-Aug-21	-86			0
S1-PP-10230	Section 1 Pier 9D (4.5m)- Bridge CT - 1 Construction Team	9	9	04-Aug-21	04-Aug-21	13-Aug-21	13-Aug-21	-86	0%		0
S1-PP-10240	Section 2 Pier 9D (3.5m)- Bridge CT - 1 Construction Team	12	12	13-Aug-21	13-Aug-21	25-Aug-21	25-Aug-21	-86	0%		0
Pier Construction for Pier 5E (10.536m) (Bridge S400) - 1 Construction Team		28	28	25-Aug-21	25-Aug-21	22-Sep-21	22-Sep-21	-86			0
S1-PP-10250	Section 1 Pier 5E (6m)- Bridge S400 - 1 Construction Team	9	9	25-Aug-21	25-Aug-21	03-Sep-21	03-Sep-21	-86	0%		0
S1-PP-10260	Section 2 Pier 5E (1.036m)- Bridge S400 - 1 Construction Team	7	7	03-Sep-21	03-Sep-21	10-Sep-21	10-Sep-21	-86	0%		0

Remaining Level of Effort
Primary Baseline
Actual Work
Remaining Work
Critical Remaining Work
Baseline Milestone
Milestone
Summary

CRBC
Three Month Rolling Programme

Date	Revision	Checked	Approved
08-Jun-21	Monthly updated on 08 June 2021		

Data Date :08-Jun-21
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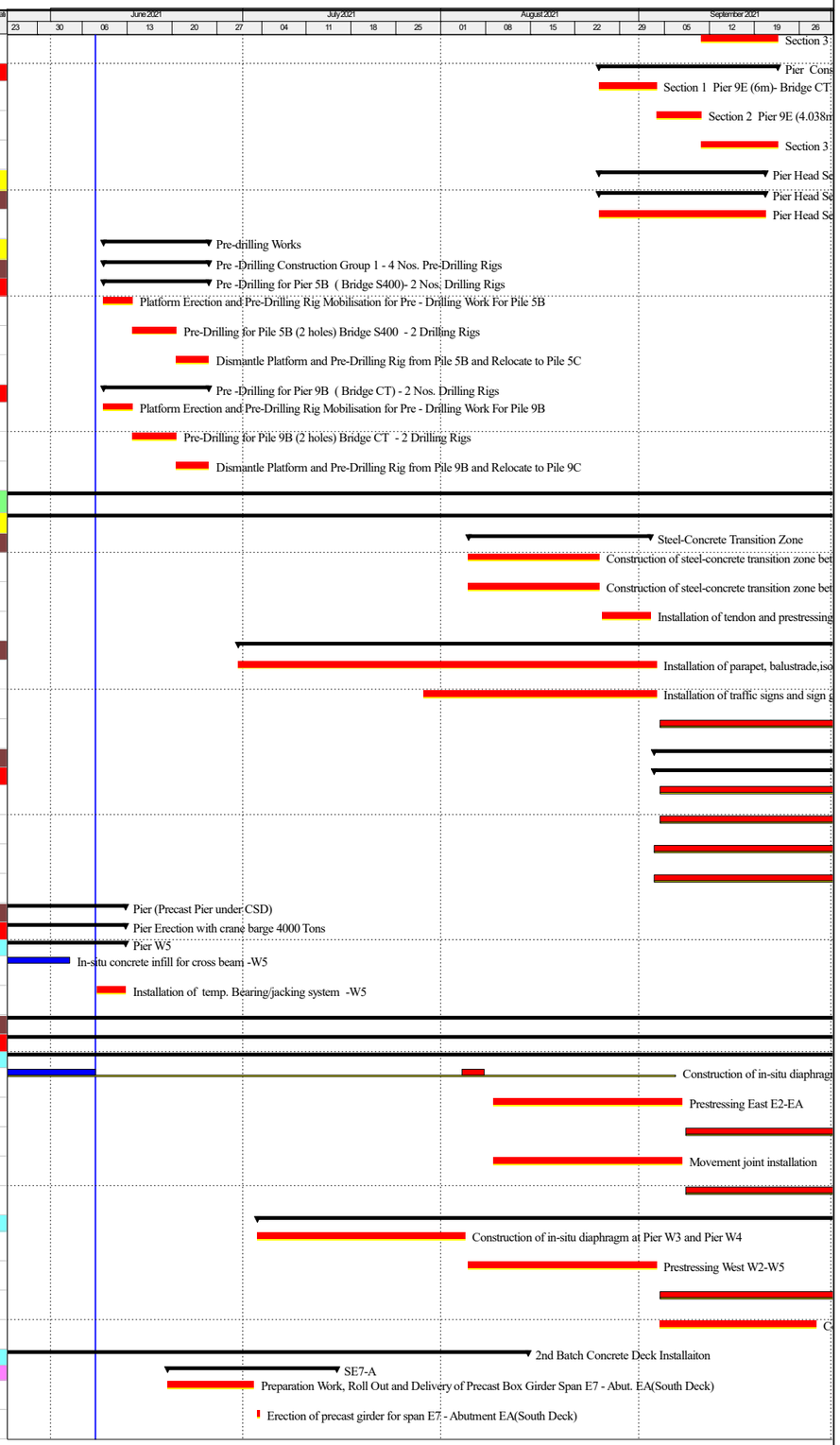
Contract No. NE/2017/07 Cross Bay Link, Tseng Kwan O - Main Bridge and Associated Works

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Planned Start	Finish	Planned Finish	Total Float	Activity % Complete	TRA	Variance - Finish Date
S1-PP-10270	Section 3 Pier 5E (3.5m)- Bridge S400 - 1 Construction Team	12	12	10-Sep-21	10-Sep-21	22-Sep-21	22-Sep-21	-86	0%		0
Pier Construction for Pier 9E (13.538m) (Bridge CT) - 1 Construction Team		28	28	25-Aug-21	25-Aug-21	22-Sep-21	22-Sep-21	-86			0
S1-PP-10280	Section 1 Pier 9E (6m)- Bridge CT - 1 Construction Team	9	9	25-Aug-21	25-Aug-21	03-Sep-21	03-Sep-21	-86	0%		0
S1-PP-10290	Section 2 Pier 9E (4.038m)- Bridge CT - 1 Construction Team	7	7	03-Sep-21	03-Sep-21	10-Sep-21	10-Sep-21	-86	0%		0
S1-PP-10300	Section 3 Pier 9E (3.5m)- Bridge CT - 1 Construction Team	12	12	10-Sep-21	10-Sep-21	22-Sep-21	22-Sep-21	-86	0%		0
Pier Head Segment Diaphragm Construction		26	26	25-Aug-21	25-Aug-21	20-Sep-21	20-Sep-21	-84			0
Pier Head Segment Diaphragn Construction Group 2 - 2 Construction Teams		26	26	25-Aug-21	25-Aug-21	20-Sep-21	20-Sep-21	-84			0
S1-PH-10070	Pier Head Segment Diaphragm for Pier 5D, 9D(2 Diaphragms) - 2 Construction Teams	26	26	25-Aug-21	25-Aug-21	20-Sep-21	20-Sep-21	-84	0%		0
Pre-drilling Works		16	16	09-Jun-21	09-Jun-21	25-Jun-21	25-Jun-21	-145			0
Pre -Drilling Construction Group 1 - 4 Nos. Pre-Drilling Rigs		16	16	09-Jun-21	09-Jun-21	25-Jun-21	25-Jun-21	-145			0
Pre -Drilling for Pier 5B (Bridge S400)- 2 Nos. Drilling Rigs		16	16	09-Jun-21	09-Jun-21	25-Jun-21	25-Jun-21	-145			0
S1-PD-10010	Platform Erection and Pre-Drilling Rig Mobilisation for Pre - Drilling Work For Pile 5B	4	4	09-Jun-21	09-Jun-21	13-Jun-21	13-Jun-21	-145	0%		0
S1-PD-10020	Pre-Drilling for Pile 5B (2 holes) Bridge S400 - 2 Drilling Rigs	7	7	13-Jun-21	13-Jun-21	20-Jun-21	20-Jun-21	-145	0%		0
S1-PD-10030	Dismantle Platform and Pre-Drilling Rig from Pile 5B and Relocate to Pile 5C	5	5	20-Jun-21	20-Jun-21	25-Jun-21	25-Jun-21	-145	0%		0
Pre -Drilling for Pier 9B (Bridge CT) - 2 Nos. Drilling Rigs		16	16	09-Jun-21	09-Jun-21	25-Jun-21	25-Jun-21	-145			0
S1-PD-10040	Platform Erection and Pre-Drilling Rig Mobilisation for Pre - Drilling Work For Pile 9B	4	4	09-Jun-21	09-Jun-21	13-Jun-21	13-Jun-21	-145	0%		0
S1-PD-10050	Pre-Drilling for Pile 9B (2 holes) Bridge CT - 2 Drilling Rigs	7	7	13-Jun-21	13-Jun-21	20-Jun-21	20-Jun-21	-145	0%		0
S1-PD-10060	Dismantle Platform and Pre-Drilling Rig from Pile 9B and Relocate to Pile 9C	5	5	20-Jun-21	20-Jun-21	25-Jun-21	25-Jun-21	-145	0%		0
Section 2 of Works-All Works within Portion II,III,IV and VI		373	162	03-Sep-20 A	09-Nov-20	16-Nov-21	16-Nov-21	598			0
CBL Main Bridge and Marine Viaduct		373	162	03-Sep-20 A	09-Nov-20	16-Nov-21	16-Nov-21	598			0
Steel-Concrete Transition Zone		25	25	05-Aug-21	05-Aug-21	02-Sep-21	02-Sep-21	-73			0
S2-SC2000	Construction of steel-concrete transition zone between west side span steel deck and concrete deck	18	18	05-Aug-21	05-Aug-21	25-Aug-21	25-Aug-21	-78	0%	0	0
S2-SC2020	Construction of steel-concrete transition zone between east side span steel deck and concrete deck	18	18	05-Aug-21	05-Aug-21	25-Aug-21	25-Aug-21	-73	0%	0	0
S2-SC2040	Installation of tendon and prestressing at transition zone	7	7	26-Aug-21	26-Aug-21	02-Sep-21	02-Sep-21	-73	0%	0	0
Street Furniture, Parapet and Sign Gantry		88	88	30-Jun-21	30-Jun-21	13-Oct-21	13-Oct-21	-78			0
S2-SF2000	Installation of parapet, balustrade,isolation panels and weatherproof pillar box	56	56	30-Jun-21	30-Jun-21	03-Sep-21	03-Sep-21	-78	0%	0	0
S2-SF2020	Installation of traffic signs and sign gantry for TCSS	32	32	29-Jul-21	29-Jul-21	03-Sep-21	03-Sep-21	-78	0%	0	0
S2-SF2030	Remaining civil provision works for TCSS	32	32	04-Sep-21	04-Sep-21	13-Oct-21	13-Oct-21	-78	0%	0	0
Assocaited, E&M Works for CBL Main Bridge and Marine Viaduct		61	61	03-Sep-21	03-Sep-21	16-Nov-21	16-Nov-21	-65			0
Assocaited, E&M Installation and T&C		61	61	03-Sep-21	03-Sep-21	16-Nov-21	16-Nov-21	-65			0
S2-AW2020	Installation of under bridge mobile gantry	60	60	04-Sep-21	04-Sep-21	16-Nov-21	16-Nov-21	-65	0%	0	0
S2-AW2040	Installation of arch inspection cradle	60	60	04-Sep-21	04-Sep-21	16-Nov-21	16-Nov-21	-65	0%	0	0
S2-AW2190	Installation of SHMS	48	48	03-Sep-21	03-Sep-21	01-Nov-21	01-Nov-21	-73	0%	0	0
S2-AW2195	Installation of Fireman	48	48	03-Sep-21	03-Sep-21	01-Nov-21	01-Nov-21	-73	0%	0	0
Pier (Precast Pier under CSD)		54	5	16-Mar-21 A	09-Apr-21	12-Jun-21	12-Jun-21	-58			0
Pier Erection with crane barge 4000 Tons		54	5	16-Mar-21 A	09-Apr-21	12-Jun-21	12-Jun-21	-58			0
Pier W5		54	5	16-Mar-21 A	09-Apr-21	12-Jun-21	12-Jun-21	-58			0
S2-PR3330	In-situ concrete infill for cross beam -W5	10	0	16-Mar-21 A	09-Apr-21	04-Jun-21 A	20-Apr-21		100%	0	-36
S2-PR3340	Installation of temp. Bearing/jacking system -W5	5	5	08-Jun-21	08-Jun-21	12-Jun-21	12-Jun-21	-58	0%	0	0
Concrete Bridge Decks		273	103	03-Sep-20 A	09-Nov-20	09-Oct-21	09-Oct-21	514			0
Delivery and Erection of Precast Girder for Marine Viaduct		187	103	20-Oct-20 A	24-Feb-21	09-Oct-21	09-Oct-21	514			0
Remaining Works of East Side of Precast Girder		187	56	20-Oct-20 A	24-Feb-21	09-Oct-21	09-Oct-21	-34			0
S2-CB2950	Construction of in-situ diaphragm at Pier E3 ,Pier E4,Pier E5,Pier E6	160	4	20-Oct-20 A	24-Feb-21	07-Aug-21	06-Sep-21	-34	97.5%	0	25
S2-CB2960	Prestressing East E2-EA	26	26	09-Aug-21	09-Aug-21	07-Sep-21	07-Sep-21	-34	0%	0	0
S2-CB2965	Installation of Permanent Bearing and fine-tuning East EA to E2	26	26	08-Sep-21	08-Sep-21	09-Oct-21	09-Oct-21	-34	0%	0	0
S2-CB2970	Movement joint installation	26	26	09-Aug-21	09-Aug-21	07-Sep-21	07-Sep-21	-23	0%	0	0
S2-CB2980	Construction of longitudinal stitch East	20	20	08-Sep-21	08-Sep-21	02-Oct-21	02-Oct-21	-34	0%	0	0
Remaining Works of West Side of Precast Girder		80	80	03-Jul-21	03-Jul-21	06-Oct-21	06-Oct-21	-31			0
S2-CB2722	Construction of in-situ diaphragm at Pier W3 and Pier W4	28	28	03-Jul-21	03-Jul-21	04-Aug-21	04-Aug-21	-31	0%	0	0
S2-CB2725	Prestressing West W2-W5	26	26	05-Aug-21	05-Aug-21	03-Sep-21	03-Sep-21	-31	0%	0	0
S2-CB2726	Installation of Permanent Bearing and fine-tuning East E2 to E5	26	26	04-Sep-21	04-Sep-21	06-Oct-21	06-Oct-21	-31	0%	0	0
S2-CB2727	Construction of longitudinal stitch West W2-W5	20	20	04-Sep-21	04-Sep-21	28-Sep-21	28-Sep-21	-31	0%	0	0
2nd Batch Concrete Deck Installaiton		82	57	18-May-21 A	08-May-21	14-Aug-21	14-Aug-21	560			0
SE7-A		22	22	19-Jun-21	19-Jun-21	15-Jul-21	15-Jul-21	-72			0
S2-CB2320	Preparation Work, Roll Out and Delivery of Precast Box Girder Span E7 - Abut. EA(South Deck)	11	11	19-Jun-21	19-Jun-21	02-Jul-21	02-Jul-21	-72	0%	0	0
S2-CB2330	Erection of precast girder for span E7 - Abutment EA(South Deck)	1	1	03-Jul-21	03-Jul-21	03-Jul-21	03-Jul-21	-72	0%	0	0



Remaining Level of Effort
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Baseline Milestone
Milestone
Summary

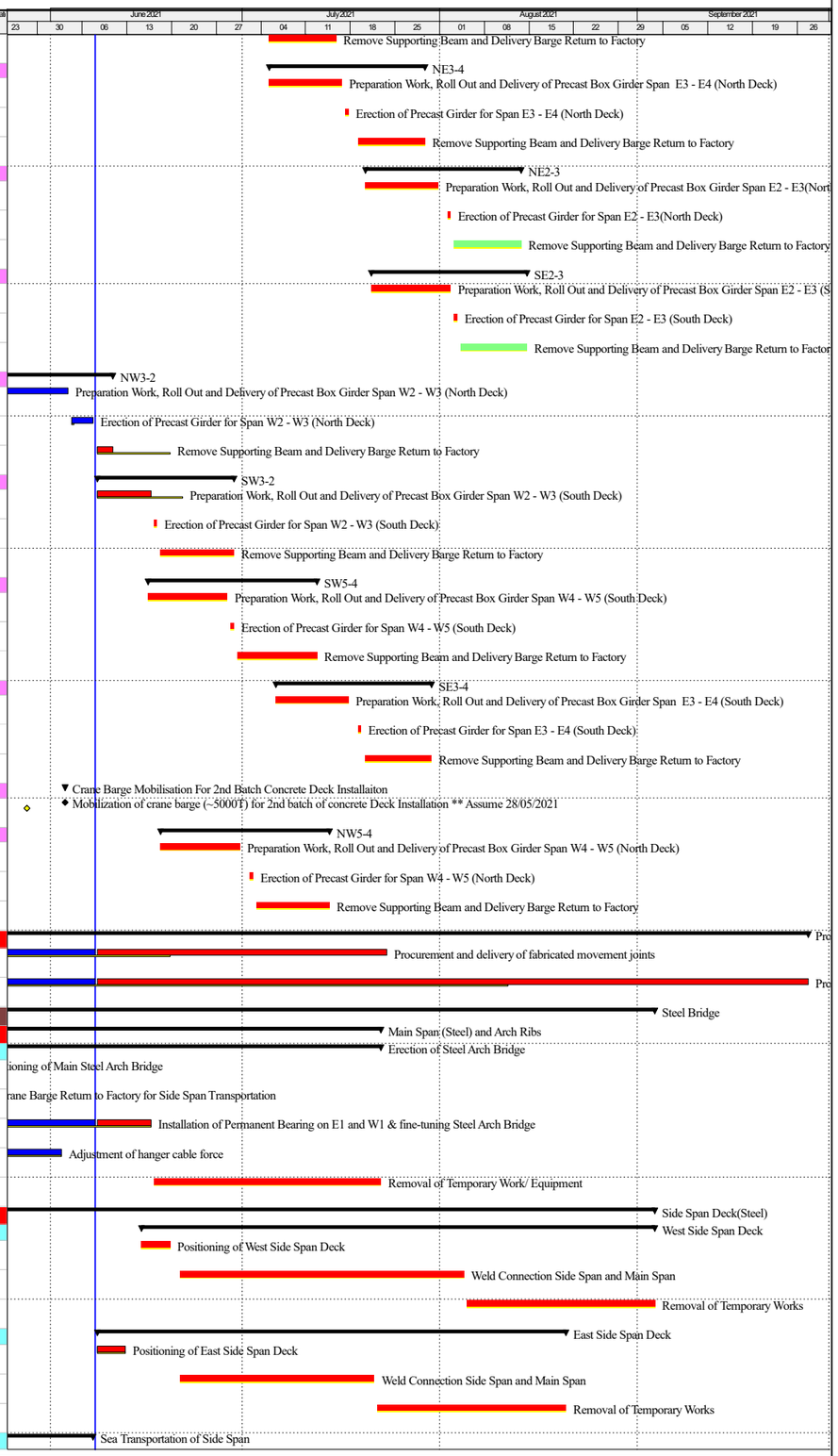
CRBC
Three Month Rolling Programme

Date	Revision	Checked	Approved
08-Jun-21	Monthly updated on 08 June 2021		

Data Date :08-Jun-21
Sheet 4of 5

Contract No. NE/2017/07 Cross Bay Link, Tseng Kwan O - Main Bridge and Associated Works

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Planned Start	Finish	Planned Finish	Total Float	Activity % Complete	TRA	Variance - Finish Date
S2-CB2340	Remove Supporting Beam and Delivery Barge Return to Factory	10	10	05-Jul-21	05-Jul-21	15-Jul-21	15-Jul-21	-72	0%	0	0
NE3-4		22	22	05-Jul-21	05-Jul-21	29-Jul-21	29-Jul-21	-71			0
S2-CB2350	Preparation Work, Roll Out and Delivery of Precast Box Girder Span E3 - E4 (North Deck)	11	11	05-Jul-21	05-Jul-21	16-Jul-21	16-Jul-21	-71	0%	0	0
S2-CB2360	Erection of Precast Girder for Span E3 - E4 (North Deck)	1	1	17-Jul-21	17-Jul-21	17-Jul-21	17-Jul-21	-71	0%	0	0
S2-CB2370	Remove Supporting Beam and Delivery Barge Return to Factory	10	10	19-Jul-21	19-Jul-21	29-Jul-21	29-Jul-21	-71	0%	0	0
NE2-3		22	22	20-Jul-21	20-Jul-21	13-Aug-21	13-Aug-21	561			0
S2-CB2410	Preparation Work, Roll Out and Delivery of Precast Box Girder Span E2 - E3(North Deck)	11	11	20-Jul-21	20-Jul-21	31-Jul-21	31-Jul-21	-71	0%	0	0
S2-CB2420	Erection of Precast Girder for Span E2 - E3(North Deck)	1	1	02-Aug-21	02-Aug-21	02-Aug-21	02-Aug-21	-71	0%	0	0
S2-CB2430	Remove Supporting Beam and Delivery Barge Return to Factory	10	10	03-Aug-21	03-Aug-21	13-Aug-21	13-Aug-21	561	0%	0	0
SE2-3		22	22	21-Jul-21	21-Jul-21	14-Aug-21	14-Aug-21	560			0
S2-CB2440	Preparation Work, Roll Out and Delivery of Precast Box Girder Span E2 - E3 (South Deck)	11	11	21-Jul-21	21-Jul-21	02-Aug-21	02-Aug-21	-72	0%	0	0
S2-CB2450	Erection of Precast Girder for Span E2 - E3 (South Deck)	1	1	03-Aug-21	03-Aug-21	03-Aug-21	03-Aug-21	-72	0%	0	0
S2-CB2460	Remove Supporting Beam and Delivery Barge Return to Factory	10	10	04-Aug-21	04-Aug-21	14-Aug-21	14-Aug-21	560	0%	0	0
NW3-2		35	3	18-May-21 A	08-May-21	10-Jun-21	19-Jun-21	-68			7
S2-CB2470	Preparation Work, Roll Out and Delivery of Precast Box Girder Span W2 - W3 (North Deck)	11	0	18-May-21 A	08-May-21	03-Jun-21 A	21-May-21		100%	0	-11
S2-CB2480	Erection of Precast Girder for Span W2 - W3 (North Deck)	1	0	04-Jun-21 A	04-Jun-21	07-Jun-21 A	04-Jun-21		100%	0	-2
S2-CB2490	Remove Supporting Beam and Delivery Barge Return to Factory	10	3	08-Jun-21 A	08-Jun-21	10-Jun-21	19-Jun-21	-68	70%	0	7
SW3-2		18	18	08-Jun-21 A	08-Jun-21	29-Jun-21	29-Jun-21	-72			0
S2-CB2500	Preparation Work, Roll Out and Delivery of Precast Box Girder Span W2 - W3 (South Deck)	11	7	08-Jun-21 A	08-Jun-21	16-Jun-21	21-Jun-21	-72	36.36%	0	4
S2-CB2510	Erection of Precast Girder for Span W2 - W3 (South Deck)	1	1	17-Jun-21	17-Jun-21	17-Jun-21	17-Jun-21	-72	0%	0	0
S2-CB2520	Remove Supporting Beam and Delivery Barge Return to Factory	10	10	18-Jun-21	18-Jun-21	29-Jun-21	29-Jun-21	-72	0%	0	0
SW5-4		22	22	16-Jun-21	16-Jun-21	12-Jul-21	12-Jul-21	-69			0
S2-CB2530	Preparation Work, Roll Out and Delivery of Precast Box Girder Span W4 - W5 (South Deck)	11	11	16-Jun-21	16-Jun-21	28-Jun-21	28-Jun-21	-71	0%	0	0
S2-CB2540	Erection of Precast Girder for Span W4 - W5 (South Deck)	1	1	29-Jun-21	29-Jun-21	29-Jun-21	29-Jun-21	-70	0%	0	0
S2-CB2550	Remove Supporting Beam and Delivery Barge Return to Factory	10	10	30-Jun-21	30-Jun-21	12-Jul-21	12-Jul-21	-69	0%	0	0
SE3-4		22	22	06-Jul-21	06-Jul-21	30-Jul-21	30-Jul-21	-72			0
S2-CB2380	Preparation Work, Roll Out and Delivery of Precast Box Girder Span E3 - E4 (South Deck)	11	11	06-Jul-21	06-Jul-21	17-Jul-21	17-Jul-21	-72	0%	0	0
S2-CB2390	Erection of Precast Girder for Span E3 - E4 (South Deck)	1	1	19-Jul-21	19-Jul-21	19-Jul-21	19-Jul-21	-72	0%	0	0
S2-CB2400	Remove Supporting Beam and Delivery Barge Return to Factory	10	10	20-Jul-21	20-Jul-21	30-Jul-21	30-Jul-21	-72	0%	0	0
Crane Barge Mobilisation For 2nd Batch Concrete Deck Installaiton		0	0	03-Jun-21 A	28-May-21	03-Jun-21 A	28-May-21				-5
S2-CB3000	Mobilization of crane barge (~5000T) for 2nd batch of concrete Deck Installation ** Assume 28/05/2021	0	0	03-Jun-21 A	28-May-21				100%	0	-5
NW5-4		22	22	18-Jun-21	18-Jun-21	14-Jul-21	14-Jul-21	-71			0
S2-CB2290	Preparation Work, Roll Out and Delivery of Precast Box Girder Span W4 - W5 (North Deck)	11	11	18-Jun-21	18-Jun-21	30-Jun-21	30-Jun-21	-71	0%	0	0
S2-CB2300	Erection of Precast Girder for Span W4 - W5 (North Deck)	1	1	02-Jul-21	02-Jul-21	02-Jul-21	02-Jul-21	-71	0%	0	0
S2-CB2310	Remove Supporting Beam and Delivery Barge Return to Factory	10	10	03-Jul-21	03-Jul-21	14-Jul-21	14-Jul-21	-71	0%	0	0
Procurement and Delivery		224	93	03-Sep-20 A	09-Nov-20	27-Sep-21	11-Aug-21	-49			-39
S2-CB2486	Procurement and delivery of fabricated movement joints	180	38	20-Oct-20 A	09-Nov-20	23-Jul-21	19-Jun-21	-10	78.89%	0	-28
S2-CB2488	Procurement and delivery of bituminous materials	180	93	03-Sep-20 A	02-Jan-21	27-Sep-21	11-Aug-21	-49	48.33%	0	-39
Steel Bridge		119	88	04-May-21 A	08-May-21	03-Sep-21	03-Sep-21	-77			0
Main Span (Steel) and Arch Ribs		62	37	04-May-21 A	08-May-21	22-Jul-21	22-Jul-21	-28			0
Erection of Steel Arch Bridge		62	37	04-May-21 A	08-May-21	22-Jul-21	22-Jul-21	-28			0
S2-MS2060	Positioning of Main Steel Arch Bridge	10	0	04-May-21 A	08-May-21	14-May-21 A	20-May-21		100%	0	4
S2-MS2061	Crane Barge Return to Factory for Side Span Transportation	6	0	15-May-21 A	15-May-21	22-May-21 A	22-May-21		100%	0	0
S2-MS2062	Installation of Permanent Bearing on E1 and W1 & fine-tuning Steel Arch Bridge	26	7	15-May-21 A	15-May-21	16-Jun-21	16-Jun-21	-28	73.08%	0	0
S2-MS2073	Adjustment of hanger cable force	15	0	15-May-21 A	15-May-21	02-Jun-21 A	02-Jun-21		100%	0	0
S2-MS2077	Removal of Temporary Work/ Equipment	30	30	17-Jun-21	17-Jun-21	22-Jul-21	22-Jul-21	-28	0%	0	0
Side Span Deck(Steel)		104	88	23-May-21 A	23-May-21	03-Sep-21	03-Sep-21	-77			0
West Side Span Deck		69	69	15-Jun-21	15-Jun-21	03-Sep-21	03-Sep-21	-65			0
S2-SS2080	Positioning of West Side Span Deck	5	5	15-Jun-21	15-Jun-21	19-Jun-21	19-Jun-21	-78	0%	0	0
S2-SS2100	Weld Connection Side Span and Main Span	38	38	21-Jun-21	21-Jun-21	04-Aug-21	04-Aug-21	-78	0%	0	0
S2-SS2240	Removal of Temporary Works	26	26	05-Aug-21	05-Aug-21	03-Sep-21	03-Sep-21	-65	0%	0	0
East Side Span Deck		62	62	08-Jun-21 A	08-Jun-21	20-Aug-21	20-Aug-21	-53			0
S2-SS2180	Positioning of East Side Span Deck	5	5	08-Jun-21 A	08-Jun-21	12-Jun-21	12-Jun-21	-78	0%	0	0
S2-SS2200	Weld Connection Side Span and Main Span	26	26	21-Jun-21	21-Jun-21	21-Jul-21	21-Jul-21	-61	0%	0	0
S2-SS2220	Removal of Temporary Works	26	26	22-Jul-21	22-Jul-21	20-Aug-21	20-Aug-21	-53	0%	0	0
Sea Transportation of Side Span		16	0	23-May-21 A	23-May-21	07-Jun-21 A	07-Jun-21				0



Remaining Level of Effort
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Three Month Rolling Programme

Date	Revision	Checked	Approved
08-Jun-21	Monthly updated on 08 June 2021		

Data Date :08-Jun-21
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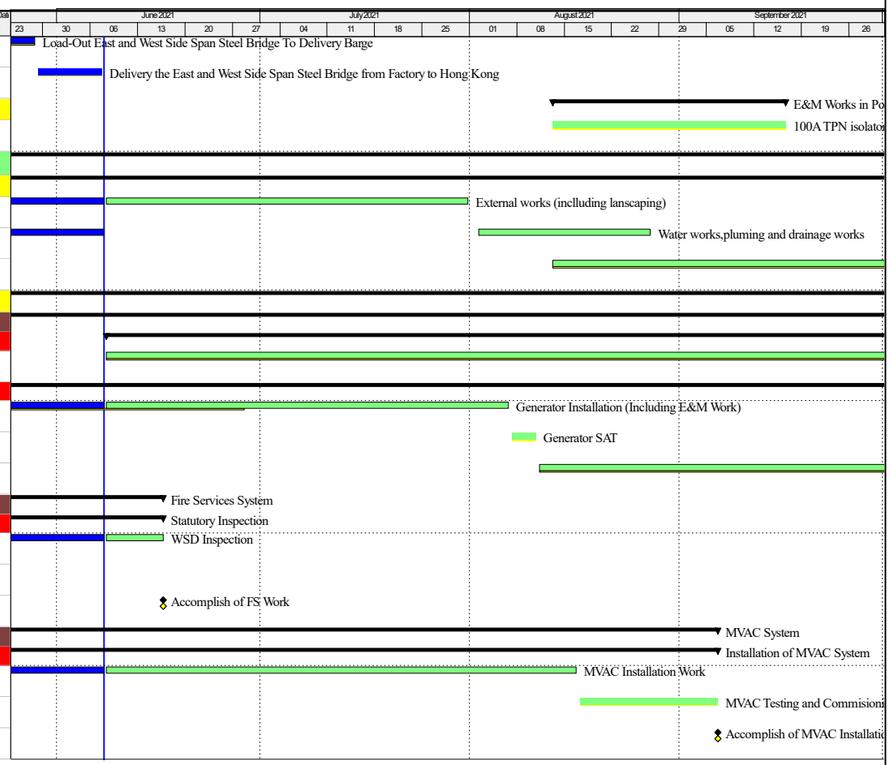
Contract No. NE/2017/07 Cross Bay Link, Tseng Kwan O - Main Bridge and Associated Works

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Planned Start	Finish	Planned Finish	Total Float	Activity % Complete	TRA	Variance - Finish Date
S2-SS2020	Load-Out East and West Side Span Steel Bridge To Delivery Barge	6	0	23-May-21 A	23-May-21	28-May-21 A	28-May-21		100%	0	0
S2-SS2040	Delivery the East and West Side Span Steel Bridge from Factory to Hong Kong	10	0	29-May-21 A	29-May-21	07-Jun-21 A	07-Jun-21		100%	2.7	0
E&M Works in Portion VI		30	30	13-Aug-21	13-Aug-21	16-Sep-21	16-Sep-21	29			0
S2-EW2000	100A TPN isolator, road lighting	30	30	13-Aug-21	13-Aug-21	16-Sep-21	16-Sep-21	29	0%	0	0
Section 5 of the Works-All Works within Portion V (CBL E&M Plantroom)		339	118	30-Jul-20 A	07-Sep-20	28-Oct-21	28-Oct-21	14			0
Remianing Work		339	118	30-Jul-20 A	07-Sep-20	28-Oct-21	28-Oct-21	14			0
S5-PR2120	External works (inclluding lanscaping)	90	45	30-Jul-20 A	07-Sep-20	31-Jul-21	23-Dec-20	64	50%	0	-176
S5-PR2200	Water works,pluming and drainage works	60	23	30-Jul-20 A	24-Dec-20	27-Aug-21	10-Mar-21	64	61.67%	0	-139
S5-PR2290	Cable Installation Work After Access Permitted (Portion VI)	63	63	13-Aug-21	13-Aug-21	28-Oct-21	28-Oct-21	14	0%	0	0
Major Services System		295	100	28-Sep-20 A	09-Oct-20	06-Oct-21	06-Oct-21	32			0
Electrical System		173	100	02-Oct-20 A	09-Mar-21	06-Oct-21	06-Oct-21	32			0
UPS Room		100	100	08-Jun-21	08-Jun-21	06-Oct-21	06-Oct-21	29			0
S5-PR2580	UPS Installation (Including E&M Work)	100	100	08-Jun-21	08-Jun-21	06-Oct-21	06-Oct-21	29	0%	0	0
Generator Room		171	98	02-Oct-20 A	09-Mar-21	04-Oct-21	04-Oct-21	34			0
S5-PR2500	Generator Installation (Including E&M Work)	90	50	02-Oct-20 A	09-Mar-21	06-Aug-21	28-Jun-21	34	44.44%	0	-33
S5-PR2540	Generator SAT	3	3	07-Aug-21	07-Aug-21	10-Aug-21	10-Aug-21	34	0%	0	0
S5-PR2545	Testing and Commisioning	45	45	11-Aug-21	11-Aug-21	04-Oct-21	04-Oct-21	34	0%	0	0
Fire Services System		80	7	20-Jan-21 A	09-Mar-21	16-Jun-21	16-Jun-21	125			0
Statutory Inspection		80	7	20-Jan-21 A	09-Mar-21	16-Jun-21	16-Jun-21	125			0
S5-PR2800	WSD Inspection	14	7	21-Jan-21 A	09-Mar-21	16-Jun-21	24-Mar-21	125	50%	0	-66
S5-PR2820	FSD Inspection	14	0	20-Jan-21 A	09-Mar-21	11-May-21 A	24-Mar-21		100%	0	-37
S5-PR3020	Accomplish of FS Work	0	0			16-Jun-21	16-Jun-21	125	0%	0	0
MVAC System		271	76	28-Sep-20 A	09-Oct-20	06-Sep-21	06-Sep-21	56			0
Installation of MVAC System		271	76	28-Sep-20 A	09-Oct-20	06-Sep-21	06-Sep-21	56			0
S5-PR2840	MVAC Installation Work	70	58	28-Sep-20 A	09-Oct-20	16-Aug-21	02-Jan-21	56	17.14%	0	-183
S5-PR2900	MVAC Testing and Commisioning	18	18	17-Aug-21	17-Aug-21	06-Sep-21	06-Sep-21	56	0%	0	0
S5-PR2920	Accomplish of MVAC Installation	0	0			06-Sep-21	06-Sep-21	56	0%	0	0



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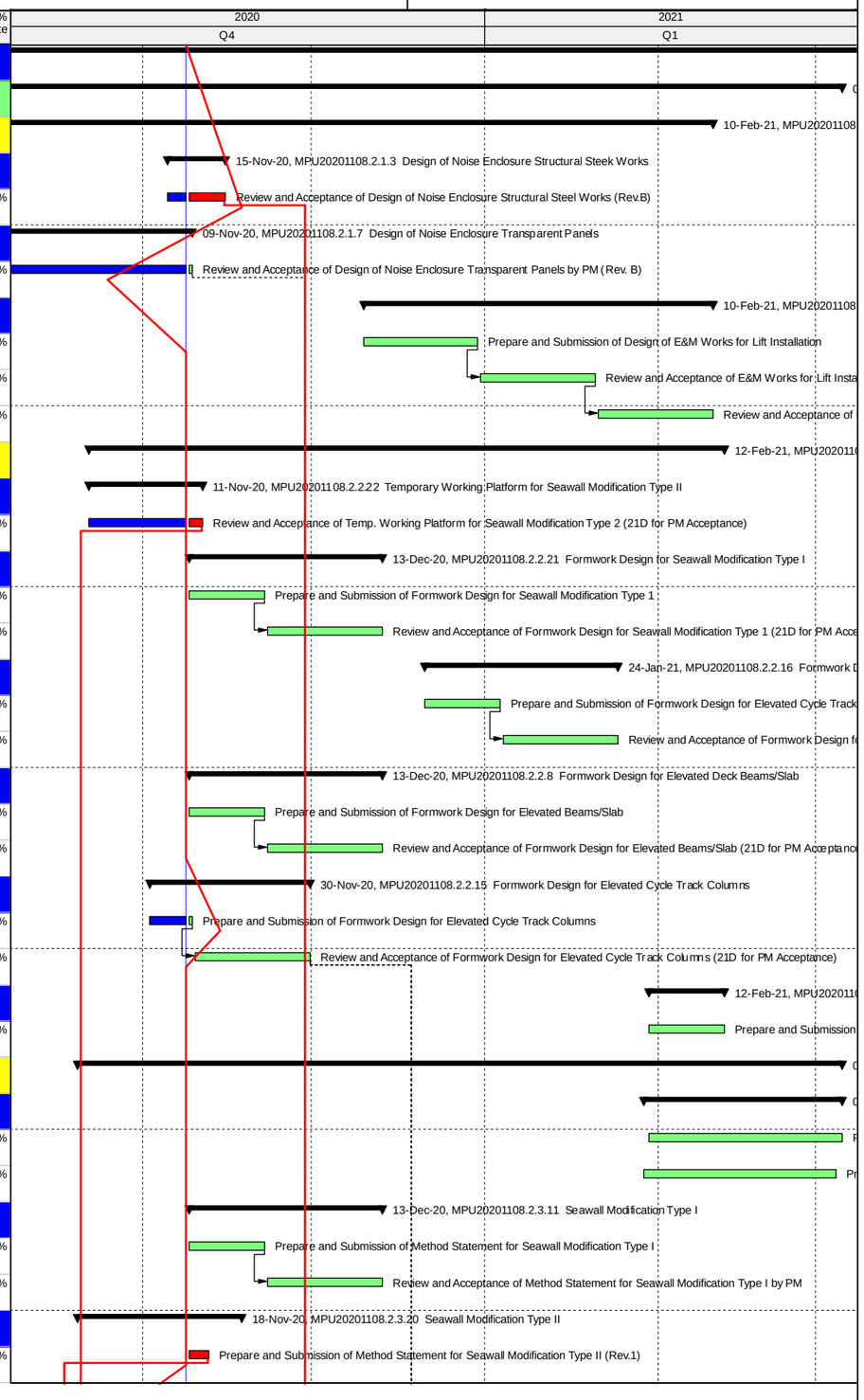
Contract 2

Activity ID	Activity Name	Original Duration	Actual Duration	Remaining Duration	alendar	Start	Finish	Late Start	Late Finish	Total Float	TRA	Activity % Complete
MPU20201108 NE/2017/08 Programme Update (Nov 2020)		939.0	549.0	493.0		02-Jan-19 A	11-Jul-22	31-Jul-20	28-Mar-22	-82.5		
MPU20201108.2 Design and Method Statement, Material Submissions		264.0	147.0	117.0	(7days)	15-Jun-20 A	05-Mar-21	28-Sep-20	23-Jul-21	139.5		
MPU20201108.2.1 Contractor's Design		128.0	34.0	94.0	(7days)	06-Oct-20 A	10-Feb-21	28-Sep-20	24-May-21	103.0		
MPU20201108.2.1.3 Design of Noise Enclosure Structural Steek Works		21.0	4.0	7.0	(7days)	05-Nov-20 A	15-Nov-20	28-Sep-20	05-Oct-20	-41.5		
PD1093	Review and Acceptance of Design of Noise Enclosure Structural Steel Works (Rev.B)	21.0	4.0	7.0	(7days)	05-Nov-20 A	15-Nov-20	28-Sep-20	05-Oct-20	-41.5	0	66.67%
MPU20201108.2.1.7 Design of Noise Enclosure Transparent Panels		21.0	34.0	1.0	(7days)	06-Oct-20 A	09-Nov-20	04-Feb-21	05-Feb-21	87.5		
PD1110	Review and Acceptance of Design of Noise Enclosure Transparent Panels by PM (Rev. B)	21.0	34.0	1.0	(7days)	06-Oct-20 A	09-Nov-20	04-Feb-21	05-Feb-21	87.5	0	95.24%
MPU20201108.2.1.4 Design of E&M Works for Lift Installation		63.0	0.0	63.0	(7days)	10-Dec-20	10-Feb-21	23-Mar-21	24-May-21	103.0		
PD1040	Prepare and Submission of Design of E&M Works for Lift Installation	21.0	0.0	21.0	(7days)	10-Dec-20	30-Dec-20	23-Mar-21	12-Apr-21	103.0	0	0%
PD1043	Review and Acceptance of E&M Works for Lift Installation (21D for PM Acceptance)	21.0	0.0	21.0	(7days)	31-Dec-20	20-Jan-21	13-Apr-21	03-May-21	103.0	0	0%
PD1047	Review and Acceptance of E&M Works for Lift Installation (21D for HyD Acceptance)	21.0	0.0	21.0	(7days)	21-Jan-21	10-Feb-21	04-May-21	24-May-21	103.0	0	0%
MPU20201108.2.2 Temporary Works Design		114.0	18.0	96.0	(7days)	22-Oct-20 A	12-Feb-21	14-Oct-20	11-May-21	88.0		
MPU20201108.2.2.22 Temporary Working Platform for Seawall Modification Type II		21.0	18.0	3.0	(7days)	22-Oct-20 A	11-Nov-20	14-Oct-20	17-Oct-20	-25.5		
TW1520	Review and Acceptance of Temp. Working Platform for Seawall Modification Type 2 (21D for PM Acceptance)	21.0	18.0	3.0	(7days)	22-Oct-20 A	11-Nov-20	14-Oct-20	17-Oct-20	-25.5	0	85.71%
MPU20201108.2.2.21 Formwork Design for Seawall Modification Type I		35.0	0.0	35.0	(7days)	09-Nov-20	13-Dec-20	25-Jan-21	01-Mar-21	77.5		
TW1490	Prepare and Submission of Formwork Design for Seawall Modification Type 1	14.0	0.0	14.0	(7days)	09-Nov-20	22-Nov-20	25-Jan-21	08-Feb-21	77.5	0	0%
TW1500	Review and Acceptance of Formwork Design for Seawall Modification Type 1 (21D for PM Acceptance)	21.0	0.0	21.0	(7days)	23-Nov-20	13-Dec-20	08-Feb-21	01-Mar-21	77.5	0	0%
MPU20201108.2.2.16 Formwork Design for Elevated Cycle Track Decking		35.0	0.0	35.0	(7days)	21-Dec-20	24-Jan-21	07-Apr-21	11-May-21	107.0		
TW1390	Prepare and Submission of Formwork Design for Elevated Cycle Track Decking	14.0	0.0	14.0	(7days)	21-Dec-20	03-Jan-21	07-Apr-21	20-Apr-21	107.0	0	0%
TW1400	Review and Acceptance of Formwork Design for Elevated Cycle Track Decking (21D for PM Acceptance)	21.0	0.0	21.0	(7days)	04-Jan-21	24-Jan-21	21-Apr-21	11-May-21	107.0	0	0%
MPU20201108.2.2.8 Formwork Design for Elevated Deck Beams/Slab		35.0	0.0	35.0	(7days)	09-Nov-20	13-Dec-20	19-Dec-20	23-Jan-21	40.5		
TW1230	Prepare and Submission of Formwork Design for Elevated Beams/Slab	14.0	0.0	14.0	(7days)	09-Nov-20*	22-Nov-20	19-Dec-20	02-Jan-21	40.5	0	0%
TW1240	Review and Acceptance of Formwork Design for Elevated Beams/Slab (21D for PM Acceptance)	21.0	0.0	21.0	(7days)	23-Nov-20	13-Dec-20	02-Jan-21	23-Jan-21	40.5	0	0%
MPU20201108.2.2.15 Formwork Design for Elevated Cycle Track Columns		29.0	7.0	22.0	(7days)	02-Nov-20 A	30-Nov-20	05-Feb-21	26-Feb-21	88.0		
TW1370	Prepare and Submission of Formwork Design for Elevated Cycle Track Columns	14.0	7.0	1.0	(7days)	02-Nov-20 A	09-Nov-20	05-Feb-21	05-Feb-21	88.0	0	92.86%
TW1380	Review and Acceptance of Formwork Design for Elevated Cycle Track Columns (21D for PM Acceptance)	21.0	0.0	21.0	(7days)	10-Nov-20	30-Nov-20	06-Feb-21	26-Feb-21	88.0	0	0%
MPU20201108.2.2.13 Formwork and Falsework Design for Construction of Lift Tower		14.0	0.0	14.0	(7days)	30-Jan-21	12-Feb-21	20-Apr-21	03-May-21	80.0		
TW1330	Prepare and Submission of Formwork Design for Lift Tower	14.0	0.0	14.0	(7days)	30-Jan-21	12-Feb-21	20-Apr-21	03-May-21	80.0	0	0%
MPU20201108.2.3 Method Statement for Major Construction Works		137.0	20.0	117.0	(7days)	20-Oct-20 A	05-Mar-21	07-Oct-20	24-May-21	80.0		
MPU20201108.2.3.10 Construction of Lift Tower		36.0	0.0	36.0	(7days)	29-Jan-21	05-Mar-21	20-Apr-21	24-May-21	80.0		
MS1100	Prepare and Submission of Method Statement for Construction of Lift Tower (21D for PM Accpetance)	35.0	0.0	35.0	(7days)	30-Jan-21	05-Mar-21	20-Apr-21	24-May-21	80.0	0	0%
MS1150	Prepare and Submission of Method Statement for Installation of Lift (21D for PM Acceptance)	35.0	0.0	35.0	(7days)	29-Jan-21	04-Mar-21	20-Apr-21	24-May-21	81.0	0	0%
MPU20201108.2.3.11 Seawall Modification Type I		35.0	0.0	35.0	(7days)	09-Nov-20	13-Dec-20	25-Jan-21	01-Mar-21	77.5		
MS1350	Prepare and Submission of Method Statement for Seawall Modification Type I	14.0	0.0	14.0	(7days)	09-Nov-20	22-Nov-20	25-Jan-21	08-Feb-21	77.5		0%
MS1540	Review and Acceptance of Method Statement for Seawall Modification Type I by PM	21.0	0.0	21.0	(7days)	23-Nov-20	13-Dec-20	08-Feb-21	01-Mar-21	77.5		0%
MPU20201108.2.3.20 Seawall Modification Type II		24.0	20.0	10.0	(7days)	20-Oct-20 A	18-Nov-20	07-Oct-20	17-Oct-20	-32.5		
MS1555	Prepare and Submission of Method Statement for Seawall Modification Type II (Rev.1)	4.0	0.0	4.0	(7days)	09-Nov-20	12-Nov-20	07-Oct-20	11-Oct-20	-32.5		0%



Actual Level of Effort
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MPU (Nov-20)
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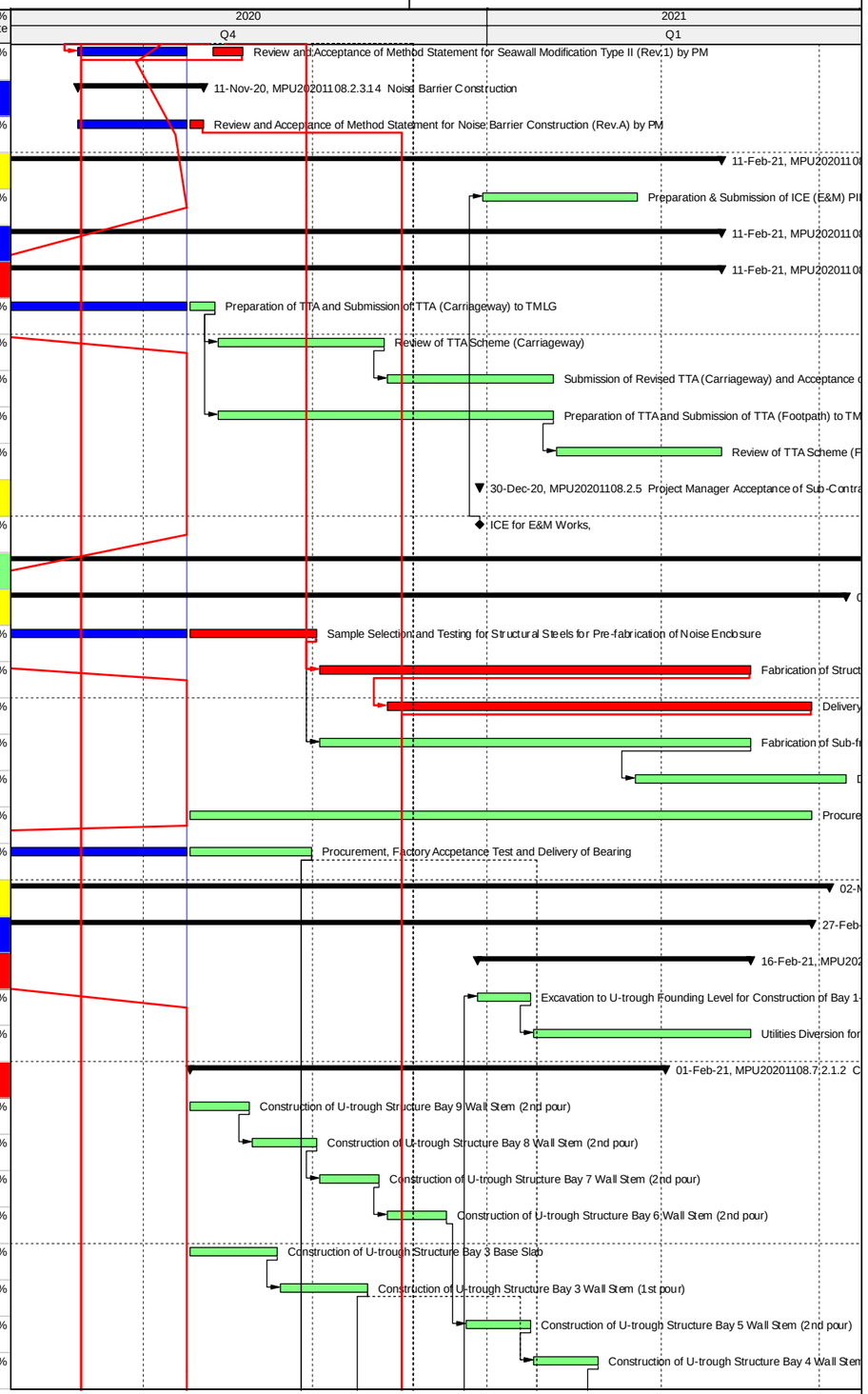
Date	Revision	Checked	Approved
08-Nov-20	Monthly Programme Update (Nov 2020)	TL	StL

Activity ID	Activity Name	Original Duration	Actual Duration	Remaining Duration	alendar	Start	Finish	Late Start	Late Finish	Total Float	TRA	Activity % Complete
MS1560	Review and Acceptance of Method Statement for Seawall Modification Type II (Rev.1) by PM	21.0	20.0	6.0	(7days)	20-Oct-20 A	18-Nov-20	11-Oct-20	17-Oct-20	-32.5		71.43%
MPU20201108.2.3.14 Noise Barrier Construction		21.0	20.0	3.0	(7days)	20-Oct-20 A	11-Nov-20	19-Oct-20	22-Oct-20	-20.5		
MS1530	Review and Acceptance of Method Statement for Noise Barrier Construction (Rev.A) by PM	21.0	20.0	3.0	(7days)	20-Oct-20 A	11-Nov-20	19-Oct-20	22-Oct-20	-20.5	0	85.71%
MPU20201108.2.4 General Submissions		242.0	147.0	95.0	(7days)	15-Jun-20 A	11-Feb-21	10-Nov-20	23-Jul-21	161.5		
GS1165	Preparation & Submission of ICE (E&M) PII Policy	28.0	0.0	28.0	(7days)	31-Dec-20	27-Jan-21	27-Apr-21	24-May-21	117.0	0	0%
MPU20201108.2.4.1 TTA and XP Submission		242.0	147.0	95.0	(7days)	15-Jun-20 A	11-Feb-21	10-Nov-20	23-Jul-21	161.5		
MPU20201108.2.4.1.3 Wan Po Road		242.0	147.0	95.0	(7days)	15-Jun-20 A	11-Feb-21	10-Nov-20	23-Jul-21	161.5		
GS2000	Preparation of TTA and Submission of TTA (Carriageway) to TMLG	80.0	147.0	5.0	(7days)	15-Jun-20 A	13-Nov-20	10-Nov-20	15-Nov-20	1.5	0	93.75%
GS2010	Review of TTA Scheme (Carriageway)	30.0	0.0	30.0	(7days)	14-Nov-20	13-Dec-20	24-May-21	23-Jun-21	191.5	0	0%
GS2020	Submission of Revised TTA (Carriageway) and Acceptance of TTA in TMLG	30.0	0.0	30.0	(7days)	14-Dec-20	12-Jan-21	23-Jun-21	23-Jul-21	191.5	0	0%
GS2500	Preparation of TTA and Submission of TTA (Footpath) to TMLG	60.0	0.0	60.0	(7days)	14-Nov-20	12-Jan-21	15-Nov-20	14-Jan-21	1.5	0	0%
GS2510	Review of TTA Scheme (Footpath)	30.0	0.0	30.0	(7days)	13-Jan-21	11-Feb-21	14-Jan-21	13-Feb-21	1.5	0	0%
MPU20201108.2.5 Project Manager Acceptance of Sub-Contractors		0.0	0.0	0.0	(7days)	30-Dec-20	30-Dec-20	30-Dec-20	30-Dec-20	0.0		
SC1040	ICE for E&M Works	0.0	0.0	0.0	(7days)		30-Dec-20*		30-Dec-20	0.0	0	0%
MPU20201108.7 Construction Works		438.0	307.0	125.0		28-Oct-19 A	13-Apr-21	31-Jul-20	27-Oct-21	161.5		
MPU20201108.7.1 Preliminaries		338.0	243.0	95.0		14-Jan-20 A	05-Mar-21	09-Sep-20	12-May-21	53.5		
PREL1130-02	Sample Selection and Testing for Structural Steels for Pre-fabrication of Noise Enclosure	33.0	108.0	20.0	(6days)	02-Jul-20 A	01-Dec-20	09-Sep-20	05-Oct-20	-48.5	0	39.39%
PREL1130-12	Fabrication of Structural Elements for Noise Enclosure	60.0	0.0	60.0	(6days)	02-Dec-20	16-Feb-21	05-Oct-20	15-Dec-20	-48.5	0	0%
PREL1130-22	Delivery of Structural Elements for At-grade Road Noise Enclosure	60.0	0.0	60.0	(6days)	14-Dec-20	27-Feb-21	16-Oct-20	29-Dec-20	-48.5	0	0%
PREL1140-01	Fabrication of Sub-frame and PMMA Panels for Noise Enclosure	60.0	0.0	60.0	(6days)	02-Dec-20	16-Feb-21	05-Feb-21	23-Apr-21	53.5	0	0%
PREL1140-21	Delivery of Sub-frame and PMMA Panels for Noise Enclosure	30.0	0.0	30.0	(6days)	27-Jan-21	05-Mar-21	06-Apr-21	12-May-21	53.5	0	0%
PREL1150-00	Procurement, factory acceptance test for Lift	90.0	0.0	90.0	(6days)	09-Nov-20	27-Feb-21	23-Dec-20	16-Apr-21	38.0	0	0%
PREL1250	Procurement, Factory Accpetance Test and Delivery of Bearing	80.0	300.0	22.0	(7days)	14-Jan-20 A	30-Nov-20	15-Dec-20	06-Jan-21	36.5	0	72.5%
MPU20201108.7.2 Construction Works of Portion I		118.0	27.0	92.0	(6days)	07-Oct-20 A	02-Mar-21	11-Sep-20	27-Oct-21	194.5		
MPU20201108.7.2.1 Cycle Track - U-trough		116.0	27.0	90.0	(6days)	07-Oct-20 A	27-Feb-21	16-Mar-21	27-Oct-21	196.5		
MPU20201108.7.2.1.1 Excavation to U-tough Level(+5.0mPD to +4.4mPD) (700m3)		38.0	0.0	38.0	(6days)	30-Dec-20	16-Feb-21	03-Jul-21	17-Aug-21	148.5		
PORI.UT.EX1050	Excavation to U-trough Founding Level for Construction of Bay 1-2 (+5.0mPD to +4.4mPD)	8.0	0.0	8.0	(6days)	30-Dec-20	08-Jan-21	03-Jul-21	13-Jul-21	148.5	0	0%
PORI.UT.EX1060	Utilities Diversion for Bay 1-2	30.0	0.0	30.0	(6days)	09-Jan-21	16-Feb-21	13-Jul-21	17-Aug-21	148.5	0	0%
MPU20201108.7.2.1.2 Construction of U-trough Structure (9 Bays, 27D/Bay, 1 Team)		70.0	0.0	70.0	(6days)	09-Nov-20	01-Feb-21	12-May-21	27-Oct-21	216.5		
PORI.UT.ST1010-23	Construction of U-trough Structure Bay 9 Wall Stem (2nd pour)	10.0	0.0	10.0	(6days)	09-Nov-20	19-Nov-20	03-Aug-21	14-Aug-21	216.5	0	0%
PORI.UT.ST1010-33	Construction of U-trough Structure Bay 8 Wall Stem (2nd pour)	10.0	0.0	10.0	(6days)	20-Nov-20	01-Dec-20	14-Aug-21	26-Aug-21	216.5	0	0%
PORI.UT.ST1010-43	Construction of U-trough Structure Bay 7 Wall Stem (2nd pour)	10.0	0.0	10.0	(6days)	02-Dec-20	12-Dec-20	26-Aug-21	07-Sep-21	216.5	0	0%
PORI.UT.ST1010-53	Construction of U-trough Structure Bay 6 Wall Stem (2nd pour)	10.0	0.0	10.0	(6days)	14-Dec-20	24-Dec-20	07-Sep-21	18-Sep-21	216.5	0	0%
PORI.UT.ST1040-21	Construction of U-trough Structure Bay 3 Base Slab	14.0	0.0	14.0	(6days)	09-Nov-20	24-Nov-20	12-May-21	29-May-21	148.5	0	0%
PORI.UT.ST1040-51	Construction of U-trough Structure Bay 3 Wall Stem (1st pour)	14.0	0.0	14.0	(6days)	25-Nov-20	10-Dec-20	29-May-21	16-Jun-21	148.5	0	0%
PORI.UT.ST1040-61	Construction of U-trough Structure Bay 5 Wall Stem (2nd pour)	10.0	0.0	10.0	(6days)	28-Dec-20	08-Jan-21	18-Sep-21	02-Oct-21	216.5	0	0%
PORI.UT.ST1040-71	Construction of U-trough Structure Bay 4 Wall Stem (2nd pour)	10.0	0.0	10.0	(6days)	09-Jan-21	20-Jan-21	02-Oct-21	15-Oct-21	216.5	0	0%



Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
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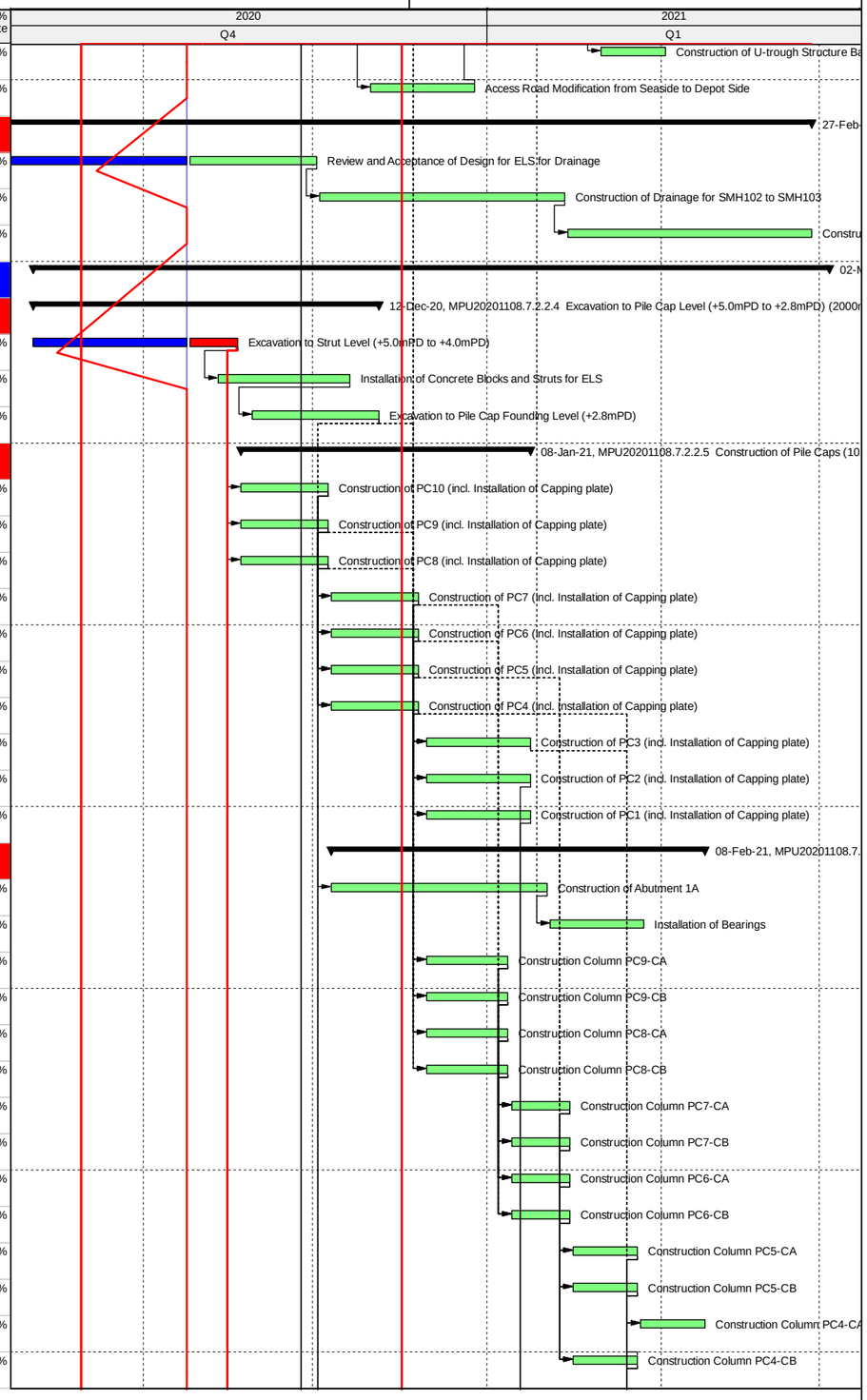
summary

MPU (Nov-20)

Date	Revision	Checked	Approved
08-Nov-20	Monthly Programme Update (Nov 2020)	TL	StL

Activity ID	Activity Name	Original Duration	Actual Duration	Remaining Duration	alendar	Start	Finish	Late Start	Late Finish	Total Float	TRA	Activity % Complete
PORI.UT.ST1040-81	Construction of U-trough Structure Bay 3 Wall Stem (2nd pour)	10.0	0.0	10.0	(6days)	21-Jan-21	01-Feb-21	15-Oct-21	27-Oct-21	216.5	0	0%
PORI.UT.ST1050	Access Road Modification from Seaside to Depot Side	14.0	0.0	14.0	(6days)	11-Dec-20	29-Dec-20	16-Jun-21	03-Jul-21	148.5	0	0%
MPU20201108.7.2.1.4 Remaining Works		116.0	27.0	90.0	(6days)	07-Oct-20 A	27-Feb-21	16-Mar-21	07-Jul-21	103.5		
PORI.UT.1055	Review and Acceptance of Design for ELS for Drainage	30.0	27.0	20.0	(6days)	07-Oct-20 A	01-Dec-20	16-Mar-21	12-Apr-21	103.5		33.33%
PORI.UT.1060	Construction of Drainage for SMH102 to SMH103	35.0	0.0	35.0	(6days)	02-Dec-20	14-Jan-21	12-Apr-21	25-May-21	103.5	0	0%
PORI.UT.1070	Construction of Drainage for SMH103 to SMH104	35.0	0.0	35.0	(6days)	15-Jan-21	27-Feb-21	25-May-21	07-Jul-21	103.5	0	0%
MPU20201108.7.2.2 Elevated Cycle Track		115.0	23.0	92.0	(6days)	12-Oct-20 A	02-Mar-21	11-Sep-20	11-May-21	56.0		
MPU20201108.7.2.2.4 Excavation to Pile Cap Level (+5.0mPD to +2.8mPD) (2000m3)		53.0	23.0	30.0	(6days)	12-Oct-20 A	12-Dec-20	11-Sep-20	04-Jan-21	16.0		
PORI.ED.EX1030	Excavation to Strut Level (+5.0mPD to +4.0mPD)	8.0	23.0	8.0	(6days)	12-Oct-20 A	17-Nov-20	11-Sep-20	21-Sep-20	-46.5	0	0%
PORI.ED.EX1040	Installation of Concrete Blocks and Struts for ELS	20.0	0.0	20.0	(6days)	14-Nov-20	07-Dec-20	03-Dec-20	28-Dec-20	16.0		0%
PORI.ED.EX1060	Excavation to Pile Cap Founding Level (+2.8mPD)	20.0	0.0	20.0	(6days)	20-Nov-20	12-Dec-20	09-Dec-20	04-Jan-21	16.0		0%
MPU20201108.7.2.2.5 Construction of Pile Caps (10 PC, 14D/Cap, 4teams)		42.0	0.0	42.0	(6days)	18-Nov-20	08-Jan-21	20-Nov-20	06-Apr-21	69.0		
PORI.ED.PC1010	Construction of PC10 (incl. Installation of Capping plate)	14.0	0.0	14.0	(6days)	18-Nov-20	03-Dec-20	20-Nov-20	05-Dec-20	2.0		0%
PORI.ED.PC1020	Construction of PC9 (incl. Installation of Capping plate)	14.0	0.0	14.0	(6days)	18-Nov-20	03-Dec-20	20-Nov-20	05-Dec-20	2.0		0%
PORI.ED.PC1030	Construction of PC8 (incl. Installation of Capping plate)	14.0	0.0	14.0	(6days)	18-Nov-20	03-Dec-20	20-Nov-20	05-Dec-20	2.0		0%
PORI.ED.PC1040	Construction of PC7 (incl. Installation of Capping plate)	14.0	0.0	14.0	(6days)	04-Dec-20	19-Dec-20	21-Dec-20	08-Jan-21	14.0		0%
PORI.ED.PC1050	Construction of PC6 (incl. Installation of Capping plate)	14.0	0.0	14.0	(6days)	04-Dec-20	19-Dec-20	21-Dec-20	08-Jan-21	14.0		0%
PORI.ED.PC1060	Construction of PC5 (incl. Installation of Capping plate)	14.0	0.0	14.0	(6days)	04-Dec-20	19-Dec-20	21-Dec-20	08-Jan-21	14.0		0%
PORI.ED.PC1070	Construction of PC4 (incl. Installation of Capping plate)	14.0	0.0	14.0	(6days)	04-Dec-20	19-Dec-20	21-Dec-20	08-Jan-21	14.0		0%
PORI.ED.PC1080	Construction of PC3 (incl. Installation of Capping plate)	14.0	0.0	14.0	(6days)	21-Dec-20	08-Jan-21	18-Mar-21	06-Apr-21	69.0		0%
PORI.ED.PC1090	Construction of PC2 (incl. Installation of Capping plate)	14.0	0.0	14.0	(6days)	21-Dec-20	08-Jan-21	09-Jan-21	25-Jan-21	14.0		0%
PORI.ED.PC1100	Construction of PC1 (incl. Installation of Capping plate)	14.0	0.0	14.0	(6days)	21-Dec-20	08-Jan-21	09-Jan-21	25-Jan-21	14.0		0%
MPU20201108.7.2.2.6 Construction of Columns and Abutment (16pcs, 10D/column, 4 teams)		54.0	0.0	54.0	(6days)	04-Dec-20	08-Feb-21	27-Feb-21	11-May-21	72.0		
PORI.ED.CP1010	Construction of Abutment 1A	30.0	0.0	30.0	(6days)	04-Dec-20	11-Jan-21	16-Mar-21	22-Apr-21	81.0	0	0%
PORI.ED.CP1020	Installation of Bearings	15.0	0.0	15.0	(6days)	12-Jan-21	28-Jan-21	23-Apr-21	11-May-21	81.0	0	0%
PORI.ED.CP1030	Construction Column PC9-CA	10.0	0.0	10.0	(6days)	21-Dec-20	04-Jan-21	27-Feb-21	10-Mar-21	53.0		0%
PORI.ED.CP1040	Construction Column PC9-CB	10.0	0.0	10.0	(6days)	21-Dec-20	04-Jan-21	27-Feb-21	10-Mar-21	53.0		0%
PORI.ED.CP1050	Construction Column PC8-CA	10.0	0.0	10.0	(6days)	21-Dec-20	04-Jan-21	27-Feb-21	10-Mar-21	53.0		0%
PORI.ED.CP1060	Construction Column PC8-CB	10.0	0.0	10.0	(6days)	21-Dec-20	04-Jan-21	27-Feb-21	10-Mar-21	53.0		0%
PORI.ED.CP1070	Construction Column PC7-CA	10.0	0.0	10.0	(6days)	05-Jan-21	15-Jan-21	11-Mar-21	22-Mar-21	53.0		0%
PORI.ED.CP1080	Construction Column PC7-CB	10.0	0.0	10.0	(6days)	05-Jan-21	15-Jan-21	11-Mar-21	22-Mar-21	53.0		0%
PORI.ED.CP1090	Construction Column PC6-CA	10.0	0.0	10.0	(6days)	05-Jan-21	15-Jan-21	11-Mar-21	22-Mar-21	53.0		0%
PORI.ED.CP1095	Construction Column PC6-CB	10.0	0.0	10.0	(6days)	05-Jan-21	15-Jan-21	11-Mar-21	22-Mar-21	53.0		0%
PORI.ED.CP1100	Construction Column PC5-CA	10.0	0.0	10.0	(6days)	16-Jan-21	27-Jan-21	23-Mar-21	06-Apr-21	53.0		0%
PORI.ED.CP1110	Construction Column PC5-CB	10.0	0.0	10.0	(6days)	16-Jan-21	27-Jan-21	23-Mar-21	06-Apr-21	53.0		0%
PORI.ED.CP1120	Construction Column PC4-CA	10.0	0.0	10.0	(6days)	28-Jan-21	08-Feb-21	07-Apr-21	17-Apr-21	53.0		0%
PORI.ED.CP1130	Construction Column PC4-CB	10.0	0.0	10.0	(6days)	16-Jan-21	27-Jan-21	23-Mar-21	06-Apr-21	53.0		0%



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MPU (Nov-20)

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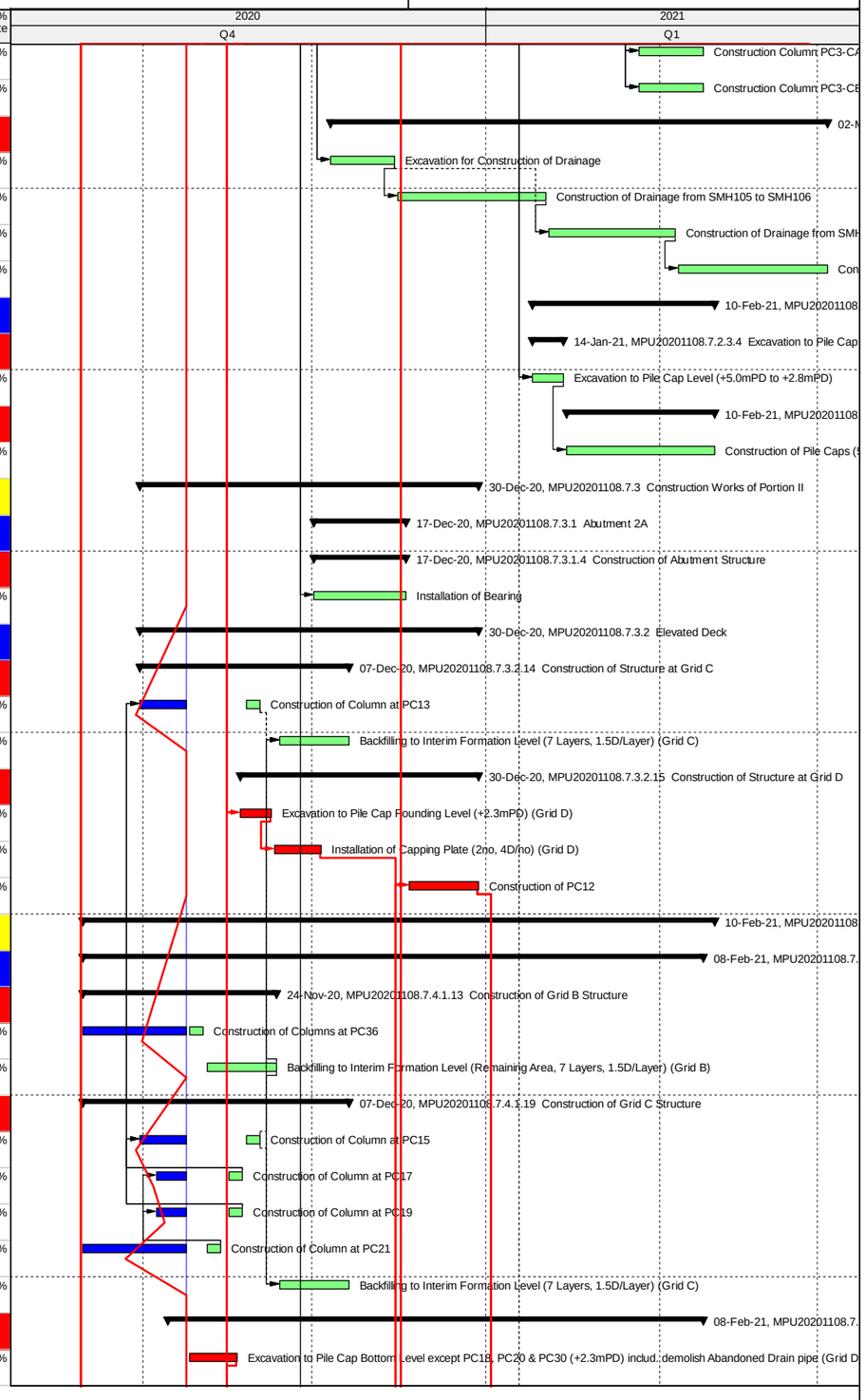
PORI.ED.CP1140	Construction Column PC3-CA	10.0	0.0	10.0	(6days)	28-Jan-21	08-Feb-21	07-Apr-21	17-Apr-21	53.0		0%
PORI.ED.CP1150	Construction Column PC3-CB	10.0	0.0	10.0	(6days)	28-Jan-21	08-Feb-21	07-Apr-21	17-Apr-21	53.0		0%
MPU20201108.7.2.2.9 Drainage Works		70.0	0.0	70.0	(6days)	04-Dec-20	02-Mar-21	07-Dec-20	04-Mar-21	2.0		
PORI.ED.DRA1015	Excavation for Construction of Drainage	10.0	0.0	10.0	(6days)	04-Dec-20	15-Dec-20	07-Dec-20	17-Dec-20	2.0		0%
PORI.ED.DRA1020	Construction of Drainage from SMH105 to SMH106	20.0	0.0	20.0	(6days)	16-Dec-20	11-Jan-21	18-Dec-20	13-Jan-21	2.0		0%
PORI.ED.DRA1030	Construction of Drainage from SMH106 to SMH107	20.0	0.0	20.0	(6days)	12-Jan-21	03-Feb-21	14-Jan-21	05-Feb-21	2.0		0%
PORI.ED.DRA1040	Construction of Drainage from SMH107 to SMH108	20.0	0.0	20.0	(6days)	04-Feb-21	02-Mar-21	06-Feb-21	04-Mar-21	2.0		0%
MPU20201108.7.2.3 Lift and Staircase		28.0	0.0	28.0	(6days)	09-Jan-21	10-Feb-21	26-Jan-21	02-Mar-21	14.0		
MPU20201108.7.2.3.4 Excavation to Pile Cap Level (+5.0mPD to +2.8mPD)		5.0	0.0	5.0	(6days)	09-Jan-21	14-Jan-21	26-Jan-21	30-Jan-21	14.0		
PORI.LS.EX1010	Excavation to Pile Cap Level (+5.0mPD to +2.8mPD)	5.0	0.0	5.0	(6days)	09-Jan-21	14-Jan-21	26-Jan-21	30-Jan-21	14.0	0	0%
MPU20201108.7.2.3.5 Construction of Pile Caps (5 PC, 14D/Cap, 3teams)		23.0	0.0	23.0	(6days)	15-Jan-21	10-Feb-21	01-Feb-21	02-Mar-21	14.0		
PORI.LS.PC1000	Construction of Pile Caps (5PC, 14D/cap, 3 teams)	23.0	0.0	23.0	(6days)	15-Jan-21	10-Feb-21	01-Feb-21	02-Mar-21	14.0	0	0%
MPU20201108.7.3 Construction Works of Portion II		50.0	7.0	35.0	(6days)	31-Oct-20 A	30-Dec-20	21-Sep-20	23-Jan-21	19.5		
MPU20201108.7.3.1 Abutment 2A		15.0	0.0	15.0	(6days)	01-Dec-20	17-Dec-20	06-Jan-21	23-Jan-21	28.5		
MPU20201108.7.3.1.4 Construction of Abutment Structure		15.0	0.0	15.0	(6days)	01-Dec-20	17-Dec-20	06-Jan-21	23-Jan-21	28.5		
PORII.AB.ST1040	Installation of Bearing	15.0	0.0	15.0	(6days)	01-Dec-20	17-Dec-20	06-Jan-21	23-Jan-21	28.5	0	0%
MPU20201108.7.3.2 Elevated Deck		50.0	7.0	35.0	(6days)	31-Oct-20 A	30-Dec-20	21-Sep-20	23-Jan-21	19.5		
MPU20201108.7.3.2.14 Construction of Structure at Grid C		32.0	7.0	16.0	(6days)	31-Oct-20 A	07-Dec-20	19-Nov-20	23-Jan-21	37.5		
PORII.ED.GC1040	Construction of Column at PC13	10.0	7.0	3.0	(6days)	31-Oct-20 A	21-Nov-20	19-Nov-20	23-Nov-20	0.5	0	70%
PORII.ED.GC1050	Backfilling to Interim Formation Level (7 Layers, 1.5D/Layer) (Grid C)	11.0	0.0	11.0	(6days)	25-Nov-20	07-Dec-20	11-Jan-21	23-Jan-21	37.5	0	0%
MPU20201108.7.3.2.15 Construction of Structure at Grid D		35.0	0.0	35.0	(6days)	18-Nov-20	30-Dec-20	21-Sep-20	19-Oct-20	-59.5		
PORII.ED.GD1000	Excavation to Pile Cap Founding Level (+2.3mPD) (Grid D)	5.0	0.0	5.0	(6days)	18-Nov-20	23-Nov-20	21-Sep-20	26-Sep-20	-46.5	0	0%
PORII.ED.GD1010	Installation of Capping Plate (2no, 4D/no) (Grid D)	8.0	0.0	8.0	(6days)	24-Nov-20	02-Dec-20	26-Sep-20	08-Oct-20	-46.5	0	0%
PORII.ED.GD1020	Construction of PC12	9.0	0.0	9.0	(6days)	18-Dec-20	30-Dec-20	08-Oct-20	19-Oct-20	-59.5	0	0%
MPU20201108.7.4 Construction Works of Portion III		93.0	15.0	78.0	(6days)	21-Oct-20 A	10-Feb-21	31-Jul-20	23-Jan-21	-15.5		
MPU20201108.7.4.1 Construction of Elevated Deck and Abutment 2B		91.0	15.0	76.0	(6days)	21-Oct-20 A	08-Feb-21	10-Aug-20	23-Jan-21	-13.5		
MPU20201108.7.4.1.13 Construction of Grid B Structure		29.0	15.0	14.0	(6days)	21-Oct-20 A	24-Nov-20	09-Nov-20	11-Jan-21	37.5		
PORIII.ED.GB.1080	Construction of Columns at PC36	10.0	15.0	3.0	(6days)	21-Oct-20 A	11-Nov-20	09-Nov-20	12-Nov-20	0.5	0	70%
PORIII.ED.GB.1140	Backfilling to Interim Formation Level (Remaining Area, 7 Layers, 1.5D/Layer) (Grid B)	11.0	0.0	11.0	(6days)	12-Nov-20	24-Nov-20	28-Dec-20	11-Jan-21	37.5		0%
MPU20201108.7.4.1.19 Construction of Grid C Structure		40.0	15.0	22.0	(6days)	21-Oct-20 A	07-Dec-20	12-Nov-20	23-Jan-21	37.5		
PORIII.ED.GC.1050	Construction of Column at PC15	10.0	7.0	3.0	(6days)	31-Oct-20 A	21-Nov-20	19-Nov-20	23-Nov-20	0.5	0	70%
PORIII.ED.GC.1060	Construction of Column at PC17	10.0	5.0	3.0	(6days)	03-Nov-20 A	18-Nov-20	16-Nov-20	19-Nov-20	0.5	0	70%
PORIII.ED.GC.1070	Construction of Column at PC19	10.0	5.0	3.0	(6days)	03-Nov-20 A	18-Nov-20	16-Nov-20	19-Nov-20	0.5	0	70%
PORIII.ED.GC.1080	Construction of Column at PC21	10.0	15.0	3.0	(6days)	21-Oct-20 A	14-Nov-20	12-Nov-20	16-Nov-20	0.5	0	70%
PORIII.ED.GC.1140	Backfilling to Interim Formation Level (7 Layers, 1.5D/Layer) (Grid C)	11.0	0.0	11.0	(6days)	25-Nov-20	07-Dec-20	11-Jan-21	23-Jan-21	37.5	0	0%
MPU20201108.7.4.1.20 Construction of Grid D Structure		79.0	3.0	76.0	(6days)	05-Nov-20 A	08-Feb-21	10-Aug-20	10-Nov-20	-74.5		
PORIII.ED.GD.0180	Excavation to Pile Cap Bottom Level except PC18, PC20 & PC30 (+2.3mPD) includ. demolish Abandoned Drain pipe (Grid D)	8.0	0.0	8.0	(6days)	09-Nov-20	17-Nov-20	27-Aug-20	05-Sep-20	-59.5	0	0%



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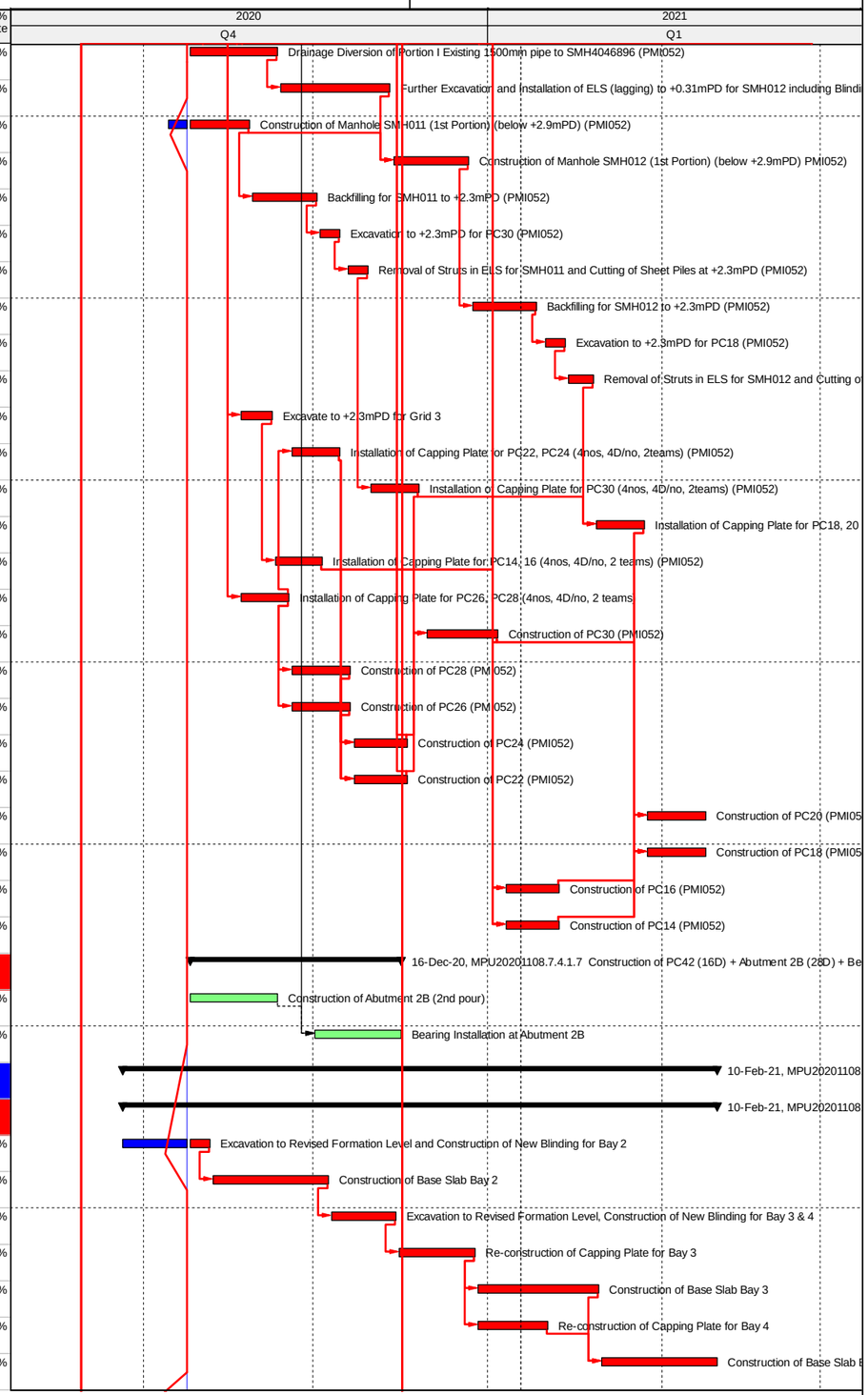
PORIII.ED.GD.0200	Drainage Diversion of Portion I Existing 1500mm pipe to SMH4046896 (PMI052)	14.0	0.0	14.0	(6days)	09-Nov-20	24-Nov-20	10-Aug-20	26-Aug-20	-74.5	0	0%
PORIII.ED.GD.0220	Further Excavation and Installation of ELS (lagging) to +0.31mPD for SMH012 including Blinding (NCE108, PMI052)	17.0	0.0	17.0	(6days)	25-Nov-20	14-Dec-20	26-Aug-20	15-Sep-20	-74.5	0	0%
PORIII.ED.GD.0230	Construction of Manhole SMH011 (1st Portion) (below +2.9mPD) (PMI052)	10.0	3.0	10.0	(6days)	05-Nov-20 A	19-Nov-20	25-Aug-20	05-Sep-20	-61.5	0	0%
PORIII.ED.GD.0240	Construction of Manhole SMH012 (1st Portion) (below +2.9mPD) PMI052)	10.0	0.0	10.0	(6days)	15-Dec-20	28-Dec-20	15-Sep-20	26-Sep-20	-74.5	0	0%
PORIII.ED.GD.0250	Backfilling for SMH011 to +2.3mPD (PMI052)	10.0	0.0	10.0	(6days)	20-Nov-20	01-Dec-20	05-Sep-20	17-Sep-20	-61.5	0	0%
PORIII.ED.GD.0250-01	Excavation to +2.3mPD for PC30 (PMI052)	4.0	0.0	4.0	(6days)	02-Dec-20	05-Dec-20	17-Sep-20	22-Sep-20	-61.5	0	0%
PORIII.ED.GD.0260	Removal of Struts in ELS for SMH011 and Cutting of Sheet Piles at +2.3mPD (PMI052)	4.0	0.0	4.0	(6days)	07-Dec-20	10-Dec-20	22-Sep-20	26-Sep-20	-61.5	0	0%
PORIII.ED.GD.0270	Backfilling for SMH012 to +2.3mPD (PMI052)	10.0	0.0	10.0	(6days)	29-Dec-20	09-Jan-21	26-Sep-20	10-Oct-20	-74.5	0	0%
PORIII.ED.GD.0270-01	Excavation to +2.3mPD for PC18 (PMI052)	4.0	0.0	4.0	(6days)	11-Jan-21	14-Jan-21	10-Oct-20	15-Oct-20	-74.5	0	0%
PORIII.ED.GD.0280	Removal of Struts in ELS for SMH012 and Cutting of Sheet Piles at +2.3mPD (PMI052)	4.0	0.0	4.0	(6days)	15-Jan-21	19-Jan-21	15-Oct-20	20-Oct-20	-74.5	0	0%
PORIII.ED.GD.0310	Excavate to +2.3mPD for Grid 3	5.0	0.0	5.0	(6days)	18-Nov-20	23-Nov-20	03-Oct-20	09-Oct-20	-37.5	0	0%
PORIII.ED.GD.1010-02	Installation of Capping Plate for PC22, PC24 (4nos, 4D/no, 2teams) (PMI052)	8.0	0.0	8.0	(6days)	27-Nov-20	05-Dec-20	16-Sep-20	25-Sep-20	-58.5	0	0%
PORIII.ED.GD.1010-03	Installation of Capping Plate for PC30 (4nos, 4D/no, 2teams) (PMI052)	8.0	0.0	8.0	(6days)	11-Dec-20	19-Dec-20	26-Sep-20	08-Oct-20	-61.5	0	0%
PORIII.ED.GD.1010-04	Installation of Capping Plate for PC18, 20 (4nos, 4D/no, 2teams) (PMI052)	8.0	0.0	8.0	(6days)	20-Jan-21	28-Jan-21	20-Oct-20	30-Oct-20	-74.5	0	0%
PORIII.ED.GD.1010-05	Installation of Capping Plate for PC14, 16 (4nos, 4D/no, 2 teams) (PMI052)	8.0	0.0	8.0	(6days)	24-Nov-20	02-Dec-20	09-Oct-20	19-Oct-20	-37.5	0	0%
PORIII.ED.GD.1010-06	Installation of Capping Plate for PC26, PC28 (4nos, 4D/no, 2 teams)	8.0	0.0	8.0	(6days)	18-Nov-20	26-Nov-20	05-Sep-20	15-Sep-20	-59.5	0	0%
PORIII.ED.GD.1020	Construction of PC30 (PMI052)	9.0	0.0	9.0	(6days)	21-Dec-20	02-Jan-21	08-Oct-20	19-Oct-20	-61.5	0	0%
PORIII.ED.GD.1021	Construction of PC28 (PMI052)	9.0	0.0	9.0	(6days)	27-Nov-20	07-Dec-20	15-Sep-20	25-Sep-20	-59.5	0	0%
PORIII.ED.GD.1022	Construction of PC26 (PMI052)	9.0	0.0	9.0	(6days)	27-Nov-20	07-Dec-20	15-Sep-20	25-Sep-20	-59.5	0	0%
PORIII.ED.GD.1023	Construction of PC24 (PMI052)	9.0	0.0	9.0	(6days)	08-Dec-20	17-Dec-20	25-Sep-20	08-Oct-20	-59.5	0	0%
PORIII.ED.GD.1024	Construction of PC22 (PMI052)	9.0	0.0	9.0	(6days)	08-Dec-20	17-Dec-20	25-Sep-20	08-Oct-20	-59.5	0	0%
PORIII.ED.GD.1025	Construction of PC20 (PMI052)	9.0	0.0	9.0	(6days)	29-Jan-21	08-Feb-21	30-Oct-20	10-Nov-20	-74.5	0	0%
PORIII.ED.GD.1026	Construction of PC18 (PMI052)	9.0	0.0	9.0	(6days)	29-Jan-21	08-Feb-21	30-Oct-20	10-Nov-20	-74.5	0	0%
PORIII.ED.GD.1027	Construction of PC16 (PMI052)	9.0	0.0	9.0	(6days)	04-Jan-21	13-Jan-21	19-Oct-20	30-Oct-20	-61.5	0	0%
PORIII.ED.GD.1028	Construction of PC14 (PMI052)	9.0	0.0	9.0	(6days)	04-Jan-21	13-Jan-21	19-Oct-20	30-Oct-20	-61.5	0	0%
MPU20201108.7.4.1.7 Construction of PC42 (16D) + Abutment 2B (28D) + Bearing Installation (14D)		33.0	0.0	33.0	(6days)	09-Nov-20	16-Dec-20	18-Dec-20	23-Jan-21	29.5		
PORIII.AB2B.1010-01	Construction of Abutment 2B (2nd pour)	14.0	0.0	14.0	(6days)	09-Nov-20	24-Nov-20	18-Dec-20	07-Jan-21	34.5	0	0%
PORIII.AB2B.1020	Bearing Installation at Abutment 2B	14.0	0.0	14.0	(6days)	01-Dec-20	16-Dec-20	07-Jan-21	23-Jan-21	29.5	0	0%
MPU20201108.7.4.2 Construction of U-trough Structure		88.0	10.0	78.0	(6days)	28-Oct-20 A	10-Feb-21	31-Jul-20	03-Nov-20	-82.5		
MPU20201108.7.4.2.6 Construction of U-trough Structure		88.0	10.0	78.0	(6days)	28-Oct-20 A	10-Feb-21	31-Jul-20	03-Nov-20	-82.5		
PORIII.UT.ST1107	Excavation to Revised Formation Level and Construction of New Blinding for Bay 2	10.0	10.0	4.0	(6days)	28-Oct-20 A	12-Nov-20	31-Jul-20	05-Aug-20	-82.5	0	60%
PORIII.UT.ST1110	Construction of Base Slab Bay 2	18.0	0.0	18.0	(6days)	13-Nov-20	03-Dec-20	05-Aug-20	26-Aug-20	-82.5	0	0%
PORIII.UT.ST1115	Excavation to Revised Formation Level, Construction of New Blinding for Bay 3 & 4	10.0	0.0	10.0	(6days)	04-Dec-20	15-Dec-20	26-Aug-20	07-Sep-20	-82.5	0	0%
PORIII.UT.ST1117	Re-construction of Capping Plate for Bay 3	10.0	0.0	10.0	(6days)	16-Dec-20	29-Dec-20	07-Sep-20	18-Sep-20	-82.5	0	0%
PORIII.UT.ST1120	Construction of Base Slab Bay 3	18.0	0.0	18.0	(6days)	30-Dec-20	20-Jan-21	18-Sep-20	12-Oct-20	-82.5	0	0%
PORIII.UT.ST1125	Re-construction of Capping Plate for Bay 4	10.0	0.0	10.0	(6days)	30-Dec-20	11-Jan-21	28-Sep-20	12-Oct-20	-74.5	0	0%
PORIII.UT.ST1130	Construction of Base Slab Bay 4	18.0	0.0	18.0	(6days)	21-Jan-21	10-Feb-21	12-Oct-20	03-Nov-20	-82.5	0	0%



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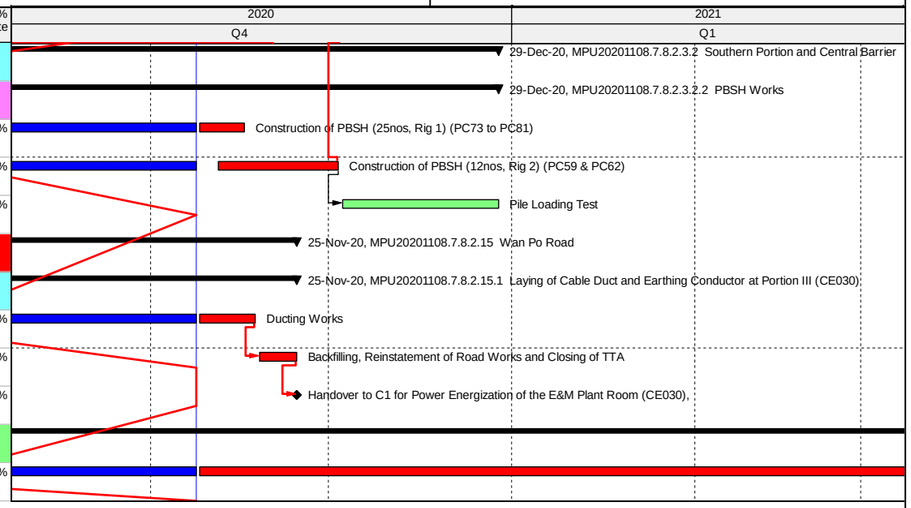
MPU20201108.7.5 Modification of Seawall (Portion II and III)		80.0	13.0	80.0	(6days)	23-Oct-20 A	26-Feb-21	17-Oct-20	23-Jan-21	-26.5		
MPU20201108.7.5.3 Seawall Modification Type 2		80.0	13.0	80.0	(6days)	23-Oct-20 A	26-Feb-21	17-Oct-20	23-Jan-21	-26.5		
SW.WWII.1000	Construction of Seawall Modification Type 2 (2 teams, <15m per bay)	80.0	13.0	80.0	(6days)	23-Oct-20 A	26-Feb-21	17-Oct-20	23-Jan-21	-26.5	0	0%
MPU20201108.7.6 Construction of the At-grade Noise Semi Enclosures		244.0	119.0	125.0	(6days)	17-Jun-20 A	13-Apr-21	10-Sep-20	06-Mar-21	-29.5		
MPU20201108.7.6.7 Construction of Northern Drainage (SMH001 to SMH003)		82.0	0.0	82.0	(6days)	09-Nov-20	18-Feb-21	10-Sep-20	18-Dec-20	-47.5		
PORIII.AG.1102	Utilities Ducts Laying across Road D9 (Northern Portion)	32.0	0.0	32.0	(6days)	09-Nov-20	15-Dec-20	10-Sep-20	20-Oct-20	-47.5	0	0%
PORIII.AG.2000	Cable Laying and Decomissioning of Existing Cross Road UUs at Wan O Road	50.0	0.0	50.0	(6days)	16-Dec-20	18-Feb-21	20-Oct-20	18-Dec-20	-47.5	0	0%
MPU20201108.7.6.3 Construction of Pad Footing (Bay 1 to 11)		171.0	119.0	52.0	(6days)	17-Jun-20 A	11-Jan-21	15-Sep-20	06-Mar-21	43.5		
MPU20201108.7.6.3.3 Base Slab		30.0	0.0	30.0	(6days)	23-Nov-20	29-Dec-20	15-Jan-21	23-Feb-21	43.5		
MPU20201108.7.6.3.3.1 North Bound		30.0	0.0	30.0	(6days)	23-Nov-20	29-Dec-20	15-Jan-21	23-Feb-21	43.5		
PORIII.AG.1460	Construction of Pad Footing Bay NB-N17 Base Slab	10.0	0.0	10.0	(6days)	23-Nov-20	03-Dec-20	15-Jan-21	27-Jan-21	43.5	0	0%
PORIII.AG.1470	Construction of Pad Footing Bay NB-N18 Base Slab	10.0	0.0	10.0	(6days)	16-Dec-20	29-Dec-20	08-Feb-21	23-Feb-21	43.5	0	0%
MPU20201108.7.6.3.4 Wall Stem		171.0	119.0	52.0	(6days)	17-Jun-20 A	11-Jan-21	15-Sep-20	06-Mar-21	43.5		
MPU20201108.7.6.3.4.2 South Bound		134.0	119.0	30.0	(6days)	17-Jun-20 A	12-Dec-20	15-Sep-20	22-Oct-20	-43.5		
PORIII.AG.1910	Backfilling to Interim Formation Level (7 Layers, 5D/layer) for Bay 1 to 11	35.0	119.0	20.0	(6days)	17-Jun-20 A	01-Dec-20	26-Sep-20	22-Oct-20	-33.5	0	42.86%
PORIII.AG.1920	Backfilling to Interim Formation Level (7 Layers, 5D/layer) for Bay 12 to 16	35.0	20.0	30.0	(6days)	15-Oct-20 A	12-Dec-20	15-Sep-20	22-Oct-20	-43.5	0	14.29%
MPU20201108.7.6.3.4.1 North Bound		30.0	0.0	30.0	(6days)	04-Dec-20	11-Jan-21	27-Jan-21	06-Mar-21	43.5		
PORIII.AG.1890	Construction of Pad Footing Bay NB-N17 Wall Stem	10.0	0.0	10.0	(6days)	04-Dec-20	15-Dec-20	27-Jan-21	08-Feb-21	43.5	0	0%
PORIII.AG.1900	Construction of Pad Footing Bay NB-N18 Wall Stem	10.0	0.0	10.0	(6days)	30-Dec-20	11-Jan-21	23-Feb-21	06-Mar-21	43.5	0	0%
MPU20201108.7.6.4 Construction of Semi-Noise Enclosure and Directional Sign		90.0	0.0	90.0	(6days)	19-Dec-20	13-Apr-21	22-Oct-20	09-Feb-21	-48.5		
PORIII.AG.1190	Construction of Semi-Noise Enclosure CH13532.187 to CH13878 Main Frame	90.0	0.0	90.0	(6days)	19-Dec-20	13-Apr-21	22-Oct-20	09-Feb-21	-48.5	0	0%
MPU20201108.7.8 Wan O Road		407.0	307.0	94.0	(6days)	28-Oct-19 A	04-Mar-21	27-Aug-20	13-Mar-21	7.5		
MPU20201108.7.8.2 Carriage Way Excavation Permit		407.0	307.0	94.0	(6days)	28-Oct-19 A	04-Mar-21	27-Aug-20	13-Mar-21	7.5		
MPU20201108.7.8.2.1 TTA Stage 1		38.0	307.0	18.0	(6days)	28-Oct-19 A	12-Dec-20	10-Sep-20	03-Oct-20	-59.5		
WO.CA.TTA1030	UU Diversion and Installation of Sheet Pile at Northern Footpath (Except Roundabout)	38.0	307.0	18.0	(6days)	28-Oct-19 A	12-Dec-20	10-Sep-20	03-Oct-20	-59.5	0	52.63%
MPU20201108.7.8.2.3 TTA Stage 2		297.0	204.0	94.0	(6days)	03-Mar-20 A	04-Mar-21	27-Aug-20	13-Mar-21	7.5		
MPU20201108.7.8.2.3.1 Northern Portion		265.0	171.0	94.0	(6days)	15-Apr-20 A	04-Mar-21	27-Aug-20	18-Dec-20	-59.5		
MPU20201108.7.8.2.3.1.2 PBSH Works		148.0	171.0	12.0	(6days)	15-Apr-20 A	21-Nov-20	27-Aug-20	09-Nov-20	-11.5		
WO.CA.TTA2NP.1150	Construction of PBSH (23nos, Rig 2) (PC60, 61, 63-65)	76.0	171.0	7.0	(6days)	15-Apr-20 A	16-Nov-20	02-Sep-20	10-Sep-20	-54.5	0	90.79%
WO.CA.TTA2NP.1150-02	Construction of PBSH (7nos, Rig 2) (PC57-58)	30.0	53.0	12.0	(6days)	04-Sep-20 A	21-Nov-20	24-Oct-20	09-Nov-20	-11.5	0	60%
WO.CA.TTA2NP.1150-03	Construction of PBSH (8nos, Rig 1) (PC66-69)	31.0	150.0	5.0	(6days)	12-May-20 A	21-Nov-20	04-Sep-20	10-Sep-20	-59.5	0	83.87%
WO.CA.TTA2NP.1170	Construction of PBSH (14nos, Rig 1) (PC66-PC72)	60.0	89.0	7.0	(6days)	24-Jul-20 A	16-Nov-20	27-Aug-20	04-Sep-20	-59.5	0	88.33%
MPU20201108.7.8.2.3.1.3 Excavation and Construction of RC Structure		73.0	0.0	73.0	(6days)	03-Dec-20	04-Mar-21	03-Oct-20	18-Dec-20	-59.5		
WO.CA.TTA2NP.1060	Installation of Sheet pile at Roundabout Northern Portion	12.0	0.0	12.0	(6days)	03-Dec-20	16-Dec-20	19-Nov-20	03-Dec-20	-11.5	0	0%
WO.CA.TTA2NP.1065	Installation of Struts and Excavation to Pile Cap Level at Roundabout Northern Portion	13.0	0.0	13.0	(6days)	17-Dec-20	04-Jan-21	03-Dec-20	18-Dec-20	-11.5	0	0%
WO.CA.TTA2NP.1067	Concrete Block Installation as Lateral Support on top of Box Culvert	25.0	0.0	25.0	(6days)	14-Dec-20	14-Jan-21	03-Oct-20	03-Nov-20	-59.5	0	0%
WO.CA.TTA2NP.1070	Construction of ELS (Northern Footpath)	39.0	0.0	39.0	(6days)	15-Jan-21	04-Mar-21	03-Nov-20	18-Dec-20	-59.5	0	0%

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

MPU (Nov-20)
Page 6

Date	Revision	Checked	Approved
08-Nov-20	Monthly Programme Update (Nov 2020)	TL	StL

Activity ID	Activity Name	Original Duration	Actual Duration	Remaining Duration	alendar	Start	Finish	Late Start	Late Finish	Total Float	TRA	Activity % Complete
MPU20201108.7.8.2.3.2 Southern Portion and Central Barrier		245.0	204.0	42.0	(6days)	03-Mar-20 A	29-Dec-20	27-Aug-20	13-Mar-21	59.5		
MPU20201108.7.8.2.3.2.2 PBSH Works		245.0	204.0	42.0	(6days)	03-Mar-20 A	29-Dec-20	27-Aug-20	13-Mar-21	59.5		
WO.CA.TTA2SP.1310	Construction of PBSH (25nos, Rig 1) (PC73 to PC81)	75.0	204.0	7.0	(6days)	03-Mar-20 A	16-Nov-20	27-Aug-20	04-Sep-20	-59.5	0	90.67%
WO.CA.TTA2SP.1320	Construction of PBSH (12nos, Rig 2) (PC59 & PC62)	45.0	56.0	18.0	(6days)	01-Sep-20 A	02-Dec-20	29-Oct-20	19-Nov-20	-11.5	0	60%
WO.CA.TTA2SP.1330	Pile Loading Test	21.0	0.0	21.0	(6days)	03-Dec-20	29-Dec-20	17-Feb-21	13-Mar-21	59.5	0	0%
MPU20201108.7.8.2.15 Wan Po Road		63.0	48.0	15.0	(6days)	10-Sep-20 A	25-Nov-20	14-Sep-20	30-Sep-20	-45.0		
MPU20201108.7.8.2.15.1 Laying of Cable Duct and Earthing Conductor at Portion III (CE030)		63.0	48.0	15.0	(6days)	10-Sep-20 A	25-Nov-20	14-Sep-20	30-Sep-20	-45.0		
WO1299	Ducting Works	9.0	48.0	9.0	(6days)	10-Sep-20 A	18-Nov-20	14-Sep-20	23-Sep-20	-45.0	0	0%
WO1309	Backfilling, Reinstatement of Road Works and Closing of TTA	6.0	0.0	6.0	(6days)	19-Nov-20	25-Nov-20	24-Sep-20	30-Sep-20	-45.0	0	0%
WO1319	Handover to C1 for Power Energization of the E&M Plant Room (CE030)	0.0	0.0	0.0	(6days)		25-Nov-20*		30-Sep-20	-45.0	0	0%
MPU20201108.8 Miscellaneous Works (Portion I, II and III)		939.0	549.0	493.0	(6days)	02-Jan-19 A	11-Jul-22	31-Jul-20	28-Mar-22	-82.5		
MISC4030	Tree Preservation and Protection Works	939.0	549.0	493.0	(6days)	02-Jan-19 A	11-Jul-22	31-Jul-20	28-Mar-22	-82.5	0	47.5%



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

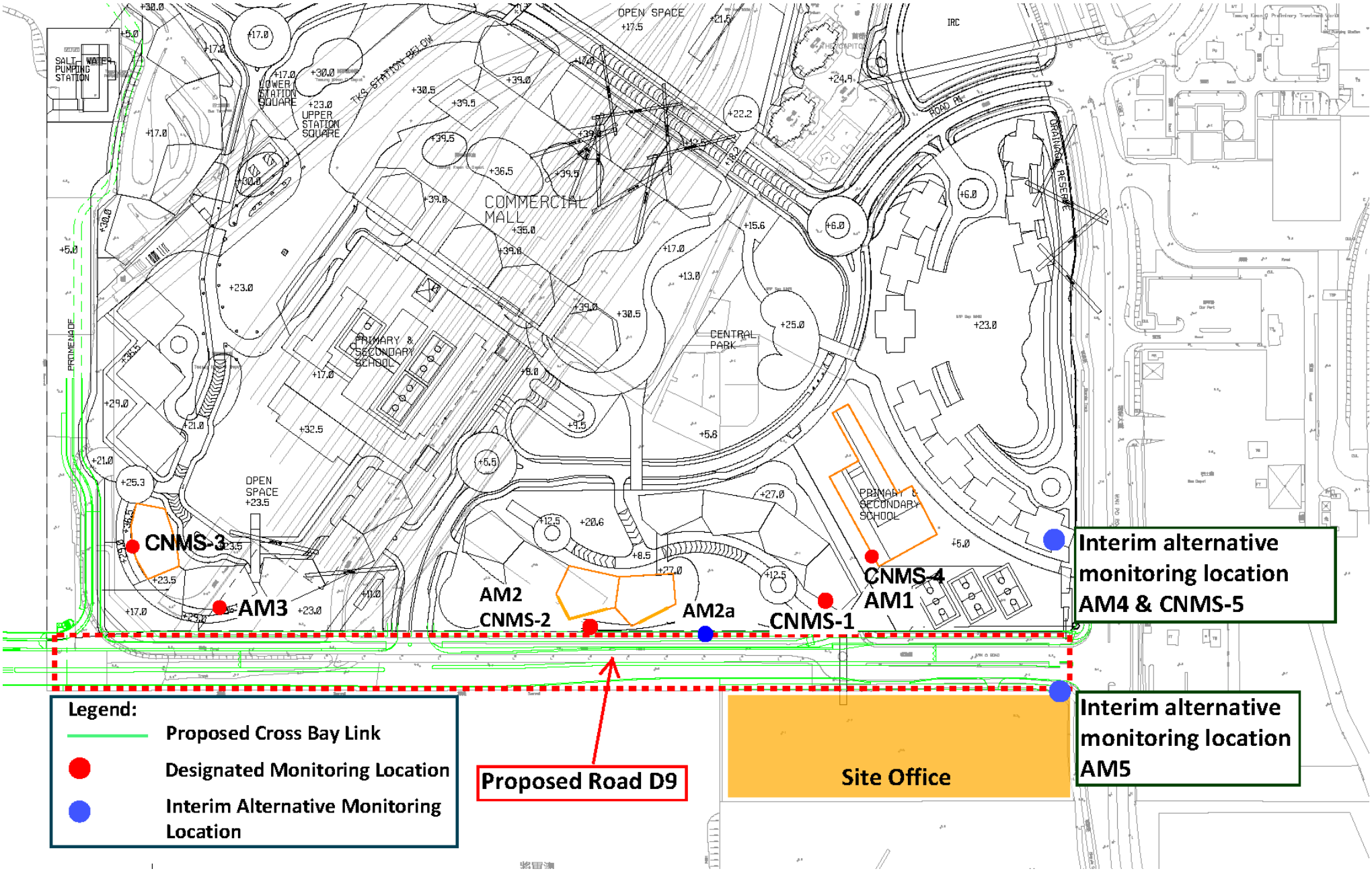
Date	Revision	Checked	Approved
08-Nov-20	Monthly Programme Update (Nov 2020)	TL	StL

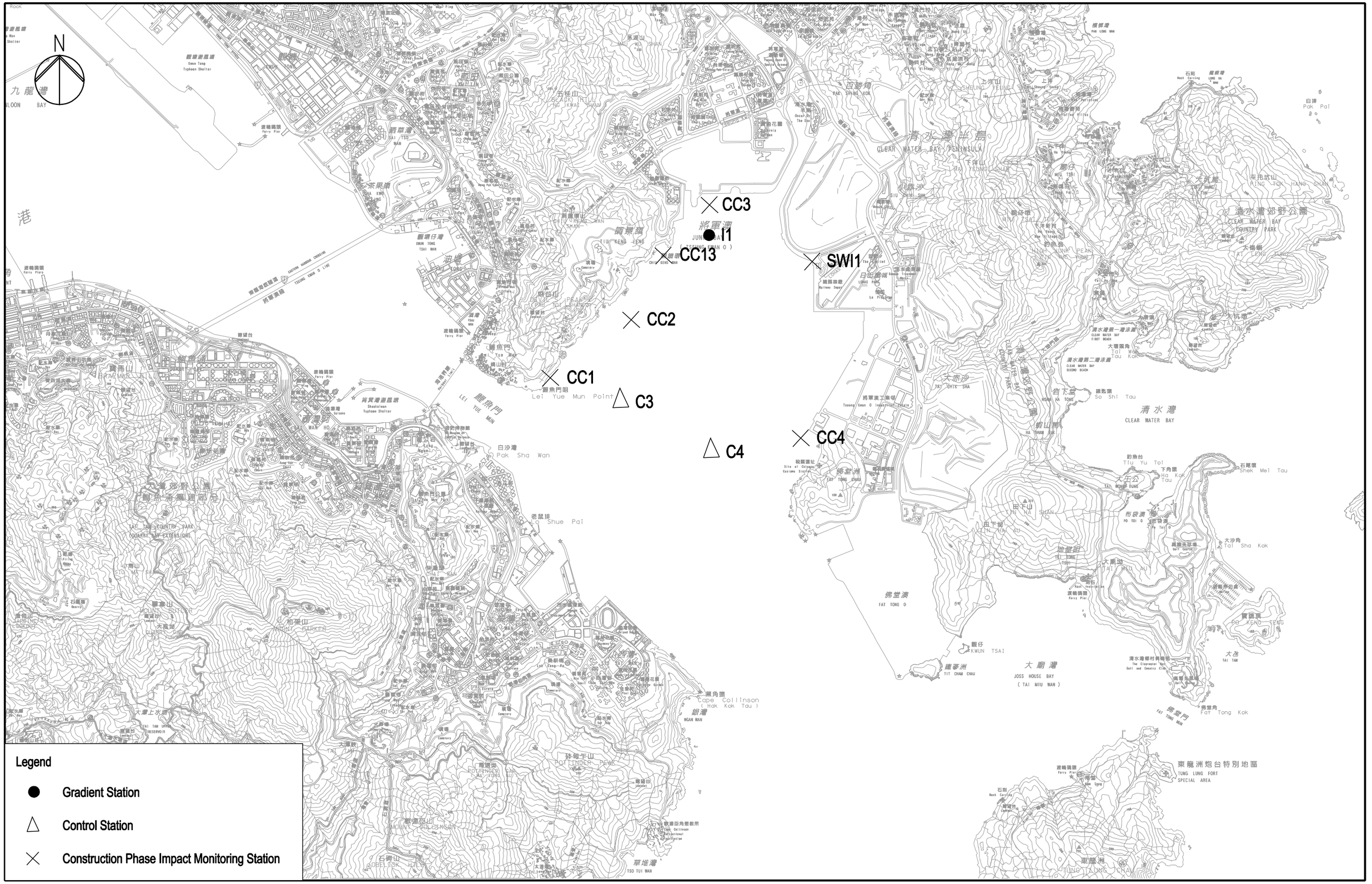
Appendix D

Monitoring Location
(Air Quality, Noise and Water Quality)

CEDD Contract Agreement No. EDO/04/2018 -
Environmental Team for Cross Bay Link, Tseung Kwan O
Designated and Interim Alternative Air Quality and Noise Monitoring Location

AUES





土木工程拓展署 Civil Engineering and Development Department	ARUP Ove Arup & Partners Hong Kong Limited	Job Title: **Agreement No. CE 43/2008(HY) Cross Bay Link, Tseung Kwan O - Investigation**	Drawing Title: Locations of Water Quality Monitoring Stations	C THIRD ISSUE 03/13 B SECOND ISSUE 01/13 A FIRST ISSUE 03/11 Rev. Description Date	Drawn GL; Date 03/13; Checked JP; Approved ST; Scale 1:30000 (A3)	Drawing No. 209506/EMA/WQ/001; Status FINAL; Rev. C

Plotted by:
File name:

Appendix E

Event and Action Plan

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
ACTION LEVEL				
Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and Project Consultant; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and Project Consultant; 3. Advise the Project Consultant on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and Project Consultant; 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 on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial actions to IEC within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
LIMIT LEVEL				
Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Project Consultant, 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 Project Consultant informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the Project Consultant 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; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; 4. Amend proposal if appropriate.

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
LIMIT LEVEL				
Exceedance for two or more consecutive samples	1. Notify IEC, Project Consultant, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and Project Consultant to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and Project Consultant informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst Project Consultant, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the Project Consultant accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; 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 Project Consultant until the exceedance is abated.

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
Action Level	1. Notify IEC and contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, Project Consultant 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 Project Consultant accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance 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; 2. Implement noise mitigation proposals.
Limit Level	1. Identify source; 2. Inform IEC, Project Consultant, 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, Project Consultant and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and Project Consultant informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst Project Consultant, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the Project Consultant accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance 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 Project Consultant until the exceedance is abated.

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
Action level being exceeded by one sampling day at water sensitive receiver(s)	1. Identify the source(s) of impact by comparing the results with those collected at the gradient stations and the control stations as appropriate; 2. If exceedance is found to be caused by the marine works, repeat *in-situ* measurement to confirm findings; 3. Inform IEC and contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. If exceedance occurs at WSD salt water intake, inform WSD; 6. Discuss mitigation measures with IEC and Contractor; 7. Repeat measurement on next day of exceedance.	1. Discuss mitigation measures with ET and Contractor; 2. Review proposal on mitigation measures submitted by Contractor and advise the Project Consultant accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss proposed mitigation measures with IEC; 2. Make agreement on the mitigation proposal.	1. Inform the Project Consultant and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Amend working methods if appropriate; 5. Discuss with ET and IEC and propose mitigation measures to IEC and Project Consultant; 6. Implement the agree mitigation measures.
Action level being exceeded by two or more consecutive sampling days at water sensitive receiver(s)	1. Identify the source(s) of impact by comparing the results with those collected at the gradient stations and the control stations as appropriate; 2. If exceedance is found to be caused by the marine works, repeat *in-situ* measurement to confirm findings; 3. Inform IEC and contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, and Contractor; 6. Ensure mitigation measures are	1. Discuss mitigation measures with ET and Contractor; 2. Review proposal on mitigation measures submitted by Contractor and advise the Project Consultant accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss proposed mitigation measures with IEC; 2. Make agreement on the mitigation proposal; 3. Assess the effectiveness of the implemented mitigation measures.	1. Inform the Project Consultant and confirm notification of the noncompliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; 4. Discuss with ET, IEC and Project Consultant and propose mitigation measures to IEC and Project Consultant within 3 working

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
	implemented; 7. Prepare to increase the monitoring frequency to daily; 8. If exceedance occurs at WSD salt water intake, inform WSD; 9. Repeat measurement on next day of exceedance.			days; 5. Implement the agreed mitigation measures.
Limit level being exceeded by one sampling day at water sensitive receiver(s)	1. Identify the source(s) of impact by comparing the results with those collected at the gradient stations and the control stations as appropriate; 2. If exceedance is found to be caused by the marine works, repeat *in-situ* measurement to confirm findings; 3. Inform IEC, contractor and EPD 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. If exceedance occurs at WSD salt water intake, inform WSD. 8. ET should contact AFCD if the limit level is exceeded by one sampling day or two or more consecutive sampling days at water sensitive receiver(s).	1.Discuss mitigation measures with ET and Contractor; 2. Review proposal on mitigation measures submitted by Contractor and advise the Project Consultant accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss proposed mitigation measures with IEC, ET and Contractor; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures.	1. Inform the Project Consultant and confirm notification of the noncompliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; 4. Discuss with ET, IEC and Project Consultant and submit proposal of mitigation measures to IEC and Project Consultant within 3 working days of notification; 5. Implement the agreed mitigation measures.
Limit level being exceeded by two or more	1. Identify the source(s) of impact by comparing the results with those collected at the gradient stations and the	1. Discuss mitigation measures with ET and Contractor;	1. Discuss proposed mitigation measures with IEC, ET and Contractor;	1. Inform the Project Consultant and confirm notification of the

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
consecutive sampling days at water sensitive receiver(s)	control stations as appropriate; 2. If exceedance is found to be caused by the marine works, repeat *in-situ* measurement to confirm findings; 3. Inform IEC, contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, and Contractor; 6. Ensure mitigation measures are implemented; 7. Prepare to increase the monitoring frequency to daily; 8. If exceedance occurs at WSD salt water intake, inform WSD; 9. Repeat measurement on next day of exceedance.	2. Review proposal on mitigation measures submitted by Contractor and advise the Project Consultant accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures; 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit level.	noncompliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; 4. Discuss with ET, IEC and Project Consultant and submit proposal of mitigation measures to IEC and Project Consultant within 3 working days of notification; 5. Implement the agreed mitigation measures; 6. As directed by the Engineer, to slow down or to stop all or part of the construction activities.

Appendix F

Impact Monitoring Schedule of the Reporting Month and Coming Month

Impact Monitoring Schedule for the reporting month – July 2021

Date		Noise Monitoring (Leq30min)	Air Quality Monitoring	
			1-Hour TSP	24-Hour TSP*
Thu	1-Jul-21			
Fri	2-Jul-21			✓
Sat	3-Jul-21		✓	
Sun	4-Jul-21			
Mon	5-Jul-21			
Tue	6-Jul-21			
Wed	7-Jul-21			✓
Thu	8-Jul-21	✓	✓	
Fri	9-Jul-21			
Sat	10-Jul-21			
Sun	11-Jul-21			
Mon	12-Jul-21			
Tue	13-Jul-21			✓
Wed	14-Jul-21	✓	✓	
Thu	15-Jul-21			
Fri	16-Jul-21			
Sat	17-Jul-21			
Sun	18-Jul-21			
Mon	19-Jul-21			✓
Tue	20-Jul-21	✓	✓	
Wed	21-Jul-21			
Thu	22-Jul-21			
Fri	23-Jul-21			
Sat	24-Jul-21			✓
Sun	25-Jul-21			
Mon	26-Jul-21	✓	✓	
Tue	27-Jul-21			
Wed	28-Jul-21			
Thu	29-Jul-21			
Fri	30-Jul-21			✓
Sat	31-Jul-21		✓	

**24- Hour TSP at AM2a was commenced on 13 July 2021*

✓	Monitoring Day
	Sunday or Public Holiday

Impact Monitoring Schedule for coming month – August 2021

Date		Noise Monitoring (Leq30min)	Air Quality Monitoring	
			1-Hour TSP	24-Hour TSP
Sun	1-Aug-21			
Mon	2-Aug-21			
Tue	3-Aug-21			
Wed	4-Aug-21			
Thu	5-Aug-21			✓
Fri	6-Aug-21	✓	✓	
Sat	7-Aug-21			
Sun	8-Aug-21			
Mon	9-Aug-21			
Tue	10-Aug-21			
Wed	11-Aug-21			✓
Thu	12-Aug-21	✓	✓	
Fri	13-Aug-21			
Sat	14-Aug-21			
Sun	15-Aug-21			
Mon	16-Aug-21			
Tue	17-Aug-21			✓
Wed	18-Aug-21	✓	✓	
Thu	19-Aug-21			
Fri	20-Aug-21			
Sat	21-Aug-21			
Sun	22-Aug-21			
Mon	23-Aug-21			✓
Tue	24-Aug-21	✓	✓	
Wed	25-Aug-21			
Thu	26-Aug-21			
Fri	27-Aug-21			
Sat	28-Aug-21			✓
Sun	29-Aug-21			
Mon	30-Aug-21	✓	✓	
Tue	31-Aug-21			

✓	Monitoring Day
	Sunday or Public Holiday

Appendix G

Calibration Certificates of Equipment and Accreditation Laboratory Certificate

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Near Lohas Park Phase 6 — Date of Calibration: 10-Jul-21
Location ID : AM2a — Next Calibration Date: 10-Sep-21
Name and Model: TISCH HVS Model TE-5170 — Technician: Eric

CONDITIONS

Sea Level Pressure (hPa)	1010.4	Corrected Pressure (mm Hg)	757.8
Temperature (°C)	30.5	Temperature (K)	304

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10574
Model->	5025A	Qstd Intercept ->	-0.00985
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.30	5.30	10.6	1.535	56	54.91	Slope = 34.9808
13	4.50	4.50	9.0	1.414	50	49.02	Intercept = 0.9247
10	3.50	3.50	7.0	1.248	47	46.08	Corr. coeff. = 0.9952
7	2.20	2.20	4.4	0.990	36	35.30	
5	1.40	1.40	2.8	0.791	29	28.43	

Calculations :

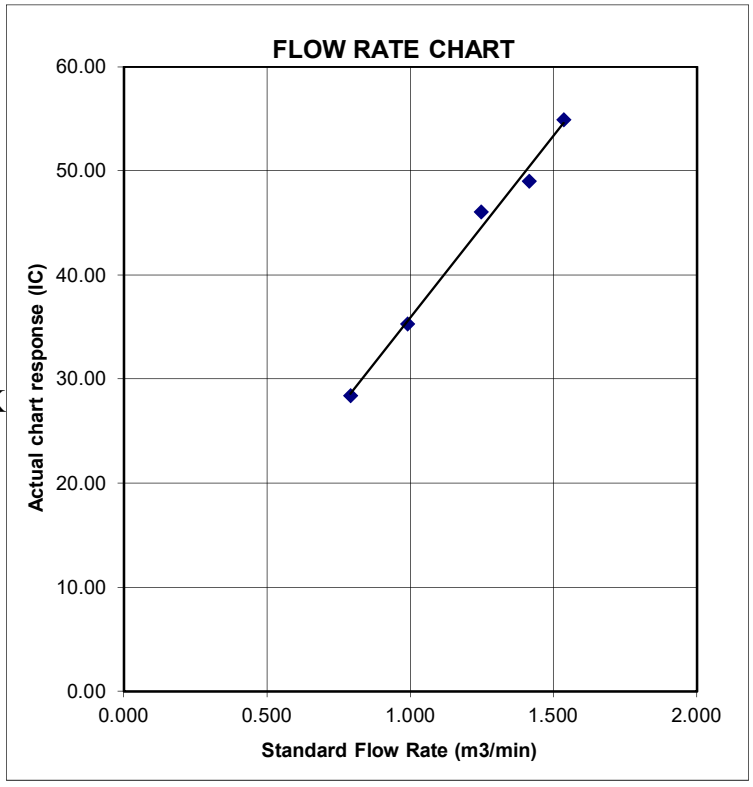
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Junction of Wan Po Road and Wan O Road Date of Calibration: 28-Jun-21
Location ID : AM5 Next Calibration Date: 28-Aug-21
Name and Model: TISCH HVS Model TE-5170 Technician: Ho

CONDITIONS

Sea Level Pressure (hPa)	1005.2	Corrected Pressure (mm Hg)	753.9
Temperature (°C)	29.6	Temperature (K)	303

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10574
Model->	5025A	Qstd Intercept ->	-0.00985
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.70	5.70	11.4	1.589	57	55.91	Slope = 26.1066
13	4.20	4.20	8.4	1.365	52	51.00	Intercept = 14.9485
10	2.50	2.50	5.0	1.054	44	43.16	Corr. coeff. = 0.9981
7	1.80	1.80	3.6	0.895	39	38.25	
5	1.30	1.30	2.6	0.762	35	34.33	

Calculations :

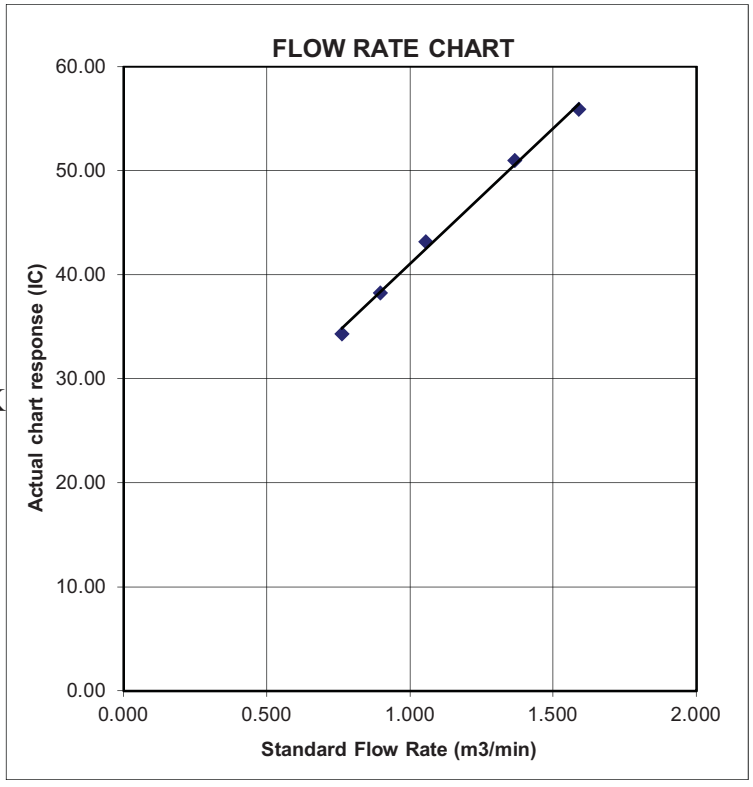
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



TISCH Environmental

RECALIBRATION DUE DATE:
January 19, 2022

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	January 19, 2021	**Rootsmeter S/N:** 438320	**Ta:** 294	°K
Operator:	Jim Tisch		**Pa:** 755.1	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **1941**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4830	3.2	2.00
2	3	4	1	1.0420	6.4	4.00
3	5	6	1	0.9290	8.0	5.00
4	7	8	1	0.8840	8.8	5.50
5	9	10	1	0.7340	12.9	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0029	0.6762	1.4192	0.9958	0.6715	0.8824
0.9986	0.9583	2.0071	0.9915	0.9516	1.2479
0.9965	1.0726	2.2440	0.9894	1.0650	1.3952
0.9954	1.1260	2.3535	0.9883	1.1180	1.4633
0.9899	1.3487	2.8385	0.9829	1.3391	1.7648
QSTD	**m=**	**2.10574**	**QA**	**m=**	**1.31858**
	b=	**-0.00985**		**b=**	**-0.00612**
	r=	**0.99992**		**r=**	**0.99992**

Calculations

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

For subsequent flow rate calculations:

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

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

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

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

RECALIBRATION

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

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

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

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	: **HK2102507**
CLIENT	: **ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING**		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG	SUB-BATCH	: 1
		DATE RECEIVED	: 15-JAN-2021
		DATE OF ISSUE	: 26-JAN-2021
PROJECT	:	NO. OF SAMPLES	: 1
		CLIENT ORDER	:---

General Comments

- **Samples(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.**
- **Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.**
- **Calibration was subcontracted to and analysed by Action United Environmental Services & Consulting.**

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories	*Position*
Richard Fung	Managing Director

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

All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the ALS Laboratory Group
11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong
Tel. +852 2610 1044 Fax. +852 2610 2021 **www.alsglobal.com**

WORK ORDER : HK2102507
SUB-BATCH : 1
CLIENT : ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING
PROJECT :

ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2102507-001	S/N: 366410	AIR	15-Jan-2021	S/N: 366410

Equipment Verification Report (TSP)

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	366410
Equipment Ref:	EQ110
Job Order	HK2102507

Standard Equipment:

Standard Equipment:	Higher Volume Sampler
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	8 October 2020

Equipment Verification Results:

Testing Date: 31 December 2020

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m^3 (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/60min)
2hr01min	09:16 ~ 11:17	10.9	1027.0	0.058	3158	26.1
2hr01min	11:19 ~ 11:20	10.9	1027.0	0.027	1608	13.3
2hr01min	11:22 ~ 13:23	10.9	1027.0	0.026	1107	9.2

Sensitivity Adjustment Scale Setting (Before Calibration) 674 (CPM)

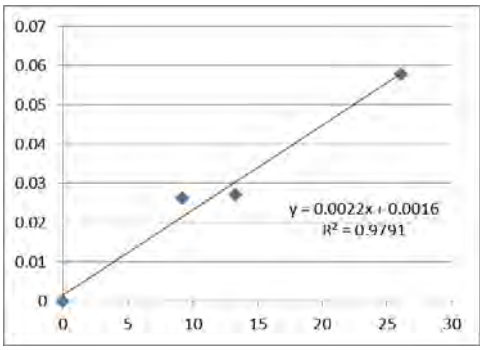
Sensitivity Adjustment Scale Setting (After Calibration) 674 (CPM)

Linear Regression of Y or X

Slope (K-factor): 0.0022

Correlation Coefficient 0.9895

Date of Issue 8 January 2021



Remarks:

1. **Strong** Correlation (R>0.8)
2. Factor 0.0022 should be apply for TSP monitoring

*If R<0.5, repair or re-verification is required for the equipment

Operator : Fai So Signature : Date : 8 January 2021

QC Reviewer : Ben Tam Signature : Date : 8 January 2021

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Gold King Industrial Building, Kwai Chung	Date of Calibration:	8-Oct-20
Location ID :	Calibration Room	Next Calibration Date:	8-Jan-21

CONDITIONS

Sea Level Pressure (hPa)	1015.2	Corrected Pressure (mm Hg)	761.4
Temperature (°C)	25.5	Temperature (K)	299

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.03014
Model->	5025A	Qstd Intercept ->	-0.04616
Calibration Date->	7-Feb-20	Expiry Date->	7-Feb-21

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.4	6.4	12.8	1.785	56	56.00	Slope = 38.0056
13	5.1	5.1	10.2	1.596	49	49.00	Intercept = -11.6655
10	4	4	8.0	1.416	42	42.00	Corr. coeff. = 0.9991
8	2.5	2.5	5.0	1.124	32	32.00	
5	1.5	1.5	3.0	0.876	21	21.00	

Calculations :

Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]

IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate

IC = corrected chart respones

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

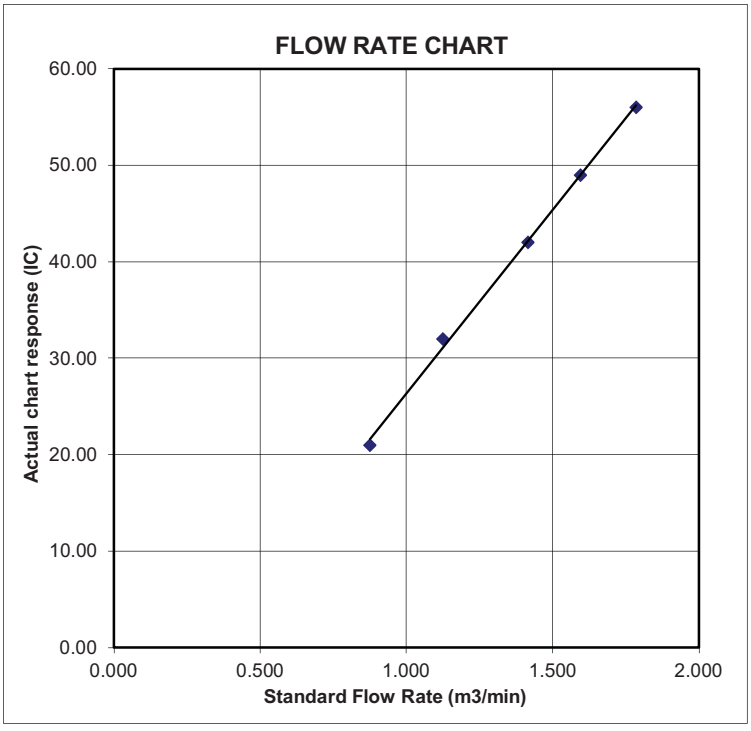
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	:	**HK2102511**
CLIENT	: **ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING**			
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG	SUB-BATCH	:	1
		DATE RECEIVED	:	15-JAN-2021
		DATE OF ISSUE	:	26-JAN-2021
PROJECT	:	NO. OF SAMPLES	:	1
		CLIENT ORDER	:	---

General Comments

- **Samples(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.**
- **Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.**
- **Calibration was subcontracted to and analysed by Action United Environmental Services & Consulting.**

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories	*Position*
Richard Fung	Managing Director

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

All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the ALS Laboratory Group

11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong
Tel. +852 2610 1044 Fax. +852 2610 2021 **www.alsglobal.com**

WORK ORDER : HK2102511
SUB-BATCH : 1
CLIENT : ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING
PROJECT :

ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2102511-001	S/N: 3Y6503	AIR	15-Jan-2021	S/N: 3Y6503

Equipment Verification Report (TSP)

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	3Y6503
Equipment Ref:	EQ112
Job Order	HK2102511

Standard Equipment:

Standard Equipment:	Higher Volume Sampler
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	8 October 2020

Equipment Verification Results:

Testing Date: 31 December 2020

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m^3 (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/60min)
2hr01min	09:16 ~ 11:17	10.9	1027.0	0.058	3127	25.8
2hr01min	11:19 ~ 11:20	10.9	1027.0	0.027	1347	11.1
2hr01min	11:22 ~ 13:23	10.9	1027.0	0.026	1298	10.8

Sensitivity Adjustment Scale Setting (Before Calibration) 655 (CPM)

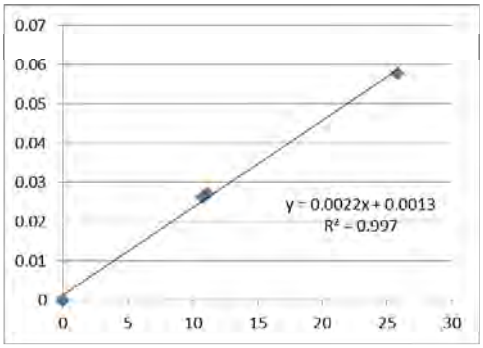
Sensitivity Adjustment Scale Setting (After Calibration) 655 (CPM)

Linear Regression of Y or X

Slope (K-factor): 0.0022

Correlation Coefficient 0.9985

Date of Issue 8 January 2021



Remarks:

1. **Strong** Correlation (R>0.8)
2. Factor 0.0022 should be apply for TSP monitoring

*If R<0.5, repair or re-verification is required for the equipment

Operator : Fai So Signature : Date : 8 January 2021

QC Reviewer : Ben Tam Signature : Date : 8 January 2021

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Gold King Industrial Building, Kwai Chung	Date of Calibration:	8-Oct-20
Location ID :	Calibration Room	Next Calibration Date:	8-Jan-21

CONDITIONS

Sea Level Pressure (hPa)	1015.2	Corrected Pressure (mm Hg)	761.4
Temperature (°C)	25.5	Temperature (K)	299

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.03014
Model->	5025A	Qstd Intercept ->	-0.04616
Calibration Date->	7-Feb-20	Expiry Date->	7-Feb-21

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.4	6.4	12.8	1.785	56	56.00	Slope = 38.0056
13	5.1	5.1	10.2	1.596	49	49.00	Intercept = -11.6655
10	4	4	8.0	1.416	42	42.00	Corr. coeff. = 0.9991
8	2.5	2.5	5.0	1.124	32	32.00	
5	1.5	1.5	3.0	0.876	21	21.00	

Calculations :

Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]

IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate

IC = corrected chart respones

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

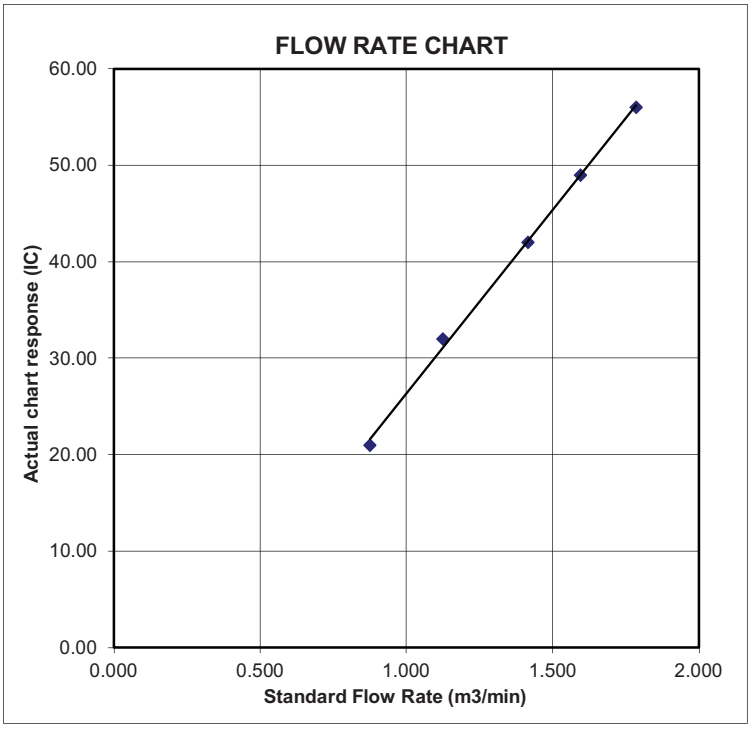
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C205469
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC20-1324) Date of Receipt / 收件日期 : 22 September 2020

Description / 儀器名稱 : Sound Level Meter (EQ015)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52
Serial No. / 編號 : 00142581
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 29 September 2020

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification. (after adjustment)
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA
- The Bruel & Kjaer Calibration Laboratory, Denmark

Tested By 測試 : K P Cheuk
Assistant Engineer

Certified By 核證 : H C Chan
Engineer

Date of Issue 簽發日期 : 30 September 2020

Sun Creation Engineering Limited - Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 - 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C205469
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using the internal standard (After Adjustment) was performed before the test 6.1.1.2 to 6.3.2.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C200258
CL281	Multifunction Acoustic Calibrator	CDK1806821

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	* 92.4	± 1.1

* Out of IEC 61672 Class 1 Spec.

6.1.1.2 After Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.0	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.2

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

Certificate of Calibration
校正證書

Certificate No. : C205469
證書編號

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.0	Ref.
			Slow			94.0	± 0.3

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.5
					250 Hz	85.3	-8.6 ± 1.4
					500 Hz	90.7	-3.2 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.6
					4 kHz	95.0	+1.0 ± 1.6
					8 kHz	93.0	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.6	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_C	C	Fast	94.00	63 Hz	93.1	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.5
					250 Hz	94.0	0.0 ± 1.4
					500 Hz	94.0	0.0 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	91.1	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.6	-6.2 (+3.0 ; -6.0)

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C205469
證書編號

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 15585

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C204290
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC20-1324) Date of Receipt / 收件日期 : 30 July 2020

Description / 儀器名稱 : Sound Calibrator (EQ083)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NC-74
Serial No. / 編號 : 34246492
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 2 August 2020

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong, Assistant Engineer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 3 August 2020

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C204290
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C203952
CL281	Multifunction Acoustic Calibrator	CDK1806821
TST150A	Measuring Amplifier	C201309

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.3	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.002	1 kHz ± 1 %	± 1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Calibration Certificate for Gas-Pro

Number: CCP/80595

Customer Name: Tops Instruments Supplies Co.
Address: Unit 1-5, 20/F., Midas Plaza,
1 Tai Yau Street, Sanpokong, Hong Kong.
Detector Model: Crowcon Gas-Pro Portable Gas Detector
Serial Number: 548062/01-001

		Alarm Level Settings			
Sensor Type	**Measuring Range**	**Alarm 1**	**Alarm 2**	**Test Gas**	**Result**
CH4	0 to 100%LEL	20	40	50%LEL	Passed
CO (Dual Toxic)	0 to 500ppm	30	100	100ppm	Passed
H2S (Dual Toxic)	0 to 100ppm	5	10	25ppm	Passed
O2	0 to 25%vol	19.5	23.5	18.0%vol	Passed
CO2	0 to 5%vol	0.5	1.5	2%vol	Passed

Next Calibration Date: 12th April 2022

Remarks:

1. The above equipment has been calibrated in accordance with the methods and procedures set out in Crowcon's LRQA validated ISO9001 quality manual.
2. The test equipment used has been calibrated and is traceable to national standards. Standard Calibration gas mixtures have been prepared in accordance with BS EN ISO 6145-1-2008. This Gas Detector must be used in accordance to the instruction manual.

Authorized Signature

Technical Department
Date: 13th April 2021

FireMark Hong Kong Limited
Flat A, 11/F., Hop Hing Industrial Building, 704 Castle Peak Road, Lai Chi Kok, Kowloon, Hong Kong.
Tel : (852) 2751 8871 Fax : (852) 2751 8806

Appendix H

Database of Monitoring Results

Air Quality – 24 Hour TSP

24-hour TSP Monitoring Data for AM2a

DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-hr TSP (µg/m³)
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(℃)	(hPa)	(m³/min)	(std m³)	INITIAL	FINAL	(g)	
13-Jul-21	27335	24517.69	24541.69	1440.00	35	36	35.5	31.1	1008.5	0.98	1405	2.6342	2.7784	0.1442	103
19-Jul-21	27309	24541.69	24565.74	1443.00	38	38	38.0	26.5	1002.3	1.05	1517	2.6787	2.7157	0.0370	24
24-Jul-21	27357	24565.74	24589.74	1440.00	38	38	38.0	29.8	998	1.04	1502	2.6629	2.7384	0.0755	50
30-Jul-21	27241	24589.74	24613.74	1440.00	37	40	38.5	28.8	1001.4	1.06	1527	2.6786	2.7211	0.0425	28

24-hour TSP Monitoring Data for AM5

DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-hr TSP (µg/m³)
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(℃)	(hPa)	(m³/min)	(std m³)	INITIAL	FINAL	(g)	
2-Jul-21	27291	18088.88	18112.88	1440.00	44	47	45.5	30.6	1006.7	1.15	1654	2.6635	2.7057	0.0422	26
7-Jul-21	27340	18112.88	18136.88	1440.00	44	47	45.5	29.4	1009.1	1.15	1662	2.6666	2.7237	0.0571	34
13-Jul-21	27334	18136.88	18160.88	1440.00	44	47	45.5	31.1	1008.5	1.15	1654	2.6606	2.7237	0.0631	38
19-Jul-21	27308	18160.88	18184.88	1440.00	43	48	45.5	26.5	1002.3	1.16	1665	2.6846	2.7241	0.0395	24
24-Jul-21	27356	18184.88	18208.88	1440.00	43	48	45.5	29.8	998	1.14	1646	2.6551	2.7823	0.1272	77
30-Jul-21	27240	18208.88	18232.88	1440.00	46	48	47.0	28.8	1001.4	1.21	1736	2.6617	2.7226	0.0609	35

Construction Noise

Daytime Noise Measurement Results (dB) at CNMS1

Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	
8-Jul-21	13:06	72.4	77.5	61.5	75.0	78.0	66.5	70.1	70.5	59.0	62.3	64.5	57.0	66.8	71.5	58.5	64.7	68.0	57.0	70.6
14-Jul-21	14:30	69.9	75.0	59.0	72.5	75.5	64.0	67.6	68.0	56.5	59.8	62.0	54.5	64.3	69.0	56.0	62.2	65.5	54.5	68.1
20-Jul-21	10:19	64.7	66.2	60.5	64.3	66.0	61.2	63.6	65.3	60.2	63.9	65.9	59.8	64.0	65.6	60.4	65.1	68.5	60.5	64.3
26-Jul-21	9:19	69.1	72.3	65.8	67.0	69.2	63.9	68.3	70.0	64.6	69.7	72.6	66.2	68.6	71.0	65.2	67.5	70.7	64.2	68.5

Daytime Noise Measurement Results (dB) at CNMS2

Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	
8-Jul-21	13:42	65.6	69.0	62.0	68.3	70.5	61.5	66.1	69.5	63.0	65.9	68.5	62.5	62.2	65.5	61.5	66.4	67.0	63.5	66.1
14-Jul-21	13:47	69.7	74.0	49.5	65.8	59.5	50.0	55.7	58.5	52.5	57.2	60.0	53.0	59.0	61.0	54.5	63.5	63.5	52.0	64.5
20-Jul-21	9:41	68.3	70.0	63.9	66.2	68.3	63.1	65.6	67.6	62.7	66.2	68.1	63.3	66.0	67.9	63.5	66.5	68.5	63.2	66.6
26-Jul-21	9:58	70.9	74.0	65.5	72.5	75.0	64.5	70.1	72.5	65.0	70.9	74.0	64.0	71.2	74.0	66.0	67.8	70.5	64.5	70.8

Daytime Noise Measurement Results (dB) at CNMS5

Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	
8-Jul-21	14:28	65.3	68.0	63.0	66.6	70.0	64.0	68.3	71.0	65.5	65.9	68.5	63.0	63.6	66.5	62.0	68.8	71.5	64.5	66.8
14-Jul-21	13:04	67.6	70.4	57.4	64.5	66.7	56.8	66.5	70.4	55.6	69.4	71.5	58.0	68.6	70.1	58.8	65.9	69.7	56.4	67.4
20-Jul-21	10:58	67.2	68.8	64.9	66.0	68.1	62.5	67.3	69.6	63.5	64.6	66.4	61.7	65.6	67.5	62.0	65.2	67.1	62.4	66.1
26-Jul-21	10:42	64.6	65.5	63.5	64.8	66.0	63.5	64.8	65.5	64.0	65.4	66.5	64.5	65.5	66.0	64.5	67.2	70.0	64.0	65.5

Landfill Gas Monitoring Results (Wan O Road)

Monitoring Location	Date	Time	Weather	Temperature (°C)	Methane (%)			Oxygen (%)			Carbon Dioxide (%)		
					Measurement Result	Action Level	Limit Level	Measurement Result	Action Level	Limit Level	Measurement Result	Action Level	Limit Level
Wan O Road	1/7/2021	8:30	Rain	26	0	10	20	20.6	19	18	0	0.5	1.5
	1/7/2021	14:00		31	0	10	20	20.6	19	18	0	0.5	1.5
	2/7/2021	8:30	Cloudy	25	0	10	20	20.6	19	18	0	0.5	1.5
	2/7/2021	14:00		30	0	10	20	20.6	19	18	0	0.5	1.5
	3/7/2021	8:30	Fine	26	0	10	20	20.6	19	18	0	0.5	1.5
	3/7/2021	14:00		31	0	10	20	20.6	19	18	0	0.5	1.5
	5/7/2021	8:30	Cloudy	27	0	10	20	20.6	19	18	0	0.5	1.5
	5/7/2021	14:00		31	0	10	20	20.6	19	18	0	0.5	1.5
	6/7/2021	8:30	Rain	27	0	10	20	20.6	19	18	0	0.5	1.5
	6/7/2021	14:00		32	0	10	20	20.6	19	18	0	0.5	1.5
	7/7/2021	8:30	Cloudy	26	0	10	20	20.6	19	18	0	0.5	1.5
	7/7/2021	14:00		31	0	10	20	20.7	19	18	0	0.5	1.5
	8/7/2021	8:30	Cloudy	25	0	10	20	20.7	19	18	0	0.5	1.5
	8/7/2021	14:00		30	0	10	20	20.7	19	18	0	0.5	1.5
	9/7/2021	8:30	Cloudy	26	0	10	20	20.7	19	18	0	0.5	1.5
	9/7/2021	14:00		32	0	10	20	20.7	19	18	0	0.5	1.5
	10/7/2021	8:30	Fine	26	0	10	20	20.7	19	18	0	0.5	1.5
	10/7/2021	14:00		30	0	10	20	20.7	19	18	0	0.5	1.5
	12/7/2021	8:30	Fine	25	0	10	20	20.7	19	18	0	0.5	1.5
	12/7/2021	14:00		29	0	10	20	20.7	19	18	0	0.5	1.5
	13/7/2021	8:30	Rain	26	0	10	20	20.7	19	18	0	0.5	1.5
	13/7/2021	14:00		28	0	10	20	20.7	19	18	0	0.5	1.5
	14/7/2021	8:30	Sunny	26	0	10	20	20.7	19	18	0	0.5	1.5
	14/7/2021	14:00		30	0	10	20	20.6	19	18	0	0.5	1.5
	15/7/2021	8:30	Rain	27	0	10	20	20.6	19	18	0	0.5	1.5
	15/7/2021	14:00		31	0	10	20	20.6	19	18	0	0.5	1.5
	16/7/2021	8:30	Rain	27	0	10	20	20.7	19	18	0	0.5	1.5
	16/7/2021	14:00		30	0	10	20	20.7	19	18	0	0.5	1.5
	17/7/2021	8:30	Cloudy	28	0	10	20	20.7	19	18	0	0.5	1.5
	17/7/2021	14:00		30	0	10	20	20.7	19	18	0	0.5	1.5
	19/7/2021	8:30	Rain	27	0	10	20	20.7	19	18	0	0.5	1.5
	19/7/2021	14:00		29	0	10	20	20.7	19	18	0	0.5	1.5
	20/7/2021	8:30	Fine	28	0	10	20	20.7	19	18	0	0.5	1.5
	20/7/2021	14:00		31	0	10	20	20.7	19	18	0	0.5	1.5
	21/7/2021	8:30	Fine	28	0	10	20	20.7	19	18	0	0.5	1.5
	21/7/2021	14:00		31	0	10	20	20.7	19	18	0	0.5	1.5
	22/7/2021	8:30	Cloudy	26	0	10	20	20.7	19	18	0	0.5	1.5
	22/7/2021	14:00		30	0	10	20	20.7	19	18	0	0.5	1.5
	23/7/2021	8:30	Cloudy	26	0	10	20	20.7	19	18	0	0.5	1.5
	23/7/2021	14:00		31	0	10	20	20.7	19	18	0	0.5	1.5
	24/7/2021	8:30	Cloudy	26	0	10	20	20.7	19	18	0	0.5	1.5
	24/7/2021	14:00		30	0	10	20	20.7	19	18	0	0.5	1.5
	26/7/2021	8:30	Cloudy	27	0	10	20	20.7	19	18	0	0.5	1.5
	26/7/2021	14:00		29	0	10	20	20.7	19	18	0	0.5	1.5
	27/7/2021	8:30	Cloudy	26	0	10	20	20.7	19	18	0	0.5	1.5
	27/7/2021	14:00		30	0	10	20	20.7	19	18	0	0.5	1.5
	28/7/2021	8:30	Cloudy	26	0	10	20	20.7	19	18	0	0.5	1.5
	28/7/2021	14:00		30	0	10	20	20.7	19	18	0	0.5	1.5
	29/7/2021	8:30	Fine	27	0	10	20	20.7	19	18	0	0.5	1.5
	29/7/2021	14:00		30	0	10	20	20.7	19	18	0	0.5	1.5
	30/7/2021	8:30	Cloudy	27	0	10	20	20.7	19	18	0	0.5	1.5
	30/7/2021	14:00		30	0	10	20	20.7	19	18	0	0.5	1.5
	31/7/2021	8:30	Cloudy	26	0	10	20	20.7	19	18	0	0.5	1.5
	31/7/2021	14:00		30	0	10	20	20.7	19	18	0	0.5	1.5

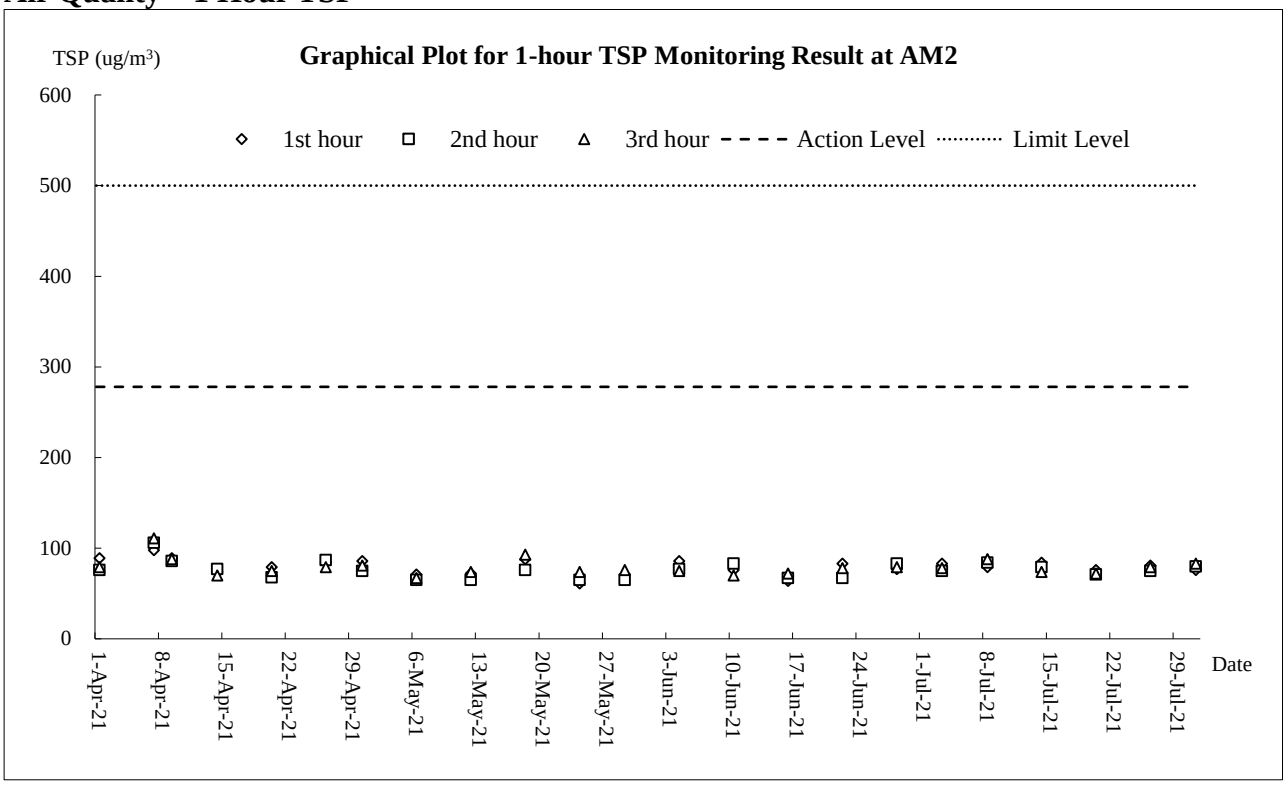
Remark:

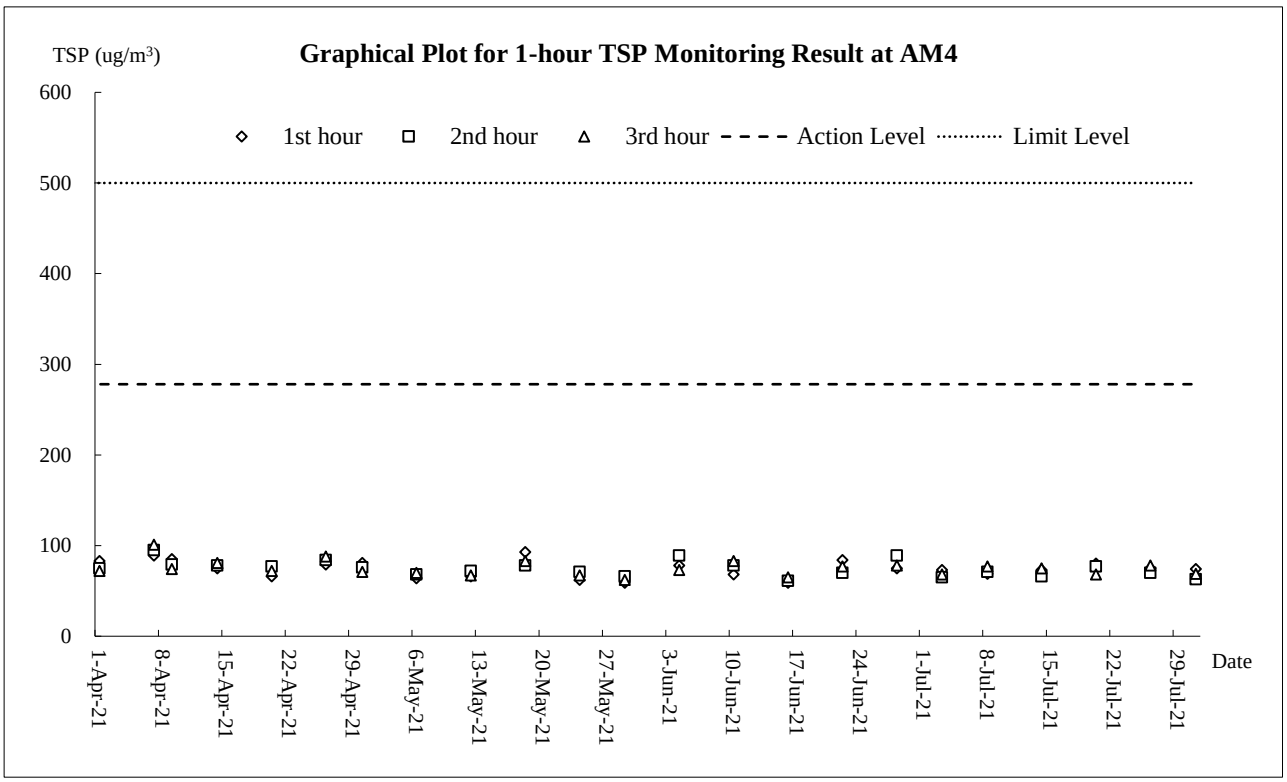
Parameter	Criteria	Measurement
Oxygen	Action Level	< 19%
	Limit Level	< 18%
Methane	Action Level	> 10% LEL (> 0.5% v/v)
	Limit Level	> 20% LEL (>1% v/v)
Carbon Dioxide	Action Level	> 0.5%
	Limit Level	> 1.5%

Appendix I

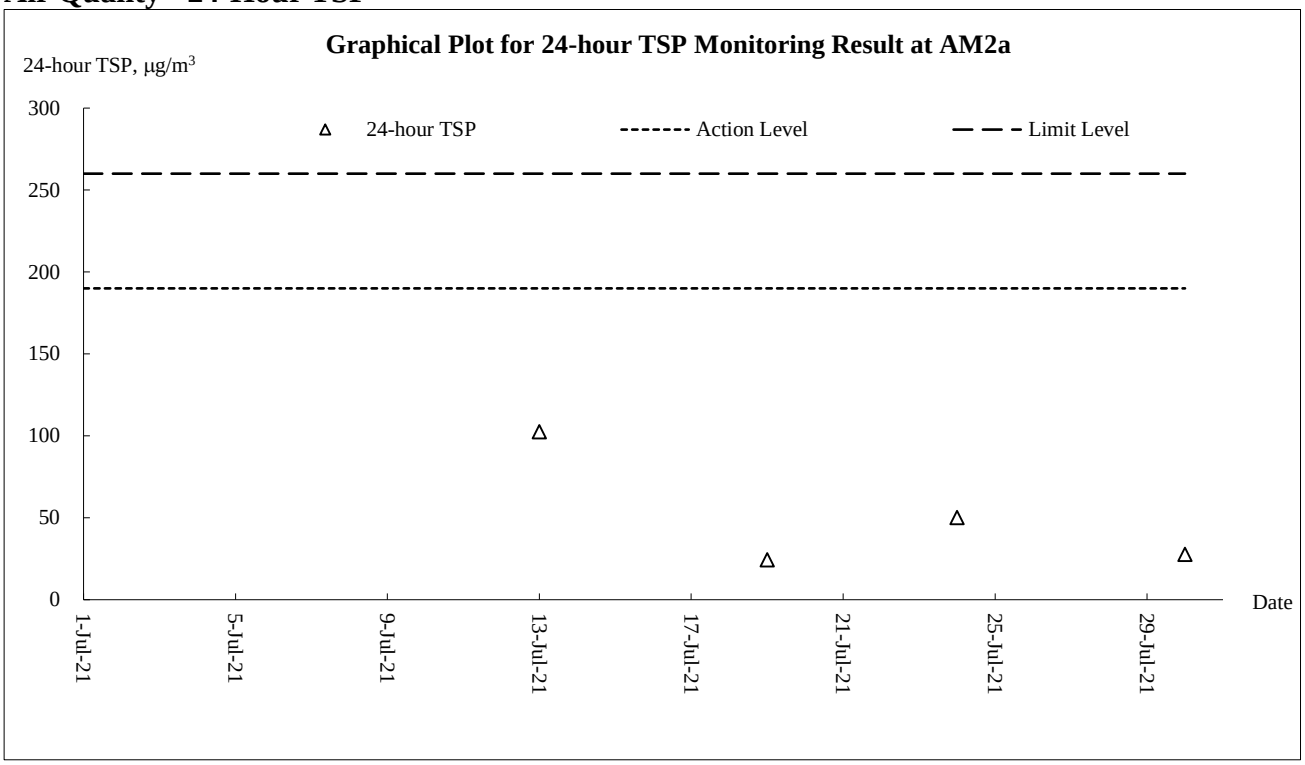
Graphical Plots of Monitoring Results

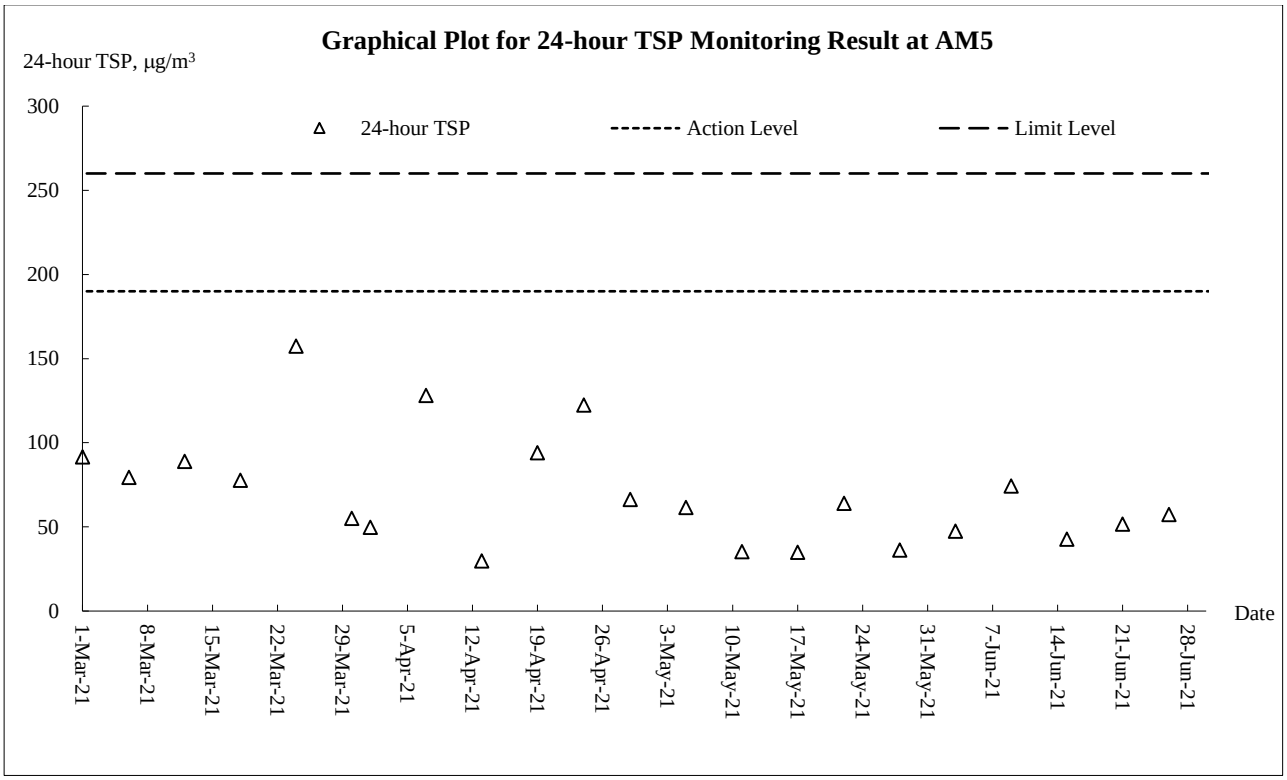
Air Quality – 1 Hour TSP



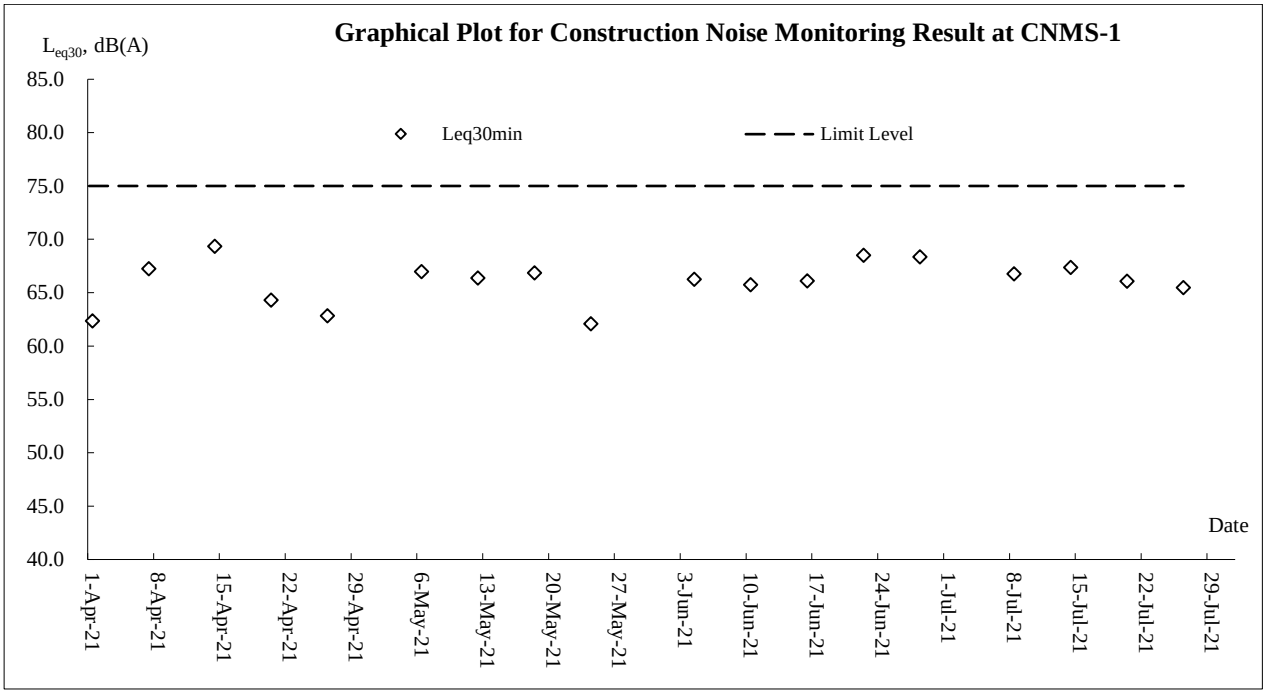


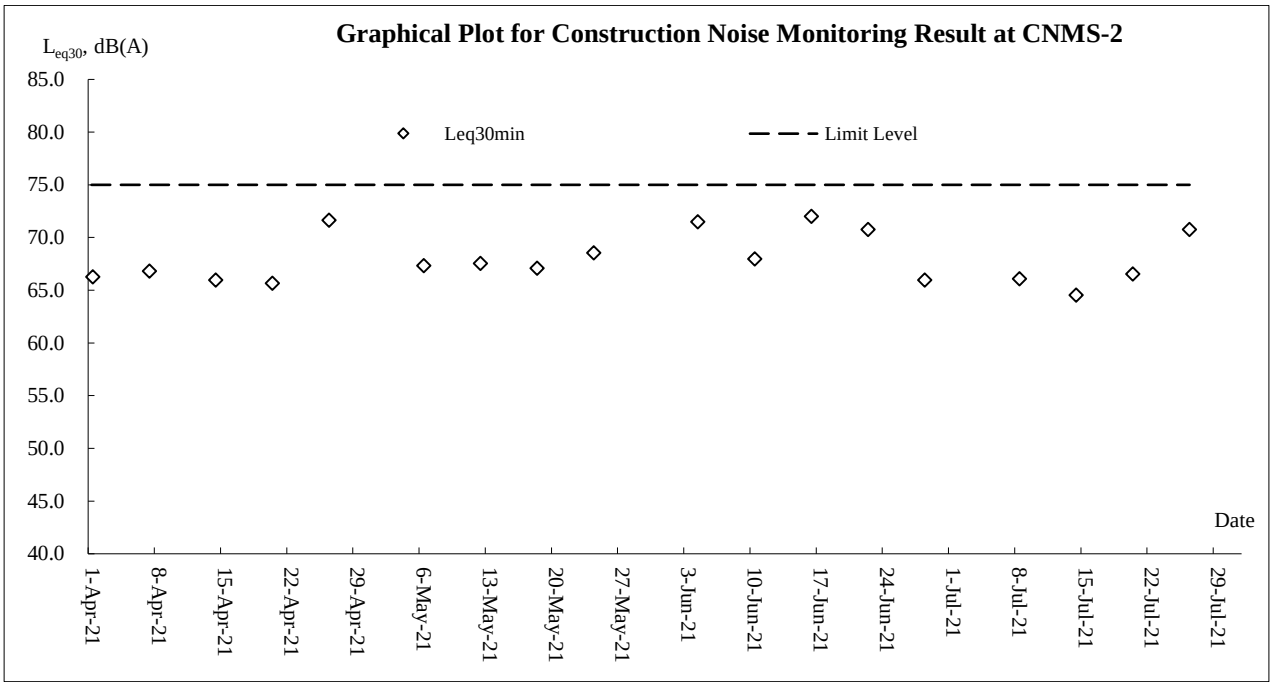
Air Quality - 24-Hour TSP

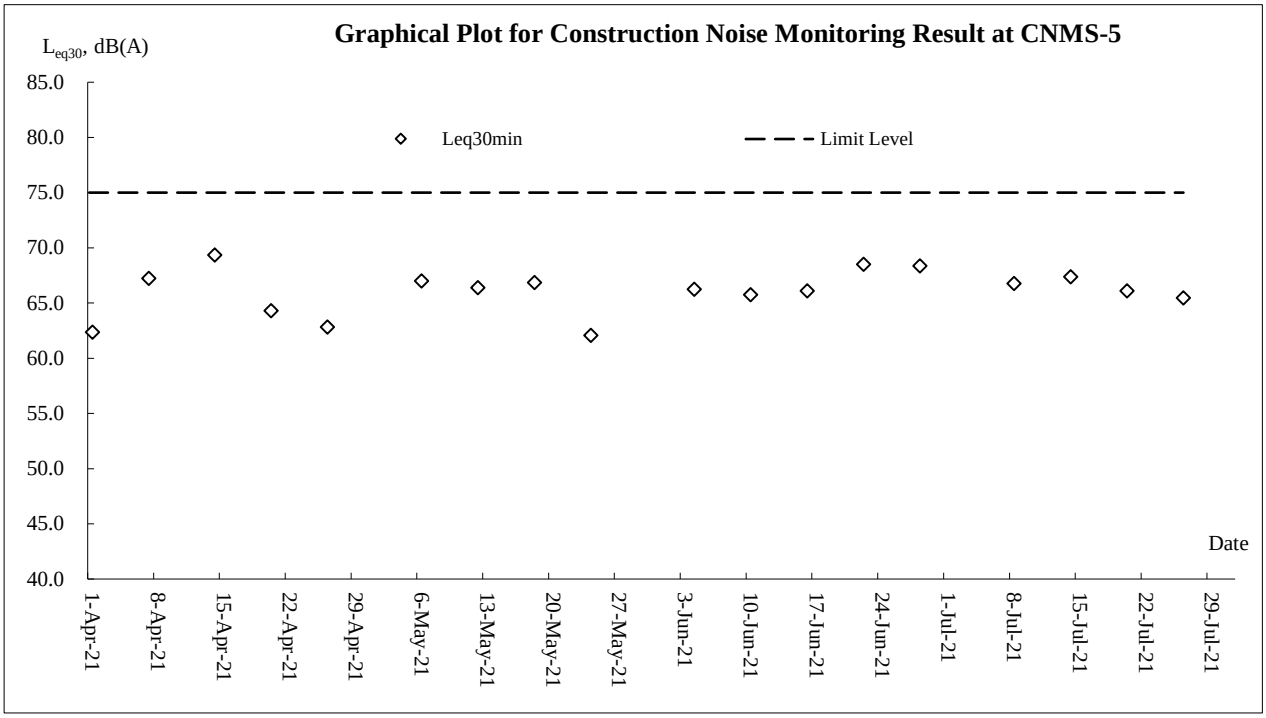




Construction Noise






Graphical Plot for Construction Noise Monitoring Result at CNMS-5
L_{eq30}, dB(A)
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
Leq30min
Limit Level
Date
1-Apr-21
8-Apr-21
15-Apr-21
22-Apr-21
29-Apr-21
6-May-21
13-May-21
20-May-21
27-May-21
3-Jun-21
10-Jun-21
17-Jun-21
24-Jun-21
1-Jul-21
8-Jul-21
15-Jul-21
22-Jul-21
29-Jul-21

Appendix J

Meteorological Data

Date		Weather	Total Rainfall (mm)	Tseung Kwan O Station			
				Mean Air Temp. (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction (degree)
1-Jul-21	Thu	Moderate southerly winds.	Trace	30.3	3	77.2	S/SW
2-Jul-21	Fri	Sunny periods in the afternoon.	0	30.7	4.5	76.2	S
3-Jul-21	Sat	Moderate to fresh west to southwesterly winds	Trace	25.7	6.2	72	S/SW
4-Jul-21	Sun	Showers will be heavy at times.	0	30.3	3.5	75.5	E/SE
5-Jul-21	Mon	Cloudy with occasional showers and squally thunderstorms.	2.3	29.7	6	80.5	E/NE
6-Jul-21	Tue	Mainly fine. Very hot	18.4	29.3	5	76	E/SE
7-Jul-21	Wed	Sunny periods in the afternoon.	11.7	28.3	3.7	85.7	E/SE
8-Jul-21	Thu	Moderate southerly winds.	1.5	29.7	2.5	78.5	E/SE
9-Jul-21	Fri	Mainly fine. Very hot	0	30	3.7	77.2	S
10-Jul-21	Sat	Sunny periods in the afternoon.	0	29.5	3	72.5	E/SE
11-Jul-21	Sun	Moderate southwesterly winds.	Trace	30.3	2	74.5	E/SE
12-Jul-21	Mon	Mainly cloudy tonight.	0.1	29.6	2.5	80.7	S/SW
13-Jul-21	Tue	Moderate north to northwesterly winds.	0	30.1	2.0	75.7	S/SW
14-Jul-21	Wed	Mainly fine. Very hot	1.5	30	3.0	78.0	S/SW
15-Jul-21	Thu	Moderate southerly winds.	0	30.6	3.0	72.7	S/SW
16-Jul-21	Fri	Moderate north to northwesterly winds.	Trace	28.8	N/L	81.2	N/NW
17-Jul-21	Sat	Moderate southerly winds.	0.2	27.5	3	87.2	N/NE
18-Jul-21	Sun	Sunny periods in the afternoon.	42.4	25.7	3.7	90.7	N/NE
19-Jul-21	Mon	Moderate southwesterly winds.	117.2	26.4	8.7	92.7	N/NE
20-Jul-21	Tue	Sunny periods in the afternoon.	81.8	25.9	5	93.2	N/NE
21-Jul-21	Wed	Mainly fine. Very hot	28.4	26.2	3	94.2	E/SE
22-Jul-21	Thu	Mainly fine. Very hot	0	29.5	4.5	79.2	S
23-Jul-21	Fri	Sunny periods and isolated showers in the afternoon.	0	31	3.7	78.5	S/SW
24-Jul-21	Sat	Moderate north to northwesterly winds.	26.5	29.6	3.7	81	S/SW
25-Jul-21	Sun	Sunny periods and isolated showers in the afternoon.	8.9	30	3.7	79.5	S/SW
26-Jul-21	Mon	Mainly cloudy tonight.	0	Maintenance	N/L	Maintenance	N/L
27-Jul-21	Tue	Moderate easterly winds, occasionally fresh offshore.	Trace	30.7	9	76	S/SW
28-Jul-21	Wed	Moderate easterly winds, occasionally fresh offshore.	Trace	30.8	3.7	79.7	S/SW
29-Jul-21	Thu	Mainly fine. Very hot	7.8	29.6	3	80	S/SW
30-Jul-21	Fri	Sunny periods in the afternoon.	7.9	28.1	2.5	82.5	N/NE
31-Jul-21	Sat	Moderate southwesterly winds.	16.9	29.3	4	81	N/NE

Appendix K

Waste Flow Table

Contract 1

Monthly Summary Waste Flow Table for 2021 (year)

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

Project : Cross Bay Link, TKO, Main Bridge and Associated Works

Contract No.: NE/2017/07

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	0.132	0.000	0.000	0.000	0.132	0.000	0.000	0.113	0.000	0.000	0.399
Feb	0.108	0.000	0.000	0.000	0.108	0.000	0.000	0.186	0.000	0.000	0.351
Mar	0.060	0.000	0.000	0.000	0.060	0.000	0.000	0.099	0.000	0.000	0.512
Apr	0.018	0.000	0.000	0.000	0.018	0.000	0.000	0.121	0.000	0.000	0.283
May	0.576	0.000	0.000	0.000	0.576	0.000	0.000	0.103	0.000	0.000	0.278
Jun	1.170	0.000	0.000	0.000	1.170	0.000	0.000	0.210	0.000	0.000	0.437
Sub-total	2.064	0.000	0.000	0.000	2.064	0.000	0.000	0.832	0.000	0.000	2.259
Jul	0.060	0.000	0.000	0.000	0.060	0.000	0.000	0.155	0.000	0.000	0.204
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	2.124	0.000	0.000	0.000	2.124	0.000	0.000	0.987	0.000	0.000	2.463

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.

Contract 2

Monthly Summary Waste Flow Table for 2021 Year

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Borken Concrete	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics (See note 3)	Chemical Waste	Other, e.g. general refuse
	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000m^3]
Jan	1.685	0.000	0.000	0.000	1.685	0.744	0.005	0.050	0.020	0.000	0.032
Feb	0.244	0.000	0.000	0.000	0.244	0.307	0.005	0.050	0.020	0.000	0.011
Mar	2.449	0.000	0.000	0.000	2.449	0.000	0.006	0.070	0.030	0.000	0.026
Apr	2.634	0.000	0.000	0.000	2.634	0.000	0.006	0.050	0.020	0.000	0.026
May	0.390	0.000	0.000	0.000	0.390	0.000	0.003	0.100	0.020	0.000	0.044
June	0.287	0.000	0.000	0.000	0.287	0.000	0.002	0.150	0.030	0.000	0.009
SUB-TOTAL	7.689	0.000	0.000	0.000	7.689	1.051	0.027	0.470	0.140	0.000	0.147
Jul	0.147	0.000	0.000	0.000	0.147	0.000	0.002	0.150	0.030	0.000	0.019
Aug											
Sep											
Oct											
Nov											
Dec											
TOTAL	7.836	0.000	0.000	0.000	7.836	1.051	0.029	0.620	0.170	0.000	0.166

Note: Conversion to 1000m^3 for general refuse is weight in 1000kg multiply by 0.002

Conversion to 1000m^3 for Inert C&D is weight in 1000kg multiply by 0.0005

Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material

Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material

Assume the loaded volume of a dump truck for internal inert waste transfer is 17.9 m^3

Appendix L

Implementation Record of Water Mitigation Measures in the Reporting Month

Water Quality Mitigation Measures under NE/2017/07 (Contract 1)	
 Treatment facilities was installed at site to treat the site generated water prior discharge.	

Water Quality Mitigation Measures under NE/2017/08 (Contract 2)	
 Treatment facilities was installed at site to treat the site generated water prior discharge.	

Appendix M

Implementation Schedule for Environmental Mitigation Measures

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
Dust Impact (Contraction Phase)						
S5.5.5.1	Regular watering under good site practice shall be adopted. In accordance with the "Control of Open Fugitive Dust Sources" (USEPA AP-42), watering once per hour on exposed worksites and haul road is recommended to achieve dust removal efficiency of 91.7%.	Good construction site practices to control the dust impact on the nearby sensitive receivers to within the relevant criteria	All construction sites	Contractor	Construction stage	• APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation
S5.5.5.3	The following dust suppression measures shall also be incorporated by the Contractor to control the dust nuisance throughout the construction phase: • Any excavated or stockpiled dusty material shall 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 shall be wetted with water and cleared from the surface of roads; • A stockpile of dusty material shall not extend beyond the pedestrian barriers, fencing or traffic cones; • The load of dusty materials on a vehicle leaving a construction site shall be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet shall 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 shall be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high shall 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 to the construction site that is within 30m of a vehicle entrance or exit shall be kept clear	Good construction site practices to control the dust impact on the nearby sensitive receivers to within the relevant criteria	All construction sites	Contractor	Construction stage	• APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	of dusty materials; • Surfaces where any pneumatic or power driven drilling, cutting, polishing or other mechanical breaking operation takes place shall be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities shall 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 shall 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 shall be totally enclosed by impervious sheeting; • Exposed earth shall 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.					
S5.5.5.4	For the barging facilities at the site compound, the following good site practice is required: • All road surfaces within the barging facilities shall be paved. • Vehicles should pass through designated wheel wash facilities. • Continuous water spray shall be installed at the loading point.	Good construction site practices to control the dust impact on the nearby sensitive receivers to within the relevant criteria	Site compound	Contractor	Construction stage	• APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation
S5.5.5.5	An audit and monitoring programme during the construction phase should be implemented by the Contractor to ensure that the construction dust impacts are controlled to within the HKAQO. Detailed requirements for the audit and monitoring programmes are given separately in the EM&A manual.	Monitor the 1-Hour and 24-Hr TSP levels at the representative dust monitoring stations to ensure compliance with relevant criteria throughout the construction period	Selected representative dust monitoring station (**Drawing no. 209506/EMA/ AIR/001**)	Contractor	Construction stage	• APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation
Noise Impact (Contraction Phase)						

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
S6.6.4.3	Good site practice and noise management techniques: • Only well-maintained plant shall be operated on-site and the plant shall be serviced regularly during the construction programme; • Machines and plant (such as trucks, cranes) that are in intermittent use shall be shut down between work periods or throttled down to a minimum; • Plant known to emit noise strongly in one direction, where possible, shall be orientated so that the noise is directed away from nearby NSRs; • Silencers or mufflers on construction equipment shall be properly fitted and maintained during the construction works; • Mobile plant shall be sited as far away from NSRs as possible and practicable; and • Material stockpiles, site office and other structures shall be effectively utilised, where practicable, to screen noise from on-site construction activities.	To minimize construction noise impact arising from the Project on the affected NSRs	All construction sites	Contractor	Construction stage	• Annex 5, TM-EIAO
S6.6.4.5-6	Use of quiet powered mechanical equipment and working methods	Reduce noise levels of plant items	All construction sites	Contractor	Construction stage	• Annex 5, TM-EIAO
S6.6.4.7	Install site hoarding at the site boundaries between noisy construction activities and NSRs	Reduce the construction noise levels at low-level zone of NSRs through partial screening	All construction sites	Contractor	Construction stage	• Annex 5, TM-EIAO
S6.6.4.8-11	Use of temporary or movable noise barriers and full enclosure for relatively fixed plant source	Screen the noisy plant items to be used at all construction sites	For plant items listed in Table 6.7 and Appendix 6.1 of the EIA report at all construction sites	Contractor	Construction stage	• Annex 5, TM-EIAO
	Implement a noise monitoring programme under the EM&A manual	Monitor the construction noise levels at the selected representative locations	Selected representative noise monitoring stations (**Drawing no. 209506/EMA/NS/001** & **209506/EMA/NS/002**)	Contractor	Construction stage	• Annex 5, TM-EIAO
S6.7.3.1	Partial enclosures along Road D9 and application of low noise surfacing material along CBL and Road D9	To minimize road traffic noise impact arising from the CBL and Road D9 on the affected NSRs	CBL and Road D9 (**Drawing no. 209506/EMA/NS/003**)	CEDD/ Contractor	During operational stage	• Annex 5, TM-EIAO

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
Water Quality Impact (Contraction Phase)						
S8.6.4.3	Marine Piling and Pile Excavation Works Marine piling and pile excavation works shall be undertaken in such a manner as to minimize re-suspension of sediments. Standard good practice measures shall be implemented, including the following requirements: • All marine piling and pile excavation works shall be conducted within a floating single silt curtain. • Mechanical closed grabs (with a size of5m3) shall be designed and maintained to avoid spillage and should seal tightly while being lifted. • Barges shall have tight fitting seals to their bottom openings to prevent leakage of material. • Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes. • Loading of barges shall be controlled to prevent splashing of dredged material to the surrounding water. Barges shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation. • Excess material shall be cleaned from the decks and exposed fittings of barges before the vessel is moved. • Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action. • All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash. • The works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site.	To control potential impacts from marine piling and pile excavation works	During marine piling and pile excavation works	Contractor	Construction stage	• TM-EIAO; and • WPCO
S8.6.4.4	Construction Site Runoff 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, shall include the following: • The design of efficient silt removal facilities shall be based on the guidelines in Appendix A1 of ProPECC PN 1/94. The	Control potential water quality impacts from construction site run-off	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction; • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m3 shall be covered with tarpaulin or similar fabric during rainstorms. Measures shall be taken to prevent the washing away of construction materials, soil, silt or debris into any marine water bodies; • All vehicles and plant shall be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities shall be provided at every construction site exit where practicable. Wash-water shall 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 shall be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains; • Construction solid waste, debris and rubbish on site shall be collected, handled and disposed of properly to avoid water quality impacts; • All fuel tanks and storage areas shall 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; and • Regular environmental audit on the construction site shall be carried out in order to prevent any malpractices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the meander, wetlands and fish ponds.					
S8.6.4.6	Sewage from workforce • Portable chemical toilets and sewage holding tanks shall be provided for handling the construction sewage generated by the workforce; • A licensed contractor shall be employed to provide	Control potential water quality impacts from sewage	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO

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				Agent	Stage	
	appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.					
	Monitoring Implement a marine water quality monitoring programme under the EM&A on level of suspended solids (SS) / turbidity and dissolved oxygen (DO) shall be carried out.	Control potential water quality impacts from marine piling and pile excavation works	Selected monitoring stations (**Drawing no. 209506/EMA/WQ/001**)	Contractor	Construction station	• TM-EIAO; and • WPCO
S8.7.3.2	**Operational phase – Runoff from road surface** Proper drainage systems with silt traps and oil interceptors shall be installed, maintained and cleaned at regular intervals.	Control potential water quality impacts from road surface runoff	CBL and Road D9	Contractor	Construction and operational stage	• TM-EIAO; and • WPCO
Waste Management (Contraction Phase)						
S9.5.2	**Good Site Practices** Recommendations for good site practices: • Nomination of an approved personnel to be responsible for the implementation of good site practices, arrangements for collection and effective deposal to an appropriate facility of all wastes generated at the site; • Training of site personnel in proper waste management and chemical handling procedures; • Provision of sufficient waste disposal points and regular collection for disposal; • Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Centre; • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and • Implementation of a recording system for the amount of wastes generated/recycled and disposal sites.	Good site practices which ensure waste generated during construction phase is properly managed	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54); • ETWB TCW No. 19/2005

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S9.5.4	**Waste Reduction Measures** Recommendations for achieving waste reduction include: • On-site reuse of any material excavated as far as practicable; • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of material and their proper disposal; • Collection of aluminum cans and waste paper by individual collectors during construction should be encouraged. Separately labelled recycling bins should also be provided to segregate these wastes from other general refuse by the workforce; • Recycling of any unused chemicals and those with remaining functional capacity as far as possible; • Prevention of the potential damage or contamination to the construction materials though proper storage and good site practices; • Planning and stocking of construction materials should be made carefully to minimize amount of waste generated avoid unnecessary generation of waste; and • Training on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling should be provided to workers.	To reduce amount of waste generated during construction phase	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54); • ETWB TCW No. 19/2005
S9.5.5-6	**Storage, Collection and Transportation of Waste** Recommendations for proper storage include: • Waste such as soil should be handled and stored well to ensure secure containment; • Stockpiling area should be provided with covers and water spraying system to prevent materials from being washed away and to reduce wind-blown litter; and • Different locations should be designated to stockpile each material to enhance reuse. With respect to the collection and transportation of waste from the construction works, the following is recommended: • Remove waste in a timely manner; • Employ trucks with cover or enclosed containers for waste transportations; • Obtain relevant waste disposal permits from the appropriate	To reduce the environmental implications of improper storage	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54); • ETWB TCW No. 19/2005

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	authorities; and • Disposal of waste should be done at licensed waste disposal facilities.					
S9.5.8-11	**C&D Materials** The following mitigation measures shall be implemented in handling the waste: • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; • Disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation; • Standard formwork or pre-fabrication order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage; and • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54); • ETWB TCW No. 19/2005 • ETWB TCW No. 06/2010
S9.5.13	**Excavated Marine Sediments** During transportation and disposal of the excavated marine sediments, the following measures shall be taken to minimize potential environmental impacts: • Bottom opening of barges should be fitted with tight fitting	To minimize potential impacts on water quality	All construction sites where applicable	Contractor	Construction stage	• ETWBTC (Works) No. 34/2002

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved; • Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation; • Transport barges or vessels should be equipped with automatic self-monitoring devices as specified by the DEP; and • Barges should not be filled to a level that would cause the overflow of materials or sediment-laden water during loading or transportation.					
S9.5.14-17	For those processes which generate chemical waste, the Contractor shall identify any alternatives that generate reduced quantities or even no chemical waste, or less dangerous types of chemical waste. If chemical waste is produced at the construction site, the Contractor is required to register with EPD as chemical waste producers. Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows. Containers used for storage of chemical wastes shall: • Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; • Have a capacity of less than 450 L unless the specification have been approved by EPD; and • Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations. The storage area for chemical wastes shall: • Be clearly labelled and used solely for the storage of chemical wastes; • Be enclosed on at least 3 sides; • Have an impermeable floor and bunding of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest;	To ensure proper management of chemical waste	All construction sites	Contractor	Construction stage	• Waste Disposal (Chemical Waste) (General) Regulation; • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	• Have adequate ventilation; • Be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste, if necessary); and • Be arranged so that incompatible materials are adequately separated. Disposal of chemical waste shall: • Be via a licensed waste collector; and • Be to a facility licensed to receive chemical waste, such as the CWTC which also offers a chemical waste collection service and can supply the necessary storage containers; or • Be to a re-user of the waste, under approval from EPD.					
S9.5.18	**Sewage** An adequate number of portable toilets shall be provided for the on-site construction workers. Any waste shall be transferred to a sewage treatment works by a licensed collector.	Proper handling of sewage from worker to avoid odour, pest and litter impacts	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54)
S9.5.19	**General Refuse** General refuse generated on-site shall be stored in enclosed bins or compaction units separately from construction and chemical wastes. Recycling bins shall also be provided to encourage recycling. A reputable waste collector shall be employed by the Contractor to remove general refuse from the site on a daily basis separately from the construction and chemical wastes. Burning of refuse on construction sites is prohibited by law.	Minimize production of general refuse and avoid odour, pest and litter impacts	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54)
S10.7.2.4	Good Site Practices – The integrity and effectiveness of all silt curtains shall be regularly inspected. Effluent monitoring should be incorporated to make sure that the discharged effluent from construction sites meets the relevant effluent discharge guidelines.	To minimize potential impacts on water quality and protect marine communities within Junk Bay	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO
S10.7.2.5	Site runoff control – For works on land, standard site runoff control measures will be established and strictly enforced to ensure that discharge of contaminated or silt-laden runoff into marine waters is minimized.	To minimize potential impacts on water quality and protect marine communities within Junk Bay	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO
S10.9.1.1	The marine water quality monitoring programme recommended in Chapter 8 of this EIA report and this EMIS would also serve to protect the marine communities inside Junk Bay.	To minimize potential impacts on water quality and protect marine	Selected monitoring stations (**Drawing no. 209506/EMA/WQ/001**)	Contractor	Construction stage	• TM-EIAO; and • WPCO

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
		communities within Junk Bay				
S11.6.2.2	Good Site Practices: – The integrity and effectiveness of all silt curtains should be regularly inspected. Effluent monitoring shall be incorporated to make sure that the discharged effluent from construction sites meets the relevant effluent discharge guidelines.	To minimize potential impacts on water quality and protect fishery resources	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO
S11.6.2.3	Site runoff control - For works on land, standard site runoff control measures will be established and strictly enforced to ensure that discharge of contaminated or silt-laden runoff is minimized.	To minimize potential impacts on water quality and protect fishery resources	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO
S11.8.1.1	The marine water quality monitoring programme recommended in Chapter 8 of this EIA report and this EMIS would also serve to protect the fishery resources.	To minimize potential impacts on water quality and protect fishery resources	Selected monitoring stations (**Drawing no. 209506/EMA/WQ/001**)	Contractor	Construction stage	• TM-EIAO; and • WPCO
Landscape and Visual						
S13.8.1.2	The following mitigation measures should be implemented in the construction stage • CM1 – The construction area and contractor's temporary works areas should be minimized to avoid impacts on adjacent landscape. • CM2 – Reduction of construction period to practical minimum. • CM3 – Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where the soil material meets acceptable criteria and where practical. The Contract Specification shall include storage and reuse of topsoil as appropriate. • CM4 – Existing trees on boundary of the Project Area shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage).	Minimize effects of landscape and visual impacts	Work site/during construction	Funded and implemented by CEDD	Construction stage	

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	• CM5 – Trees unavoidably affected by the works shall be transplanted where practical. Trees should be transplanted straight to their final receptor site and not held in a temporary nursery. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, if applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme. • CM6 – Advance screen planting to proposed roads and associated structures. • CM7 – hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone). • CM8 – Screening of construction works by hoardings/noise barriers around works area in visually unobtrusive colours, to screen Works. • CM9 – Control night-time lighting and glare by hooding all lights. • CM10 – Ensure no run-off into water body adjacent to the Project Area. • CM11 – Avoidance of excessive height and bulk of buildings and structures					
S13.8.1.2	OM1 – Compensatory tree planting for all felled trees shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Felling Application process under ETWBTC 3/2006.	Minimize effects of landscape and visual impacts	Within the site boundary of the proposed works	Funded and implemented by CEDD. Maintained by CEDD and LCSD.	Design, construction and operational stages	
S13.8.1.2	The following mitigation measures should be implemented in the operational stage: • OM2 – A continuous belt of screen planting along the roads. Planting of the belt of trees shall be carried out as advance works ahead of other site formation and building works. • OM3 – Maximise soft landscape of the site, where space permits, roadside berms /slope treatment works should be created. • OM4 – During detailed design, refine structure layout to create a planting strips along the roads to enhance greenery. • OM5 – Use appropriate (visually unobtrusive and	Minimize effects of landscape and visual impacts	CBL and Road D9/during construction and operation	Funded and implemented by CEDD. Maintained by CEDD and LCSD.	Design, construction and operational stages	

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	non-reflective) building materials and colours, and aesthetic design in built structures. • OM6 – Streetscape elements (e.g. paving, signage, street furniture, lighting etc.) shall be sensitively designed in a manner that responds to the local context, and minimizes potential negative landscape and visual impacts. Lighting units should be directional and minimize unnecessary light spill. • OM7 – Avoidance of excessive height and bulk of buildings and structures					
Landfill Gas						
S14.7.5	Precautionary measures The following guidance has been extracted from the EPD's Landfill Gas Hazard Assessment Guidance Note Guidance to ensure a robust and comprehensive set of measures to protect workers are provided. • During all works, safety procedures shall be implemented to minimize the risks of fires and explosions, asphyxiation of workers (especially in confined space) and toxicity effects resulting from contact with contaminated soils and groundwater. • Safety officers who are specifically trained with regard to LFG and leachate related hazards and the appropriate actions to take in adverse circumstances shall be present on all worksites throughout the works. • All personnel who work on site and all visitors to the site shall be made aware of the possibility of ignition of gas in the vicinity of the works, the possible presence of contaminated water and the need to avoid physical contact with it. • Those staff who work in, or have responsibility for "at risk" areas, including all excavation workers, supervisors and engineers working within the consultation zone, shall receive appropriate training on working in areas susceptible to LFG hazards. • Enhanced personal hygiene practices including washing thoroughly after working and eating only in "clean" areas shall be adopted where contact may have been made with any groundwater which is thought to be contaminated with	Health and safety of the workers	Construction sites within 250m Consultation Zone (**Drawing no. 209506/EMA/LFG/001**)	Contractor	Construction stage	• Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	leachate. • Ground level construction plant shall be fitted with vertical exhausts at least 0.6m above ground level and with spark arrestors. • During piping assembly or ducting construction, all valves/seals shall be closed immediately after installation. As construction progresses, all valves/seals should be closed as installed to prevent the migration of gases through the pipeline/conduit. All piping /ducting shall be capped at the end of each working day. • Mobile offices, equipment stores, mess rooms etc. shall be located on an area which has been proven to be gas free (by survey with portable gas detectors) and ongoing monitoring shall be carried out to ensure that these areas remain gas free. Alternatively, such buildings shall be raised clear of the ground. If buildings are raised clear of the ground, the minimum, clear separation distance (as measured from the highest point on the ground surface to the underside of the lowest floor joist) shall be 500mm. However, in this case, it is highly recommended that all the site offices, equipment stores and mess rooms should be located outside the 250m Consultation Zone. • Smoking and naked flames shall be prohibited within confined spaces. "No Smoking" and "No Naked Flame" notices in Chinese and English shall be posted prominently around the construction site. Safety notices shall be posted warning of the potential hazards. • Welding, flame-cutting or other hot works may only be carried out in confined spaces when controlled by a "permit to work" procedure, properly authorized by the Safety Office. The permit to work procedure shall set down clearly the requirements for continuous monitoring of methane, carbon dioxide and oxygen throughout the period during which the hot works are in progress. The procedure shall also require the presence of an appropriately qualified person who shall be responsible for reviewing the gas measurements as they are made, and who shall have executive responsibility for suspending the work in the event of					

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	unacceptable or hazardous conditions. Only those workers who are appropriately trained and fully aware of the potentially hazardous conditions which may arise shall be permitted to carry out hot works in confined areas. • During the construction works, adequate fire extinguishers and breathing apparatus sets shall be made available on site and appropriate training given in their use.					
S14.7.6	**Landfill gas monitoring** The following monitoring shall be undertaken when construction works are carried out in confined space within the 250m Consultation Zone: • The works area shall be monitored for methane, carbon dioxide and oxygen using appropriately calibrated portable gas detection equipment. The monitoring requirements and procedures specified in Paragraphs 8.23 to 8.28 of EPD's Guidance Note shall be followed. The monitoring frequency and areas to be monitored shall be set down prior to commencement of the works. Depending on the results of the measurements, actions required will vary. As a minimum these shall encompass the actions specified in Table 14.6 of the EIA report. • When portable monitoring equipment is used, the frequency and areas to be monitored should be set down prior to commencement of the works either by the Safety Officer or by an appropriately qualified person. • All measurements shall be made with the monitoring tube located not more than 10mm from the surface. • A standard form, detailing the location, time of monitoring and equipment used together with the gas concentrations measured, shall be used when undertaking manual monitoring to ensure that all relevant data are recorded. • If methane (flammable gas) or carbon dioxide concentrations are in excess of the trigger levels or that of oxygen is below the level specified in the Emergency Management in the following section, then evacuation shall be initiated.	Health and safety of the workers	Confined space of construction sites within 250m Consultation Zone	Contractor	Construction stage	• Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)
S14.7.8-9	**Emergency management** In the event of the trigger levels specified in Table 14.6 of the EIA report being exceeded, a person, such as the Safety	Health and safety of the workers	Confined space of construction sites within 250m Consultation Zone	Contractor	Construction stage	• Landfill Gas Hazard Assessment

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	Officer, shall be nominated, with deputies, to be responsible for dealing with any emergency which may occur due to LFG. In an emergency situation the nominated person, or his deputies, shall have the necessary authority and shall ensure that the confined space is evacuated and the necessary works implemented for reducing the concentrations of gas.					Guidance Note (EPD/TR8/97)
S14.7.16	**Protection measures – Operational phase** • An assumed presence of landfill gas shall be adopted at all times by maintenance workers; • all maintenance workers inspecting any manhole shall be fully trained in the issue of LFG hazard; • any manhole which is large enough to permit to access to personnel shall be subject to entry safety procedure; • Code of Practice on Safety and Health at Work in Confined Spaces shall be followed to ensures compliance with the Factories and Industrial Undertakings (Confined Spaces) Regulations of the Factories and Industrial Undertakings Ordinance; • a strictly regulated "work permit procedure" shall be implemented and the relevant safety procedures must be rigidly followed; and • Adequate communication with maintenance staff shall be maintained with respect to LFG.	Health and safety of the workers	Utility maintenance areas within 250m Consultation Zone/during operational period	Utility companies	Operational stage	• Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97); and • Code of Practice on Safety and Health at Work in Confined Space
S14.7.17	**General recommended precautionary & protection measures – Operational phase** LGF surveillance exercise shall be undertaken by the utility companies at the utility manholes/inspection chambers. The surveillance exercise shall be undertaken for the duration of the site occupancy, or until such time that EPD agree that surveillance is no longer required and this shall be based on all the available monitoring data for methane, carbon dioxide and oxygen.	Health and safety of the workers	Utility maintenance areas within 250m Consultation Zone/during operational period	Utility companies	Operational stage	• Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97); and • Code of Practice on Safety and Health at Work in Confined Space