ANEWR

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

Attention: Mr Y M Chan

Your reference:

Our reference: HKWSD201/50/106234

Date: 15 January 2020

BY POST

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.17

We refer to emails of 14 and 15 January 2020 attaching Monthly EM&A Report No.17 for the captioned project prepared by the ET.

We have no further comments and hereby verify the Monthly EM&A Report No.17 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 Francis Lau on 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/LYMA/LHYF/lhmh

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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.17
(Period from 1 to 31 December 2019)

December 2019
(Rev. 0)

	Prepared by:	Certified by:
Name	Karen Cheung	Jacky Leung
Position	Environmental Team	Environmental Team Leader
Signature		
Date:	14 January 2020	14 January 2020

Revision History

0	1st Submission	14/01/2020
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 17th 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 December 2019 to 31 December 2019.

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 following:

Location	Works Conducted in the reporting month
Portion H of the Project Site	• Pipes have been laid from CH.C 11+65 (CH.CA 04+25) to CH.C 7+33 (CH.CA -0+07). • Backfilling of trench to the required level from CH.C 11+65 (CH.CA 04+25) to CH.C 7+33 (CH.CA -0+07) was completed. • Inspection pit for trenchless Pit 137B was in progress. • Trench excavation from CH.CT 0+07 will continue.
Portion J of the Project Site	• 2 nos. of inspection pits at an abandoned road near Mau Wu Tsai Village and Pit 137B inside TKO Area 137 were in progress for alternative alignment. • Preparation works for bend block construction at CH.A 7+20 was in progress for the upcoming lane shifting from the fast lane to the slow land due to obstructions encountered. Installation of watermain was in progress. • Concreting for combined thrust block at CH.A 12+45 was completed. • Remedial works were performed at the cycling track and carriageway at Pit B. • Construction work at Pit C was resumed.

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

- Construction dust and noise generation from the erection of fencing and gates, ground investigation works, saw cutting of concrete surface and trial pits 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:

- Dust suppression by regular wetting and water spraying for the erection of fencing and gates and trial pits works
- 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. No noise monitoring was conducted in the reporting month due to the overly distant monitoring station from the works location. No project-related exceedance of the Action Level was recorded during the reporting period.

Complaint Handling and Prosecution

A9. No project-related environmental complaint was received during the reporting period.

A10. Neither notifications of summons nor prosecution was received for the Project.

Reporting Change

A11. There were no changes to be reported that may affect the on-going EM&A programme.

Summary of Upcoming Key Issues and Key Mitigation Measures

A12. Key works in January 2020 (the next reporting month) for the Project will include the followings:

Location	Works Conducting in the next reporting month
Portion H of the Project Site	• Further liaison with relevant government department/contractors for the continuation of works in TKO Area 137 was on-going. • Site Clearance of early possessed area and make ready for return of land to WSD. • Site liaison for temporary land possession for trench excavation towards SENTX (South-East New Territories Landfill Extension) area for mainlaying in TKO Area 137. • Trial pit for 137B will continue.
Portion J of the Project Site	• 2 nos. of work fronts implemented as scheduled for the open-trench between CH. A 6+64 to 13+70 will continue. • Relocation of traffic signal light at Pit A at Wan Po Road near Chun Yat Street under arrangement with EMSD. • 2 nos. of work fronts including Pit B and Pit C implemented as scheduled for pipe jacking at CH.A 16+00 and CH.A 19+26, respectively. • Implement approved (temporary traffic management scheme) TTMS at Landfill Stage 1 cycle track for CE no. 34 mainlaying works. • Continuation of trial pits works at rural road near Mau Wu Tsai Village (Po Lam South Road) for alternative alignment. • Arrange new trial pit at Mau Wu Tsai Village (Po Lam South Road) for alternative alignment. • Continue preliminary design of river crossing at Tsui Lam. • Carry out site clearance at Landfill stage 1 – Area A for the conduction of 2 inspection pits to finalize the alignment of inclined drillhole to finalize the design level of the pipe jacking underneath across MTR tunnels.

A13. The major environmental impacts brought by the above construction works will include:

- Construction dust and noise generation from trial pit works and open-trench
- Waste generation from construction activities

A14. 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 trial pit works
- 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

1.1.1 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.

1.1.2 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.

1.1.3 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

1.2.1 This is the 17th Monthly EM&A Report for the Project which summarizes the key findings of the EM&A programme during the reporting period from 1 December 2019 to 31 December 2019.

1.3 Project Organization

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

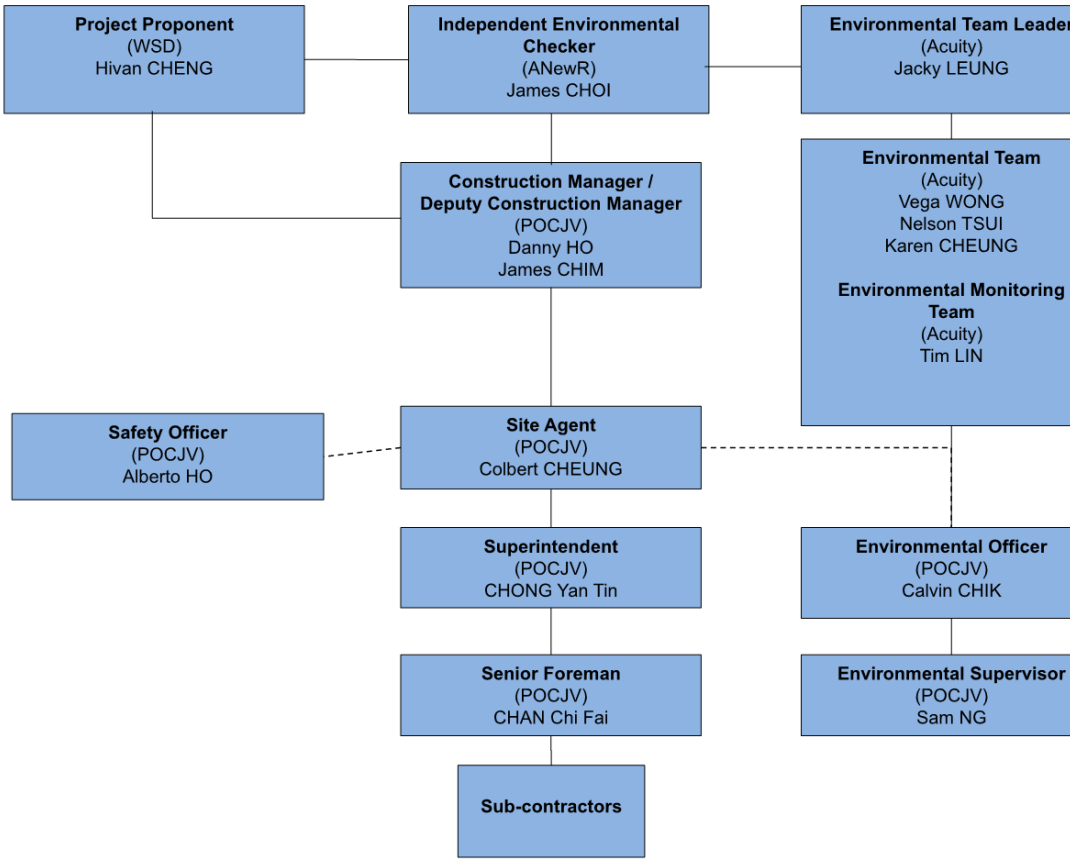

Figure 1.1 Project Organization Chart

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

Table 1.1 Contact Details of Key Personnel

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

1.4.1 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

Location of works	Construction works undertaken	Remarks on progress
Portion H of the Project Site	• Pipe laying from CH.C 11+65 (CH.CA 4+25) to CH.C 7+33 (CH.CA 0-07) • Backfilling of trench to the required level from CH.C 11+65 (CH.CA 4+25) to CH.C 7+33 (CH.CA 0-07)	Completed
	• Inspection pit for proposed trenchless Pit 137B • Trench excavation from CH.CT 0+07	In progress
Portion J of the Project Site	• Pipe laying from CH.A 0+00 to 0+78 • Perimeter grouting between shield head and sleeve pipe was completed at CH7+20 • Concreting for combined thrust block at CH.A 12+45 was completed.	Completed

Location of works	Construction works undertaken	Remarks on progress
	• Remedial works were performed at the cycling track and carriageway at Pit B.	
	• 2 nos. of inspection pits at an abandoned road near Mau Wu Tsai Village and Pit 137B inside TKO Area 137 were in progress for alternative alignment. • Preparation works for bend block construction at CH7+20 was in progress for the upcoming lane shifting from the fast lane to the slow land due to obstructions encountered. Installation of watermain was in progress. • Construction work at Pit C was resumed.	In progress

1.5 Summary of Environmental Status

1.5.1 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-RE1016-19	Until 29 June 2020	-

1.5.2 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

1.5.3 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.

1.5.4 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

2.1.1 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.

2.1.2 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-minutes measurements Leq, L10 and L90 levels recorded at each monitoring station between 0700 and 1900 hours on normal weekdays.

2.1.3 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.

2.1.4 No impact monitoring for noise impact was conducted in the reporting month due to the overly distant monitoring station from the works location, where they were farther than 1 km from the closet monitoring station NSR4 to the works location.

2.2 Noise Monitoring Parameters, Time, Frequency

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

2.2.2 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 hours 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 hours	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

2.3.1 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.

2.3.2 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

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

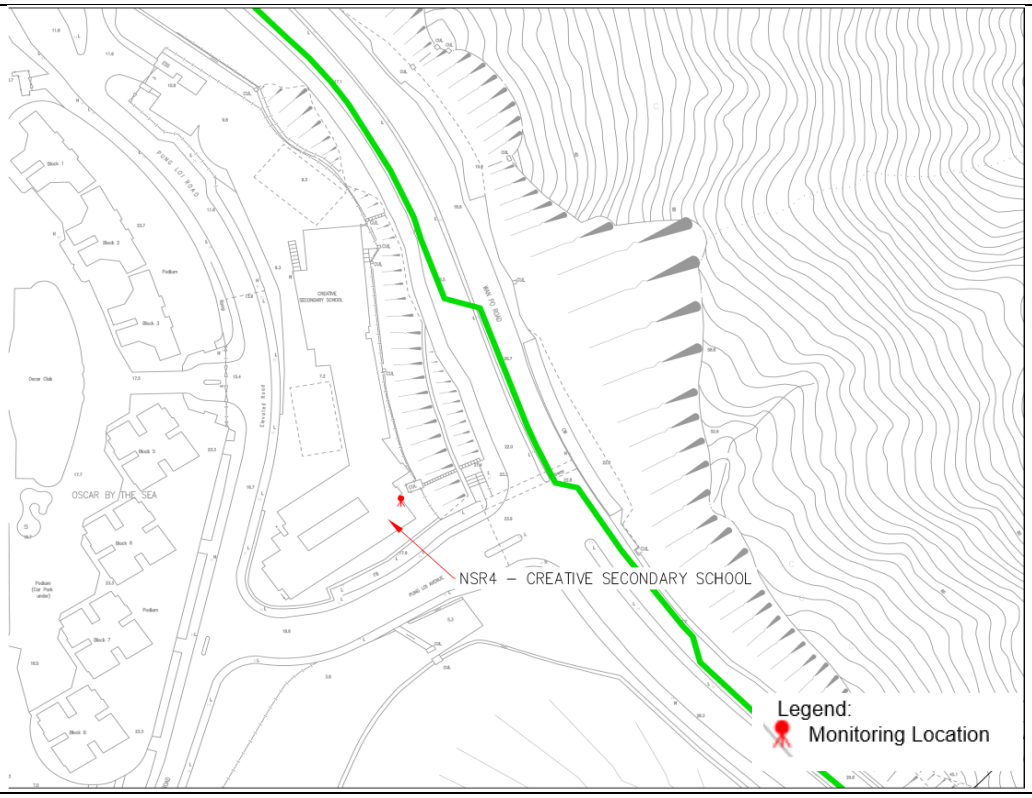

Figure 2.1 NSR4 Creative Secondary School

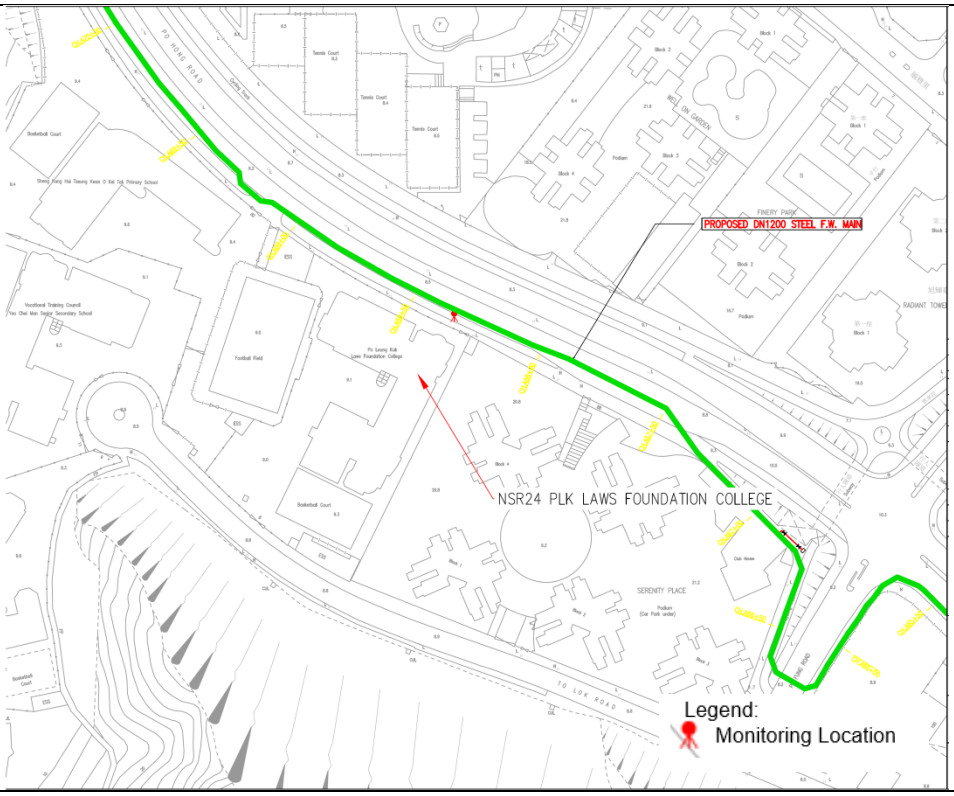

Figure 2.2 NSR24 PLK Laws Foundation College

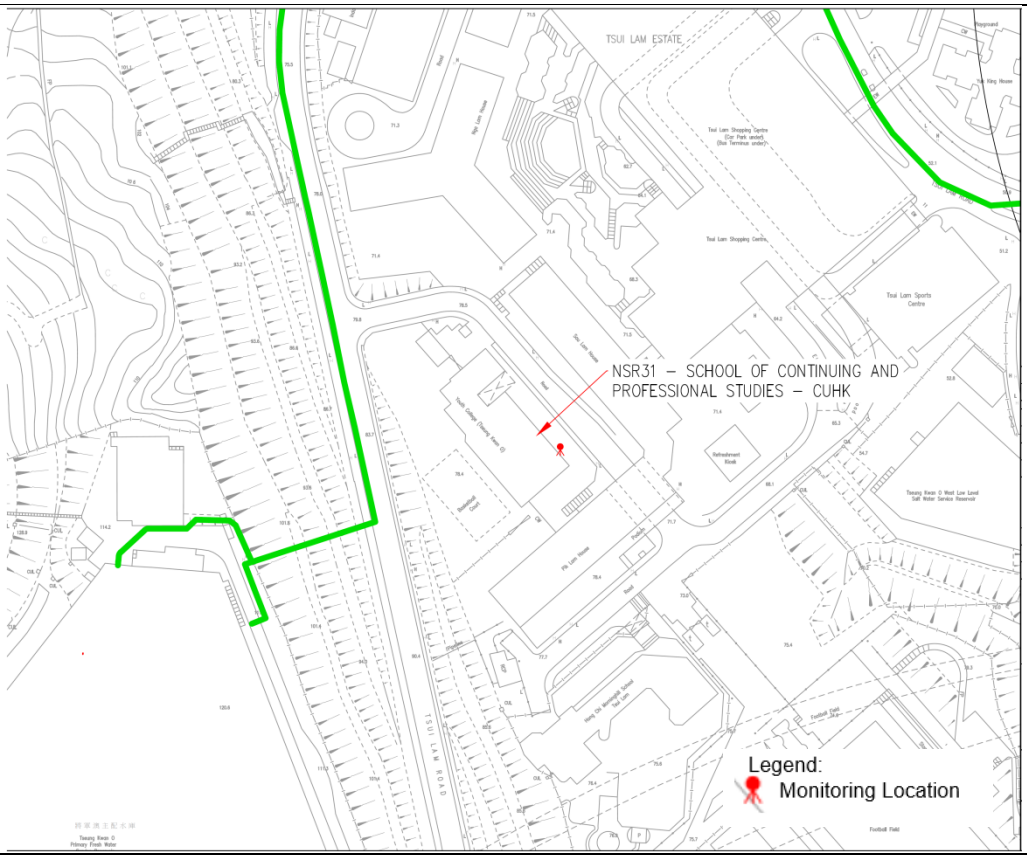

Figure 2.3 NSR31 School of Continuing and Professional Studies - CUHK

2.4 Impact Monitoring Methodology

2.4.1 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**. **Appendix E** is intentionally left blank since no impact monitoring equipment was used in the reporting month.

2.4.2 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	Detection Limit
Sound Level Meter	Nti XL2	30-130 dB(A)
Sound Level Meter Calibrator	Rion NC-74	Nil
Pocket Wind Meter Anemometer	Kestrel 1000 Wind Meter	Nil

2.5 Action and Limit Levels

2.5.1 The Action/Limit Levels 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	Limit (dB(A))
0700-1900 hours 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.		

2.5.2 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

2.6.1 Referring to EM&A manual Section 4.1.2, no impact monitoring for noise impact was conducted in the reporting period.

2.6.2 Detailed monitoring results are presented in **Appendix G**. **Appendix G** is intentionally left blank since there is no impact monitoring for noise impact in the reporting month.

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)
Dec-19	0.052	0.000	0.002	0.062	0.000	0.000

4. LANDFILL GAS MONITORING

4.1 Monitoring Requirement

4.1.1 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

4.2.1 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, 290 times of monitoring was recorded.

4.2.2 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.

4.2.3 The area required to be monitored for landfill gas in the reporting period are shown in **Figure 4.1** to **Figure 4.7.**

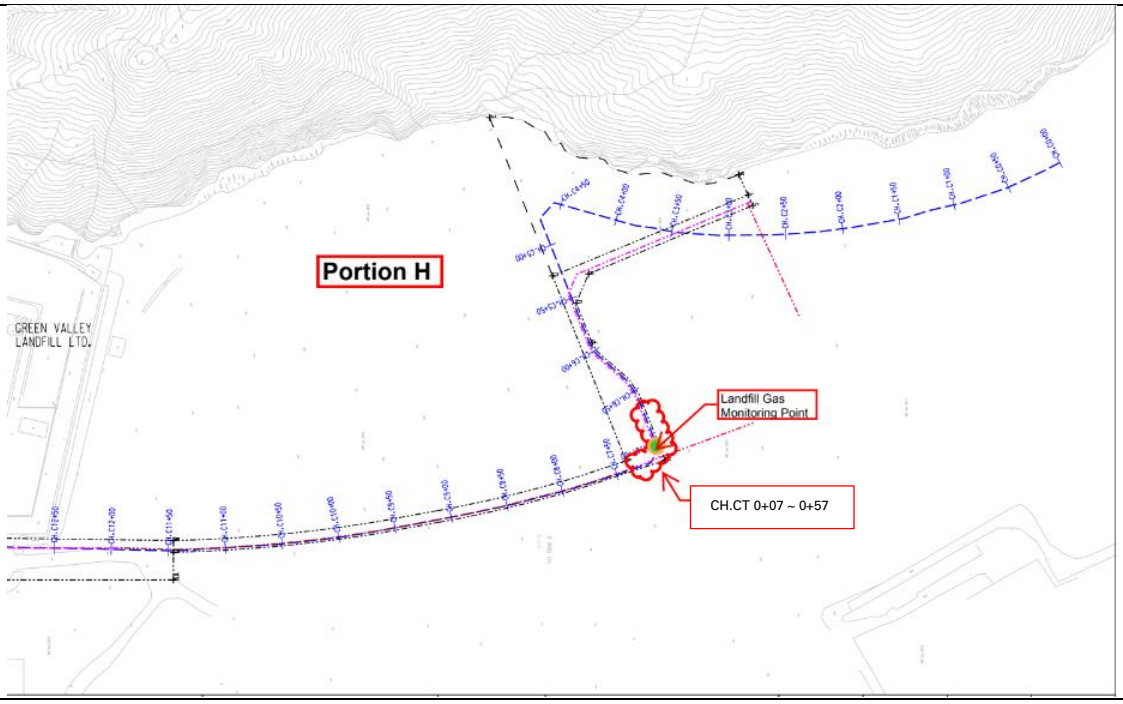

Figure 4.1 Monitoring Location - CH.CT 0+07 ~ 0+57

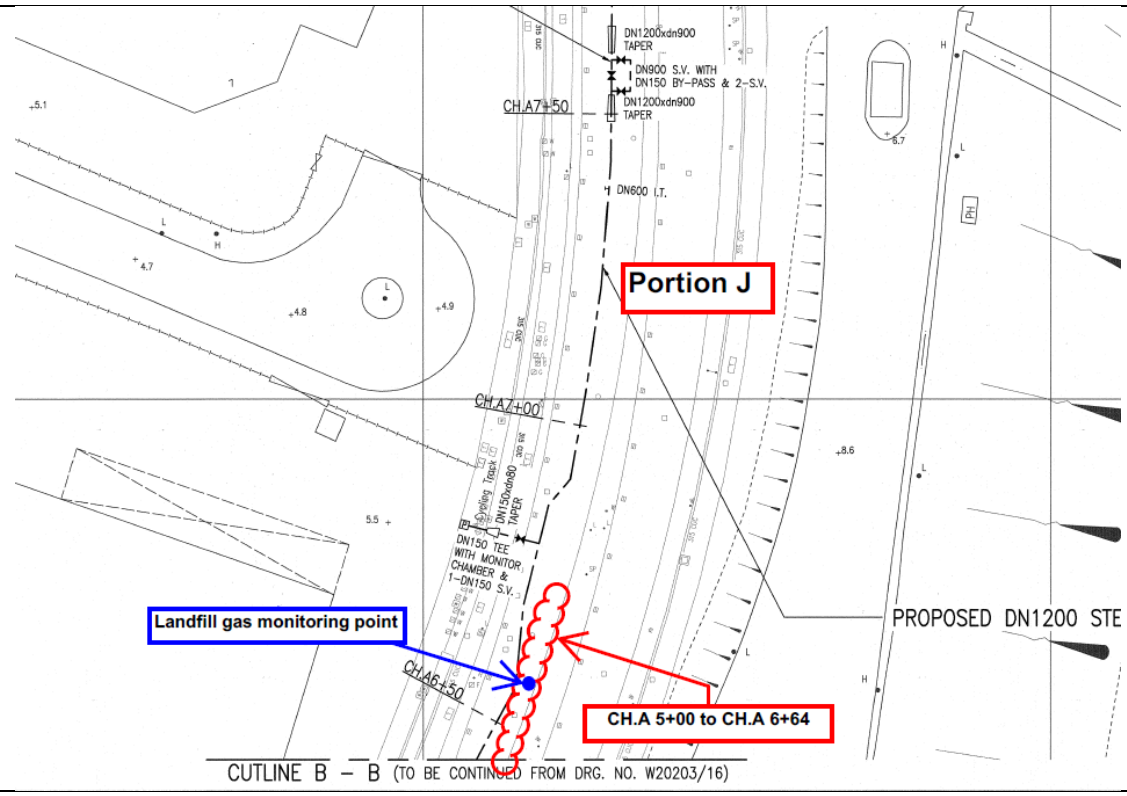

Figure 4.2 Monitoring Location - CH.A 6+64

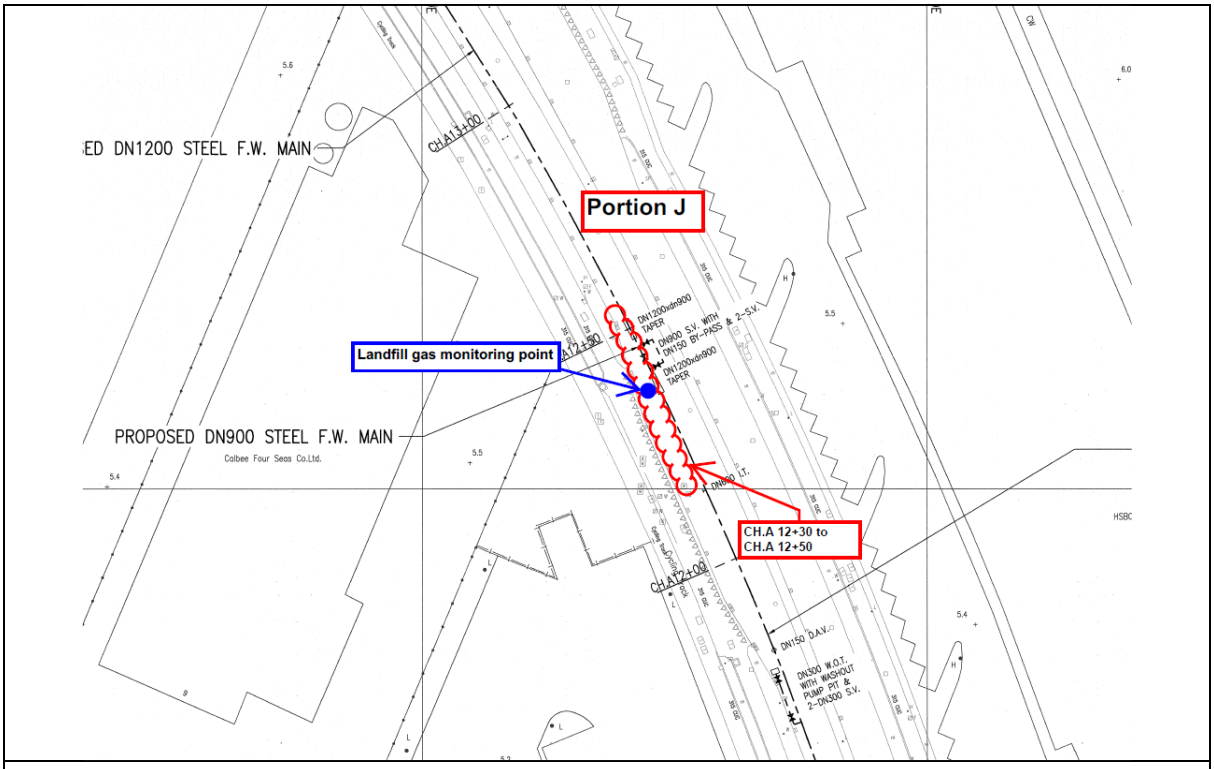

Figure 4.3 Monitoring Location – CH.A 12+40

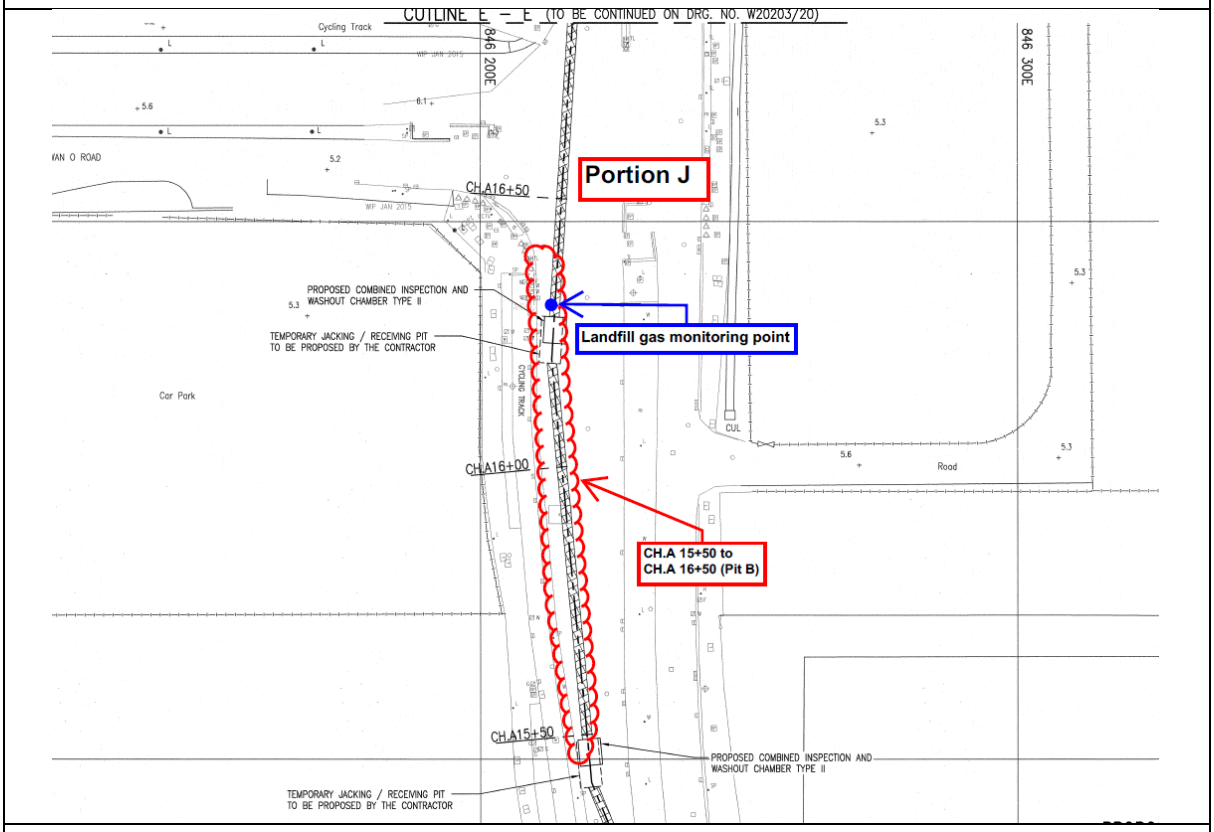

Figure 4.4 Monitoring Location – CH.A 16+00 (Jacking Pit B)

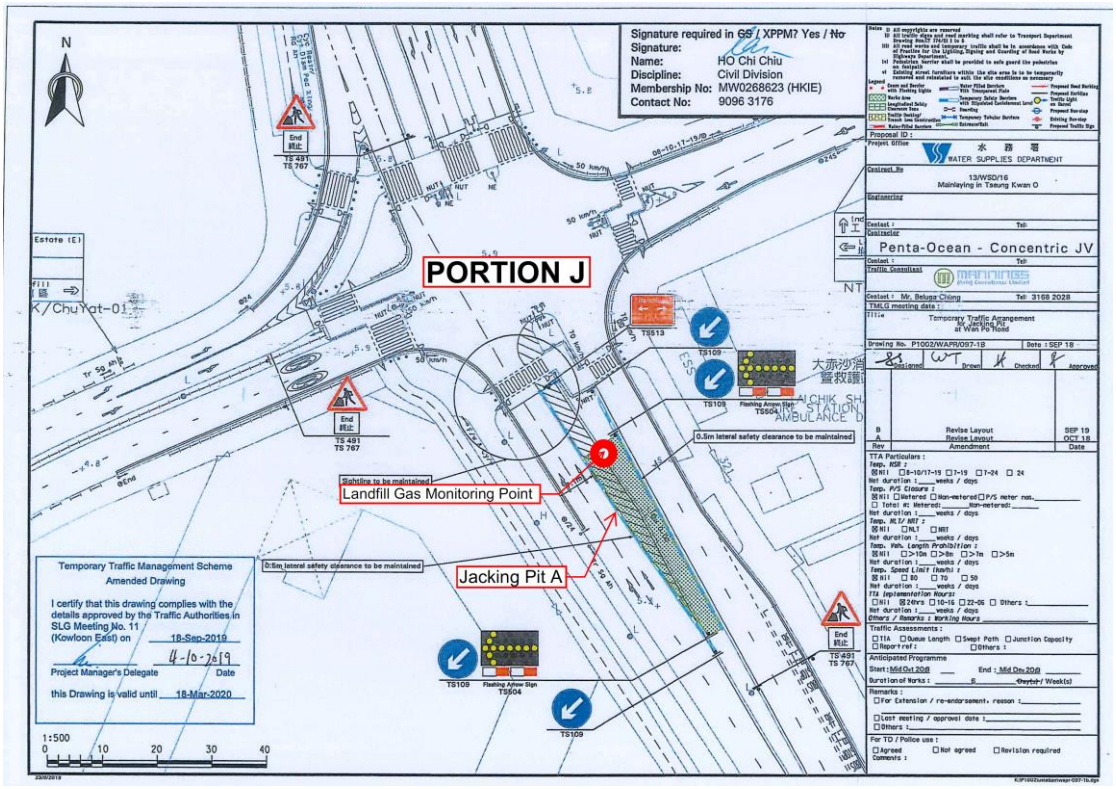

Figure 4.5 Monitoring Location – Pit A

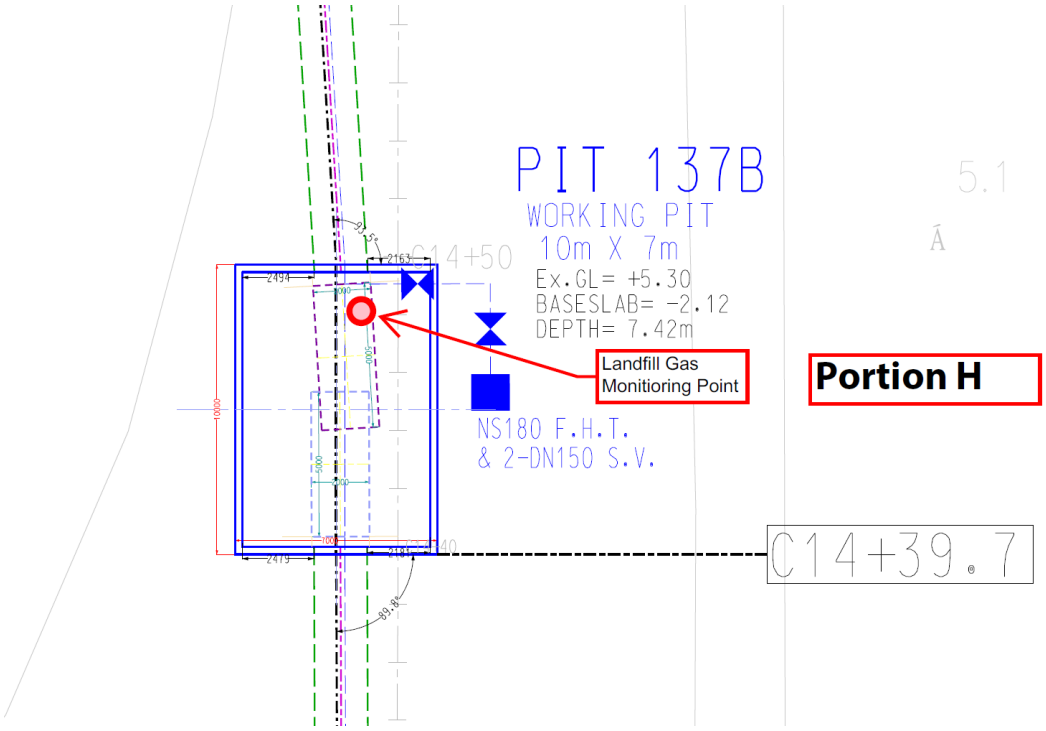

Figure 4.6 Monitoring Location – Pit 137B (137 Pit B)

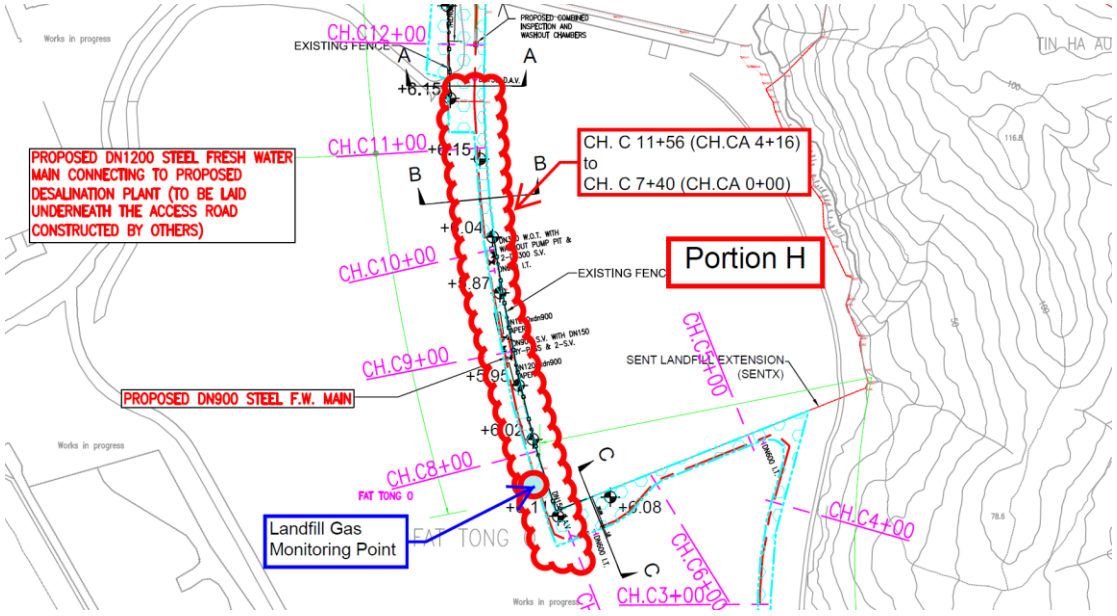

Figure 4.7 Monitoring Location –CH.CA 0+00 to CH.CA 04+16 (CH.CA0+60 ~ 4+25)

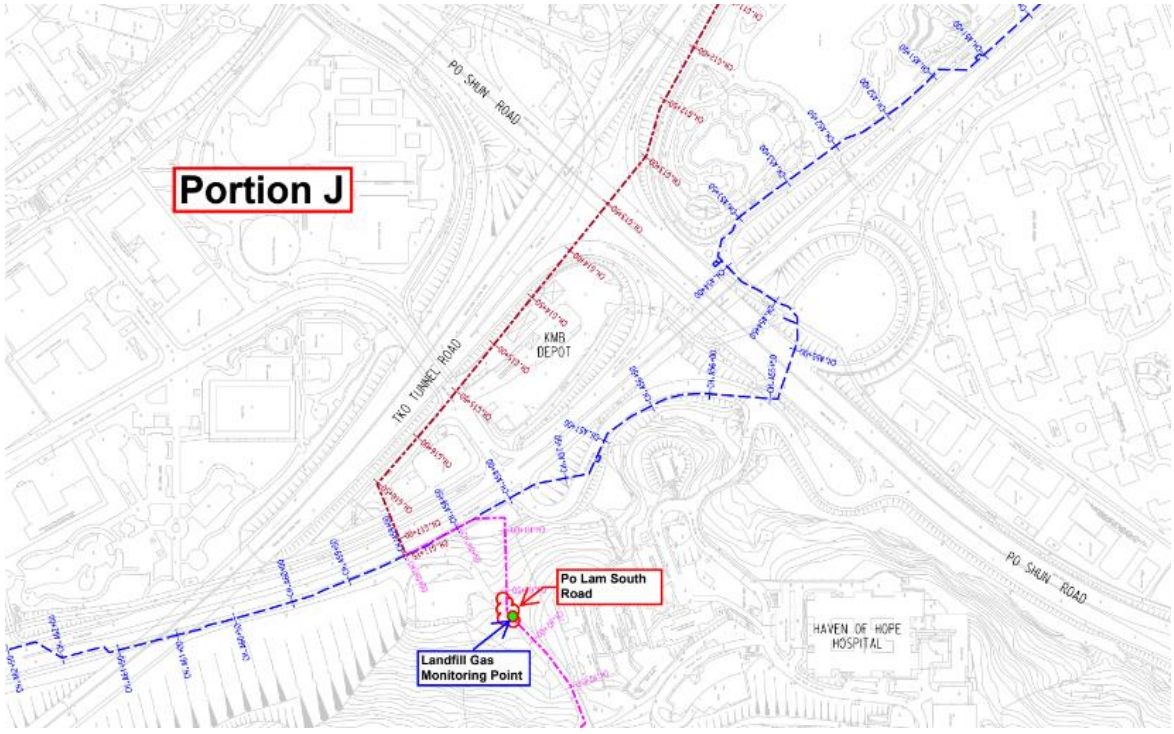

Figure 4.8 Monitoring Location – Mau Wu Tsai 1 (Po Lam South Road 1)

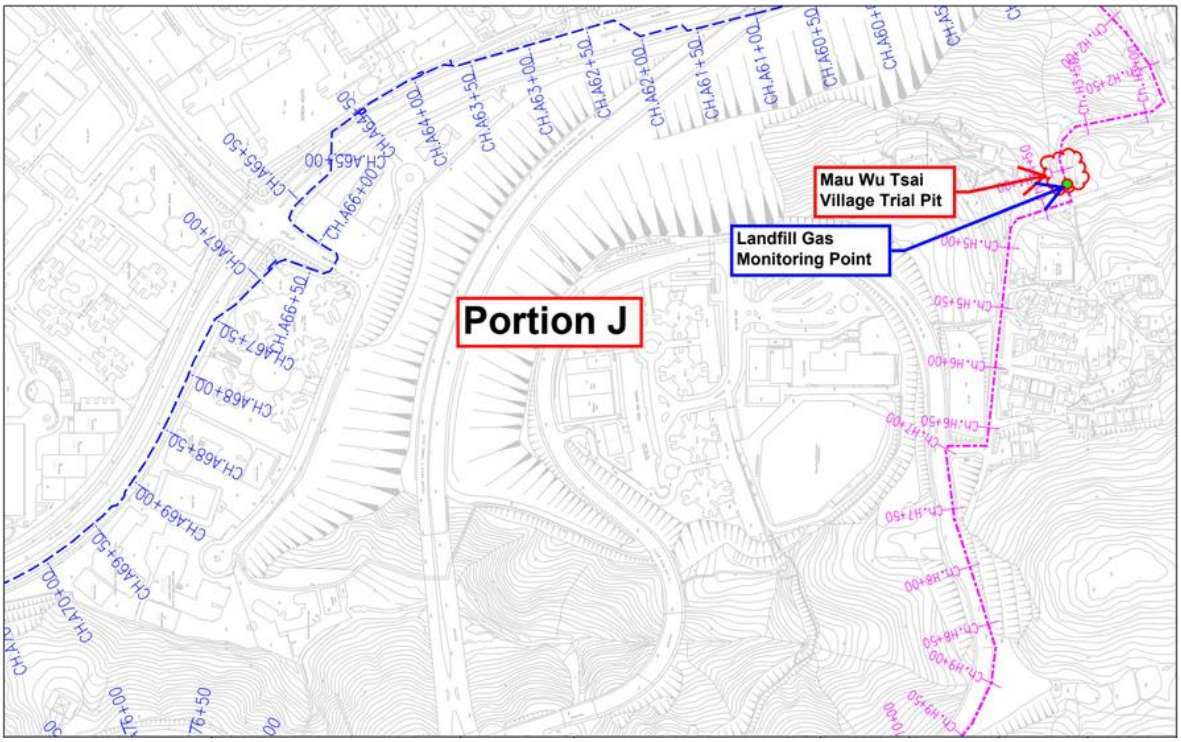

Figure 4.8 Monitoring Location – Mau Wu Tsai 2

4.3 Monitoring Parameters

4.3.1 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.

4.3.2 The following parameters were monitored:

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

4.4 Action and Limit Level

4.4.1 Action and Limit Level is 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

4.5.1 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	>0.5% by volume; and
carbon dioxide	<19% by volume
barometric pressure	mBar (absolute)

4.5.2 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 II	28 August 2020

4.6 Monitoring Results

4.6.1 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 290 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**:

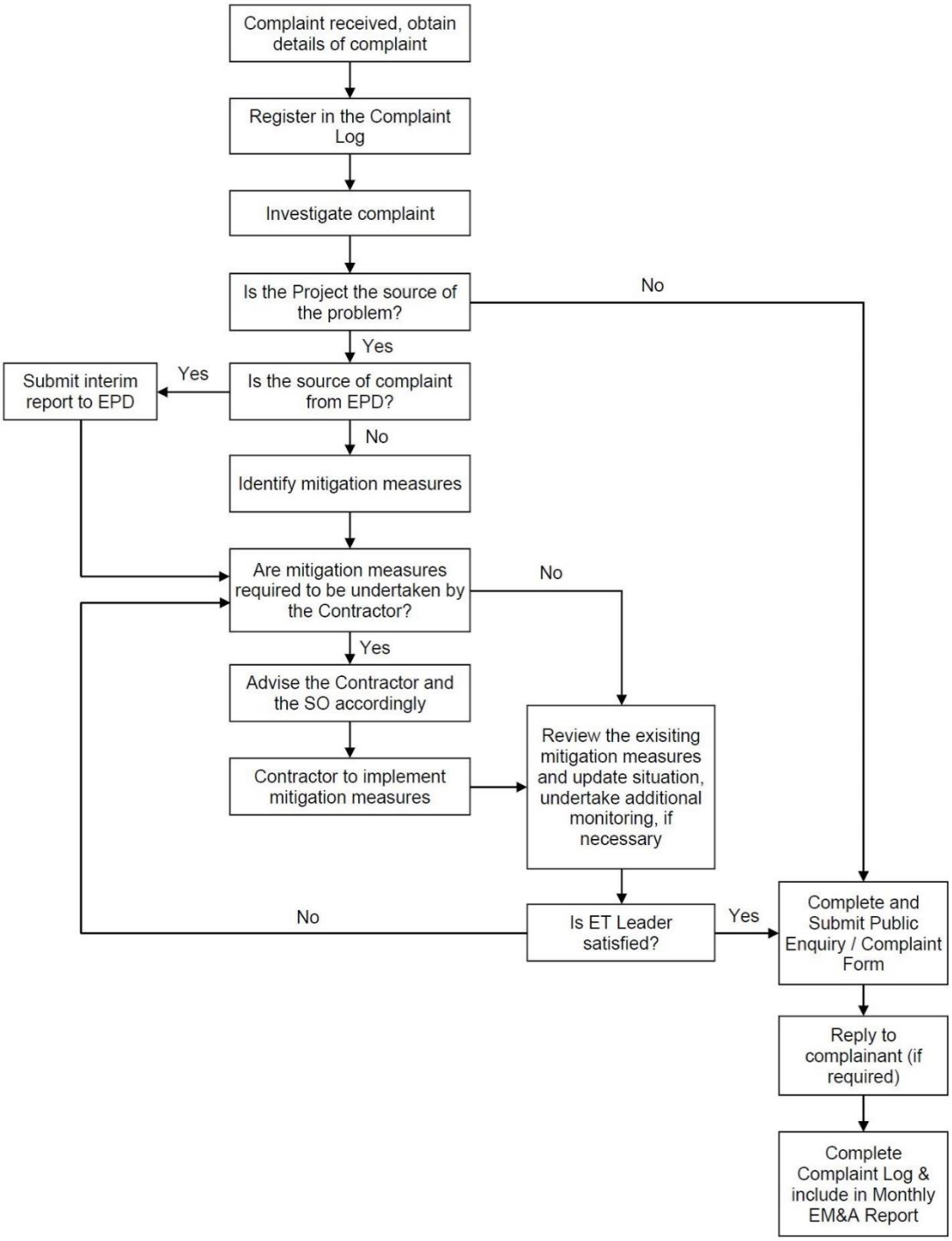

Figure 5.1 Environmental Complaint Handling Procedure

5.2 No noise monitoring was conducted during the reporting period since there are no project-related construction activities undertaken within a radius of 300m from the monitoring locations.

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

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

5.5 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 5, 12, 18, 23 and 31 December 2019 at the site portions list in **Table 6.1** below.

Table 6.1 Site Inspection Record

Date	Inspected Site Portion	Time
5 December 2019	Portion F and J	9:30am – 12:00pm
12 December 2019	Portion J	9:30am – 12:00pm
18 December 2019	Portion J	9:30am – 12:00pm
23 December 2019	Portion F, H and J	9:30am – 12:00pm
31 December 2019	Portion J	9:30am – 12:00pm

6.2 One joint site inspection with IEC was carried out on 31 December 2019.

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
5 December 2019	1. Accumulated mud-pile was observed directly next to the water-barriers. The mud-pile should be treated properly to prevent it to escape from the construction site. 2. Sandbags should be fully placed along the working boundaries. 3. Road section near the site exits should be free from dusty materials. 4. Excess underground water should be cleaned regularly to prevent the accumulation or contamination of other construction materials. 5. The drip tray was observed without the plug/stopper that may lead to the leakage of chemicals.	1. The mud-pile next to the water-barrier was cleaned. 2. Sandbags have been placed fully along the construction boundaries. 3. Road Section near the site exit was cleaned. 4. Underground water was pumped regularly. 5. The drip tray was plugged.

Date	Environmental Observations	Follow-up Status
12 December 2019	1. Sandbags should be fully placed along the working boundaries. 2. The drip tray was observed without the plug/stopper that may lead to the leakage of chemicals. 3. Construction wastes should be properly treated to prevent dust emission.	1. Sandbags were placed fully along the construction boundaries. 2. The plug was added on the drip tray. 3. Construction waste was cleaned.
18 December 2019	1. Dust suppression mitigations should be implemented to prevent dust emission. 2. Accumulated mud-pile was observed directly next to the water-barriers. The mud-pile should be treated properly to prevent it to escape from the construction site. 3. Construction wastes should be properly treated to prevent dust emission.	1. Mitigations were implemented to prevent dust emission. 2. The mud-pile was cleaned. 3. Construction wastes were treated.
23 December 2019	1. Chemical stain on the ground should be cleaned. 2. Chemicals should be placed properly. 3. Construction waste should be treated properly.	1. Chemical was cleaned. 2. Chemicals have been removed. 3. Construction waste was treated.
31 December 2019	No major observations were recorded.	N/A

6.4 According to the EIA Study Report, Environmental Permit, contract documents and EM&A Manual, the mitigation measures detailed in the documents are 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 anticipated in the next reporting period for the Project will include in **Table 7.1**.

Table 7.1. Key works for the next reporting month

Location	Works Conducted in the next reporting month
Portion H of the Project Site	• Further liaison with relevant government department/contractors for the continuation of works in TKO Area 137 was on-going. • Site Clearance of early possessed area and make ready for return of land to WSD. • Site liaison for temporary land possession for trench excavation towards SENTX Area for mainlaying in TKO Area 137. • Trial pit for 137B will continue. • Trench excavation from CH.CT 0+07 will continue.
Portion J of the Project Site	• 2 nos. of work fronts implemented as scheduled for the open-trench between CH. A 6+64 to 13+70 will continue. • Relocation of traffic signal light at Pit A at Wan Po Road near Chun Yat Street under arrangement with EMSD. • 2 nos. of work fronts including Pit B and Pit C implemented as scheduled for pipe jacking at CH.A 16+00 and CH.A 19+26, respectively. • Implement approved TTMS at Landfill Stage 1 cycle track for CE no. 34 mainlaying works. • Continuation of trial pits works at rural road near Mau Wu Tsai Village (Po Lam South Road) for alternative alignment. • Arrange new trial pit at Mau Wu Tsai Village (Po Lam South Road) for alternative alignment. • Continue preliminary design of river crossing at Tsui Lam. • Carry out site clearance at Landfill stage 1 – Area A for the conduction of 2 inspection pits to finalize the alignment of inclined drillhole to finalize the design level of the pipe jacking underneath across MTR tunnels.

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

- Construction dust and noise generation from trial pits works, trench excavating 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 trial pits works, trench excavation
- 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 impact monitoring schedule for the next reporting month is attached in **Appendix N**. **Appendix N** is intentionally left blank since no impact monitoring will be conducted in the next reporting month.

8. CONCLUSION AND RECOMMENDATIONS

8.1 This 17th monthly Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 December 2019 to 31 December 2019 in accordance with the EM&A Manual and the requirement under EP-503/2015/A.

8.2 No noise monitoring was conducted in the reporting period due to the over distant monitoring station from the works location.

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

8.4 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.

8.5 According to the environmental site inspections performed in the reporting month, the Contractor is reminded to pay attention on maintaining site tidiness, dust suppression mitigations and proper materials storage.

8.6 No environmental complaint was received in the reporting period.

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

8.8 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

13/WSD/16 - Mainlaying in Tseung Kwan O

Outline Construction Programme (As on 31 Aug 2018)

YEAR	LOCATION		FROM	TO	2018												2019												2020												2021											
MONTH	PJ-ID	ROAD			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Section A (TKO137 to Wan Po Road)																																																				
Section A1 (Open-trench)	-	Wan Po Road	0	362																																																
Section A2 (Pipe-Jacking)	A	Wan Po Road	362	530																																																
Section A3 (Open-trench)	-	Wan Po Road	530	1379								#																																								
Section A4 (Pipe-Jacking)	B	Wan Po Road	1379	2268																																																
Section A5 (Open-trench)	-	Wan Po Road	2268	4113																																															
Section B (Po Yap Road to Po Hong Road)																																																			
Section B1 (Pipe-Jacking)	C	Po Yap Road	4113	4200																																																
Section B2 (Open-trench)	-	Po Yap & Po Hong Rd	4200	5500																																															
Section B3 (Pipe-Jacking)	D1 & D2	Po Hong & Ling Hong Rd	5500	5600																																															
Section B4 (Open-trench)	-	Ling Hong Road	5600	5799																																															
Section B5 (Pipe-Jacking)	E	Po Hong Road	5799	5838																																															
Section B6 (Open-trench)	-	Po Hong Road	5838	6254																																															
Section B7 (Pipe-Jacking)	F	Po Hong Road	6254	6368																																															
Section B8 (Open-trench)	-	Po Hong Road	6368	7250																																															
Section C (Po Lam Road to Tsui Lam to TKOFWPSR*)																																																			
Section C1 (Open-trench)	-	Po Lam Road	7250	7740																																															
Section C2 (Pipe-Jacking)	G	Tsui Lam Road	7740	7770																																															
Section C3 (Open-trench)	-	Tsui Lam Road	7770	8300																																															
Section C4 (Slope)	-	TKOFWPSR	8300	8376																																														

 # Commencement of works at CH.A 720 on 30 Aug 2018.

*TKOFWPSR - Tseung Kwan O Fresh Water Primiary Service Reservoir

**Remaining 1581m within TKO137 with site possession from Nov 2019

Appendix B

Overview of Mainlaying in Tseung Kwan O

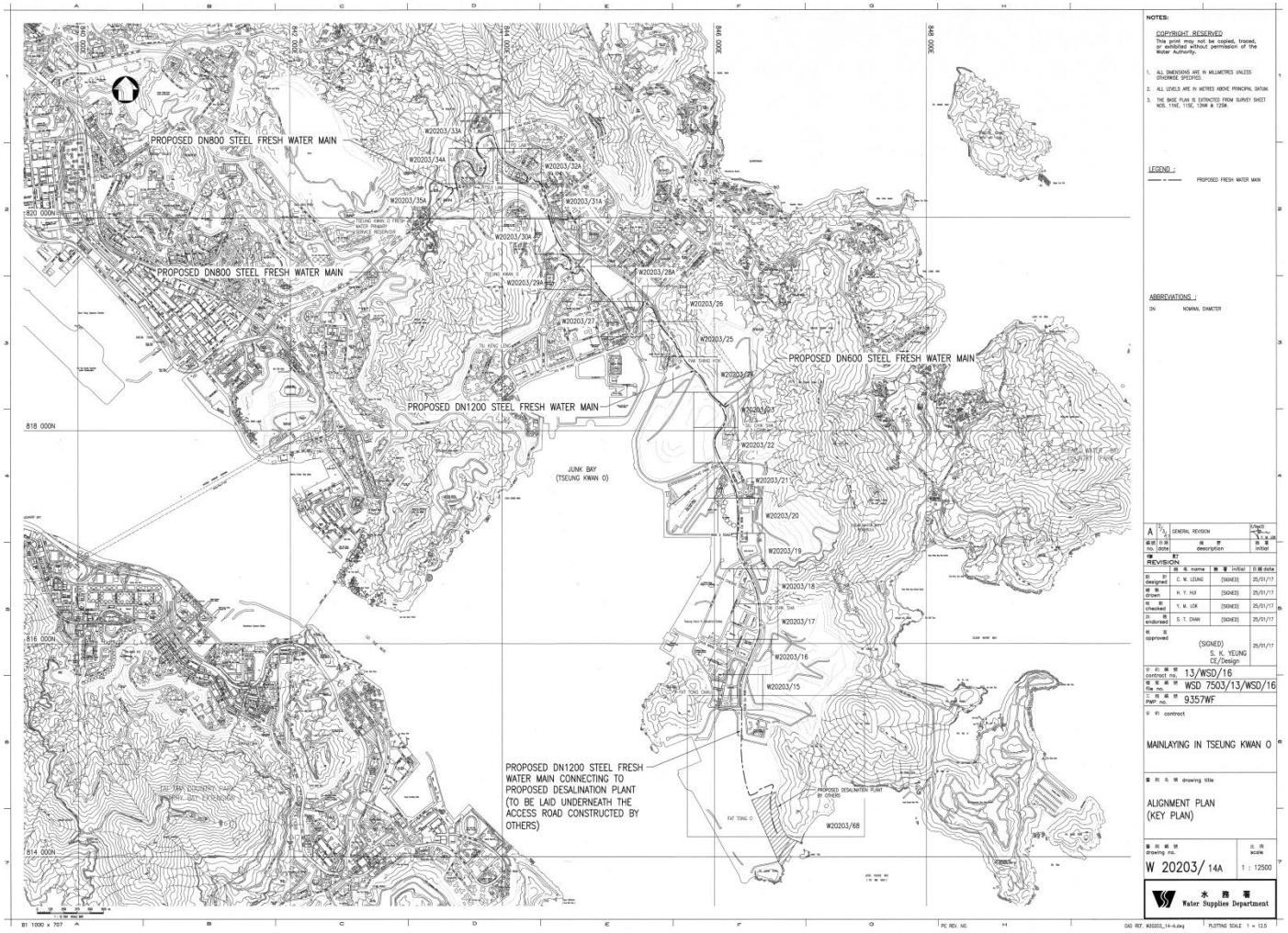

Figure B1. Overview of Mainlaying in TKO

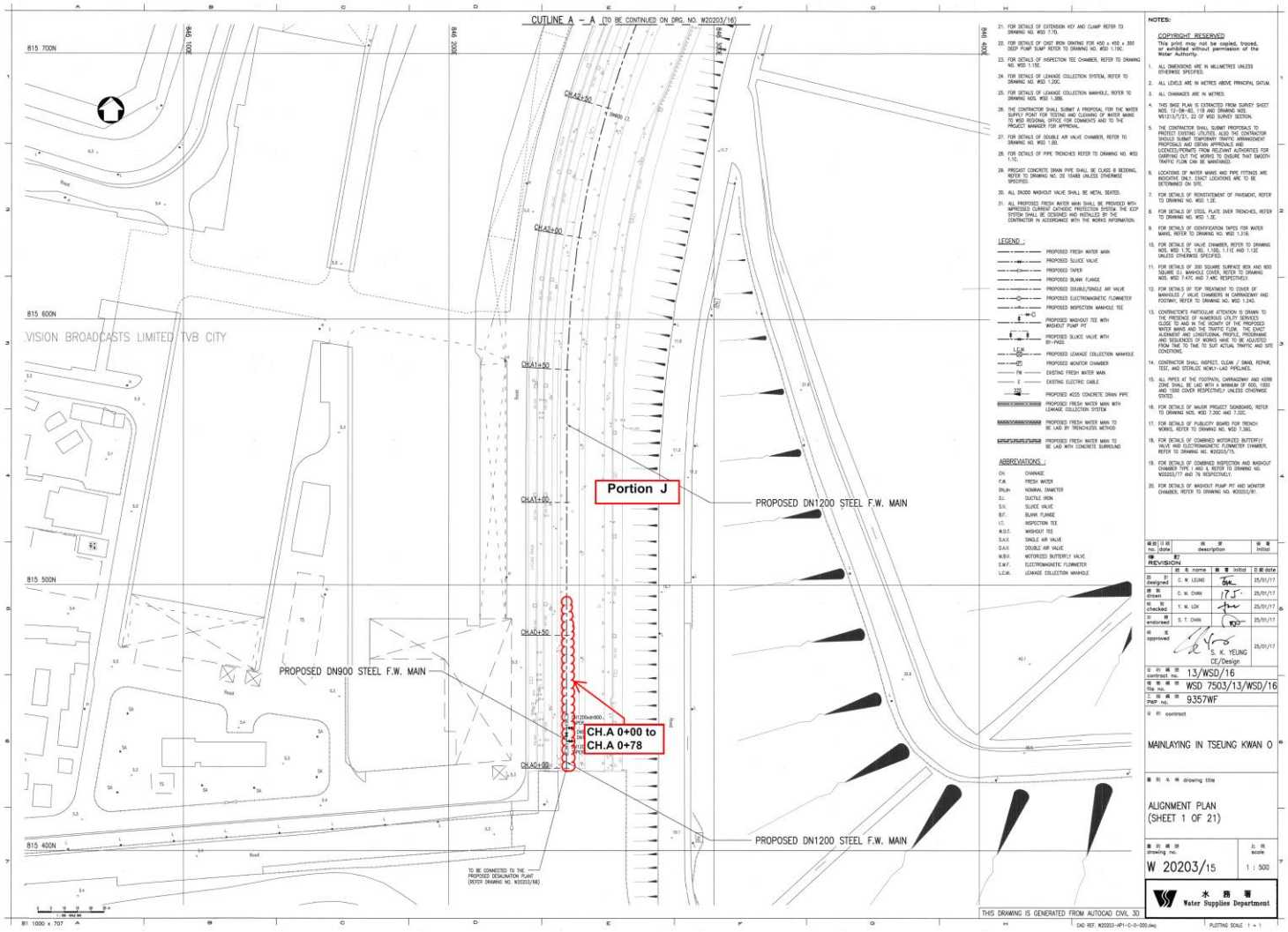

Figure B2. Location Plan for Portion J - CH.A 0+00 to CH.A 0+78

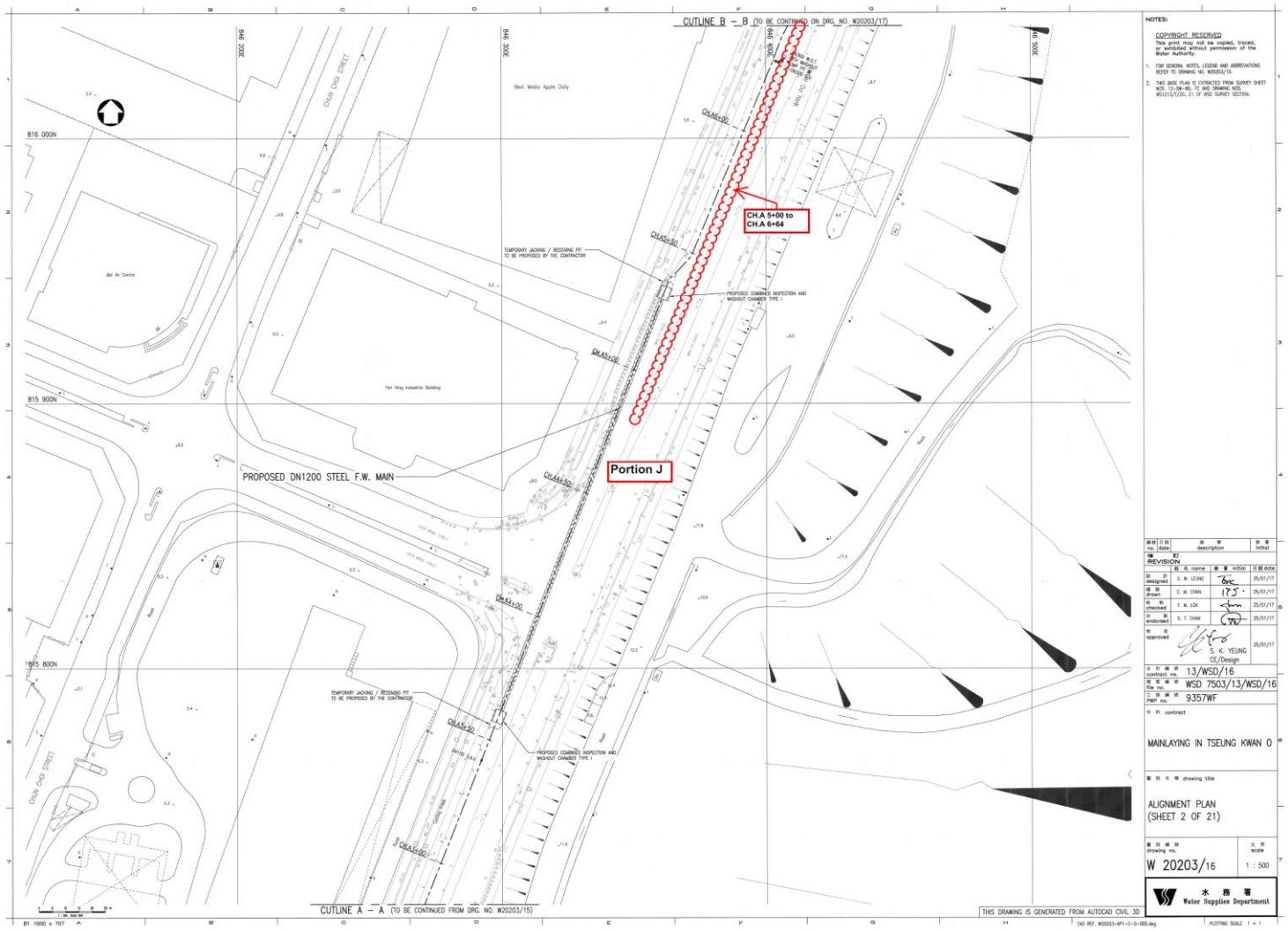

Figure B3a. Location Plan for Portion J - CH.A 5+00 to CH.A 6+64

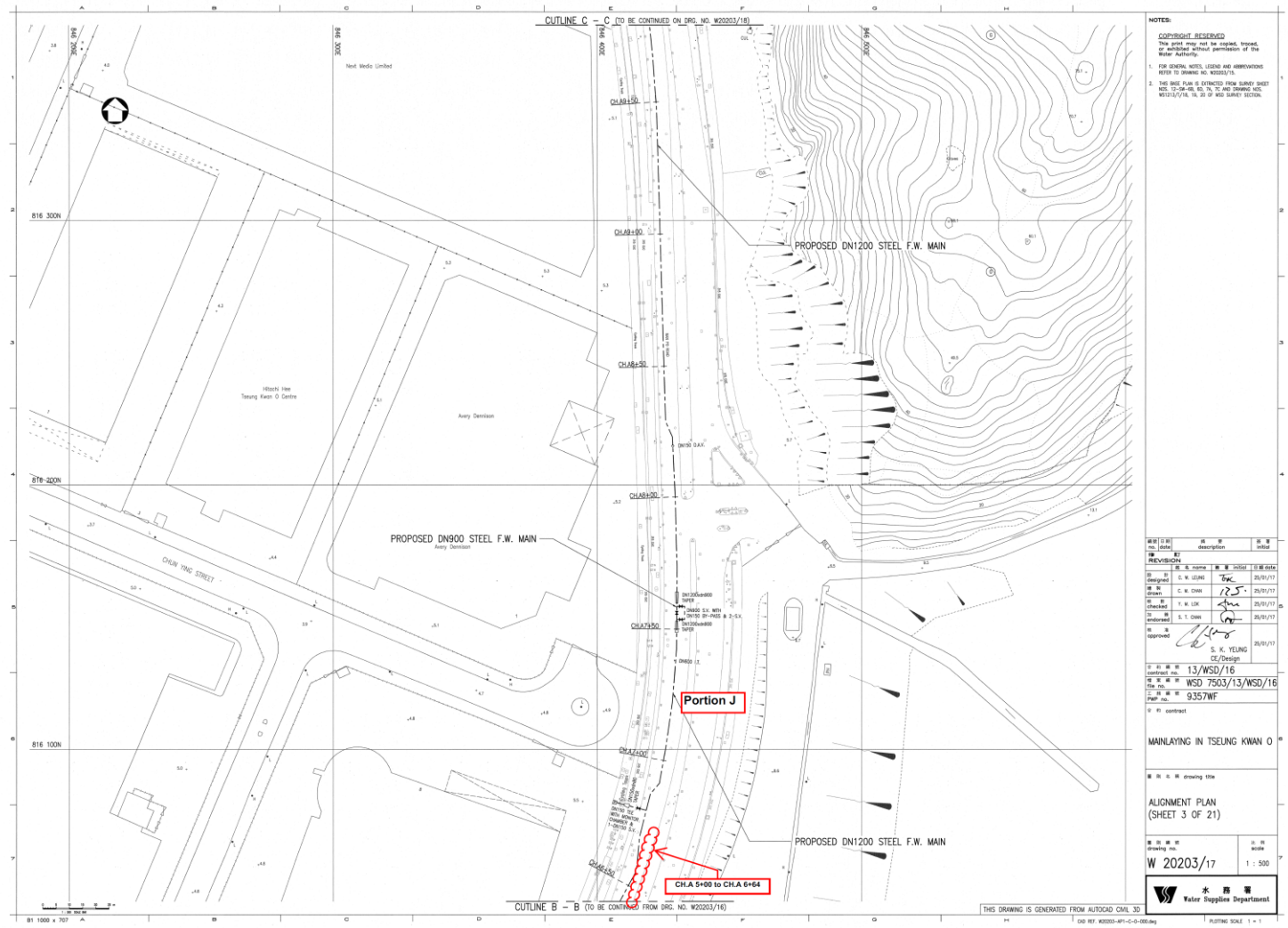

Figure B3b. Location Plan for Portion J - CH.A 5+00 to CH.A 6+64

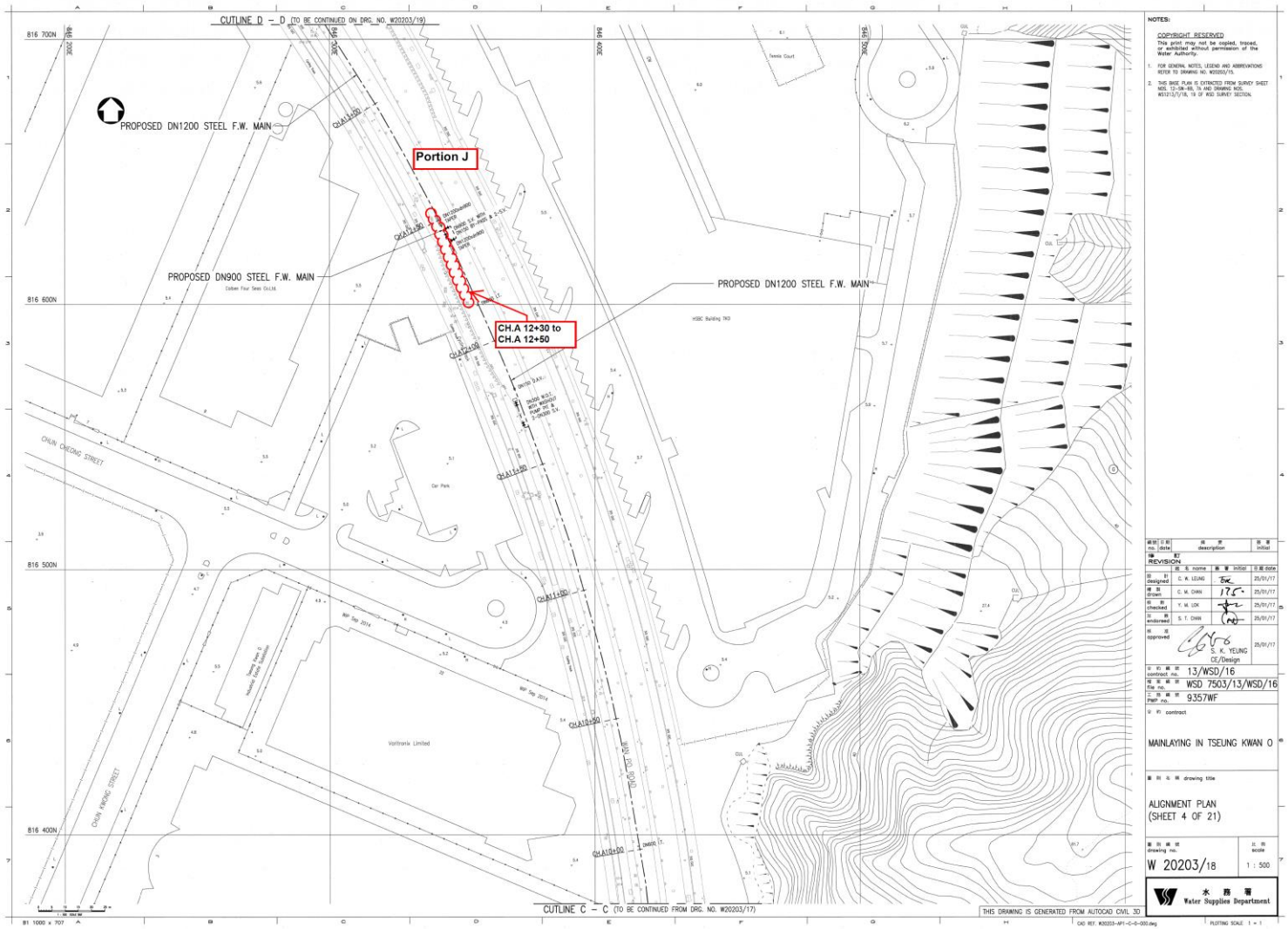

Figure B4. Location Plan for Portion J - CH.A 12+30 to CH.A 12+50

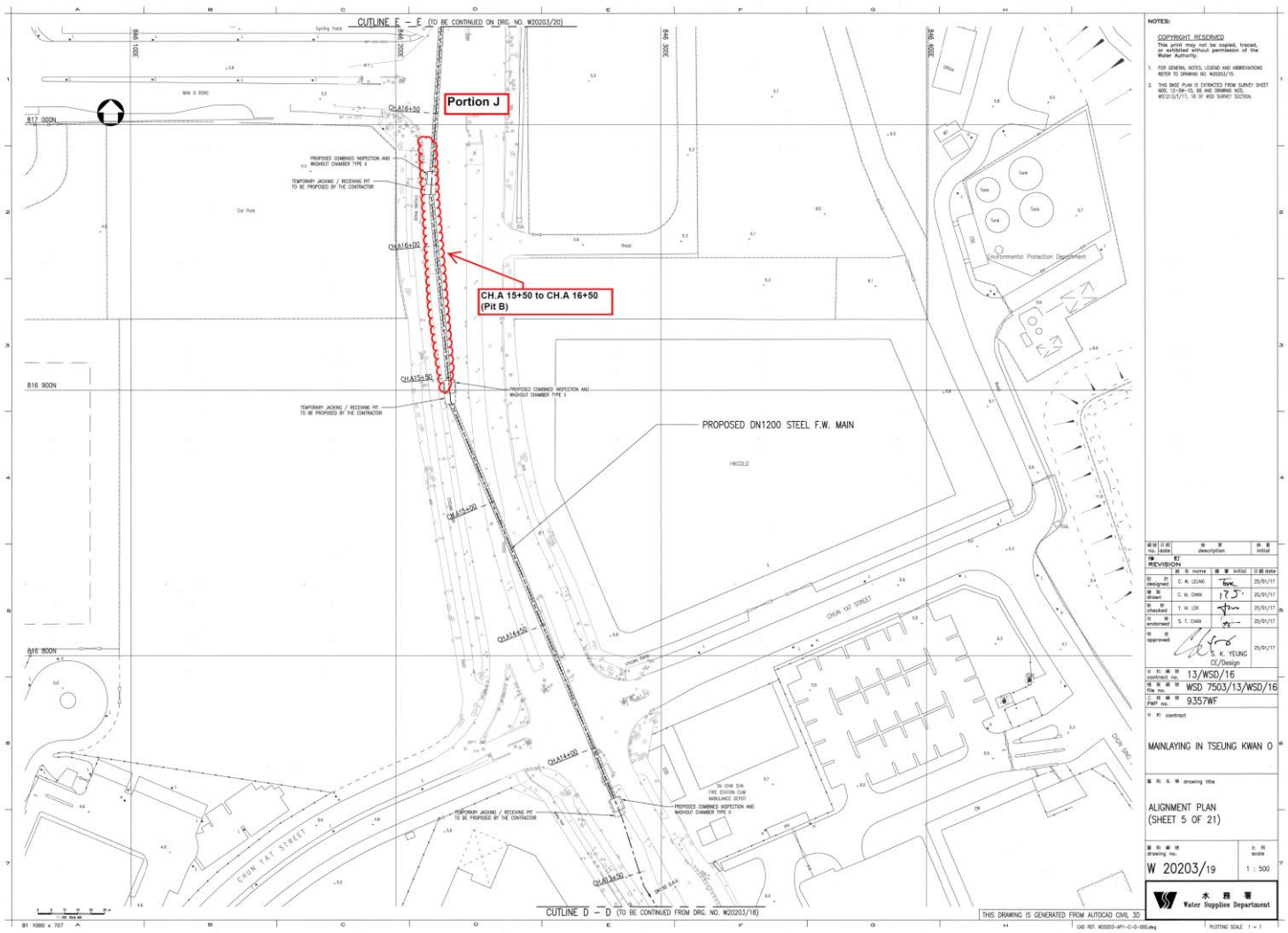

Figure B5. Location Plan for Portion J – CH. A15+50 to CH.A 16+50 (Pit B)

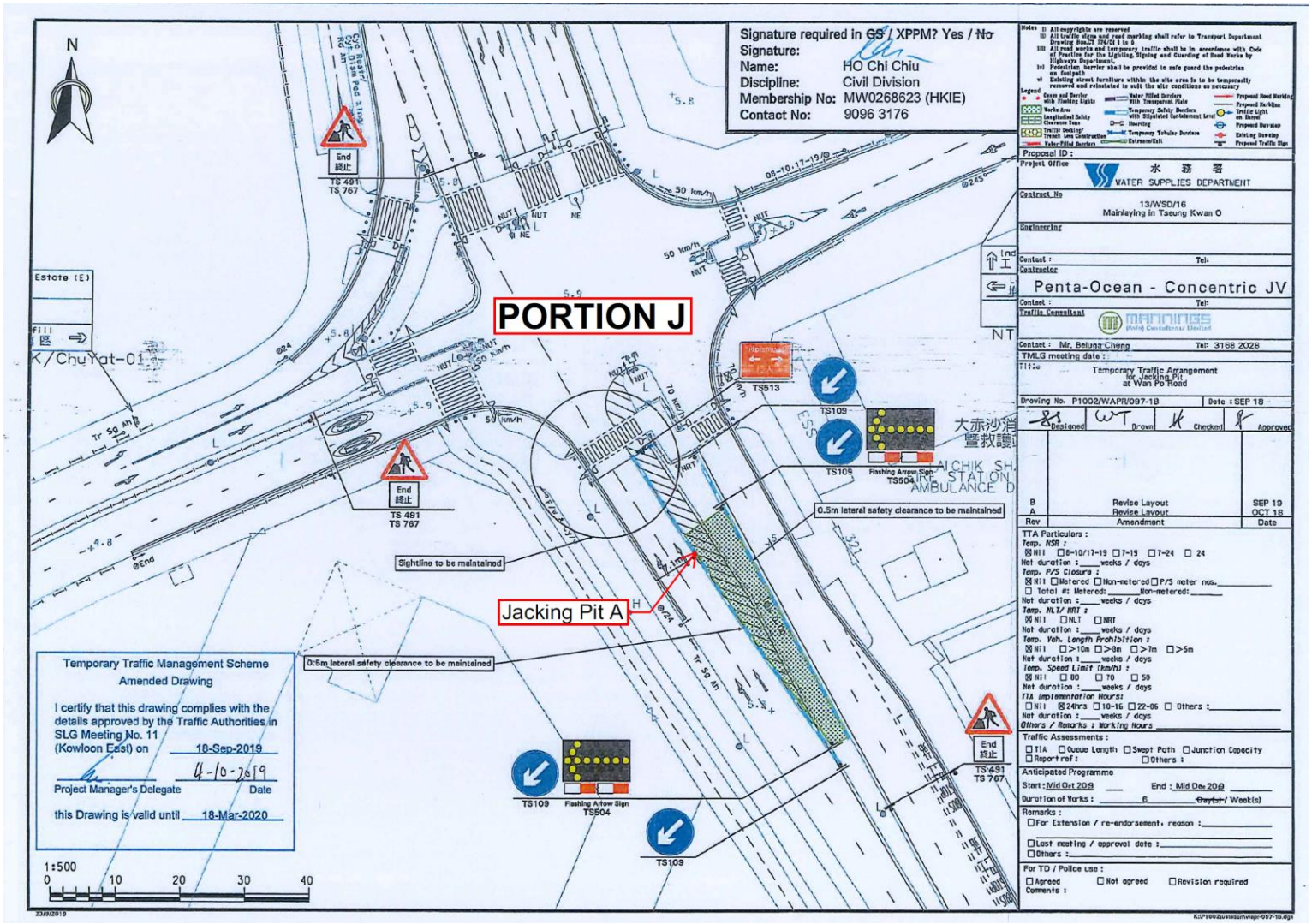

Figure B6. Location Plan for Portion J – Pit A

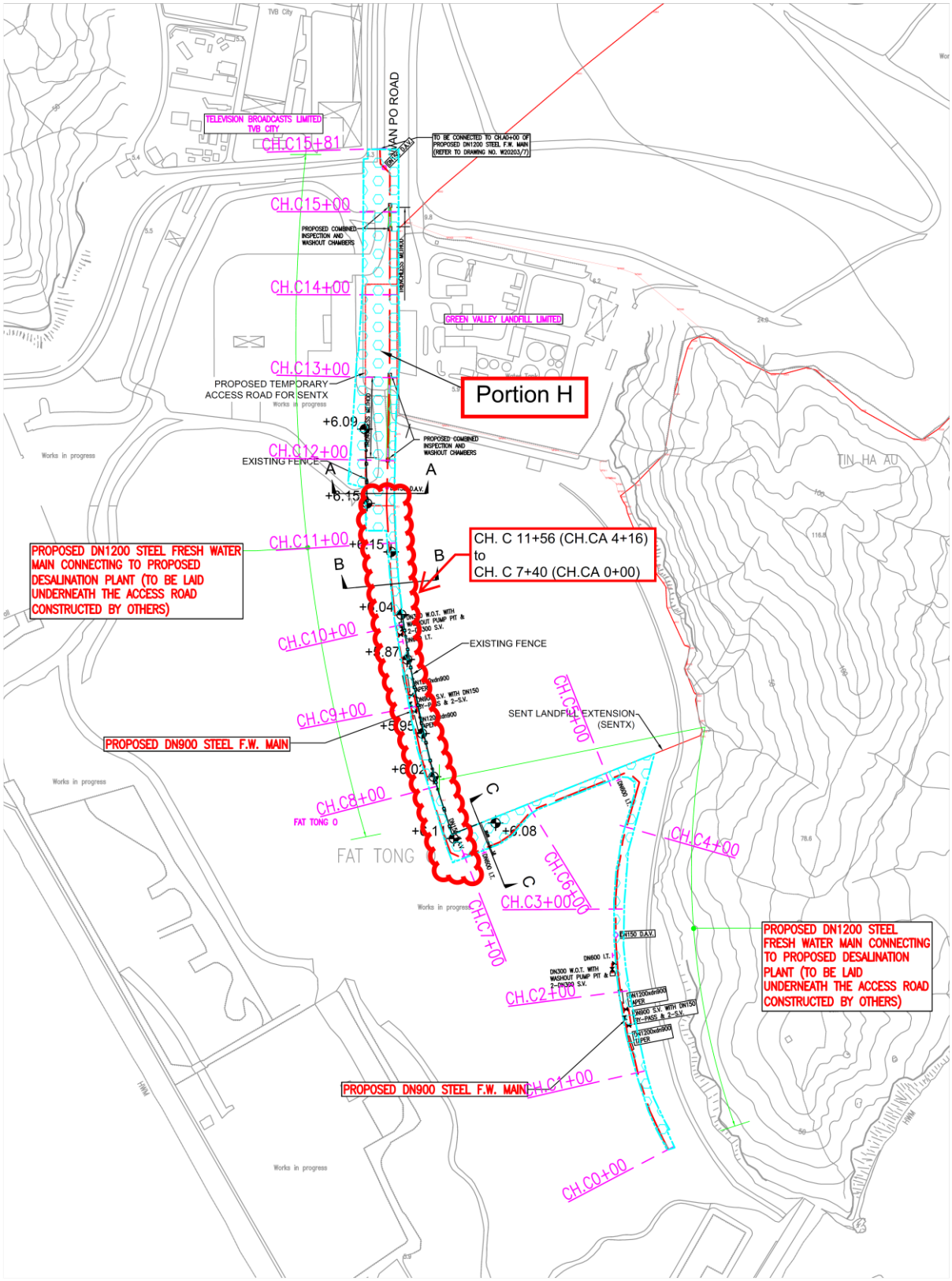

Figure B7. Location Plan for Portion H– CH.C 7+40 (CH.CA 0+00) to CH.C 11+56 (CH.CA 04+16)

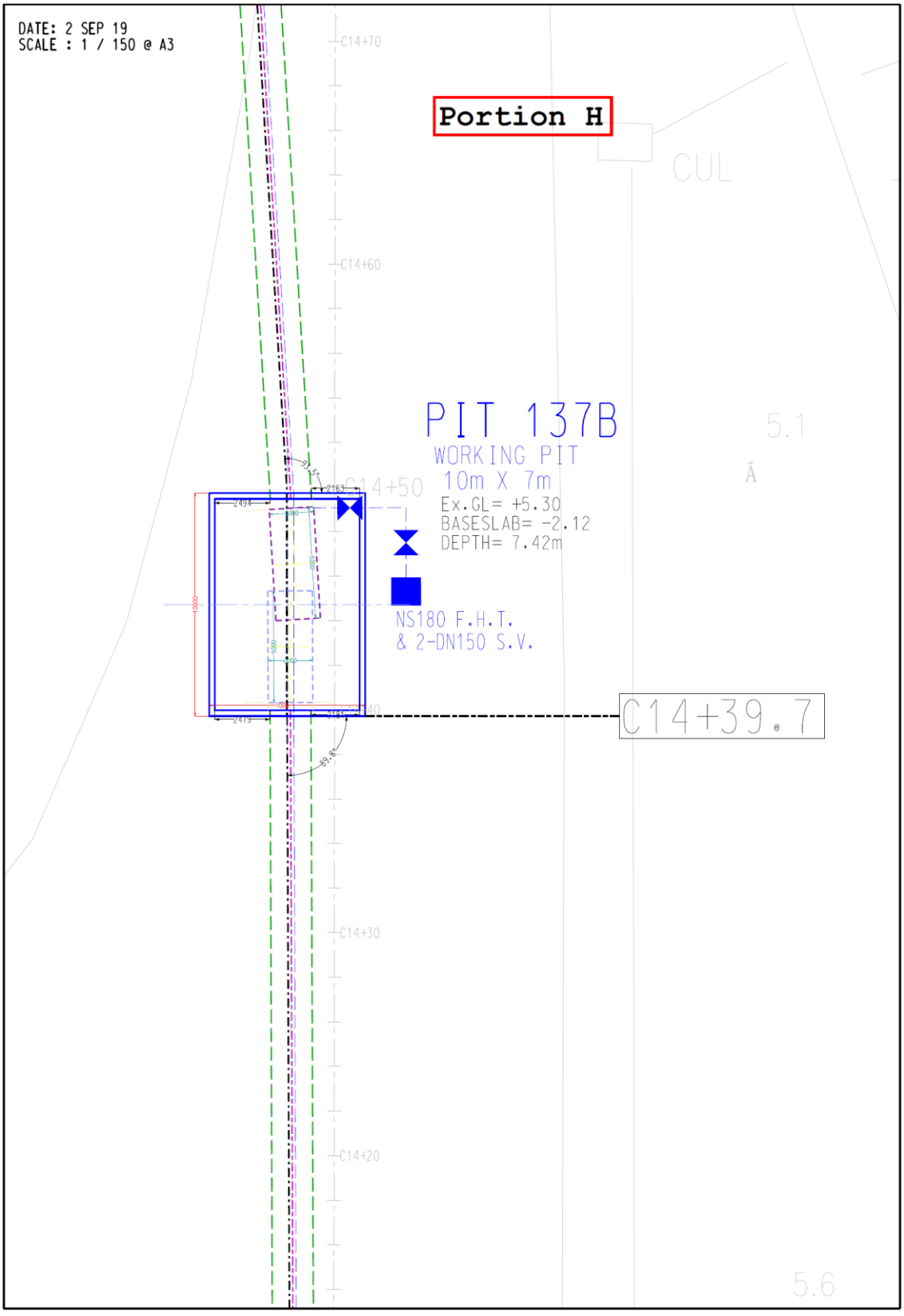

Figure B8. Location Plan for Portion H– Pit 137B

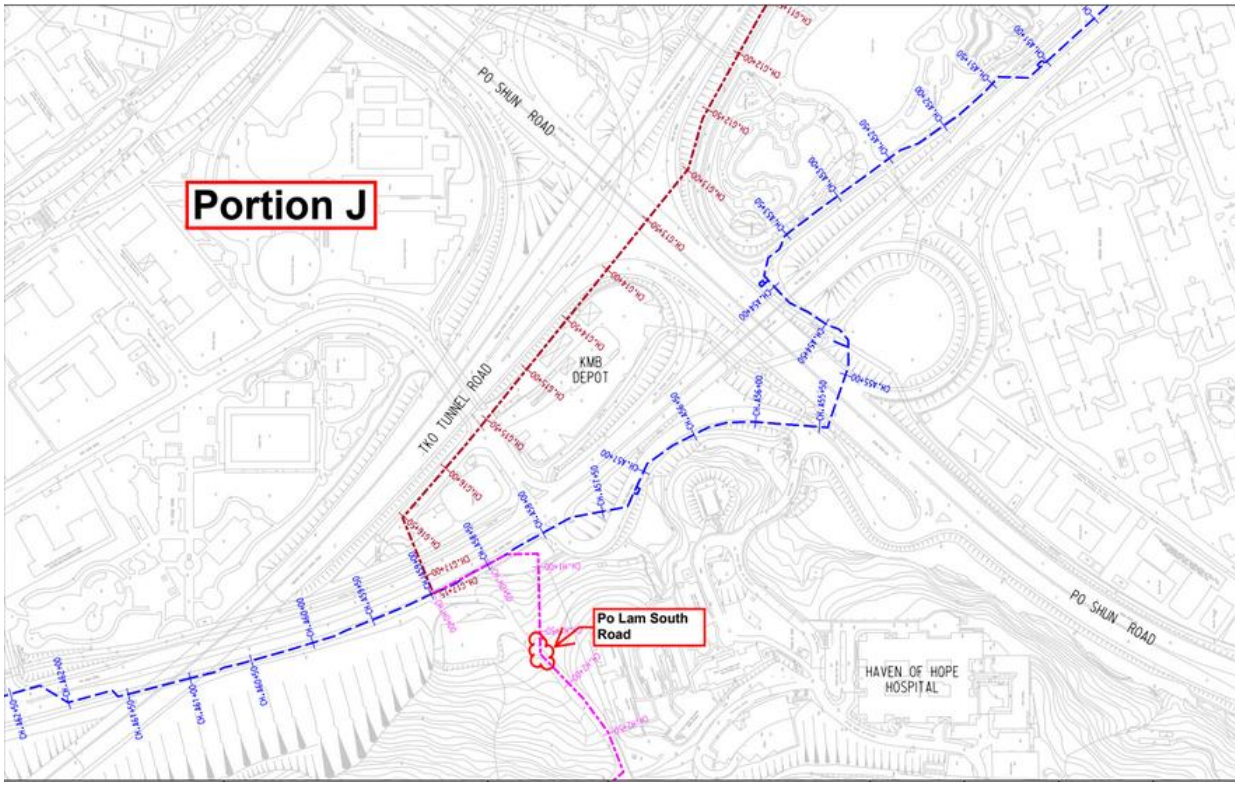

Figure B9. Location Plan for Mau Wu Tsai 1 (Po Lam South Road 1)

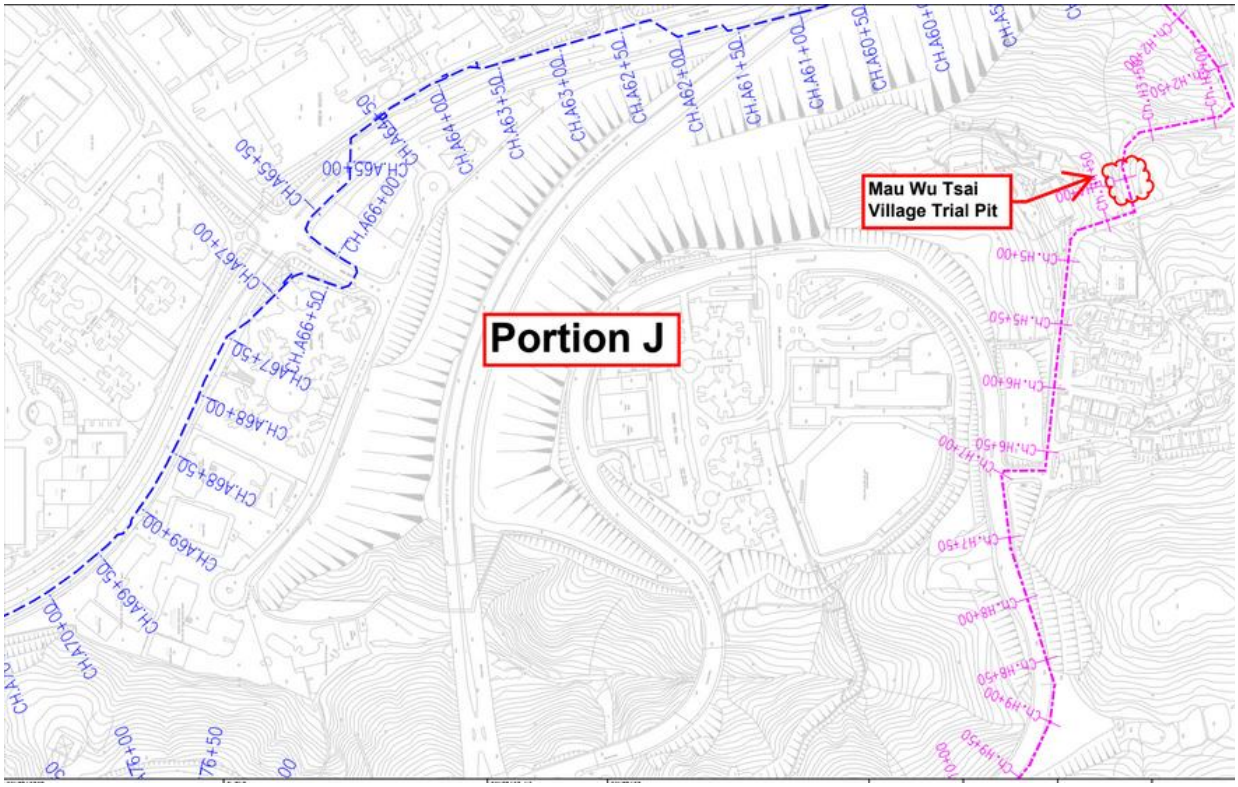

Figure B10. Location Plan for Mau Wu Tsai 2

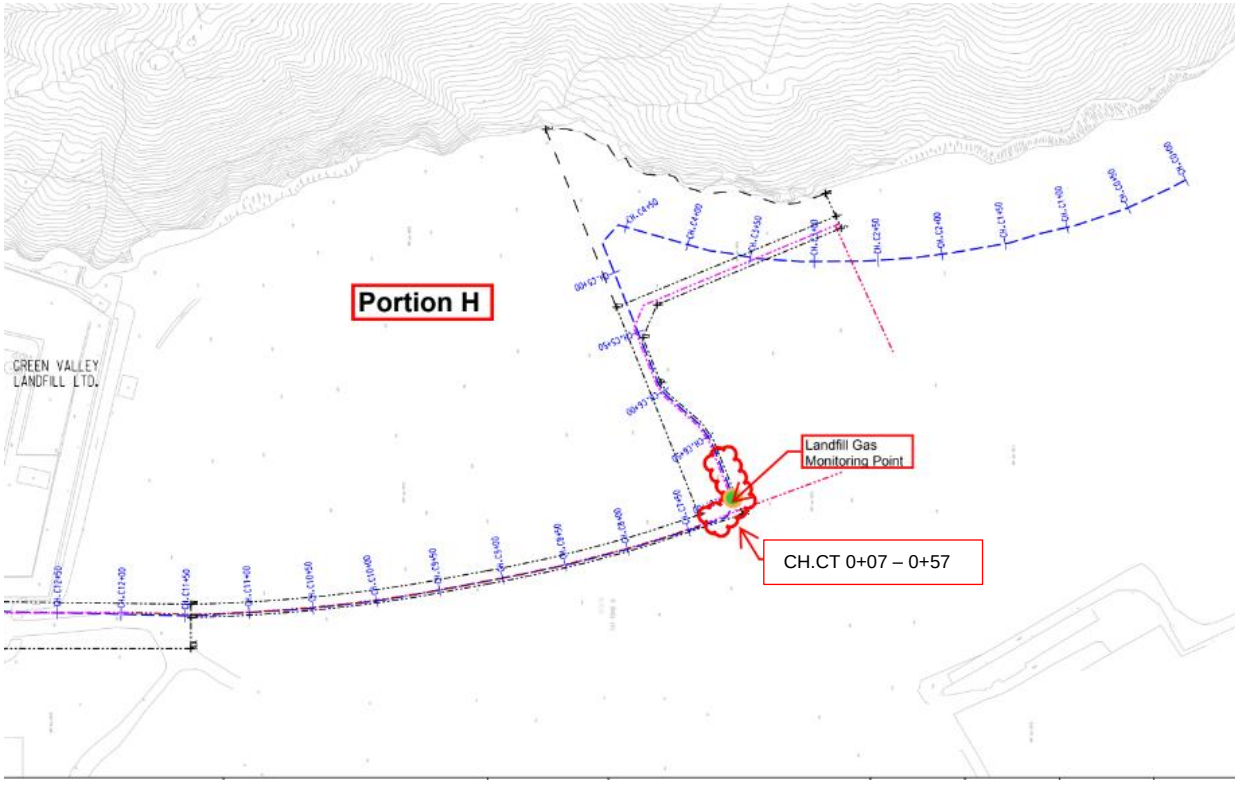

Figure B10. Location Plan for CH.CT 0+07 – 0+57

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)		✓		Implemented	
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 minimise the fugitive dust arising from unloading.	Land site/ During Construction	Contractor(s)		✓		N/A	
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)		✓		N/A	
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)		✓		Implemented	
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, rectified after observation.	
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, rectified after observation.	
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)		✓		N/A	
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)		✓		N/A	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
				D	C	O		
	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)	✓	✓		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		
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
				D	C	O		
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
				D	C	O		
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, rectified after observation	-
S6.9	Appropriate surface drainage will be designed and provided where necessary.	Land site & drainage/ During construction	Contractor(s)		✓		N/A	-
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)		✓		Implemented, rectified after observation.	-
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
				D	C	O		
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
				D	C	O		
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
				D	C	O		
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, rectified after observation	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 observation	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
				D	C	O		
								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
				D	C	O		
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, rectified after observation	-
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
				D	C	O		
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)		✓		N/A	-
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)		✓		N/A	-
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, rectified after observation	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

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		
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
				D	C	O		
	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		✓	✓	N/A	-
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	-

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		
	programme will be implemented throughout the construction phase.							

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		
	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)	✓	✓		Implemented	-
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
				D	C	O		
	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)		✓		Implemented	-
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)		✓		N/A	-
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
				D	C	O		
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	-

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		
	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	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)	✓	✓	✓	N/A	
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)	✓	✓	✓	N/A	
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)	✓	✓	✓	N/A	
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 minimised 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

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Appendix E

Noise Monitoring Equipment Calibration Certificate

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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.

Appendix G

Noise Monitoring Data

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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 December 2019

Month	Actual Quantities of Inert Construction Waste Generated Monthly					
	Total Quantity Generated	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
Jan 2019	0.457	0.021	2.118	0.000	0.457	0.331
Feb 2019	0.372	0.004	0.093	0.000	0.372	0.407
Mar 2019	0.575	0.004	0.000	0.000	0.575	0.140
Apr 2019	0.101	0.000	0.000	0.000	0.101	0.086
May 2019	0.035	0.000	0.000	0.000	0.035	0.019
Jun 2019	0.252	0.000	0.000	0.000	0.252	0.039
Sub-total	1.792	0.029	2.211	0.000	1.792	1.022
Jul 2019	0.176	0.000	0.000	0.000	0.176	0.074
Aug 2019	0.359	0.005	0.000	0.000	0.359	0.133
Sep 2019	0.030	0.000	0.000	0.000	0.030	0.421
Oct 2019	0.078	0.009	0.000	0.000	0.078	0.542
Nov 2019	0.033	0.000	0.000	0.000	0.033	0.504
Dec 2019	0.052	0.000	0.000	0.000	0.052	0.504
Total	2.520	0.043	2.211	0.000	2.520	3.200

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
Jan 2019	0.000	0.000	0.000	0.000	0.016
Feb 2019	0.000	0.000	0.000	0.000	0.001
Mar 2019	0.000	0.000	0.000	0.000	0.009
Apr 2019	0.000	0.000	0.000	0.000	0.018
May 2019	0.000	0.000	0.000	0.000	0.028
Jun 2019	0.000	0.000	0.000	0.000	0.013
Sub-total	0.000	0.000	0.000	0.000	0.085
Jul 2019	0.000	0.000	0.000	0.000	0.012
Aug 2019	0.000	0.000	0.000	0.000	0.001
Sep 2019	0.000	0.000	0.000	0.000	0.000
Oct 2019	0.000	0.000	0.000	0.000	0.001
Nov 2019	0.000	0.000	0.000	0.000	0.001
Dec 2019	0.000	0.062	0.000	0.000	0.002
Jan 2020					
Total	0.000	0.936	0.000	0.000	0.241

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 Road and Large Broken Concrete, 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. Source and types of Imported Fill in the reporting month
   i. K. Wah Quarry Company Limited (Soil): 39.165 m^3 (78.33 tonnes/ 3 truck-load)

6. 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 Disposed (Volume) (m^3)
Inert	Bentonite	--
	Broken Concrete	--
	Broken Rock	--
	Mixed Construction Waste (>50% inert)	27.55
	Building Debris	24.4
	Mixed Rock and Soil	--
	Reclaimed Asphalt Pavement	--
	Slurry	--
	Soil	--
	TOTAL =	***51.95***
Non-inert	--	1.95

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-2400P (QRAE II) --- LEL/O2/CO/H2S

UNIT INFORMATION :

Customer:	Penta-Ocean Construction Co., Ltd	Serial # :	181-147599	Model :	QRAE II
		Firmware :	V3.50	Sensor :	LEL/O2/CO/H2S
		Cal date :	29-Aug-2019	Inspected:	Teddy

SENSOR DATA :

	LEL sensor (ME)	O2 sensor	CO sensor (Tox1)	H2S sensor (Tox2)
Calibration dates:	29-Aug-2019	29-Aug-2019	29-Aug-2019	29-Aug-2019
After Calibration levels	50%	18.00%	50 ppm	10.2 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 # 1128619Cyl#6

*** **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 28 August 2020

Serviced by _____
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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.CA0+60~0+25	2/12/2019	0830	Fine	0	0	0	20.9	15 / 1023	3.5
	2/12/2019	1330	Fine	0	0	0	20.9	19 / 1020	3.5
137 Pit B	2/12/2019	0900	Fine	0	0	0	20.9	15 / 1023	1.0
	2/12/2019	1400	Fine	0	0	0	20.9	20 / 1020	1.0
CH.A 6+64	2/12/2019	0930	Fine	0	0	0	20.9	16 / 1022	3.3
	2/12/2019	1430	Fine	0	0	0	20.9	20 / 1020	3.3
CH.A 12+40	2/12/2019	1000	Fine	0	0	0	20.9	16 / 1022	3.3
	2/12/2019	1500	Fine	0	0	0	20.9	20 / 1020	3.3
Pit A	2/12/2019	1030	Fine	0	0	0	20.9	17 / 1022	2.0
	2/12/2019	1530	Fine	0	0	0	20.9	20 / 1020	2.0
Jacking Pit B	2/12/2019	1100	Fine	0	0	0	20.9	18 / 1022	0.2
	2/12/2019	1600	Fine	0	0	0	20.9	19 / 1020	0.2
								/	
								/	

	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		2/12/2019
Laboratory Staff:			
Checked by:			

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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.A 0+60~4+25	3/12/2019	0830	Fine	0	0	0	20.9	13 / 1023	3.5
	3/12/2019	1330	Fine	0	0	0	20.9	17 / 1022	3.5
137 Pit B	3/12/2019	0900	Fine	0	0	0	20.9	13 / 1023	1.0
	3/12/2019	1400	Fine	0	0	0	20.9	18 / 1022	1.0
CH.A 6+64	3/12/2019	0930	Fine	0	0	0	20.9	14 / 1023	3.3
	3/12/2019	1430	Fine	0	0	0	20.9	18 / 1021	3.3
CH.A 12+40	3/12/2019	1000	Fine	0	0	0	20.9	14 / 1024	5.3
	3/12/2019	1500	Fine	0	0	0	20.9	18 / 1021	5.3
Pit A	3/12/2019	1030	Fine	0	0	0	20.9	15 / 1024	2.0
	3/12/2019	1530	Fine	0	0	0	20.9	18 / 1021	2.0
Jacking Pit B	3/12/2019	1100	Fine	0	0	0	20.9	16 / 1023	0.2
	3/12/2019	1600	Fine	0	0	0	20.9	17 / 1021	0.2
								/	
								/	

	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		3/12/2019
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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.CA 0+60 ~ 4+25	4/12/2019	0830	Fine	0	0	0	20.9	15 / 1025	3.5
	4/12/2019	1330	Fine	0	0	0	20.9	20 / 1021	3.5
137 Pit B	4/12/2019	0900	Fine	0	0	0	20.9	15 / 1025	1.0
	4/12/2019	1400	Fine	0	0	0	20.9	20 / 1021	1.0
CH.A 6+64	4/12/2019	0930	Fine	0	0	0	20.9	16 / 1025	3.3
	4/12/2019	1430	Fine	0	0	0	20.9	20 / 1021	3.3
CH.A 12+40	4/12/2019	1000	Fine	0	0	0	20.9	16 / 1025	5.3
	4/12/2019	1500	Fine	0	0	0	20.9	20 / 1021	5.3
Pit A	4/12/2019	1030	Fine	0	0	0	20.9	17 / 1025	2.0
	4/12/2019	1530	Fine	0	0	0	20.9	20 / 1021	2.0
Jacking Pit B	4/12/2019	1100	Fine	0	0	0	20.9	18 / 1024	0.2
	4/12/2019	1600	Fine	0	0	0	20.9	20 / 1021	0.2
								/	
								/	

	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		4/12/2019
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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.A 0+60~4+25	5/12/2019	0830	Fine	0	0	0	20.9	15 / 1025	3.5
	5/12/2019	1330	Fine	0	0	0	20.9	13 / 1024	3.5
137 Pit B	5/12/2019	0900	Fine	0	0	0	20.9	15 / 1025	1.0
	5/12/2019	1400	Fine	0	0	0	20.9	13 / 1024	1.0
CH.A 6+64	5/12/2019	0930	Fine	0	0	0	20.9	15 / 1026	3.3
	5/12/2019	1430	Fine	0	0	0	20.9	13 / 1024	3.3
CH.A 12+40	5/12/2019	1000	Fine	0	0	0	20.9	14 / 1026	3.3
	5/12/2019	1500	Fine	0	0	0	20.9	13 / 1024	3.3
Pit A	5/12/2019	1030	Fine	0	0	0	20.9	13 / 1026	2.0
	5/12/2019	1530	Fine	0	0	0	20.9	13 / 1024	2.0
Jacking Pit B	5/12/2019	1100	Fine	0	0	0	20.9	14 / 1025	0.2
	5/12/2019	1600	Fine	0	0	0	20.9	13 / 1024	0.2
								/	
								/	

	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		5/12/2019

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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.CA0160+4425	6/12/2019	0830	Fine	0	0	0	20.9	15 / 1026	3.5
	6/12/2019	1330	Fine	0	0	0	20.9	19 / 1023	3.5
137 Pit B	6/12/2019	0930	Fine	0	0	0	20.9	15 / 1026	1.0
	6/12/2019	1430	Fine	0	0	0	20.9	19 / 1023	1.0
CH.A 6164	6/12/2019	0930	Fine	0	0	0	20.9	15 / 1026	3.3
	6/12/2019	1430	Fine	0	0	0	20.9	19 / 1023	3.3
CH.A 12740	6/12/2019	1000	Fine	0	0	0	20.9	15 / 1026	3.3
	6/12/2019	1500	Fine	0	0	0	20.9	20 / 1022	3.3
Pit A	6/12/2019	1030	Fine	0	0	0	20.9	16 / 1026	2.0
	6/12/2019	1530	Fine	0	0	0	20.9	19 / 1022	2.0
Jacking Pit B	6/12/2019	1100	Fine	0	0	0	20.9	17 / 1026	0.2
	6/12/2019	1600	Fine	0	0	0	20.9	19 / 1023	0.2
								/	
								/	

	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		6/12/2019

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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.A 0480-4420	7/12/2019	0830	Fine	0	0	0	20.9	15 / 1026	3.5
	7/12/2019	1330	Fine	0	0	0	20.9	18 / 1023	3.5
137 Pit B	7/12/2019	0930	Fine	0	0	0	20.9	15 / 1027	1.0
	7/12/2019	1400	Fine	0	0	0	20.9	18 / 1023	1.0
CH.A 6764	7/12/2019	0930	Fine	0	0	0	20.9	16 / 1026	3.3
	7/12/2019	1430	Fine	0	0	0	20.9	18 / 1022	3.3
CH.A 12740	7/12/2019	1000	Fine	0	0	0	20.9	16 / 1026	3.3
	7/12/2019	1500	Fine	0	0	0	20.9	18 / 1022	3.3
Pit A	7/12/2019	1040	Fine	0	0	0	20.9	16 / 1026	2.0
	7/12/2019	1530	Fine	0	0	0	20.9	18 / 1022	2.0
Jacking Pit B	7/12/2019	1100	Fine	0	0	0	20.9	17 / 1026	0.2
	7/12/2019	1600	Fine	0	0	0	20.9	18 / 1023	0.2
								/	
								/	

	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		7/12/2019

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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.CAD450~4725	9/12/2019	0830	Fine	0	0	0	20.9	16/1024	3.5
	9/12/2019	1730	Fine	0	0	0	20.9	21/1020	3.5
137 Pit B	9/12/2019	0900	Fine	0	0	0	20.9	16/1024	1.0
	9/12/2019	1400	Fine	0	0	0	20.9	21/1020	1.0
CH.A 6764	9/12/2019	0930	Fine	0	0	0	20.9	17/1024	3.3
	9/12/2019	1430	Fine	0	0	0	20.9	21/1019	3.3
CH.A 12440	9/12/2019	1000	Fine	0	0	0	20.9	17/1024	5.3
	9/12/2019	1500	Fine	0	0	0	20.9	21/1019	5.3
Pit A	9/12/2019	1030	Fine	0	0	0	20.9	18/1024	2.0
	9/12/2019	1530	Fine	0	0	0	20.9	21/1019	2.0
Jacking Pit B	9/12/2019	1100	Fine	0	0	0	20.9	19/1023	0.2
	9/12/2019	1600	Fine	0	0	0	20.9	20/1019	0.2
								/	
								/	

	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		9/12/2019
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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.CA0760~4+25	10/12/2019	0830	Fine	0	0	0	20.9	17 / 1020	3.5
	10/12/2019	1330	Fine	0	0	0	20.9	21 / 1017	3.5
137 Pit B	10/12/2019	0900	Fine	0	0	0	20.9	18 / 1020	1.0
	10/12/2019	1400	Fine	0	0	0	20.9	22 / 1017	1.0
CH.A 6764	10/12/2019	0930	Fine	0	0	0	20.9	19 / 1020	3.3
	10/12/2019	1430	Fine	0	0	0	20.9	22/ 1017	3.3
CH.A 12740	10/12/2019	1000	Fine	0	0	0	20.9	19 / 1020	5.3
	10/12/2019	1500	Fine	0	0	0	20.9	22/ 1017	5.3
Pit A	10/12/2019	1030	Fine	0	0	0	20.9	19 / 1020	2.0
	10/12/2019	1530	Fine	0	0	0	20.9	21 / 1017	2.0
Jacking Pit B	10/12/2019	1100	Fine	0	0	0	20.9	20 / 1020	0.2
	10/12/2019	1600	Fine	0	0	0	20.9	21 / 1017	0.2
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	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		10/12/2019
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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.CA0160-4425	11/12/2019	0830	Fine	0	0	0	20.9	18/1019	3.5
	11/12/2019	1330	Fine	0	0	0	20.9	24/1017	3.5
137 Pit B	11/12/2019	0900	Fine	0	0	0	20.9	19/1020	1.0
	11/12/2019	1400	Fine	0	0	0	20.9	24/1016	1.0
CH.A 6764	11/12/2019	0930	Fine	0	0	0	20.9	20/1020	3.3
	11/12/2019	1430	Fine	0	0	0	20.9	24/1016	3.3
CH.A 12740	11/12/2019	1000	Fine	0	0	0	20.9	20/1020	5.3
	11/12/2019	1500	Fine	0	0	0	20.9	22/1016	5.3
Pit A	11/12/2019	1030	Fine	0	0	0	20.9	21/1020	2.0
	11/12/2019	1530	Fine	0	0	0	20.9	22/1017	2.0
Jacking Pit B	11/12/2019	1100	Fine	0	0	0	20.9	22/1019	0.2
	11/12/2019	1600	Fine	0	0	0	20.9	22/1017	0.2
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	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		11/12/2019
Laboratory Staff:			
Checked by:			

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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
137 Pit B	12/12/2019	0830	Fine	0	0	0	20.9	18 / 1021	1.0
	12/12/2019	1330	Fine	0	0	0	20.9	21 / 1020	1.0
CH A 6+64	12/12/2019	0900	Fine	0	0	0	20.9	19 / 1022	3.3
	12/12/2019	1400	Fine	0	0	0	20.9	22 / 1020	3.3
CH A 12+40	12/12/2019	0930	Fine	0	0	0	20.9	20 / 1022	5.3
	12/12/2019	1430	Fine	0	0	0	20.9	21 / 1020	5.3
Pit A	12/12/2019	1000	Fine	0	0	0	20.9	20 / 1022	2.0
	12/12/2019	1500	Fine	0	0	0	20.9	21 / 1020	2.0
Jacking Pit B	12/12/2019	1030	Fine	0	0	0	20.9	21 / 1022	0.2
	12/12/2019	1530	Fine	0	0	0	20.9	20 / 1020	0.2
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	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		12/12/2019

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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
137 Pit B	13/12/2019	0830	Fine	0	0	0	20.9	18 / 1024	1.0
	13/12/2019	1330	Fine	0	0	0	20.9	21 / 1022	1.0
CH.A 6+64	13/12/2019	0900	Fine	0	0	0	20.9	19 / 1024	3.3
	13/12/2019	1400	Fine	0	0	0	20.9	21 / 1022	3.3
CH.A 12+40	13/12/2019	0930	Fine	0	0	0	20.9	19 / 1024	5.3
	13/12/2019	1430	Fine	0	0	0	20.9	20 / 1022	5.3
Pit A	13/12/2019	1000	Fine	0	0	0	20.9	20 / 1024	2.0
	13/12/2019	1500	Fine	0	0	0	20.9	20 / 1021	2.0
Jacking Pit B	13/12/2019	1030	Fine	0	0	0	20.9	20 / 1024	0.2
	13/12/2019	1530	Fine	0	0	0	20.9	21 / 1021	0.2
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								/	
								/	

	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		13/12/2019
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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
137 P.T B	14/12/2019	0830	Fine	0	0	0	20.9	18 / 1024	1.0
	14/12/2019	1330	Fine	0	0	0	20.9	23 / 1021	1.0
CH.A 6+64	14/12/2019	0900	Fine	0	0	0	20.9	19 / 1024	3.3
	14/12/2019	1400	Fine	0	0	0	20.9	23 / 1021	3.3
CH.A 12+40	14/12/2019	0930	Fine	0	0	0	20.9	19 / 1024	5.3
	14/12/2019	1430	Fine	0	0	0	20.9	23 / 1020	5.3
P.T A	14/12/2019	1000	Fine	0	0	0	20.9	20 / 1024	2.0
	14/12/2019	1500	Fine	0	0	0	20.9	23 / 1019	2.0
Jacking P.T B	14/12/2019	1030	Fine	0	0	0	20.9	21 / 1024	0.2
	14/12/2019	1530	Fine	0	0	0	20.9	22 / 1019	0.2
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	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		14/12/2019
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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
137 P.T B	16/12/2019	0830	Fine	0	0	0	20.9	21 / 1019	1.0
	16/12/2019	1330	Fine	0	0	0	20.9	23 / 1017	1.0
CH.A 6+64	16/12/2019	0900	Fine	0	0	0	20.9	21 / 1019	3.3
	16/12/2019	1400	Fine	0	0	0	20.9	23 / 1016	3.3
CH.A 12+40	16/12/2019	0930	Fine	0	0	0	20.9	22 / 1020	5.3
	16/12/2019	1430	Fine	0	0	0	20.9	23 / 1016	5.3
P.T A	16/12/2019	1000	Fine	0	0	0	20.9	22 / 1019	2.0
	16/12/2019	1500	Fine	0	0	0	20.9	23 / 1016	2.0
Jacking P.T B	16/12/2019	1030	Fine	0	0	0	20.9	22 / 1019	0.2
	16/12/2019	1530	Fine	0	0	0	20.9	23 / 1016	0.2
								/	
								/	
								/	
								/	

	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		16/12/2019
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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
137 Pit B	17/12/2019	0830	Fine	0	0	0	20.9	22 / 1019	1.0
	17/12/2019	1330	Fine	0	0	0	20.9	26 / 1017	1.0
CH.A 6+64	17/12/2019	0900	Fine	0	0	0	20.9	23 / 1019	3.3
	17/12/2019	1400	Fine	0	0	0	20.9	26 / 1016	3.3
CH.A 12+40	17/12/2019	0930	Fine	0	0	0	20.9	24/ 1019	≤.3
	17/12/2019	1430	Fine	0	0	0	20.9	26/ 1016	≤.3
Pit A	17/12/2019	1000	Fine	0	0	0	20.9	24/ 1019	2.0
	17/12/2019	1500	Fine	0	0	0	20.9	27/ 1016	2.0
Tacking Pit B	17/12/2019	1030	Fine	0	0	0	20.9	25/ 1019	0.2
	17/12/2019	1530	Fine	0	0	0	20.9	26/ 1016	0.2
MVT 1	17/12/2019	1100	Fine	0	0	0	20.9	25/ 1019	1.0
	17/12/2019	1600	Fine	0	0	0	20.9	26/ 1016	1.0
								/	
								/	

	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		17/12/2019
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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
137 P7B	18/12/2019	0830	Fine	0	0	0	20.9	23/1019	1.0
	18/12/2019	1330	Fine	0	0	0	20.9	27/1017	1.0
CH.A 6+64	18/12/2019	0900	Fine	0	0	0	20.9	23/1019	3.3
	18/12/2019	1400	Fine	0	0	0	20.9	27/1016	3.3
CH.A 12+40	18/12/2019	0930	Fine	0	0	0	20.9	24/1019	3.3
	18/12/2019	1430	Fine	0	0	0	20.9	27/1016	3.3
P.T A	18/12/2019	1000	Fine	0	0	0	20.9	24/1019	2.0
	18/12/2019	1500	Fine	0	0	0	20.9	27/1016	2.0
Jacking P.T B	18/12/2019	1030	Fine	0	0	0	20.9	25/1019	0.2
	18/12/2019	1520	Fine	0	0	0	20.9	26/1016	0.2
MVT 1	18/12/2019	1100	Fine	0	0	0	20.9	25/1019	1.0
	18/12/2019	1600	Fine	0	0	0	20.9	26/1016	1.0
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	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		18/12/2019

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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
137 Pit B	19/12/2019	0830	Fine	0	0	0	20.9	18 / 1021	1.0
	19/12/2019	1330	Fine	0	0	0	20.9	22/ 1019	1.0
CH.A 6+64	19/12/2019	0900	Fine	0	0	0	20.9	18/1022	3.3
	19/12/2019	1400	Fine	0	0	0	20.9	21/1019	3.3
CH. A 12+40	19/12/2019	0930	Fine	0	0	0	20.9	18/1023	3.3
	19/12/2019	1430	Fine	0	0	0	20.9	21/1018	3.3
Pit A	19/12/2019	1000	Fine	0	0	0	20.9	18/1023	2.0
	19/12/2019	1500	Fine	0	0	0	20.9	21/1018	2.0
Jacking Pit B	19/12/2019	1030	Fine	0	0	0	20.9	19/1023	0.2
	19/12/2019	1530	Fine	0	0	0	20.9	20/1018	0.2
MVT 1	19/12/2019	1100	Fine	0	0	0	20.9	19/1022	1.0
	19/12/2019	1600	Fine	0	0	0	20.9	20/1018	1.0
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								/	

	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		19/12/2019
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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
137 Pit B	20/12/2019	0830	Fine	0	0	0	20.9	18 / 1021	1.0
	20/12/2019	1330	Fine	0	0	0	20.9	21 / 1018	1.0
CH.A 6+64	20/12/2019	0900	Fine	0	0	0	20.9	18 / 1021	3.3
	20/12/2019	1400	Fine	0	0	0	20.9	22 / 1018	3.3
CH.A 12+40	20/12/2019	0930	Fine	0	0	0	20.9	19 / 1021	3.3
	20/12/2019	1430	Fine	0	0	0	20.9	20 / 1017	3.3
Pit A	20/12/2019	1000	Fine	0	0	0	20.9	19 / 1021	2.0
	20/12/2019	1500	Fine	0	0	0	20.9	21 / 1017	2.0
Jacking Pit B	20/12/2019	1030	Fine	0	0	0	20.9	19 / 1021	0.2
	20/12/2019	1530	Fine	0	0	0	20.9	20 / 1017	0.2
MVT 1	20/12/2019	1100	Fine	0	0	0	20.9	20 / 1021	1.0
	20/12/2019	1600	Fine	0	0	0	20.9	20 / 1017	1.0
								/	
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	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		20/12/2019
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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
137 Pit B	21/12/2019	0830	Fine	0	0	0	20.9	18 / 1019	1.0
	21/12/2019	1330	Fine	0	0	0	20.9	22/ 1016	1.0
CH.A 6+64	21/12/2019	0900	Fine	0	0	0	20.9	19 / 1019	3.3
	21/12/2019	1400	Fine	0	0	0	20.9	22/ 1016	3.3
CH.A 12+40	21/12/2019	0930	Fine	0	0	0	20.9	19 / 1020	3.3
	21/12/2019	1430	Fine	0	0	0	20.9	21 / 1016	3.3
Pit A	21/12/2019	1000	Fine	0	0	0	20.9	19 / 1020	2.0
	21/12/2019	1500	Fine	0	0	0	20.9	21 / 1015	2.0
Jacking Pit B	21/12/2019	1030	Fine	0	0	0	20.9	19 / 1020	0.2
	21/12/2019	1530	Fine	0	0	0	20.9	21 / 1015	0.2
MVT 1	21/12/2019	1100	Fine	0	0	0	20.9	20 / 1019	1.0
	21/12/2019	1600	Fine	0	0	0	20.9	21 / 1015	1.0
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	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		21/12/2019

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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
137 P.+B	23/12/2019	0830	Fine	0	0	0	20.9	19 / 1018	1.0
	23/12/2019	1330	Fine	0	0	0	20.9	20 / 1016	1.0
CH.A 6+64	23/12/2019	0900	Fine	0	0	0	20.9	19 / 1018	3.3
	23/12/2019	1400	Fine	0	0	0	20.9	20 / 1016	3.3
CH.A 12+40	23/12/2019	0930	Fine	0	0	0	20.9	19 / 1018	3.3
	23/12/2019	1430	Fine	0	0	0	20.9	20 / 1016	3.3
P.+A	23/12/2019	1000	Fine	0	0	0	20.9	20 / 1018	2.0
	23/12/2019	1500	Fine	0	0	0	20.9	20 / 1016	2.0
Jacking P.+B	23/12/2019	1030	Fine	0	0	0	20.9	20 / 1018	0.2
	23/12/2019	1530	Fine	0	0	0	20.9	20 / 1016	0.2
MVT 1	23/12/2019	1130	Fine	0	0	0	20.9	21 / 1018	1.0
	23/12/2019	1600	Fine	0	0	0	20.9	20 / 1016	1.0
MVT 2	23/12/2019	1130	Fine	0	0	0	20.9	21 / 1017	1.2
	23/12/2019	1630	Fine	0	0	0	20.9	20 / 1016	1.2

	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		23/12/2019
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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
137 Pit B	24/12/2019	0830	Fine	0	0	0	20.9	19 / 1019	1.7
	24/12/2019	1350	Fine	0	0	0	20.9	24 / 1017	1.7
CH.A 6464	24/12/2019	0900	Fine	0	0	0	20.9	19 / 1019	3.3
	24/12/2019	1430	Fine	0	0	0	20.9	24 / 1016	3.3
CH.A 12440	24/12/2019	0930	Fine	0	0	0	20.9	20 / 1020	3.3
	24/12/2019	1430	Fine	0	0	0	20.9	23 / 1016	3.3
Pit A	24/12/2019	1000	Fine	0	0	0	20.9	21 / 1020	2.0
	24/12/2019	1500	Fine	0	0	0	20.9	23 / 1016	2.0
Jacking Pit B	24/12/2019	1030	Fine	0	0	0	20.9	21 / 1020	0.2
	24/12/2019	1530	Fine	0	0	0	20.9	24 / 1016	0.2
MVT 1	24/12/2019	1100	Fine	0	0	0	20.9	21 / 1020	1.0
	24/12/2019	1600	Fine	0	0	0	20.9	23 / 1016	1.0
MVT 2	24/12/2019	1130	Fine	0	0	0	20.9	22 / 1020	1.2
	24/12/2019	1630	Fine	0	0	0	20.9	23 / 1016	1.2

	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		24/12/2019
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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
137 Pit B	27/12/2019	0830	Fine	0	0	0	20.9	15 / 1021	1.7
	27/12/2019	1330	Fine	0	0	0	20.9	21 / 1020	1.7
CH.A 6+64	27/12/2019	0900	Fine	0	0	0	20.9	16 / 1021	3.3
	27/12/2019	1400	Fine	0	0	0	20.9	21 / 1019	3.3
CH.A 12+40	27/12/2019	0930	Fine	0	0	0	20.9	16 / 1021	5.7
	27/12/2019	1430	Fine	0	0	0	20.9	21 / 1019	5.3
Pit A	27/12/2019	1000	Fine	0	0	0	20.9	17 / 1021	2.0
	27/12/2019	1500	Fine	0	0	0	20.9	21 / 1019	2.0
Jacking Pit B	27/12/2019	1030	Fine	0	0	0	20.9	17 / 1021	0.2
	27/12/2019	1530	Fine	0	0	0	20.9	21 / 1019	0.2
MVT 1	27/12/2019	1100	Fine	0	0	0	20.9	18 / 1021	1.0
	27/12/2019	1600	Fine	0	0	0	20.9	20 / 1019	1.0
MVT 2	27/12/2019	1130	Fine	0	0	0	20.9	19 / 1021	1.2
	27/12/2019	1630	Fine	0	0	0	20.9	20 / 1019	1.2

	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		27/12/2019
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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
137 Pit B	28/12/2019	0830	Fine	0	0	0	20.9	16/1021	1.7
	28/12/2019	1330	Fine	0	0	0	20.9	20/1019	1.7
CH.A 6+64	28/12/2019	0900	Fine	0	0	0	20.9	17/1021	3.3
	28/12/2019	1400	Fine	0	0	0	20.9	20/1019	3.3
CH.A 12+40	28/12/2019	0930	Fine	0	0	0	20.9	17/1022	5.3
	28/12/2019	1430	Fine	0	0	0	20.9	20/1019	5.3
Pit A	28/12/2019	1000	Fine	0	0	0	20.9	17/1022	2.0
	28/12/2019	1500	Fine	0	0	0	20.9	21/1019	2.0
Jacking Pit B	28/12/2019	1030	Fine	0	0	0	20.9	17/1022	0.2
	28/12/2019	1530	Fine	0	0	0	20.9	20/1019	0.2
MVT 2	28/12/2019	1100	Fine	0	0	0	20.9	18/1022	1.2
	28/12/2019	1600	Fine	0	0	0	20.9	20/1019	1.2
								/	
								/	

	Name & Designation	Signature	Date
Field Operator:	Ken NG (Assistant Engineer)		28/12/2019
Laboratory Staff:			
Checked by:			

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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.CT 0+07~0+51	30/12/2019	0830	Fine	0	0	0	20.9	20/1020	3.0
	30/12/2019	1330	Fine	0	0	0	20.9	22/1019	3.0
137 Pit B	30/12/2019	0900	Fine	0	0	0	20.9	20/1020	1.7
	30/12/2019	1400	Fine	0	0	0	20.9	22/1019	1.7
CH.A 6+64	30/12/2019	0930	Fine	0	0	0	20.9	21/1020	3.3
	30/12/2019	1430	Fine	0	0	0	20.9	21/1019	3.3
CH.A 12+40	30/12/2019	1000	Fine	0	0	0	20.9	21/1020	X.3
	30/12/2019	1500	Fine	0	0	0	20.9	21/1019	X.3
Pit A	30/12/2019	1030	Fine	0	0	0	20.9	21/1021	2.0
	30/12/2019	1530	Fine	0	0	0	20.9	21/1019	2.0
Jacking Pit B	30/12/2019	1100	Fine	0	0	0	20.9	21/1021	0.2
	30/12/2019	1600	Fine	0	0	0	20.9	21/1019	0.2
MVT 2	30/12/2019	1130	Fine	0	0	0	20.9	21/1020	1.2
	30/12/2019	1630	Fine	0	0	0	20.9	21/1019	1.2

	Name & Designation	Signature	Date
Field Operator:	Marco Sheung (Graduated Engineer)		30/12/2019
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-2400P (QRAE II)	29 Aug 2019

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission						
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp (°C) / Pressure (mbar)	Remark Depth (m)
CH.CT0+07-0+57	31/12/2019	0830	Fine	0	0	0	20.9	19/1026	3.0
	31/12/2019	1330	Fine	0	0	0	20.9	18/1025	3.0
137 Pit B	31/12/2019	0900	Fine	0	0	0	20.9	19/1026	1.7
	31/12/2019	1400	Fine	0	0	0	20.9	18/1024	1.7
CH.A 6+64	31/12/2019	0930	Fine	0	0	0	20.9	19/1027	3.3
	31/12/2019	1430	Fine	0	0	0	20.9	18/1024	3.3
CH.A 12+40	31/12/2019	1000	Fine	0	0	0	20.9	19/1027	5.3
	31/12/2019	1500	Fine	0	0	0	20.9	18/1024	5.3
Pit A	31/12/2019	1030	Fine	0	0	0	20.9	19/1027	2.0
	31/12/2019	1530	Fine	0	0	0	20.9	18/1024	2.0
Jacking Pit B	31/12/2019	1100	Fine	0	0	0	20.9	19/1027	0.2
	31/12/2019	1600	Fine	0	0	0	20.9	18/1024	0.2
MVT 2	31/12/2019	1130	Fine	0	0	0	20.9	19/1026	1.2
	31/12/2019	1630	Fine	0	0	0	20.9	18/1024	1.2

	Name & Designation	Signature	Date
Field Operator:	Marco Sheung (Graduated Engineer)		31/12/2019
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
1 Dec 2019 - 31 Dec 2019	0	0	N/A

Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Details
1 Dec 2019 - 31 Dec 2019	0	0	N/A

Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Details
1 Dec 2019 - 31 Dec 2019	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: 05/12/2019
Inspection Time: 09:30
Inspected by: ET: Cheyenne / Khapo; Contractor: Sam; WSD: Au Wai Tak; IEC: N/A.

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?	☐	☑	☐	
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?	☐	☑	☐	
1.03	Are fumes or smoke emitting plants or construction activities shielded by a screen?	☑	☐	☐	
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?	☐	☑	☐	Obs (3)
1.07	Are all main haul roads inside the site paved or sprayed with water to minimize dust emission during vehicle movement?	☐	☑	☐	
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?	☑	☐	☐	
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?	☑	☐	☐	

Page **1** of **6**

5/12

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 dry 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?	☐	☑	☐	
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 movable 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 operations 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?	☐	☑	☐	

Page 2 of 6

5/12

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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?	☐	☑	☐	obs(2)
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?	☐	☑	☐	
3.16	Are there any measures to prevent the release of oil and grease into the storm drainage system?	☐	☑	☐	obs(5)
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?	☐	☑	☐	obs(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 lorries, 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?	☐	☑	☐	

5/12

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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 receptacles 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 the area, whichever is the greatest, provide?	☑	☐	☐	
4.12	Are a routine cleaning and maintenance programme implemented for drainage systems, sump pits, and oil interceptors?	☐	☑	☐	obs(4)
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 materials 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 reused 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?	☐	☑	☐	

5/12

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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?	☐	☑	☐	
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?	☐	☑	☐	

Page 5 of 6

5/12

Acuity Sustainability Consulting Limited
Unit 1508, Nos. 301-305 Castle Peak Road, Kwai Chung, N.T.
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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:

Observation(s)

(1) Accumulated mud-pile was observed directly next to the water-barriers. The mud pile should be treated properly to prevent it to escape from the construction site (CHA 12+50), (Pit A).

(2) ~~Pit~~ Sandbags should be placed fully along the construction boundaries to prevent the seepage of water from the construction site to the main road. (Pit C), (Pit A), (Pit B).

(3) Road section near the site exits should be free from dusty materials (CHA 12+50)

(4) Excess underground water should be cleaned regularly to prevent the accumulation or contamination of other construction materials (CHA 12+50)

(5) The drip tray was observed without the plug/stopper that may lead to the leakage of chemicals (Pit B)

Reminder(s)

(1) The U-shaped channel has to be cleaned regularly to prevent the accumulation of debris and wastes. (portion F)

(2) Housekeeping was reminded (CHA 12+50), (Pit B).

(3) Sandbags were damaged (CHA 12+50)

(4) Water from the construction site should be directed to the wastewater treatment facilities to ensure all wastewater is treated properly prior discharge to the communal storm water drain. (CHA 12+50) ~~(5) chemical~~

Signatures:

ET Representative	Contractor's Representative	WSD's Representative	IEC's Representative
(Name: Charlene Lai)	(Name: Sam Ng)	(Name: Anthony Tam)	(Name:)

(第一個) CHA 0+78 – CHA 6+64

(1個) ① portion F – drainage (reminder)

② Pit C – sandbags (obs)

③ Pit 12+50 (A003)
- obs drainage
- reminder – housekeeping
- 泥堆
- water treatment tank + 水管 connect
- chemicals drip tray

④ Pit A – sandbags (reminder) obs
- 泥堆 (obs)

⑤ Pit B – sandbags (obs)
drip tray plug (obs)
housekeeping (reminder)

5/12

Page 6 of 6

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

WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Inspection Date: 12/12/2019 Inspected by ET: Charlene / Kenjoo WSD T. K. Chong
Inspection Time: 09:30 Contractor: Sam IEC N/A

Weather							
Condition	☑ Sunny	☐ Fine	☐ Overcast	☐ Drizzle	☐ Rain	☐ Storm	☐ Haze
Temperature	30 °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?	☐	☑	☐	obs (3)
1.02	Are screenings, enclosures, water spraying or vacuum cleaning devices provided to dusty construction works for dust suppression?	☐	☑	☐	
1.03	Are fumes or smoke emitting plants or construction activities shielded by a screen?	☑	☐	☐	
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 sections 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?	☐	☑	☐	
1.08	Are water sprayed 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?	☑	☐	☐	
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 exposed 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 from dark smoke emission?	☑	☐	☐	

12/12

Acuity Sustainability Consulting Limited
Unit 1508, 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

		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 dry 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?	☐	☑	☐	
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 movable 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?	☐	☑	☐	

13/12

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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?	☐	☑	☐	obs (1)
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 earth/other materials on site covered by impervious sheeting 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?	☐	☑	☐	Obs (2)
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?	☐	☑	☐	

12/12

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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 20% by volume of the chemical waste stored in that area, whichever is the greatest, provided?	☑	☐	☐	
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 reused 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?	☐	☑	☐	

Page 4 of 6

14/12

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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 2.4m 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 2.0m 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?	☐	☑	☐	

Page 5 of 6

12/12

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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) Sandbags should be placed fully along the construction boundaries (pit B)

(2) the drip tray was observed without the plug/stopper that may lead to the leakage of chemicals (pit B)

(3) Construction waste should be properly treated to prevent dust emission. (pit B)

Reminders. (1) Sandbags should be placed fully along the construction boundaries (CHA12+50)

(2) Drip tray should be cleaned regularly (CHA12+50)

(3) Housekeeping was reminded (CHA12+50)(Pit B)

(4) Excess underground water should be cleaned regularly to prevent the accumulation or contamination of other Construction materials. (CHA12+50)

(5) dust suppression mitigations should be implemented to prevent dust emission. (CHA12+50).

Signatures:

ET Representative	Contractor's Representative	WSD's Representative	IEC's Representative
Charlene Lai			
(Name:)	(Name: San N.)	(Name: T.K. CHOW)	(Name:)

① CHA6+64
Reminder N/A

② 12+50
- Reminder : 沙包
- drip tray d/s
- Housekeeping
- excess water in tank
- d/s 污水渠位

③ pit B
Reminder. Housekeeping
obs: ① 沙包
② d/s 污水渠位
③ drip tray stopper.

12/12.

Page 6 of 6

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

WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Inspection Date: 18/12/2019 Inspected by: ET: Chan Ka-ming WSD: Tsang Kin Fat
Inspection Time: 09:30 Contractor: Sam Ng Ref.: N/A

Weather
Condition: ☐ Sunny ☑ Fine ☐ Overcast ☐ Drizzle ☐ Rain ☐ Storm ☐ Hazy
Temperature: 24 °C Humidity: ☐ High ☑ Moderate ☐ Low
Wind: ☑ Calm ☐ Light ☐ Strong ☐ Strong

		N/A	Yes	No	Photo/Remarks
0.00	**General**				
0.01	Is the current Environmental Permit displayed conspicuously at all vehicle site entrance/exits for public's information at any time?	☐	☑	☐	
0.02	Is E/I 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?	☐	☑	☐	Obs(1), (3)
1.02	Are screenings, enclosures, water spraying or vacuum cleaning devices provided to dusty construction works for dust suppression?	☐	☑	☐	
1.03	Are fumes or smoke emitting plants or construction activities shielded by a screen?	☑	☐	☐	
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?	☐	☑	☐	
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?	☑	☐	☐	
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?	☑	☐	☐	

18/12

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		N/A	Yes	No	Note/Remarks
1.13	Are vehicles travelling at speed not exceeding 15km/hr within the site?	☑	☐	☐	
1.14	Are stock of more than 50 bags of cement or dry 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?	☐	☑	☐	
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 movable 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 surfaces 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 interceptor/ 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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		N/A	Yes	No	Photo/Remarks
4.02	Is a recording system implemented to record the amount of wastes generated, recycled and disposed off?	☐	☑	☐	
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 tap 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 collections 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 reused 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?	☐	☑	☐	Obs (2)
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 fix 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?	☐	☑	☐	

Page 5 of 6

18/12.

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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) Dust suppression mitigations should be implemented to prevent dust emission (CHA6+50)

(2) Accumulated mud-pile was observed directly next to the water-barriers. The mud-pile should be treated properly to prevent it to escape from the construction site (CHA12+50)(Pit A)

(3) Construction wastes should be properly treated to prevent dust emission. (Pit B) (Pit B)

Reminders:

(1) Sandbags should be placed fully along the construction boundaries (Pit C)

(2) Housekeeping was reminded (CHA6+64)(Pit A)

(3) Excess underground water should be cleaned regularly to prevent the accumulation or contamination of other construction materials (CHA12+50)

(4) Construction site exit should be free of dusty materials. (Pit B)

(5) The drainage system should be properly maintained to prevent sand/silt particles runoff (Pit C)(CHA12+50)

Signatures:

ET Representative	Contractor's Representative	WSD's Representative	IEC's Representative
(Name: Charlene Lo)	(Name: Kan Kai)	(Name: Sam Ng)	(Name:)

13/12

Pit C Reminders
① 沙包,
② 防水布 (textile),

CHA6+64 Reminders
① Housekeeping

12+50 Obs ① 泥堆 ② 抽水管處 d 泥, | Reminder: Geotextile 泥, 抽乾 d 水

Pit B obs: 沙 未 cover, 水馬旁邊 d 泥 需要清走, Reminder → exit d 泥

打5 → 鑽 泥塘
Pit A Reminders ① ~~exit~~ ② Housekeeping

13/12

Page 6 of 6

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

WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Inspection Date: 23/12/2019 Inspected by: ET: Karpa Yam WSD: Tsang Kin Fai
Inspection Time: 9:30am Contractor: Sum Ng IEC:

Weather
Condition: ☑ Sunny ☐ Fog ☐ Overcast ☐ Drizzle ☐ Rain ☐ Storm ☐ Haze
Temperature: 20°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?	☐	☑	☐	
1.02	Are screenings, enclosures, water spraying, or vacuum cleaning devices provided to dusty construction works for dust suppression?	☐	☑	☐	
1.03	Are fumes or smoke emitting plants or construction activities shielded by a screen?	☐	☑	☐	
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?	☐	☑	☐	
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?	☐	☑	☐	
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 from dark smoke emission?	☐	☑	☐	

23/12

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 15 km/hr within the site?	☐	☑	☐	
1.14	Are stacks of more than 20 bags of cement or dry 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?	☐	☑	☐	
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 noise 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 operations 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?	☐	☑	☐	

23/12

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?	☐	☑	☐	
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 impervious sheeting during construction?	☐	☑	☐	
3.14	Is runoff from wheel washing facilities avoided?	☑	☐	☐	
3.15	Is oil leakage or spillage prevented?	☐	☑	☐	observation(1)
3.16	Are there any measures to prevent the release of oil and grease into the storm drainage system?	☐	☑	☐	observation(2)
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 location as far as possible from the sensitive watercourse and storm water 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?	☐	☑	☐	

23/12

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, sumps 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 aluminium cans, plastic bottles and packaging materials 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?	☐	☑	☐	observation 13)
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 reused 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?	☐	☑	☐	

Page 4 of 6

23/12

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

		N/A	Yes	No	Photo/Remarks
5.00	**Landscape and Visual**				
5.01	Are 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 trees 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?	☐	☑	☐	

Page 5 of 6

23/12

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

(1) Chemical stain on the ground should be cleaned at Portion F.
(2) Chemical should be placed properly at 137.
(3) construction waste should be ~~tea~~treated properly at Pt B, Pt A.

(4) Road section near the site exit should be free from dusty materials at CHA12+50 ~~Site exit~~ *

Reminder

(1) Regular cleaning of U-channel is reminded at Portion F.
(2) Regular checking of color # of NRMM label is reminded.
(3) Wastes should be cleaned regularly * Pt A, Pt C,
(4) sand bags should be fully placed along the work boundary at Pt A.
(5) Gullies should be protected properly at Pt A
(6) Excess underground water should be cleared regularly to prevent the accumulation or contamination of other construction materials at CHA12+50

Signatures:

IET Representative	Contractor's Representative	WSD's Representative	IEC's Representative
(Name: Kenyo Yeung)	(Name: Sam Ng)	(Name: Tsang Kwai Yeung)	(Name:)

(1) Portion F.
(2) Pt C
(3) 137
(4) CHB 7+20
(5) CHA 12+50
(6) Pt B
(7) 沙井/出入口

Page 6 of 6

23/12

Acuity Sustainability Consulting Limited

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

WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Inspection Date: 31/12/2019 Inspected by: ET Karpo/Chanland WSD Tsang Kin Pan
Inspection Time: 09:30 Reviewer Sane Ng. IEC Francis Lam

Weather
Condition: ☐ Sunny ☐ Fine ☑ Overcast ☐ Drizzle ☐ Rain ☐ Showers ☐ 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?	☐	☑	☐	
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?	☐	☑	☐	
1.03	Are fumes or smoke emitting plants or construction activities shielded by a screen?	☑	☐	☐	
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?	☐	☑	☐	
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?	☑	☐	☐	
1.10	Are the working areas for spooding of trees, shrubs, or vegetation or the removal of boulders, rocks, 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?	☑	☐	☐	

31/12

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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 stocks of more than 50 bags of cement or dry 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?	☐	☑	☐	
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 movable 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 purpose-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?	☐	☑	☐	

31/12

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

		N/A	Yes	No	Photo/Remark
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?	☐	☑	☐	
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 ...0% of the storage capacity of the largest tank?	☑	☐	☐	
3.20	Are fuels, containers, storage area bunded and the location 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?	☐	☑	☐	

31/12

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

		N/A	Yes	No	Point/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, provided?	☑	☐	☐	
4.12	Are a routine cleaning and maintenance programme implemented for drainage systems, sumps, 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?	☐	☑	☐	

Page 4 of 6

21/12

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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?	☐	☑	☐	
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 trees properly protected and in good aerobic soils?	☑	☐	☐	
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 fence 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?	☐	☑	☐	

31/12

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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:

Reminders:

(1) NRMM label colour should be properly maintained on the NRMM (CHA 6 + 64).

(2) construction materials should be properly stored in the construction site. (CHA 6 + 64)

(3) Accumulated mud-pile was observed directly next to the water barriers. The mud-pile should be treated properly to prevent it to escape from the construction site. (CHA 12 + 50)

(4) Excess underground water should be cleaned regularly to prevent the accumulation or contamination of other construction materials. (CHA 12 + 50)

(5) stagnant water was observed in the drip tray - (CHA 12 + 50)

Signatures:

IC Representative	Contractor's Representative	WSD's Representative	IEC's Representative
(Name: Charlene Lai)	(Name: Steve Ng)	(Name: TSANG Kin Fai)	(Name: Francis Law)

CHA 6 + 64 NRMM label should be properly maintained on the NRMM (reminder)
construction materials should be properly stored

CHA 05 + 12 - Stockpiles of ~~earth~~ dust was found next to the water barriers
The ~~silt~~ dust pile should be properly maintained to prevent it to escape from the construction site (reminder)
excess
- ~~stagnant~~ water was observed (reminder).
All water should be diverted to water treating facilities before discharge
- stagnant water was observed in the dust tray (reminder)

Page 6 of 6

3/12

Appendix M

Proactive Environmental Protection Proforma

Proactive Environmental Protection for the Next Reporting Month

Reporting Period	Activity	Major Environmental Impact	Environmental Mitigation Measure
1 January 2020 - 31 January 2020	- Excavation of trench - Mainlaying of pipe Backfilling of the trench - Work fronts for open trench - Work fronts for pipe jacking - Trial pits works	Construction dust and noise generation	- 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

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