ANEWR

Water Supplies Department
New Works Branch
Construction Division
11 Tai Yip Lane
Kowloon Bay
Kowloon
Hong Kong

Your reference:

Our reference: HKWSD201/50/107185

Date: 19 March 2021

Attention: Mr Y M Chan

BY POST

Dear Sirs

Quotation No.: WQ/17/A071
Independent Environmental Checker for Water Supplies Department
– Proposed Desalination Plant in TKO Area 137 for Contract No. 13/WSD/16
Verification of Monthly EM&A Report No.31

We refer to emails of 17 and 18 March 2021 attaching Monthly EM&A Report No.31 for the captioned project prepared by the ET.

We have no comment and hereby verify the Monthly EM&A Report No.31 in accordance with Clause 3.5 of the Environmental Permit no. EP-503/2015/A.

Should you have any queries regarding the above, please do not hesitate to contact the undersigned or our Mr Louis Kwan 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/KSYL/CYYR/lsmt

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水務署
Water Supplies Department

Contract No. 13/WSD/16

Mainlaying in Tseung Kwan O

Monthly EM&A Report No. 31
(Period from 1 to 28 February 2021)

March 2021
(Rev. 0)

	Prepared by:	Certified by:
Name	Karen Cheung	Jacky Leung
Position	Environmental Team	Environmental Team Leader
Signature		
Date:	14/03/2021	14/03/2021

Revision History

0	1st Submission	14 Mar 2021
Rev.	**DESCRIPTION OF MODIFICATION**	**DATE**

CONTENT

EXECUTIVE SUMMARY

Introduction

A1. Penta-Ocean - Concentric Joint Venture (POCJV) is contracted to carry out the Mainlaying in Tseung Kwan O under Contract No. 13/WSD/16 (hereinafter known as "the Project").

A2. In accordance with the Environmental Monitoring and Audit (EM&A) Manual for the Project, EM&A works should be carried out by Environmental Team (ET), Acuity Sustainability Consulting Limited (ASCL), during the construction phase of the Project.

A3. This is the 31st Monthly EM&A Report, prepared by ASCL, for the Project summarizing the monitoring results and audit findings of the EM&A programme at and around Tseung Kwan O (TKO) during the reporting period from 1 February 2021 to 28 February 2021.

A4. The EM&A programme for this contract has covered environmental monitoring on construction noise level at selected NSRs and Contractor's environmental performance auditing in the aspects of construction dust, construction noise, water quality, waste management, Landscape and Visual and Ecology.

Summary of Main Works Undertaken & Key Mitigation Measures Implemented

A5. Key works carried out in this reporting period for the Project included the followings:

Location	Location	Works Conducted in the reporting month
Portion H of the Project Site	TKO 137 Fill Bank Desalination Plant & SENTX area	• Hydrostatic pressure testing for completed MS1200 pipeline section.
	TKO 137 Pit B	• Pipe Jacking by TBM was conducted.
	TKO 137 Pit C	• Excavation and ELS works for receiving pit was conducted.
Portion J of the Project Site	Wan Po Rd – Workfront 1	• Pipe trench excavation and pipe laying were in-progress.
	Wan Po Rd – Workfront 2	• Pipe trench excavation and pipe laying were in-progress.
	Wan Po Rd – Workfront 3	• Pipe trench excavation and pipe laying were in-progress.
	Wan Po Rd – Pit A	• Grouting works for trenchless pit was in-progress, • Pit excavation and ELS works was in-progress.
	Wan Po Rd – Pit B	• Grouting works for trenchless pit was in-progress, • Pit excavation and ELS works was in-progress.

Location	Location	Works Conducted in the reporting month
	Landfill Stage 1 – Area A	• Trench excavation and pipe laying were conducted. • ELS and excavation works for 900HSV chamber.
	Cycle Track – Workfront 1	• Trench excavation and pipe laying were in-progress.
	Cycle Track – Workfront 2	• Trench excavation and pipe laying were in-progress.
	Velodrome – Pit M	• Pipe jacking works were conducted.
	Velodrome – Pit O	• Establishment for pipe jacking works
	Mau Wu Tsai – Workfront 1	• Trench excavation and pipe laying works were conducted.
	Mau Wu Tsai – Workfront 2	• Trench excavation and pipe laying works were conducted.
	Po Lam Road	• Trench excavation and pipe laying works were conducted.
	TKO Primary Service Reservoir	• Trial pit works were conducted.

A6. The major environmental impacts brought by the above construction works include:

- Construction dust and noise generation of saw cutting of concrete surface, mainlaying of pipes, sheet and pipe pilling, TBM break through, excavation works and ELS works
- Waste generation from the construction activities

A7. The key environmental mitigation measures implemented for the Project in this reporting period associated with the above construction works include:

- Reduction of construction dust generation of saw cutting of concrete surface, mainlaying of pipes, sheet piling works, hole-drilling, excavation works and installation works by water spraying and covering dusty materials with screenings
- Reduction of noise from equipment and machinery on-site
- Sorting and storage of general refuse and construction waste

Summary of Exceedance & Investigation & Follow-up

A8. Noise monitoring was conducted in the reporting month for NSR4 Creative Secondary School on 3, 9, 18 and 22 February 2021 as construction works were conducted within 300m to the noise sensitive receiver. No project-related exceedance of the Action and Limit Level was recorded during the reporting period.

A9. The Education Bureau (EDB) has announced that all kindergartens as well as primary and secondary schools (including special schools and schools offering non-local curriculum) will continue to suspend face to face classes and school activities until the beginning of school's Chinese New Year

holidays due to the spread of the Novel Coronavirus. No examinations were scheduled between 22nd to 28th February 2021. Hence the noise limit level will be 70.0 dB(A). Further information and Academic School Calendar can be found in Appendix O.

Complaint Handling and Prosecution

A10. No project-related environmental complaint was received during the reporting period.

A11. Neither notifications of summons nor prosecution was received for the Project in the reporting month.

Reporting Change

A12. There were no changes reported that may affect the on-going EM&A programme.

Summary of Upcoming Key Issues and Key Mitigation Measures

A13. Key works in March 2021 (the next reporting month) for the Project will include the followings:

Location	Location	Forecast Works for January 2021
Portion H of the Project Site	TKO 137 Fill Bank Desalination Plant & SENTX area	• Hydrostatic pressure testing for completed MS1200 pipeline section will be conducted.
	TKO 137 Pit A	• Preparation for breakthrough of TBM from Pit B would be conducted.
	TKO 137 Pit B	• Pipe jacking works by TBM will be commenced.
	TKO 137 Pit C	• Construction of receiving pit will be completed.
Portion J of the Project Site	Wan Po Rd – Workfront 1	• Trench excavation and pipe laying will be conducted.
	Wan Po Rd – Workfront 2	• Trench excavation and pipe laying works will be conducted. • Trial pit works for Pit 1 will be commenced.
	Wan Po Rd – Workfront 3	• Trench excavation and mainlaying works will be conducted.
	Wan Po Rd – Pit A	• Excavation and ELS works will be conducted. • Grouting of trenchless pit will be conducted.
	Wan Po Rd – Pit B	• Excavation and ELS works will be conducted. • Grouting of trenchless pit will be conducted.

Location	Location	Forecast Works for January 2021
	Landfill Stage 1 – Area A	• Trench excavation and pipe laying works will be conducted. • 900HSV Chamber construction works will be commenced.
	Landfill Stage 1 – Area B	• Trench excavation and pipe laying works will be conducted.
	Cycle Track – Workfront 1	• Trench excavation and pipe laying works will be conducted.
	Cycle Track – Workfront 2	• Trench excavation and pipe laying works will be conducted.
	Velodrome – Pit K	• Trenchless pit for hand-shield works will be conducted.
	Velodrome – Pit L	• Trenchless pit for hand-shield works will be conducted.
	Velodrome – Pit N	• Preparation works for TBM break through will be conducted.
	Velodrome – Pit O	• Pipe jacking works will be continued.
	Mau Wu Tsai – Workfront 1	• Trench excavation and pipe mainlaying works will be conducted.
	Mau Wu Tsai – Workfront 2	• Trench excavation and pipe mainlaying works will be conducted.
	Po Lam Road	• Trench excavation and pipe mainlaying works will be conducted.
	TKO Primary Service Reservoir	• Trial pit works will be continued. • Trench excavation and pipe laying works will be conducted.

A14. The major environmental impacts brought by the above construction works will include:

- Construction dust and noise generation of saw cutting of concrete surface, mainlaying of pipes, sheet and pipe pilling, TBM break through, excavation works and ELS works.
- Waste generation from construction activities

A15. The key environmental mitigation measures for the Project in the coming reporting period associated with the above construction works will include:

- Reduction of construction dust generation of saw cutting of concrete surface, mainlaying of pipes, sheet piling works, hole-drilling, excavation works and installation works by water spraying and covering dusty materials with screenings
- Reduction of noise from equipment and machinery on-site
- Sorting and storage of general refuse and construction waste

1. BASIC PROJECT INFORMATION

1.1 Background

The proposed Desalination Plant at Tseung Kwan O (DPTKO) will produce potable water with an initial capacity of 135 million liters per day (MLD), expandable to an ultimate capacity of 270 MLD in the future to provide a secure and alternative fresh water resource complying with the World Health Organization (WHO) standards. The plant will adopt the Seawater Reverse Osmosis (SWRO) technology, which dominates the market due to its reliability and progressive reduction in cost as the technology advances.

Pursuant to the Environmental Impact Assessment Ordinance (EIAO), the Director of Environmental Protection granted the Variation of Environmental Permit (No. EP-503/2015/A) to Water Supplies Department (WSD) for the Project on 26 January 2018.

The scope of the Contract may be considered in brief, to consist of the laying of about 10km long 1200mm diameter fresh water mains and the associated works along the alignment of the Project as shown with the overall view in **Appendix B.**

1.2 The Reporting Scope

This is the 31st Monthly EM&A Report for the Project which summarizes the key findings of the EM&A programme during the reporting period from 1 February 2021 to 28 February 2021.

1.3 Project Organization

The Project Organization structure for Construction Phase is presented in **Figure 1.1**.

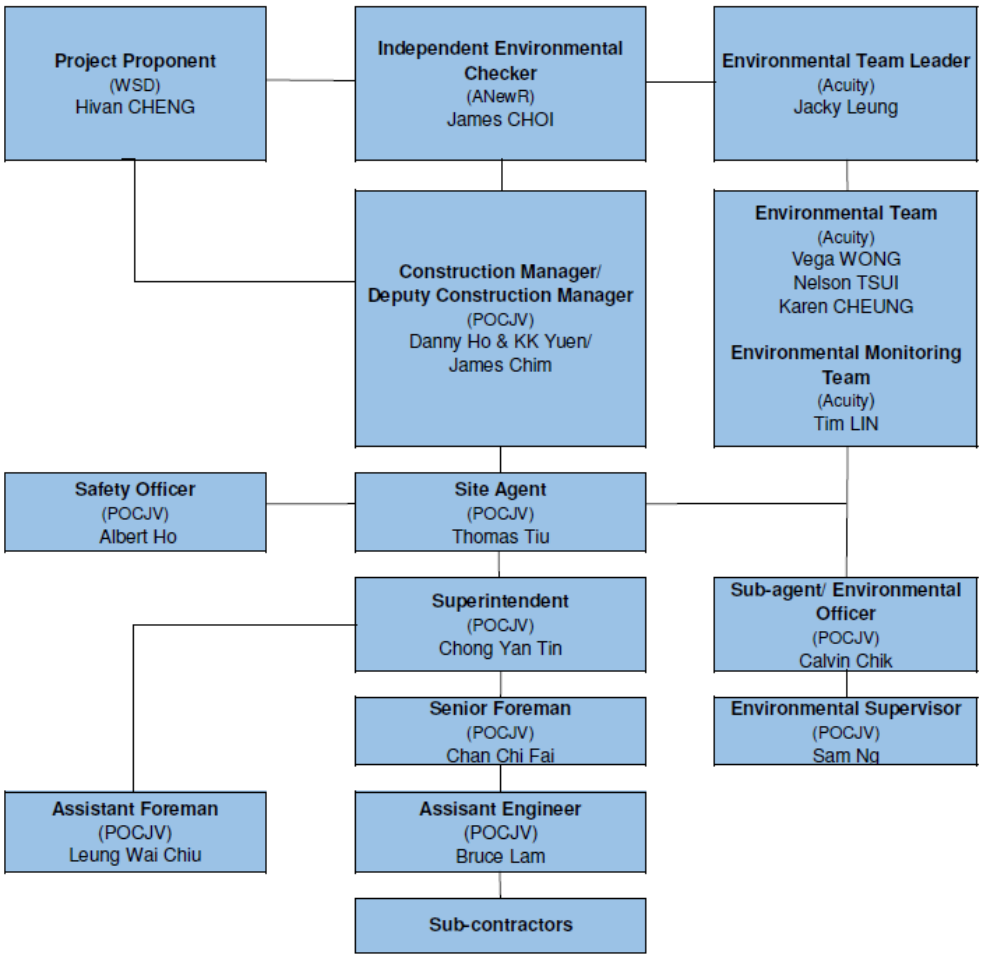


Figure 1.1 Project Organization Chart

Contact details of the key personnel are presented in **Table 1.1** below:

Party	**Position**	**Name**	**Telephone no.**
Penta-Ocean - Concentric Joint Venture	Environmental Officer	Calvin Chik	9863 5630
Acuity Sustainability Consulting Limited	Environmental Team Leader	Jacky Leung	2698 6833
ANewR Consulting Limited	Independent Environmental Checker	James Choi	2618 2831

1.4 Summary of Construction Works

Details of the major construction works undertaken in this reporting period are shown in **Table 1.2** and the construction works locations are shown **in Appendix B**. The construction programme is presented in **Appendix A**.

Table 1.2 Summary of the Construction Works Undertaken during the Reporting Month

Construction Works Conducted (in-progress)		
Location	**Location**	**Works Conducted in the reporting month**
Portion H of the Project Site	TKO 137 Fill Bank Desalination Plant & SENTX area	• Hydrostatic pressure testing for completed MS1200 pipeline section.
	TKO 137 Pit B	• Pipe Jacking by TBM was conducted.
	TKO 137 Pit C	• Excavation and ELS works for receiving pit were conducted.
Portion J of the Project Site	Wan Po Rd – Workfront 1	• Pipe trench excavation and pipe laying were in-progress.
	Wan Po Rd – Workfront 2	• Pipe trench excavation and pipe laying were in-progress.
	Wan Po Rd – Workfront 3	• Pipe trench excavation and pipe laying were in-progress.
	Wan Po Rd – Pit A	• Grouting works for trenchless pit was in-progress. • Pit excavation and ELS works was in-progress.
	Wan Po Rd – Pit B	• Grouting works for trenchless pit was in-progress, • Pit excavation and ELS works was in-progress.
	Landfill Stage 1 – Area A	• Trench excavation and pipe laying were conducted. • ELS and excavation works for 900HSV chamber.
	Cycle Track – Workfront 1	• Trench excavation and pipe laying were in-progress.
	Cycle Track – Workfront 2	• Trench excavation and pipe laying were in-progress.
	Velodrome – Pit M	• Pipe jacking works were conducted.
	Velodrome – Pit O	• Establishment for pipe jacking works
	Mau Wu Tsai – Workfront 1	• Trench excavation and pipe laying works were conducted.
	Mau Wu Tsai – Workfront 2	• Trench excavation and pipe laying works were conducted.
	Po Lam Road	• Trench excavation and pipe laying works were conducted.

Construction Works Conducted (in-progress)		
Location	**Location**	**Works Conducted in the reporting month**
	TKO Primary Service Reservoir	• Trial pit works were conducted.

1.5 Summary of Environmental Status

A summary of the valid permits, licences, and or notifications on environmental protection for this Project is presented in **Table 1.3.**

Table 1.3 Summary of the Status of Valid Environmental Licence, Notification, Permit and Documentations

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Variation of Environmental Permit	EP no.: EP-503/2015/A	Throughout the Contract	-
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation (Form NA)	Ref no.: 423775	Throughout the Contract	-
Chemical Waste Producer Registration	WPN: 5213-839-P3287-01	Throughout the Contract	-
Billing Account for Disposal of Construction Waste	A/C no.: 7029491	Throughout the Contract	-
Water Discharge Licence	WT00032336-2018	Until 31 Dec 2023	-
Construction Noise Permit	GW-RE0846-20	Until 31 Mar 2021	-
Construction Noise Permit (Hong Kong Velodrome)	GW-RE0961-20	Until May 2021	-

The status for all environmental aspects is presented **Table 1.4**.

Table 1.4 Summary of Status for Key Environmental Aspects under the EM&A Manual

Parameters	Status
Noise	
Baseline Monitoring	The baseline noise monitoring result has been reported in Baseline Monitoring Report and submitted to EPD under VEP Condition 3.4.
Impact Monitoring	On-going
Waste Management	
Mitigation Measures in Waste Monitoring Plan	On-going
Landfill Gas	
Impact Monitoring	On-going
Environmental Audit	
Site Inspection	On-going

Other than the EM&A works by ET, regular environmental management meetings were conducted in order to enhance environmental awareness and closely monitor the environmental performance of the contractors.

The EM&A programme has been implemented in accordance with the recommendations presented in the approved EIA Report and the EM&A Manual. A summary of implementation status of the environmental mitigation measures for the construction phase of the Project during the reporting period is provided in **Appendix C**.

2. NOISE MONITORING

2.1 Monitoring Requirements

To ensure no adverse noise impact, noise monitoring is recommended to be carried out within 300m radius from the nearby noise sensitive receivers (NSRs), during construction phase. The NSRs selected as monitoring station are (i) NSR4 – Creative Secondary School, (ii) NSR24 – PLK Laws Foundation College, and (iii) NSR31 – School of Continuing and Professional Studies – CUHK respectively.

In accordance with the EM&A Manual, baseline noise level at the noise monitoring stations were established as presented in the Baseline Monitoring Report. Impact noise monitoring will be conducted once per week in the form of 30-minute measurements Leq, L10 and L90 levels recorded at each monitoring station between 0700 and 1900 on normal weekdays.

Referring to EM&A manual Section 4.1.2, the impact noise monitoring should be carried out at all the designated monitoring stations when there are project-related construction activities undertaken within a radius of 300m from the monitoring stations.

Impact monitoring for noise impact was conducted in the reporting month for NSR4 – Creative Secondary School on 3, 9, 18 and 22 February 2021 as construction works were conducted within 300m to the noise sensitive receiver. Detailed monitoring results can be found in **Appendix G**.

The Education Bureau (EDB) has announced that all kindergartens as well as primary and secondary schools (including special schools and schools offering non-local curriculum) will continue to suspend face to face classes and school activities until the beginning of school's Chinese New Year holidays due to the spread of the Novel Coronavirus. No examinations were scheduled between 22nd to 28th February 2021. Hence the noise limit level will be 70.0 dB(A). Further information and Academic School Calendar can be found in Appendix O.

2.2 Noise Monitoring Parameters, Time, Frequency

Impact noise monitoring was conducted weekly in the reporting period between 0700-1900 on normal weekdays. No construction works were carried out during 1900-0700 in all days or any time on Sundays or general holidays during the reporting period.

Construction noise level measured in terms of the A-weighted equivalent continuous sound pressure level (LAeq). Leq_{30min} was used as the monitoring parameter for the time period between 0700 and 1900 on normal weekdays. **Table 2.1** summarizes the monitoring parameters, frequency and duration of the impact noise monitoring. The monitoring schedule is provided in **Appendix D**.

Table 2.1 Noise Monitoring Parameters, Time, Frequency and Duration

Time	Frequency	Duration	Parameters
Daytime: 0700-1900	Once per week	Continuously in $L_{eq\ 5min}$/$L_{eq\ 30min}$ (average of 6 consecutive $L_{eq\ 5min}$)	L_{eq}, L_{10} & L_{90}

2.3 Noise Monitoring Locations

The monitoring locations should normally be made at a point 1m from the exterior of the NSRs building façade and be at a position 1.2m above the ground. A correction of +3dB(A) should be made to the free-field measurements.

According to the environmental findings detailed in the EIA report and Baseline Monitoring Report, the designated locations for the construction noise monitoring are listed in **Table 2.2** below.

Table 2.2 Noise Monitoring Location

NSR ID	Noise Sensitive Receivers	Monitoring Location	Position
NSR 4	Creative Secondary School	Roof Floor	1 m from facade
NSR 24	PLK Laws Foundation College	Pedestrian Road on Ground Floor	Free-field
NSR 31	School of Continuing and Professional Studies - CUHK	Roof Floor	1 m from facade

Three noise monitoring locations for impact monitoring at the nearby sensitive receivers are shown in **Figure 2.1-2.3.**

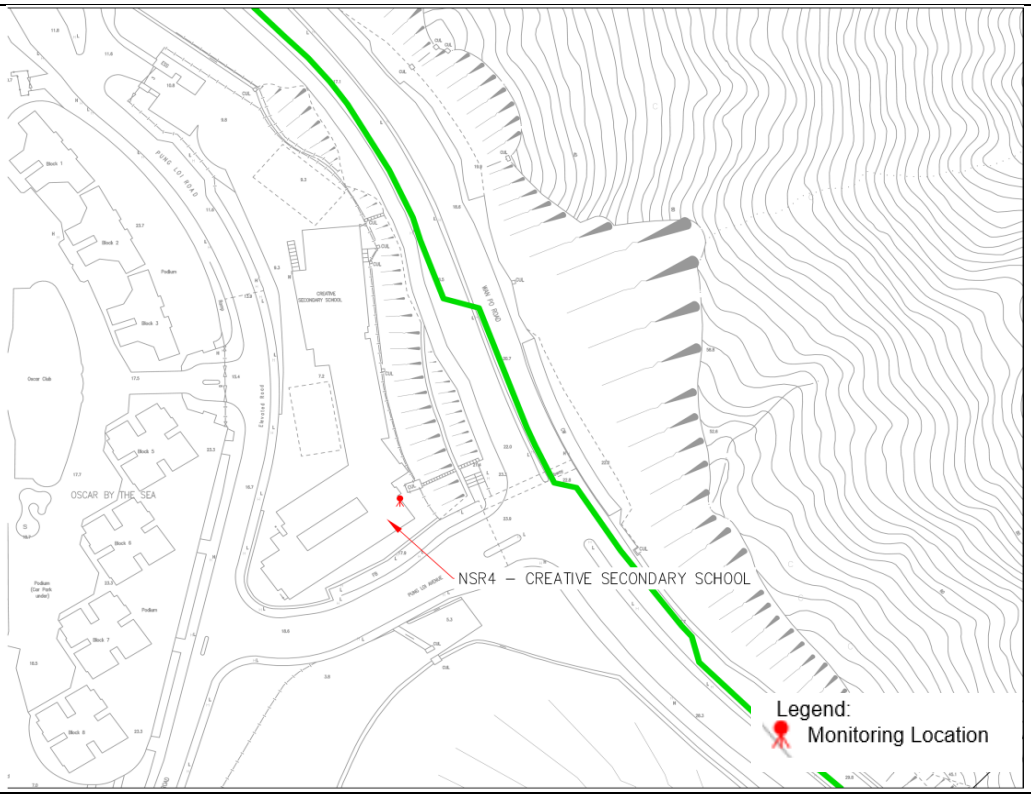


Figure 2.1 NSR4 Creative Secondary School

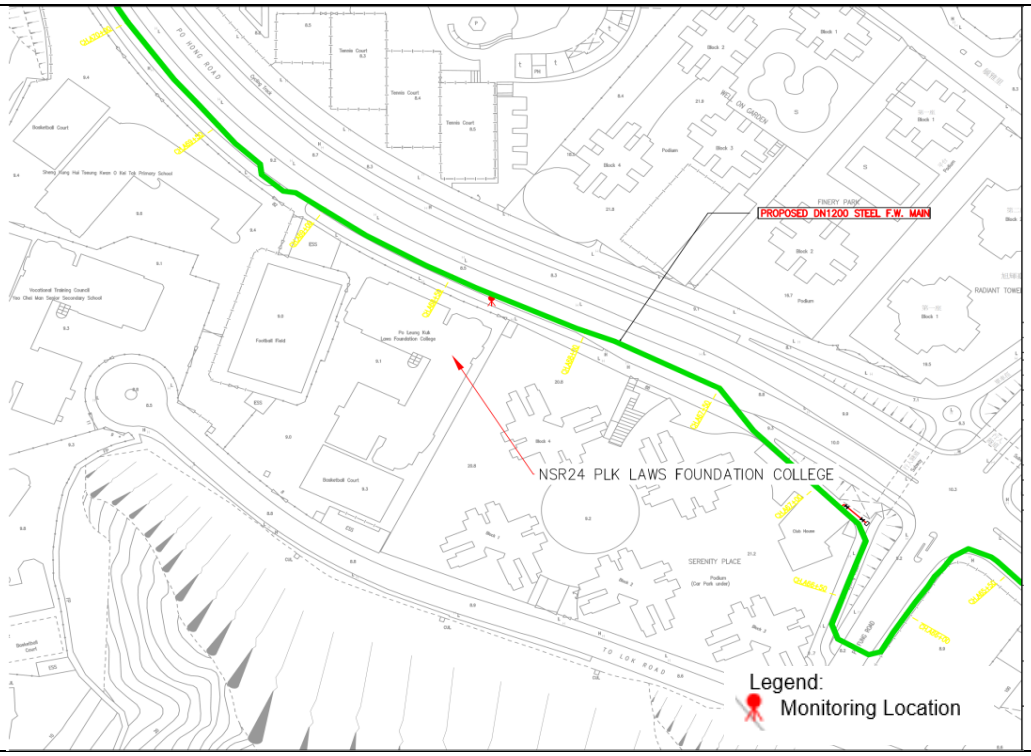


Figure 2.2 NSR24 PLK Laws Foundation College

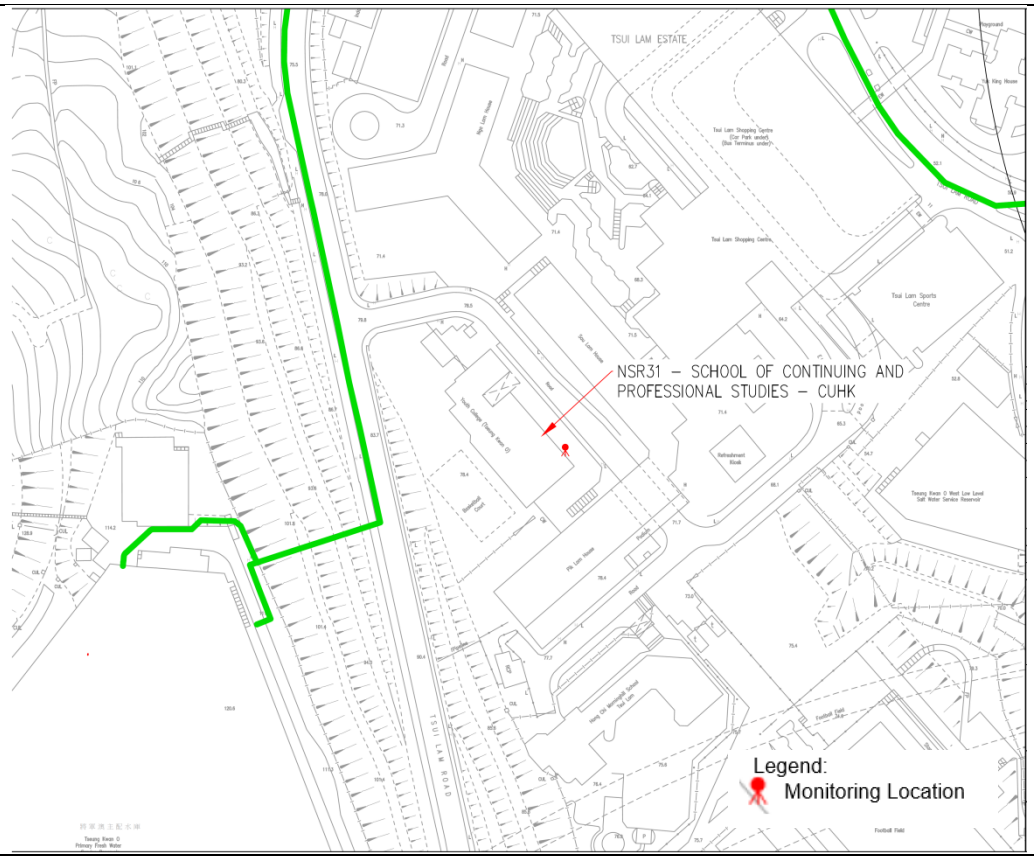


Figure 2.3 NSR31 School of Continuing and Professional Studies - CUHK

2.4 Impact Monitoring Methodology

Integrated sound level meter shall be used for the noise monitoring. The meter shall be in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications. 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 level before and after the noise measurements agree to within 1.0 dB(A). Calibration certificates of the instruments used are presented in **Appendix E**. Noise measurements shall not be made in the presence of fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

Table 2.3 Impact Noise Monitoring Equipment

Equipment	Brand and Model	Serial Number	Date of Calibration	Calibration Certificate Expiry Date	Detection Limit
Sound Level Meter	Scarlet ST-11D	820200	18/01/2021	17/01/2022	27-140dB (A)
Sound Level Meter	NTi XL2	A2A-13663-E0	09/09/2020	08/09/2021	30-130 dB(A)
Sound Level Meter	Svantek 971	77731	13/02/2020	12/02/2021	34.2-136.2
Sound Level Meter Calibrator	Pulsar 105	63705	06/08/2020	05/08/2021	Nil
Pocket Wind Meter Anemometer	Kestrel 1000 Wind Meter	Nil	Nil	Nil	Nil

2.5 Action and Limit Levels

The Action/Limit Levels are in line with the criteria of Practice Note for Professional Persons (ProPECC PN 2/93) "Noise from Construction Activities – Non-statutory Controls" and Technical Memorandum on Environmental Impact Assessment Process issued by HKSAR Environmental Protection Department ["EPD"] under the Environmental Impact Assessment Ordinance, Cap 499, S.16 are presented in **Table 2.4.**

Table 2.4 Action and Limit Levels for Noise

Time Period	Action Level	Limit Level (dB(A))
0700-1900 on normal weekdays	When one documented complaint is received from any one of the noise sensitive receivers	• 70 dB(A) for school and • 65 dB(A) during examination period
Notes: (a) Limits specified in the GW-TM and IND-TM for construction and operation noise, respectively.		

If exceedances were found during noise monitoring, the actions in accordance with the Event and Action Plan shall be carried out according to **Appendix F**.

2.6 Monitoring Results and Observations

Referring to EM&A manual Section 4.1.2, impact monitoring for noise impact was conducted in the reporting month for NSR4 – Creative Secondary School on 3, 9, 18 and 22 February 2021.

The Education Bureau (EDB) has announced that all kindergartens as well as primary and secondary schools (including special schools and schools offering non-local curriculum) will continue to suspend face to face classes and school activities until the beginning of school's Chinese New Year holidays due to the

spread of the Novel Coronavirus. No examinations were scheduled between 22nd to 28th February 2021. Hence the noise limit level will be 70.0 dB(A). Further information and Academic School Calendar can be found in Appendix O.

Detailed monitoring results are presented in **Appendix G**.

3. WASTE MANAGEMENT

3.1 The waste generated from this Project includes inert construction and demolition (C&D) materials, and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes such as plastics and paper/cardboard packaging waste. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 3.1**. Details of cumulative waste management data are presented as a waste flow table in **Appendix H**.

Table 3.1 Quantities of waste generated from the Project

Reporting period	Quantity					
	Inert C&D Materials (in '000m3)	Chemical Waste (in '000kg)	Non-inert C&D Materials			
			Others, e.g. General Refuse disposed at Landfill (in '000m3)	Recycled materials		
				Paper/card board (in '000kg)	Plastics (in '000kg)	Metals (in '000kg)
February-21	1.702	0.000	0.012	0.058	0.000	0.000

4. LANDFILL GAS MONITORING

4.1 Monitoring Requirement

In accordance with Section 11 of the EM&A Manual, monitoring of landfill gas is required for construction works within the 250m Consultation Zone. Part of the desalination plant and the indicative area of natural slope mitigation works fall within the SENT Landfill Extension Consultation Zone; and part of the 1,200 mm diameter fresh water mains along Wan Po Road falls within the SENT Landfill and SENT Landfill Extension Consultation Zones, TKO Stage II/III Restored Landfill and TKO Stage I Restored Landfill Consultation Zones.

4.2 Monitoring Location

Monitoring of oxygen, methane, carbon dioxide and barometric pressure was performed for excavations at 1m depth or more within the consultation Zone. In this reporting period, 522 times of monitoring was recorded.

During construction of works within the consultation zones, excavations of 1m depth or more was monitored:

- At the ground surface before excavation commences;
- Immediately before any worker enters the excavation;
- At the beginning of each working day for the entire period the excavation remains open; and
- Periodically through the working day whilst workers are in the excavation.

For excavations between 300mm and 1m deep, measurements should be carried out:

- Directly after the excavation has been completed; and
- Periodically whilst the excavation remains open.

The area required to be monitored for landfill gas in the reporting period are shown in **Figure 4.1** to **Figure 4.18.**

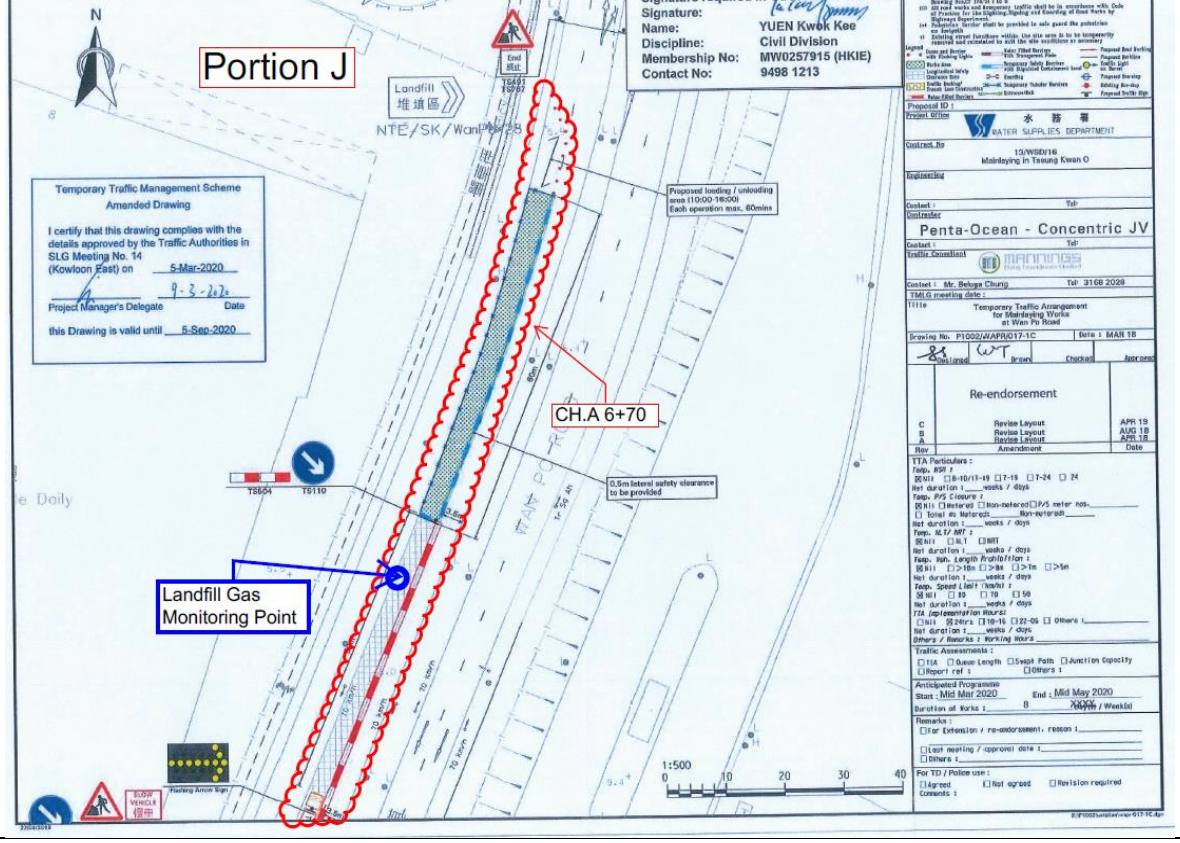


Figure 4.1 Monitoring Location - CH.A 6+70

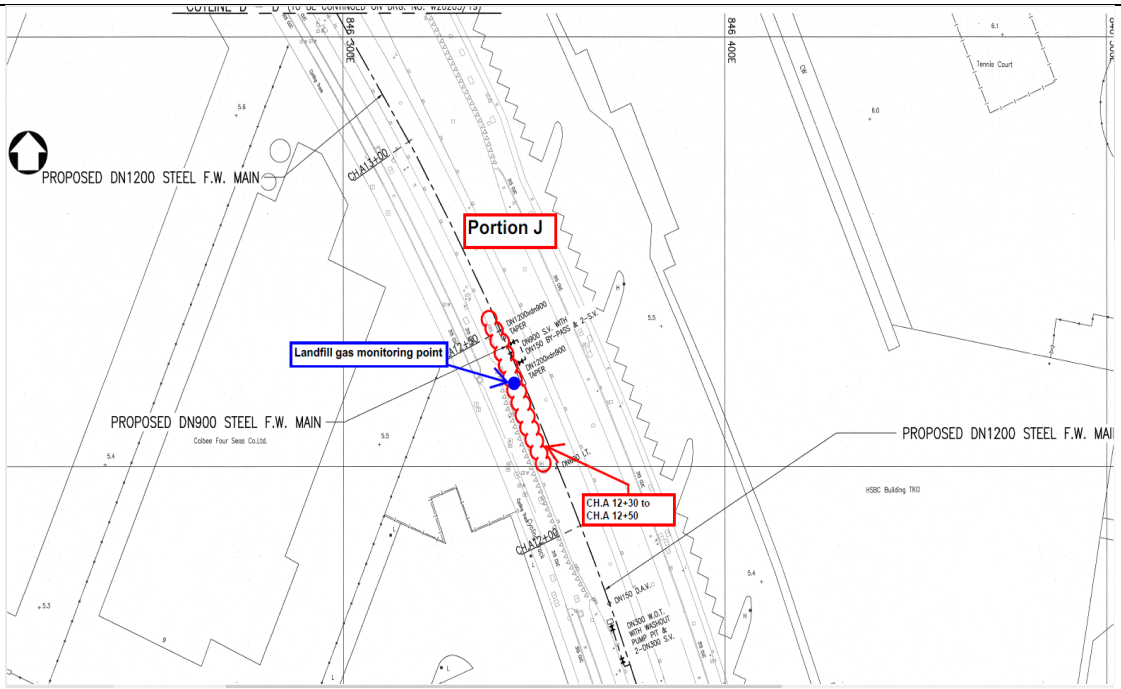


Figure 4.2 Monitoring Location – CH.A 12+30 ~ 12+50

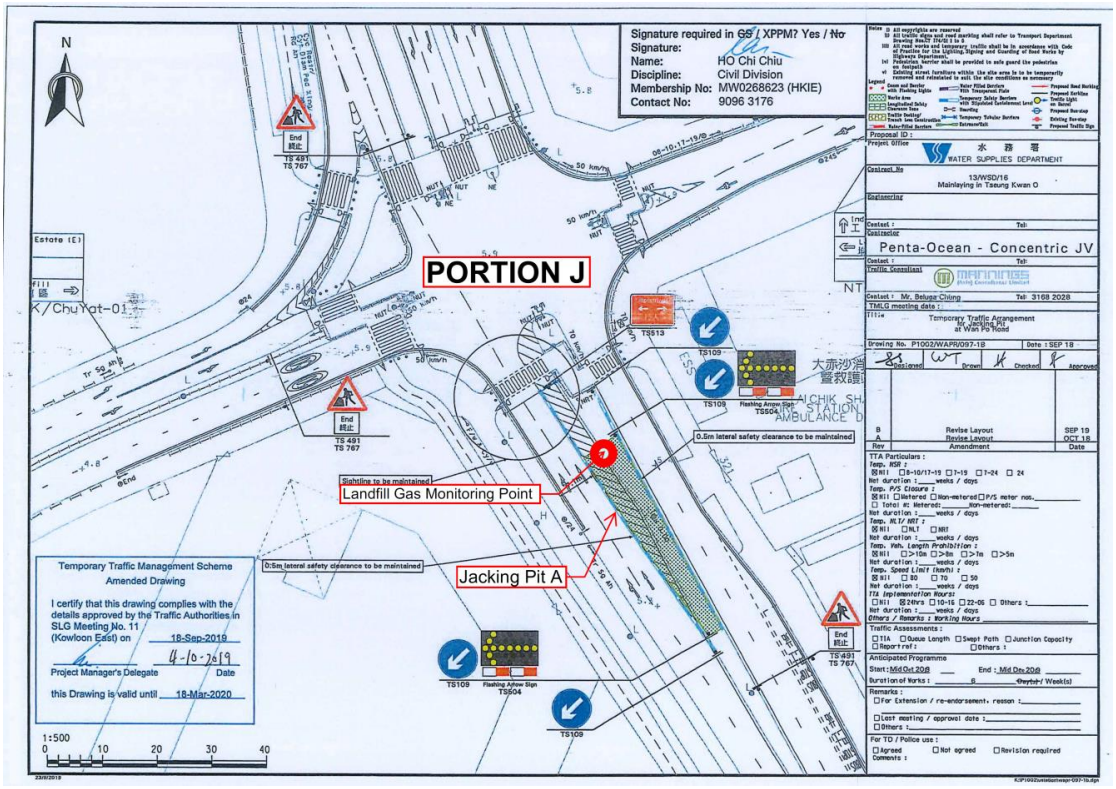


Figure 4.3 Monitoring Location – CH.A 13+50 ~ 14+00 (Pit A)

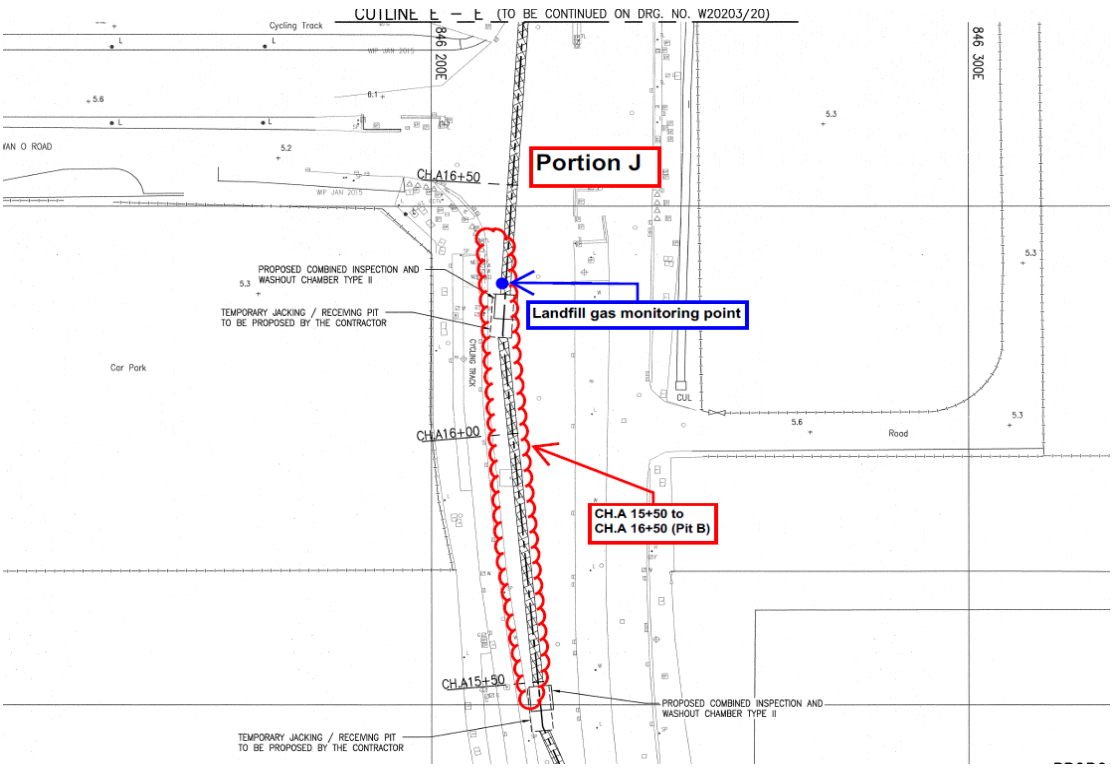


Figure 4.4 Monitoring Location – CH.A 15+50 ~16+50 (Jacking Pit B)

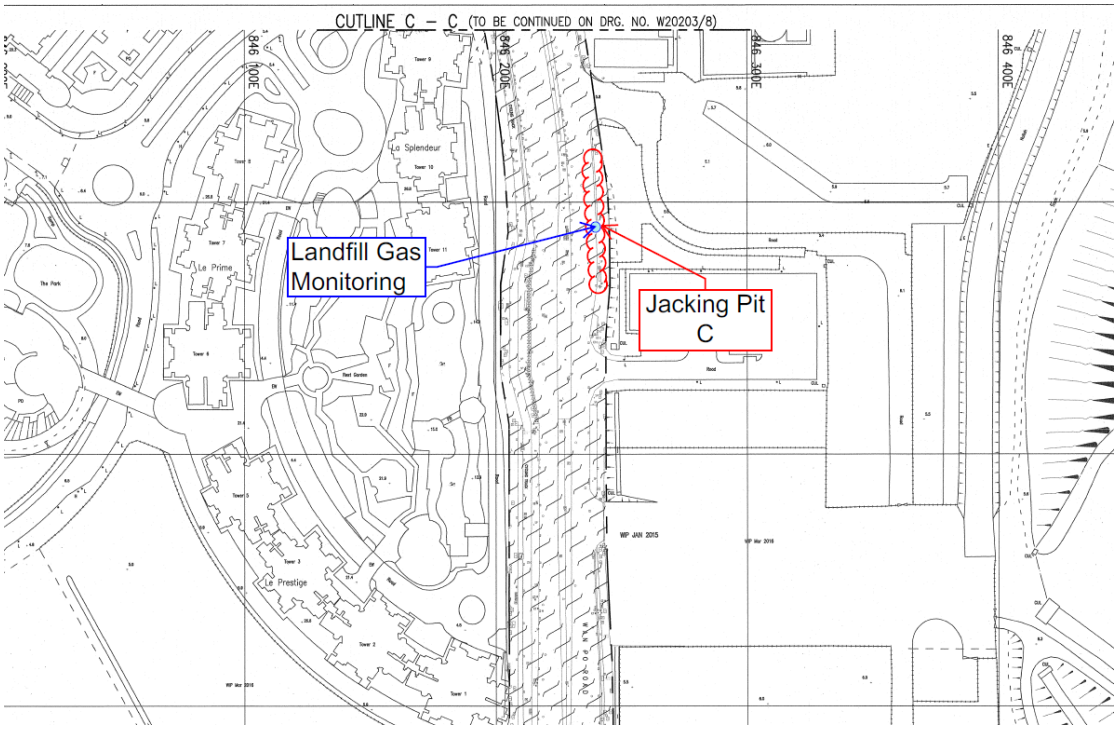


Figure 4.5 Monitoring Location – CH.A 19+15 ~19+50 (Pit C)

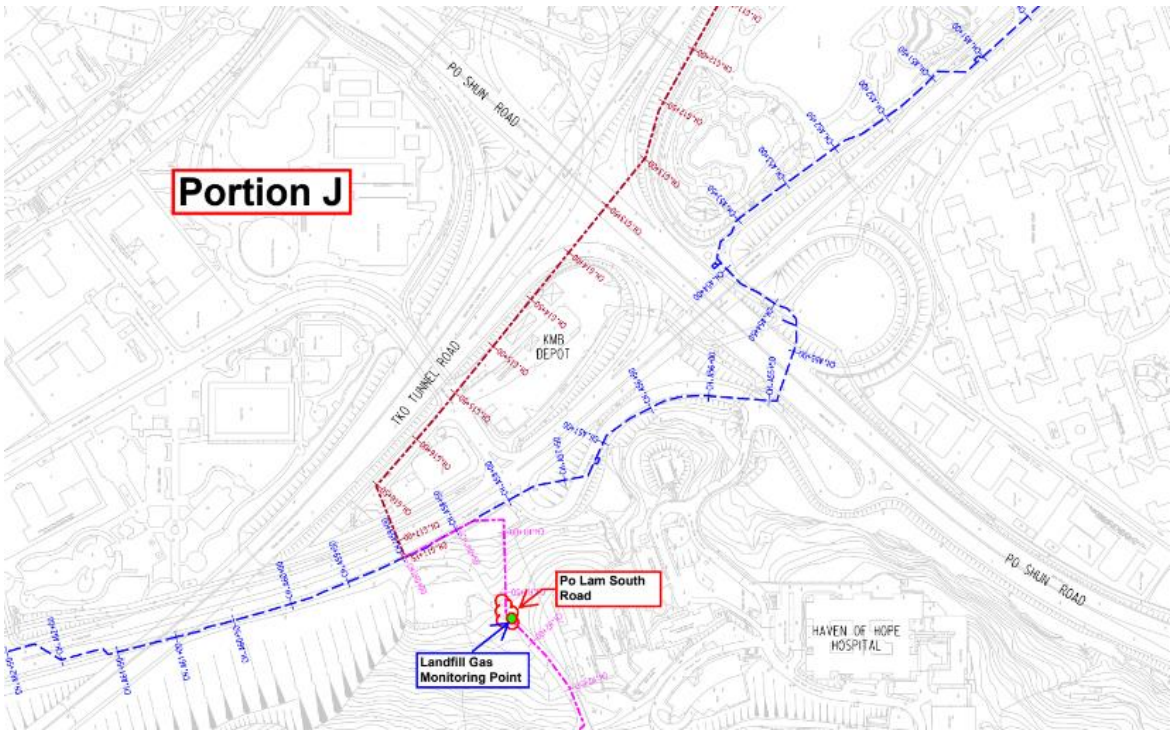


Figure 4.6a Monitoring Location – Mau Wu Tsai 1

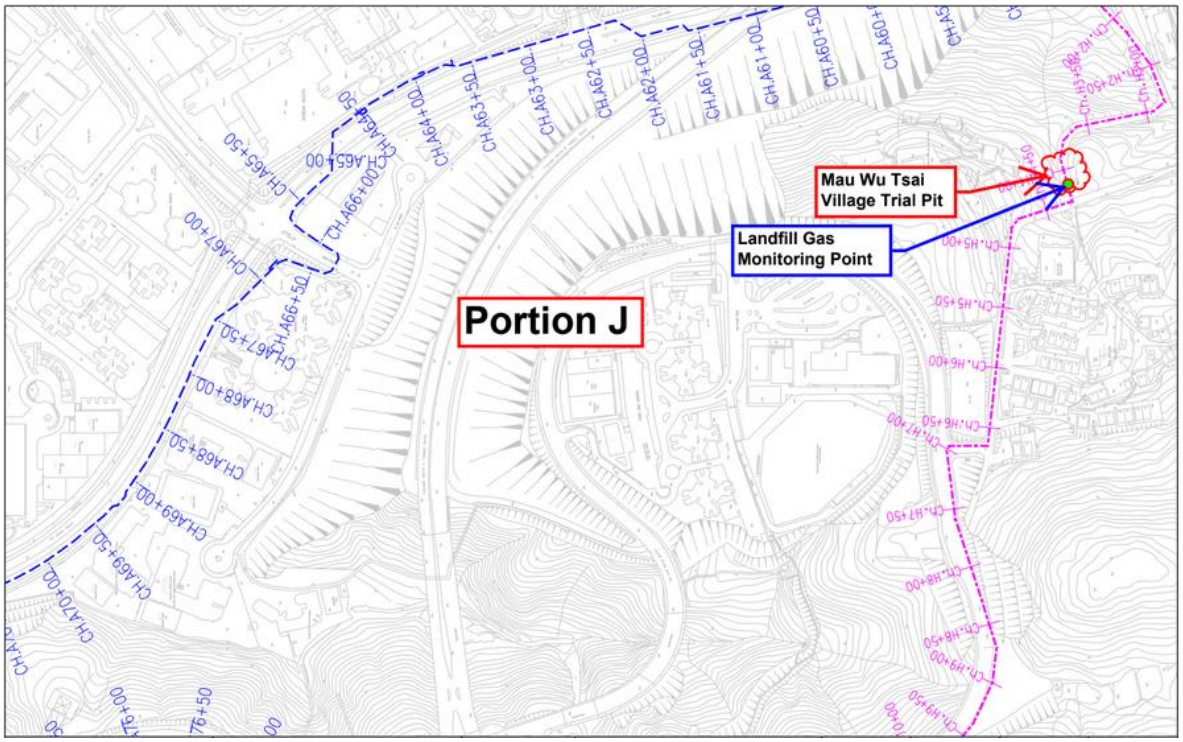


Figure 4.6b Monitoring Location – Mau Wu Tsai 2

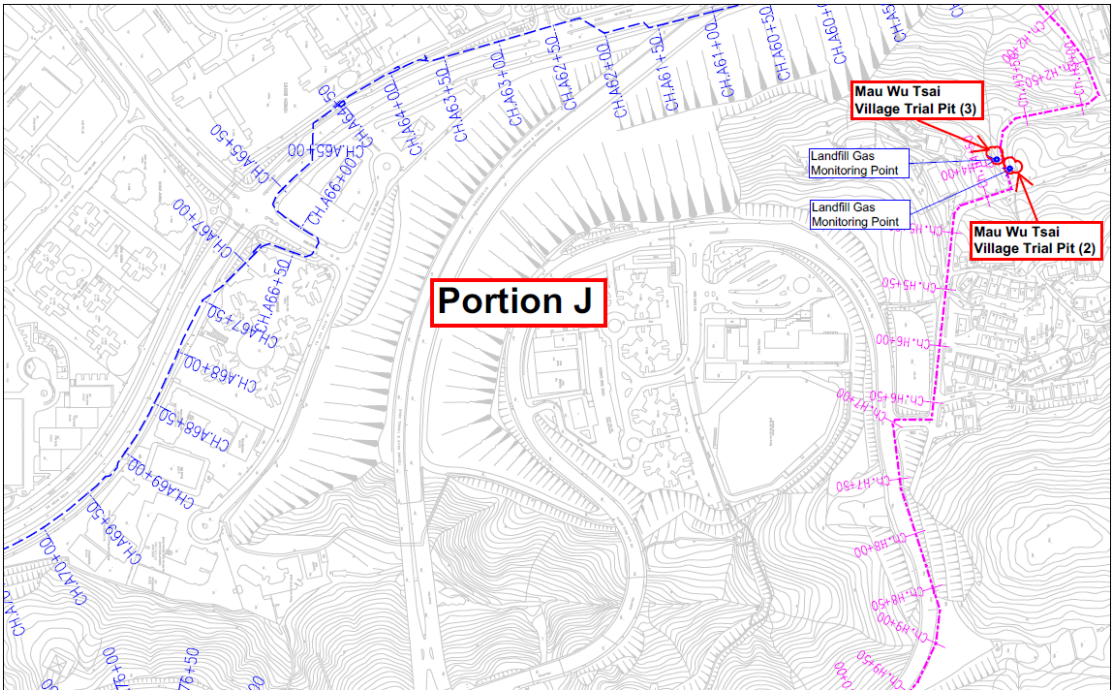


Figure 4.6c Monitoring Location – Mau Wu Tsai 3

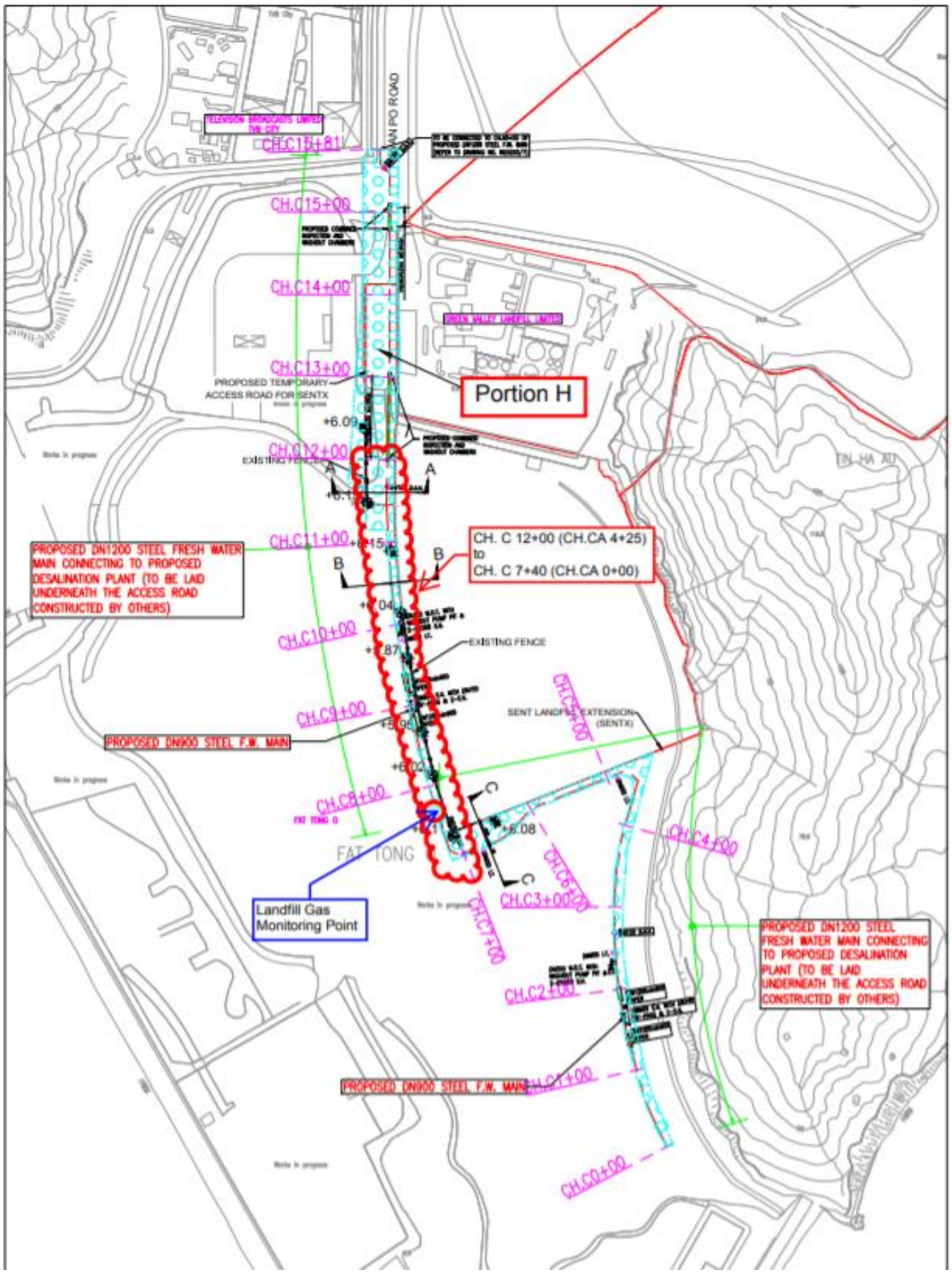


Figure 4.7 Monitoring Location –CH.CA 0+00 to CH.CA 04+25 (CH.C 7+40 ~ 12+00)

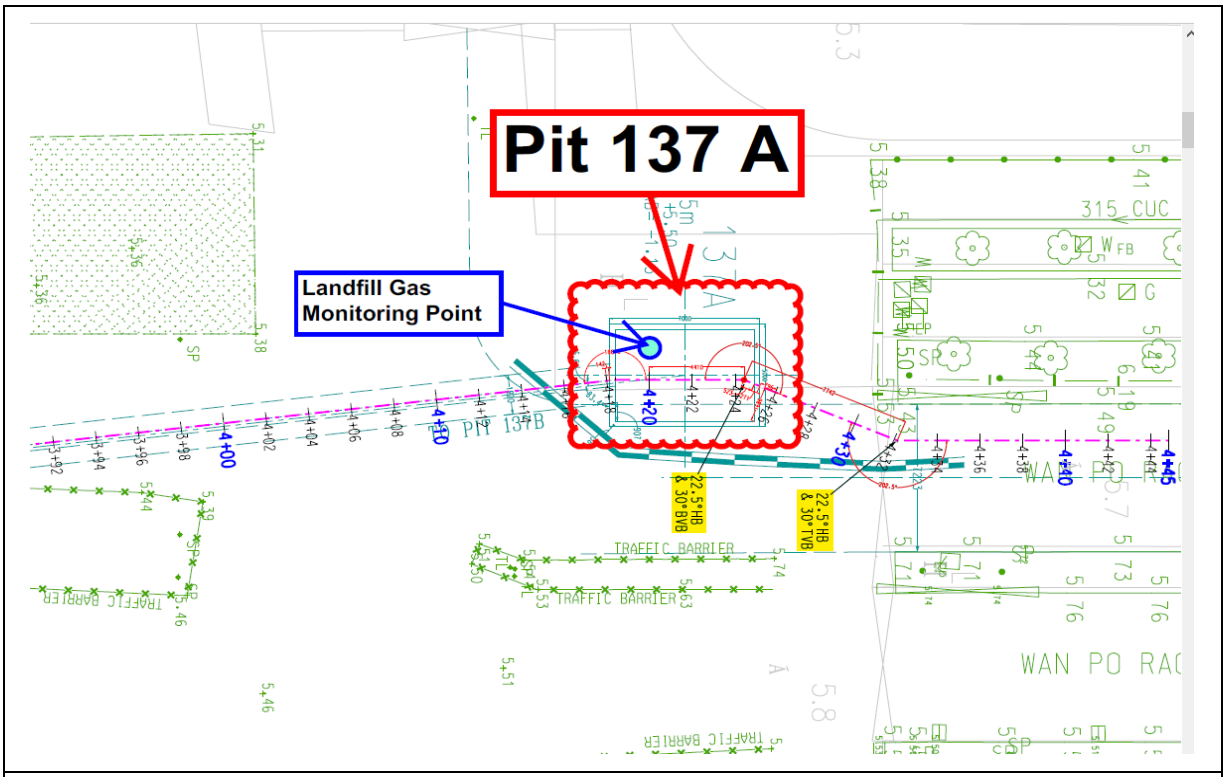


Figure 4.8a Monitoring Location – Pit 137A (137 Pit A)

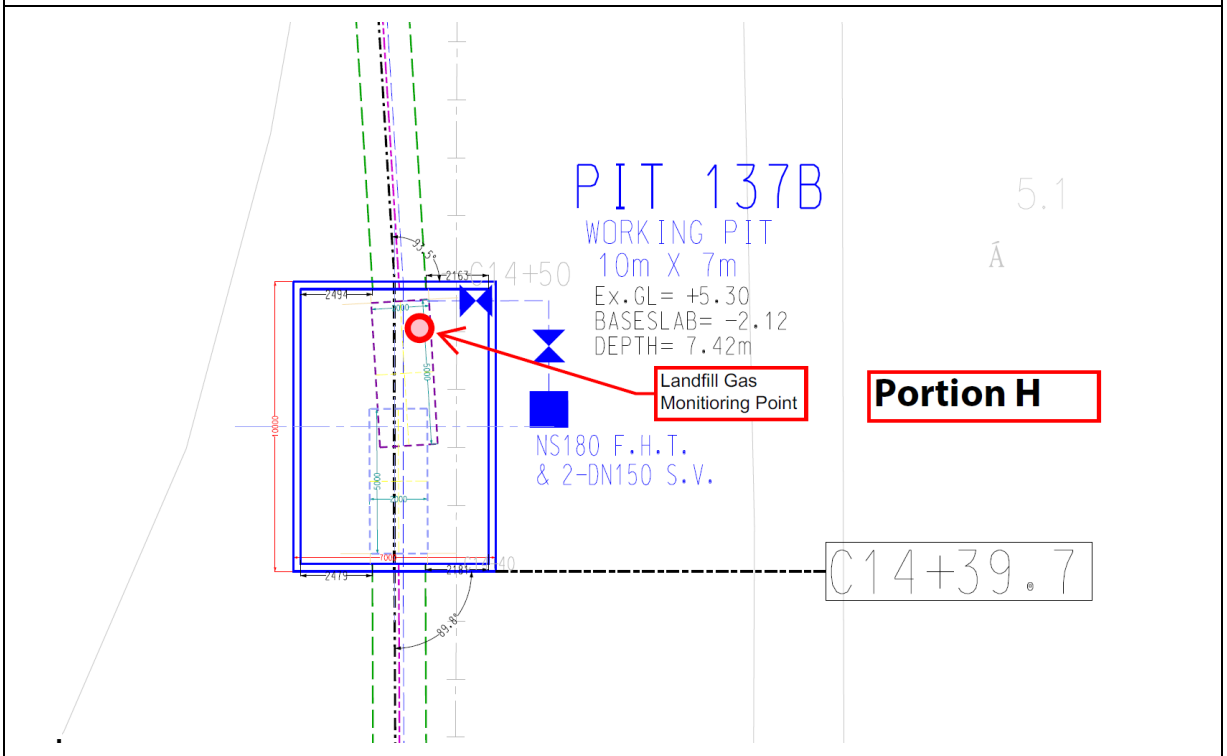


Figure 4.8b Monitoring Location – Pit 137B (137 Pit B)

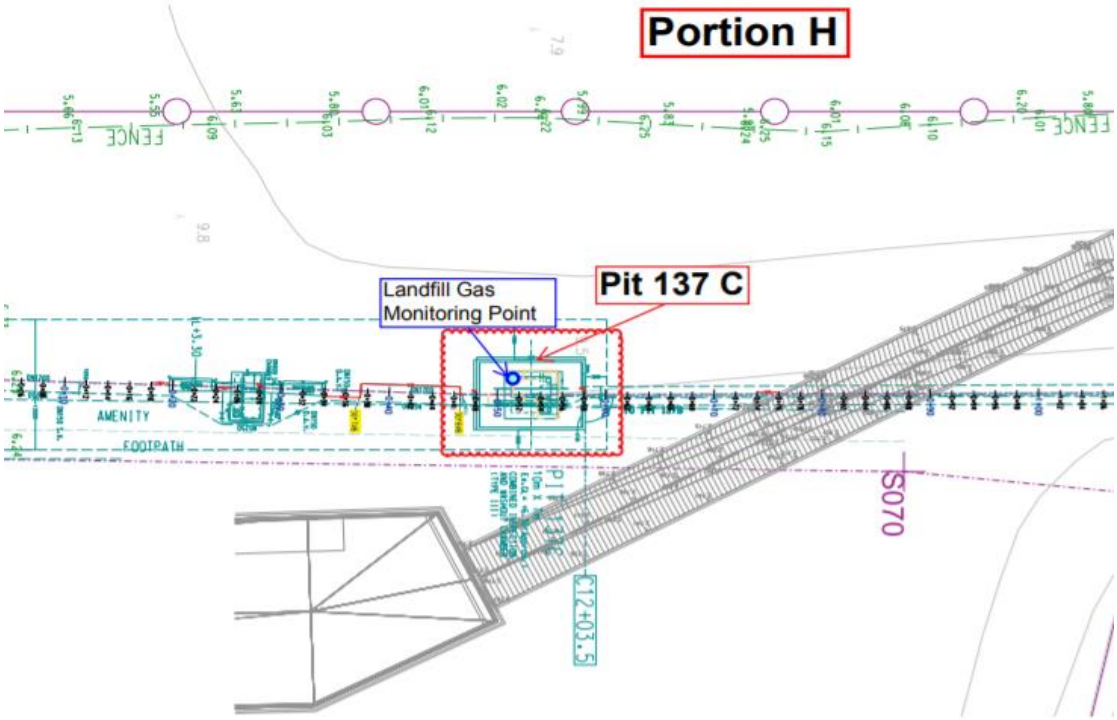


Figure 4.8c Monitoring Location – Pit 137C (137 Pit C)

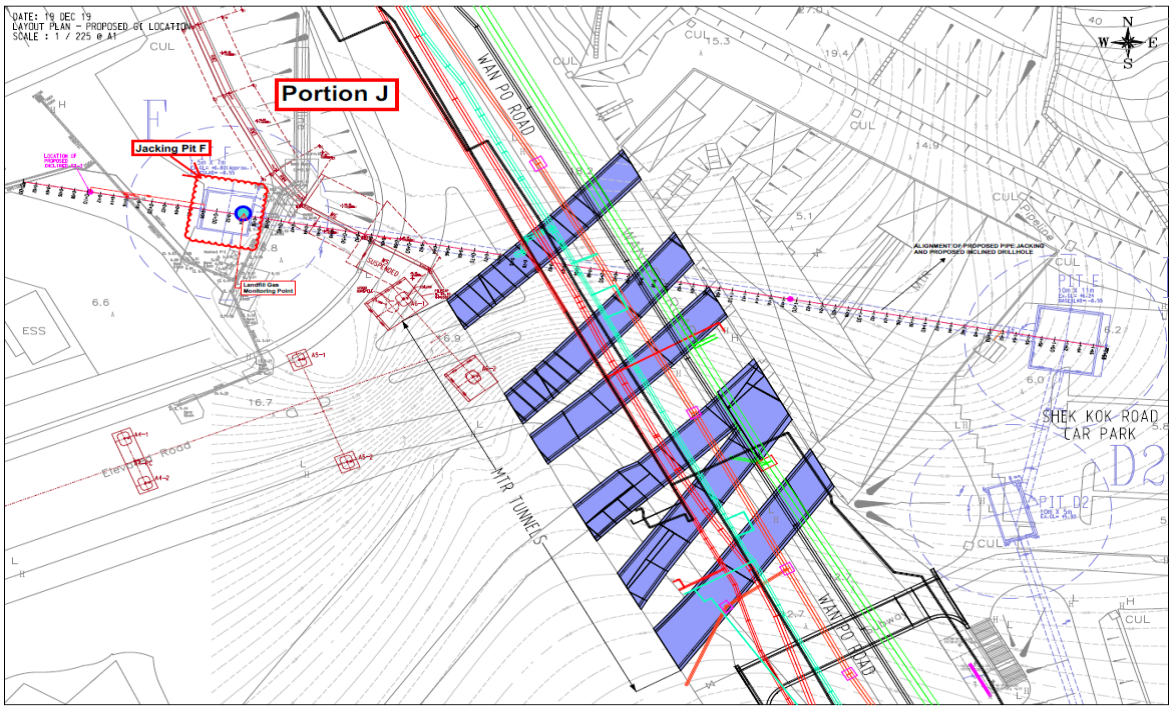


Figure 4.9 Monitoring Location – Jacking Pit F

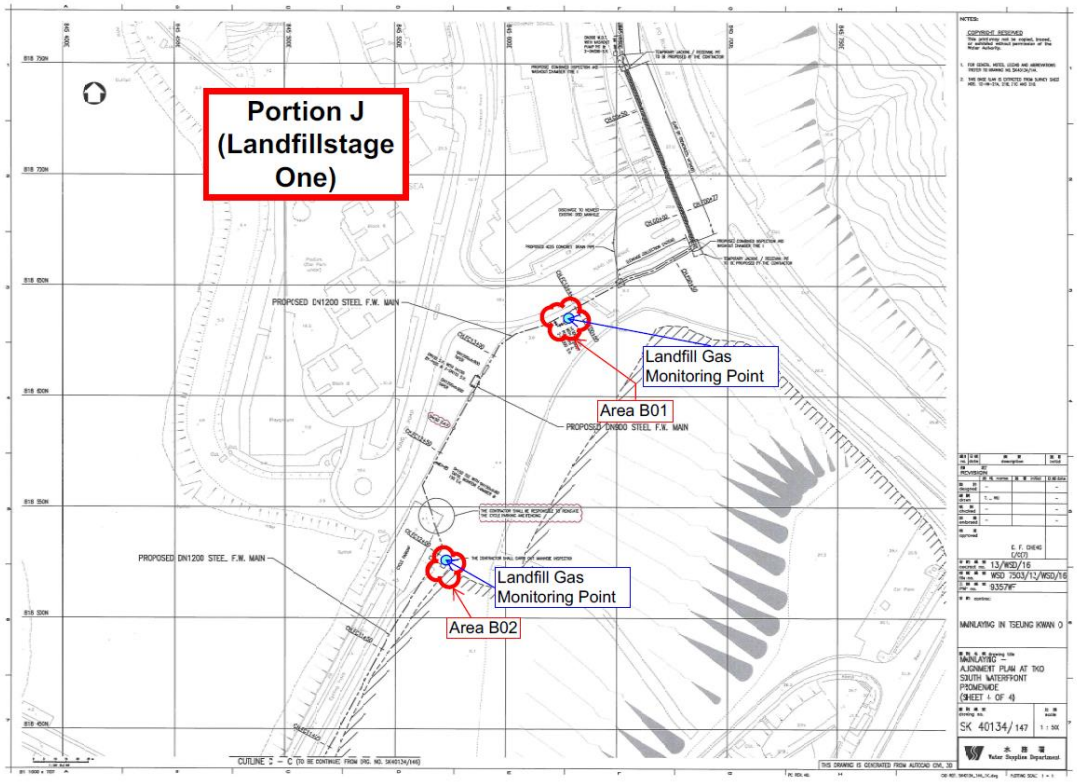


Figure 4.10a Monitoring Location – Landfill Stage 1 (Area B01-B02)

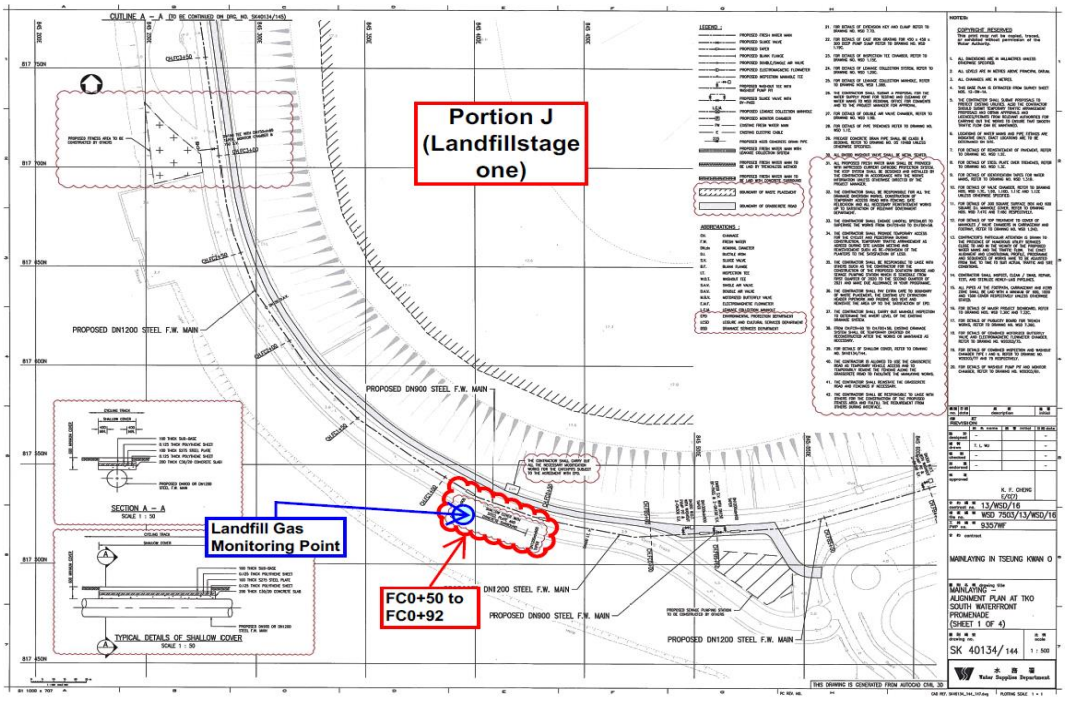


Figure 4.10b Monitoring Location – Landfill Stage 1 (FC0+50-FC0+92)

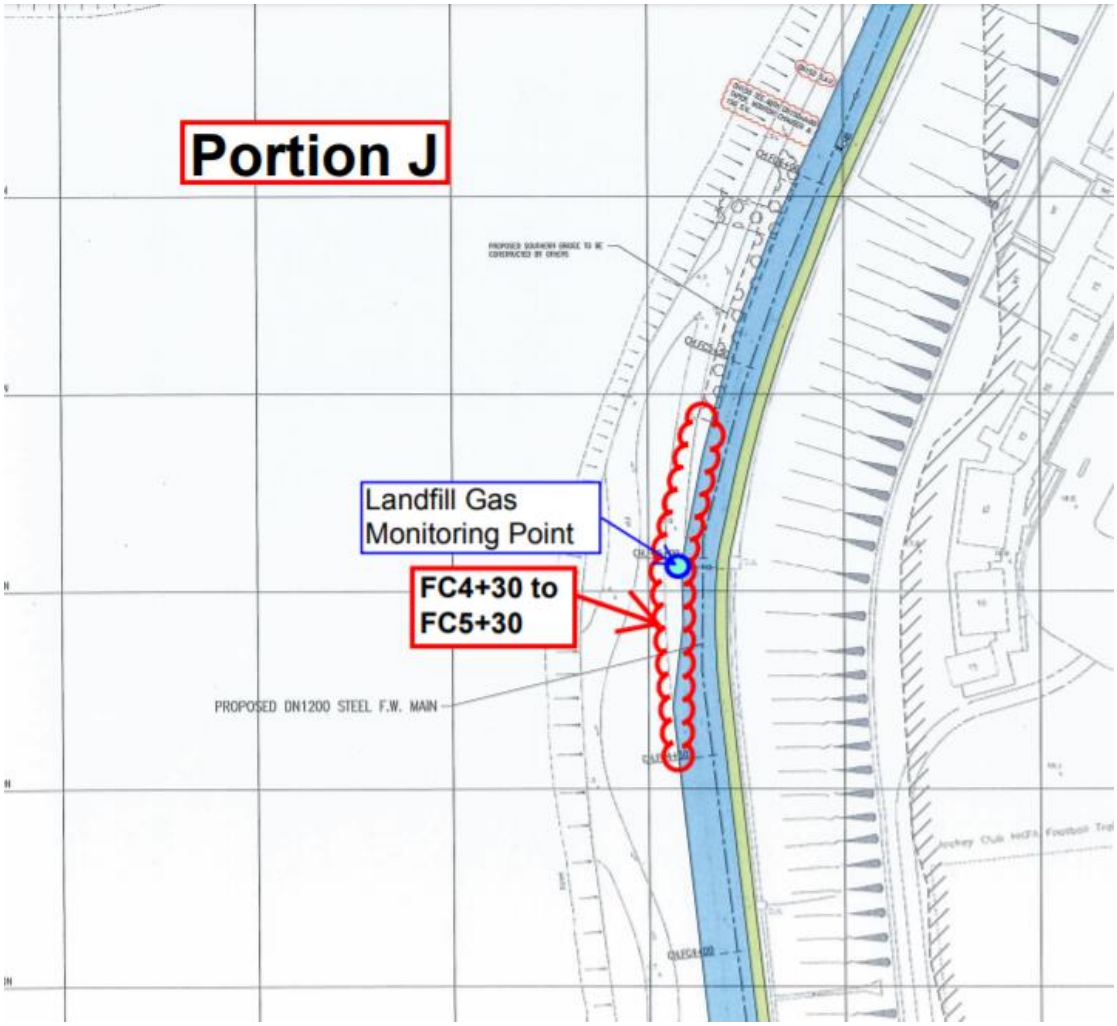


Figure 4.10c Monitoring Location – Landfill Stage 1 (FC4+30-FC5+30)

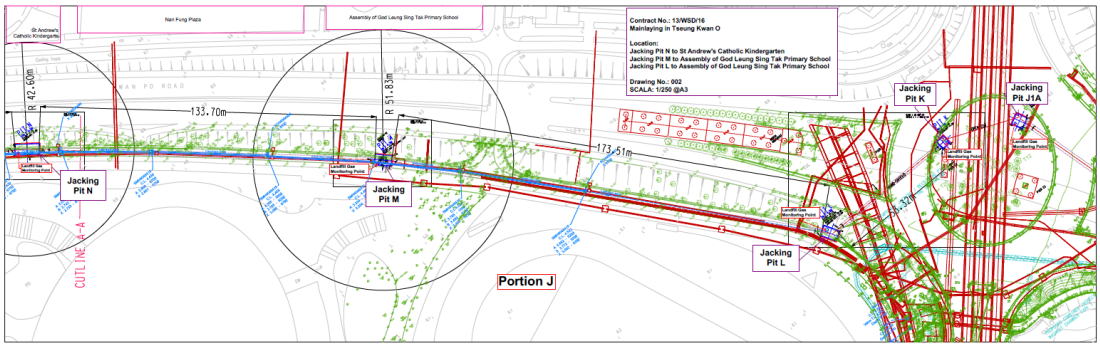


Figure 4.11a Monitoring Location – Pit L-M-N, J1A, K

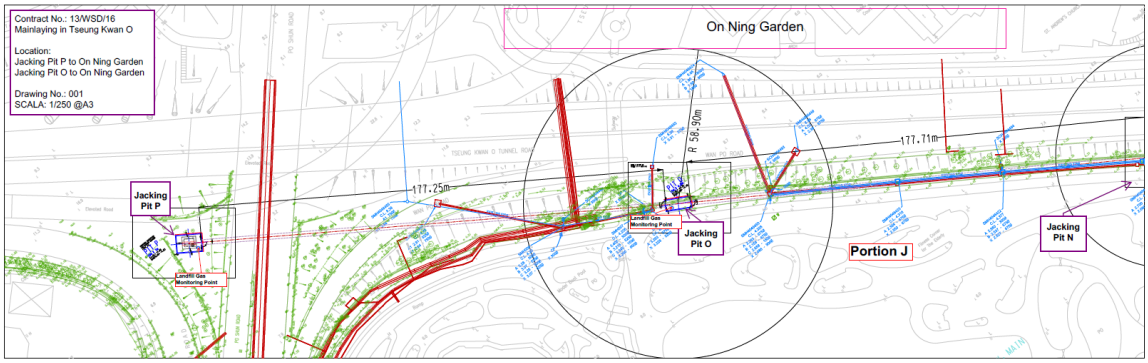


Figure 4.11b Monitoring Location – Pit N-O-P

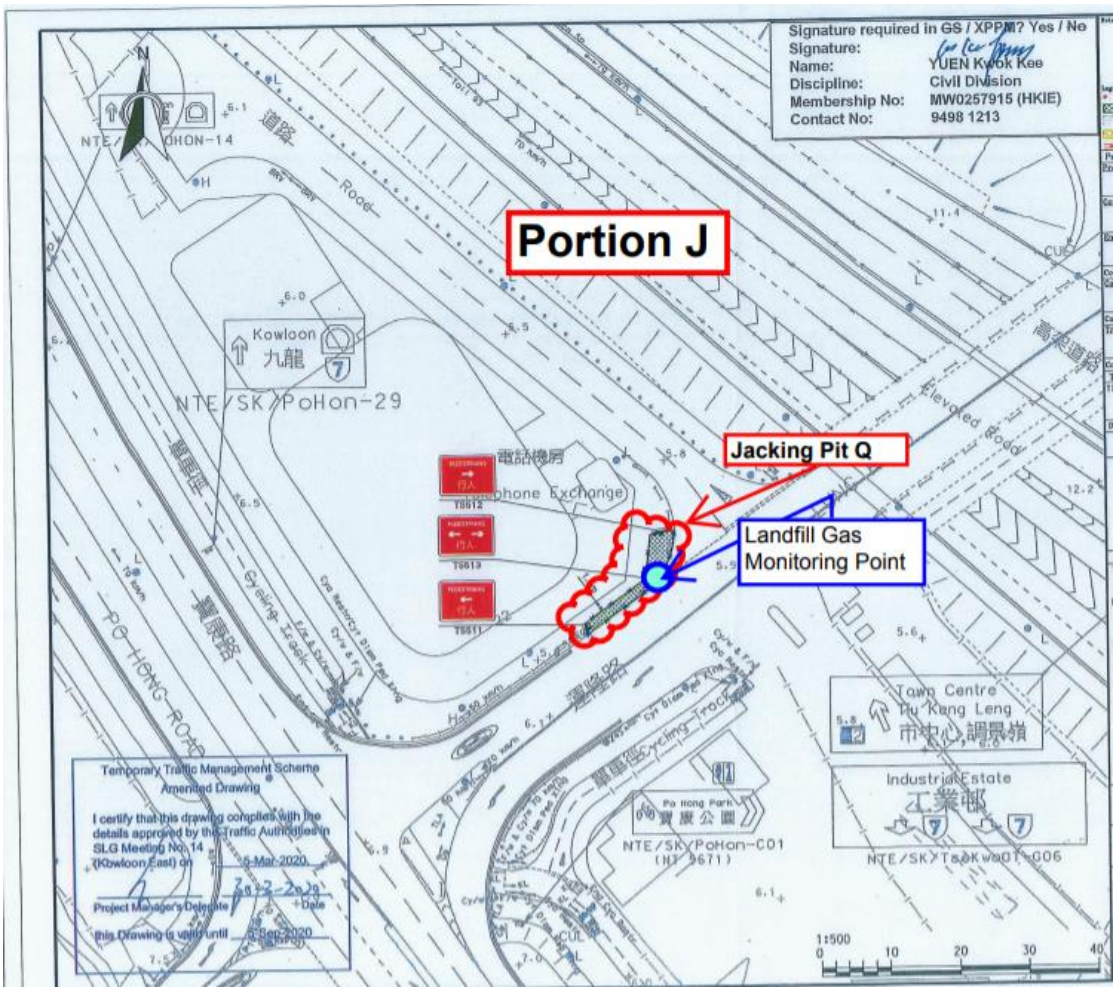


Figure 4.11c Monitoring Location – Pit Q

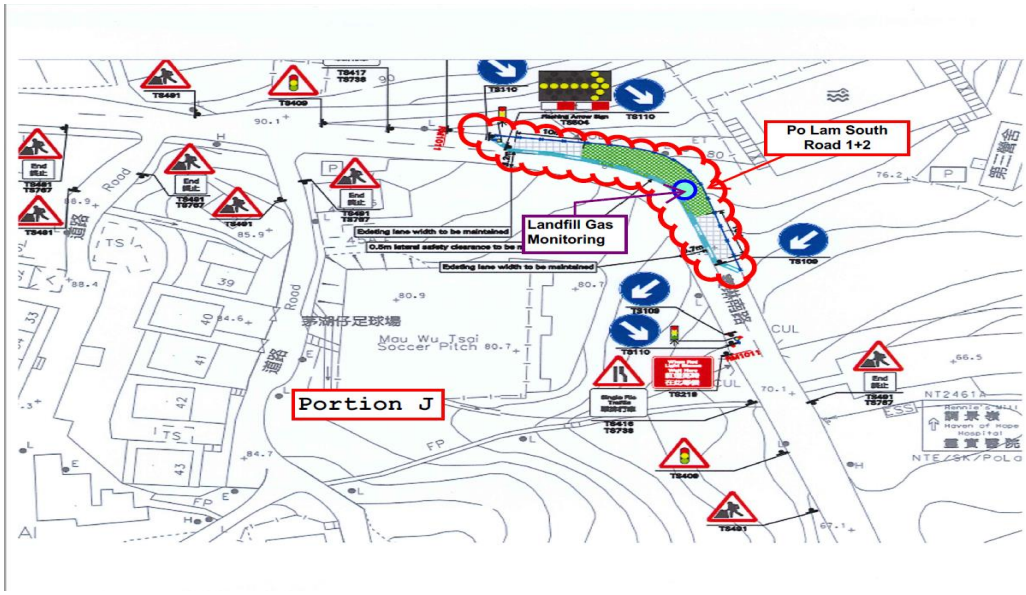


Figure 4.12 Po Lam South Road

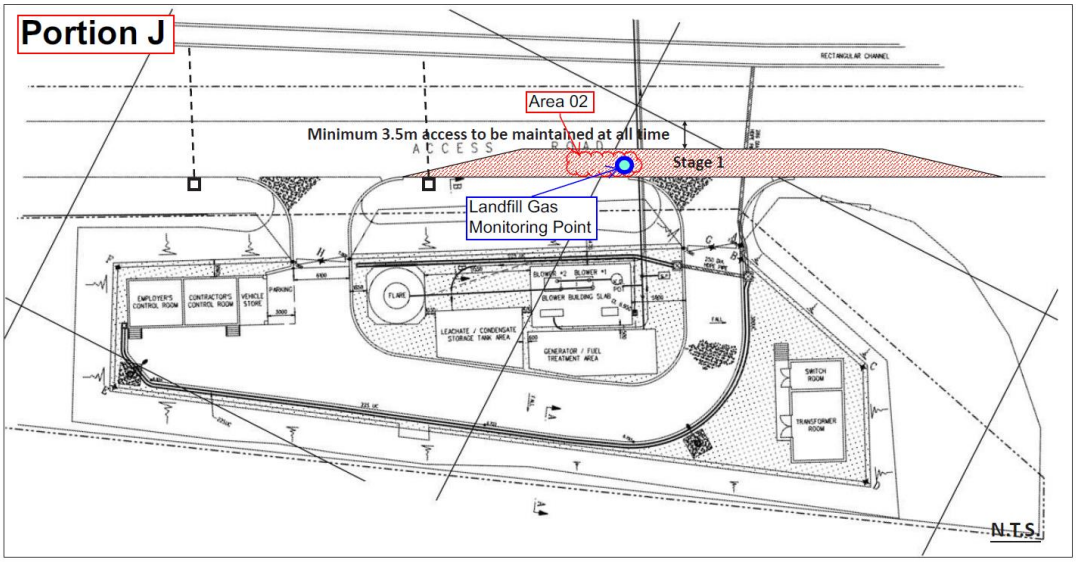


Figure 4.13 Monitoring Location – Area A02

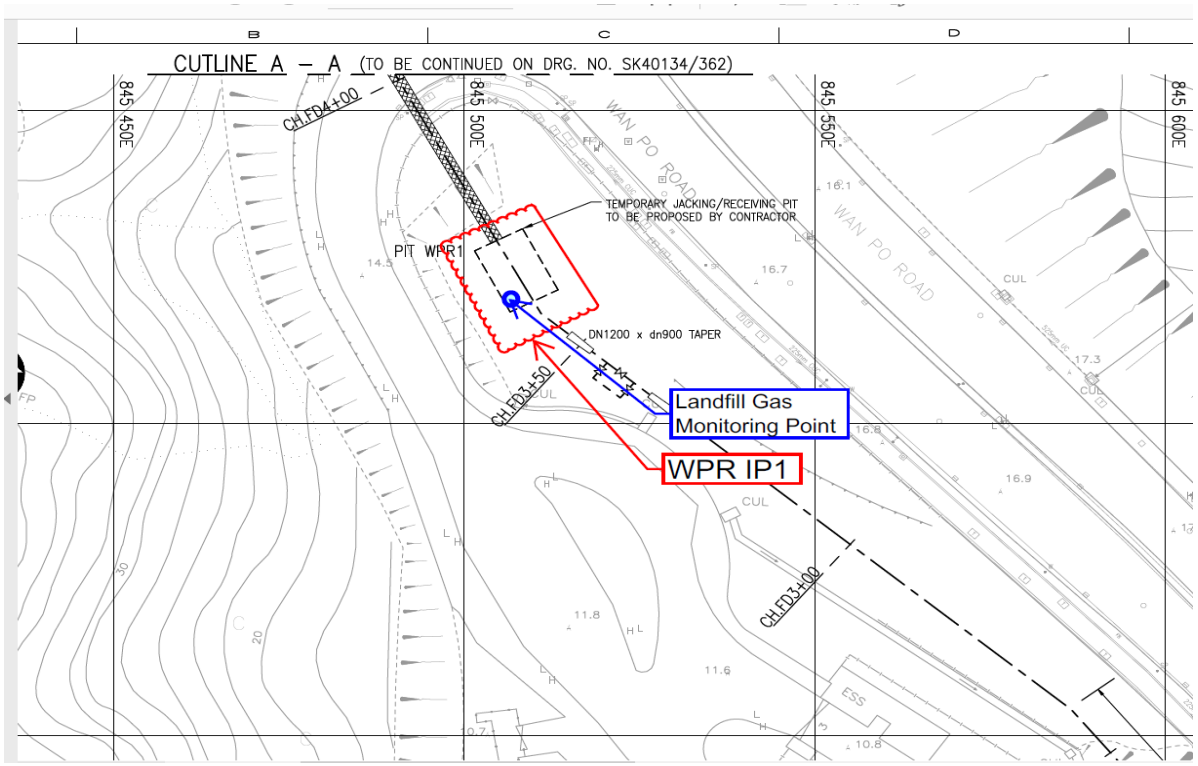


Figure 4.14 Monitoring Location – WPR IP1

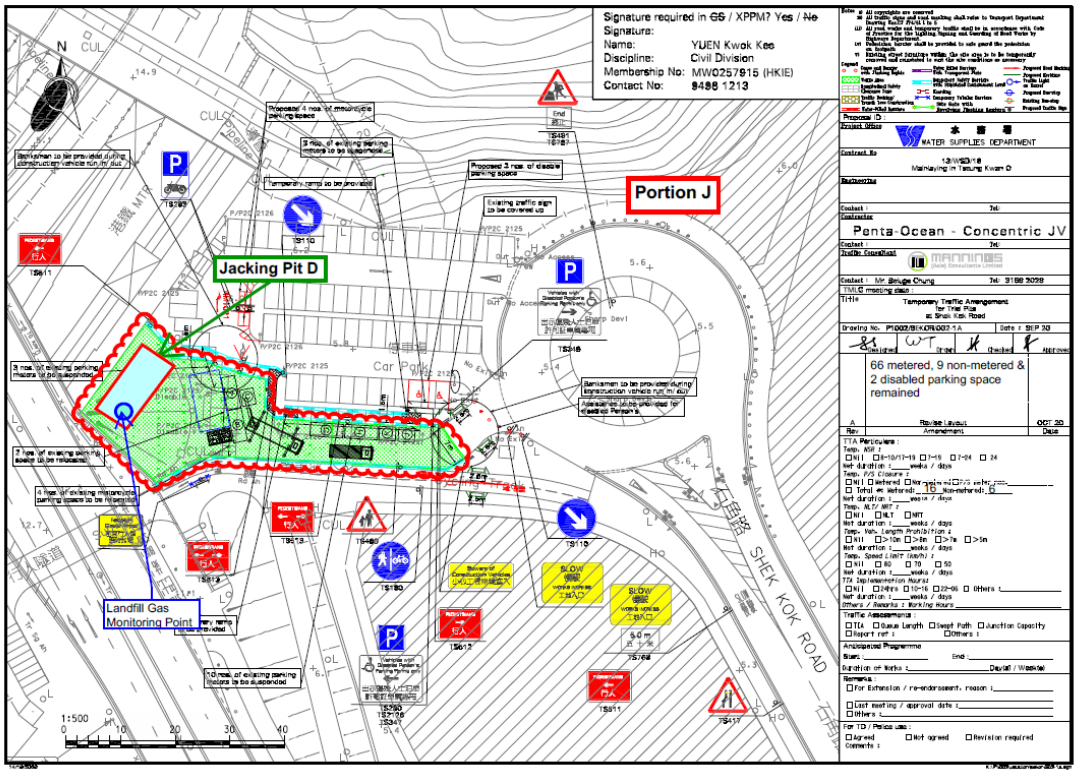


Figure 4.15 Monitoring Location – Jacking Pit D

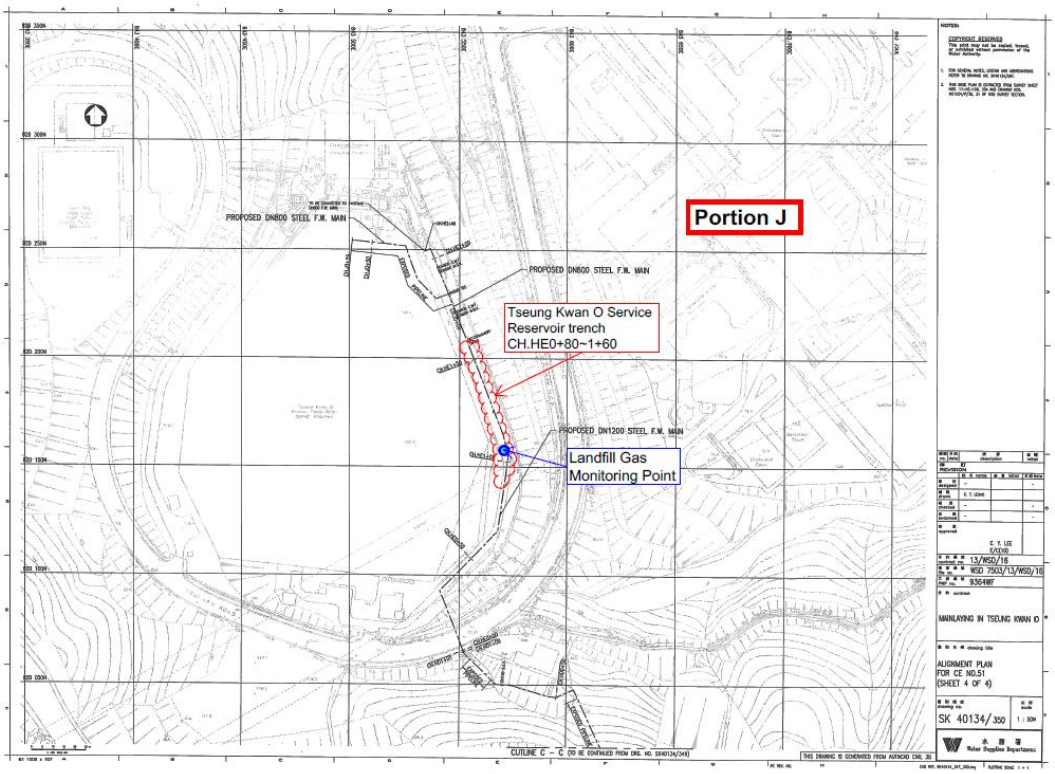


Figure 4.16 Monitoring Location – CH.HE0+80-1+60

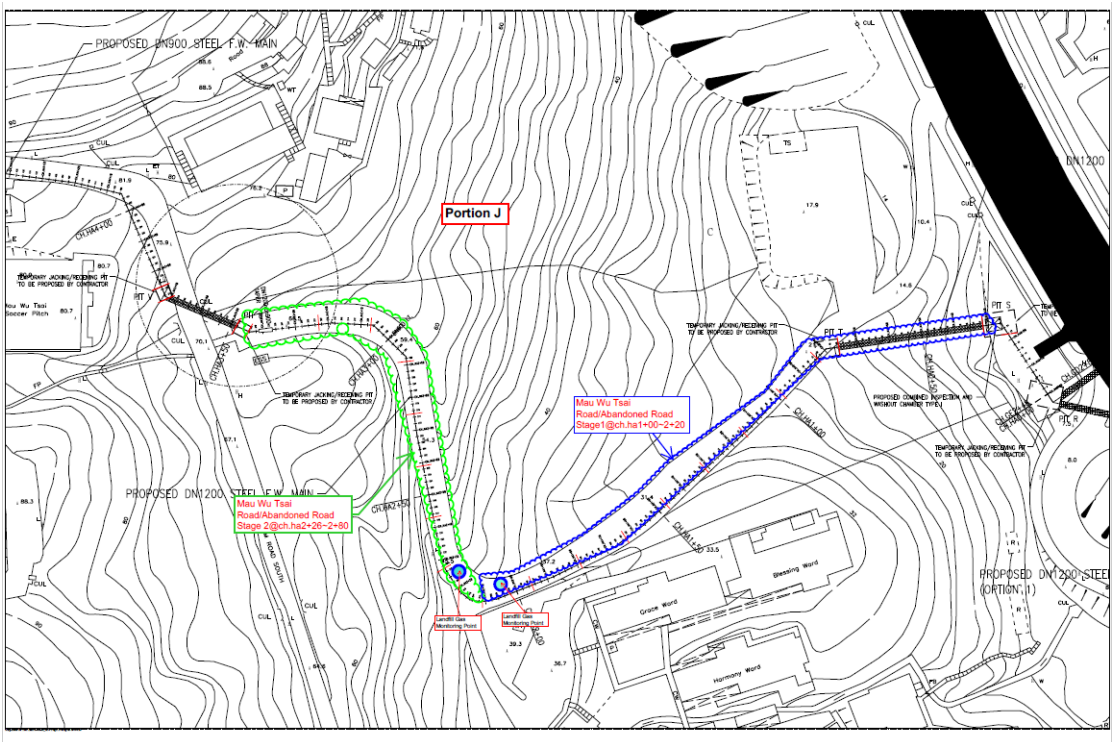


Figure 4.17 Monitoring Location – Mau Wu Tsai Abandoned Road

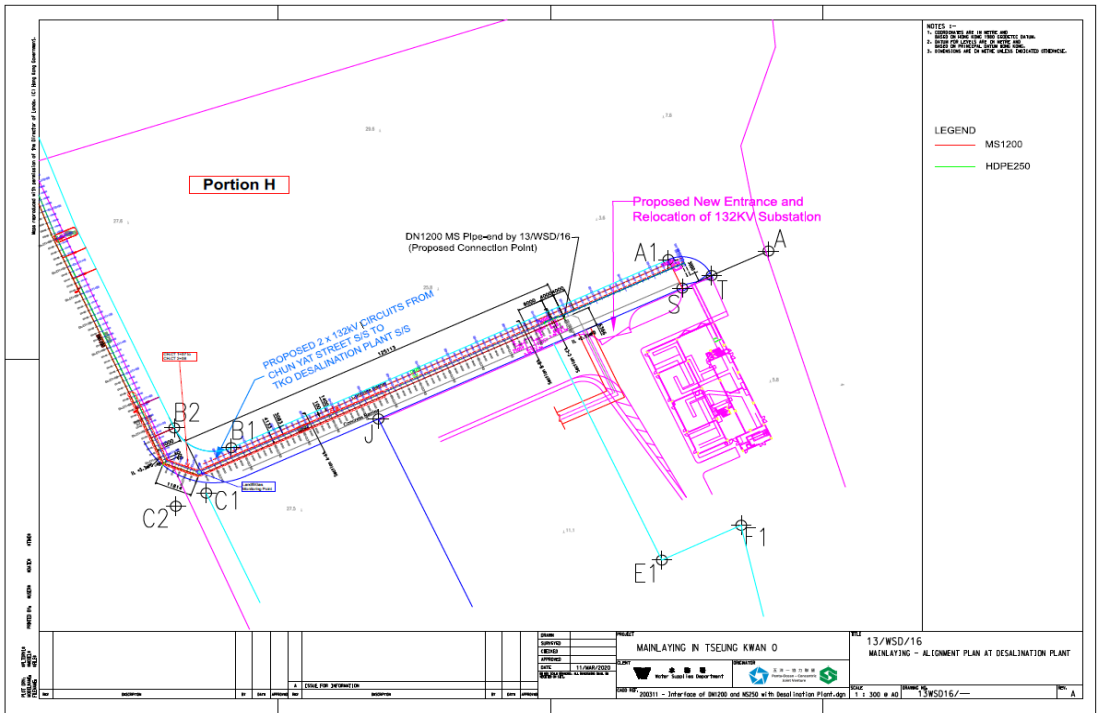


Figure 4.18a Monitoring Location - CH.CT 0+07 ~ 2+58

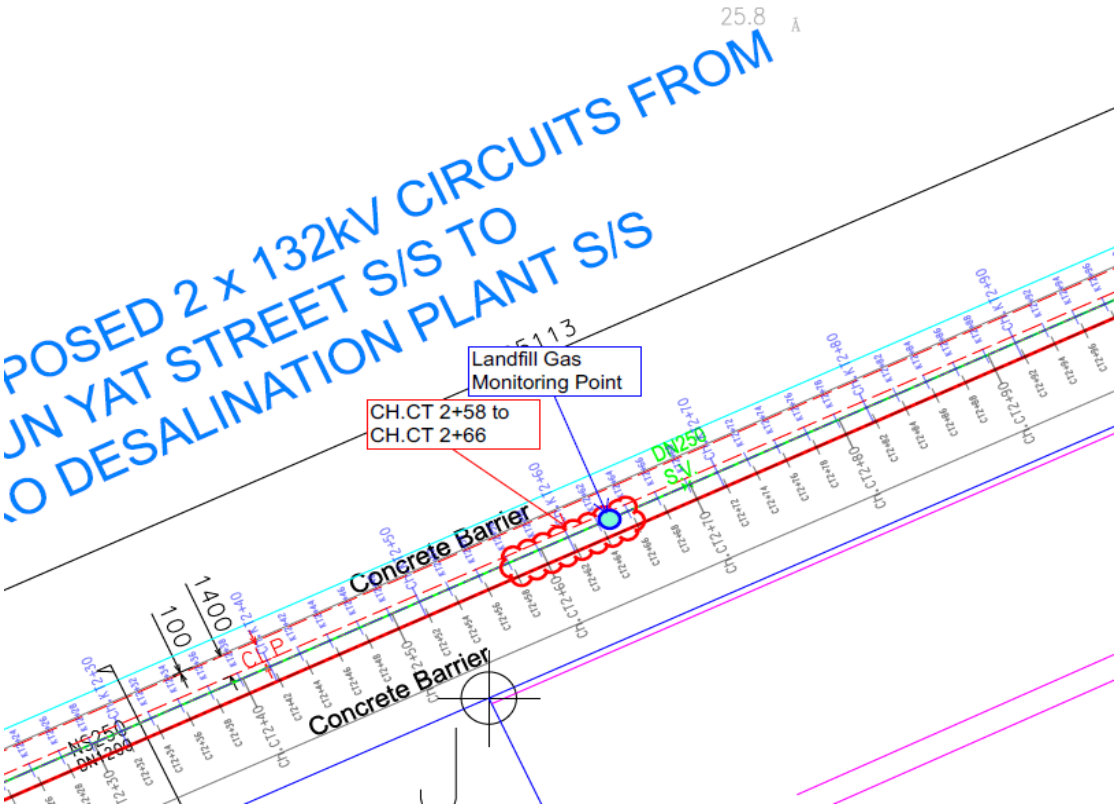


Figure 4.18b Monitoring Location - CH.CT 2+58 ~ 2+66

4.3 Monitoring Parameters

LFG monitoring was carried out to identify any migration between the landfill and the Project and to ensure the safety of the construction, operation and maintenance personnel working on-site, visitors and any other person within the Project area.

The following parameters were monitored:

- Methane.
- Oxygen.
- Carbon Dioxide.
- Barometric Pressure.

4.4 Action and Limit Level

Action and Limit Level are provided in **Table 4.1.**

Table 4.1 Action and Limit Level for Landfill Gas Monitoring Equipment

Parameters	Action Level	Limit Level
Oxygen (O2)	<19% O2	<19% O2
Methane (CH4)	>10% LEL	>80% LEL
Carbon Dioxide (CO2)	>0.5% CO2	>1.5% CO2

4.5 Monitoring Equipment

Landfill Gas monitoring was carried out using intrinsically-safe, portable multi-gas monitoring instruments. The gas monitoring equipment is:

- Comply with the Landfill Gas Hazard Assessment Guidance Note as intrinsically safe;
- Capable of continuous barometric pressure and gas pressure measurements;
- Normally operate in diffusion mode unless required for spot sampling, when it should be capable of operating by means of an aspirator or pump;
- Have low battery, fault and over range indication incorporated;
- Store monitoring data, and shall be capable of being down-loaded directly;

- Measure in the following ranges:

methane	0-100% Lower Explosion Limit (LEL) and 0 100% v/v;
oxygen	0-25% v/v;
carbon dioxide	0-100% v/v; and
barometric pressure	mBar (absolute)

- alarm (both audibly and visually) in the event that the concentrations of the following are exceeded:

methane	>10% LEL;
oxygen	<19% by volume; and
carbon dioxide	>0.5% by volume
barometric pressure	mBar (absolute)

Monitoring Equipment used in the reporting period are summarised in **Table 4.2.** The Landfill Gas monitoring equipment calibration certificate is presented in **Appendix I.**

Table 4.2 Landfill Gas Monitoring Equipment

Equipment	Brand and Model	Calibration Expiry Date
Portable Gas Detector	QRAE III	27 July 2021

4.6 Monitoring Results

In the reporting period, construction works within the consultation zones, excavations of 1m depth or more was monitored. Landfill gas monitoring was carried out by the Registered Safety Officer by the Contractor at the excavation locations for 522 times. All the measured results were presented in **Appendix J** and within the Action and Limit Levels.

5. SUMMARY OF MONITORING EXCEEDANCE, COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTIONS

5.1 The Environmental Complaint Handling Procedure is shown in below **Figure 5.1**:

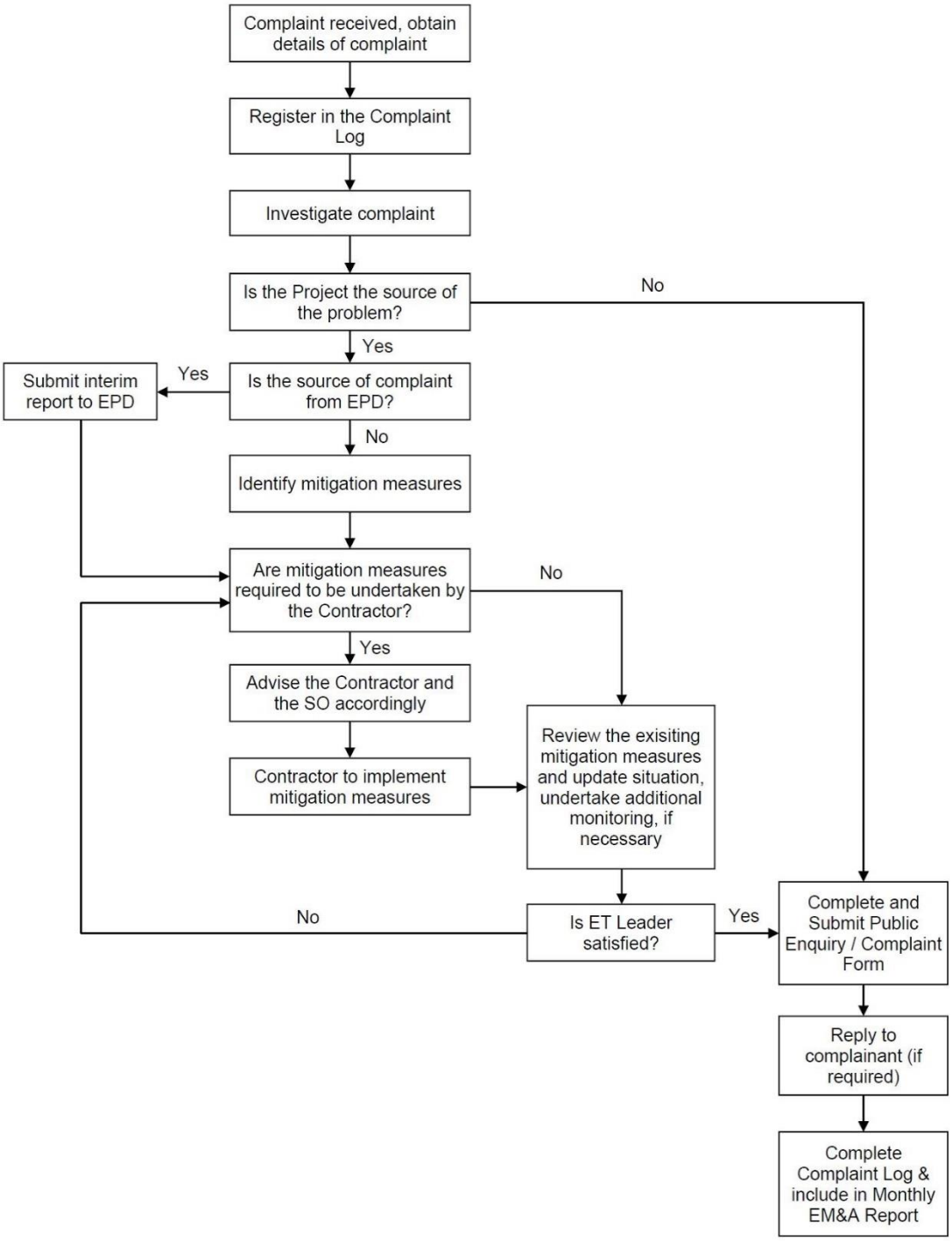


Figure 5.1 Environmental Complaint Handling Procedure

5.2 Impact monitoring for noise impact was conducted in the reporting month for NSR4 – Creative Secondary School on 3, 9, 18 and 22 February 2021 as construction works were conducted within 300m to the noise sensitive receiver. Detailed monitoring results can be found in **Appendix G**.

5.3 The Education Bureau (EDB) has announced that all kindergartens as well as primary and secondary schools (including special schools and schools offering non-local curriculum) will continue to suspend face to face classes and school activities until the beginning of school's Chinese New Year holidays due to the spread of the Novel Coronavirus. No examinations were scheduled between 22nd to 28th February 2021. Hence the noise limit level will be 70.0 dB(A). Further information and Academic School Calendar can be found in Appendix O.

5.4 No project-related exceedance of the Action Level was recorded during the reporting period.

5.5 No project-related complaints that will affect compliances to EM&A manual and environmental permit was received in the reporting month.

5.6 No notification of summons and prosecution was received in the reporting period.

5.7 Statistics on complaints and regulatory compliance are summarized in **Appendix K**.

6. EM&A SITE INSPECTION

6.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. In the reporting period, site inspections were carried out on 4, 9, 18 and 22 February at the site portions list in **Table 6.1** below.

Table 6.1 Site Inspection Record

Date	Inspected Site Portion	Time
04 February 2021	Portion J and H	9:20am – 12:00pm
09 February 2021	Portion J and H	9:30am – 11:30am
18 February 2021	Portion J and H	9:30am – 12:00pm
22 February 2021	Portion J	9:20am – 11:40am

6.2 One joint site inspection with IEC was carried out on 22 February 2021.

6.3 Minor deficiencies were observed during weekly site inspection. Key observations during the site inspections are summarized in **Table 6.2**.

Table 6.2 Site Observations

Date	Environmental Observations	Follow-up Status
04 February 2021	1. Environmental permit was not observed at the site entrance/exit at 137 Pit B. 2. Chemicals were not placed inside a drip tray and oil spillage was observed at Wan Po Road 2. 3. Gully was not protected by sandbags and geo-textile at Wan Po Road 3. 4. Wastewater was not properly treated before discharge at Hong Kong Velodrome. 5. Tree damage was observed at Hong Kong Velodrome. Conditional survey for the tree should be provided for investigation. The Contractor was reminded to protect the trees inside the site boundary.	1. Environmental permit was replaced at the site. 2. Chemicals were cleaned. 3. Gully was protected by sandbags and geo-textile. 4. Wastewater was directed to sedimentation tank for treatment and sewer was protected by sandbags. 5. Using notice to remind contractor to protect the trees.
09 February 2021	1. Environmental permit was not observed at the site entrance/exit at 137 Pit B and Wan Po Road 1. 2. Protective measures should be taken at Wan Po Road 3 for all retained trees in the construction site. 3. Gully was not protected by sandbags and geo-textile at Wan Po Road 3.	1. Environmental permit was replaced at the site. 2. The materials were cleaned near-by the tree. 3. Gully was protected by sandbags and geo-textile.
18 February 2021	1. The Contractor was reminded to implement measures to protect the retained trees in the construction site at Wan Po Road 2.	1. The materials were cleaned near-by the tree.
22 February 2021	1. Wastewater was observed not treated properly at Hong Kong	1. The tank and sewer were being cleaned at Hong Kong Velodrome.

Date	Environmental Observations	Follow-up Status
	Velodrome. More stringent measures should be implemented to ensure compliance to requirements of Water Discharge License.	

6.4 According to the EIA Study Report, Environmental Permit, contract documents and EM&A Manual, the mitigation measures detailed in the documents should be implemented as much as practical during the reporting period. An updated Implementation Status of Environmental Mitigation Measures (EMIS) is provided in **Appendix C**.

6.5 Site inspection proforma of the reporting period is provided in **Appendix L.**

7. FUTURE KEY ISSUES

7.1 Key works that will be anticipated in the next reporting period for the Project are shown in **Table 7.1**.

Table 7.1. Key works for the next reporting month

Location	Location	Forecast Works for January 2021
Portion H of the Project Site	TKO 137 Fill Bank Desalination Plant & SENTX area	• Hydrostatic pressure testing for completed MS1200 pipeline section will be conducted.
	TKO 137 Pit A	• Preparation for breakthrough of TBM from Pit B would be conducted.
	TKO 137 Pit B	• Pipe jacking works by TBM will be commenced.
	TKO 137 Pit C	• Construction of receiving pit will be completed.
Portion J of the Project Site	Wan Po Rd – Workfront 1	• Trench excavation and pipe laying will be conducted.
	Wan Po Rd – Workfront 2	• Trench excavation and pipe laying works will be conducted. • Trial pit works for Pit 1 will be commenced.
	Wan Po Rd – Workfront 3	• Trench excavation and mainlaying works will be conducted.
	Wan Po Rd – Pit A	• Excavation and ELS works will be conducted. • Grouting of trenchless pit will be conducted.
	Wan Po Rd – Pit B	• Excavation and ELS works will be conducted. • Grouting of trenchless pit will be conducted.
	Landfill Stage 1 – Area A	• Trench excavation and pipe laying works will be conducted. • 900HSV Chamber construction works will be commenced.
	Landfill Stage 1 – Area B	• Trench excavation and pipe laying works will be conducted.
	Cycle Track – Workfront 1	• Trench excavation and pipe laying works will be conducted.
	Cycle Track – Workfront 2	• Trench excavation and pipe laying works will be conducted.
	Velodrome – Pit K	• Trenchless pit for hand-shield works will be conducted.
	Velodrome – Pit L	• Trenchless pit for hand-shield works will be conducted.
	Velodrome – Pit N	• Preparation works for TBM break through will be conducted.
	Velodrome – Pit O	• Pipe jacking works will be continued.

	Mau Wu Tsai – Workfront 1	• Trench excavation and pipe mainlaying works will be conducted.
	Mau Wu Tsai – Workfront 2	• Trench excavation and pipe mainlaying works will be conducted
	Po Lam Road	• Trench excavation and pipe mainlaying works will be conducted.
	TKO Primary Service Reservoir	• Trial pit works will be continued. • Trench excavation and pipe laying works will be conducted.

7.2 The major environmental impacts brought by the above construction works will include:

- Construction dust and noise generation of saw cutting of concrete surface, mainlaying of pipes, sheet and pipe pilling, TBM break through, excavation works and ELS works.
- Waste generation from construction activities

7.3 The key environmental mitigation measures for the Project in the coming reporting period associated with the above construction works will include:

- Dust suppression by regular wetting and water spraying for saw cutting of concrete surface, mainlaying of pipes, pipe pilling, TBM break through, excavation works and ELS works
- Reduction of noise from equipment and machinery on-site
- Sorting and storage of general refuse and construction waste

7.4 The proactive environmental protection proforma for the next reporting month is listed in **Appendix M.**

7.5 Referring to EM&A Manual Section 4.1.2, the impact noise monitoring should be carried out at all the designated monitoring stations when there are project-related construction activities undertaken within a radius of 300m from the monitoring stations.

7.6 The tentative impact monitoring schedule for the next reporting month is attached in **Appendix N**.

8. CONCLUSION AND RECOMMENDATIONS

8.1 This is the 31st monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works undertaken during the period from 1 February 2021 to 28 February 2021, in accordance with the EM&A Manual and the requirement under EP-503/2015/A.

8.2 Impact monitoring for noise impact was conducted in the reporting month for NSR4 – Creative Secondary School on 3, 9, 18 and 22 February 2021 as construction works were conducted within 300m to the noise sensitive receiver. Detailed monitoring results can be found in **Appendix G**.

8.3 The Education Bureau (EDB) has announced that all kindergartens as well as primary and secondary schools (including special schools and schools offering non-local curriculum) will continue to suspend face to face classes and school activities until the beginning of school's Chinese New Year holidays due to the spread of the Novel Coronavirus. No examinations were scheduled between 22nd to 28th February 2021. Hence the noise limit level will be 70.0 dB(A). Further information and Academic School Calendar can be found in Appendix O.

8.4 No project-related exceedance of the Action Level was recorded during the reporting period.

8.5 Weekly environmental site inspection was conducted during the reporting period. Minor deficiencies were observed during site inspection and were rectified. The environmental performance of the project was therefore considered satisfactory.

8.6 According to the environmental site inspections performed in the reporting month, the contractor is reminded to pay attention on maintaining site tidiness, water treatment facilities, dust suppression mitigations and proper materials storage.

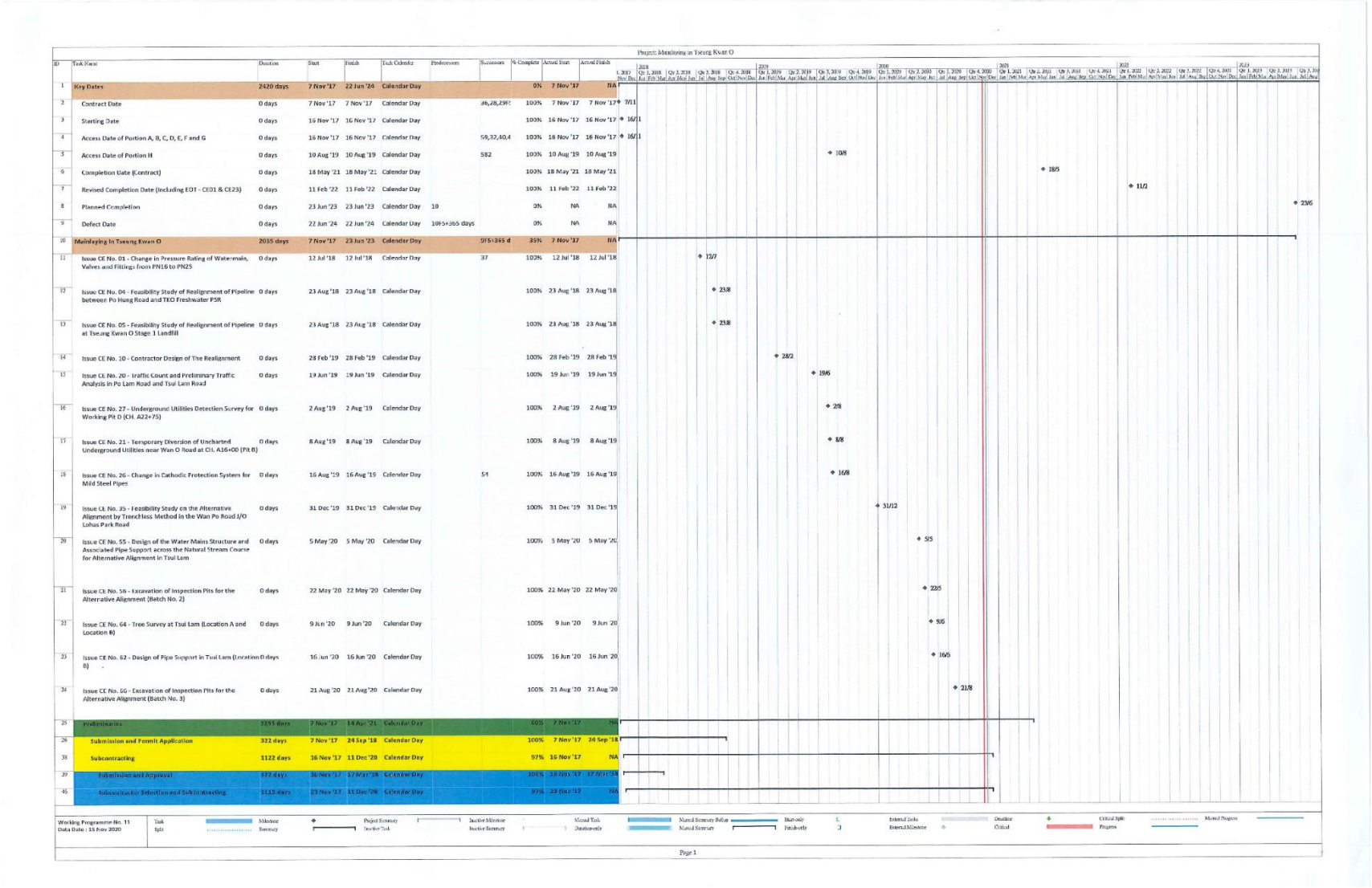
8.7 No project-related complaints that will affect compliances to the EM&A Manual and Environmental Permit was received in the reporting period.

8.8 No notification of summons or prosecution was received since the commencement of the Contract.

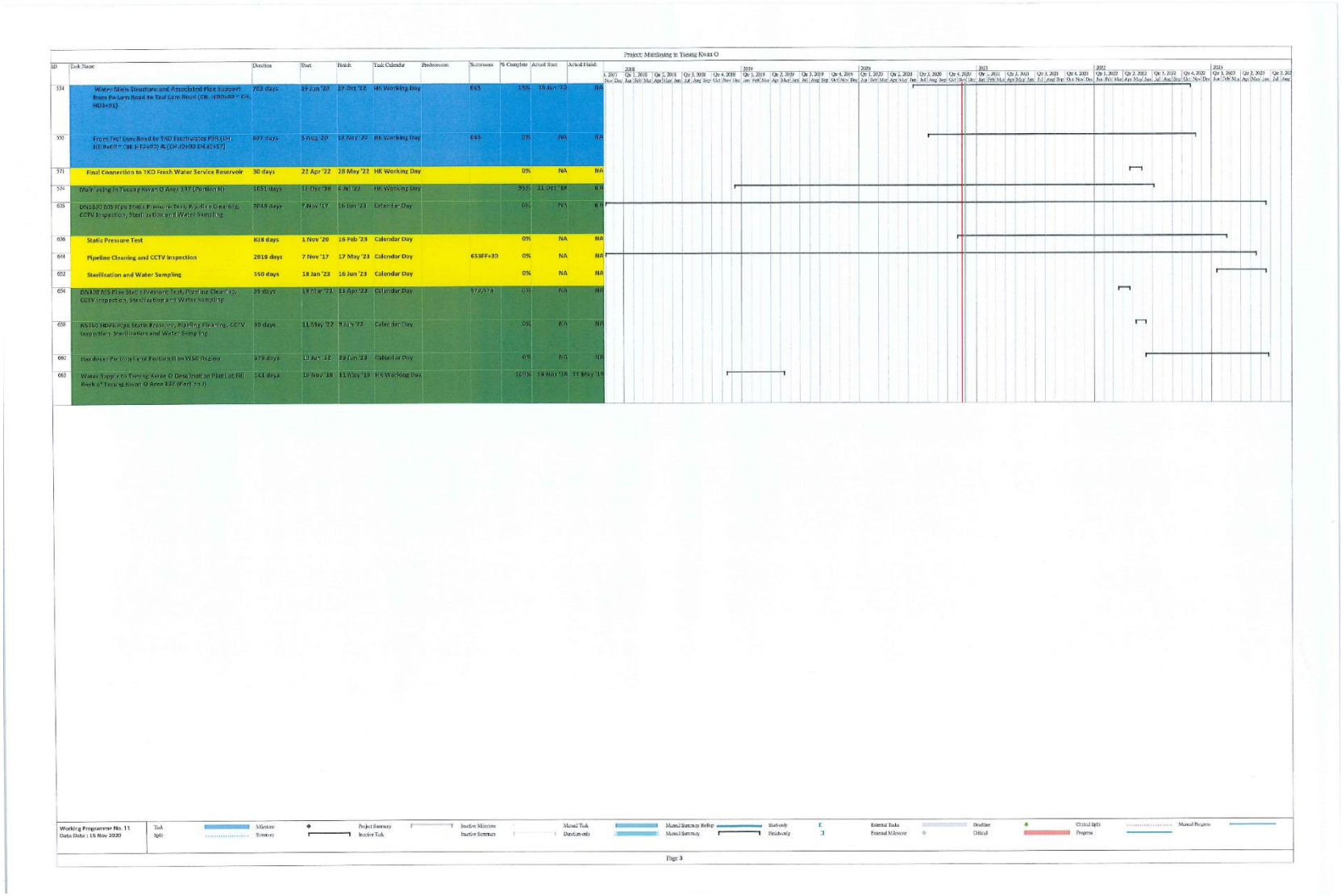
8.9 The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Appendix A

Construction Programme



ID	Task Name	Duration	Start	Finish	Task Calendar	Predecessors	Successors	% Complete	Actual Start	Actual Finish
1	Key Dates	2420 days	7 Nov '17	22 Jun '24	Calendar Day			0%	7 Nov '17	NA
2	Contract Date	0 days	7 Nov '17	7 Nov '17	Calendar Day		46,28,29[illegible]	100%	7 Nov '17	7 Nov '17
3	Starting Date	0 days	16 Nov '17	16 Nov '17	Calendar Day			100%	16 Nov '17	16 Nov '17
4	Access Date of Portion A, B, C, D, E, F and G	0 days	16 Nov '17	16 Nov '17	Calendar Day		59,32,40,4	100%	16 Nov '17	16 Nov '17
5	Access Date of Portion H	0 days	10 Aug '19	10 Aug '19	Calendar Day		582	100%	10 Aug '19	10 Aug '19
6	Completion Date (Contract)	0 days	18 May '21	18 May '21	Calendar Day			100%	18 May '21	18 May '21
7	Revised Completion Date (Including EOT - CE01 & CE23)	0 days	11 Feb '22	11 Feb '22	Calendar Day			100%	11 Feb '22	11 Feb '22
8	Planned Completion	0 days	23 Jun '23	23 Jun '23	Calendar Day	10		0%	NA	NA
9	Defect Date	0 days	22 Jun '24	22 Jun '24	Calendar Day	10FS+365 days		0%	NA	NA
10	Mainlaying in Tseung Kwan O	2055 days	7 Nov '17	23 Jun '23	Calendar Day		9FS+365 d	35%	7 Nov '17	NA
11	Issue CE No. 01 - Change in Pressure Rating of Watermain, Valves and Fittings from PN16 to PN25	0 days	12 Jul '18	12 Jul '18	Calendar Day		37	100%	12 Jul '18	12 Jul '18
12	Issue CE No. 04 - Feasibility Study of Realignment of Pipeline between Po Hung Road and TKO Freshwater PSR	0 days	23 Aug '18	23 Aug '18	Calendar Day			100%	23 Aug '18	23 Aug '18
13	Issue CE No. 05 - Feasibility Study of Realignment of Pipeline at Tseung Kwan O Stage 1 Landfill	0 days	23 Aug '18	23 Aug '18	Calendar Day			100%	23 Aug '18	23 Aug '18
14	Issue CE No. 10 - Contractor Design of The Realignment	0 days	28 Feb '19	28 Feb '19	Calendar Day			100%	28 Feb '19	28 Feb '19
15	Issue CE No. 20 - Traffic Count and Preliminary Traffic Analysis in Po Lam Road and Tsui Lam Road	0 days	19 Jun '19	19 Jun '19	Calendar Day			100%	19 Jun '19	19 Jun '19
16	Issue CE No. 27 - Underground Utilities Detection Survey for Working Pit D (CH. A22+75)	0 days	2 Aug '19	2 Aug '19	Calendar Day			100%	2 Aug '19	2 Aug '19
17	Issue CE No. 21 - Temporary Diversion of Uncharted Underground Utilities near Wan O Road at CH. A16+00 (Pit B)	0 days	8 Aug '19	8 Aug '19	Calendar Day			100%	8 Aug '19	8 Aug '19
18	Issue CE No. 26 - Change in Cathodic Protection System for Mild Steel Pipes	0 days	16 Aug '19	16 Aug '19	Calendar Day		54	100%	16 Aug '19	16 Aug '19
19	Issue CE No. 35 - Feasibility Study on the Alternative Alignment by Trenchless Method in the Wan Po Road I/O Lohas Park Road	0 days	31 Dec '19	31 Dec '19	Calendar Day			100%	31 Dec '19	31 Dec '19
20	Issue CE No. 55 - Design of the Water Mains Structure and Associated Pipe Support across the Natural Stream Course for Alternative Alignment in Tsui Lam	0 days	5 May '20	5 May '20	Calendar Day			100%	5 May '20	5 May '20
21	Issue CE No. 58 - Excavation of Inspection Pits for the Alterrative Alignment (Batch No. 2)	0 days	22 May '20	22 May '20	Calendar Day			100%	22 May '20	22 May '20
22	Issue CE No. 64 - Tree Survey at Tsui Lam (Location A and Location B)	0 days	9 Jun '20	9 Jun '20	Calendar Day			100%	9 Jun '20	9 Jun '20
23	Issue CE No. 62 - Design of Pipe Support in Tsui Lam (Location B)	0 days	16 Jun '20	16 Jun '20	Calendar Day			100%	16 Jun '20	16 Jun '20
24	Issue CE No. 66 - Excavation of Inspection Pits for the Alternative Alignment (Batch No. 3)	0 days	21 Aug '20	21 Aug '20	Calendar Day			100%	21 Aug '20	21 Aug '20
25	Preliminaries	1255 days	7 Nov '17	14 Apr '21	Calendar Day			86%	7 Nov '17	NA
26	Submission and Permit Application	322 days	7 Nov '17	24 Sep '18	Calendar Day			100%	7 Nov '17	24 Sep '18
38	Subcontracting	1122 days	16 Nov '17	11 Dec '20	Calendar Day			97%	16 Nov '17	NA
39	Submission and Approval	122 days	16 Nov '17	17 Mar '18	Calendar Day			100%	16 Nov '17	17 Mar '18
46	Subcontractor Selection and Subcontracting	1115 days	23 Nov '17	11 Dec '20	Calendar Day			99%	23 Nov '17	NA


Project: Mainlaying in Tseung Kwan O
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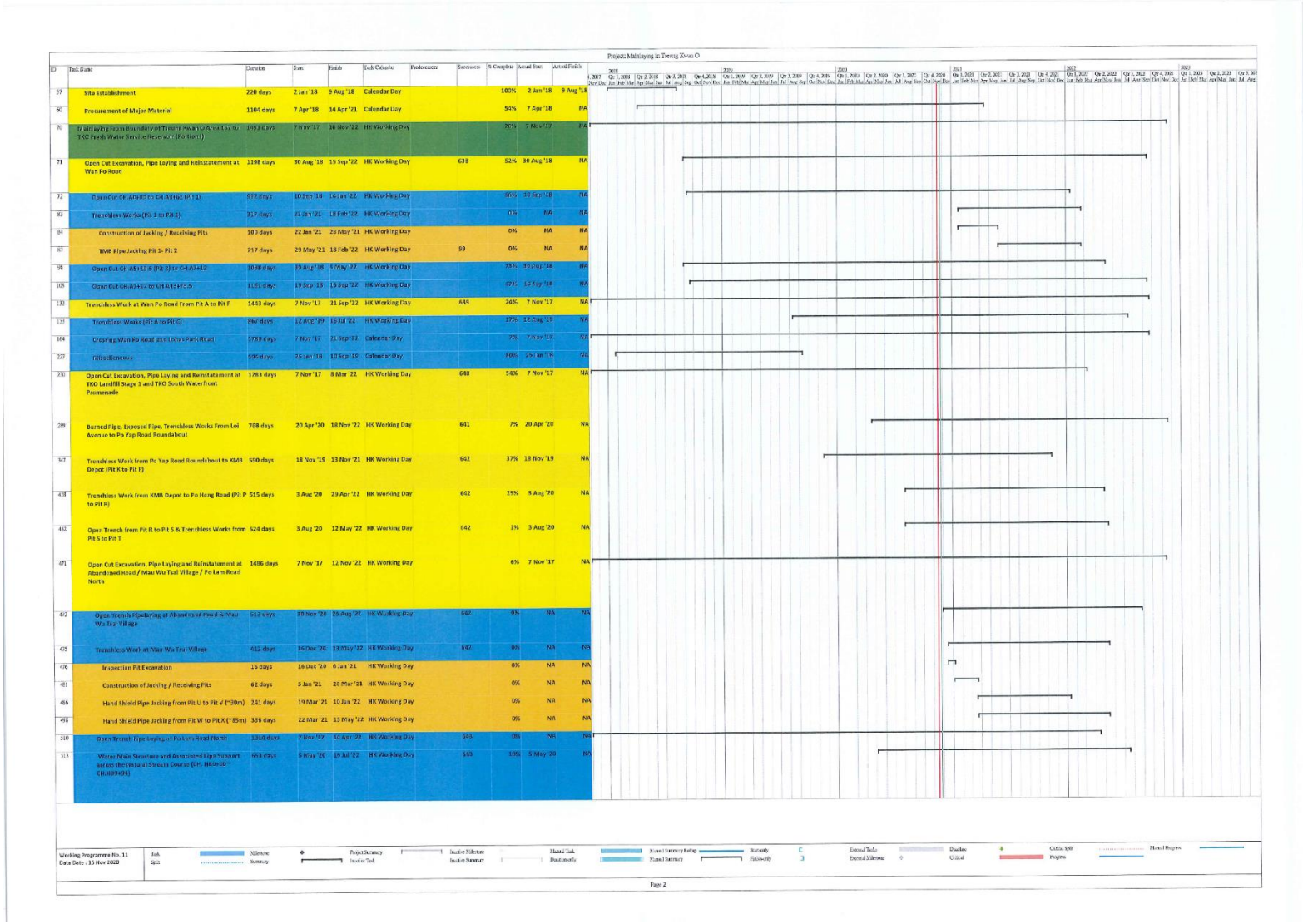
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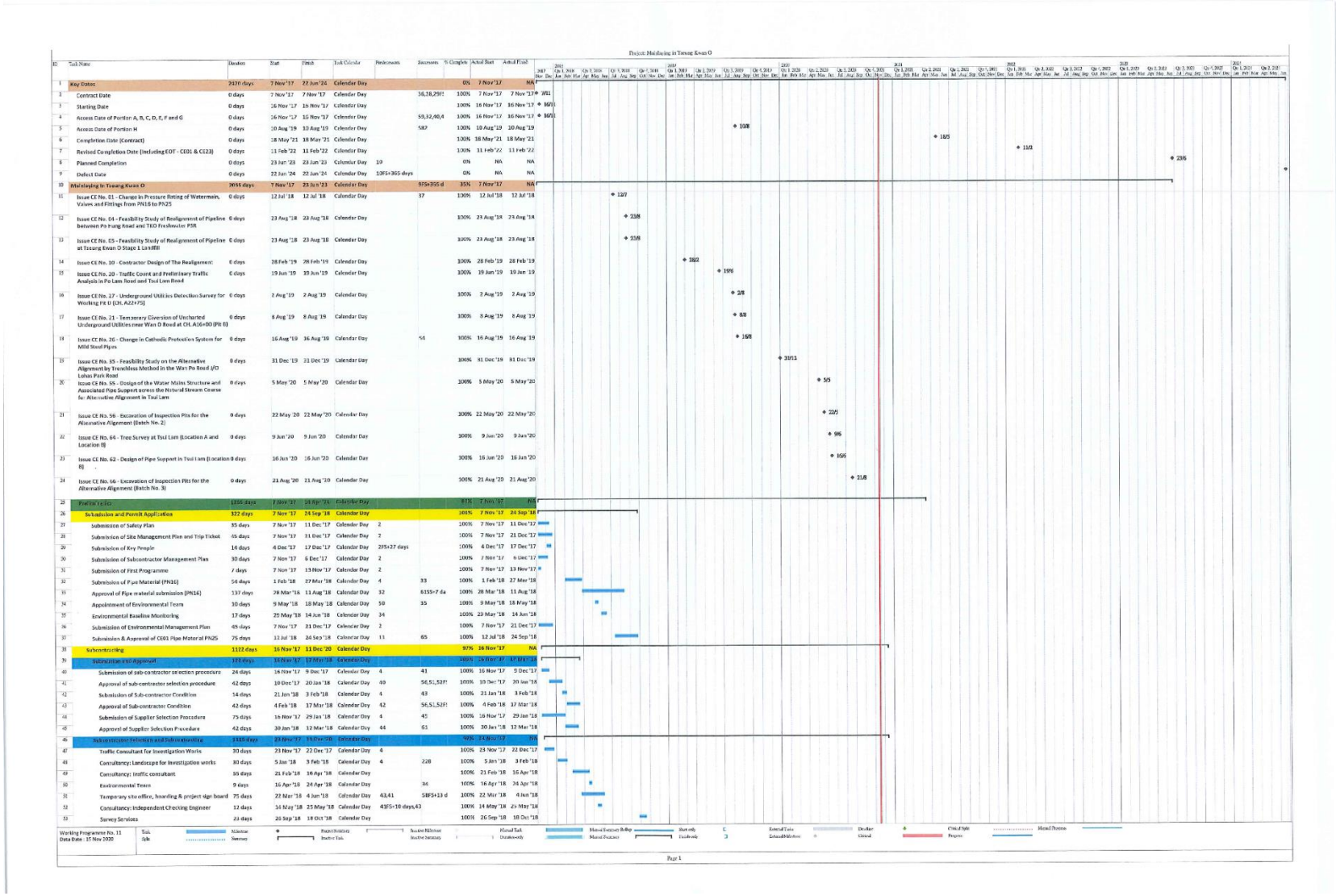
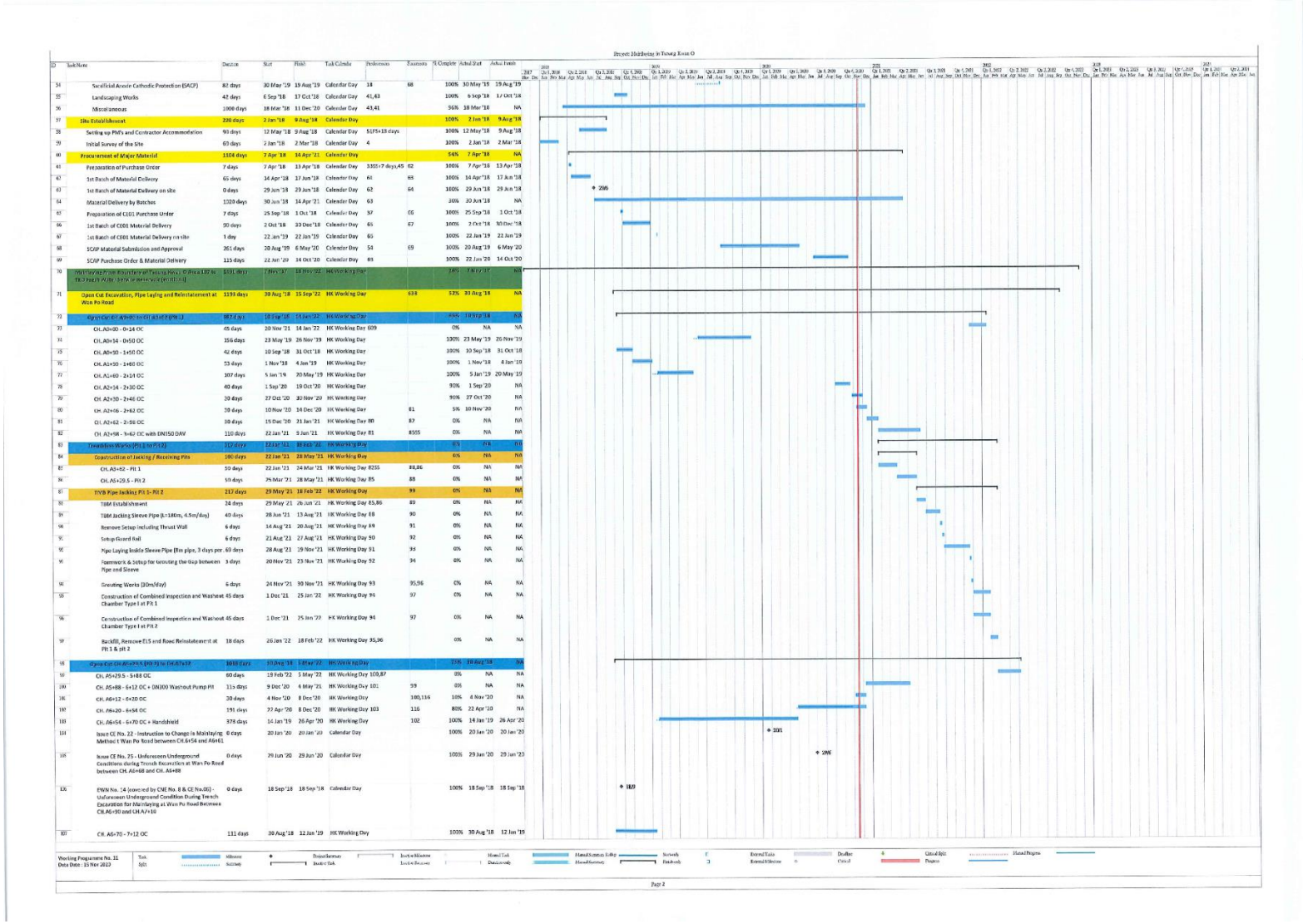
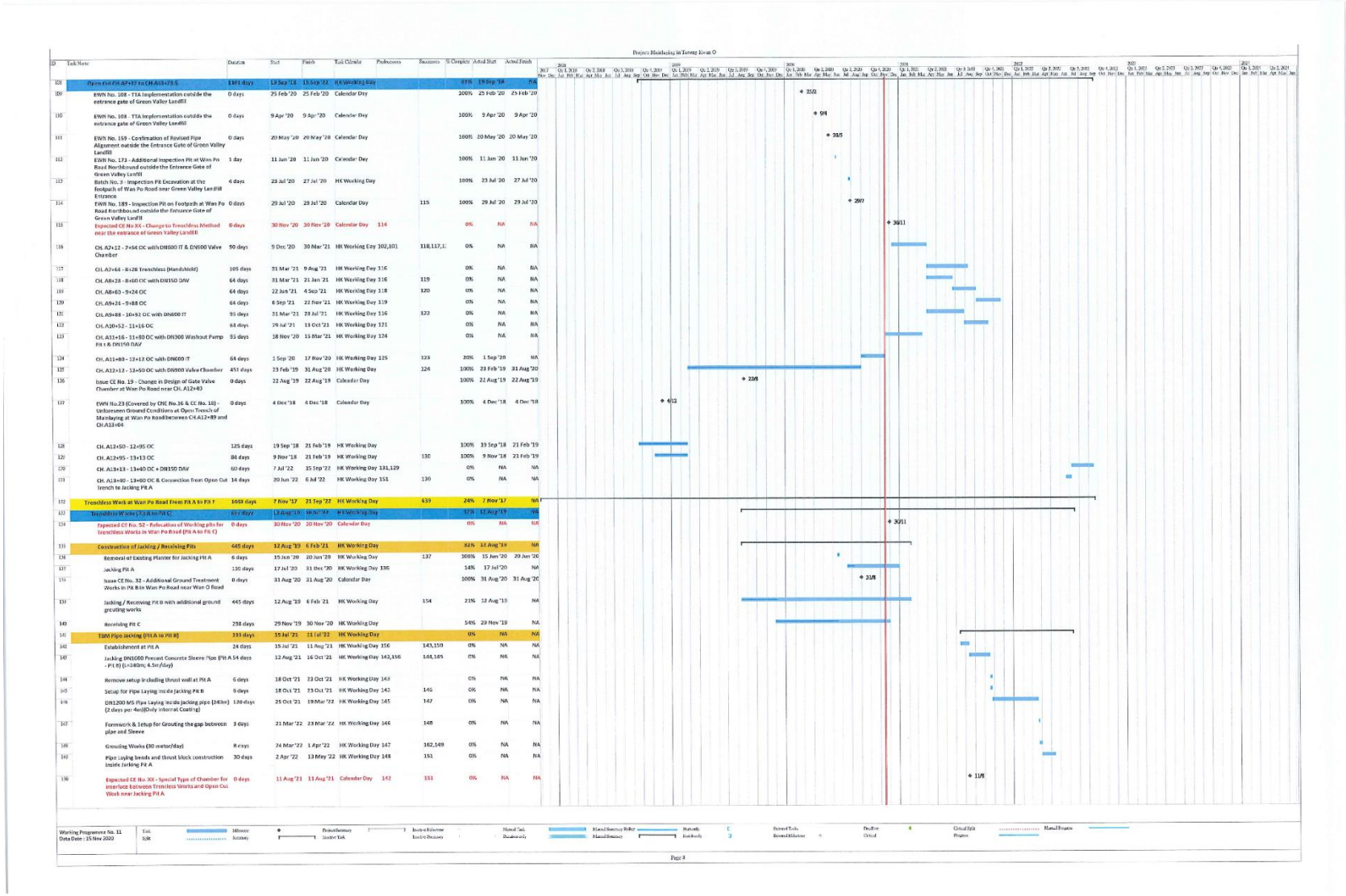
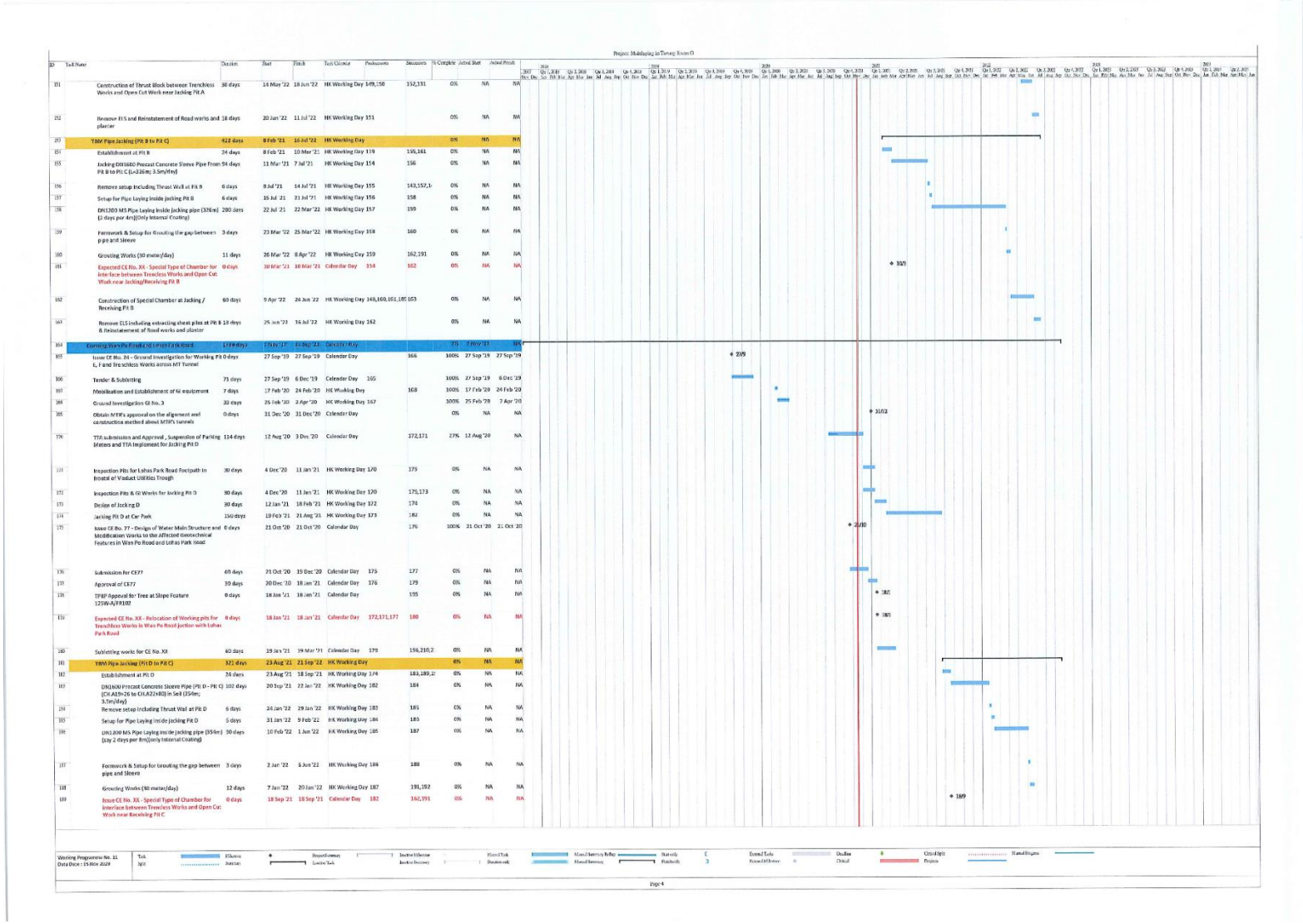
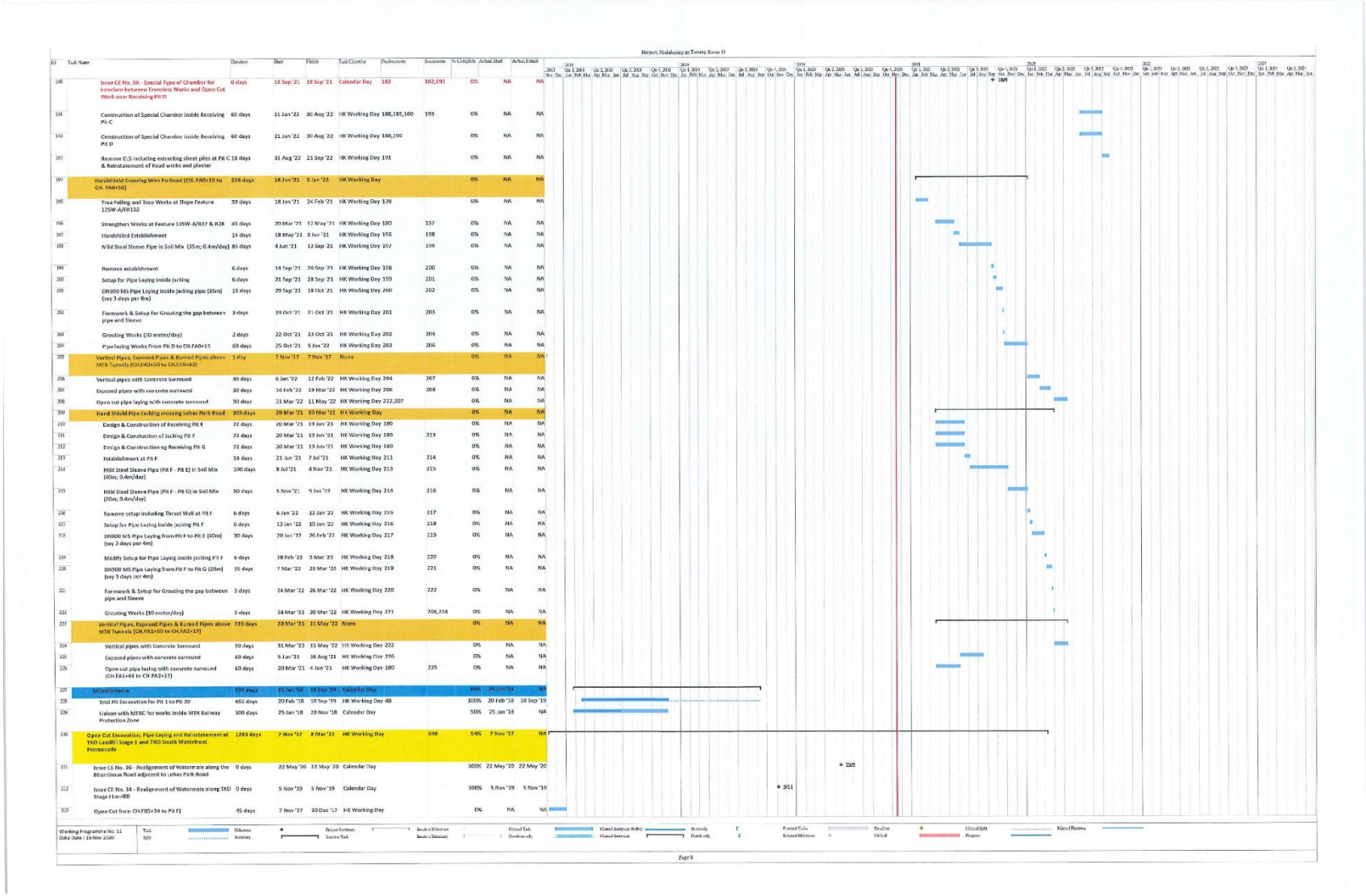
Working Programme No. 11
Data Date : 15 Nov 2020
Page 2

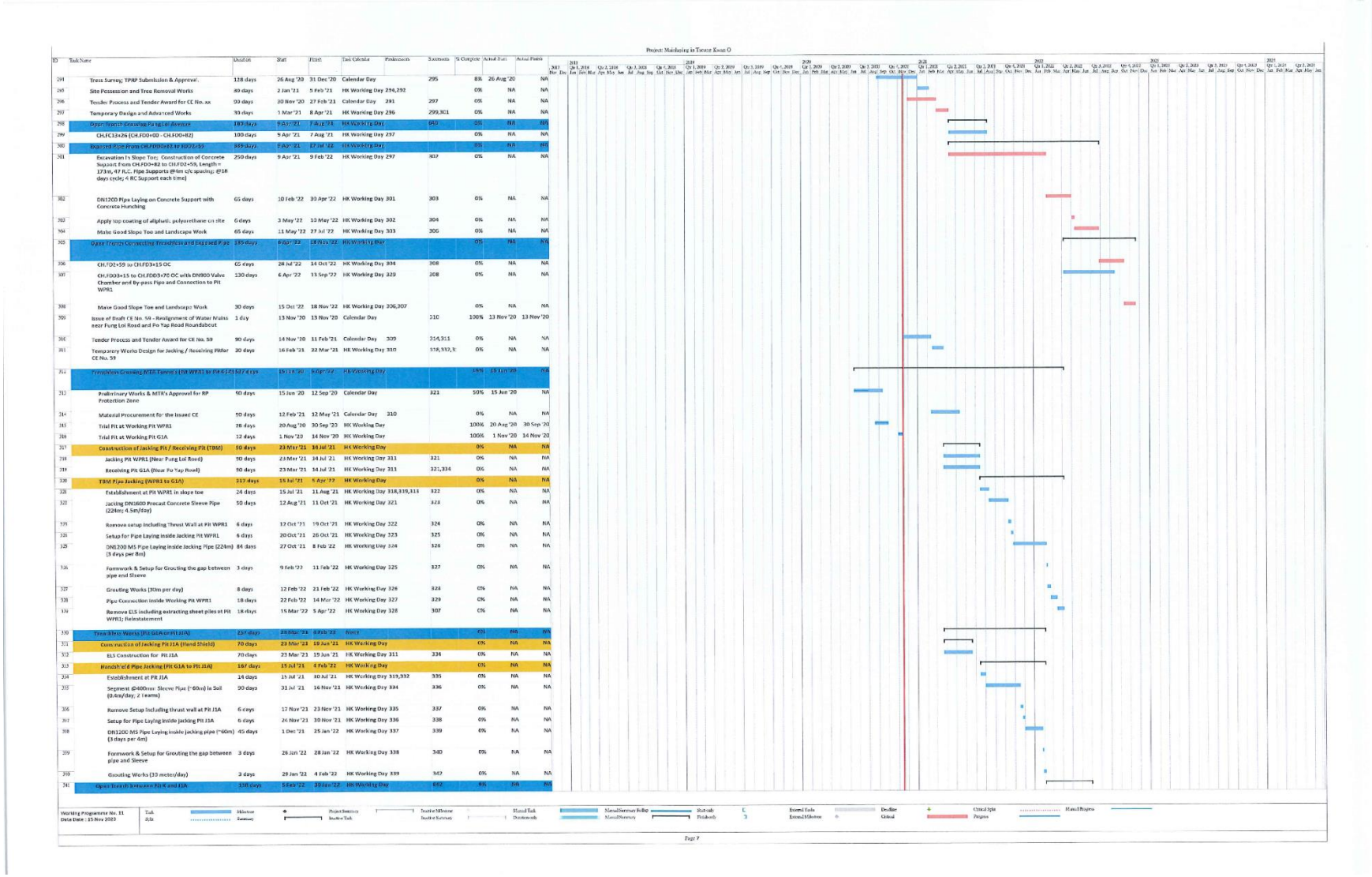


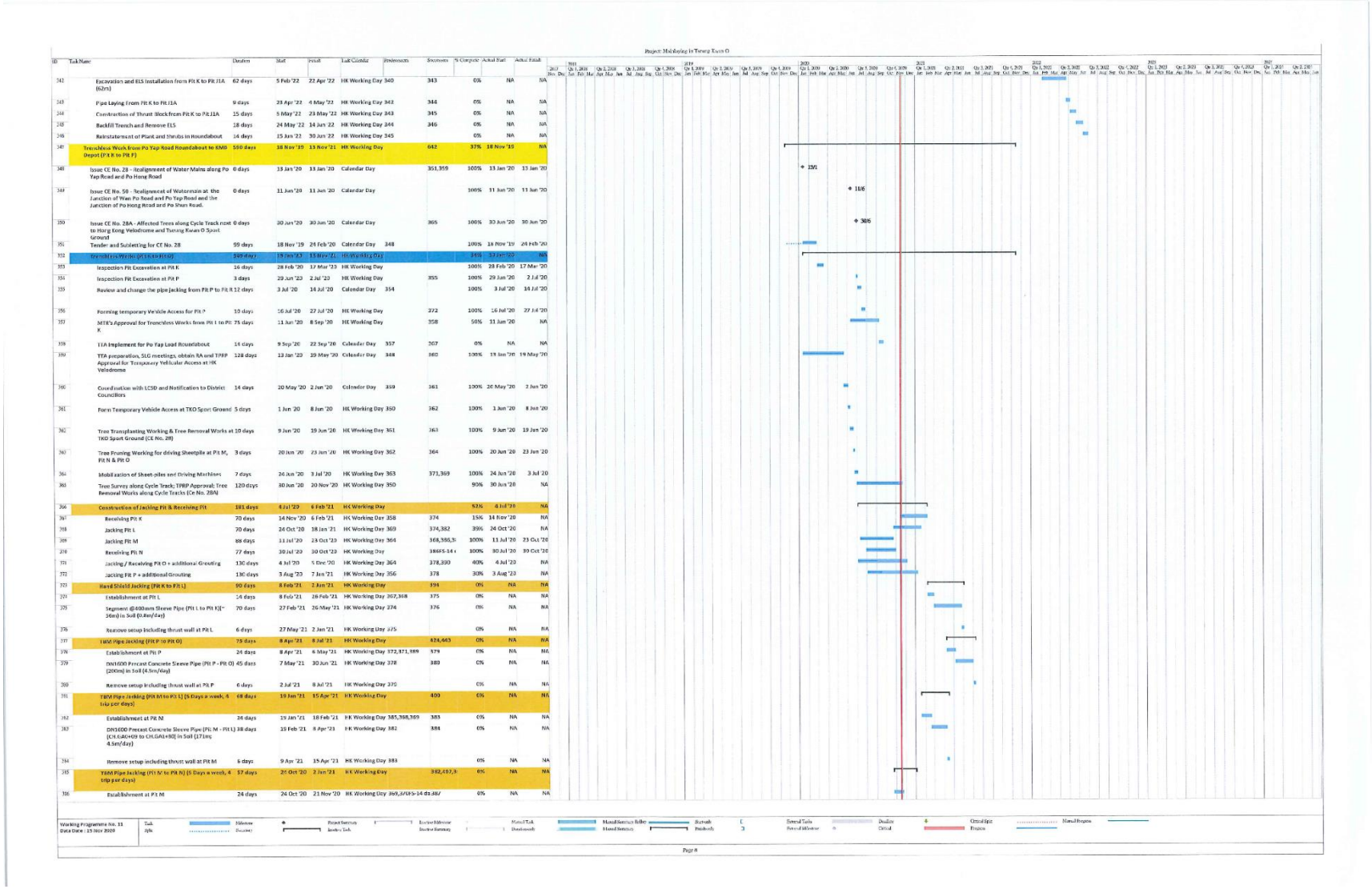


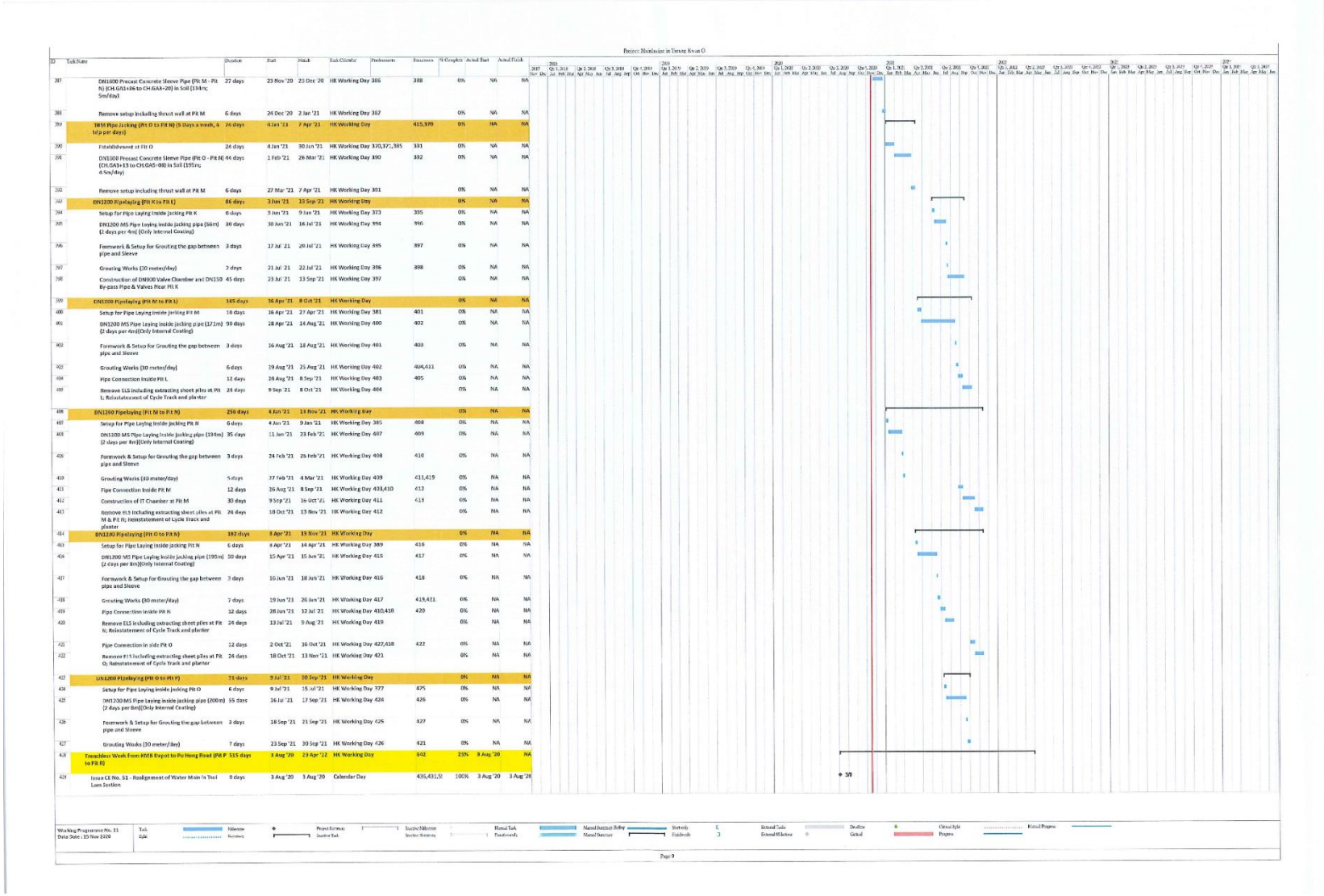


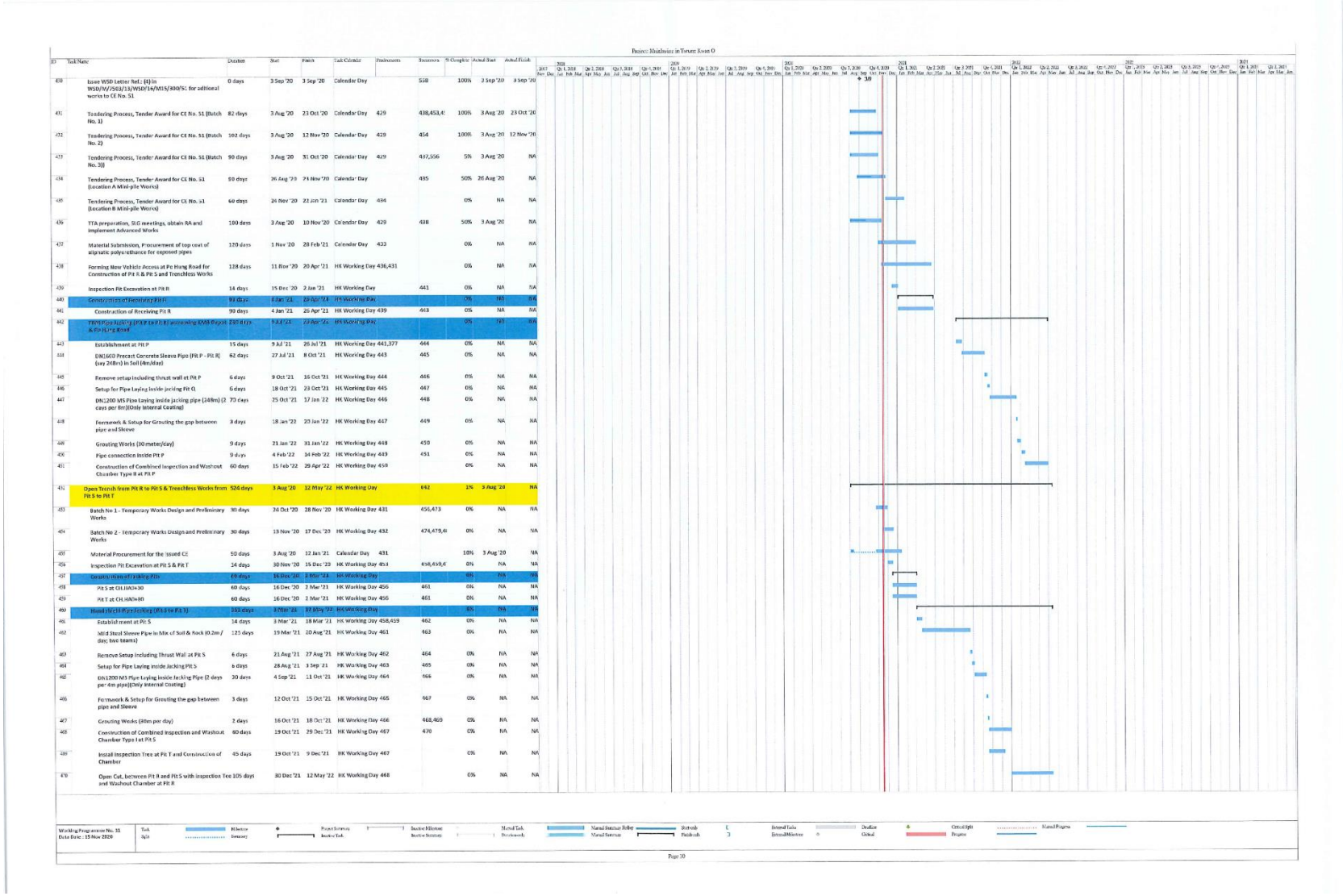


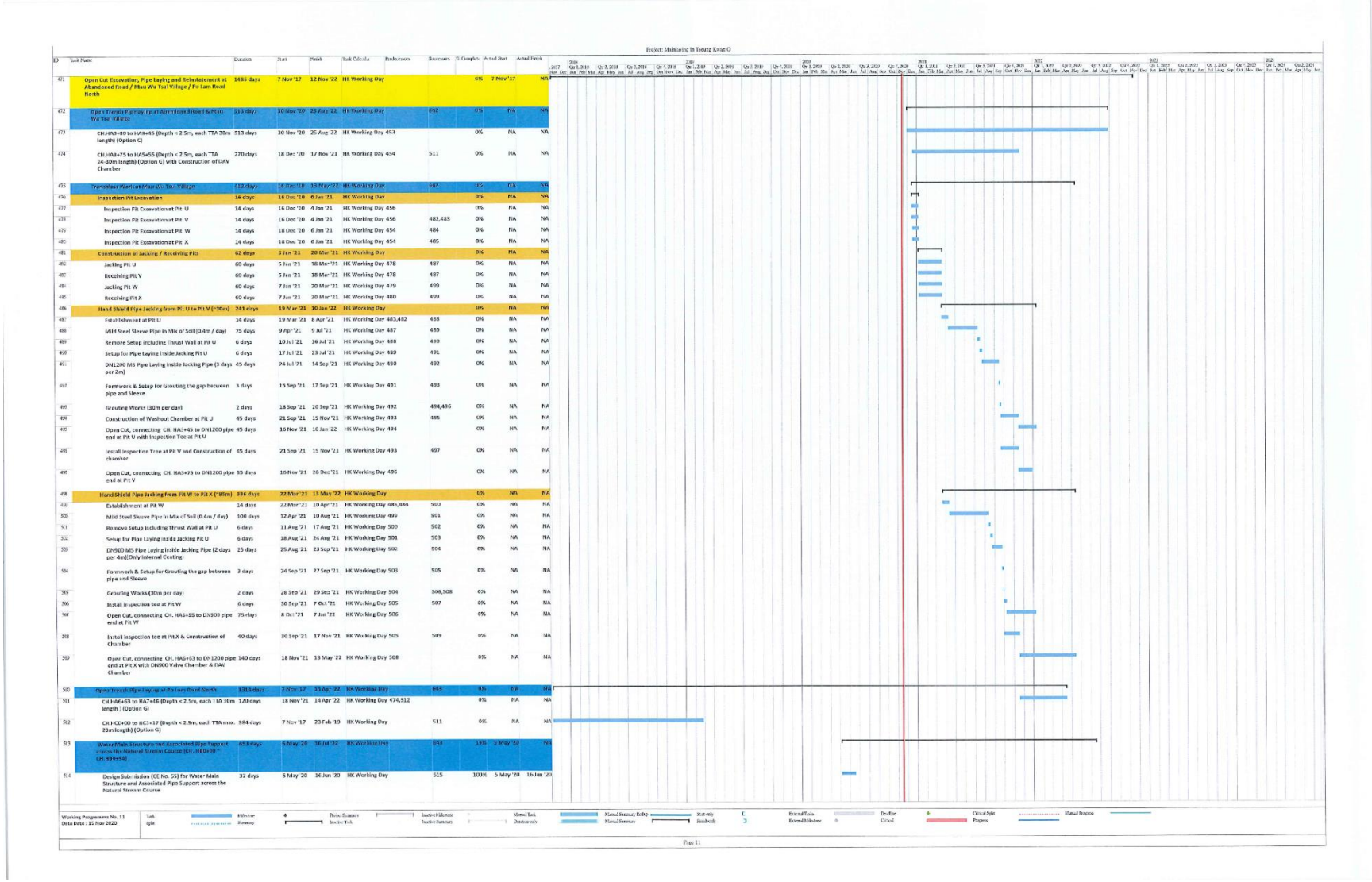


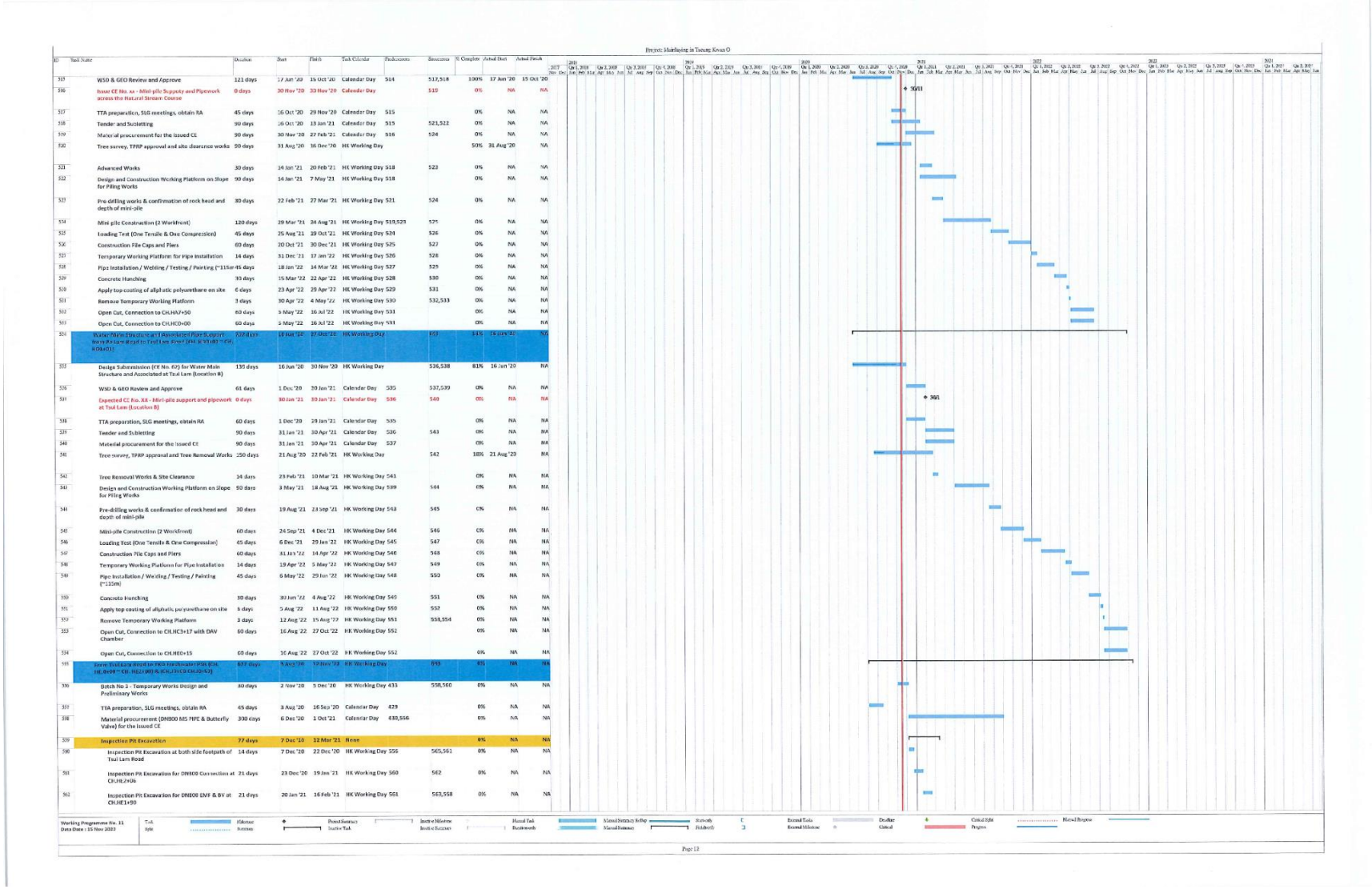


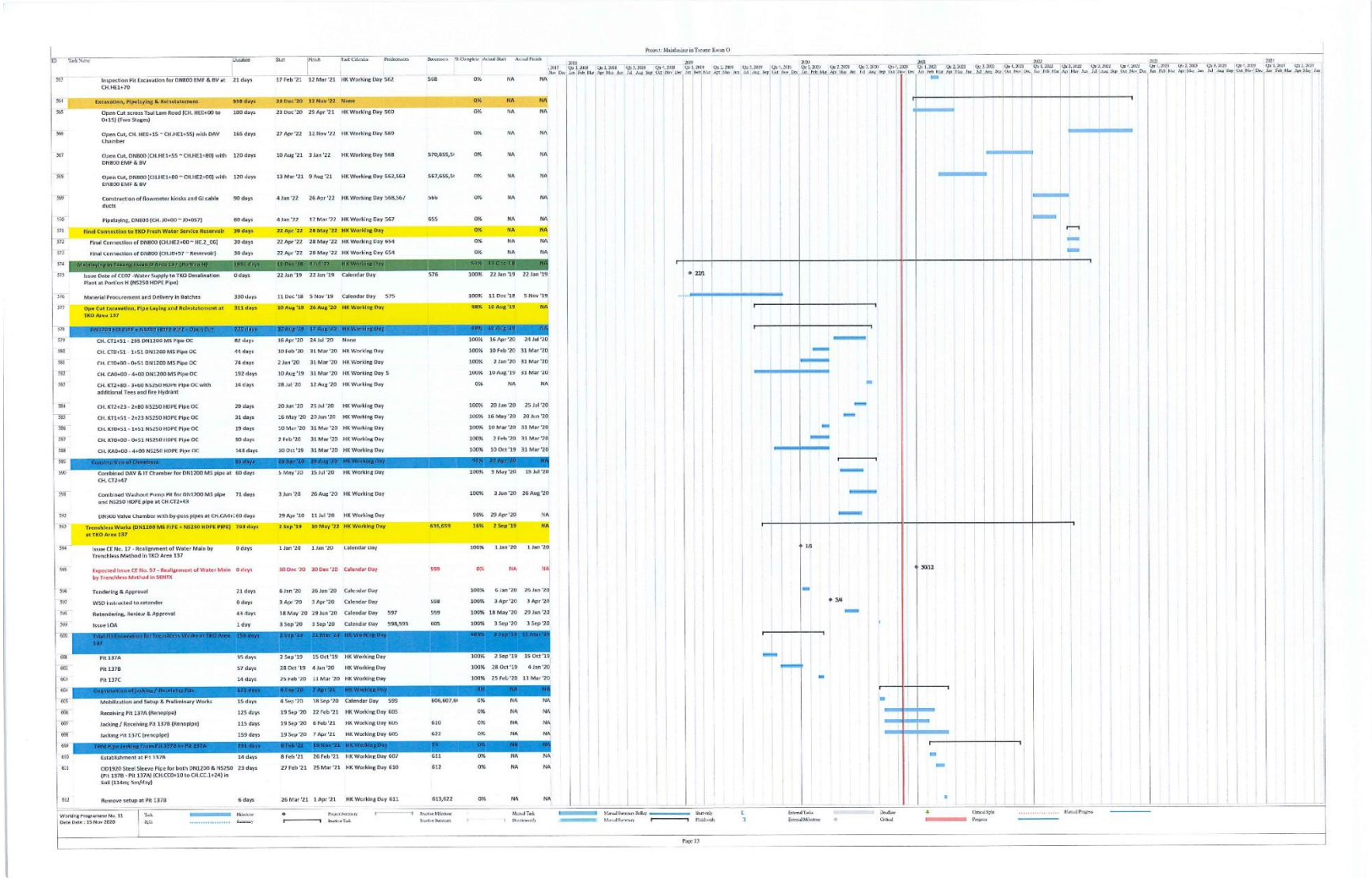


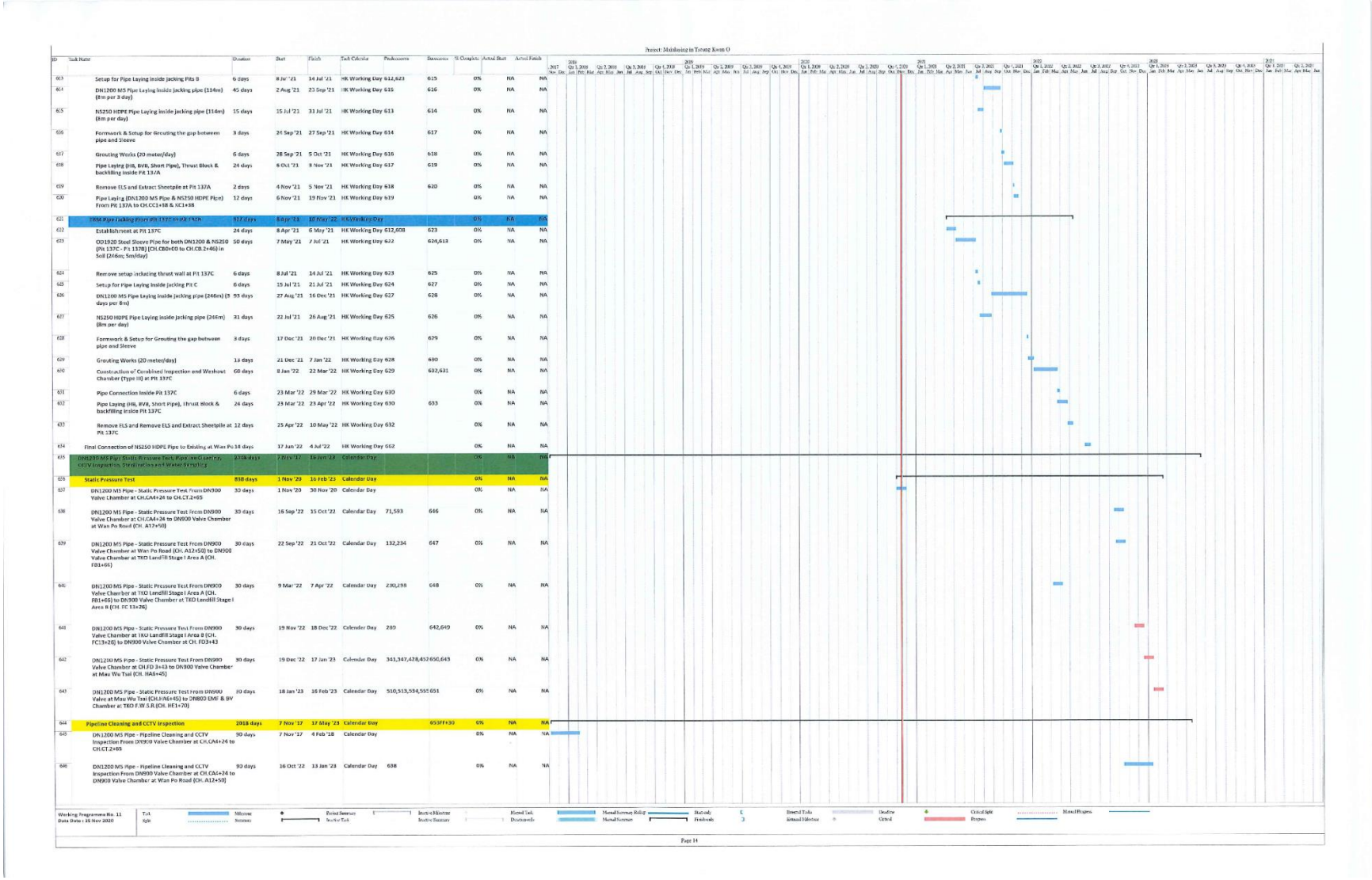


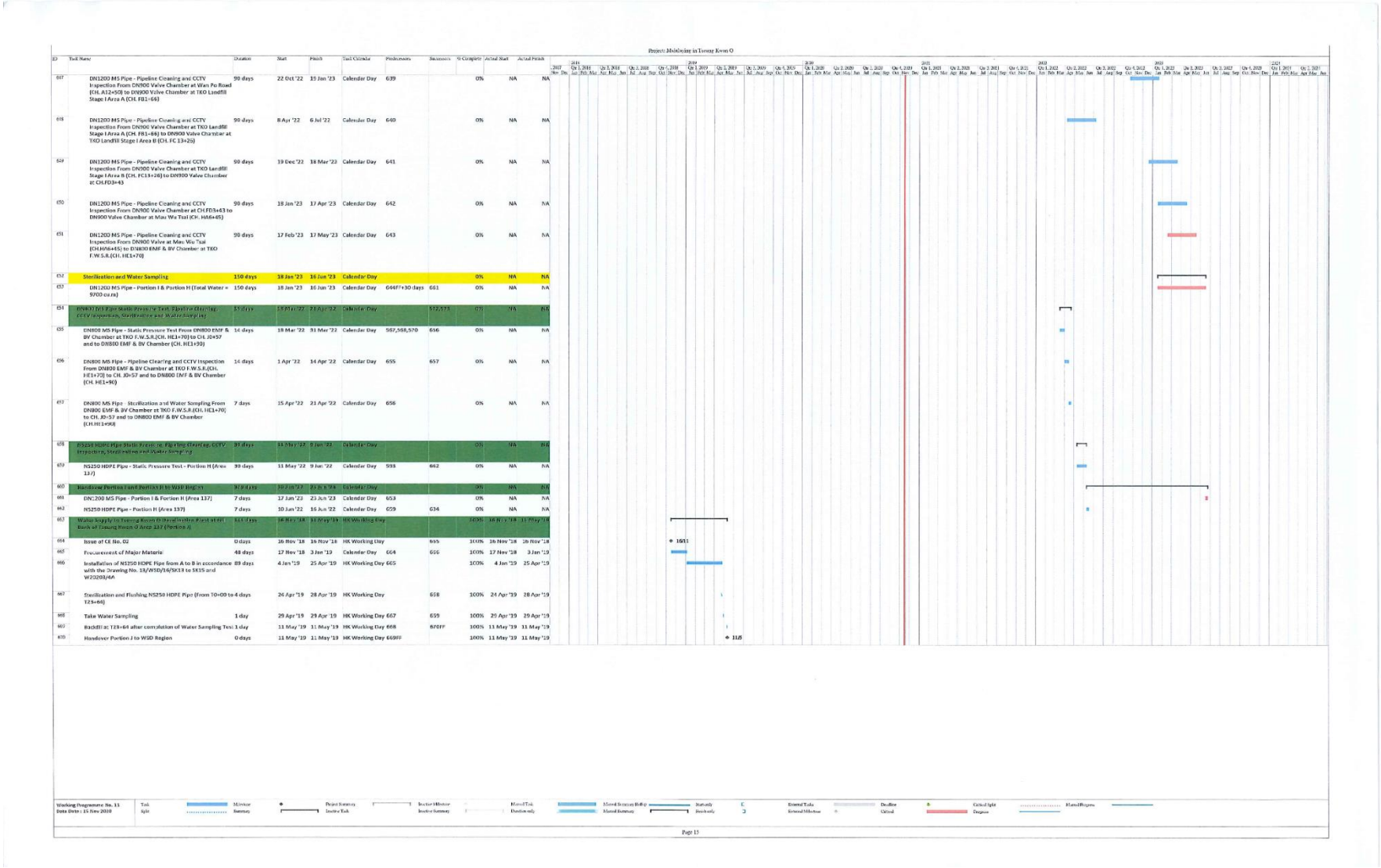












Appendix B

Overview of Mainlaying in Tseung Kwan O

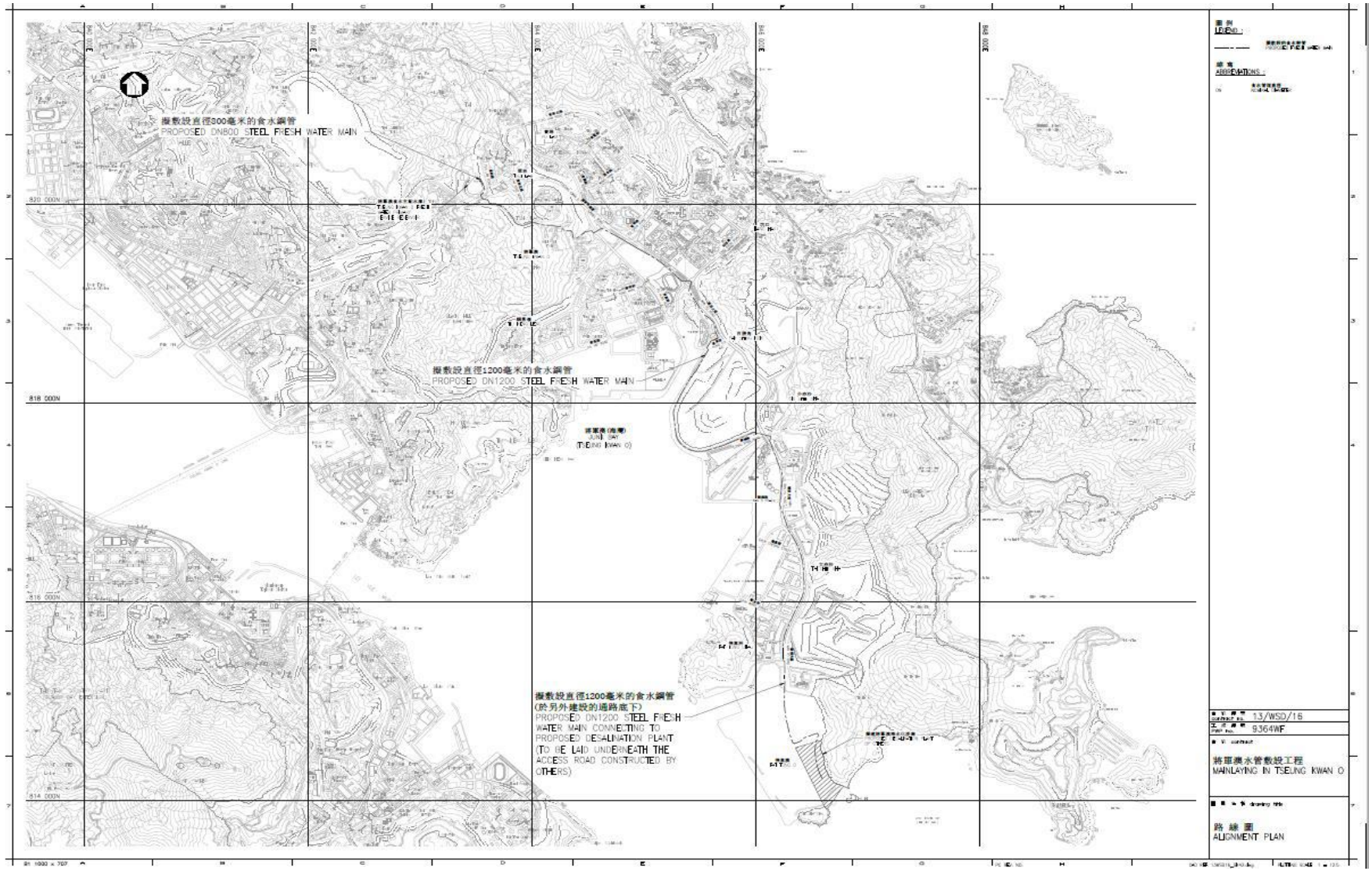


Figure B1. Overview of Mainlaying in TKO

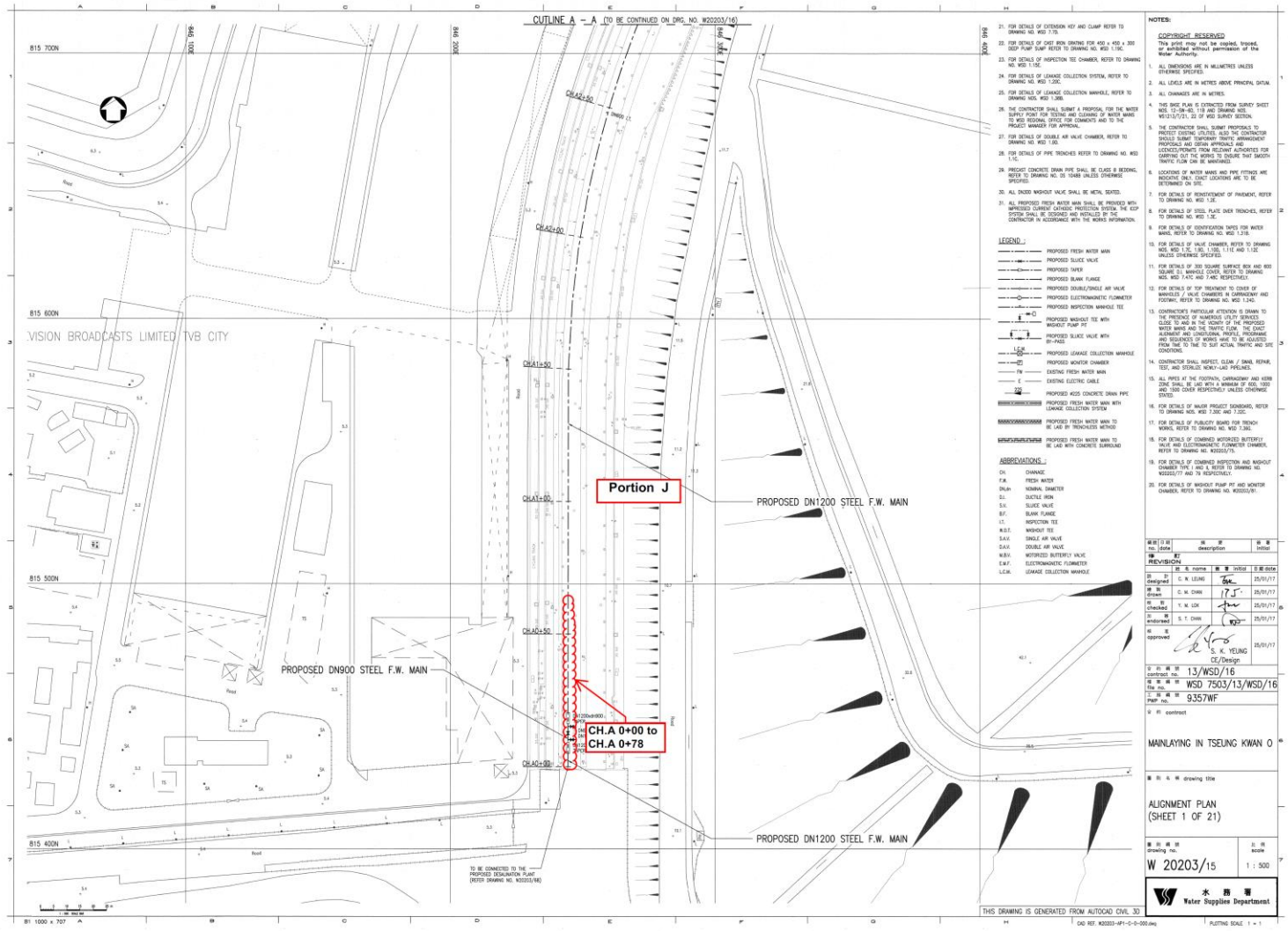


Figure B2. Location Plan for Portion J - CH.A 0+00 to CH.A 0+78

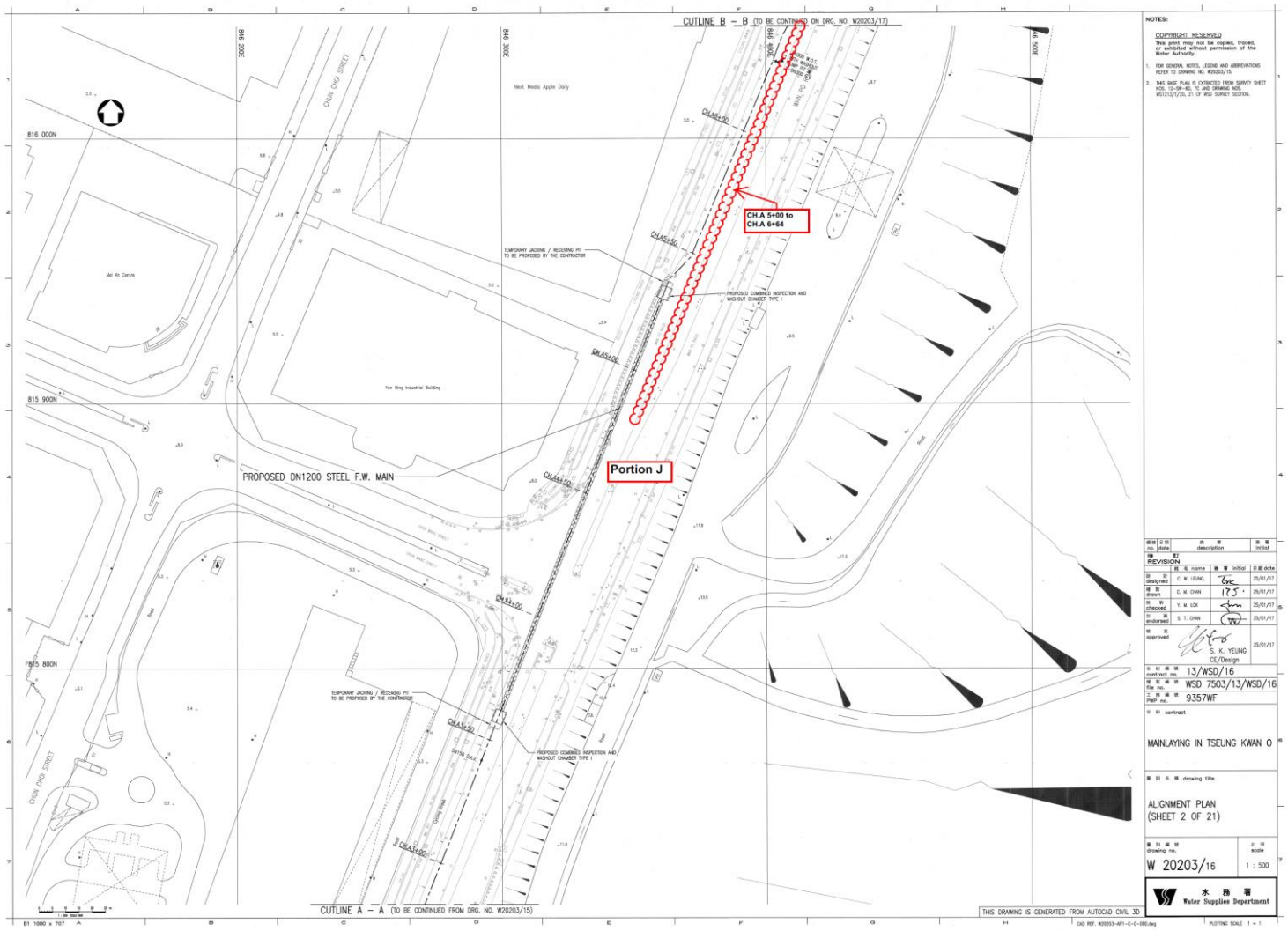


Figure B3a. Location Plan for Portion J - CH.A 5+00 to CH.A 6+64

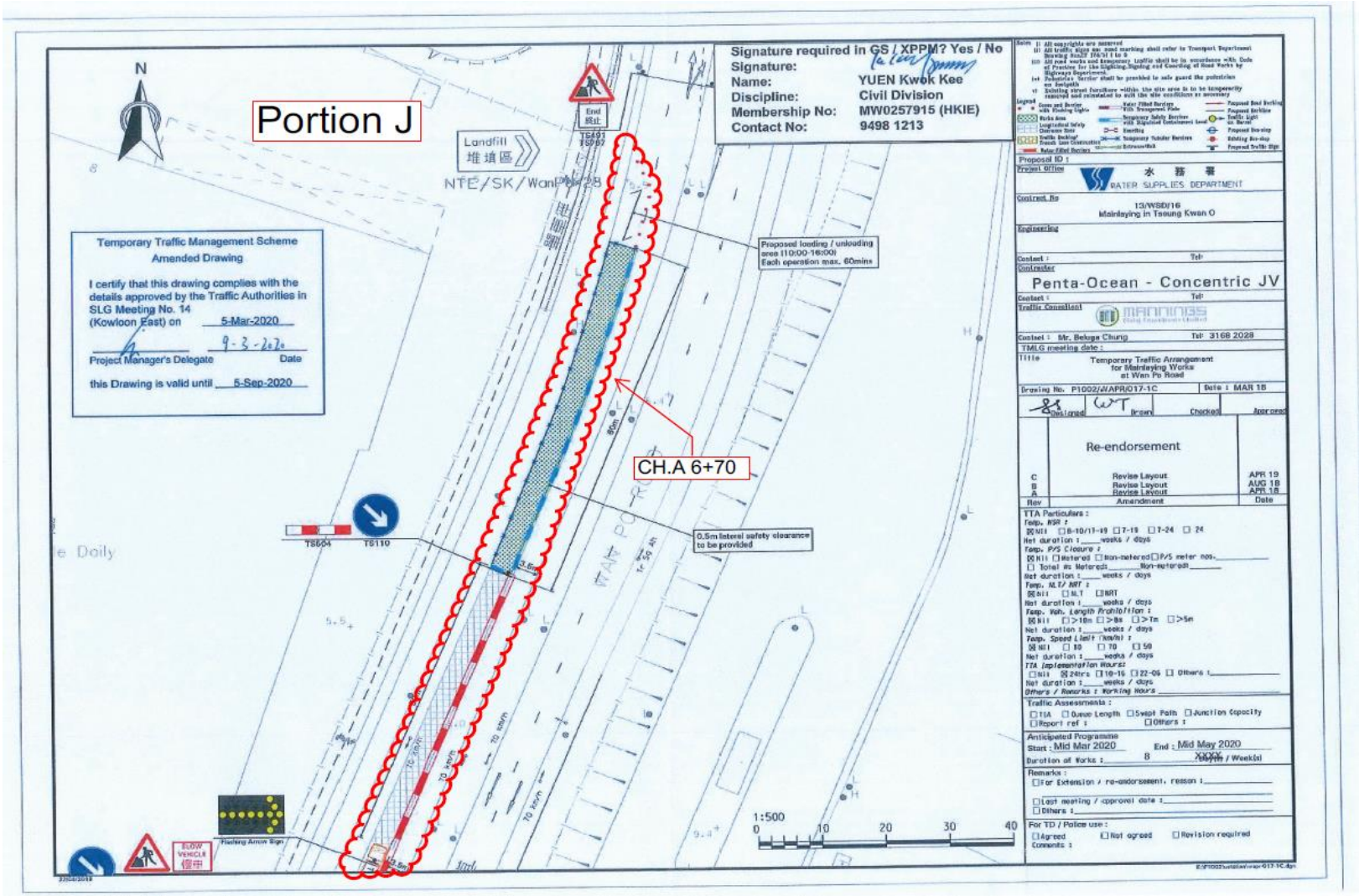


Figure B3b(i). Location Plan for Portion J - CH.A 6+70

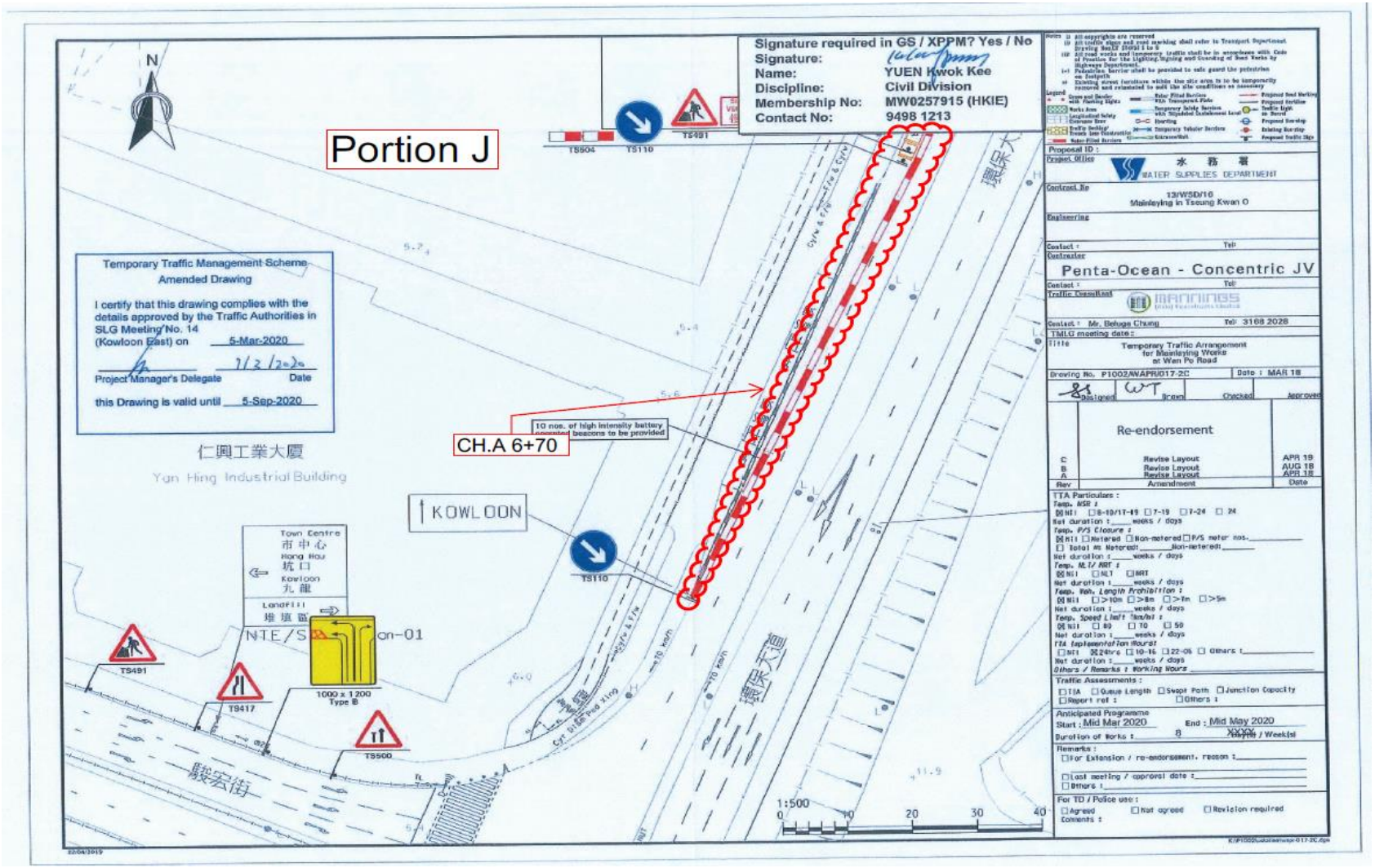


Figure B3b(ii). Location Plan for Portion J - CH.A 6+70

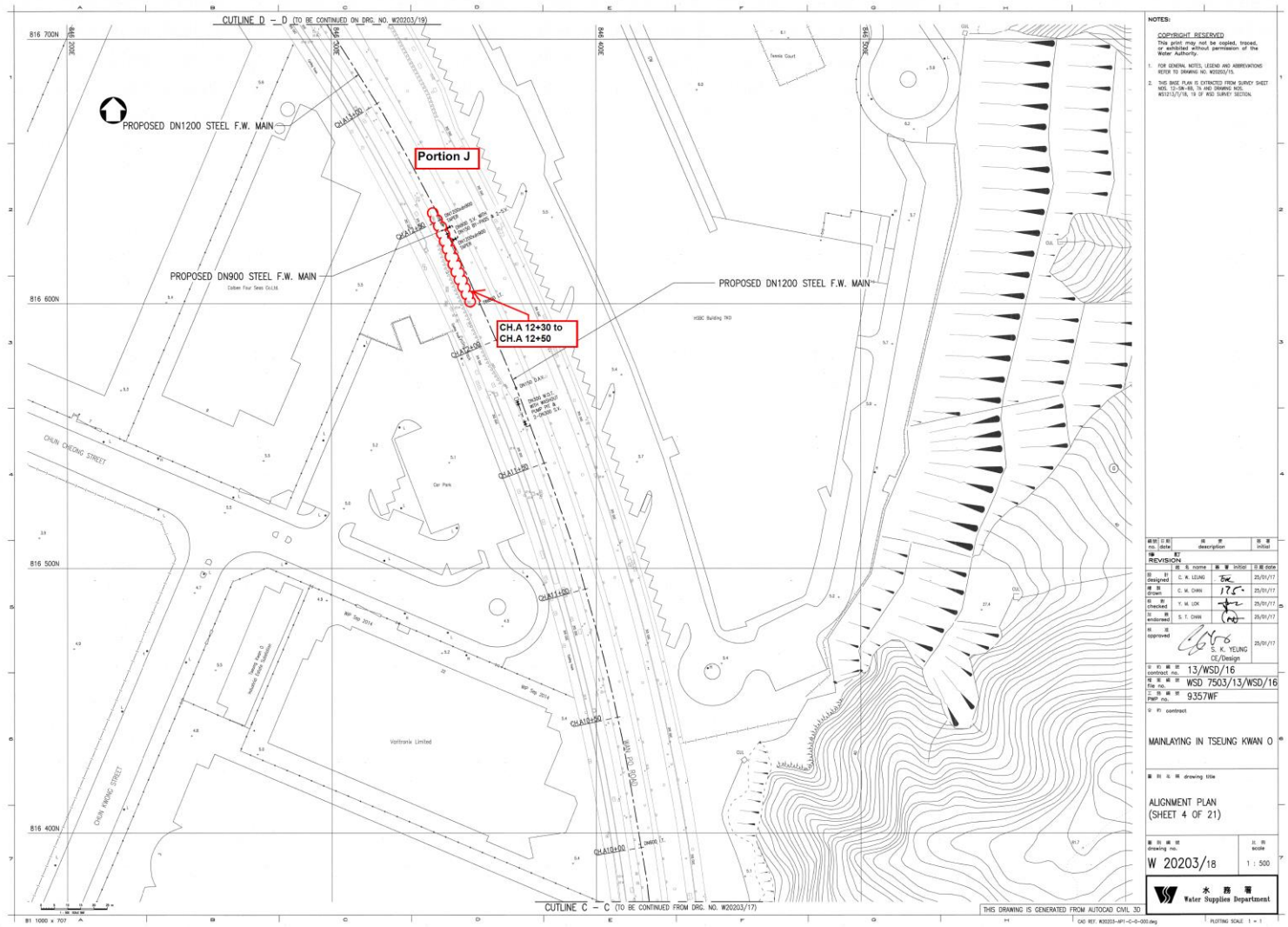


Figure B4. Location Plan for Portion J - CH.A 12+30 to CH.A 12+50

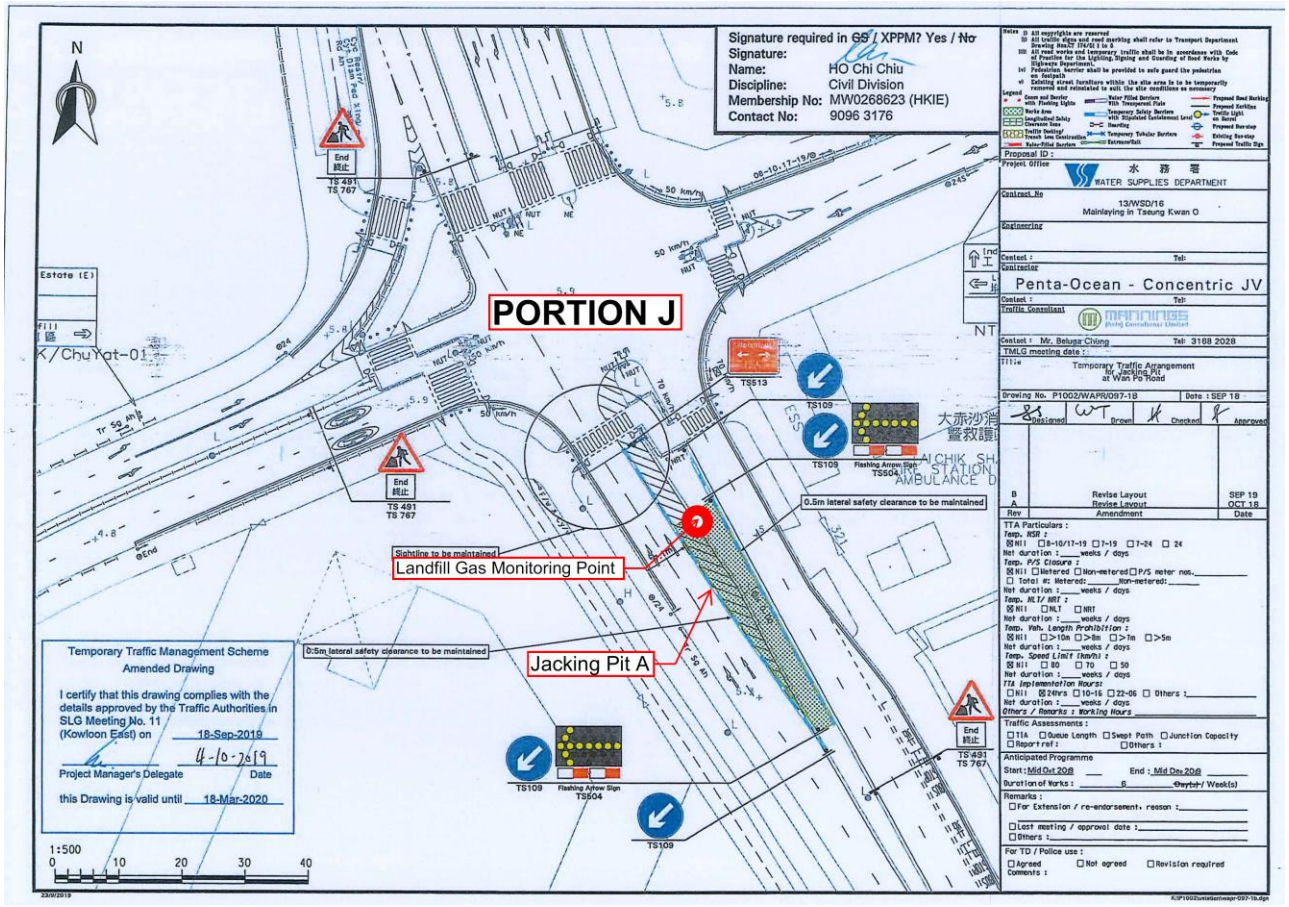


Figure B5. Location Plan for Portion J – CH. A13+50 to CH.A 14+00 (Pit A)

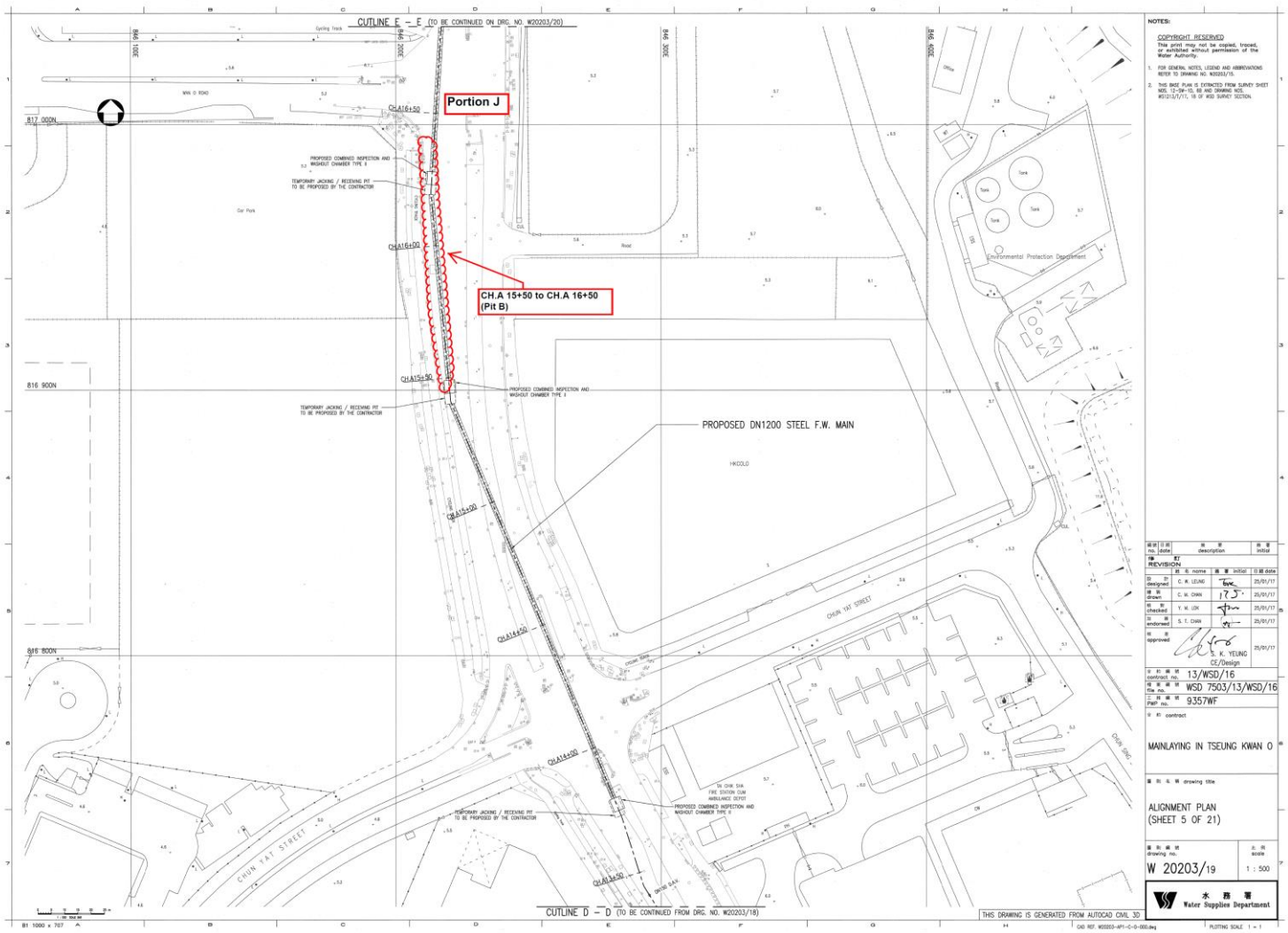


Figure B6. Location Plan for Portion J – CH. A15+50 to CH.A 16+50 (Pit B)

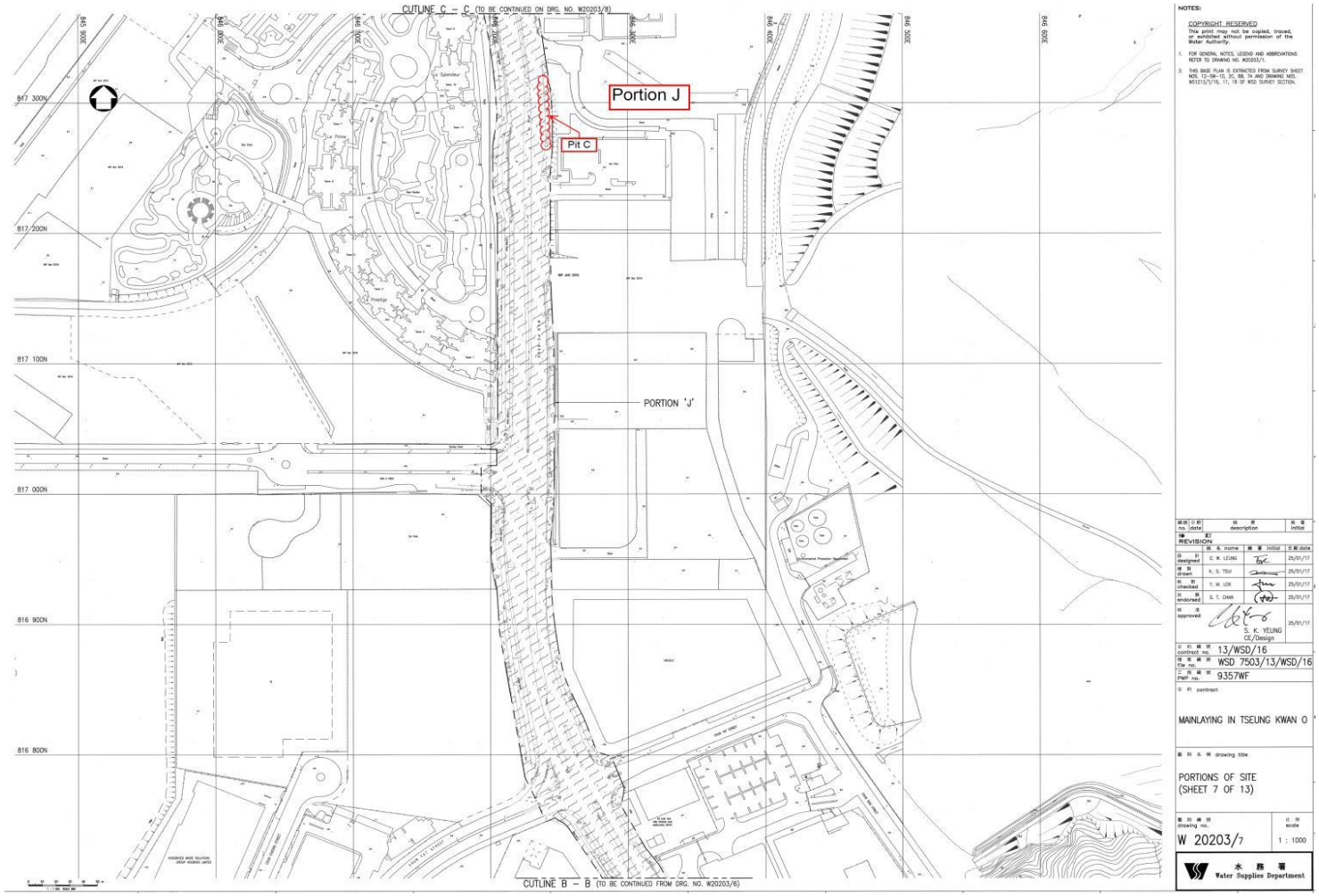


Figure B7. Location Plan for Portion J – CH.A 19+15 to CH.A 19+50 (Pit C)

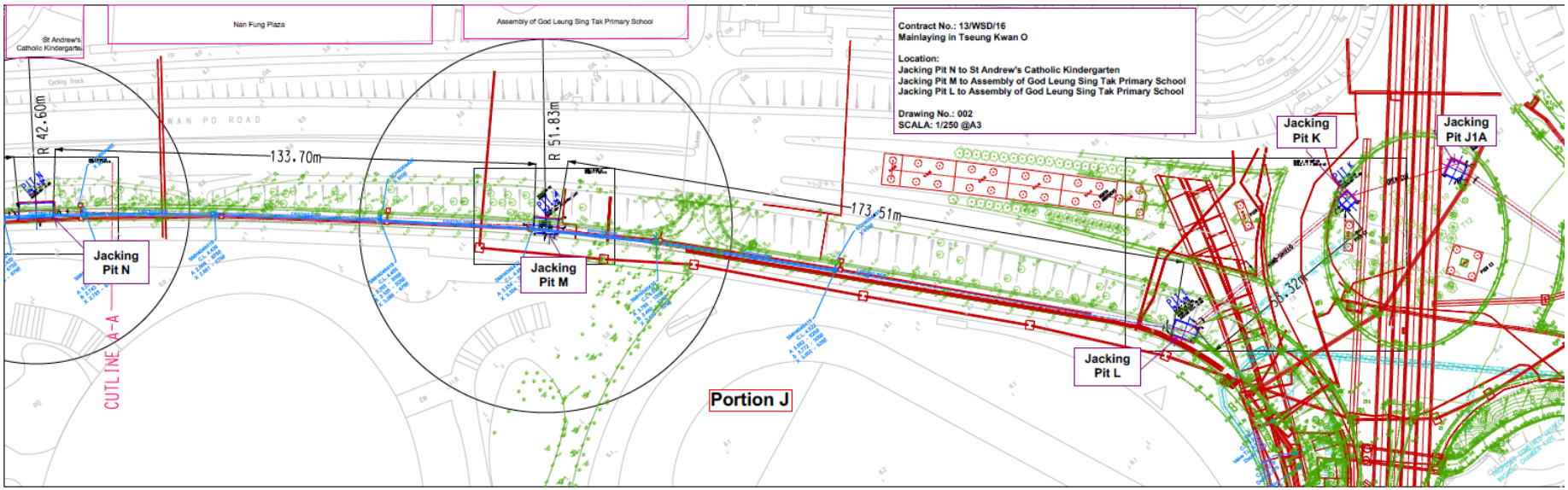


Figure B8a. Location Plan for Portion J – Pit L-M-N, K, J1A

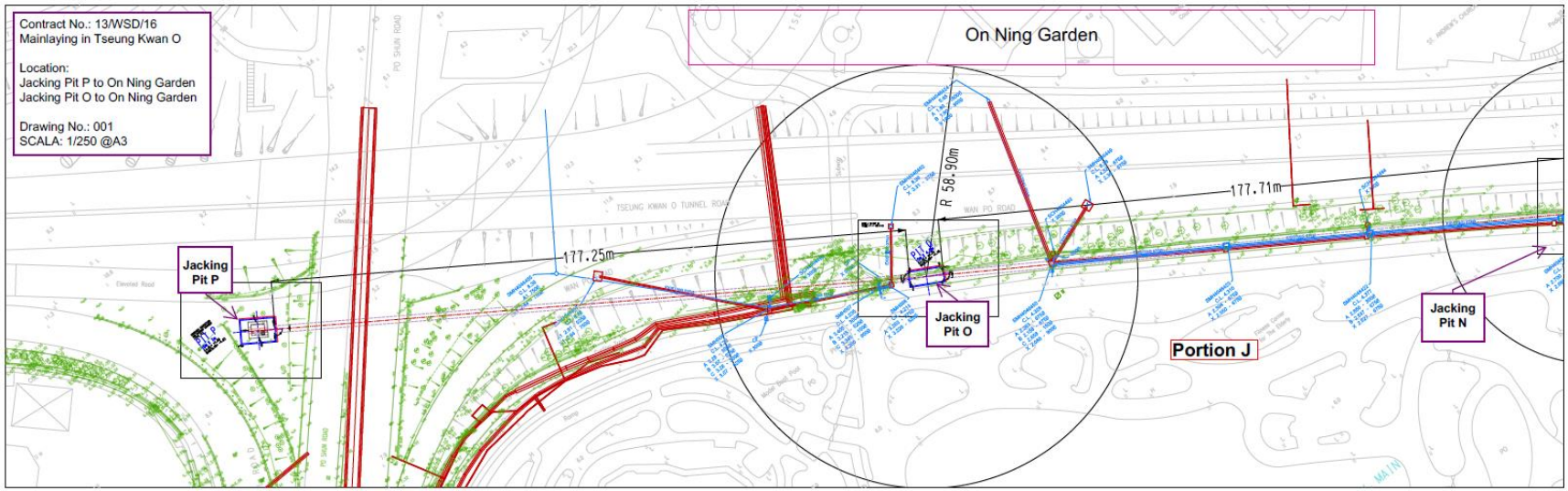


Figure B8b. Location Plan for Portion J – Pit N-O-P

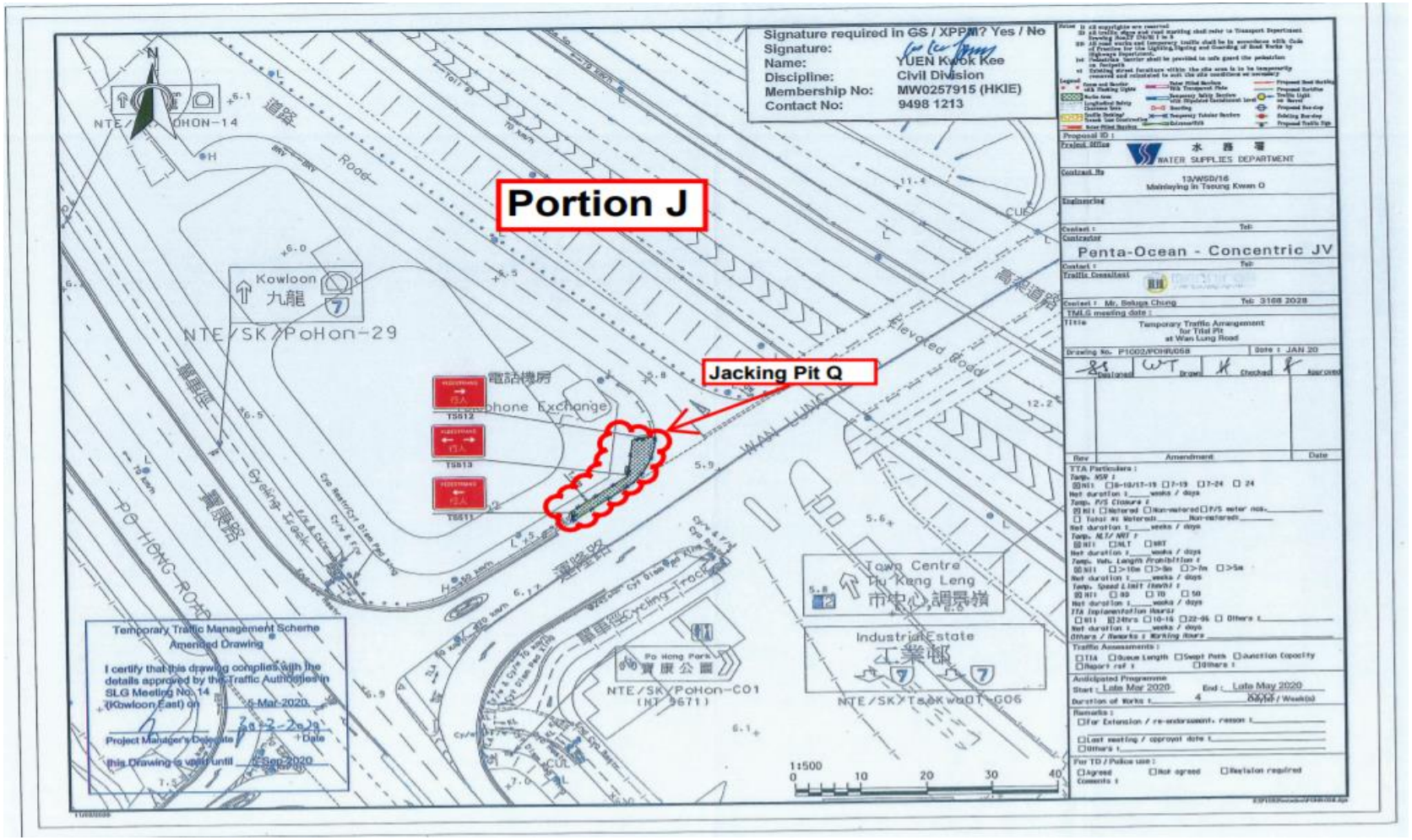


Figure B8c. Location Plan for Portion J – Pit Q

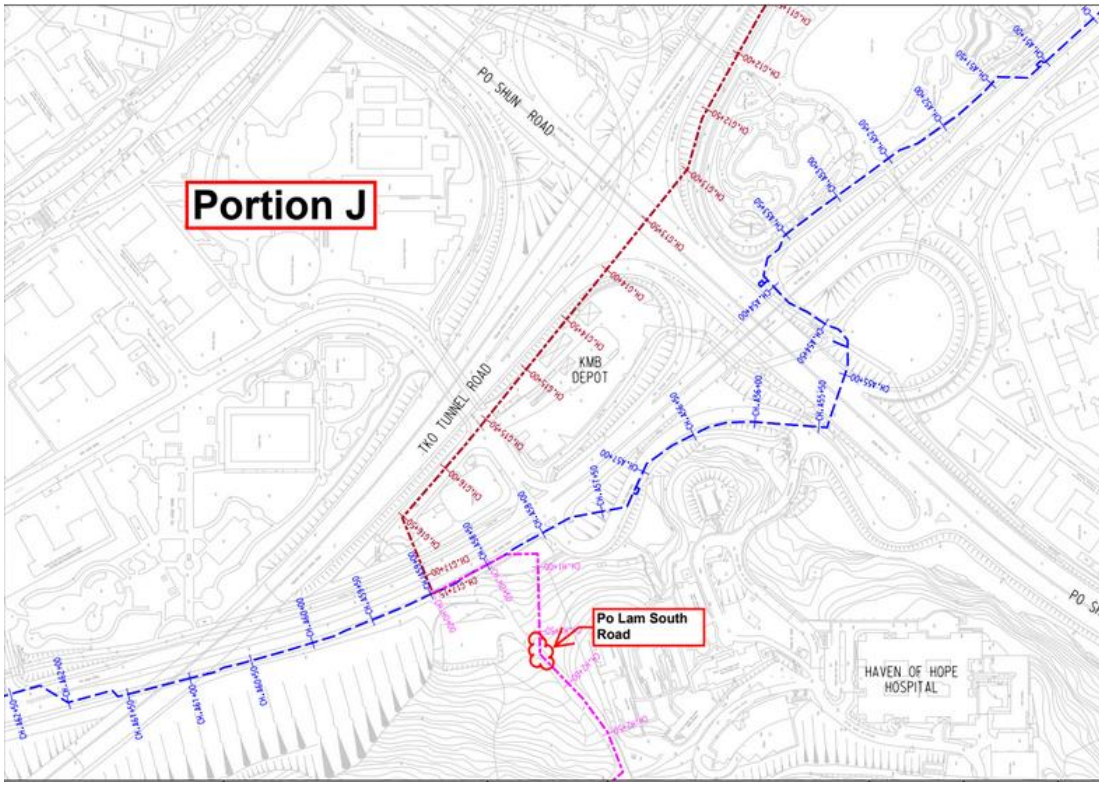


Figure B9a. Location Plan for Mau Wu Tsai 1

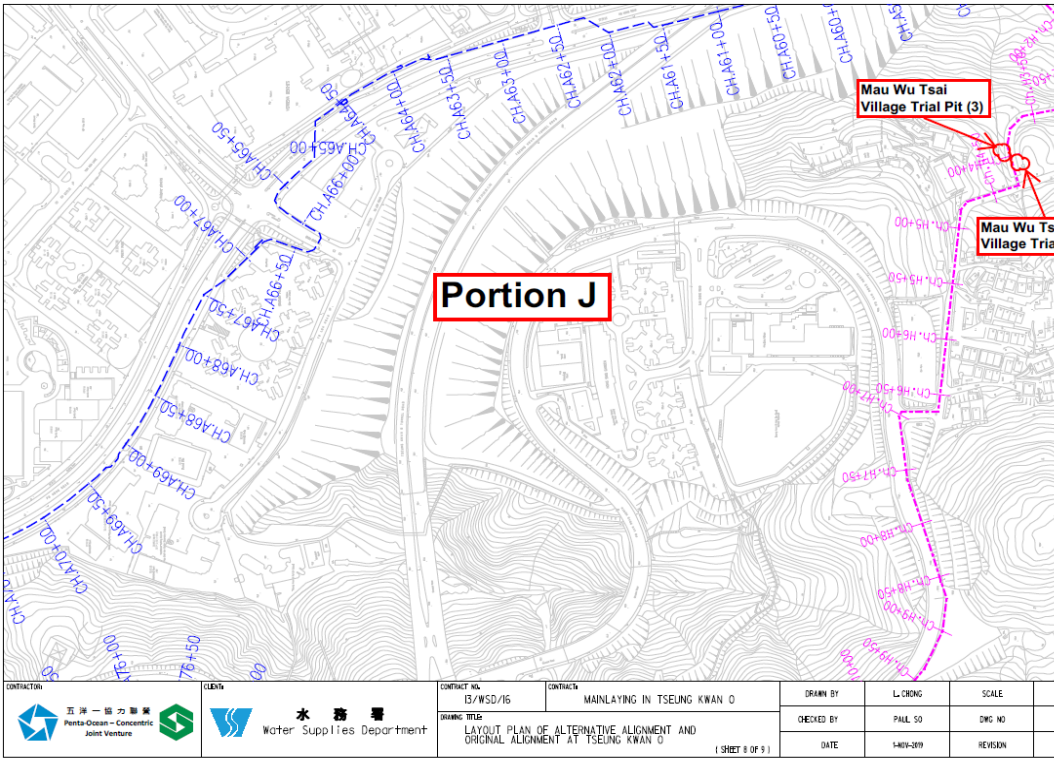


Figure B9b. Location Plan for Mau Wu Tsai 2 & 3

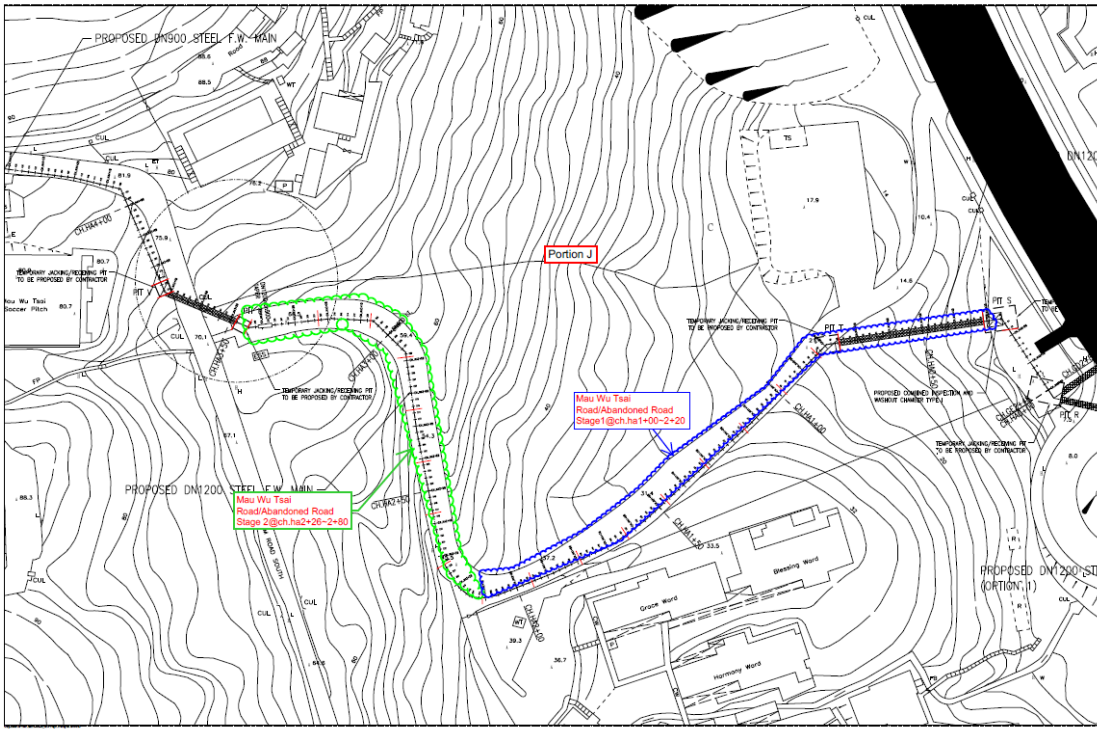


Figure B9c. Abandoned Mau Wu Tsai Road

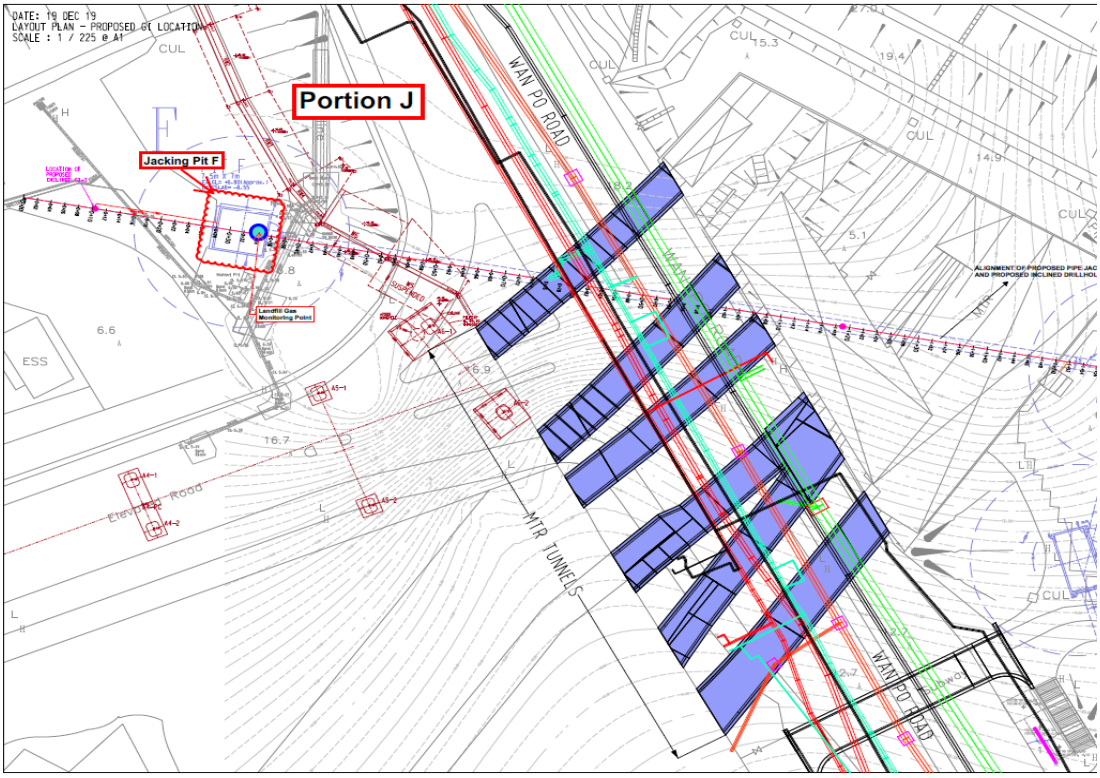


Figure B10. Location Plan for Jacking Pit F

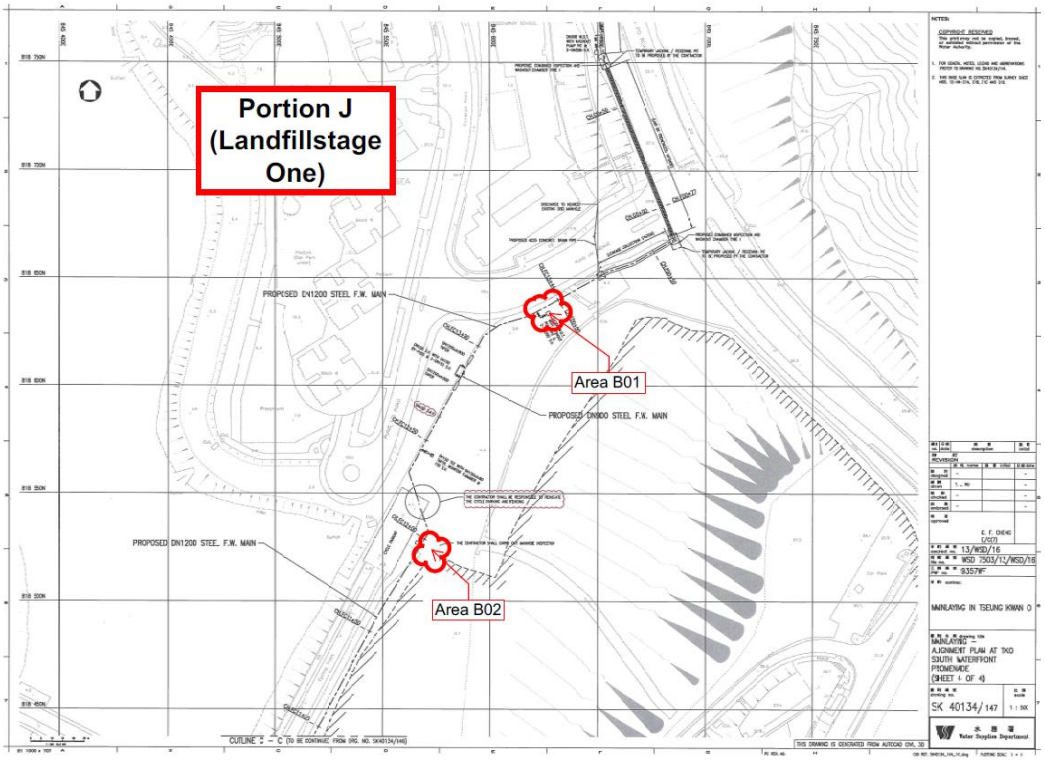


Figure B11a. Location Plan – Landfill Stage 1 (Area B01-B02)

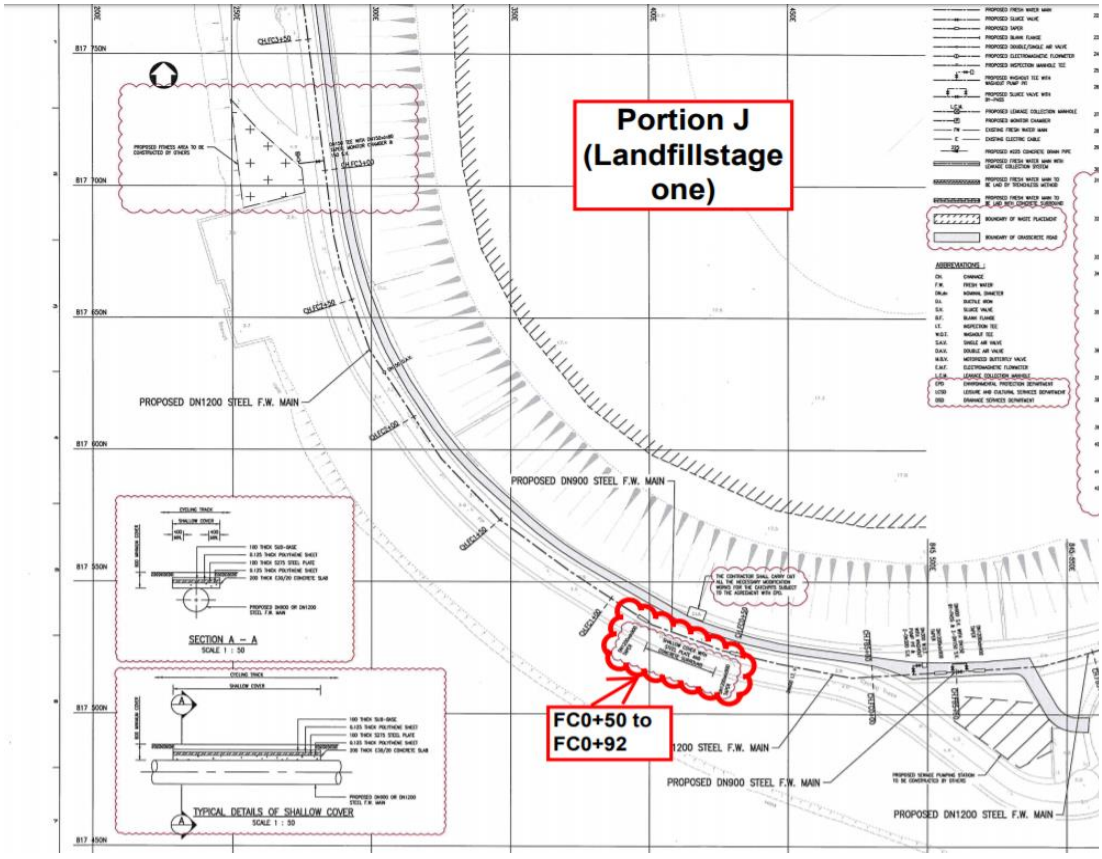


Figure B11b. Location Plan – Landfill Stage 1 (Area FC0+50 -FC0+92)

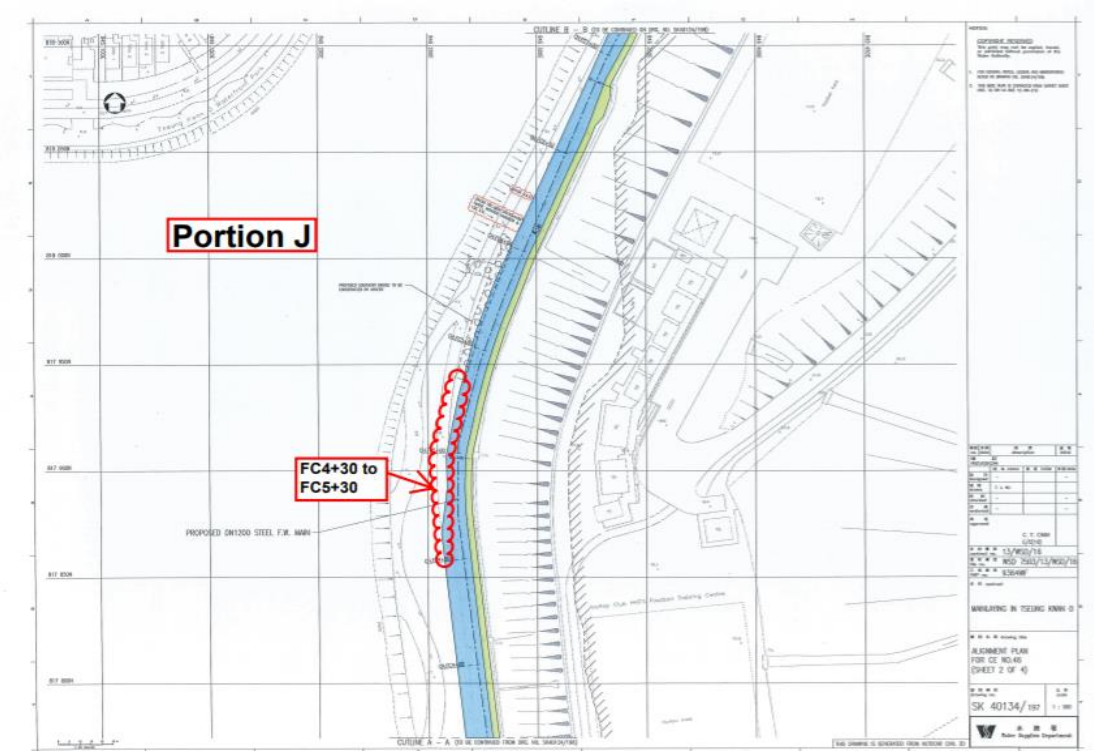


Figure B11c. Location Plan – Landfill Stage 1 (Area FC4+30 -FC5+30)

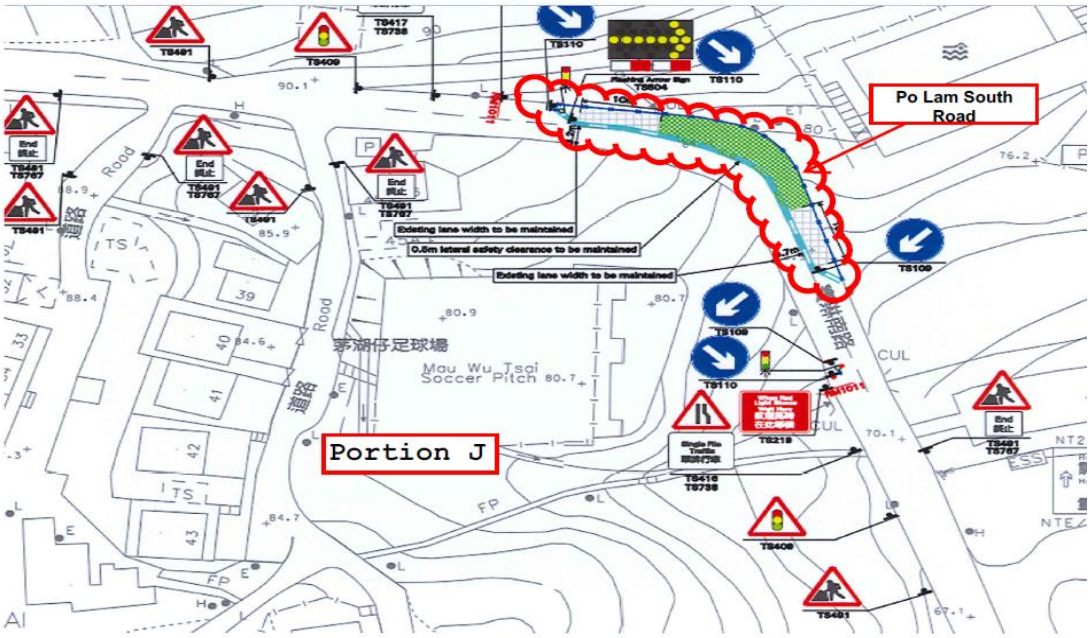


Figure B12. Monitoring Location – Po Lam South Road

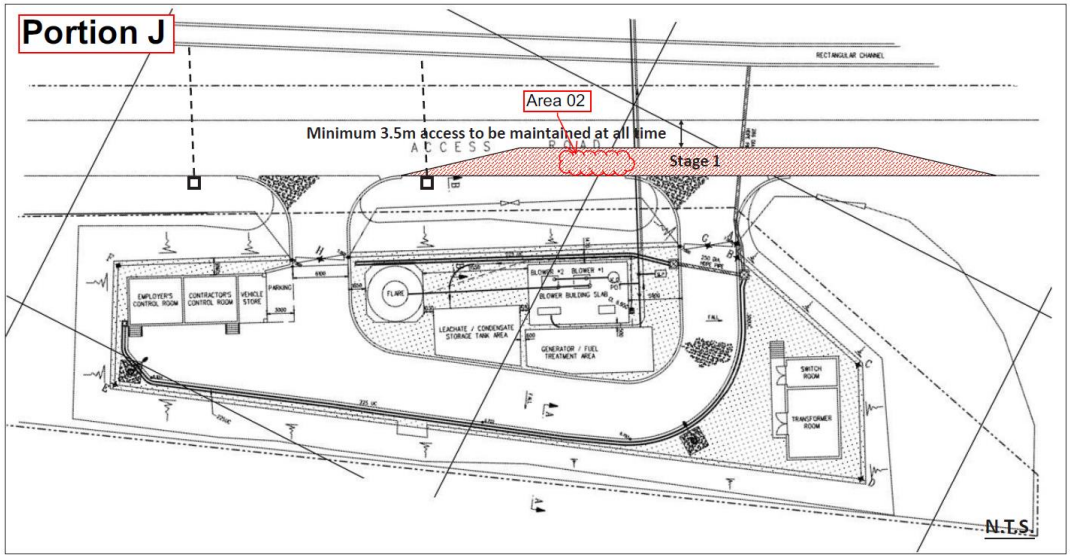


Figure B13. Monitoring Location – Area A02

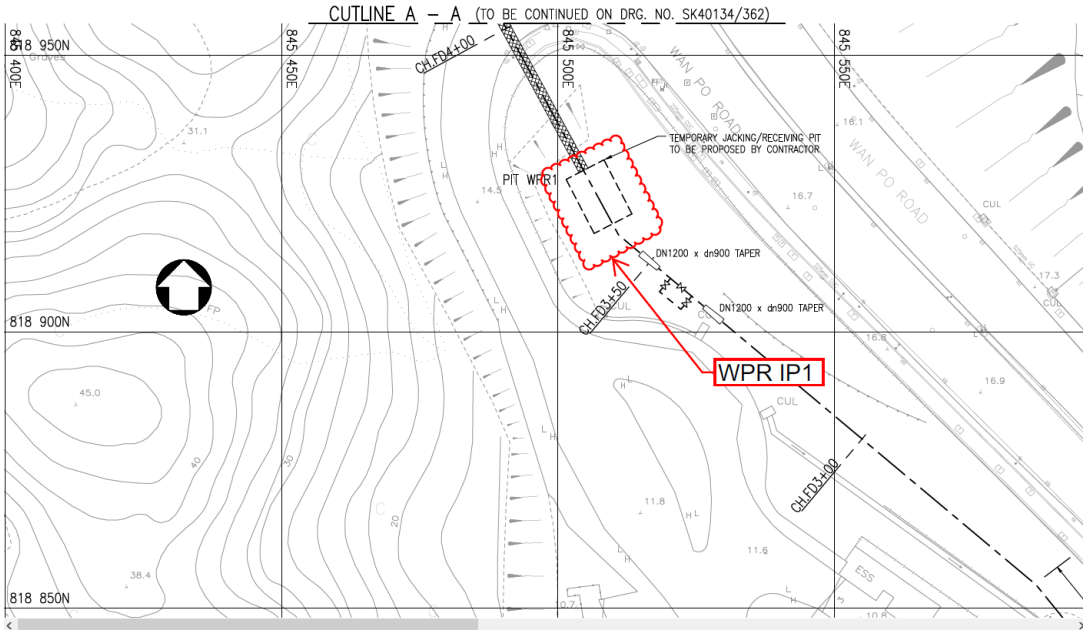


Figure B14. Location Plan for WPR IP1

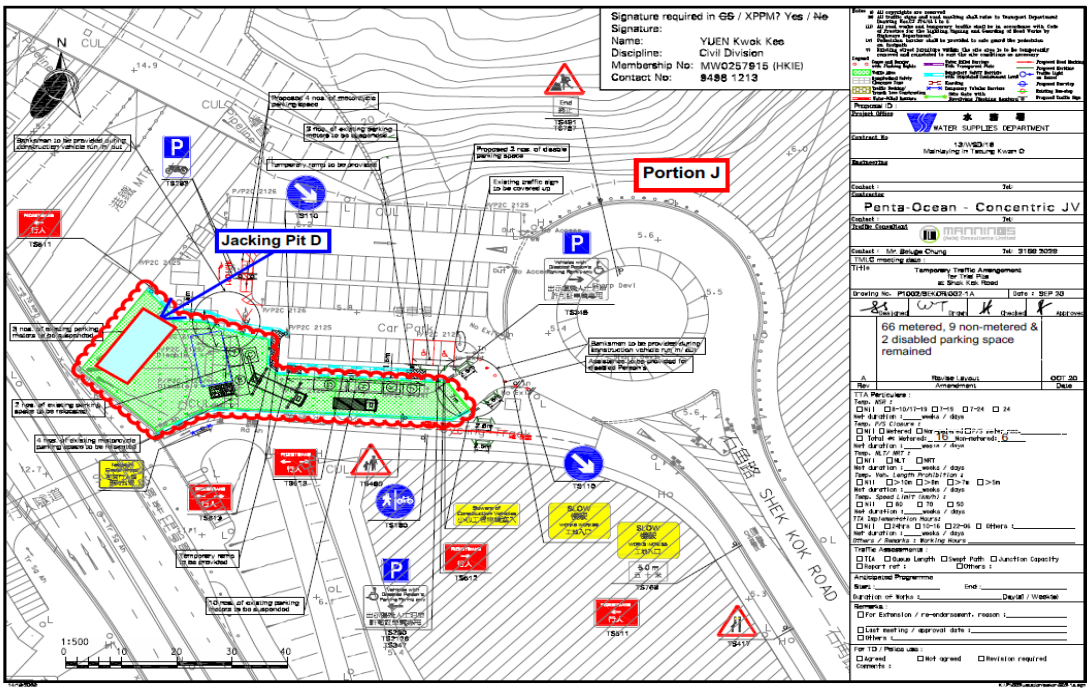


Figure B15. Location Plan for Jacking Pit D

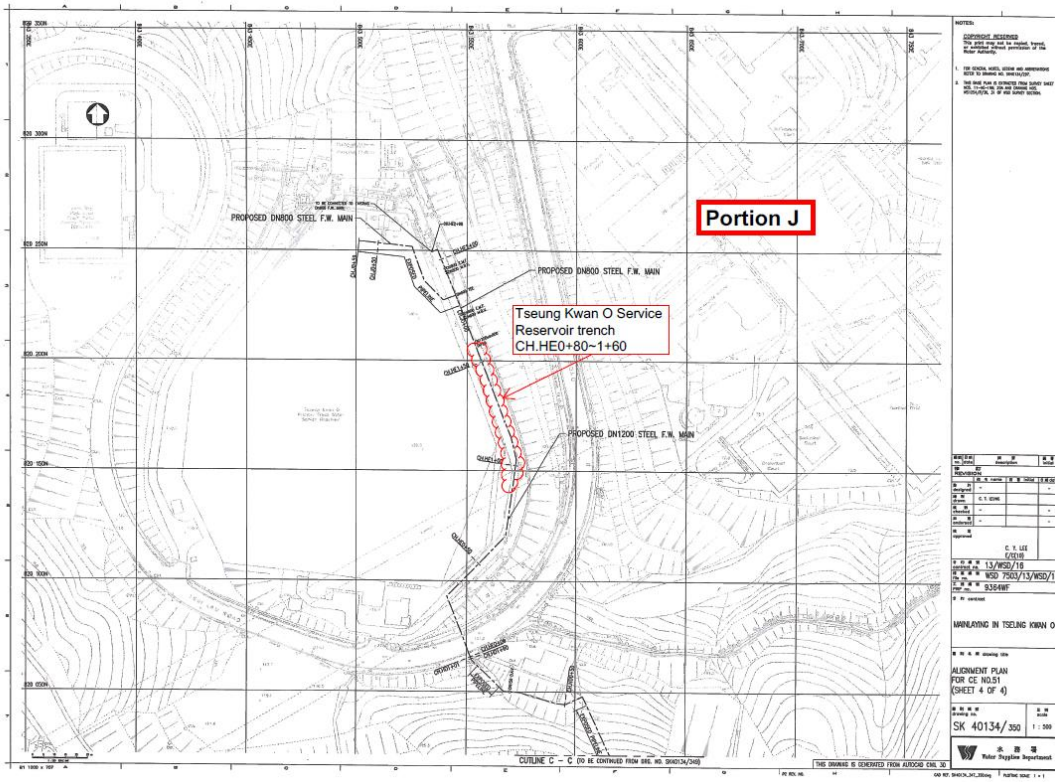


Figure B16. Location Plan for CH.HE0+80-1+60

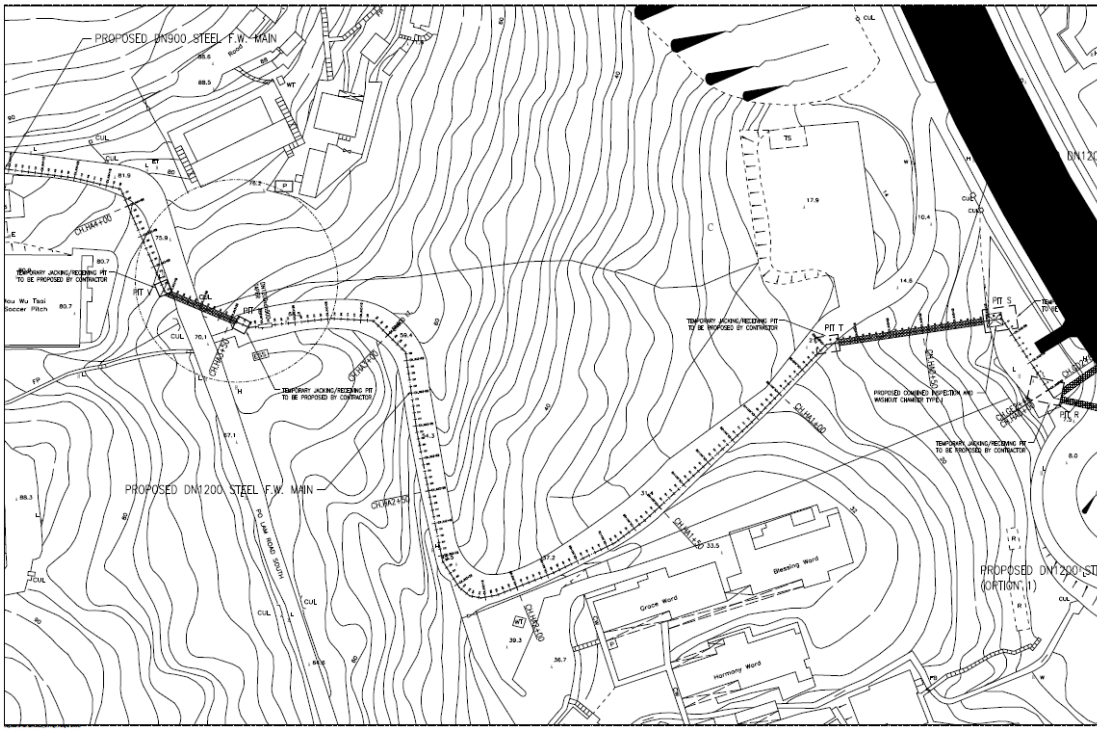


Figure B17. Location Plan for Mau Wu Tsai Abandoned Road

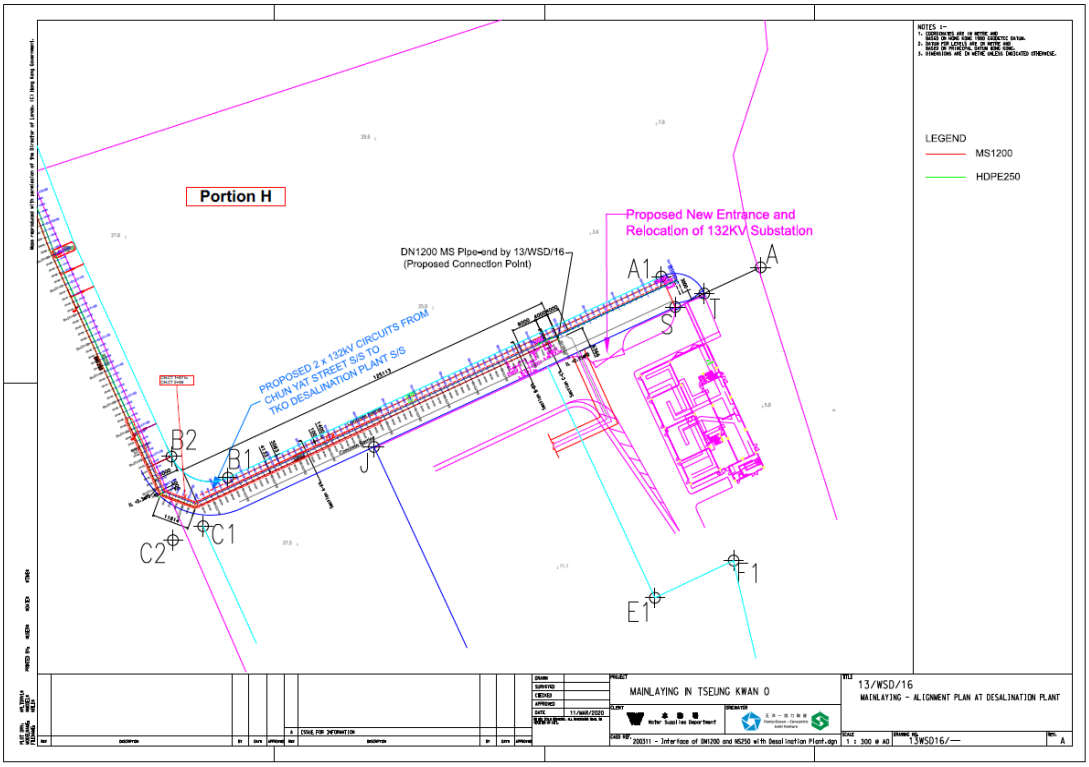


Figure B18a. Location Plan for CH.CT 0+07 – 2+58

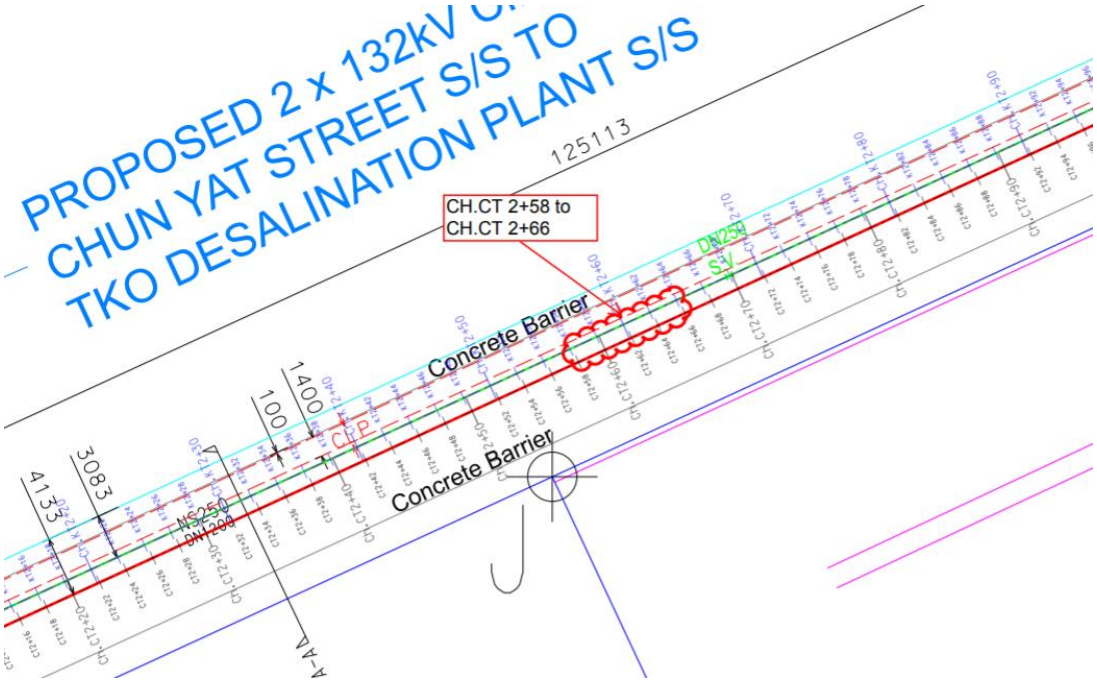


Figure B18b. Location Plan for CH.CT 2+58 – 2+66

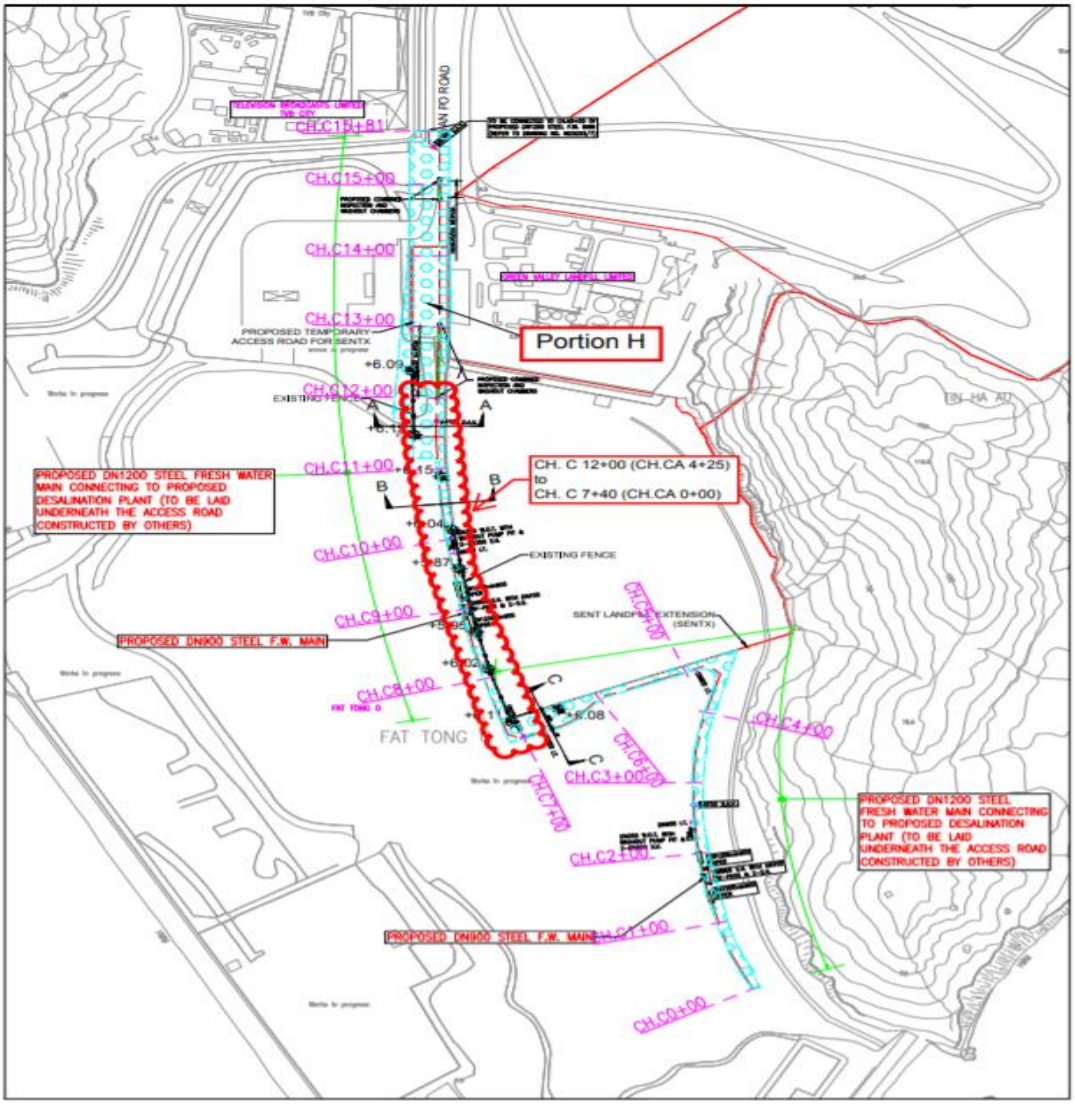


Figure B19. Location Plan for Portion H– CH.C 7+40~CH.C 12+00 (CH.CA 0+00 ~ CH.CA4+25)

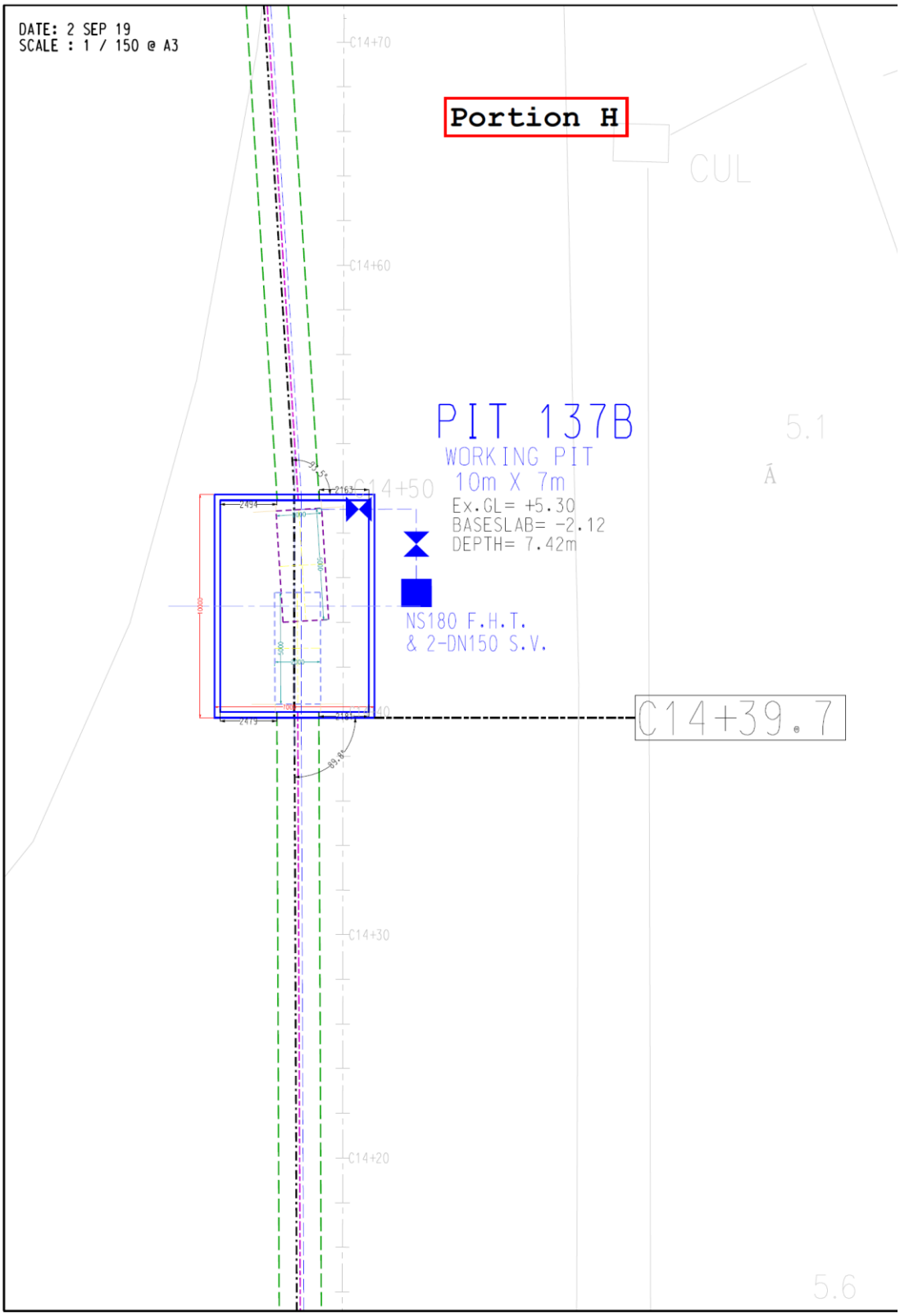


Figure B20a. Location Plan for Portion H– Pit 137B

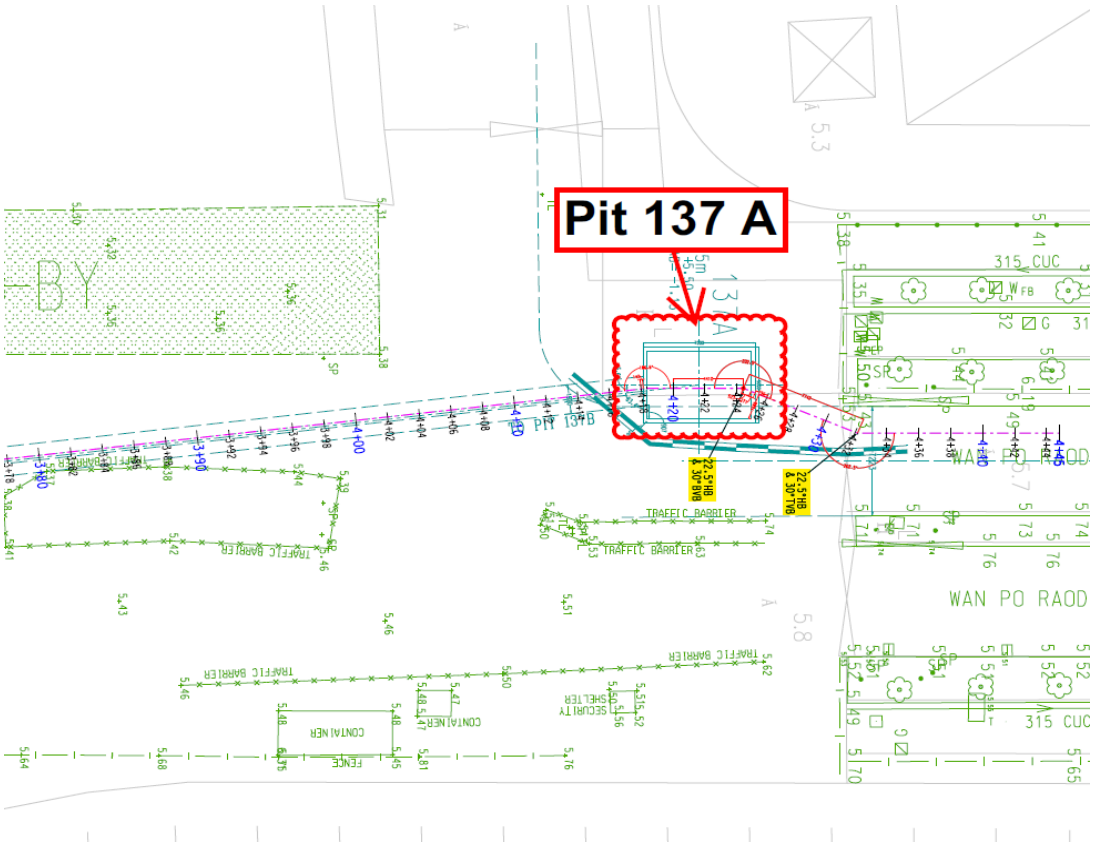


Figure B20b. Location Plan for Portion H– Pit 137A

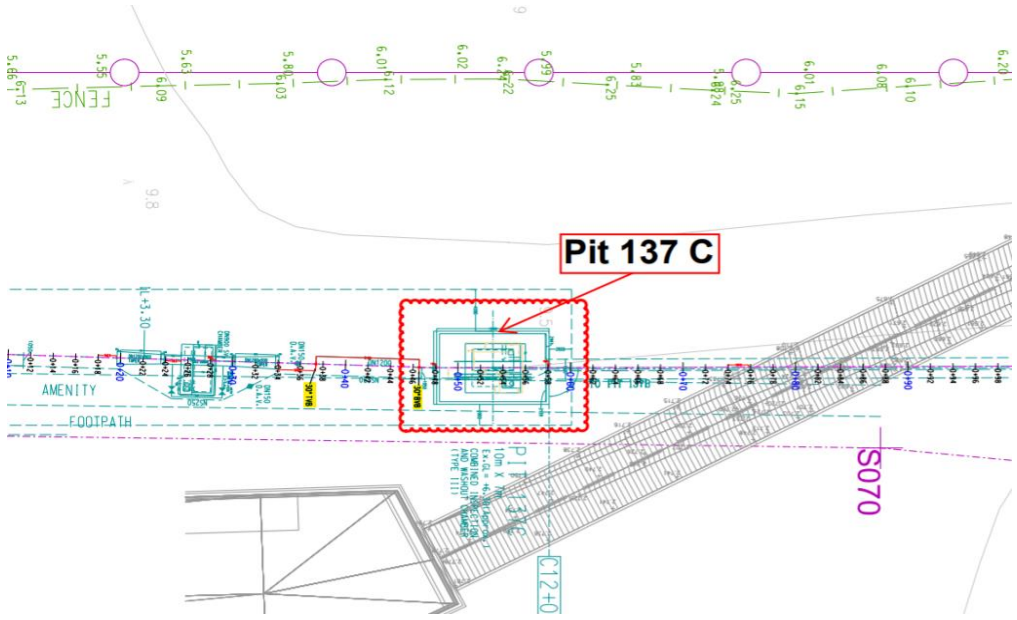


Figure B20c. Location Plan for Portion H– Pit 137C

Appendix C

Summary of Implementation Status of Environmental Mitigation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
Air Quality								
S4.8.1	Impervious dust screen or sheeting will be provided to enclose scaffolding from the ground floor level of building for construction of superstructure of the new buildings.	Land site/ During Construction	Contractor(s)		✓		N/A	Air Pollution Control (Construction Dust)
S4.8.1	Impervious sheet will be provided for skip hoist for material transport.	Land site/ During Construction, particularly dry season	Contractor(s)		✓		NA	
S4.8.1	The area where dusty work takes place should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after dusty activities as far as practicable.	Land site/ During Construction	Contractor(s)		✓		Implemented	
S4.8.1	All dusty materials should be sprayed with water or a dust suppression chemical immediately prior to any loading, unloading or transfer operation.	Land site/ During Construction	Contractor(s)		✓		Implemented	
S4.8.1	Dropping heights for excavated materials should be controlled to a practical height to minimize the fugitive dust arising from unloading.	Land site/ During Construction	Contractor(s)		✓		Implemented	
S4.8.1	During transportation by truck, materials should not be loaded to a level higher than the side and tail boards, and should be dampened or covered before transport.	Land site/ During Construction	Contractor(s)		✓		Implemented	
S4.8.1	Wheel washing device should be provided at the exits of the work sites. Immediately before leaving a construction site, every vehicle shall be washed to remove any dusty material from its body and wheels as far as practicable.	Land site/ During Construction	Contractor(s)		✓		N/A	

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S4.8.1	Road sections between vehicle-wash areas and vehicular entrance will be paved.	Land site/ During Construction	Contractor(s)		✓		N/A	
S4.8.1	Hoarding of not less than 2.4m high from ground level will be provided along the length of the Project Site boundary.	Land site/ During construction	Contractor(s)	✓	✓		N/A	
S4.8.1	Haul roads will be kept clear of dusty materials and will be sprayed with water so as to maintain the entire road surface wet at all times.	Land site/ During construction	Contractor(s)		✓		Implemented	
S4.8.1	Temporary stockpiles of dusty materials will be either covered entirely by impervious sheets or sprayed with water to maintain the entire surface wet all the time.	Land site/ During construction	Contractor(s)		✓		Implemented	
S4.8.1	Stockpiles of more than 20 bags of cement, dry pulverised fuel ash and dusty construction materials will be covered entirely by impervious sheeting sheltered on top and 3-sides.	Land site/ During construction	Contractor(s)		✓		Implemented	
S4.8.1	All exposed areas will be kept wet always to minimise dust emission.	Land site/ During construction	Contractor(s)		✓		Implemented	
S4.8.1	Ultra-low-sulphur diesel (ULSD) will be used for all construction plant on-site, as defined as diesel fuel containing not more than 0.005% sulphur by weight) as stipulated in Environment, Transport and Works Bureau Technical Circular (ETWB-TC(W)) No 19/2005 on Environmental Management on Construction Sites.	Land site/ During construction/ During Operation	Contractor(s)		✓	✓	Implemented	Environment, Transport and Works Bureau Technical Circular (ETWB-TC(W)) No 19/2005 on Environmental Management on Construction Sites

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S4.8.1	The engine of the construction equipment during idling will be switched off.	Land site/ During construction	Contractor(s)		✓		Implemented	
S4.8.1	Concrete batching plant will be required on site. control measures recommended in the Guidance Note on a Best Practicable Means for Cement Works (Concrete Batching Plant) (BPM 3/2 (93)) will be implemented. The control measures recommended in the Guidance Note on a Best Practicable Means for Cement Works (Concrete Batching Plant) (BPM 3/2 (93)) will be	Land site/ During construction	Contractor(s)		✓		N/A	Guidance Note on a Best
S4.8.1	Regular maintenance of construction equipment deployed on-site will be conducted to prevent black smoke emission.	Land site/ During construction	Contractor(s)		✓		Implemented	
S4.10	To ensure proper implementation of the recommended dust mitigation measures and good construction site practices during the construction phase, environmental site audits on weekly basis is recommended throughout the construction period.	Land site/ During construction	Contractor(s)/ Environmental Team (ET) & Independent Environmental Checker (IEC)		✓		Implemented	

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
Noise								
S5.7	Only well-maintained plant will be operated on-site and plant will be serviced regularly during the construction phase.	All area/ During construction	Contractor(s)		✓		Implemented	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	Silencers or mufflers on construction equipment will be utilised and will be properly maintained during the construction phase.	Noise control/ During construction	Contractor(s)		✓		N/A	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	Mobile plant, if any, will be sited as far away from NSRs as possible.	Noise control/ During construction	Contractor(s)		✓		Implemented	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	Machines and plant (such as trucks) that may be in intermittent use will be shut down between work periods or will be throttled down to a minimum.	Noise control/ During construction	Contractor(s)		✓		Implemented	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	Plants known to emit noise strongly in one direction will, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.	Noise control/ During construction	Contractor(s)		✓		Implemented	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	Material stockpiles and other structures will be effectively utilised, wherever practicable, in screening noise from on-site construction activities.	Noise control/ During construction	Contractor(s)		✓		N/A	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	Use of Quite Powered Mechanical Equipment (QPME).	Noise control/ During construction	Contractor(s)		✓		Implemented	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	Movable noise barriers of 3m in height with skid footing should be used and located within a few metres of stationary plant and mobile plant such that the line of sight to the NSR is blocked by the barriers. The length of the barrier should be at least five times greater	Noise control/ During construction	Contractor(s)		✓		N/A	A Practical Guide for the Reduction of Noise from Construction Works,

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
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	than its height. The noise barrier material should have a superficial surface density of at least 7 kg m^{-2} and have no openings or gaps.							
S5.7	The noise insulating sheet should be deployed such that there would be no opening or gaps on the joints.	Noise control/ During construction	Contractor(s)		✓		N/A	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	Construction activities (e.g. excavation/shoring, reinstatement (asphalt), and pipe jacking) will be planned and carried out in sequence, such that items of PME proposed for these activities will not be operated simultaneously.	Noise control/ During construction	Contractor(s)		✓		Implemented	A Practical Guide for the Reduction of Noise from Construction Works
S5.7	PMEs will not be used at the works areas near educational institutions with residual impact (ie the "influence area" within a radius of 40m) during school hours in order to reduce impact to the educational institutions.	Noise control / During construction	Contractor(s)		✓		Implemented	A Practical Guide for the Reduction of Noise from Construction Works
S5.7	Noise enclosures or acoustic sheds would be used to cover stationary PME such as generators. Portable/Movable noise enclosure made of material with superficial surface density of at least 7 kg m^{-2} may be used for screening the noise from operation of the saw/groover, concrete.	Noise control/ Pre-construction/ During construction	Contractor(s)	✓	✓		N/A	
S5.9	Sawcutting pavement, breaking up of pavement, excavation /shoring, pipe laying, backfilling, reinstatement (concrete) and pipe jacking shall be scheduled outside the examination period.	Noise control/ Pre-construction/ During construction	Contractor(s)	✓	✓		Implemented	

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
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S5.9	In view the duration of noise exceedance at Creative Secondary School, PLK Laws Foundation College, TKO Kei Tak Primary School and School of Continuing and Professional Studies-CUHK is limited to 8 weeks, the construction work in the influence areas near the four schools shall be scheduled during long school holidays (eg summer holiday, Easter holiday or Christmas holiday, etc) as far as practicable. Scheduling the construction work for the four schools.	Noise control/ Pre-construction/ During construction	Contractor(s)	✓	✓		Implemented	
S5.10	A noise monitoring programme shall be implemented for the construction phase.	Designated monitoring stations as defined in EM&A Manual/During construction phase	Environmental Team (ET)		✓		Implemented	
S5.10	The effectiveness of on-site control measures could also be evaluated through the regular site audits.	All facilities/ During construction	Contractor(s)/ Environmental Team (ET) & Independent Environmental Checker (IEC)		✓		Implemented	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
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Water Quality								
S6.9	Dredged marine sediment will be disposed of in a gazetted marine disposal area in accordance with marine dumping permit conditions of the Dumping at Sea Ordinance (DASO).	Marine Dredging/ During construction	Contractor(s)		✓		N/A	Dumping at Sea Ordinance (DASO)
S6.9	Disposal vessels will be fitted with tight bottom seals in order to prevent leakage of material during transport.	Marine Dredging/ During construction	Contractor(s)		✓		N/A	-
S6.9	Barges will be filled to a level, which ensures that material does not spill over during transport to the disposal site and that adequate freeboard is maintained to ensure that the decks are not washed by wave action.	Marine Dredging/ During construction	Contractor(s)		✓		N/A	-
S6.9	After dredging, any excess materials will be cleaned from decks and exposed fittings before the vessel is moved from the dredging area.	Marine Dredging/ During construction	Contractor(s)		✓		N/A	-
S6.9	All vessels should be well maintained and inspected before use to limit any potential discharges to the marine environment.	Marine Dredging/ During construction	Contractor(s)		✓		N/A	-
S6.9	All vessels must have a clean ballast system.	Marine Dredging/ During construction	Contractor(s)		✓		N/A	-
S6.9	No discharge of sewage/grey wastewater should be allowed. Waste water from potentially contaminated area on working vessels should be minimized and collected. These kinds of wastewater should be brought back to port and discharged at appropriate collection and treatment system.	Marine Dredging/ During construction	Contractor(s)		✓		N/A	-
S6.9	No soil waste is allowed to be disposed overboard.	Marine Dredging/ During construction	Contractor(s)		✓		N/A	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
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S6.9	Silt removal facilities such as silt traps or sedimentation facilities will be provided to remove silt particles from runoff to meet the requirements of the TM standard under the WPCO. The design of silt removal facilities will be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures will be inspected on a regular basis and maintained to confirm proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit will be removed regularly.	Land site & drainage/ During construction	Contractor(s)		✓		Implemented, rectified after observation	ProPECC PN 1/94 TM Standard under the WPCO
S6.9	Earthworks to form the final surfaces will be followed up with surface protection and drainage works to prevent erosion caused by rainstorms.	Land site & drainage/ During construction	Contractor(s)		✓		Implemented	-
S6.9	Appropriate surface drainage will be designed and provided where necessary.	Land site & drainage/ During construction	Contractor(s)		✓		Implemented	-
S6.9	The precautions to be taken at any time of year when rainstorms are likely together with the actions to be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94.	Land site & drainage/ During construction	Contractor(s)		✓		Implemented	ProPECC PN 1/94
S6.9	Oil interceptors will be provided in the drainage system where necessary and regularly emptied to prevent the release of oil and grease into the storm water drainage system after accidental spillages.	Land site & drainage/ During construction	Contractor(s)		✓		N/A	-
S6.9	Temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge, if any, will be adequately designed for the controlled release of storm flows.	Land site & drainage/ During construction	Contractor(s)		✓		N/A	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
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S6.9	The temporary diverted drainage, if any, will be reinstated to the original condition when the construction work has finished or when the temporary diversion is no longer required.	Land site & drainage/ During construction	Contractor(s)		✓		N/A	-
S6.9	Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment.	Land site & drainage/ During construction	Contractor(s)		✓		Implemented	-
S6.9 and S6.12	The sterilization water should be dechlorinated with total residual chlorine (TRC) level below 1 mg/L before discharge to public sewer. In situ testing of TRC should also be conducted for the discharge of chlorinated water for pipeline disinfection to ensure sufficient dechlorination before discharge to public sewer.	Sterilization of water mains prior to commissioning	Contractor(s)		✓	✓	N/A	Technical Memorandum for Effluents Discharged into Drainage and Sewerage Systems Inland and Coastal Waters
S6.9	The cleaning and flushing water should also be treated and desilted to the relevant discharge requirement stipulated in TM-DSS before discharging.	Sterilization of water mains prior to commissioning	Contractor(s)		✓	✓	N/A	Technical Memorandum for Effluents Discharged into Drainage and Sewerage Systems Inland and Coastal Waters
S6.9	Site drainage should be well maintained and good construction practices should be observed to ensure that oil, fuels, solvents and other chemicals are managed, stored and handled properly and do not enter the nearby water streams.	Land site & drainage/ During construction/ During operation	Contractor(s)		✓	✓	Implemented, rectified after observation	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
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S6.12	Regular site inspections will be carried out in order to confirm that regulatory requirements are being met and that contractors are implementing the standard site practice and mitigation measures as proposed to reduce potential impacts to water quality.	During construction	Contractor(s)/ Environmental Team (ET) & Independent Environmental Checker (IEC)		✓		Implemented	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
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Waste Management								
S8.5	Nomination of approved personnel to be responsible for standard site practices, arrangements for collection and effective disposal to an appropriate facility of all wastes generated at the site.	Contract mobilisation/ During construction	Contractor(s)		✓		Implemented	-
S8.5	Training of site personnel in proper waste management and chemical handling procedures. Training will be provided to workers on the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling at the beginning of the construction works.	Contract mobilisation/ During construction	Contractor(s)		✓		Implemented	-
S8.5	Provision of sufficient waste disposal points and regular collection for disposal.	All area/ During construction/ During operation	Contractor(s)		✓	✓	Implemented	DEVB TC(W) No. 8/2010, Enhanced Specification for Site Cleanliness and Tidiness.
S8.5	Appropriate measures to reduce windblown litter and dust transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	All area/ During construction	Contractor(s)		✓		Implemented, rectified after reminder.	DEVB TC(W) No. 8/2010, Enhanced Specification for Site Cleanliness and Tidiness.
S8.5	A waste management plan (WMP) as stated in the "*ETWB TC(W) No. 19/2005, Environmental Management on Construction Sites*" for the amount of waste generated, recycled and disposed of (including the disposal sites) will be established and implemented during the construction phase as part of the Environmental Management Plan (EMP). The Contractor will be required to prepare the EMP and submits it to the Architect/ Engineer under the Contract for approval prior to implementation.	All area/ During construction	Contractor(s)		✓		Implemented	ETWB TC(W) No. 19/2005, Environmental Management on Construction Sites
S8.5	Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Centre at Tsing Yi.	All area/ During construction	Contractor(s)		✓		N/A	Chapters 2 & 3 Code of Practice on the Packaging Labelling & Storage of

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
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								Chemical Wastes published under the Waste Disposal Ordinanc (Cap 354), Section 35
S8.5	Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.	Land site/ During construction	Contractor(s)		✓		Implemented, rectified after observation	Waste Disposal Ordinance (Cap 354)
S8.5	A recording system for the amount of wastes generated/ recycled and disposal sites. The trip-ticket system will be included as one of the contractual requirements and implemented by the contractor(s).	Land site/ During construction	Contractor(s)		✓		Implemented	DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials
S8.5	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.	Land site/ During construction/ During operation	Contractor(s)		✓		Implemented	WBTC 32/92, The Use of Tropical Hard Wood on Construction Site
S8.5	Encourage collection of aluminium cans and waste paper by individual collectors during construction with separate labelled bins provided to segregate these wastes from other general refuse by the workforce.	Land site/ During construction	Contractor(s)		✓		Implemented	ETWB TCW No. 33/2002, Management of Construction and Demolition Material Including Rock
S8.5	Any unused chemicals and those with remaining functional capacity will be recycled as far as possible.	Land site/ During construction	Contractor(s)		✓		N/A	-
S8.5	Use of reusable non-timber formwork to reduce the amount of C&D materials.	All areas/ During construction	Contractor(s)		✓		N/A	WBTC 32/92, The Use of Tropical Hard Wood on Construction Site
S8.5	Prior to disposal of construction waste, wood, steel and other metals will be separated to the extent practical, for re-use and/or recycling to reduce the quantity of waste to be disposed of to landfill.	All areas/ During construction	Contractor(s)		✓		Implemented	DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials
S8.5	Proper storage and site practices to reduce the potential for damage or contamination of construction materials.	All areas/ During construction	Contractor(s)		✓		Implemented, rectified after observation	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
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S8.5	Plan and stock construction materials carefully to reduce amount of waste generated and avoid unnecessary generation of waste.	All areas/ During construction	Contractor(s)		✓		Implemented	-
S8.5	A Sediment Quality Report (SQR) for sampling and chemical testing of the sediment will be prepared and submitted to the EPD for approval. The approved detailed sampling and chemical testing will be carried out prior to the commencement of the dredging activities to confirm the sediment disposal method.	Marine works/ During construction	Contractor(s)		✓		N/A	ETWB TC(W) No. 34/2002 and Dumping at Sea Ordinance (DASO)
S8.5	The management of dredged/ excavated sediment management requirement from *ETWB TC(W) No. 34/2002* will be incorporated in the Specification of the Contract Documents.	Marine works/ During construction	WSD/ Contractor(s)		✓		Implemented	ETWB TC(W) No. 34/2002 and Dumping at Sea Ordinance (DASO)
S8.5	The contractor will open a billing account with EPD in accordance with the Waste Disposal (Charges for Disposal of Construction Waste) Regulation for the payment of disposal charges.	Contract mobilisation/ During construction	Contractor(s)		✓		Implemented	Cap 354N Waste Disposal (Charges for Disposal of Construction Waste) Regulation
S8.5	A trip-ticket system will be established in accordance with DEVB TC(W) No. 6/2010 to monitor the reuse of surplus excavated materials off-site and disposal of construction waste and general refuse at transfer facilities/ landfills, and to control fly-tipping.	Contract mobilisation/ During construction	Contractor(s)		✓		Implemented	DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials
S8.5	The project proponent will also conduct regular inspection of the waste management measures implemented on site as described in the Waste Management Plan.	All area/ During construction	Contractor(s)/ Environmental Team (ET) & Independent Environmental Checker (IEC)		✓		Implemented	ETWB TC(W) No. 19/2005, Environmental Management on Construction Sites

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
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S8.5	A recording system (similar to summary table as shown in Annex 5 and Annex 6 of Appendix G of ETWB TC(W) No. 19/2005) for the amount of waste generated, recycled and disposed of (including the disposal sites) will be established during the construction phase.	All area/ During construction	Contractor(s)		✓		Implemented	Annex 5 and Annex 6 of Appendix G of ETWB TC(W) No. 19/2005
S8.5	Inert C&D materials (public fill) will be reused within the Project as far as practicable.	All area/ During construction	Contractor(s)		✓		N/A	-
S8.5	Public fill and construction waste shall be segregated and stored in different containers or skips to facilitate reuse or recycling of materials and their proper disposal.	All area/ During construction	Contractor(s)		✓		Implemented	-
S8.5	Specific areas of the work site will be designated for such segregation and storage if immediate use is not practicable.	All area/ During construction	Contractor(s)		✓		Implemented	-
S8.5	To reduce the potential dust and water quality impacts of site formation works, C&D materials will be wetted as quickly as possible to the extent practice after filling.	All area/ During construction	Contractor(s)		✓		Implemented	Air Pollution Control (Construction Dust) Regulation (Cap 311R); WPCO (Cap 358)
S8.5	Open stockpiles of excavated/ fill materials or construction wastes on-site should be covered with tarpaulin or similar fabric.	Land site/ During Construction, particularly dry season	Contractor(s)		✓		Implemented	Air Pollution Control (Construction Dust) Regulation (Cap 311R)
S8.5	Chemical waste container shall be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	Chemical waste container shall have a capacity of less than 450 L unless the specifications have been approved by the EPD.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes

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S8.5	A label in English and Chinese shall be displayed on the chemical container in accordance with instructions prescribed in Schedule 2 of the Regulations.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	Storage areas for chemical waste shall be enclosed on at least 3 sides.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	Storage areas for chemical waste shall 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 that area, whichever is the greatest.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	Storage areas for chemical waste shall have adequate ventilation.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	Storage areas for chemical waste shall be covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary).	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	Storage areas for chemical waste shall be	All area/ During	Contractor(s)/		✓	✓	Implemented	Waste Disposal

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
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	arranged so that incompatible materials are appropriately separated.	construction/ During operation	WSD					(Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	General refuse will be stored in enclosed bins or compaction units separately from construction and chemical wastes.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	Adequate number of waste containers will be provided to avoid over-spillage of waste.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	DEVB TC(W) No. 8/2010 Enhanced Specification for Site Cleanliness and Tidiness.
S8.5	A reputable waste collector will be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimise odour, pest and litter impacts.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	-
S8.5	Recycling bins will be provided at strategic locations within the Site to facilitate recovery of recyclable materials (including aluminium can, waste paper, glass bottles and plastic bottles) from the Site. Materials recovered will be sold for recycling.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	-
S8.5	To avoid any odour and litter impact, accurate number of portable toilets will be provided for workers on-site.	All area/ During construction	Contractor(s)		✓		Implemented	-
S8.5	The burning of refuse on construction sites is prohibited by law.	All area/ During construction	Contractor(s)		✓		Implemented	Air Pollution Control Ordinance (Cap 311)
S8.7	To facilitate monitoring and control over the contractors' performance on waste management, a waste inspection and audit	All facilities/ During construction	ET/ IEC		✓		Implemented	-

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	programme will be implemented throughout the construction phase.							

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	Ecology							
S9.7	For slope mitigation works within the Clear Water Bay Country Park, to avoid tree felling and damages to trees, the exact locations of the flexible barrier foundation plates, soil nails and rock dowels can be adjusted during detailed design, and a setback distance from existing trees is recommended to be maintained as far as practical. A detailed specification describing the exact locations of the flexible barrier foundation plates, soil nails and rock dowels will be prepared to illustrate how the setback distance from existing trees would be implemented for tree avoidance.	Slope mitigation works area/ During detailed design/ During construction	Contractor(s)	✓	✓		Implemented	-
S9.7	Pruning of tree canopies along the alignment of the flexible barriers shall be limited to a minimum.	Slope mitigation works area/ During construction	Contractor(s)		✓		Implemented	
S9.7	The alignment of flexible barriers shall be optimized to preserve all species of conservation interest and minimize the impact to the existing vegetation as far as practicable. All individuals of *Marsdenia lachnostoma* within the slope mitigation areas shall be retained *in- situ*, by positioning the alignment of flexible barrier at a minimum 1.5m in a radius away from these individuals.	Slope mitigation works area/ During detailed design/ During construction	Contractor(s)	✓	✓		N/A	-
S9.7 and 9.10	At the detailed design stage prior to the commencement of the slope mitigation works, a vegetation survey shall be carried out at the slope mitigation areas within the Clear Water Bay Country Park to assess the condition and identify the location of each individual of *Marsdenia lachnostoma* and other flora species of conservation interest that may be directly affected by the construction works.	Slope mitigation works area/ During detailed design/ During construction	Contractor(s)	✓	✓		N/A	-
S9.7	Temporary fencing will be installed to fence off	Slope mitigation works	Contractor(s)		✓		N/A	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
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	the concerned species either in groups of individually within the works area and in the close proximity to prevent from being damaged and disturbed during construction. A sign identifying the site shall be attached to the fence and flagging tape shall be attached to the individuals to visualize their locations.	area/ During construction						
S9.7 and S9.10	A specification for fencing and demarcating individuals of *Marsdenai lachnostoma* (or other flora species of conservation interest, if found) adjacent to the proposed alignment of the flexible barriers will be prepared to protect the species.	Slope mitigation works area/ During construction	Contractor(s)		✓		N/A	-
S9.7	Induction training shall also be provided to all site personnel in order to brief them on this flora of conservation interest including the locations and their importance.	Slope mitigation works area/ During construction	Contractor(s)		✓		N/A	-
S9.7	The resident site supervisory staff will closely monitor the conditions of concerned individuals during construction of flexible barriers in the close proximity.	Slope mitigation works area/ During construction	Contractor(s)		✓		N/A	-
S9.7	Erect fences along the boundary of the works area before the commencement of works to prevent vehicle movements and encroachment of personnel onto adjacent areas.	All area/ During construction	Contractor(s)		✓		Implemented	-
S9.7	Regularly check the work site boundaries to ensure that they are not breached and that damage does not occur to surrounding areas.	All area/ During construction	Contractor(s)/ Environmental Team (ET)		✓		Implemented	-
S9.7	Avoid any damage and disturbance, particularly those caused by filling and illegal dumping, to the surrounding habitats through proper management of waste disposal.	All area/ During construction	Contractor(s)		✓		Implemented	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
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S9.7	Reinstate temporarily affected areas, particularly the habitats of plantation and shrubland-grassland immediately after completion of construction works, through on-site tree/shrub planting. The tree/shrub species will be chosen with reference to those in the surrounding area.	All area/ During construction	Contractor(s)		✓		N/A	-
S9.7	Affected habitats within the Clear Water Bay Country Bay shall be reinstated by hydro-seeding and planting of climbers and native shrub seedlings where practical upon completion of the slope mitigation works.	All area/ During construction	Contractor(s)		✓		N/A	-

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	Landscape & Visual							
S11.10 & 11.11	The construction area and area allowed for temporary structures, such as the contractor's office, will be minimized to a practical minimum. (MM1)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	-
S11.10 & 11.11	At the detailed design stage, the design team will seek to minimize the landscape footprint of the Project and above ground facilities, while satisfying all other requirements. (MM2)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	-
S11.10 & 11.11	Design principles will be adopted to take into account the surrounding area, particularly Clear Water Bay Country Park behind and the nearby waterfront, with due consideration given to: - green roofs where practical (ie without equipment on the roof); - roadside planting; - aesthetic treatment of all structures; - vertical greening; screen planting along application site; and - landscape enhancement with amenity planting where practical including planting along the edge (site boundary) fence with native shrubs where feasible, - to reduce their visual impact and blend them into the surrounding landscape. (MM3)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	-
S11.10 & 11.11	All trees within the Project Site or the potential slope mitigation works area will be carefully protected during construction according to DEVB TCW No. 10/2013 – Tree Preservation (MM4)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented, rectified after observation	ETWB TCW No. 3/2006 - Tree Preservation.
S11.10 & 11.11	No tree within the Country Park will be felled. Trees within the Site unavoidably affected by the works will be transplanted where necessary and practical. For trees that need to be felled, compensatory planting will be provided to the satisfaction of relevant Government	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	DEVB TC(W) No. 10/2013

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
	departments. A compensatory tree planting proposal including locations of tree compensation will be submitted to seek relevant government department's approval, in accordance with DEVB TC(W) No. 10/2013. (MM5)							
S11.10 & 11.11	Any slope mitigation works necessary to address natural terrain hazards, will be minimized to minimize any potential environmental impact to the Country Park e.g. soil nailing and rock stabilization will aim to avoid existing trees e.g. should any restoration of vegetation be necessary, the best planting matrix with native species will be established, with the aim of resembling the existing vegetation. (MM6)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	N/A	
S11.10 & 11.11	Dredging works for the installation of intake structures and outfall diffusers should be minimized to avoid or reduce any potential environmental impacts to as low as reasonably practicable (ALARP). The intake and outfall structures (e.g. intake openings and diffuser heads) will be prefabricated and transferred to site for installation. (MM7)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	N/A	
S11.10 & 11.11	All night-time lighting will be reduced to a practical minimum both in terms of number of level and will be hooded and directional. (MM8)units and lux level and will be hooded and directional. (MM8)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
	Landfill Gas Hazard							
S12.7	During all works, safety procedures should be implemented to minimise the risks of fires and explosions, asphyxiation of workers and toxicity effects resulting from contact with contaminated soil and groundwater.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	During trenching and excavation as well as creation of confined spaces at near to or below ground level, precautions should be clearly laid down and rigidly Gas detection equipment and appropriate breathing apparatus should be available and used when entering confined spaces or trenches deeper than 1 metre.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	
S12.7	The Contractor should make the workers are aware of potential hazards of working in confined spaces (any chamber, manhole or culvert which is large enough to permit access to personnel). Such work in confined spaces is controlled by the Factories and Industrial Undertakings (Confined Spaces) Regulations of the Factories and Industrial Undertakings Ordinance. Following the Safety Guide to Working in Confined Spaces ensures compliance with the above regulations.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	
S12.7	Safety officers, specifically trained with regard to landfill gas and leachate related hazards and the appropriate actions to take in adverse circumstances, should be present on the site throughout the works, in particular, when works are undertaken below grade.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	
S12.7	All personnel who work on site and all visitors to the site should 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.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
S12.7	Monitoring for landfill gas should be undertaken in all excavations, manholes, chambers (particularly during pipe jacking) and any confined spaces through the use of an intrinsically safe portable instrument, appropriately calibrated and capable of measuring the concentrations of methane. carbon dioxide and oxygen.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	
S12.7	Monitoring frequency and areas to be monitored should be specified prior to commencement of groundwork, either by the Safety Officer, or by an appropriately qualified person. All measurements should be recorded and documented.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	
S12.7	Proceed drilling with adequate care and precautions against the potential hazards which may be encountered.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	
S12.7	Prior to the commencement of the site works, the drilling contractor should devise a 'method-of- working' statement covering all normal and emergency procedures (including but not limited to number of operatives, experience and special skills of operatives, normal method of operations, emergency procedures, supervisors responsibilities, storage and use of safety equipment, safety procedures and signs, barriers and guarding). The site supervisor and all operatives must be familiar with this statement.	All area/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	
S12.7	Where below ground service entries are necessary to the Incoming Switchgear Room, 132 kV Substation and Chlorine Store (I) and (II), the entry point should be sealed to prevent gas entry. In addition, any below grade cable trenches entering the Incoming Switchgear Room and 132 kV Substation can become the	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	N/A	

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
	pathway for landfill gas and hence grilled metal covers should be used.							
S12.7	It is recommended regular landfill gas monitoring should be carried out at the Incoming Switchgear Room, 132 kV Substation and Chlorine Store (I) and (II). The monitoring frequency will be monthly for the first year of operation. If the monitoring results show no sign of landfill gas migration, reduce the monitoring frequency to once every six months.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	N/A	
S12.7	The manholes and utility pits within the Project Site and along the fresh water mains. Each manhole/ utility pit should be monitored with two measurements (at mid depth and base). Each measurement should be monitored for a minimum of 10 minutes. A steady reading and peak reading should be recorded at each manhole/ utility pit and for each measurement. The need for venting the manhole/ utility pit and further monitoring will be reviewed after the initial monitoring.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	
S12.7	All construction, operation and maintenance personnel working on-site as well as visitors should be made aware of the hazards of landfill gas and its possible presence on-site. This should be achieved through a combination of posting warning signs in prominent places and also by access to detailed information on landfill gas hazards and the designs and procedural means by which these hazards are being minimized on-site.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	

Note: D – Design stage C – Construction O – Operation

Appendix D

Impact Monitoring Schedule of the Reporting Month

Feb-21						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3 Noise Impact Monitoring	4	5	6
7	8	9 Noise Impact Monitoring	10	11	12	13
14	15	16	17	18 Noise Impact Monitoring	19	20
21	22 Noise Impact Monitoring	23	24	25	26	27
28						

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

Appendix E

Noise Monitoring Equipment Calibration Certificate

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號椰林閣集團大廈全幢
The Whole Block of YLK Group Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong.
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

HOKLAS 028

CERTIFICATE OF CALIBRATION

Certificate No.: 20CA0803 01 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	Pulsar Instruments Ltd.
Type/Model No.:	105
Serial/Equipment No.:	63705
Adaptors used:	-

Item submitted by

Curstomer:	Acuity Sustainability Consulting Limited.
Address of Customer:	-
Request No.:	-
Date of receipt:	03-Aug-2020

Date of test: 06-Aug-2020

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	11-May-2021	SCL
Preamplifier	B&K 2673	2743150	03-Jun-2021	CEPREI
Measuring amplifier	B&K 2610	2346941	03-Jun-2021	CEPREI
Signal generator	DS 360	33873	19-May-2021	CEPREI
Digital multi-meter	34401A	US36087050	19-May-2021	CEPREI
Audio analyzer	8903B	GB41300350	18-May-2021	CEPREI
Universal counter	53132A	MY40003662	18-May-2021	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.

2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.

3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

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

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

Approved Signatory: Feng Junqi **Date:** 07-Aug-2020 **Company Chop:**

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

Form No.CARP156-1/Issue 1/Rev.D/01/03/2007

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號椰林閣集團大廈全幢
The Whole Block of YLK Group Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong.
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 20CA0803 01 **Page:** 2 **of** 2

1, Measured Sound Pressure Level

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

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	93.78	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

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

At 1000 Hz **STF = 0.027 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

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

At 1000 Hz **Actual Frequency = 1000.3 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

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

At 1000 Hz **TND = 0.6 %**

Estimated expanded uncertainty 0.7 %

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

- End -

Calibrated by: Fung Chi Yik Date: 06-Aug-2020

Checked by: Feng Junqi Date: 07-Aug-2020

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

 Form No.CARP156-2/Issue 1/Rev.C/01/05/2005

SCARLET | TECH

CERTIFICATE OF CALIBRATION

NO. 20200519040

Name of Product:	Sound Level Meter
Model:	ST-11D
Serial Number:	820200
Specification:	Class 1
Conclusion:	Pass
Date of calibration:	2021-01-18
Due Date:	2022-01-17

Calibrated by:

SCARLET TECH CO., LTD. 福林科技有限公司

I. This report certifies that all calibration equipment used in the test is traceable with the internal ISO9001 procedures and meet all specification given in the Manual(s) or respectively surpass them and applies only to the unit identified above.
II. This certificate is produced with advanced equipment & procedures which permit comprehensive quality assurance verification of all data supplied herein.
III. This certificate of calibration shall not be reproduced except in full, without written permission of the Scarlet Tech Co Ltd Taiwan.

1. Preliminary inspection: OK

2. Type & serial No. of Microphone: AWA14425-27998

3. Adjustments to indicated sound levels:

Type of Calibrator B&K 4231

Sound Pressure Level 93.8 dB

Equivalent Free-field Sound Level (reference environment conditions) 93.8 dB

4. Measuring up limit: 140 dBA

5. Frequency weightings (Acoustic signal tests for Z weighting, other electric signal tests.)

Nominal frequency /Hz	Frequency weighting / dB			Nominal frequency /Hz	Frequency weighting / dB		
	A	C	Z		A	C	Z
10	-71.0	-14.4	-0.9	1000	0.0	-0.1	-0.3
20	-50.4	-6.1	-0.1	2000	1.2	-0.2	0.2
31.5	-39.8	-3.1	0.0	4000	1.0	-0.9	0.3
63	-26.2	-0.9	0.3	8000	-1.0	-3.2	-0.5
125	-16.0	-0.3	0.1	12500	-4.5	-6.4	-0.7
250	-8.6	-0.1	0.1	16000	-9.6	-11.5	-1.3
500	-3.2	-0.1	0.1	20000	-23.9	-25.9	-0.8

6. Self-generated noise

Microphone replaced by electrical input signal device

8.9 dB(A)	16.6 dB(C)	19.8 dB(Z)

7. F&S Weighting

Rate of the F weighting decrease（dB/s）	35.2
Rate of the S weighting decrease（dB/s）	4.4
Deviation of F&S	0.0

8. Level Linearity (A-weighting at frequency 1 kHz)

Reference sound level 90.0 dB

Max error at 10dB steps upper reference sound level -0.1 dB

Max error at 1dB steps within 5dB of the upper limit linear operating range 0.0 dB

Max error at 10dB steps below reference sound level 0.1 dB

Max error at 1dB steps within 5dB upper the lower limit linear operating range 0.2 dB

9. Tone burst response（A Weighting）:

Single Toneburst duration /ms	Toneburst response /dB			
	L_{AFmax}-L_A	L_{ASmax}-L_A	L_{AE}-L_A	L_{AeqT}-L_A
500	0.0	-4.0	-2.9	-7.0
200	-1.0	-7.4	-6.9	-7.0
50	-18.0	-26.9	-26.9	-7.0
10	-27.2	/	-36.0	-7.0

10. Peak C sound level（500Hz）:

Cycle	One cycle	nominal value	Positive half	nominal value	Negative half	nominal value
LCpeak-LC(dB)	3.5	3.5	2.3	2	2.3	2.4

11. Overload indication: Pass

12. Statistical analysis function:

Sweep signal maximum indicated sound level: 112.8 dB

Sweep amplitude: 40 dB

Scan cycle time: 60 S; Measurement period: 180 S.

Items	Measured value/dB	Theoretical calculated value/dB	Error/dB
LAeq,T	103.2	103.2	0.0

L5	110.8	110.8	0.0
L10	108.8	108.8	0.0
L50	92.9	92.8	0.1
L90	76.9	76.8	0.1
L95	75.0	74.8	0.2

Uncertainty of measurement results: 0.4 dB (k=2)

Environment conditions:

Air temperature: 20 °C
Relative humidity: 50 %
Static pressure: 100.6 kPa

References:

IEC 61672-3 Sound Level Meters Part 3: Periodic tests

(A+A)*L Acoustics and Air Testing Laboratory Co. Ltd.
聲學及空氣測試實驗室有限公司

Certificate of Calibration

for

Description:	*Sound Level Meter*
Manufacturer:	*NTi Audio*
Type No.:	*XL2 (Serial No.: A2A-13663-E0)*
Microphone:	*ACO 7052 (Serial No.: 73912)*
Preamplifier:	*NTi Audio MA220 (Serial No.: 5735)*

Submitted by:

Customer:	*Acuity Sustainability Consulting Limited*
Address:	*Unit C, 11/F, Ford Glory Plaza, No. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong*

Upon receipt for calibration, the instrument was found to be:

☑ **Within**
☐ **Outside**

the allowable tolerance.

The test equipment used for calibration are traceable to National Standards via:
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: *08 September 2020*

Date of calibration: *09 September 2020*

Calibrated by: _____ *Calibration Technician*

Certified by: _____ *Mr. Ng Yan Wa*
Laboratory Manager

Date of issue: 09 September 2020

Certificate No.: AP120-104-CC001

Page 1 of 4

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946

(A+A)*L Acoustics and Air Testing Laboratory Co. Ltd. 聲學及空氣測試實驗室有限公司

1. *Calibration Precaution:*

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

2. *Calibration Conditions:*

Air Temperature:	23.8 °C
Air Pressure:	1008 hPa
Relative Humidity:	62.5 %

3. *Calibration Equipment:*

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV200041	HOKLAS

4. *Calibration Results*

Sound Pressure Level

Reference Sound Pressure Level

Setting of Unit-under-test (UUT)				Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	**Freq. Weighting**		**Time Weighting**	**Level, dB**	**Frequency, Hz**	**dB**	**Specification, dB**
30-130	dBA	SPL	Fast	94	1000	94.0	±0.4

Linearity

Setting of Unit-under-test (UUT)				Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	**Freq. Weighting**		**Time Weighting**	**Level, dB**	**Frequency, Hz**	**dB**	**Specification, dB**
30-130	dBA	SPL	Fast	94	1000	94.0	Ref
				104		104.0	±0.3
				114		114.0	±0.3

Time Weighting

Setting of Unit-under-test (UUT)				Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	**Freq. Weighting**		**Time Weighting**	**Level, dB**	**Frequency, Hz**	**dB**	**Specification, dB**
30-130	dBA	SPL	Fast	94	1000	94.0	Ref
			Slow			94.0	±0.3

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin ,N.T.,Hong Kong
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Frequency Response

Linear Response

Setting of Unit-under-test (UUT)				Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting		Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dB	SPL	Fast	94	31.5	94.2	±2.0
					63	94.3	±1.5
					125	94.3	±1.5
					250	94.2	±1.4
					500	94.1	±1.4
					1000	94.0	Ref
					2000	93.8	±1.6
					4000	93.6	±1.6
					8000	93.4	−2.1; -3.1

A-weighting

Setting of Unit-under-test (UUT)				Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting		Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA	SPL	Fast	94	31.5	54.8	-39.4 ±2.0
					63	68.0	-26.2 ±1.5
					125	78.1	-16.1 ±1.5
					250	85.5	-8.6 ±1.4
					500	90.8	-3.2 ±1.4
					1000	94.0	Ref
					2000	95.0	+1.2 ±1.6
					4000	94.6	+0.9 ±1.6
					8000	92.3	-1.1 −2.1; -3.1

C-weighting

Setting of Unit-under-test (UUT)				Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting		Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBC	SPL	Fast	94	31.5	91.2	-3.0 ±2.0
					63	93.4	-0.8 ±1.5
					125	94.1	-0.2 ±1.5
					250	94.1	-0.0 ±1.4
					500	94.1	-0.0 ±1.4
					1000	94.0	Ref
					2000	93.6	-0.2 ±1.6
					4000	92.8	-0.8 ±1.6
					8000	90.4	-3.0 +2.1; -3.1

Certificate No.: APJ20-104-CC001

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5. *Calibration Results Applied*

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.05
	63 Hz	± 0.05
	125 Hz	± 0.05
	250 Hz	± 0.05
	500 Hz	± 0.05
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
	8000 Hz	± 0.10
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

Note:
The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)*L shall not be liable for any loss or damage resulting from the use of the equipment.

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 5423 Fax:(852) 2668 6946

(A+A)*L Acoustics and Air Testing Laboratory Co. Ltd. 聲學及空氣測試實驗室有限公司

Certificate of Calibration

for

Description:	*Sound Level Meter*
Manufacturer:	*SVANTEK*
Type No.:	*971 (Serial No.: 77731)*
Microphone:	*ACO 7052E (Serial No.: 72681)*
Preamplifier:	*SV18 (Serial No.: 78763)*

Submitted by:

Customer:	*Acuity Sustainability Consulting Limited*
Address:	*Unit C, 11/F., Ford Glory Plaza, No. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon*

Upon receipt for calibration, the instrument was found to be:

☑ **Within**
☐ **Outside**

the allowable tolerance.

The test equipment used for calibration are traceable to National Standards via:
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 12 February 2020

Date of calibration: 13 February 2020

Calibrated by: _____ *Calibration Technician*

Certified by: _____ *Mr. Ng Yan Wa*
Laboratory Manager

Date of issue: **13 February 2020**

ACOUSTICS AND AIR TESTING LABORATORY CO. LTD. (A+A) *L

Certificate No.: APJ19-160-CC001

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(A+A)*L Acoustics and Air Testing Laboratory Co. Ltd. 聲學及空氣測試實驗室有限公司

1. *Calibration Precaution:*

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

2. *Calibration Conditions:*

Air Temperature:	23.7 °C
Air Pressure:	1006 hPa
Relative Humidity:	66.2 %

3. *Calibration Equipment:*

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV180064	HOKLAS

4. *Calibration Results*

Sound Pressure Level

Reference Sound Pressure Level

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
34.2-136.2	dBA SPL	Fast	94	1000	94.0	±0.4

Linearity

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
34.2-136.2	dBA SPL	Fast	94	1000	94.0	Ref
			104		104.0	±0.3
			114		114.0	±0.3

Time Weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
34.2-136.2	dBA SPL	Fast	94	1000	94.0	Ref
		Slow			94.0	±0.3

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Frequency Response

Linear Response

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
34.2-136.2	dB SPL	Fast	94	31.5	94.1	±2.0
				63	94.0	±1.5
				125	93.9	±1.5
				250	93.9	±1.4
				500	93.9	±1.4
				1000	94.0	Ref
				2000	94.1	±1.6
				4000	93.9	±1.6
				8000	91.2	+2.1; -3.1

A-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
34.2-136.2	dBA SPL	Fast	94	31.5	54.8	-39.4 ±2.0
				63	67.8	-26.2 ±1.5
				125	77.9	-16.1 ±1.5
				250	85.3	-8.6 ±1.4
				500	90.7	-3.2 ±1.4
				1000	94.0	Ref
				2000	95.3	+1.2 ±1.6
				4000	94.9	+1.0 ±1.6
				8000	90.1	-1.1+2.1; -3.1

C-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
34.2-136.2	dBC SPL	Fast	94	31.5	91.1	-3.0 ±2.0
				63	93.2	-0.8 ±1.5
				125	93.7	-0.2 ±1.5
				250	93.9	-0.0 ±1.4
				500	93.9	-0.0 ±1.4
				1000	94.0	Ref
				2000	93.8	-0.2 ±1.6
				4000	93.1	-0.8 ±1.6
				8000	88.2	–3.0 +2.1: –3.1

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5. *Calibration Results Applied*

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.15
	63 Hz	± 0.10
	125 Hz	± 0.10
	250 Hz	± 0.10
	500 Hz	± 0.10
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
	8000 Hz	± 0.15
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

Note:
The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)*L shall not be liable for any loss or damage resulting from the use of the equipment.

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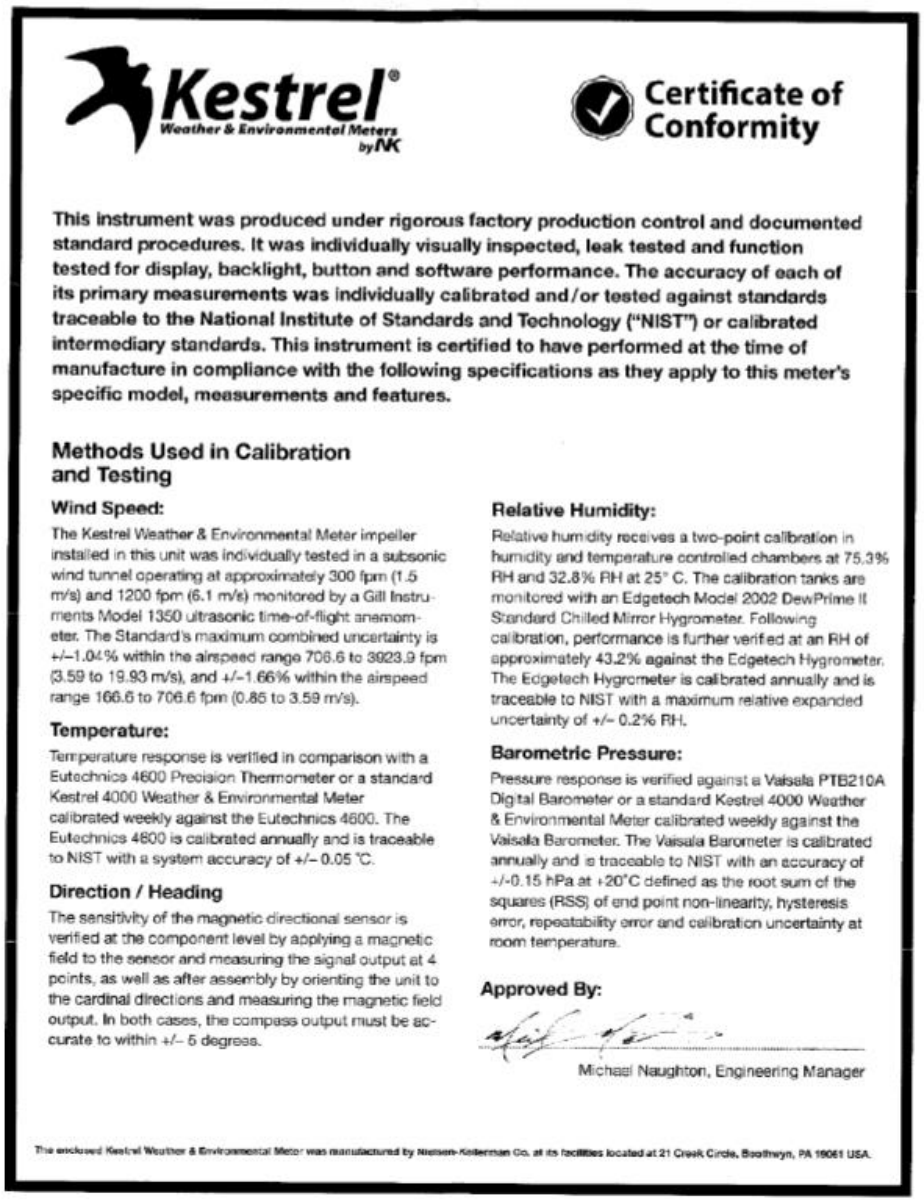

Kestrel®
Weather & Environmental Meters
by NK

Certificate of Conformity

This instrument was produced under rigorous factory production control and documented standard procedures. It was individually visually inspected, leak tested and function tested for display, backlight, button and software performance. The accuracy of each of its primary measurements was individually calibrated and/or tested against standards traceable to the National Institute of Standards and Technology ("NIST") or calibrated intermediary standards. This instrument is certified to have performed at the time of manufacture in compliance with the following specifications as they apply to this meter's specific model, measurements and features.

Methods Used in Calibration and Testing

Wind Speed:

The Kestrel Weather & Environmental Meter impeller installed in this unit was individually tested in a subsonic wind tunnel operating at approximately 300 fpm (1.5 m/s) and 1200 fpm (6.1 m/s) monitored by a Gill Instruments Model 1350 ultrasonic time-of-flight anemometer. The Standard's maximum combined uncertainty is +/–1.04% within the airspeed range 706.6 to 3923.9 fpm (3.59 to 19.93 m/s), and +/–1.66% within the airspeed range 166.6 to 706.6 fpm (0.85 to 3.59 m/s).

Temperature:

Temperature response is verified in comparison with a Eutechnics 4600 Precision Thermometer or a standard Kestrel 4000 Weather & Environmental Meter calibrated weekly against the Eutechnics 4600. The Eutechnics 4600 is calibrated annually and is traceable to NIST with a system accuracy of +/– 0.05 °C.

Direction / Heading

The sensitivity of the magnetic directional sensor is verified at the component level by applying a magnetic field to the sensor and measuring the signal output at 4 points, as well as after assembly by orienting the unit to the cardinal directions and measuring the magnetic field output. In both cases, the compass output must be accurate to within +/– 5 degrees.

Relative Humidity:

Relative humidity receives a two-point calibration in humidity and temperature controlled chambers at 75.3% RH and 32.8% RH at 25° C. The calibration tanks are monitored with an Edgetech Model 2002 DewPrime II Standard Chilled Mirror Hygrometer. Following calibration, performance is further verified at an RH of approximately 43.2% against the Edgetech Hygrometer. The Edgetech Hygrometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of +/– 0.2% RH.

Barometric Pressure:

Pressure response is verified against a Vaisala PTB210A Digital Barometer or a standard Kestrel 4000 Weather & Environmental Meter calibrated weekly against the Vaisala Barometer. The Vaisala Barometer is calibrated annually and is traceable to NIST with an accuracy of +/-0.15 hPa at +20°C defined as the root sum of the squares (RSS) of end point non-linearity, hysteresis error, repeatability error and calibration uncertainty at room temperature.

Approved By:

Michael Naughton, Engineering Manager

The enclosed Kestrel Weather & Environmental Meter was manufactured by Nielsen-Kellerman Co. at its facilities located at 21 Creek Circle, Boothwyn, PA 19061 USA.

SENSORS

0	2000	2500	3000	3500	3500 OT	4000	4200	4250	4300	4500	Ballistics	ACCURACY (+/-)*	RESOLUTION	SPECIFICATION RANGE	OPERATIONAL RANGE	NOTES
												Larger of 3% of reading, least significant digit or 2 ft/min	0.1 m/s 1 ft/min 0.1 km/h 0.1 mph 0.1 knots 1 Bft* 0.1 FtS*	0.8 to 40.0 m/s 118 to 7,874 ft/min 2.2 to 144.0 km/h 1.3 to 89.5 mph 1.2 to 77.8 knots 0 to 12 Bft* 2-121.2*	0.8 to 60.0 m/s 118 to 11,811 ft/min 2.2 to 216.0 km/h 1.2 to 134.2 mph 1.2 to 116.6 knots 0 to 12 Bft* 2-186.8 FtS*	1 inch(25 mm diameter impeller with precision jade and low-friction Xylar® bearings. Startup speed stated as lower limit, readings may be taken down to 0.4 m/s | 79 ft/min | 1.5 km/h | 0 mph | 0 kt after impeller starts. Off-axis accuracy -1% @ 5° off-axis, -2% @ 10°, -3% @ 15°. Calibration drift ~ 1% after 100 hours use at 18 MPH | 7 m/s. Replacement impeller (NK PN-0801) field installs without tools (US Patent 9,793,753). Wind speed calibration and testing should be done with triangle on impeller located at the top front face of the Kestrel. *Bft only in Ballistics units. Beaufort not available in Ballistics units.
												0.9 °F 0.5 °C	0.1 °F 0.1 °C	-20.0 to 158.0 °F -29.0 to 70.0 °C	14.0 to 131.0 °F -10.0 to 55.0 °C	Hermetically sealed, precision thermistor mounted externally and thermally isolated (US Patent 8,930,045) for rapid response. Airflow of 2.2 mph | 1 m/s or greater provides fastest response and reduction of insolation effect. Calibration drift negligible. The probe may also be used to measure temperature of water or snow by submerging thermistor portion into material—remove impeller prior to taking submerged measurements and ensure humidity sensor membrane is free of liquid water prior to taking humidity-based measurements after submersion.
												3.0 %RH	0.1 %RH	0 to 99% non-condensing	0 to 100%	Polymer capacitive humidity sensor mounted in rain-walled chamber external to case for rapid, accurate response (US Patent 8,267,574). To achieve stated accuracy, unit must be permitted to equilibrate to external temperature when exposed to large, rapid temperature changes and be kept out of direct sunlight. Calibration drift +/- 2% over 24 months. Humidity sensor may be recalibrated at factory or in field using Kestrel Humidity Calibration Kit (NK PN-0832)
												0.03 inHg 1.0 hPa/mbar 0.01 PSI	0.01 inHg 0.1 hPa/mbar 0.01 PSI	6.66 to 32.49 inHg 300.0 to 1100.0 hPa/mbar 4.35 to 15.95 PSI and 32.0 to 158.0 °F 0.0 to 85.0 °C	0.50 to 48.97 inHg 10.0 to 1658.7 hPa/mbar 0.14 to 24.00 PSI and 14.0 to 131.0 °F -10.0 to 55.0 °C	More lithic silicon piezoresistive pressure sensor with second-order temperature correction. Pressure sensor may be recalibrated at factory or in field. Adjustable reference altitude allows display of station pressure or barometric pressure corrected to MSL. Kestrel 4000 displays station pressure on a dedicated screen. Kestrel 2500 and 3500 display continuously updating three-hour barometric pressure trend (plotted: rising rapidly, rising, steady, falling, falling rapidly. Kestrel 4000 series displays pressure trend through graphing function. PSI display on Kestrel 4000 series only.
												5°	1° 1/16th Cardinal Scale	0 to 360°	0 to 360°	2-axis solid-state magnetoresistive sensor mounted perpendicular to unit plane. Accuracy of sensor dependent upon unit's vertical position. Self-calibration routine eliminates magnetic error from ballistics or unit and must be run after every hot power-down (battery removal or change). Reading indicates direction to which the back of the unit is pointed when held in a vertical orientation. Declination/variation adjustable for True North readout.

CALCULATED MEASUREMENTS

0	2000	2500	3000	3500	3500 OT	4000	4200	4250	4300	4500	Ballistics	ACCURACY (+/-)*	RESOLUTION	SPECIFICATION RANGE	SENSORS EMPLOYED	NOTES
												0.0002 lb/ft³ 0.0003 kg/m³	0.001 lb/ft³ 0.001 kg/m³	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Mass of air per unit volume
												0.0071	1 cfm 1 m³/m 1 m³/s 0.1 m/s 1 l/s	Refer to Ranges for Sensors Employed	Air Flow User Input (Duct Shape & Size)	Volume of air flowing through an opening. Automatically calculated from Air Velocity measurement and user-specified duct shape (circle or rectangle) and dimensions (units: in, ft, cm or m). Maximum duct dimension input: 250.0 in (21.5 ft) | 635.2 cm | 6.35 m.
												typical: 23.6 ft 7.2 m max: 46.2 ft 14.1 m	1 ft 1 m	typical: 750 to 1100 mBar max: 300 to 750 mBar	Pressure User Input (Reference Pressure)	Height above Mean Sea Level ("MSL"). Temperature compensated pressure (barometric) altimeter requires accurate reference barometric pressure to produce maximum absolute accuracy. Both accuracy specs corresponds to a reference pressure anywhere from 850 to 1100 mBar.
												0.07 inHg 2.4 hPa/mbar 0.03 PSI	0.01 inHg 0.1 hPa/mbar 0.01 PSI	Refer to Ranges for Sensors Employed	Pressure User Input (Reference Altitude)	Air pressure that would be present in identical conditions at MSL. Station pressure compensated for local elevation provided by reference altitude. Requires accurate reference altitude to produce maximum absolute accuracy.
												0.07	1 mph 1 ft/min 0.1 km/h 0.1 m/s 0.1 knots	Refer to Ranges for Sensors Employed	Wind Speed Compass	Effective wind relative to a target or travel direction. Auto-switching headwind/tailwind indication.
												3.2 °F 1.8 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Difference between dry bulb temperature and wet bulb temperature. When spraying, indicates evaporation rate and droplet stasis. Safe range for pesticide spraying is 4 to 16 °F | 2 to 9 °C.
												225 ft 69 m	1 ft 1 m	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Local air density converted to equivalent elevation above sea level in a uniform layer consisting of the International Standard Atmosphere.
												3.4 °F 1.9 °C	0.1 °F 0.1 °C	15 to 95 % RH Refer to Range for Temperature Sensor	Temperature Relative Humidity	Temperature that a volume of air must be cooled to at constant pressure for the water vapor present to condense into dew and form on a solid surface. Can also be considered to be the water-to-air saturation temperature.
												0.01 lbs/ft²/hr 0.05 kg/m2/hr	0.01 lbs/ft²/hr 0.01 kg/m²/hr	Refer to Ranges for Sensors Employed	Wind Speed Temperature Relative Humidity Pressure User Input (Concrete Temperature)	The rate at which moisture is lost from the surface of curing concrete. Requires user measurement and entry of concrete temperature obtained with an accurate IR or probe thermometer (°F or °C, not included). Readings should be taken 20 inches above pour surface with the thermistor shaded, and averaged for 6-10 seconds using built-in averaging function.
												7.1°F 4.0°C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Temperature Relative Humidity	Perceived temperature resulting from the combined effect of temperature and relative humidity. Calculated based on NWS Heat Index (HI) tables. Measurement range limited by extent of published tables.
												.3 gpp .04 g/kg	0.1 gpp 0.01 g/kg	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Mass of water vapor in a mass of air.
												0.0036	0.001	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	The ratio, expressed as a percentage, of measured air density to the air density of a standard atmosphere as defined by the ICAO.
												3.2 °F 1.8 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Temperature indicated by a sling psychrometer. Due to nature of the psychrometric rate for a water-air system, this approximates the thermodynamic wet-bulb temperature. The thermodynamic wet bulb temperature is the temperature a parcel of air would have if cooled adiabatically to saturation temperature via water evaporating into it.
												1.6 °F 0.9 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Wind Speed Temperature	Perceived temperature resulting from combined effect of wind speed and temperature. Calculated based on the NWS Wind Chill Temperature (WCT) index, revised 2001, with wind speed adjusted by a factor of 1.5 to yield equivalent results to wind speed measured at 10 m above ground. Measurement range limited by extent of published tables.

ADDITIONAL SPECIFICATIONS

											Reflective 3 1/2 digit LCD. Digit height 0.26 in / 6 mm. Aviation green electroluminescent backlight. Manual activation with auto-off.
											Reflective 5 digit LCD. Digit height 0.35 in / 9 mm. Choice of aviation green or visible red (NV models only) electroluminescent backlight. Manual activation with auto-off.
											Multifunction, multi-digit monochrome dot-matrix display. Choice of aviation green or visible red (NV models only) electroluminescent backlight. Automatic or manual activation.
											All measurements except those based on relative humidity respond accurately within 1 second. Relative humidity and all measurements which include RH in their calculation may require as long as 1 minute to fully acclimate to a large change in the measurement environment. Display updates every 1 second.
											One-button clear and restart of Max Wind Gust and Average Wind measurement
											Max and average wind calculation may be started and stopped independently of data logging of other values, along with all other wind-related functions: air velocity, crosswind, headwind/tailwind, wind chill, WBGT, TWL, evaporation rate.
					4000 points	3200 points	3200 points	3850 points	2500 points	2500 points	Minimum, maximum, average and logged history stored and displayed for every measured value. Large capacity data logger with graphical display. Manual and auto data storage. Min/Max/Avg History may be reset independently. Auto-store interval settable from 2 seconds to 12 hours, overwrite on or off. Logs even when display off except for 2 and 5 second intervals (code version 4.18 and later). Data capacity shown.
											Requires optional PC interface (USB or RS-232) or Bluetooth® data transfer option and provided software. Bluetooth® Data Transfer Options: Adjustable power consumption and radio range from up to 30 ft | 9 meters. Individual unit ID and 4-digit PIN code pre-programmed for easy identification and data security when pairing and transmitting. Employs Bluetooth Serial Port Protocol for data transmission.
											Real-time hour:minute clock.
											Real-time hour:minute:seconds clock, calendar, auto-male leap-year adjustment.
											After 45 minutes of no key presses.
											User-selectable – 15 or 60 minutes with no key presses or disabled.
											English, French, German, Italian, Spanish.
											CE certified, RoHS and WEEE compliant. Individually tested to NIST-traceable standards (written certificate of tests available at additional charge).
											Designed and manufactured in the USA from US and imported components. Complies with Regional Value Content and Tariff Code Transformation requirements for NAFTA Preference Criterion B.
											CR2032, one, included. Average life, 300 hours. Battery life reduced by backlight use in 2000 to 3500 models.
											4000 Series Models: AAA Lithium, two, included. Average life, 400 hours of use, reduced by backlight or Bluetooth radio transmission use.
											MIL-STD-810g, Transit Shock, Method 516.5 Procedure IV; unit only; impact may damage replaceable impeller.
											Waterproof (IP67 and NEMA-6).
											14° F to 131° F | -10 °C to 55 °C. Measurements may be taken beyond the limits of the operational temperature range of the display and batteries by maintaining the unit within the operational range and exposing it to the more extreme environment for the minimum time necessary to take reading.
											-22.0 °F to 140.0 °F | -30.0 °C to 60.0 °C.
											4.8 x 1.9 x 1.1 in / 12.2 x 4.8 x 2.8 cm, 3.6 oz / 102 g (including slip-on cover).
											5.0 x 1.8 x 1.1 in / 12.7 x 4.5 x 2.8 cm, 3.6 oz / 102 g
											6.6 x 2.9 x 1.1 in / 16.5 x 5.0 x 2.8 cm, 4.4 oz / 125 g.

s uncertainty of the measurement derived from statistical analysis considering the combined effects from primary sensor specifications, circuit conversions,

Appendix F

Event/Action Plan for Noise Exceedance

Event and Action Plan for Construction Noise Monitoring

Event	Action			
	ET	**IEC**	**ER**	**Contractor**
Action Level	1. Carry out investigation to identify the source and cause of the complaint/ exceedance(s) 2. Notify IEC, ER, and Contractor and report the results of investigation to the Contractor, ER and the IEC 3. Discuss with the Contractor and IEC for remedial measures required 4. If the complaint is related to the Project, conduct additional monitoring for checking mitigation effectiveness and report the findings and results to the IEC, ER and the Contractor	1. Review the analyzed results submitted by the ET 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly 3. Supervise the implementation of remedial measures	1. Confirm receipt of Notification of Exceedance in writing 2. Require Contractor to propose remedial measures for the analysed noise problem 3. Ensure remedial measures are properly implemented	1. Submit noise mitigation proposals, if required, to the IEC and ER 2. Implement noise mitigation proposals.
Limit Level	1. Notify IEC, ER, EPD and Contractor 2. Identify the source(s) of impact by reviewing all the relevant monitoring data and the corresponding construction activities. Exceedances should also be confirmed by immediate verification in the field as far as practical. 3. Repeat measurement to confirm findings 4. Increase monitoring frequency 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. 6. inform IEC, ER and EPD the cause & actions taken for the exceedances 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions 2. Review Contractor's remedial actions to assure their effectiveness and advise the ER &ET accordingly 3.Supervise the implementation of the remedial measures	1. Confirm receipt of notification of exceedance in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analyzed noise problem 4. Ensure remedial measures are properly implemented 5. If exceedance continuous, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is aborted	1. Take immediate action to avoid further exceedance 2. Identify practicable measures to minimize the noise impact. Submit proposals for remedial actions to ER within three working days of notification 3. Implement the agreed proposals 4. Resubmit proposal if problem still not under control 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Appendix G

Noise Monitoring Data

Date	Time	Weather	$L_{eq-5min}$, dB(A)						$L_{eq-30min}$, dB(A)	$L_{10}30_{mins}$, dB(A)	$L_{90}30_{mins}$ dB(A)	Limit Level, dB(A)	Noise Meter
			Reading (1)	Reading (2)	Reading (3)	Reading (4)	Reading (5)	Reading (6)					
03/02/2021	11:30 - 12:00	cloudy	68.8	68.5	67.8	68.3	68.4	68.0	68.3	72.0	58.7	70.0	Svantek 971; Nti XL2 13663
09/02/2021	11:31 - 12:01	sunny	67.6	68.3	67.3	67.4	68.0	67.2	67.7	71.3	58.1	70.0	NTi XL2 13663
18/02/2021	11:30 - 12:00	sunny	67.7	68.1	67.8	67.1	68.3	67.9	67.8	69.7	65.9	70.0	NTi XL2 13663
22/02/2021	11:24 - 11:54	sunny	68.5	61.4	67.2	67.1	66.3	68.2	66.9	72.5	63.7	70.0	Scarlet ST-11D

Remarks: The Education Bureau (EDB) has announced that all kindergartens as well as primary and secondary schools (including special schools and schools offering non-local curriculum) will continue to suspend face to face classes and school activities until the beginning of school's Chinese New Year holidays due to the spread of the Novel Coronavirus. No examinations were scheduled between 22nd to 28th February 2021. Hence the noise limit level will be 70.0 dB(A). Further information and Academic School Calendar can be found in Appendix O.

Appendix H

Waste Flow Table

Monthly Summary Waste Flow Table

Name of Department: WSD Contract No. / Works Order No.: 13/WSD/16

Monthly Summary Waste Flow Table for February 2021

Month	Actual Quantities of Inert Construction Waste Generated Monthly					
	Total Quantity Generated (see Note 4)	Hard Rock and Large Broken Concrete (see Note 3)	Reused in the Contract	Reused in other Projects	Disposed of as Public Fill	Imported Fill (see Note 1)
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)
2018	1.157	0.063	0.000	0.000	1.157	0.518
2019	5.178	0.043	2.211	0.000	2.520	3.200
2020	13.173	1.506	0.291	0.000	12.878	1.323
Jan 2021	2.438	0.120	0.000	0.000	2.438	0.127
Feb-2021	1.702	0.224	0.000	0.000	1.702	0.537
Sub-Total	4.140	0.344	0.000	0.000	4.140	0.664
Total for 2021	4.140	0.344	0.000	0.000	4.140	0.664

Month	Actual Quantities of Non-inert Construction Waste Generated Monthly				
	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. General Refuse disposed at Landfill
	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
2018	0.000	0.417	0.000	0.000	0.139
2019	0.000	0.062	0.000	0.000	0.102
2020	0.000	0.606	0.000	0.000	0.043
Jan 2021	0.000	0.065	0.000	0.000	0.006
Feb-2021	0.000	0.058	0.000	0.000	0.012
Sub-Total	0.000	0.123	0.000	0.000	0.018
Total for 2021	0.000	0.123	0.000	0.000	0.018

Notes:
1. The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
2. Plastic refer to plastic bottles/containers, plastic sheets/foam from packaging materials.
3. Broken concrete for recycling into aggregate.

4. "Total Quantity Generated" only refers to the actual quantities of inert C&D materials generated monthly excluding those that will be recycled (Hard Rock and Large Broken Concrete, Reused in the Contract, Reused in other Projects). Imported fill will not be included in "Total Quantity Generated" as those C&D materials are not generated from this project.
5. C&D materials in tonnes are converted to meter cube (m^3) on a scale of 0.5.
6. Source and types of Imported Fill in the reporting month
   i. K. Wah Quarry Company Limited: (Soil) 482.69m^3 (965.38 tonnes/17 cars)
   ii. K. Wah Quarry Company Limited: (Sub-base) 54.25m^3 (108.50 tonnes/3 cars)

7. The amount of Hard Rock and Large Broken Concrete are disposed to public fill, the breakdown of C&D materials disposed to public fill is shown as below:

Type of C&D Materials	Description of C&D Materials	C&D Waste Disp osed (Volume) (m^3)
Inert	Bentonite	--
	Broken Concrete	78.95
	Broken Rock	145.15
	Mixed Construction Waste (>50% inert)	--
	Building Debris	--
	Mixed Rock and Soil	952.45
	Reclaimed Asphalt Pavement	336.85
	Slurry	59.30
	Soil	129.45
	TOTAL =	***1702.15***
Non-inert	***TOTAL =***	**12.1**

Appendix I

Landfill Gas Monitoring Equipment Calibration Certificate

路達國際有限公司
ROTTER INTERNATIONAL LIMITED
香港新界葵涌葵昌路58-70號永祥工業大廈10樓B室
Unit B, 10/F., Wing Cheung Industrial Building, 58-70 Kwai Cheong Road, Kwai Chung, New Territories, HK
Tel: (852) 2751 7770 Fax: (852) 2756 2051 E-mail: rotter@rotter.com.hk

Calibration Report - Gas Detector

PGM-2500 (QRAE III) --- LEL/O2/CO/H2S

UNIT INFORMATION :

Customer:	Penta Ocean Construction Co Ltd	Serial # :	M02A016735	Model :	QRAE III
		Firmware :	V2.14	Sensor :	LEL/O2/CO/H2S
		Cal date :	28-Jul-2020	Inspected:	Teddy

SENSOR DATA :

	LEL sensor (ME)	O2 sensor	CO sensor (Tox1)	H2S sensor (Tox2)
Calibration dates:	28-Jul-2020	28-Jul-2020	28-Jul-2020	28-Jul-2020
After Calibration levels	**50%**	**18.00%**	**50 ppm**	**10.1 ppm**
Alarm levels (Low):	**10.00%**	**19.50%**	**35 ppm**	**10 ppm**
Alarm levels (High):	**20.00%**	**23.50%**	**200 ppm**	**20 ppm**
TWA Level :	--	--	**35 ppm**	**10 ppm**
STEL Level :	--	--	**100 ppm**	**15 ppm**

Status:

Pump Speed	**Low**	Back Light	**Manual**
Clock	**Yes**	Measure	**Average**

LEL Gas Selection

LEL Calibration Gas	**Methane**	LEL measurement Gas	**Methane**
LEL Custom Gas	**LEL_custom_gas**	LEL Custom Factor	**1.0**

Gas types used : 4-Gas Mix: (18% O2, 50ppm CO, 10ppm H2S, 50% LEL CH4, BAL N2) **Gas lot #13333090 Cyl# 18**

*** **Fresh Air Calibration** is highly recommended to proceed prior for measurement each time.

Replaced Parts:

Notes:
The unit was calibrated and checked under good working condition

**Next calibration due on or before 27 July 2021

Serviced by Teddy Wong
Rotter International Ltd

Appendix J

Landfill Gas Monitoring Data

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	1-2-2021	0830	Fine	0	0	0	20.9	18 / 1021	4.2
	1-2-2021	1330	Fine	0	0	0	20.9	25 / 1018	4.2
	1-2-2021	1700	Fine	0	0	0	20.9	22 / 1019	4.2
Area B	1-2-2021	0845	Fine	0	0	0	20.9	18 / 1021	2.5
	1-2-2021	1345	Fine	0	0	0	20.9	25 / 1018	2.5
	1-2-2021	1645	Fine	0	0	0	20.9	22 / 1019	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		1-2-2021
Laboratory Staff:			
Checked by:	Y. T. CHAN (Site supervisor)		1-2-2021

ENVIRONMENTAL RESOURCES MANAGEMENT
ENVIRONMENTAL PROTECTION DEPARTMENT

13

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.FC 4+30	1/2/2021	0855	Fine	0	0	0	20.9	19 / 1021	2.5
	1/2/2021	1355	Fine	0	0	0	20.9	24/ 1017	2.5
CH.FC 0+90	1/2/2021	0909	Fine	0	0	0	20.9	19 / 1021	2.5
	1/2/2021	1400	Fine	0	0	0	20.9	24/ 1017	2.5
P.T.C	1/2/2021	0915	Fine	0	0	0	20.9	20 / 1021	8
	1/2/2021	1415	Fine	0	0	0	20.9	24/ 1017	8
137 P.T.C	1/2/2021	0945	Fine	0	0	0	20.9	21 / 1021	7
	1/2/2021	1445	Fine	0	0	0	20.9	24/ 1017	7
137 P.T.B	1/2/2021	0955	Fine	0	0	0	20.9	21 / 1021	8.6
	1/2/2021	1455	Fine	0	0	0	20.9	24/ 1017	8.6
137 P.T.A	1/2/2021	1005	Fine	0	0	0	20.9	21 / 1021	8.7
	1/2/2021	1505	Fine	0	0	0	20.9	24/ 1017	8.7
WPR 1	1/2/2021	1015	Fine	0	0	0	20.9	22 / 1021	2.2
	1/2/2021	1515	Fine	0	0	0	20.9	23 / 1017	2.2

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		1/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	26 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WPR 2	1/12/2021	1025	Fine	0	0	0	20.9	22/ 1021	2.3
	1/12/2021	1325	Fine	0	0	0	20.9	23/ 1019	2.8
Pit A	1/12/2021	1045	Fine	0	0	0	20.9	22/ 1021	X
	1/12/2021	1345	Fine	0	0	0	20.9	22/ 1019	X
Pit B	1/12/2021	1055	Fine	0	0	0	20.9	23/ 1021	8
	1/12/2021	1355	Fine	0	0	0	20.9	22/ 1019	8
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		1/12/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	2-2-2021	0830	Fine	0	0	0	20.9	19 / 1021	4.2
	2-2-2021	1330	Fine	0	0	0	20.9	25 / 1018	4.2
	2-2-2021	1700	Fine	0	0	0	20.9	23 / 1018	4.2
Area B	2-2-2021	0845	Fine	0	0	0	20.9	19 / 1021	2.5
	2-2-2021	1345	Fine	0	0	0	20.9	25 / 1018	2.5
	2-2-2021	1645	Fine	0	0	0	20.9	23 / 1018	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		2-2-2021
Laboratory Staff:			
Checked by:	Y. T. Cheung (Site supervisor/Foreman)		2-2-2021

ENVIRONMENTAL RESOURCES MANAGEMENT — ENVIRONMENTAL PROTECTION DEPARTMENT

13

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.FC GAS	2/2/2021	0857	Fine	0	0	0	20.9	20 / 1021	2.5
	2/2/2021	1557	Fine	0	0	0	20.9	25 / 1018	2.5
CH.FC GAS	2/2/2021	0900	Fine	0	0	0	20.9	20 / 1021	2.5
	2/2/2021	1400	Fine	0	0	0	20.9	25 / 1017	2.5
Pit C	2/2/2021	0911	Fine	0	0	0	20.9	20 / 1021	8
	2/2/2021	1415	Fine	0	0	0	20.9	25 / 1017	8
137 Pit C	2/2/2021	0945	Fine	0	0	0	20.9	21 / 1021	7
	2/2/2021	1445	Fine	0	0	0	20.9	28 / 1017	7
137 Pit B	2/2/2021	0955	Fine	0	0	0	20.9	21 / 1021	8.6
	2/2/2021	1455	Fine	0	0	0	20.9	26 / 1017	8.6
137 Pit A	2/2/2021	1007	Fine	0	0	0	20.9	21 / 1021	8.3
	2/2/2021	1507	Fine	0	0	0	20.9	26 / 1017	8.3
WFR1	2/2/2021	1017	Fine	0	0	0	20.9	22 / 1021	2.2
	2/2/2021	1515	Fine	0	0	0	20.9	26 / 1017	2.2

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		2/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WP2	2/2/2021	1025	Fine	0	0	0	20.9	22/1021	2.8
	2/2/2021	1525	Fine	0	0	0	20.9	26/1017	2.8
Pit A	2/2/2021	1045	Fine	0	0	0	20.9	23/1021	5
	2/2/2021	1545	Fine	0	0	0	20.9	28/1017	5
Pit B	2/2/2021	1055	Fine	0	0	0	20.9	24/1021	8
	2/2/2021	1555	Fine	0	0	0	20.9	29/1017	8
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		2/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	3-2-2021	0830	Fine	0	0	0	20.9	17 / 1024	4.2
	3-2-2021	1330	Fine	0	0	0	20.9	21 / 1021	4.2
	3-2-2021	1700	Fine	0	0	0	20.9	19 / 1020	4.2
Area B	3-2-2021	0845	Fine	0	0	0	20.9	17 / 1024	2.5
	3-2-2021	1345	Fine	0	0	0	20.9	21 / 1021	2.5
	3-2-2021	1645	Fine	0	0	0	20.9	19 / 1020	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		3-2-2021
Laboratory Staff:			
Checked by:	Y. T. Chong (Site superintendent)		3-2-2021

ENVIRONMENTAL RESOURCES MANAGEMENT ENVIRONMENTAL PROTECTION DEPARTMENT

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Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.FC 4#5	3/2/2021	0835	Fine	0	0	0	20.9	17 / 1024	2.5
	3/2/2021	1355	Fine	0	0	0	20.9	20 / 1020	2.5
CH.FC 0#0	3/2/2021	0920	Fine	0	0	0	20.9	17 / 1024	2.5
	3/2/2021	1400	Fine	0	0	0	20.9	20 /1020	2.5
Pit C	3/2/2021	0915	Fine	0	0	0	20.9	17 / 1024	8
	3/2/2021	1415	Fine	0	0	0	20.9	20 / 1020	8
191 Pit C	3/2/2021	0945	Fine	0	0	0	20.9	17 / 1024	3
	3/2/2021	1445	Fine	0	0	0	20.9	20 / 1020	3
191 Pit B	3/2/2021	0955	Fine	0	0	0	20.9	18 / 1024	8.6
	3/2/2021	1455	Fine	0	0	0	20.9	20 / 1020	8.6
191 Pit A	3/2/2021	1005	Fine	0	0	0	20.9	18 / 1024	8.3
	3/2/2021	1505	Fine	0	0	0	20.9	20 / 1020	8.3
WPE1	3/2/2021	1015	Fine	0	0	0	20.9	18 / 1024	0.6
	3/2/2021	1515	Fine	0	0	0	20.9	20 / 1020	0.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		3/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WP2	3/2/2021	1025	Fine	0	0	0	20.9	18 / 1024	2.8
	3/2/2021	1525	Fine	0	0	0	20.9	20 / 1020	2.8
P.T.A	3/2/2021	1048	Fine	0	0	0	20.9	18 / 1024	3
	3/2/2021	1545	Fine	0	0	0	20.9	20 / 1020	3
P.T.B	3/2/2021	1055	Fine	0	0	0	20.9	18 / 1024	8
	3/2/2021	1555	Fine	0	0	0	20.9	20 / 1020	8
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		3/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	4-2-2021	0830	Fine	0	0	0	20.9	18 / 1024	4.2
	4-2-2021	1330	Fine	0	0	0	20.9	23 / 1021	4.2
	4-2-2021	1700	Fine	0	0	0	20.9	21 / 1020	4.2
Area B	4-2-2021	0845	Fine	0	0	0	20.9	18 / 1024	2.5
	4-2-2021	1345	Fine	0	0	0	20.9	23 / 1021	2.5
	4-2-2021	1645	Fine	0	0	0	20.9	21 / 1020	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		4-2-2021
Laboratory Staff:			
Checked by:	T. T. Chung (Site Superintendent) TC		4-2-2021

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.Fc 4#5	4/2/2021	0855	Fine	0	0	0	20.9	18 / 1024	2.8
	4/2/2021	1355	Fine	0	0	0	20.9	23 / 1020	2.5
CH.Fc 6#10	4/2/2021	0900	Fine	0	0	0	20.9	18 / 1024	2.5
	4/2/2021	1400	Fine	0	0	0	20.9	23 / 1020	2.5
Pit C	4/2/2021	0915	Fine	0	0	0	20.9	18 / 1024	8
	4/2/2021	1415	Fine	0	0	0	20.9	23 / 1020	8
137 Pit C	4/2/2021	0925	Fine	0	0	0	20.9	19 / 1024	3
	4/2/2021	1425	Fine	0	0	0	20.9	23 / 1020	3
137 Pit B	4/2/2021	0935	Fine	0	0	0	20.9	19 / 1024	8.6
	4/2/2021	1435	Fine	0	0	0	20.9	23 / 1020	8.6
137 Pit A	4/2/2021	1005	Fine	0	0	0	20.9	20 / 1024	8.7
	4/2/2021	1505	Fine	0	0	0	20.9	23 / 1020	8.7
WPR1	4/2/2021	1015	Fine	0	0	0	20.9	20 / 1024	0.6
	4/2/2021	1515	Fine	0	0	0	20.9	23 / 1020	0.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		4/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WPR2	4/2/2021	1021	Fine	0	0	0	20.9	20/1024	2.8
	4/2/2021	1524	Fine	0	0	0	20.9	23/1020	2.8
Pit A	4/2/2021	1048	Fine	0	0	0	20.9	21/1024	Y
	4/2/2021	1543	Fine	0	0	0	20.9	22/1020	Y
Pit B	4/2/2021	1055	Fine	0	0	0	20.9	21/1024	8
	4/2/2021	1535	Fine	0	0	0	20.9	22/1020	8
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		4/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	5-2-2021	0830	Fine	0	0	0	20.9	18 / 1022	4.2
	5-2-2021	1330	Fine	0	0	0	20.9	22 / 1020	4.2
	5-2-2021	1709	Fine	0	0	0	20.9	22/ 1018	4.2
Area B	5-2-2021	0845	Fine	0	0	0	20.9	18 / 1022	2.5
	5-2-2021	1347	Fine	0	0	0	20.9	22/ 1020	2.5
	5-2-2021	1645	Fine	0	0	0	20.9	22/ 1018	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		5-2-2021
Laboratory Staff:			
Checked by:	Y. T. (Ronnie) (Site superintendent)		5-2-2021

ENVIRONMENTAL RESOURCES MANAGEMENT

ENVIRONMENTAL PROTECTION DEPARTMENT

13

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CHFC4T8	5/2/2021	0855	Fine	0	0	0	20.9	18/1022	2.5
	5/2/2021	1355	Fine	0	0	0	20.9	22/1019	2.5
CH.FC 0480	5/2/2021	0900	Fine	0	0	0	20.9	18/1022	2.5
	5/2/2021	1400	Fine	0	0	0	20.9	22/1019	2.5
P.T C	5/2/2021	0911	Fine	0	0	0	20.9	18/1022	8
	5/2/2021	1411	Fine	0	0	0	20.9	22/1019	8
137 P.T C	5/2/2021	0945	Fine	0	0	0	20.9	19/1022	3
	5/2/2021	1445	Fine	0	0	0	20.9	22/1018	3
137 P.T B	5/2/2021	0955	Fine	0	0	0	20.9	19/1022	8.6
	5/2/2021	1455	Fine	0	0	0	20.9	22/1018	8.6
137 P.T A	5/2/2021	1005	Fine	0	0	0	20.9	20/1022	8.3
	5/2/2021	1505	Fine	0	0	0	20.9	23/1018	8.3
WPR 7	5/2/2021	1015	Fine	0	0	0	20.9	20/1022	0.6
	5/2/2021	1515	Fine	0	0	0	20.9	23/1018	0.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		5/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
W12	3/12/2021	1025	Fine	0	0	0	20.4	28/ 1022	2.8
	3/12/2021	1525	Fine	0	0	0	20.5	27/ 1018	2.8
P1+A	3/12/2021	1045	Fine	0	0	0	20.4	27/ 1022	3
	3/12/2021	1545	Fine	0	0	0	20.4	27/ 1018	3
P1+B	3/12/2021	1035	Fine	0	0	0	20.4	27/ 1022	8
	3/12/2021	1535	Fine	0	0	0	20.4	27/ 1018	8
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		3/12/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	6-2-2021	0830	Fine	0	0	0	20.9	19 / 1020	4.2
	6-2-2021	1330	Fine	0	0	0	20.9	25 / 1018	4.2
	6-2-2021	1700	Fine	0	0	0	20.9	24 / 1015	4.2
Area B	6-2-2021	0845	Fine	0	0	0	20.9	19 / 1020	2.5
	6-2-2021	1345	Fine	0	0	0	20.9	25 / 1018	2.5
	6-2-2021	1645	Fine	0	0	0	20.9	24 / 1015	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		6-2-2021
Laboratory Staff:			
Checked by:	Y.T. (MWG (Site Superintendent))		6-2-2021

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.FC 4#50	6/2/2021	0855	Fine	0	0	0	20.9	18/1020	2.5
	6/2/2021	1355	Fine	0	0	0	20.9	24/1019	2.5
CH.FC 0#91	6/2/2021	0900	Fine	0	0	0	20.9	18/1020	2.5
	6/2/2021	1400	Fine	0	0	0	20.9	24/1019	2.5
Pit C	6/2/2021	0915	Fine	0	0	0	20.9	19/1020	8
	6/2/2021	1415	Fine	0	0	0	20.9	24/1019	8
137 Pit C	6/2/2021	0845	Fine	0	0	0	20.9	20/1020	5
	6/2/2021	1445	Fine	0	0	0	20.9	24/1016	5
137 Pit B	6/2/2021	0855	Fine	0	0	0	20.9	20/1020	8.6
	6/2/2021	1455	Fine	0	0	0	20.9	24/1015	8.6
137 Pit A	6/2/2021	1908	Fine	0	0	0	20.9	21/1020	8.3
	6/2/2021	1505	Fine	0	0	0	20.9	24/1015	8.3
WTP 1	6/2/2021	1015	Fine	0	0	0	20.9	22/1020	0.6
	6/2/2021	1515	Fine	0	0	0	20.9	24/1015	0.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		6/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WPR2	6/12/2021	1025	Fine	0	0	0	20.9	22/1020	2.8
	6/12/2021	1525	Fine	0	0	0	20.9	24/1015	2.8
WPR3	6/12/2021	1035	Fine	0	0	0	20.9	23/1020	2.8
	6/12/2021	1535	Fine	0	0	0	20.9	24/1015	2.8
P.T F1	6/12/2021	1045	Fine	0	0	0	20.9	23/1020	≤
	6/12/2021	1545	Fine	0	0	0	20.9	24/1015	≤
P.T G	6/12/2021	1055	Fine	0	0	0	20.9	23/1020	≤
	6/12/2021	1555	Fine	0	0	0	20.9	24/1015	≤
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		6/12/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	8-2-2021	0830	Fine	0	0	0	20.9	17 / 1020	4.2
	8-2-2021	1330	Fine	0	0	0	20.9	21 / 1018	4.2
	8-2-2021	1700	Fine	0	0	0	20.9	20 / 1018	4.2
Area B	8-2-2021	0845	Fine	0	0	0	20.9	17 / 1020	2.5
	8-2-2021	1345	Fine	0	0	0	20.9	21 / 1018	2.5
	8-2-2021	1645	Fine	0	0	0	20.9	20 / 1018	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RencPipe])		8-2-2021
Laboratory Staff:			
Checked by:	Y. T. Chan (Site superintendent)		8-2-2021

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.Fc 4#30	8/2/2021	0855	Fine	0	0	0	20.9	18 / 1020	2.5
	8/2/2021	1355	Fine	0	0	0	20.9	22 / 1018	2.5
CH.Fc 0#40	8/2/2021	0900	Fine	0	0	0	20.9	18 / 1020	2.5
	8/2/2021	1400	Fine	0	0	0	20.9	22 / 1018	2.5
P.F C	8/2/2021	0911	Fine	0	0	0	20.9	18 / 1020	8
	8/2/2021	1411	Fine	0	0	0	20.9	21 / 1018	8
137 P.F C	8/2/2021	0945	Fine	0	0	0	20.9	19 / 1020	5
	8/2/2021	1445	Fine	0	0	0	20.9	21 / 1018	5
137 P.F B	8/2/2021	0955	Fine	0	0	0	20.9	19 / 1020	8.6
	8/2/2021	1455	Fine	0	0	0	20.9	21 / 1018	8.6
137 P.F A	8/2/2021	1005	Fine	0	0	0	20.9	19 / 1020	8.3
	8/2/2021	1505	Fine	0	0	0	20.9	21 / 1018	8.3
WPR 1	8/2/2021	1015	Fine	0	0	0	20.9	19 / 1020	0.6
	8/2/2021	1515	Fine	0	0	0	20.9	21 / 1018	0.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		8/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WR 2	8/2/2021	1027	Fine	0	0	0	20.9	19/1020	2.8
	8/2/2021	1527	Fine	0	0	0	20.9	21/1018	2.8
WR 3	8/2/2021	1537	Fine	0	0	0	20.9	20/1020	2.8
	8/2/2021	1547	Fine	0	0	0	20.9	21/1018	2.8
Pit A	8/2/2021	1049	Fine	0	0	0	20.9	20/1020	X
	8/2/2021	1545	Fine	0	0	0	20.9	21/1018	Y
Pit B	8/2/2021	1057	Fine	0	0	0	20.9	20/1020	8
	8/2/2021	1555	Fine	0	0	0	20.9	21/1018	8
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		8/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	9-2-2021	0830	Fine	0	0	0	20.9	18 / 1019	4.2
	9-2-2021	1330	Fine	0	0	0	20.9	18 / 1017	4.2
	9-2-2021	1700	Fine	0	0	0	20.9	18 / 1015	4.2
Area B	9-2-2021	0845	Fine	0	0	0	20.9	18 / 1019	2.5
	9-2-2021	1345	Fine	0	0	0	20.9	18 / 1017	2.5
	9-2-2021	1645	Fine	0	0	0	20.9	18 / 1015	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		9-2-2021
Laboratory Staff:			
Checked by:	Y. T. Cheung (Site Supervisor)		9-2-2021

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CHFC 4+50	9/2/2021	0855	Fine	0	0	0	20.9	18 / 1019	2.5
	9/2/2021	1355	Fine	0	0	0	20.9	18 / 1016	2.5
CHFC 0+90	9/2/2021	0900	Fine	0	0	0	20.9	18 / 1019	2.5
	9/2/2021	1400	Fine	0	0	0	20.9	18 / 1016	2.5
Pit C	9/2/2021	0915	Fine	0	0	0	20.9	18 / 1019	8
	9/2/2021	1417	Fine	0	0	0	20.9	18 / 1016	8
137 Pit C	9/2/2021	0945	Fine	0	0	0	20.9	18 / 1020	5
	9/2/2021	1445	Fine	0	0	0	20.9	18 / 1015	5
137 Pit B	9/2/2021	0955	Fine	0	0	0	20.9	18 / 1020	8.6
	9/2/2021	1455	Fine	0	0	0	20.9	18 / 1015	8.6
137 Pit A	9/2/2021	1005	Fine	0	0	0	20.9	18 / 1020	8.3
	9/2/2021	1505	Fine	0	0	0	20.9	18 / 1015	8.3
WPE 1	9/2/2021	1015	Fine	0	0	0	20.9	18 / 1020	0.6
	9/2/2021	1515	Fine	0	0	0	20.9	18 / 1015	0.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		9/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WRR 2	9/2/2024	1025	Fine	0	0	0	20.9	18 / 1020	2.8
	9/2/2024	1525	Fine	0	0	0	20.9	18 / 1015	2.8
WRR 3	9/2/2024	1035	Fine	0	0	0	20.9	18 / 1020	2.8
	9/2/2024	1535	Fine	0	0	0	20.9	18 / 1015	2.8
Pit A	9/2/2024	1045	Fine	0	0	0	20.9	18 / 1020	5
	9/2/2024	1545	Fine	0	0	0	20.9	18 / 1015	5
Pit B	9/2/2024	1055	Fine	0	0	0	20.9	18 / 1020	8
	9/2/2024	1555	Fine	0	0	0	20.9	18 / 1015	8
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		9/2/2024
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	10-2-2021	0830	Rain	0	0	0	20.9	15 / 1014	4.2
	10-2-2021	1330	Fine	0	0	0	20.9	16 / 1013	4.2
	10-2-2021	1700	Fine	0	0	0	20.9	15 / 1013	4.2
Area B	10-2-2021	0845	Rain	0	0	0	20.9	15 / 1014	2.5
	10-2-2021	1345	Fine	0	0	0	20.9	16 / 1013	2.5
	10-2-2021	1645	Fine	0	0	0	20.9	15 / 1013	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		10-2-2021
Laboratory Staff:			
Checked by:	Y. T. CHONG (Site Superintendent)		10-2-2021

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	26 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.FC 4+30	10/2/2021	0855	Rain	0	0	0	20.9	15/1014	2.5
	10/2/2021	1355	Fine	0	0	0	20.9	16/1013	2.5
CH.FC 0+90	10/2/2021	0908	Rain	0	0	0	20.9	15/1014	2.5
	10/2/2021	1400	Fine	0	0	0	20.9	16/1013	2.5
Pit C	10/2/2021	0915	Rain	0	0	0	20.9	15/1014	8
	10/2/2021	1415	Fine	0	0	0	20.9	16/1012	8
137 Pit C	10/2/2021	0945	Rain	0	0	0	20.9	15/1015	7
	10/2/2021	1445	Fine	0	0	0	20.9	16/1012	7
137 Pit B	10/2/2021	0957	Rain	0	0	0	20.9	15/1015	8.6
	10/2/2021	1455	Fine	0	0	0	20.9	16/1012	8.6
137 Pit A	10/2/2021	1005	Rain	0	0	0	20.9	15/1015	8.3
	10/2/2021	1505	Fine	0	0	0	20.9	16/1012	8.3
WPR 1	10/2/2021	1015	Rain	0	0	0	20.9	15/1015	0.6
	10/2/2021	1515	Fine	0	0	0	20.9	16/1012	0.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		10/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WPR 2	10/12/2024	1027	Rain	0	0	0	20.9	15/1015	2.8
	10/12/2024	1325	Fine	0	0	0	20.9	16/1012	2.8
WPR 7	10/12/2024	1029	Rain	0	0	0	20.9	15/1015	2.8
	10/12/2024	1326	Fine	0	0	0	20.9	16/1012	2.8
Pit A	10/12/2024	1043	Rain	0	0	0	20.9	15/1015	5
	10/12/2024	1342	Fine	0	0	0	20.9	16/1012	5
Pit B	10/12/2024	1055	Rain	0	0	0	20.9	15/1015	8
	10/12/2024	1355	Fine	0	0	0	20.9	16/1015	8
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		10/12/2024
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	17-2-2021	0830	Fine	0	0	0	20.9	18 / 1020	4.2
	17-2-2021	1330	Fine	0	0	0	20.9	22 / 1019	4.2
	17-2-2021	1700	Fine	0	0	0	20.9	21 / 1019	4.2
Area B	17-2-2021	0845	Fine	0	0	0	20.9	18 / 1020	2.5
	17-2-2021	1345	Fine	0	0	0	20.9	22 / 1019	2.5
	17-2-2021	1645	Fine	0	0	0	20.9	21 / 1019	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		17-2-2021
Laboratory Staff:	W.C. Leung (Assistant Foreman)		17-2-2021
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CHFC 4750	17/2/2021	0855	Fine	0	0	0	20.9	18 / 1020	2.5
	17/2/2021	1355	Fine	0	0	0	20.9	23 / 1019	2.5
CHFC 0750	17/2/2021	0905	Fine	0	0	0	20.9	18 / 1020	2.5
	17/2/2021	1408	Fine	0	0	0	20.9	23 / 1019	2.5
Pit C	17/2/2021	0915	Fine	0	0	0	20.9	18 / 1021	8
	17/2/2021	1415	Fine	0	0	0	20.9	23 / 1019	8
137 Pit C	17/2/2021	0925	Fine	0	0	0	20.9	19 / 1021	5
	17/2/2021	1425	Fine	0	0	0	20.9	23 / 1019	5
137 Pit B	17/2/2021	0935	Fine	0	0	0	20.9	19 / 1021	8.6
	17/2/2021	1435	Fine	0	0	0	20.9	23 / 1019	8.6
137 Pit A	17/2/2021	1005	Fine	0	0	0	20.9	19 / 1021	8.3
	17/2/2021	1507	Fine	0	0	0	20.9	23 / 1019	8.3
WPC-1	17/2/2021	1015	Fine	0	0	0	20.9	19 / 1021	0.6
	17/2/2021	1515	Fine	0	0	0	20.9	23 / 1019	0.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		17/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WPL 2	17/12/2021	1027	Fine	0	0	0	20.9	20 / 1024	2.8
	17/12/2021	1327	Fine	0	0	0	20.9	23 / 1019	2.8
WPL 3	17/12/2021	1035	Fine	0	0	0	20.9	20 / 1024	2.8
	17/12/2021	1335	Fine	0	0	0	20.9	23 / 1019	2.8
Pit A	17/12/2021	1042	Fine	0	0	0	20.9	20 / 1024	5
	17/12/2021	1342	Fine	0	0	0	20.9	22 / 1019	5
Pit B	17/12/2021	1052	Fine	0	0	0	20.9	20 / 1020	8
	17/12/2021	1352	Fine	0	0	0	20.9	22 / 1019	8
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		17/12/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	18-2-2021	0830	Fine	0	0	0	20.9	17 / 1026	4.2
	18-2-2021	1330	Fine	0	0	0	20.9	20 / 1024	4.2
	18-2-2021	1730	Fine	0	0	0	20.9	19 / 1023	4.2
Area B	18-2-2021	0845	Fine	0	0	0	20.9	17 / 1026	2.5
	18-2-2021	1345	Fine	0	0	0	20.9	20 / 1024	2.5
	18-2-2021	1745	Fine	0	0	0	20.9	19 / 1023	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		18-2-2021
Laboratory Staff:	W.C. Leung (Assistant Foreman)		18-2-2021
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CHFC 4450	18/1/2021	0853	Fine	0	0	0	20.9	17 / 1026	2.5
	18/2/2021	1355	Fine	0	0	0	20.9	21 / 1024	2.5
CH.FC 0440	18/2/2021	0920	Fine	0	0	0	20.9	17 / 1026	2.5
	18/2/2021	1403	Fine	0	0	0	20.9	21 / 1024	2.5
P.T C	18/2/2021	0915	Fine	0	0	0	20.9	17 / 1027	8
	18/2/2021	1415	Fine	0	0	0	20.9	21 / 1023	8
137 Pit C	18/2/2021	0925	Fine	0	0	0	20.9	18 / 1027	8
	18/2/2021	1425	Fine	0	0	0	20.9	20 / 1023	8
137 Pit B	18/2/2021	0935	Fine	0	0	0	20.9	18 / 1027	8.6
	18/2/2021	1435	Fine	0	0	0	20.9	20 / 1023	8.6
137 Pit A	18/2/2021	1005	Fine	0	0	0	20.9	18 / 1027	8.7
	18/2/2021	1507	Fine	0	0	0	20.9	20 / 1023	8.7
WPI	18/2/2021	1015	Fine	0	0	0	20.9	18 / 1027	0.6
	18/2/2021	1515	Fine	0	0	0	20.9	20 / 1023	0.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		18/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring – Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WPR 2	18/2/2021	1027	Fine	0	0	0	20.9	19/1027	2.8
	18/2/2021	1527	Fine	0	0	0	20.9	20/1027	2.8
WPR 7	18/2/2021	1037	Fine	0	0	0	20.9	19/1027	2.8
	18/2/2021	1535	Fine	0	0	0	20.9	20/1027	2.8
Pit 14	18/2/2021	1045	Fine	0	0	0	20.9	19/1027	X
	18/2/2021	1545	Fine	0	0	0	20.9	20/1027	X
Pit 8	18/2/2021	1057	Fine	0	0	0	20.9	20/1027	8
	18/2/2021	1555	Fine	0	0	0	20.9	20/1027	8
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RencPipe])		18/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	19-2-2021	0830	Fine	0	0	0	20.9	16 / 1026	4.2
	19-2-2021	1330	Fine	0	0	0	20.9	21 / 1023	4.2
	19-2-2021	1700	Fine	0	0	0	20.9	20 / 1022	4.2
Area B	19-2-2021	0845	Fine	0	0	0	20.9	16 / 1026	2.5
	19-2-2021	1345	Fine	0	0	0	20.9	21 / 1023	2.5
	19-2-2021	1695	Fine	0	0	0	20.9	20 / 1022	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		19-2-2021
Laboratory Staff:	W.C. Leung (Assistant Foreman)		19-2-2021
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
MHC 4750	19/2/2024	0855	Fine	0	0	0	20.9	16 / 1026	2.Y
	19/2/2024	1355	Fine	0	0	0	20.9	21 / 1022	2.Y
CH.Fc 0745	19/2/2024	0900	Fine	0	0	0	20.9	16 / 1026	2.5
	19/2/2024	1400	Fine	0	0	0	20.9	21 / 1022	2.5
Pit C	19/2/2024	0915	Fine	0	0	0	20.9	17 / 1026	8
	19/2/2024	1415	Fine	0	0	0	20.9	21 / 1022	8
137 Pit C	19/2/2024	0945	Fine	0	0	0	20.9	17 / 1026	Y
	19/2/2024	1445	Fine	0	0	0	20.9	21 / 1022	Y
137 Pit B	19/2/2024	0955	Fine	0	0	0	20.9	17 / 1026	3.6
	19/2/2024	1455	Fine	0	0	0	20.9	21 / 1022	3.6
137 Pit A	19/2/2024	1005	Fine	0	0	0	20.9	17 / 1026	3.3
	19/2/2024	1505	Fine	0	0	0	20.9	21 / 1021	3.3
WP2 1	19/2/2024	1015	Fine	0	0	0	20.9	18 / 1026	0.6
	19/2/2024	1515	Fine	0	0	0	20.9	21 / 1024	0.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		19/2/2024
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WPR 2	19/2/2021	1025	Fine	0	0	0	20.9	18 / 1026	2.8
	19/2/2021	1525	Fine	0	0	0	20.9	21 / 1021	2.8
WPR 3	19/2/2021	1035	Fine	0	0	0	20.9	18 / 1026	2.8
	19/2/2021	1535	Fine	0	0	0	20.9	21 / 1021	2.8
Pit A	19/2/2021	1045	Fine	0	0	0	20.9	18 / 1026	Y
	19/2/2021	1545	Fine	0	0	0	20.9	21 / 1021	Y
Pit B	19/2/2021	1055	Fine	0	0	0	20.9	18 / 1026	8
	19/2/2021	1555	Fine	0	0	0	20.9	21 / 1021	8
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		19/2/2021

Laboratory Staff:

Checked by:

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	20-2-2021	0830	Fine	0	0	0	20.9	17 / 1022	4.2
	20-2-2021	1330	Fine	0	0	0	20.9	23 / 1019	4.2
	20-2-2021	1700	Fine	0	0	0	20.9	21 / 1018	4.2
Area B	20-2-2021	0845	Fine	0	0	0	20.9	17 / 1022	2.5
	20-2-2021	1345	Fine	0	0	0	20.9	23 / 1019	2.5
	20-2-2021	1645	Fine	0	0	0	20.9	21 / 1018	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		20-2-2021
Laboratory Staff:	W.C. Leung (Assistant Foreman)		20-2-2021
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.FC 4#50	20/2/2024	0855	Fine	0	0	0	20.9	18/1022	2.5
	20/2/2024	1355	Fine	0	0	0	20.9	22/1019	2.5
CH.FC 0#40	20/2/2024	0930	Fine	0	0	0	20.9	18/1022	2.5
	20/2/2024	1405	Fine	0	0	0	20.9	22/1019	2.5
P.F.C	20/2/2024	0915	Fine	0	0	0	20.9	18/1022	8
	20/2/2024	1415	Fine	0	0	0	20.9	22/1019	8
137 P.F.C	20/2/2024	0945	Fine	0	0	0	20.9	19/1022	5
	20/2/2024	1445	Fine	0	0	0	20.9	22/1018	5
137 P.F.B	20/2/2024	0935	Fine	0	0	0	20.9	19/1022	8.6
	20/2/2024	1455	Fine	0	0	0	20.9	22/1018	8.6
137 P.F.A	20/2/2024	1005	Fine	0	0	0	20.9	19/1022	8.3
	20/2/2024	1505	Fine	0	0	0	20.9	22/1018	8.3
WVR 1	20/2/2024	1015	Fine	0	0	0	20.9	20/1022	0.6
	20/2/2024	1515	Fine	0	0	0	20.9	22/1018	0.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		20/2/2024
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WPR 2	20/12/2024	1025	Fine	0	0	0	20.9	20 / 1022	2.8
	20/12/2024	1525	Fine	0	0	0	20.9	22 / 1018	2.8
WPR 3	20/12/2024	1035	Fine	0	0	0	20.9	20 / 1022	2.8
	20/12/2024	1535	Fine	0	0	0	20.9	22 / 1018	2.8
Pit A	20/12/2024	1045	Fine	0	0	0	20.9	20 / 1022	5
	20/12/2024	1545	Fine	0	0	0	20.9	22 / 1018	5
Pit B	20/12/2024	1055	Fine	0	0	0	20.9	21 / 1022	8
	20/12/2024	1555	Fine	0	0	0	20.9	22 / 1018	8
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		20/12/2024
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (CRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	22-2-2021	0830	Fine	0	0	0	20.9	19 / 1017	4.2
	22-2-2021	1330	Fine	0	0	0	20.9	24 / 1015	4.2
	22-2-2021	1700	Fine	0	0	0	20.9	24 / 1014	4.2
Area B	22-2-2021	0845	Fine	0	0	0	20.9	19 / 1017	2.5
	22-2-2021	1345	Fine	0	0	0	20.9	24 / 1015	2.5
	22-2-2021	1645	Fine	0	0	0	20.9	24 / 1014	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		22-2-2021
Laboratory Staff:			
Checked by:	C-Fchan (Foreman)		22-2-2021

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CHFC 4450	22/2/2021	0855	Fine	0	0	0	20.9	20 / 1017	2.5
	22/2/2021	1355	Fine	0	0	0	20.9	25/1015	2.5
CHFC 0440	22/2/2021	0900	Fine	0	0	0	20.9	20 / 1017	2.5
	22/2/2021	1405	Fine	0	0	0	20.9	25/1014	2.5
P.T.C	22/2/2021	0915	Fine	0	0	0	20.9	20 / 1017	8
	22/2/2021	1415	Fine	0	0	0	20.9	25/1014	8
131 Pit C	22/2/2021	0945	Fine	0	0	0	20.9	21 /1017	7
	22/2/2021	1445	Fine	0	0	0	20.9	24/1014	7
131 Pit B	22/2/2021	0955	Fine	0	0	0	20.9	21/1017	8.6
	22/2/2021	1455	Fine	0	0	0	20.9	24/1014	8.6
131 Pit A	22/2/2021	1005	Fine	0	0	0	20.9	22/1017	8.3
	22/2/2021	1505	Fine	0	0	0	20.9	24/1014	8.3
WPR 1	22/2/2021	1015	Fine	0	0	0	20.9	22/1017	0.6
	22/2/2021	1515	Fine	0	0	0	20.9	24/1014	0.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		22/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WR 2	22/2/2021	1025	Fine	0	0	0	20.9	22/1017	2.8
	22/2/2021	1525	Fine	0	0	0	20.9	24/1014	2.8
WR 3	22/2/2021	1035	Fine	0	0	0	20.9	22/1017	2.8
	22/2/2021	1535	Fine	0	0	0	20.9	24/1014	2.8
Pit A	22/2/2021	1045	Fine	0	0	0	20.9	23/1017	5
	22/2/2021	1545	Fine	0	0	0	20.9	24/1014	5
Pit B	22/2/2021	1055	Fine	0	0	0	20.9	23/1017	8
	22/2/2021	1555	Fine	0	0	0	20.9	24/1014	8
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		22/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	23-2-2021	0830	Fine	0	0	0	20.9	20 / 1016	4.2
	23-2-2021	1330	Fine	0	0	0	20.9	24 / 1014	4.2
	23-2-2021	1700	Fine	0	0	0	20.9	22 / 1013	4.2
Area B	23-2-2021	0845	Fine	0	0	0	20.9	20 / 1016	2.5
	23-2-2021	1345	Fine	0	0	0	20.9	24 / 1014	2.5
	23-2-2021	1645	Fine	0	0	0	20.9	22 / 1013	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		23-2-2021
Laboratory Staff:			
Checked by:	C. Fu Chau (Foreman)		23-2-2021

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.FC 4,5,8	23/2/2024	0855	Fine	0	0	0	20.9	21/1017	2.5
	23/2/2024	1355	Fine	0	0	0	20.9	25/1014	2.5
CH.FC 9,10	23/2/2024	0900	Fine	0	0	0	20.9	21/1017	2.5
	23/2/2024	1400	Fine	0	0	0	20.9	24/1014	2.5
Pit C	23/2/2024	0915	Fine	0	0	0	20.9	21/1017	8
	23/2/2024	1415	Fine	0	0	0	20.9	24/1014	8
137 Pit C	23/2/2024	0945	Fine	0	0	0	20.9	22/1017	7
	23/2/2024	1445	Fine	0	0	0	20.9	24/1015	7
137 Pit B	23/2/2024	0955	Fine	0	0	0	20.9	22/1017	8.6
	23/2/2024	1455	Fine	0	0	0	20.9	24/1015	8.6
137 Pit A	23/2/2024	1005	Fine	0	0	0	20.9	23/1017	8.3
	23/2/2024	1505	Fine	0	0	0	20.9	24/1015	8.3
WPR1	23/2/2024	1015	Fine	0	0	0	20.9	23/1017	0.6
	23/2/2024	1515	Fine	0	0	0	20.9	24/1015	0.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		23/2/2024
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WPR 2	23/2/2021	1025	Fine	0	0	0	20.9	23/1019	2.8
	23/2/2021	1325	Fine	0	0	0	20.9	23/1019	2.8
WPR 3	23/2/2021	1035	Fine	0	0	0	20.9	24/1019	2.8
	23/2/2021	1335	Fine	0	0	0	20.9	23/1019	2.8
Pit A	23/2/2021	1045	Fine	0	0	0	20.9	24/1019	X
	23/2/2021	1345	Fine	0	0	0	20.9	23/1019	X
Pit B	23/2/2021	1055	Fine	0	0	0	20.9	24/1019	X
	23/2/2021	1355	Fine	0	0	0	20.9	23/1019	X
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		23/2/2021

Laboratory Staff:

Checked by:

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	24-2-2021	0830	Fine	0	0	0	20.9	18 / 1016	4.2
	24-2-2021	1330	Fine	0	0	0	20.9	20 / 1014	4.2
	24-2-2021	1700	Fine	0	0	0	20.9	20 / 1012	4.2
Area B	24-2-2021	0845	Fine	0	0	0	20.9	18 / 1016	3.5
	24-2-2021	1345	Fine	0	0	0	20.9	20 / 1014	2.5
	24-2-2021	1645	Fine	0	0	0	20.9	20 / 1012	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		24-2-2021
Laboratory Staff:			
Checked by:	C.F. Chan (Foreman)		24-2-2021

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CHFC 4#8	24/2/2021	0855	Fine	0	0	0	20.9	18 / 1016	2.5
	24/2/2021	1755	Fine	0	0	0	20.9	21 / 1014	2.5
CHFC 0#9	24/2/2021	0909	Fine	0	0	0	20.9	18 / 1016	2.5
	24/2/2021	1400	Fine	0	0	0	20.9	21 / 1014	2.5
Pit C	24/2/2021	0915	Fine	0	0	0	20.9	18 / 1016	8
	24/2/2021	1417	Fine	0	0	0	20.9	22 / 1014	8
137 Pit C	24/2/2021	0945	Fine	0	0	0	20.9	19 / 1016	7
	24/2/2021	1445	Fine	0	0	0	20.9	22 / 1014	7
137 Pit B	24/2/2021	0955	Fine	0	0	0	20.9	19 / 1016	8.6
	24/2/2021	1455	Fine	0	0	0	20.9	22 / 1014	8.6
137 Pit A	24/2/2021	1005	Fine	0	0	0	20.9	20 / 1016	8.7
	24/2/2021	1505	Fine	0	0	0	20.9	22 / 1015	8.7
WPR 1	24/2/2021	1015	Fine	0	0	0	20.9	20 / 1017	8.6
	24/2/2021	1515	Fine	0	0	0	20.9	22 / 1012	8.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		24/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WPR 2	24/2/2021	1025	Fine	0	0	0	20.9	19/1017	2.8
	24/2/2021	1527	Fine	0	0	0	20.9	22/1012	2.8
WPR 3	24/2/2021	1035	Fine	0	0	0	20.9	19/1017	2.8
	24/2/2021	1535	Fine	0	0	0	20.9	22/1012	2.8
Pit A	24/2/2021	1045	Fine	0	0	0	20.9	19/1017	X
	24/2/2021	1547	Fine	0	0	0	20.9	21/1012	X
Pit B	24/2/2021	1057	Fine	0	0	0	20.9	19/1017	8
	24/2/2021	1553	Fine	0	0	0	20.9	21/1012	8
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		24/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	25-2-2021	0830	Fine	0	0	0	20.9	18 / 1017	4.2
	25-2-2021	1330	Fine	0	0	0	20.9	21 / 1010	4.2
	25-2-2021	1700	Fine	0	0	0	20.9	20 / 1009	4.2
Area B	25-2-2021	0845	Fine	0	0	0	20.9	18 / 1017	2.5
	25-2-2021	1345	Fine	0	0	0	20.9	21 / 1010	2.5
	25-2-2021	1645	Fine	0	0	0	20.9	20 / 1009	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RencPipe])		25-2-2021
Laboratory Staff:			
Checked by:	C. Tachan (Foreman)		25-2-2021

ENVIRONMENTAL RESOURCES MANAGEMENT ENVIRONMENTAL PROTECTION DEPARTMENT

13

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.Fc 4#5	25/2/2024	0855	Fine	0	0	0	20.9	18 / 1017	2.5
	25/2/2024	1355	Fine	0	0	0	20.9	21 / 1016	2.5
CH.Fc of#3	25/2/2024	0900	Fine	0	0	0	20.9	18 / 1017	2.5
	25/2/2024	1400	Fine	0	0	0	20.9	21 / 1016	2.5
Pit C	25/2/2024	0915	Fine	0	0	0	20.9	18 / 1017	8
	25/2/2024	1415	Fine	0	0	0	20.9	21 / 1016	8
191 Pit C	25/2/2024	0940	Fine	0	0	0	20.9	18 / 1014	7
	25/2/2024	1445	Fine	0	0	0	20.9	21 / 1010	7
191 Pit B	25/2/2024	0935	Fine	0	0	0	20.9	18 / 1014	8.6
	25/2/2024	1455	Fine	0	0	0	20.9	21 / 1010	8.6
191 Pit A	25/2/2024	1005	Fine	0	0	0	20.9	18 / 1014	8.3
	25/2/2024	1505	Fine	0	0	0	20.9	21 / 1010	8.3
WPR1	25/2/2024	1015	Fine	0	0	0	20.9	18 / 1014	0.6
	25/2/2024	1515	Fine	0	0	0	20.9	21 / 1009	0.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		25/2/2024
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WPR 2	25/2/2021	1025	Fine	0	0	0	20.9	18/1014	2.8
	25/2/2021	1525	Fine	0	0	0	20.9	21/1009	2.8
WPR 3	25/2/2021	1035	Fine	0	0	0	20.9	18/1014	2.8
	25/2/2021	1535	Fine	0	0	0	20.9	21/1009	2.8
Pit A	25/2/2021	1045	Fine	0	0	0	20.9	18/1014	5
	25/2/2021	1545	Fine	0	0	0	20.9	21/1009	5
Pit B	25/2/2021	1055	Fine	0	0	0	20.9	18/1014	8
	25/2/2021	1555	Fine	0	0	0	20.9	21/1009	8
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		25/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	26-2-2021	0820	Fine	0	0	0	20.9	21 / 1011	4.2
	26-2-2021	1330	Fine	0	0	0	20.9	24 / 1004	4.2
	26-2-2021	1790	Fine	0	0	0	20.9	23 / 1008	4.2
Area B	26-2-2021	0845	Fine	0	0	0	20.9	21 / 1011	2.5
	26-2-2021	1345	Fine	0	0	0	20.9	24 / 1004	2.5
	26-2-2021	1645	Fine	0	0	0	20.9	23 / 1008	2.5
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		26-2-2021
Laboratory Staff:			
Checked by:	C.F. Chan (Foreman)		26-2-2021

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.FC 4450	26/2/2021	0855	Fine	0	0	0	20.9	21/1011	2.5
	26/2/2021	1355	Fine	0	0	0	20.9	25/1009	2.5
CH.FC 0+90	26/2/2021	0900	Fine	0	0	0	20.9	21/1011	2.5
	26/2/2021	1400	Fine	0	0	0	20.9	25/1009	2.5
Pit C	26/2/2021	0915	Fine	0	0	0	20.9	22/1011	8
	26/2/2021	1415	Fine	0	0	0	20.9	24/1008	8
137 Pit C	26/2/2021	0945	Fine	0	0	0	20.9	22/1011	7
	26/2/2021	1445	Fine	0	0	0	22.9	24/1008	7
137 Pit B	26/2/2021	0955	Fine	0	0	0	20.9	22/1011	8.6
	26/2/2021	1455	Fine	0	0	0	20.9	24/1008	8.6
137 Pit A	26/2/2021	1005	Fine	0	0	0	20.9	22/1011	8.3
	26/2/2021	1505	Fine	0	0	0	20.9	24/1008	8.3
WPL 1	26/2/2021	1015	Fine	0	0	0	20.9	23/1011	0.6
	26/2/2021	1515	Fine	0	0	0	20.9	24/1008	0.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		26/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring --Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WPR 2	26/2/2021	1027	Fine	0	0	0	20.9	24/1011	2.8
	26/2/2021	1327	Fine	0	0	0	20.9	24/1008	2.8
WPR 3	26/2/2021	1035	Fine	0	0	0	20.9	24/1011	2.8
	26/2/2021	1335	Fine	0	0	0	20.9	24/1008	2.8
Pit A	26/2/2021	1045	Fine	0	0	0	20.9	24/1011	X
	26/2/2021	1345	Fine	0	0	0	20.9	24/1008	X
Pit B	26/2/2021	1058	Fine	0	0	0	20.9	24/1011	8
	26/2/2021	1358	Fine	0	0	0	20.9	24/1008	8
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		26/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
Area A	27-2-2021	0830	Fine	0	0	0	20.9	20 / 1014	4.2
	27-2-2021	1320	Fine	0	0	0	20.9	19 / 1014	4.2
	27-2-2021	1700	Fine	0	0	0	20.9	18 / 1013	4.2
Area B	27-2-2021	0845	Fine	0	0	0	20.9	20 / 1014	2.5
	27-2-2021	1345	Fine	0	0	0	20.9	19 / 1014	2.5
	27-2-2021	1645	Fine	0	0	0	20.9	18 / 1013	2.5
								/	
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	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		27-2-2021
Laboratory Staff:			
Checked by:	C.F. Chan (Foreman)		27-2-2021

ENVIRONMENTAL RESOURCES MANAGEMENT ENVIRONMENTAL PROTECTION DEPARTMENT

13

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.FC 4#8	27/2/2024	0855	Fine	0	0	0	20.9	19/1014	2.5
	27/2/2024	1355	Fine	0	0	0	20.9	18/1014	2.5
CH.FC 0#8	27/2/2024	0900	Fine	0	0	0	20.9	18/1014	2.5
	27/2/2024	1400	Fine	0	0	0	20.9	18/1014	2.5
Pit C	27/2/2024	0915	Fine	0	0	0	20.9	18/1015	8
	27/2/2024	1415	Fine	0	0	0	20.9	18/1014	8
137 Pit C	27/2/2024	0945	Fine	0	0	0	20.9	18/1015	7
	27/2/2024	1445	Fine	0	0	0	20.9	18/1015	7
137 Pit B	27/2/2024	0955	Fine	0	0	0	20.9	18/1015	8.6
	27/2/2024	1455	Fine	0	0	0	20.9	18/1015	8.6
137 Pit A	27/2/2024	1005	Fine	0	0	0	20.9	18/1016	8.7
	27/2/2024	1505	Fine	0	0	0	20.9	18/1015	8.7
WPR1	27/2/2024	1015	Fine	0	0	0	20.9	18/1016	0.6
	27/2/2024	1515	Fine	0	0	0	20.9	18/1015	0.6

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		27/2/2021
Laboratory Staff:			
Checked by:			

Contract no. 13/WSD/16
Mainlaying in Tseung Kwan O
Penta-Ocean - Concentric Joint Venture
Landfill Gas Monitoring –Field Measurement Recording Sheet

Name of site: 13/WSD/16 - Mainlaying in Tseung Kwan O
Date of measurement:

Sampling equipment used:	Dates calibrated
PGM-2500 (QRAE III)	28 Jul 2020

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon monoxide(%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
WPR 2	27/2/2024	1027	Fine	0	0	0	20.9	18 / 1016	2.3
	27/2/2024	1525	Fine	0	0	0	20.9	18 / 1017	2.3
WPR 3	27/2/2024	1037	Fine	0	0	0	20.9	18 / 1016	2.3
	27/2/2024	1537	Fine	0	0	0	20.9	18 / 1017	2.3
Pit A	27/2/2024	1045	Fine	0	0	0	20.9	18 / 1016	5
	27/2/2024	1545	Fine	0	0	0	20.9	18 / 1017	5
Pit B	27/2/2024	1053	Fine	0	0	0	20.9	18 / 1016	8
	27/2/2024	1553	Fine	0	0	0	20.9	18 / 1017	8
								/	
								/	
								/	
								/	
								/	
								/	

	Name & Designation	Signature	Date
Field Operator:	Ting Wai Kin (Safety Officer [RenoPipe])		27/2/2024
Laboratory Staff:			
Checked by:			

Appendix K

Complaint Log and Regulatory Compliance Proforma

Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
01 February 2021 - 28 February 2021	0	2	N/A

Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Details
01 February 2021 - 28 February 2021	0	0	N/A

Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Details
01 February 2021 - 28 February 2021	0	0	N/A

Appendix L

Site Inspection Proforma

Acuity Sustainability Consulting Limited
Unit 1908, Nos. 301-305 Castle Peak Road, Kwai Chung, N.T.
O: 2333-6823 | F: 2333-1316 | E: general@acuityhk.com | www.acuityhk.com

Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Inspection Date: 04/02/2021 Inspected by: ET: Charlene Lai WSD: Mr. Lai
Inspection Time: 09:20 - 12:00 Contractor: Sam Wo IEC: N/A

Weather							
Condition	☑ Sunny	☐ Fine	☐ Overcast	☐ Drizzle	☐ Rain	☐ Storm	☐ Hazy
Temperature	19 °C		Humidity	☐ High	☑ Moderate	☐ Low	
Wind	☑ Calm	☐ Light	☐ Breeze	☐ Strong			

		N/A	Yes	No	Photo/Remarks
0.00	**General**				
0.01	Is the current Environmental Permit displayed conspicuously at all vehicle site entrances/exits for public's information at any time?	☐	☐	☐	Obs (1)
0.02	Is ET Leader's log-book kept readily available for inspections?	☐	☑	☐	
1.00	**Construction Dust**				
1.01	Are dusty materials, such as excavated materials, building debris and construction materials, and exposed earth surface properly covered to prevent dust emission?	☐	☑	☐	
1.02	Are screenings, enclosures, water spraying or vacuum cleaning devices provided to dusty construction works for dust suppression?	☐	☑	☐	screening.
1.03	Are fumes or smoke emitting plants or construction activities shielded by a screen?	☑	☐	☐	No smoke / fume emitting plant/vehicle in operation on the reporting day
1.04	Are wheel-washing facilities with high-pressure water jets provided at all site exits?	☑	☐	☐	
1.05	Is wheel-washing provided to all vehicles leaving the site?	☑	☐	☐	
1.06	Are road section near the site exit free from dusty material?	☐	☑	☐	
1.07	Are all main haul roads inside the site paved or sprayed with water to minimize dust emission during vehicle movement?	☐	☑	☐	paved
1.08	Are water spraying provided immediately prior to any loading or transfer of dusty materials?	☑	☐	☐	dusty materials were covered
1.09	Are covers provided to all dump trucks carrying dusty materials when entering and leaving the site?	☑	☐	☐	
1.10	Are the working areas for uprooting of trees, shrubs, or vegetation or the removal of boulders, poles, pillars sprayed with water to maintain the entire surface wet?	☑	☐	☐	
1.11	Is exposed earth properly treated within six months after the last construction activity on site?	☐	☑	☐	
1.12	Does the operation of plants on site free form dark smoke emission?	☐	☑	☐	VMEMM label

04/02

Acuity Sustainability Consulting Limited
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Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

		N/A	Yes	No	Photo/Remarks
1.13	Are vehicles travelling at speed not exceeding 15km/hr within the site?	✓			
1.14	Are stock of more than 20 bags of cement or day PFA covered or sheltered on top and 3 sides?		✓		
1.15	Are de-bagging, batching and mixing processes of bagged cement carried out in sheltered areas?		✓		
1.16	Are hoarding of at least 2.4m high provided along the site boundary adjoining areas accessible by the public?	✓			
1.17	Is open burning prohibited?		✓		
2.00	**Construction Noise (Airborne)**				
2.01	Are quiet plants adopted on site?		✓		
2.02	Are the PMEs operating on site well-maintained to minimize the generation of excessive noise?		✓		✓ regular inspection
2.03	Are plants throttled down or turned off when not in use?		✓		
2.04	Are the plants known to emit noise strongly in one direction oriented to face away from NSRs?	✓			
2.05	Are moveable barriers provided to screen NSRs from plant or noisy operations?	✓			
2.06	Are silencers, mufflers and enclosures provided to plants?	✓			
2.07	Are the hoods, cover panels and inspection hatches of PMEs closed during operation?		✓		
2.08	Are purposely-built site hoarding construction with appropriate materials provided along the site boundary?	✓			
2.09	Are noisy operation properly scheduled to minimize exposure and cumulative impacts to nearby sensitive receivers?		✓		
2.10	Are valid noise emission label(s) affixed to all hand-held breakers operating on site?	✓			
2.11	Are valid noise emission label(s) affixed to all air compressors operating on site?	✓			
2.12	Are all construction noise permit(s) applied for percussive piling work?		✓		
2.13	Are construction noise permit(s) applied for general construction works during restricted hours?		✓		
2.14	Are valid construction noise permit(s) displayed at all vehicular exits?		✓		
3.00	**Water Quality**				
3.01	Is effluent discharge license obtained for wastewater discharge from site?		✓		
3.02	Is effluent discharged according to the effluent discharge license?				Obs (4)
3.03	Is wastewater discharge from site properly treated prior to discharge?				Obs (4)

04/02

Acuity Sustainability

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		N/A	Yes	No	Photo/Remarks
3.04	Are perimeter channels provided to intercept storm runoff from outside the site?	☐	☑	☐	
3.05	Are sand/silt removal facilities such as sand/silt traps and sediment basins provided to remove sand/silt particles from runoff?	☐	☑	☐	
3.06	Is surface runoff diverted to sedimentation facilities?	☐	☑	☐	obs(4)
3.07	Is the drainage system properly maintained?	☐	☑	☐	reminder(4) obs(3)
3.08	Are construction works carefully programmed to minimize soil excavation works during rainy seasons?	☐	☑	☐	
3.09	Are exposed soil surface protected by paving as soon as possible to reduce the potential of soil erosion?	☐	☑	☐	
3.10	Are temporary access roads protected by crushed gravel?	☐	☑	☐	
3.11	Are exposed slope surface properly protected?	☑	☐	☐	
3.12	Is trench excavation avoided in the wet season as far as practicable, or if necessary, backfilled in short sections after excavation?	☐	☑	☐	
3.13	Are open stockpiles of construction materials on site covered by tarpaulin or similar fabric during construction?	☐	☑	☐	
3.14	Is runoff from wheel-washing facilities avoided?	☑	☐	☐	
3.15	Is oil leakage or spillage prevented?	☐	☐	☐	obs (2)
3.16	Are there any measures to prevent the release of oil and grease into the storm drainage system?	☐	☑	☐	
3.17	Are the oil interceptors/ grease traps properly maintained?	☐	☑	☐	
3.18	Are debris and rubbish generated on site collected, handled and disposed of properly to avoid them entering the streams?	☐	☑	☐	reminder(1)
3.19	Are all fuel tanks and storage areas provided with locks and be sited on sealed areas, within bunds of capacity equal to 110% of the storage capacity of the largest tank?	☐	☑	☐	
3.20	Are tanks, containers, storage area bunded and the locations locked as far as possible from the sensitive watercourse and stormwater drains?	☐	☑	☐	
3.21	Are sufficient chemical toilets provided on site to handle sewage from construction work force?	☐	☑	☐	
3.22	Are sewage disposal and toilet maintenance of the portable chemical toilets provided by the licensed contractors?	☐	☑	☐	
3.23	Is concrete washing water properly collected and treated prior to discharge?	☑	☐	☐	
4.00	**Waste Management**				
4.01	Is a trip-ticket system implemented to monitor the disposal of C&D and solid wastes at public filling facilities and landfills?	☐	☑	☐	

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Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

		N/A	Yes	No	Photo/Remarks
4.02	Is a recording system implemented to record the amount of wastes generated, recycled and disposed of?	☐	☑	☐	
4.03	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	
4.04	Are chemical waste separated from other waste and collected by a licensed chemical waste collector?	☑	☐	☐	
4.05	Are trip tickets for chemical waste disposal available for inspection?	☑	☐	☐	
4.06	Is chemical waste reused and recycled on site as far as practicable?	☑	☐	☐	
4.07	Are all containers for chemical waste properly labelled?	☐	☑	☐	
4.08	Is chemical waste storage area used solely for storage of chemical waste and properly labelled?	☐	☑	☐	
4.09	Are incompatible chemical wastes stored in different areas?	☑	☐	☐	
4.10	Is the chemical waste storage area enclosed on at least 3 sides and adequately ventilated?	☐	☑	☐	
4.11	Is an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or of 20% by volume of the chemical waste stored in that area, whichever is the greatest, provide?	☐	☑	☐	
4.12	Are a routine cleaning and maintenance programme implemented for drainage systems, sump pits, and oil interceptors?	☐	☑	☐	reminder (1)
4.13	Are sufficient general refuse disposal/collection points provided on site?	☐	☑	☐	
4.14	Is general refuse disposed of properly and regularly?	☐	☑	☐	reminder (1)
4.15	Are appropriate measures adopted to minimize windblown litter and dust during transportation of waste?	☐	☑	☐	
4.16	Are individual collectors for aluminum cans, plastic bottles and packaging material and office paper provided to encourage waste segregation?	☐	☑	☐	
4.17	Are C&D wastes sorted on site?	☐	☑	☐	
4.18	Are C&D waste disposed of properly?	☐	☑	☐	
4.19	Are unused C&D materials or chemicals recycled or reused to reduce the quantity of waste?	☑	☐	☐	
4.20	Are public fill and C&D waste reuse on site as far as practicable to avoid disposal off-site?	☐	☑	☐	timber
4.21	Are the construction materials stored properly to minimize the potential for damage or contamination?	☐	☑	☐	
4.22	Is a dumping license obtained to deliver public fill to public filling areas?	☐	☑	☐	

04/12

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Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

		N/A	Yes	No	Photo/Remarks
5.00	**Landscape and Visual**				
5.01	Are Is site hoarding provided?	✓			
5.02	Are vegetation disturbance minimized or soil protected to reduce potential soil erosion?		✓		
5.03	Is construction light oriented away from the sensitive receivers?	✓			
5.04	Is grass hydroseeding provided to slopes as soon as the completion of works?	✓			
5.05	Are damages to trees outside site boundary due construction works avoided?				obs(5)
5.06	Is excavation works carried out manually instead of machinery operation within 2.5m vicinity of any preserved trees?	✓			
5.07	Are the retained and transplanted tree(s) properly protected and in good conditions?				Obs(5)
5.08	Are surgery works carried out for damaged trees?				Obs(5)
6.00	**Ecology**				
6.01	Is site runoff properly treated to prevent any silly runoff?				Obs(4)
6.02	Are silt trap installed and well-maintained?	✓			
6.03	Are stockpiles properly covered to avoid generating silty runoff?		✓		
6.04	Are construction works restricted to works area which are clearly defined?		✓		
7.00	**Overall**				
7.01	Is the EM&A properly implemented in general?		✓		

04/02

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Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

Remark / Follow up of Observation(s) and Non-compliance(s) of Last Weekly Site Inspection:

Observations:

(1) Environmental permit was not observed at the site entrance / exit at I37P.t B

(2) Chemicals were not place inside drip tray and oil spillage was observed at WPR 2

(3) Gully was not protected by sand bags & geotextile at WPR 2.

(4) wastewater was not properly treated before discharge at H.K. velodrome

(5) Tree damage was observed at H.K. Velodrome. condition survey for tree should be provided for investigation. The contractor was reminded to protect the trees inside the site boundary

Remainder

(1) Housekeeping was reminded at J. P.t C. A

(2) Effective measures should be applied to retained trees in WPR

(3) Dusty materials near the site entrance/exit should be cleaned regularly to prevent dust emission at WPR 2

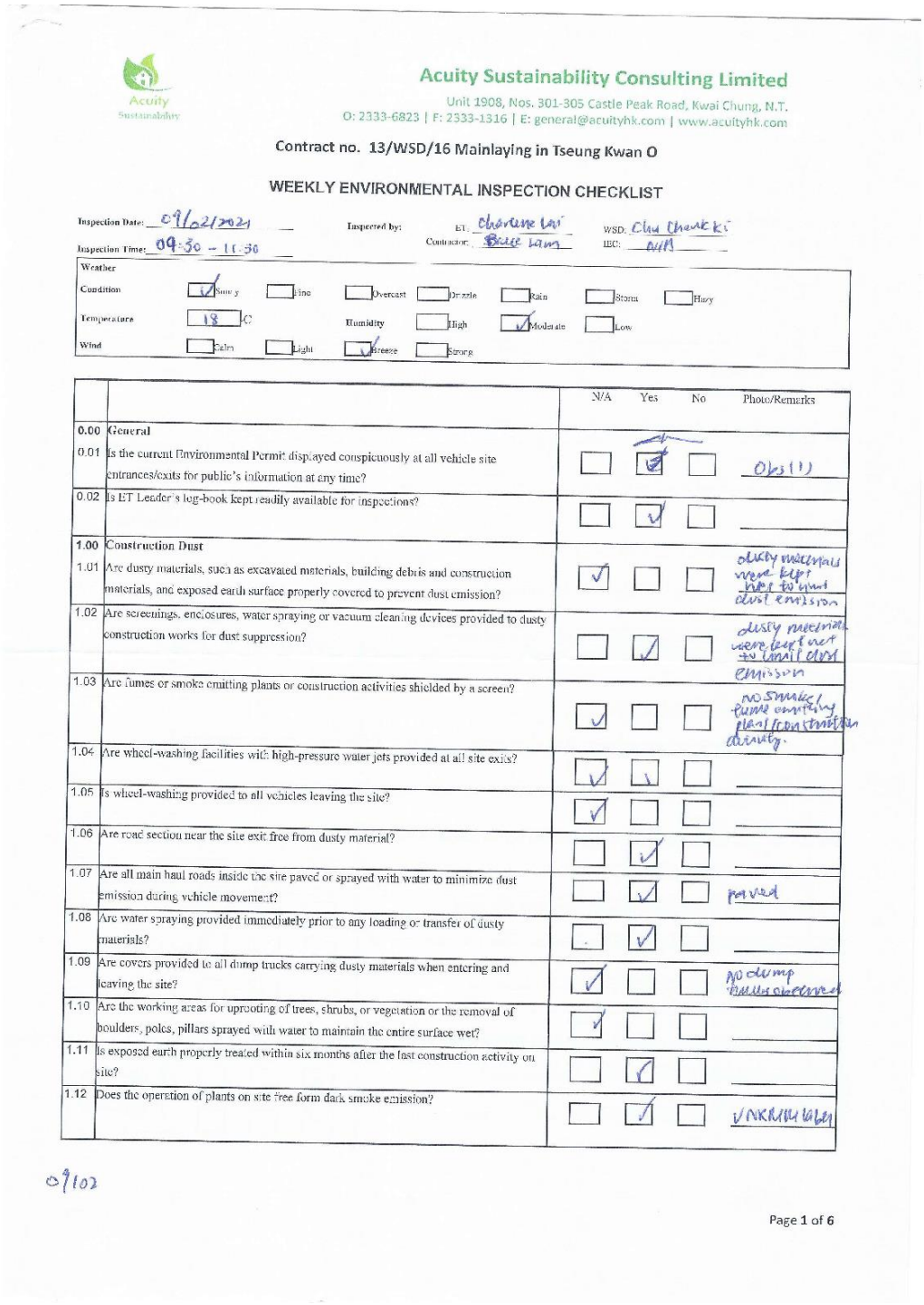
(4) The contractor was reminded to clean the drainage channel regularly at H.K. velodrome

P.t C J.
↓
I37P.t B
↓
I37P.t A
↓
WPR 1,
↓
WPR 2
↓
WPR 3
↓
J P.t B
↓
J.B

Signatures:

ET Representative	Contractor's Representative	WSD's Representative	IEC's Representative
(Name: Charlene Lau)	(Name: Sam Ng)	(Name:)	(Name: N/A)

04/02



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Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Inspection Date: 09/02/2021 Inspected by: ET: Cheruse Lai WSD: Chu Cheuk Ki
Inspection Time: 09:30 - 11:30 Contractor: Bruce Lam IEC: AM

Weather
Condition: [✓] Sunny [ ] Fine [ ] Overcast [ ] Drizzle [ ] Rain [ ] Storm [ ] Hazy
Temperature: 18 °C Humidity: [ ] High [✓] Moderate [ ] Low
Wind: [ ] Calm [ ] Light [✓] Breeze [ ] Strong

		N/A	Yes	No	Photo/Remarks
0.00	General				
0.01	Is the current Environmental Permit displayed conspicuously at all vehicle site entrances/exits for public's information at any time?	[ ]	[✓]	[ ]	Obs(1)
0.02	Is ET Leader's log-book kept readily available for inspections?	[ ]	[✓]	[ ]	
1.00	Construction Dust				
1.01	Are dusty materials, such as excavated materials, building debris and construction materials, and exposed earth surface properly covered to prevent dust emission?	[✓]	[ ]	[ ]	dusty materials were kept well to limit dust emission
1.02	Are screenings, enclosures, water spraying or vacuum cleaning devices provided to dusty construction works for dust suppression?	[ ]	[✓]	[ ]	dusty material were kept well to limit dust emission
1.03	Are fumes or smoke emitting plants or construction activities shielded by a screen?	[✓]	[ ]	[ ]	no smoke/fume emitting plant from construction activity.
1.04	Are wheel-washing facilities with high-pressure water jets provided at all site exits?	[✓]	[✓]	[ ]	
1.05	Is wheel-washing provided to all vehicles leaving the site?	[✓]	[ ]	[ ]	
1.06	Are road section near the site exit free from dusty material?	[ ]	[✓]	[ ]	
1.07	Are all main haul roads inside the site paved or sprayed with water to minimize dust emission during vehicle movement?	[ ]	[✓]	[ ]	paved
1.08	Are water spraying provided immediately prior to any loading or transfer of dusty materials?	[ ]	[✓]	[ ]	
1.09	Are covers provided to all dump trucks carrying dusty materials when entering and leaving the site?	[✓]	[ ]	[ ]	no dump trucks observed
1.10	Are the working areas for uprooting of trees, shrubs, or vegetation or the removal of boulders, poles, pillars sprayed with water to maintain the entire surface wet?	[✓]	[ ]	[ ]	
1.11	Is exposed earth properly treated within six months after the last construction activity on site?	[ ]	[✓]	[ ]	
1.12	Does the operation of plants on site free form dark smoke emission?	[ ]	[✓]	[ ]	VARIOUS VIEW

09/02

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		N/A	Yes	No	Photo/Remarks
1.13	Are vehicles travelling at speed not exceeding 15km/hr within the site?	✓			
1.14	Are stock of more than 20 bags of cement or day PFA covered or sheltered on top and 3 sides?	✓			
1.15	Are de-bagging, batching and mixing processes of bagged cement carried out in sheltered areas?	✓			
1.16	Are hoarding of at least 2.4m high provided along the site boundary adjoining areas accessible by the public?	✓			
1.17	Is open burning prohibited?		✓		
2.00	**Construction Noise (Airborne)**				
2.01	Are quiet plants adopted on site?		✓		√QPME label
2.02	Are the PMEs operating on site well-maintained to minimize the generation of excessive noise?		✓		√Regular inspection
2.03	Are plants throttled down or turned off when not in use?		✓		
2.04	Are the plants known to emit noise strongly in one direction oriented to face away from NSRs?	✓			No nearby NSR
2.05	Are moveable barriers provided to screen NSRs from plant or noisy operations?	✓			
2.06	Are silencers, mufflers and enclosures provided to plants?	✓			
2.07	Are the hoods, cover panels and inspection hatches of PMEs closed during operation?		✓		
2.08	Are purposely-built site hoarding construction with appropriate materials provided along the site boundary?	✓			
2.09	Are noisy operation properly scheduled to minimize exposure and cumulative impacts to nearby sensitive receivers?		✓		
2.10	Are valid noise emission label(s) affixed to all hand-held breakers operating on site?	✓			
2.11	Are valid noise emission label(s) affixed to all air compressors operating on site?	✓			
2.12	Are all construction noise permit(s) applied for percussive piling work?		✓		
2.13	Are construction noise permit(s) applied for general construction works during restricted hours?		✓		
2.14	Are valid construction noise permit(s) displayed at all vehicular exits?		✓		
3.00	**Water Quality**				
3.01	Is effluent discharge license obtained for wastewater discharge from site?		✓		
3.02	Is effluent discharged according to the effluent discharge license?	✓			No water discharge observed
3.03	Is wastewater discharge from site properly treated prior to discharge?	✓			

09/02

Page 2 of 6

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Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

		N/A	Yes	No	Photo/Remarks
3.04	Are perimeter channels provided to intercept storm runoff from outside the site?	☐	☑	☐	
3.05	Are sand/silt removal facilities such as sand/silt traps and sediment basins provided to remove sand/silt particles from runoff?	☐	☑	☐	
3.06	Is surface runoff diverted to sedimentation facilities?	☑	☐	☐	no water discharge observed
3.07	Is the drainage system properly maintained?	☐	☐	☐	Obs (3)
3.08	Are construction works carefully programmed to minimize soil excavation works during rainy seasons?	☐	☑	☐	
3.09	Are exposed soil surface protected by paving as soon as possible to reduce the potential of soil erosion?	☐	☑	☐	
3.10	Are temporary access roads protected by crushed gravel?	☐	☑	☐	
3.11	Are exposed slope surface properly protected?	☑	☐	☐	
3.12	Is trench excavation avoided in the wet season as far as practicable, or if necessary, backfilled in short sections after excavation?	☐	☑	☐	
3.13	Are open stockpiles of construction materials on site covered by tarpaulin or similar fabric during construction?	☑	☑	☐	pussy materials were kept inct
3.14	Is runoff from wheel-washing facilities avoided?	☑	☐	☐	
3.15	Is oil leakage or spillage prevented?	☐	☑	☐	
3.16	Are there any measures to prevent the release of oil and grease into the storm drainage system?	☐	☑	☐	
3.17	Are the oil interceptors/ grease traps properly maintained?	☐	☑	☐	
3.18	Are debris and rubbish generated on site collected, handled and disposed of properly to avoid them entering the streams?	☐	☑	☐	
3.19	Are all fuel tanks and storage areas provided with locks and be sited on sealed areas, within bunds of capacity equal to 110% of the storage capacity of the largest tank?	☐	☑	☐	
3.20	Are tanks, containers, storage area bunded and the locations locked as far as possible from the sensitive watercourse and stormwater drains?	☐	☑	☐	
3.21	Are sufficient chemical toilets provided on site to handle sewage from construction work force?	☐	☑	☐	
3.22	Are sewage disposal and toilet maintenance of the portable chemical toilets provided by the licensed contractors?	☐	☑	☐	
3.23	Is concrete washing water properly collected and treated prior to discharge?	☑	☐	☐	
4.00	**Waste Management**				
4.01	Is a trip-ticket system implemented to monitor the disposal of C&D and solid wastes at public filling facilities and landfills?	☐	☑	☐	

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Acuity Sustainability Consulting Limited
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Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

		N/A	Yes	No	Photo/Remarks
4.02	Is a recording system implemented to record the amount of wastes generated, recycled and disposed of?	☐	☑	☐	
4.03	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	
4.04	Are chemical waste separated from other waste and collected by a licensed chemical waste collector?	☑	☐	☐	
4.05	Are trip tickets for chemical waste disposal available for inspection?	☑	☐	☐	
4.06	Is chemical waste reused and recycled on site as far as practicable?	☑	☐	☐	
4.07	Are all containers for chemical waste properly labelled?	☐	☑	☐	
4.08	Is chemical waste storage area used solely for storage of chemical waste and properly labelled?	☐	☑	☐	
4.09	Are incompatible chemical wastes stored in different areas?	☑	☐	☐	
4.10	Is the chemical waste storage area enclosed on at least 3 sides and adequately ventilated?	☐	☑	☐	
4.11	Is an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or of 20% by volume of the chemical waste stored in that area, whichever is the greater., provide?	☐	☑	☐	
4.12	Are a routine cleaning and maintenance programme implemented for drainage systems, sump pits, and oil interceptors?	☐	☑	☐	
4.13	Are sufficient general refuse disposal/collection points provided on site?	☐	☑	☐	
4.14	Is general refuse disposed of properly and regularly?	☐	☑	☐	
4.15	Are appropriate measures adopted to minimize windblown litter and dust during transportation of waste?	☐	☑	☐	
4.16	Are individual collectors for aluminum cans, plastic bottles and packaging material and office paper provided to encourage waste segregation?	☐	☑	☐	
4.17	Are C&D wastes sorted on site?	☐	☑	☐	
4.18	Are C&D waste disposed of properly?	☐	☑	☐	
4.19	Are unused C&D materials or chemicals recycled or reused to reduce the quantity of waste?	☑	☐	☐	
4.20	Are public fill and C&D waste reuse on site as far as practicable to avoid disposal off-site?	☐	☑	☐	
4.21	Are the construction materials stored properly to minimize the potential for damage or contamination?	☐	☑	☐	
4.22	Is a dumping license obtained to deliver public fill to public filling areas?	☐	☑	☐	

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		N/A	Yes	No	Photo/Remarks
5.00	**Landscape and Visual**				
5.01	Are is site hoarding provided?	✓			
5.02	Are vegetation disturbance minimized or soil protected to reduce potential soil erosion?		✓		
5.03	Is construction light oriented away from the sensitive receivers?	✓			
5.04	Is grass hydroseeding provided to slopes as soon as the completion of works?	✓			
5.05	Are damages to trees outside site boundary due construction works avoided?				obs (2)
5.06	Is excavation works carried out manually instead of machinery operation within 2.5m vicinity of any preserved trees?	✓			No works were observed
5.07	Are the retained and transplanted tree(s) properly protected and in good conditions?				obsl 23
5.08	Are surgery works carried out for damaged trees?				obs i 23
6.00	**Ecology**				
6.01	Is site runoff properly treated to prevent any silty runoff?	✓			No water discharge observed
6.02	Are silt trap installed and well maintained?	✓			
6.03	Are stockpiles properly covered to avoid generating silty runoff?	✓			debris material were kept
6.04	Are construction works restricted to works area which are clearly defined?		✓		
7.00	**Overall**				
7.01	Is the EM&A properly implemented in general?		✓		

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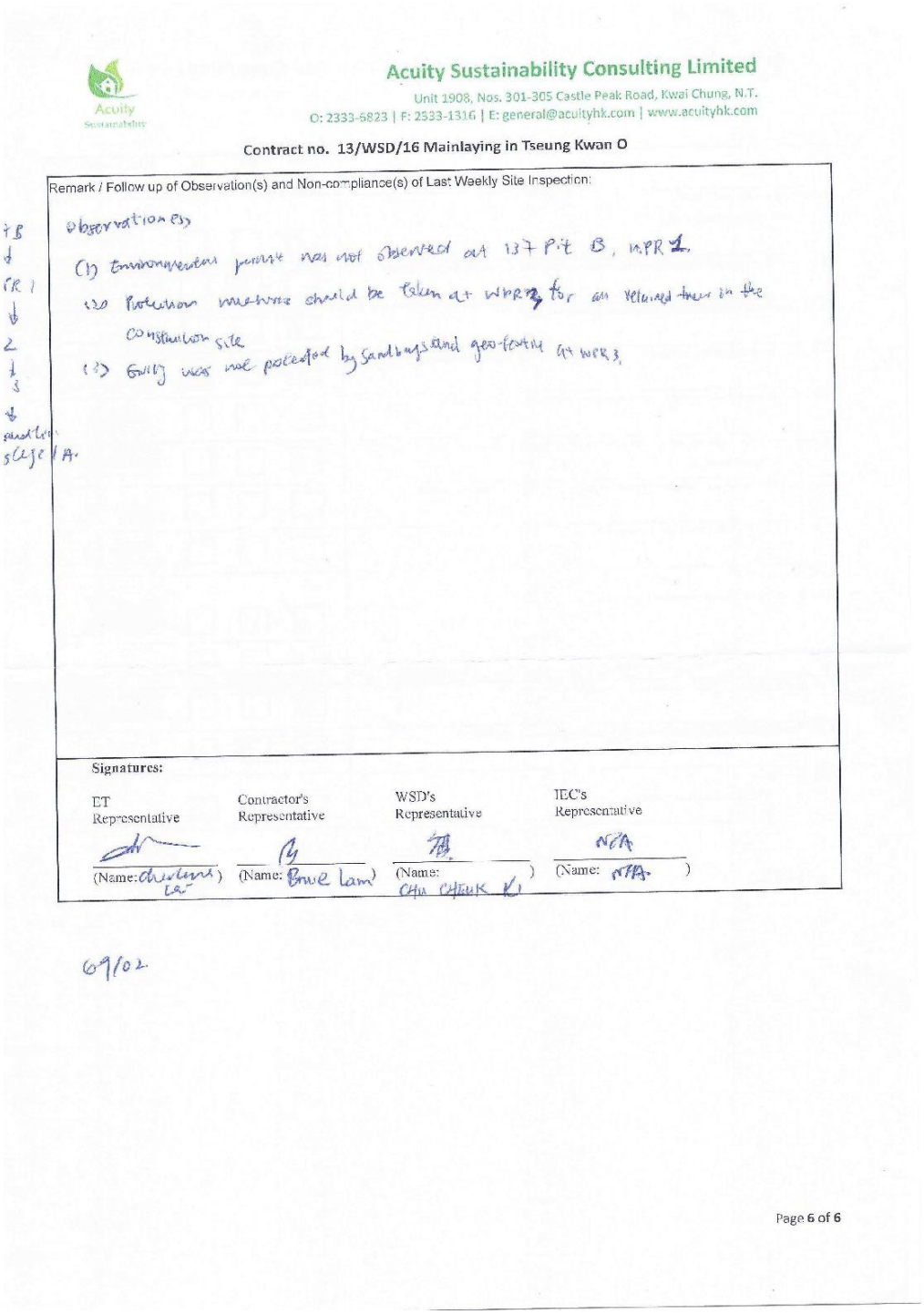

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Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

Remark / Follow up of Observation(s) and Non-compliance(s) of Last Weekly Site Inspection:

Observations

(1) Environmental permit was not observed at 137 P.t B, in PR 1.

(2) Protection measures should be taken at WPR 2 for all returned liners in the construction site

(3) Gully was not protected by sandbags and geo-textile at WPR 3.

Signatures:

ET Representative	Contractor's Representative	WSD's Representative	IEC's Representative
(Name: Christine Lai)	(Name: Bruce Lam)	(Name: CHU CHEUK KI)	(Name: N/A)

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Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Inspection Date: 18/02/2021 Inspected by: ET: Charlene Cai WSD: GW. LA91.
Inspection Time: 9:30 - 12:00 Contractor: Samsig IEC: N/A

Weather							
Condition	☑ Sunny	☐ Fine	☐ Overcast	☐ Drizzle	☐ Rain	☐ Storm	☐ Hazy
Temperature	☑ >21 C		Humidity	☐ High	☑ Moderate	☐ Low	
Wind	☑ Calm	☐ Light	☐ Breeze	☐ Strong			

		N/A	Yes	No	Photo/Remarks
0.00	**General**				
0.01	Is the current Environmental Permit displayed conspicuously at all vehicle site entrances/exits for public's information at any time?	☐	☑	☐	
0.02	Is ET Leader's log-book kept readily available for inspections?	☐	☑	☐	
1.00	**Construction Dust**				
1.01	Are dusty materials, such as excavated materials, building debris and construction materials, and exposed earth surface properly covered to prevent dust emission?	☐	☑	☐	+ compacted surface.
1.02	Are screenings, enclosures, water spraying or vacuum cleaning devices provided to dusty construction works for dust suppression?	☐	☑	☐	enclosures, screening, compaction
1.03	Are fumes or smoke emitting plants or construction activities shielded by a screen?	☑	☐	☐	NO smoke / fume emitting plant / activity
1.04	Are wheel-washing facilities with high-pressure water jets provided at all site exits?	☑	☐	☐	
1.05	Is wheel-washing provided to all vehicles leaving the site?	☑	☐	☐	
1.06	Are road section near the site exit free from dusty material?	☐	☑	☐	
1.07	Are all main haul roads inside the site paved or sprayed with water to minimize dust emission during vehicle movement?	☐	☑	☐	paved
1.08	Are water spraying provided immediately prior to any loading or transfer of dusty materials?	☑	☐	☐	NO loading / transfer of dusty materials observed
1.09	Are covers provided to all dump trucks carrying dusty materials when entering and leaving the site?	☐	☑	☐	
1.10	Are the working areas for uprooting of trees, shrubs, or vegetation or the removal of boulders, poles, pillars sprayed with water to maintain the entire surface wet?	☑	☐	☐	
1.11	Is exposed earth properly treated within six months after the last construction activity on site?	☐	☑	☐	
1.12	Does the operation of plants on site free form dark smoke emission?	☐	☑	☐	✓ PERMIT LABEL

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		N/A	Yes	No	Photo/Remarks
1.13	Are vehicles travelling at speed not exceeding 15km/hr within the site?	☐	☑	☐	
1.14	Are stock of more than 20 bags of cement or day PFA covered or sheltered on top and 3 sides?	☐	☑	☐	
1.15	Are de-bagging, batching and mixing processes of bagged cement carried out in sheltered areas?	☐	☑	☐	
1.16	Are hoarding of at least 2.4m high provided along the site boundary adjoining areas accessible by the public?	☑	☐	☐	
1.17	Is open burning prohibited?	☐	☑	☐	
2.00	**Construction Noise (Airborne)**				
2.01	Are quiet plants adopted on site?	☐	☑	☐	QPME ✓ noise label
2.02	Are the PMEs operating on site well-maintained to minimize the generation of excessive noise?	☐	☑	☐	
2.03	Are plants throttled down or turned off when not in use?	☐	☑	☐	
2.04	Are the plants known to emit noise strongly in one direction oriented to face away from NSRs?	☑	☐	☐	NO MR Observed
2.05	Are moveable barriers provided to screen NSRs from plant or noisy operations?	☑	☐	☐	
2.06	Are silencers, mufflers and enclosures provided to plants?	☑	☐	☐	
2.07	Are the hoods, cover panels and inspection hatches of PMEs closed during operation?	☐	☑	☐	
2.08	Are purposely-built site hoarding construction with appropriate materials provided along the site boundary?	☑	☐	☐	
2.09	Are noisy operation properly scheduled to minimize exposure and cumulative impacts to nearby sensitive receivers?	☐	☑	☐	
2.10	Are valid noise emission label(s) affixed to all hand-held breakers operating on site?	☑	☐	☐	
2.11	Are valid noise emission label(s) affixed to all air compressors operating on site?	☑	☐	☐	
2.12	Are all construction noise permit(s) applied for percussive piling work?	☐	☑	☐	
2.13	Are construction noise permit(s) applied for general construction works during restricted hours?	☐	☑	☐	
2.14	Are valid construction noise permit(s) displayed at all vehicular exits?	☐	☑	☐	
3.00	**Water Quality**				
3.01	Is effluent discharge license obtained for wastewater discharge from site?	☐	☑	☐	
3.02	Is effluent discharged according to the effluent discharge license?	☐	☑	☐	
3.03	Is wastewater discharge from site properly treated prior to discharge?	☐	☑	☐	

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		N/A	Yes	No	Photo/Remarks
3.04	Are perimeter channels provided to intercept storm runoff from outside the site?	☐	☑	☐	
3.05	Are sand/silt removal facilities such as sand/silt traps and sediment basins provided to remove sand/silt particles from runoff?	☐	☑	☐	
3.06	Is surface runoff diverted to sedimentation facilities?	☐	☑	☐	
3.07	Is the drainage system properly maintained?	☐	☑	☐	
3.08	Are construction works carefully programmed to minimize soil excavation works during rainy seasons?	☐	☑	☐	
3.09	Are exposed soil surface protected by paving as soon as possible to reduce the potential of soil erosion?	☐	☑	☐	
3.10	Are temporary access roads protected by crushed gravel?	☐	☑	☐	
3.11	Are exposed slope surface properly protected?	☑	☐	☐	
3.12	Is trench excavation avoided in the wet season as far as practicable, or if necessary, backfilled in short sections after excavation?	☐	☑	☐	
3.13	Are open stockpiles of construction materials on site covered by tarpaulin or similar fabric during construction?	☐	☑	☐	
3.14	Is runoff from wheel-washing facilities avoided?	☑	☐	☐	
3.15	Is oil leakage or spillage prevented?	☐	☑	☐	√ daytime
3.16	Are there any measures to prevent the release of oil and grease into the storm drainage system?	☐	☑	☐	
3.17	Are the oil interceptors/ grease traps properly maintained?	☐	☑	☐	
3.18	Are debris and rubbish generated on site collected, handled and disposed of properly to avoid them entering the streams?	☐	☑	☐	
3.19	Are all fuel tanks and storage areas provided with locks and be sited on sealed areas, within bunds of capacity equal to 110% of the storage capacity of the largest tank?	☐	☑	☐	
3.20	Are tanks, containers, storage area bunded and the locations locked as far as possible from the sensitive watercourse and stormwater drains?	☐	☑	☐	
3.21	Are sufficient chemical toilets provided on site to handle sewage from construction work force?	☐	☑	☐	
3.22	Are sewage disposal and toilet maintenance of the portable chemical toilets provided by the licensed contractors?	☐	☑	☐	
3.23	Is concrete washing water properly collected and treated prior to discharge?	☑	☐	☐	
4.00	**Waste Management**				
4.01	Is a trip-ticket system implemented to monitor the disposal of C&D and solid wastes at public filling facilities and landfills?	☐	☑	☐	

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Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

		N/A	Yes	No	Photo/Remarks
4.02	Is a recording system implemented to record the amount of wastes generated, recycled and disposed of?	☐	☑	☐	
4.03	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	
4.04	Are chemical waste separated from other waste and collected by a licensed chemical waste collector?	☑	☐	☐	
4.05	Are trip tickets for chemical waste disposal available for inspection?	☑	☐	☐	
4.06	Is chemical waste reused and recycled on site as far as practicable?	☑	☐	☐	
4.07	Are all containers for chemical waste properly labelled?	☐	☑	☐	
4.08	Is chemical waste storage area used solely for storage of chemical waste and properly labelled?	☐	☑	☐	
4.09	Are incompatible chemical wastes stored in different areas?	☑	☐	☐	
4.10	Is the chemical waste storage area enclosed on at least 3 sides and adequately ventilated?	☐	☑	☐	
4.11	Is an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or of 20% by volume of the chemical waste stored in that area, whichever is the greatest, provide?	☐	☑	☐	
4.12	Are a routine cleaning and maintenance programme implemented for drainage systems, sump pits, and oil interceptors?	☐	☑	☐	
4.13	Are sufficient general refuse disposal/collection points provided on site?	☐	☑	☐	
4.14	Is general refuse disposed of properly and regularly?	☐	☑	☐	Reminder ✓
4.15	Are appropriate measures adopted to minimize windblown litter and dust during transportation of waste?	☐	☑	☐	
4.16	Are individual collectors for aluminum cans, plastic bottles and packaging material and office paper provided to encourage waste segregation?	☐	☑	☐	
4.17	Are C&D wastes sorted on site?	☐	☑	☐	
4.18	Are C&D waste disposed of properly?	☐	☑	☐	
4.19	Are unused C&D materials or chemicals recycled or reused to reduce the quantity of waste?	☑	☐	☐	
4.20	Are public fill and C&D waste reuse on site as far as practicable to avoid disposal off-site?	☐	☑	☐	
4.21	Are the construction materials stored properly to minimize the potential for damage or contamination?	☐	☑	☐	
4.22	Is a dumping license obtained to deliver public fill to public filling areas?	☐	☑	☐	

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Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

		N/A	Yes	No	Photo/Remarks
5.00	**Landscape and Visual**				
5.01	Are Is site hoarding provided?	☑	☐	☐	
5.02	Are vegetation disturbance minimized or soil protected to reduce potential soil erosion?	☐	☑	☐	
5.03	Is construction light oriented away from the sensitive receivers?	☑	☐	☐	
5.04	Is grass hydroseeding provided to slopes as soon as the completion of works?	☑	☐	☐	
5.05	Are damages to trees outside site boundary due construction works avoided?	☑	☐	☐	
5.06	Is excavation works carried out manually instead of machinery operation within 2.5m vicinity of any preserved trees?	☑	☐	☐	
5.07	Are the retained and transplanted tree(s) properly protected and in good conditions?	☐	☐	☐	Obs(1)
5.08	Are surgery works carried out for damaged trees?	☐	☐	☐	Obs(1)
6.00	**Ecology**				
6.01	Is site runoff properly treated to prevent any silly runoff?	☐	☑	☐	
6.02	Are silt trap installed and well-maintained?	☑	☐	☐	
6.03	Are stockpiles properly covered to avoid generating silty runoff?	☐	☑	☐	
6.04	Are construction works restricted to works area which are clearly defined?	☐	☑	☐	
7.00	**Overall**				
7.01	Is the EM&A properly implemented in general?	☐	☑	☐	

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Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

Remark / Follow up of Observation(s) and Non-compliance(s) of Last Weekly Site Inspection:

Pit D → JRtt → 137 Pit B → ~~JRtt~~ 137 C → WPK 2 → WPK 3 → Pit A → Pit B → Hdd relaunch

Observation(s)

(1) The Contractor was reminded to implement measures to protect the retain trees in the construction site (WPK 3)

Reminder(s)

(1) Housekeeping was reminded at Pit D

Signatures:

ET Representative	Contractor's Representative	WSD's Representative	IEC's Representative
(Name: Charlene Lau)	(Name: Sonny)	(Name: CW WONG WSD/ECZ)	(Name: N/A.)

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Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Inspection Date: 22/02/2021 Inspected by: ET: Charlene Lai WSD: Law Sai Kuen
Inspection Time: 09:20-11:40 Contractor: Samang IEC: Louis Kwan

Weather Condition	☑ Sunny	☐ Fine	☐ Overcast	☐ Drizzle	☐ Rain	☐ Storm	☐ Hazy
Temperature	23 °C		Humidity	☐ High	☑ Moderate	☐ Low	
Wind	☑ Calm	☐ Light	☐ Breeze	☐ Strong			

		N/A	Yes	No	Photo/Remarks
0.00	**General**				
0.01	Is the current Environmental Permit displayed conspicuously at all vehicle site entrances/exits for public's information at any time?	☐	☑	☐	
0.02	Is ET Leader's log-book kept readily available for inspections?	☐	☑	☐	
1.00	**Construction Dust**				
1.01	Are dusty materials, such as excavated materials, building debris and construction materials, and exposed earth surface properly covered to prevent dust emission?	☐	☑	☐	silt fence covered
1.02	Are screenings, enclosures, water spraying or vacuum cleaning devices provided to dusty construction works for dust suppression?	☑	☐	☐	No operation of works carried out
1.03	Are fumes or smoke emitting plants or construction activities shielded by a screen?	~~☑~~ N/A	☑	☐	~~No~~
1.04	Are wheel-washing facilities with high-pressure water jets provided at all site exits?	☑	☐	☐	
1.05	Is wheel-washing provided to all vehicles leaving the site?	☑	☐	☐	
1.06	Are road section near the site exit free from dusty material?	☐	☑	☐	
1.07	Are all main haul roads inside the site paved or sprayed with water to minimize dust emission during vehicle movement?	☐	☑	☐	paved
1.08	Are water spraying provided immediately prior to any loading or transfer of dusty materials?	☑	☐	☐	No operation of works observed
1.09	Are covers provided to all dump trucks carrying dusty materials when entering and leaving the site?	☑	☐	☐	accumpliance observed
1.10	Are the working areas for uprooting of trees, shrubs, or vegetation or the removal of boulders, poles, pillars sprayed with water to maintain the entire surface wet?	☑	☐	☐	
1.11	Is exposed earth properly treated within six months after the last construction activity on site?	☐	☑	☐	
1.12	Does the operation of plants on site free form dark smoke emission?	☐	☑	☐	~~NA~~ VNRMM taken

22/02

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Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

		N/A	Yes	No	Photo/Remarks
1.13	Are vehicles travelling at speed not exceeding 15km/hr within the site?	✓			
1.14	Are stock of more than 20 bags of cement or day PFA covered or sheltered on top and 3 sides?		✓		
1.15	Are de-bagging, batching and mixing processes of bagged cement carried out in sheltered areas?	✓			
1.16	Are hoarding of at least 2.4m high provided along the site boundary adjoining areas accessible by the public?	✓			
1.17	Is open burning prohibited?		✓		
2.00	**Construction Noise (Airborne)**				
2.01	Are quiet plants adopted on site?		✓		✓ PME label
2.02	Are the PMEs operating on site well-maintained to minimize the generation of excessive noise?		✓		✓ Keeper inspected
2.03	Are plants throttled down or turned off when not in use?		✓		
2.04	Are the plants known to emit noise strongly in one direction oriented to face away from NSRs?	✓			✓ Away from NSR
2.05	Are moveable barriers provided to screen NSRs from plant or noisy operations?	✓			
2.06	Are silencers, mufflers and enclosures provided to plants?	✓			
2.07	Are the hoods, cover panels and inspection hatches of PMEs closed during operation?		✓		
2.08	Are purposely-built site hoarding construction with appropriate materials provided along the site boundary?	✓			
2.09	Are noisy operation properly scheduled to minimize exposure and cumulative impacts to nearby sensitive receivers?		✓		
2.10	Are valid noise emission label(s) affixed to all hand-held breakers operating on site?	✓			
2.11	Are valid noise emission label(s) affixed to all air compressors operating on site?	✓			
2.12	Are all construction noise permit(s) applied for percussive piling work?		✓		
2.13	Are construction noise permit(s) applied for general construction works during restricted hours?		✓		
2.14	Are valid construction noise permit(s) displayed at all vehicular exits?	✓			
3.00	**Water Quality**				
3.01	Is effluent discharge license obtained for wastewater discharge from site?		✓		
3.02	Is effluent discharged according to the effluent discharge license?		✓		
3.03	Is wastewater discharge from site properly treated prior to discharge?				沙井(1)

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		N/A	Yes	No	Photo/Remarks
3.04	Are perimeter channels provided to intercept storm runoff from outside the site?	☐	☑	☐	
3.05	Are sand/silt removal facilities such as sand/silt traps and sediment basins provided to remove sand/silt particles from runoff?	☐	☑	☐	
3.06	Is surface runoff diverted to sedimentation facilities?	☐	☑	☐	
3.07	Is the drainage system properly maintained?	☐	☑	☐	reminded
3.08	Are construction works carefully programmed to minimize soil excavation works during rainy seasons?	☐	☑	☐	
3.09	Are exposed soil surface protected by paving as soon as possible to reduce the potential of soil erosion?	☐	☑	☐	
3.10	Are temporary access roads protected by crushed gravel?	☑	☐	☐	access roads are paved
3.11	Are exposed slope surface properly protected?	☑	☐	☐	
3.12	Is trench excavation avoided in the wet season as far as practicable, or if necessary, backfilled in short sections after excavation?	☐	☑	☐	
3.13	Are open stockpiles of construction materials on site covered by tarpaulin or similar fabric during construction?	☐	☑	☐	
3.14	Is runoff from wheel-washing facilities avoided?	☑	☐	☐	
3.15	Is oil leakage or spillage prevented?	☐	☑	☐	
3.16	Are there any measures to prevent the release of oil and grease into the storm drainage system?	☐	☑	☐	
3.17	Are the oil interceptors/ grease traps properly maintained?	☑	☐	☐	
3.18	Are debris and rubbish generated on site collected, handled and disposed of properly to avoid them entering the streams?	☐	☑	☐	
3.19	Are all fuel tanks and storage areas provided with locks and be sited on sealed areas, within bunds of capacity equal to 110% of the storage capacity of the largest tank?	☐	☑	☐	
3.20	Are tanks, containers, storage area bunded and the locations locked as far as possible from the sensitive watercourse and stormwater drains?	☐	☑	☐	
3.21	Are sufficient chemical toilets provided on site to handle sewage from construction work force?	☐	☑	☐	
3.22	Are sewage disposal and toilet maintenance of the portable chemical toilets provided by the licensed contractors?	☐	☑	☐	
3.23	Is concrete washing water properly collected and treated prior to discharge?	☑	☐	☐	
4.00	**Waste Management**				
4.01	Is a trip-ticket system implemented to monitor the disposal of C&D and solid wastes at public filling facilities and landfills?	☐	☑	☐	

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Acuity Sustainability Consulting Limited
Unit 1908, Nos. 301-305 Castle Peak Road, Kwai Chung, N.T.
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Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

		N/A	Yes	No	Photo/Remarks
4.02	Is a recording system implemented to record the amount of wastes generated, recycled and disposed of?	☐	☑	☐	
4.03	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	
4.04	Are chemical waste separated from other waste and collected by a licensed chemical waste collector?	☑	☐	☐	reminder (1)
4.05	Are trip tickets for chemical waste disposal available for inspection?	☑	☐	☐	
4.06	Is chemical waste reused and recycled on site as far as practicable?	☑	☐	☐	
4.07	Are all containers for chemical waste properly labelled?	☑	☑	☐	
4.08	Is chemical waste storage area used solely for storage of chemical waste and properly labelled?	☐	☑	☐	
4.09	Are incompatible chemical wastes stored in different areas?	☑	☐	☐	
4.10	Is the chemical waste storage area enclosed on at least 3 sides and adequately ventilated?	☐	☑	☐	
4.11	Is an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or of 20% by volume of the chemical waste stored in that area, whichever is the greatest, provide?	☐	☑	☐	
4.12	Are a routine cleaning and maintenance programme implemented for drainage systems, sump pits, and oil interceptors?	☐	☑	☐	
4.13	Are sufficient general refuse disposal/collection points provided on site?	☐	☑	☐	
4.14	Is general refuse disposed of properly and regularly?	☐	☑	☐	
4.15	Are appropriate measures adopted to minimize windblown litter and dust during transportation of waste?	☐	☑	☐	
4.16	Are individual collectors for aluminum cans, plastic bottles and packaging material and office paper provided to encourage waste segregation?	☐	☑	☐	
4.17	Are C&D wastes sorted on site?	☐	☑	☐	
4.18	Are C&D waste disposed of properly?	☐	☑	☐	
4.19	Are unused C&D materials or chemicals recycled or reused to reduce the quantity of waste?	☑	☐	☐	
4.20	Are public fill and C&D waste reuse on site as far as practicable to avoid disposal off-site?	☐	☑	☐	
4.21	Are the construction materials stored properly to minimize the potential for damage or contamination?	☐	☑	☐	
4.22	Is a dumping license obtained to deliver public fill to public filling areas?	☐	☑	☐	

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Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

		N/A	Yes	No	Photo/Remarks
5.00	**Landscape and Visual**				
5.01	Are Is site hoarding provided?	✓			
5.02	Are vegetation disturbance minimized or soil protected to reduce potential soil erosion?	✓	✓		
5.03	Is construction light oriented away from the sensitive receivers?	✓			
5.04	Is grass hydroseeding provided to slopes as soon as the completion of works?	✓			
5.05	Are damages to trees outside site boundary due construction works avoided?		✓		
5.06	Is excavation works carried out manually instead of machinery operation within 2.5m vicinity of any preserved trees?	✓			
5.07	Are the retained and transplanted tree(s) properly protected and in good conditions?		✓		
5.08	Are surgery works carried out for damaged trees?	✓			
6.00	**Ecology**				
6.01	Is site runoff properly treated to prevent any silty runoff?		✓		
6.02	Are silt trap installed and well-maintained?	✓			
6.03	Are stockpiles properly covered to avoid generating silty runoff?		✓		
6.04	Are construction works restricted to works area which are clearly defined?		✓		
7.00	**Overall**				
7.01	Is the EM&A properly implemented in general?		✓		

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H.K. Velodrome

Contract no. 13/WSD/16 Mainlaying in Tseung Kwan O

Remark / Follow up of Observation(s) and Non-compliance(s) of Last Weekly Site Inspection:

Observation(s),

(1) Wastewater was observed just treated properly at Hong Kong velodrome. More stringent measures should be implemented, to ensure compliance to requirements of Water Discharge License.

Reminder(s)

(1) Chemical waste should be collected and stored separately from other C&D or general waste materials at Hong Kong Velodrome

(2) Regular cleaning of drainage channel should be conducted to ensure proper discharge of treated wastewater and to prevent the escape of C&D or general waste materials from the construction site at Hong Kong Velodrome.

Signatures:

ET Representative	Contractor's Representative	WSD's Representative	IEC's Representative
(Name: Charlene Lau)	(Name:)	(Name: LAM SAI KUEN ANTHONY)	(Name: Louis Kwan)

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Appendix M

Proactive Environmental Protection Proforma

Proactive Environmental Protection for the Next Reporting Month

Reporting Period	Activity	Major Environmental Impact	Environmental Mitigation Measure
1 March 2021 - 31 March 2021	- Excavation of trench - Mainlaying of pipe - Backfilling of the trench - Work fronts for open trench - Work fronts for pipe jacking	Construction dust and noise generation; construction wastes	- Dust suppression by regular wetting and water spraying - Reduction of noise from equipment and machinery on-site - Sorting and storage of general refuse and construction waste

Appendix N

Impact Monitoring Schedule of Next Reporting Month (Tentative)

Mar-21						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5 Noise Impact Monitoring	6
7	8	9	10	11 Noise Impact Monitoring	12	13
14	15	16	17	18 Noise Impact Monitoring	19	20
21	22	23	24 Noise Impact Monitoring	25	26	27
28	29	30 Noise Impact Monitoring	31			

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

Appendix O

Academic Calendar(s)

CREATIVE SECONDARY SCHOOL CALENDAR 2020-2021									
August	2	Su	Mo	Tu	We	Th	Fr	Sa	
		9	10	11	12	13	14	15	
		16	17	18	19	20	21	22	19/8 First School day
		23	24A	25B	26C	27D	28E	29	
		30	31F						
September	2			1A	2B	3C	4D	5	
	3	6	7E	8F	9A	10B	11C	12	
		13	14D	15E	16F	17A	18B	19	18/09 Swimming gala
	4	20	21C	22D	23E	24F	25A	26	
	5	27	28B	29C	30				28/9 F1/MY1 3-Way Conference, 30/9 Staff Development Day 1
October					1	2	3		1/10 National Day. 2/10 The Day following Mid-Autumn Festival
		4	5D	6E	7F	8A	9B	10	
	6	11	12C	13D	14E	15F	16A	17	13/10 F6 3-Way Conference
		18	19	20	21	22	23	24	19-24 Term Break
	7	25	26	27B	28C	29D	30E	31	26/10 Chung Yeung Festival Holiday.
November	8	1	2F	3A	4B	5C	6D	7	
		8	9	10E	11F	12A	13B	14	9/11/2020 Staff Development Day 2, 10/11 F5 3-Way Conference
	9	15	16C	17D	18E	19F	20A	21	
	10	22	23B	24C	25D	26E	27F	28	
	11	29	30A						
December				1B	2C	3D	4D	5	
	12	6	7E	8F	9A	10B	11C	12	
		13	14D	15E	16F	17A	18B	19	15/12 F4 3-Way Conference
		20	21	22	23	24	25	26	25/12 Christmas Day 16/12 The First Weekday after Chrismas Day
		27	28	29	30	31			21/12-2/1 Christimas & New Year Holiday
January							1	2	1/1 New Year's Day
	13	3	4C	5D	6E	7F	8A	9	7/1 F3 3-Way Conference, 6-19/1 F6 HKDSE & IBDP Mock Exams
	14	10	11B	12C	13D	14E	15F	16	
	15	17	18A	19B	20C	21D	22E	23	
	16	24	25F	26A	27B	28C	29D	30	
		31							
February	17		1E	2F	3A	4B	5C	6	
		7	8D	9E	10	11	12	13	12-15 New year Holiday. 10-20/2 Chinese New Year Holiday
		14	15	16	17	18	19	20	
	18	21	22F	23A	24B	25C	26D	27	
		28							
March	19		1E	2F	3A	4B	5C	6	4/3 F2 3-Way Conference, 5/3 Last school day for F6 HKDSE students
		7	8D	9E	10F	11A	12B	13	
	20	14	15C	16D	17E	18F	19A	20	
		21	22	23	24	25	26	27	22-26/3 Creative Week
	21	28	29B	30C	31D				
April						1	2	3	01/04-10/04 Easter Holiday. 02/04 Good Friday, 03/04 The Day following Good Friday
		4	5	6	7	8	9	10	04/04 Ching Ming Festival. 05/04 Easter Monday, 9-19/4 F6 HKDSE Exams-CSS Hall
	22	11	12E	13F	14A	15B	16C	17	16/4 Last school day for F6 IBDP students
		18	19D	20E	21F	22A	23B	24	
	23	25	26C	27D	28E	29F	30A		27/4 F1/MY1 3-Way Conference 30/4-19/5 F6 IBDP May Exams
May								1	1/5 Labour Day
	24	2	3B	4C	5D	6E	7F	8	4-17/5 F5 HKDSE Final Exams
	25	9	10A	11B	12C	13D	14E	15	
	26	16	17F	18A	19	20B	21C	22	19/5 Birthday of Buddha, 21-27/5 F4 HKDSE Exams & F5 IBDP Final Exams
		23	24D	25E	26F	27A	28B	29	
	27	30	31C						
June				1D	2E	3F	4A	5	
	28	6	7B	8C	9D	10E	11F	12	
	29	13	14	15A	16B	17C	18D	19	14/06 Tuen Ng Festival
	30	20	21E	22F	23A	24B	25C	26	
		27	28D	29E	30F				
July						1	2	3	01/07 HKSAR Establishment Day, 2/7-14/8 Summer Holiday
		4	5	6	7	8	9	10	
		11	12	13	14	15	16	17	
		18	19	20	21	22	23	24	
		25	26	27	28	29	30	31	
August		1	2	3	4	5	6	7	
		8	9	10	11	12	13	14	
		15	16	17	18	19	20	21	
		22	23	24	25	26	27	28	
		29	30	31					

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中華人民共和國香港特別行政區政府總部教育局
Education Bureau
Government Secretariat, The Government of the Hong Kong Special Administrative Region
The People's Republic of China

本局檔號 Our Ref : EDB(SDCT)3/PRO/10/1/1 電話 Telephone :
來函檔號 Your Ref. : 傳真 Fax Line :

30 November 2020

To: Supervisors / Principals of All Secondary Schools, Primary Schools, Special Schools, Schools offering Non-Local Curriculum, Kindergartens and Kindergarten-cum-Child Care Centres and Private Schools offering Non-Formal Curriculum

Dear Supervisor / Principal,

Arrangements of Suspension of Face-to-face Classes for All Schools

Further to the Government's earlier separate announcements on suspension of face-to-face classes and school activities for all kindergartens and Primary 1 to Primary 3 levels of primary schools until December 6, the Government announced yesterday (29 November) that in light of the worsening situation of the COVID-19 epidemic, all kindergartens as well as primary and secondary schools (including special schools and schools offering non-local curriculum) would suspend face-to-face classes and school activities starting from 2 December (Wednesday) this year until the beginning of school Christmas holidays. Private schools offering non-formal curriculum (commonly known as "tutorial schools") will suspend face-to-face classes for all classes for two weeks until 15 December.

https://www.edb.gov.hk/attachment/en/sch-admin/admin/about-sch/diseases-prevention/edb_20201130_eng.pdf

中華人民共和國香港特別行政區政府總部教育局
Education Bureau
Government Secretariat, The Government of the Hong Kong Special Administrative Region
The People's Republic of China

本局檔號 Our Ref : EDB(SDCT)3/PRO/10/1/1 電話 Telephone :
來函檔號 Your Ref. : 傳真 Fax Line :

21 December 2020

To: Supervisors / Principals of All Secondary Schools, Primary Schools, Special Schools, Schools offering Non-Local Curriculum, Kindergartens and Kindergarten-cum-Child Care Centres and Private Schools offering Non-Formal Curriculum

Dear Supervisor / Principal,

Arrangements of Further Suspension of Face-to-Face Classes for All Schools

Since the situation of COVID-19 is still very severe, the Government needs to take stringent measures to cope with the epidemic. The Education Bureau (EDB) has announced that all kindergartens as well as primary and secondary schools (including special schools and schools offering non-local curriculum) will further suspend face-to-face classes and school activities after the end of the scheduled Christmas holidays until 10 January 2021. For private schools offering non-formal curriculum (commonly known as "tutorial schools"), face-to-face classes and school activities of all levels will also be suspended until 10 January 2021.

https://www.edb.gov.hk/attachment/en/sch-admin/admin/about-sch/diseases-prevention/edb_20201221_eng.pdf

中華人民共和國香港特別行政區政府總部教育局
Education Bureau
Government Secretariat, The Government of the Hong Kong Special Administrative Region
The People's Republic of China

本局檔號 Our Ref : EDB(SDCT)3/PRO/10/1/1 電話 Telephone :
來函檔號 Your Ref. : 傳真 Fax Line :

4 January 2021

To: Supervisors / Principals of All Secondary Schools, Primary Schools, Special Schools, Schools offering Non-Local Curriculum, Kindergartens and Kindergarten-cum-Child Care Centres and Private Schools offering Non-Formal Curriculum

Dear Supervisor / Principal,

Continuation of Suspension of Face-to-Face Classes for Schools in Hong Kong: The Arrangements

Since the situation of COVID-19 is still severe, the Government has decided to maintain the existing social distancing measures until 20 January 2021. Schools will dovetail with the arrangements, and the Education Bureau (EDB) has decided that all kindergartens, primary and secondary schools (including special schools and schools offering non-local curriculum) as well as schools offering non-formal curriculum (PSNFCs) (commonly known as "tutorial schools") will continue the suspension of face-to-face classes and school activities after 10 January 2021. The suspension will continue until the beginning of schools' Chinese New Year holidays.

Sourced from:
https://www.edb.gov.hk/attachment/en/sch-admin/admin/about-sch/diseases-prevention/edb_20210104_eng.pdf