





Contract No. 13/WSD/16

Mainlaying in Tseung Kwan O

**Monthly EM&A Report No. 56
(Period from 1 to 31 March 2023)**

20 April 2023

(Rev. 1)

	Prepared by:	Reviewed and Certified by:
Name	Grace Wong	Jacky Leung
Position	Environmental Team Member	Environmental Team Leader
Signature		
Date:	20 April 2023	20 April 2023



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

Your reference:

Our reference: HKWSD201/50/108759

Date: 21 April 2023

Attention: Mr Jeff Yuen

BY POST

Dear Sirs

Quotation No.: WQ/17/A071
Independent Environmental Checker for Water Supplies Department
– Proposed Desalination Plant in TKO Area 137 for Contract No. 13/WSD/16
Verification of Monthly EM&A Report No.56

We refer to emails of 12 and 20 April 2023 attaching Monthly EM&A Report No.56 for the captioned project prepared by the ET.

We have no further comment and hereby verify the captioned report in accordance with Clause 3.5 of the Environmental Permit no. EP-503/2015/A.

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

Yours faithfully
ANEWR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/KSYL/lsm

Revision History

Rev.	DESCRIPTION OF MODIFICATION	DATE
0	1 st Submission	12/04/2023
1	2 nd Submission	20/04/2023

CONTENT

Executive Summary	
1. Basic Project Information	3
2. Noise Monitoring.....	6
3. Waste management.....	10
4. Landfill gas monitoring.....	11
5. Summary of Exceedance, Complaints, Notification of Summons and Prosecutions.....	19
6. EM&A Site Inspection	21
7. Future Key Issues	23
8. Conclusion and Recommendations.....	24

Appendix A Construction Programme

Appendix B Overview of Mainlaying in Tseung Kwan O

Appendix C Summary of Implementation Status of Environmental Mitigation

Appendix D Impact Monitoring Schedule of the Reporting Month

Appendix E Noise Monitoring Equipment Calibration Certificate

Appendix F Event/Action Plan for Noise Exceedance

Appendix G Noise Monitoring Data

Appendix H Waste Flow Table

Appendix I Landfill Gas Monitoring Equipment Calibration Certificate

Appendix J Landfill Gas Monitoring Data

Appendix K Complaint Log and Regulatory Compliance Proforma

Appendix L Site Inspection Proforma

Appendix M Proactive Environmental Protection Proforma

Appendix N Impact Monitoring Schedule of Next Reporting Month

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 56th 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 March to 31 March 2023.
- A4. The EM&A programme for this contract has covered environmental monitoring on construction noise level at selected NSRs and Contractor’s environmental performance auditing in the aspects of construction dust, construction noise, water quality, waste management, landscape and visual and ecology.

Summary of Main Works Undertaken & Key Mitigation Measures Implemented

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

Location	Construction activities carried in the reporting month
Wan Po Road and TKO Area 137	<ul style="list-style-type: none"> • Open trench method • Water main installation inside sleeve pipe
TKO Promenade (Stage 1 Landfill) & Po Yap Road Roundabout	<ul style="list-style-type: none"> • Open trench method • Water main installation inside sleeve pipe • Trenchless Method (sleeve pipe)
HK Velodrome	<ul style="list-style-type: none"> • Open trench method • Water main installation inside sleeve pipe • Trenchless Method (sleeve pipe)
Po Lam Road South / Ling Hong Road	<ul style="list-style-type: none"> • Open trench method • Water main installation inside sleeve pipe
Tsui Lam Road / Abandoned Road	<ul style="list-style-type: none"> • Open trench method • Pile cap construction

- A6. The major environmental impacts brought by the above construction works include:
- Construction dust and noise generation from mainlaying of pipes, and excavation;
 - Waste generation from the construction activities; and
 - Impact on water quality from construction activities
- A7. The key environmental mitigation measures implemented for the Project in this reporting period associated with the above construction works include:
- Reduction of construction dust generation from mainlaying of pipes, and excavation;
 - Reduction of noise from equipment and machinery on-site;
 - Sorting and storage of general refuse and construction waste; and
 - Treatment of wastewater through water treatment facilities before discharge

Summary of Exceedance & Investigation & Follow-up

- A8. Noise monitoring was scheduled in the reporting month for NSR4 Creative Secondary School on 1, 7, 13, 24 and 30 March 2023 as construction works were conducted within 300m to the noise sensitive receiver. No Action or Limit Level exceedance was recorded during the reporting period.
- A9. Landfill gas monitoring was carried out by the Registered Safety Officer of the Contractor at the excavation locations and within the consultation zones for 564 times. All the measured results were presented in **Appendix J** and were within the Action and Limit Levels.

Complaint Handling and Prosecution

- A10. No environmental complaint, notifications of summons and prosecution was received in the reporting month.

Reporting Change

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

Summary of Upcoming Key Issues and Key Mitigation Measures

- A12. Key works in the next reporting month for the Project will include the followings:

Location	Construction activities to be carried out in next reporting month
Wan Po Road and TKO Area 137	<ul style="list-style-type: none"> • Open trench method • Water main installation inside sleeve pipe
TKO Promenade (Stage 1 Landfill) & Po Yap Road Roundabout	<ul style="list-style-type: none"> • Open trench method • Water main installation inside sleeve pipe • Trenchless Method (sleeve pipe)
HK Velodrome	<ul style="list-style-type: none"> • Open trench method • Water main installation inside sleeve pipe • Trenchless Method (sleeve pipe)
Po Lam Road South / Ling Hong Road	<ul style="list-style-type: none"> • Open trench method • Water main installation inside sleeve pipe
Tsui Lam Road / Abandoned Road	<ul style="list-style-type: none"> • Open trench method

- A13. The major environmental impacts brought by the above construction works will include:
- Construction dust and noise generation of mainlaying of pipes, and excavation works;
 - Waste generation from construction activities; and
 - Impact on water quality 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:
- Reduction of construction dust generation of mainlaying of pipes, and excavation works by regular water spraying and covering of dusty materials with screenings;
 - Reduction of noise from equipment and machinery on-site;
 - Sorting and storage of general refuse and construction waste; and
 - Treatment of wastewater through water treatment facilities before discharge.

1. BASIC PROJECT INFORMATION

1.1 Background

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

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

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

1.2 The Reporting Scope

This is the 56th Monthly EM&A Report for the Project which summarizes the key findings of the EM&A programme during the reporting period from 1 March to 31 March 2023.

1.3 Project Organization

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

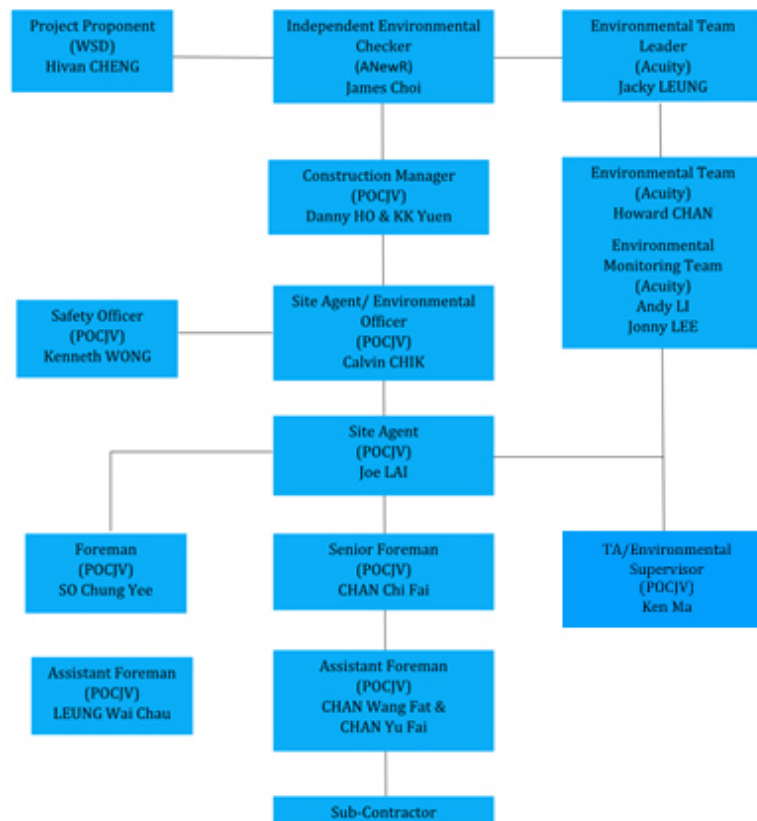


Figure 1.1 Project Organization Chart

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

Table 1.1 Contact details of the 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

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	Construction activities carried out in the reporting month
Wan Po Road and TKO Area 137	<ul style="list-style-type: none"> Open trench method Water main installation inside sleeve pipe
TKO Promenade (Stage 1 Landfill) & Po Yap Road Roundabout	<ul style="list-style-type: none"> Open trench method Water main installation inside sleeve pipe Trenchless Method (sleeve pipe)
HK Velodrome	<ul style="list-style-type: none"> Open trench method Water main installation inside sleeve pipe Trenchless Method (sleeve pipe)
Po Lam Road South / Ling Hong Road	<ul style="list-style-type: none"> Open trench method Water main installation inside sleeve pipe
Tsui Lam Road / Abandoned Road	<ul style="list-style-type: none"> Open trench method Pile cap construction

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 Environmental Licence, Notification and Permit

Reference No.	Valid Period		Status	Remark
	From	To		
Variation of Environmental Permit				
EP no.: EP-503/2015/A	--	--	Valid	N/A
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation				
423775	--	--	Valid	N/A

Reference No.	Valid Period		Status	Remark
	From	To		
Chemical Waste Producer Registration				
5213-839-P3287-01	--	--	Valid	N/A
Billing Account for Disposal of Construction Waste				
A/C no.: 7029491	--	--	Valid	N/A
Water Discharge Licence				
WT00032336-2018	10 Dec 2018	31 Dec 2023	Valid	N/A
Construction Noise Permit (CNP)				
GW-RE0109-23	8 Feb 2023	31 Mar 2023	Expired	Po Shun Road near junction of Wan Po Road
GW-RE0091-23	6 Feb 2023	29 Apr 2023	Valid	Construction site near junction of Wan Po Road and Pung Loi Road

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 Management Plan	On-going
Landfill Gas	
Impact Monitoring	On-going
Environmental Audit	
Site Inspection	On-going

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

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

2. NOISE MONITORING

2.1 Monitoring Requirements

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

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

Impact monitoring for noise impact was conducted in the reporting month for NSR4 – Creative Secondary School on 1, 7, 13, 24 and 30 March 2023 as construction works were conducted within 300m to the noise sensitive receiver. Detailed monitoring results can be found in **Appendix G**.

2.2 Noise Monitoring Parameters, Time, Frequency

Impact noise monitoring was conducted weekly in the reporting period between 0700-1900 on normal weekdays. Construction works will follow the requirements as stipulated in the valid CNPs if works have to be conducted in the restricted hours.

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

Table 2.1 Noise Monitoring Parameters, Time, Frequency and Duration

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

2.3 Noise Monitoring Locations

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

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

Table 2.2 Noise Monitoring Location

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

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



Figure 2.1 NSR4 Creative Secondary School



Figure 2.2 NSR24 PLK Laws Foundation College



Figure 2.3 NSR31 School of Continuing and Professional Studies - CUHK

2.4 Impact Monitoring Methodology

Integrated sound level meters were used for the noise monitoring. The meters were 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 meters was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration level before and after the noise measurements agree to within 1.0 dB(A).

Calibration certificates of the instruments used are presented in **Appendix E**. Noise measurements were not 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 was checked with a portable wind speed meter capable of measuring the wind speed in m/s.

Table 2.3 Impact Noise Monitoring Equipment

Equipment	Brand and Model	Serial Number	Date of Calibration	Expiry Date
Sound Level Meter	Svantek 971	96062	27/06/2022	26/06/2023
Sound Level Meter Calibrator	RION NC-75	34524163	09/05/2022	08/05/2023
Pocket Wind Meter Anemometer	Kestrel 1000 Wind Meter	Nil	Nil	Nil

2.5 Action and Limit Levels

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

Table 2.4 Action and Limit Levels for Noise

Time Period	Action Level	Limit Level (dB(A))
0700-1900 on normal weekdays	When one documented complaint is received from any one of the noise sensitive receivers	<ul style="list-style-type: none">• 70 dB(A) for school and• 65 dB(A) during examination period
Notes: (a) Limits specified in the GW-TM and IND-TM for construction and operation noise, respectively.		

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

2.6 Monitoring Results and Observations

Referring to EM&A Manual Section 4.1.2, impact monitoring for noise impact was scheduled weekly in the reporting month for NSR4 – Creative Secondary School on 1, 7, 13, 24 and 30 March 2023. Detailed monitoring results are presented in **Appendix G**.

No construction works were conducted within 300m radius of NSR24 and NSR31. Thus, no construction noise monitoring works was carried at these two locations in the reporting month.

No action or limit level exceedance was recorded for construction noise monitoring during the reporting period.

3. WASTE MANAGEMENT

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 these 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 '000m ³)	Chemical Waste (in '000kg)	Non-inert C&D Materials			
			Others, e.g., General Refuse disposed at Landfill (in '000m ³)	Recycled materials		
				Paper/cardboard (in '000kg)	Plastics (in '000kg)	Metals (in '000kg)
Mar 2023	1.093	0.000	0.005	0.059	0.000	0.000

4. LANDFILL GAS MONITORING

4.1 Monitoring Requirement

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

4.2 Monitoring Location

Monitoring of oxygen, methane, carbon dioxide and barometric pressure was performed for excavations at 1m depth or more within the Consultation Zone.

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 when the excavation remains open; and
- Periodically through the working day whilst workers are in the excavation.

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

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

The area required to be monitored for landfill gas in the reporting period are shown in **Figure 4.1** to **Figure 4.9**.

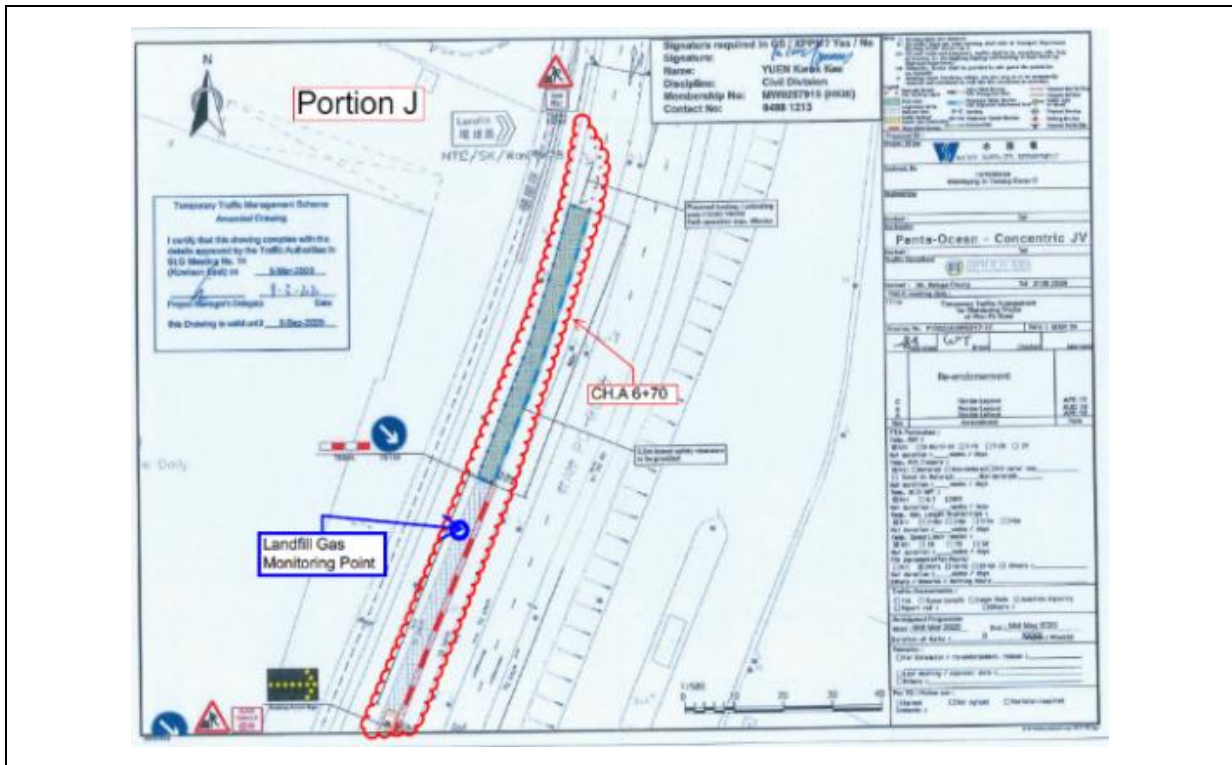


Figure 4.1 Monitoring Location - CH.A 6+70

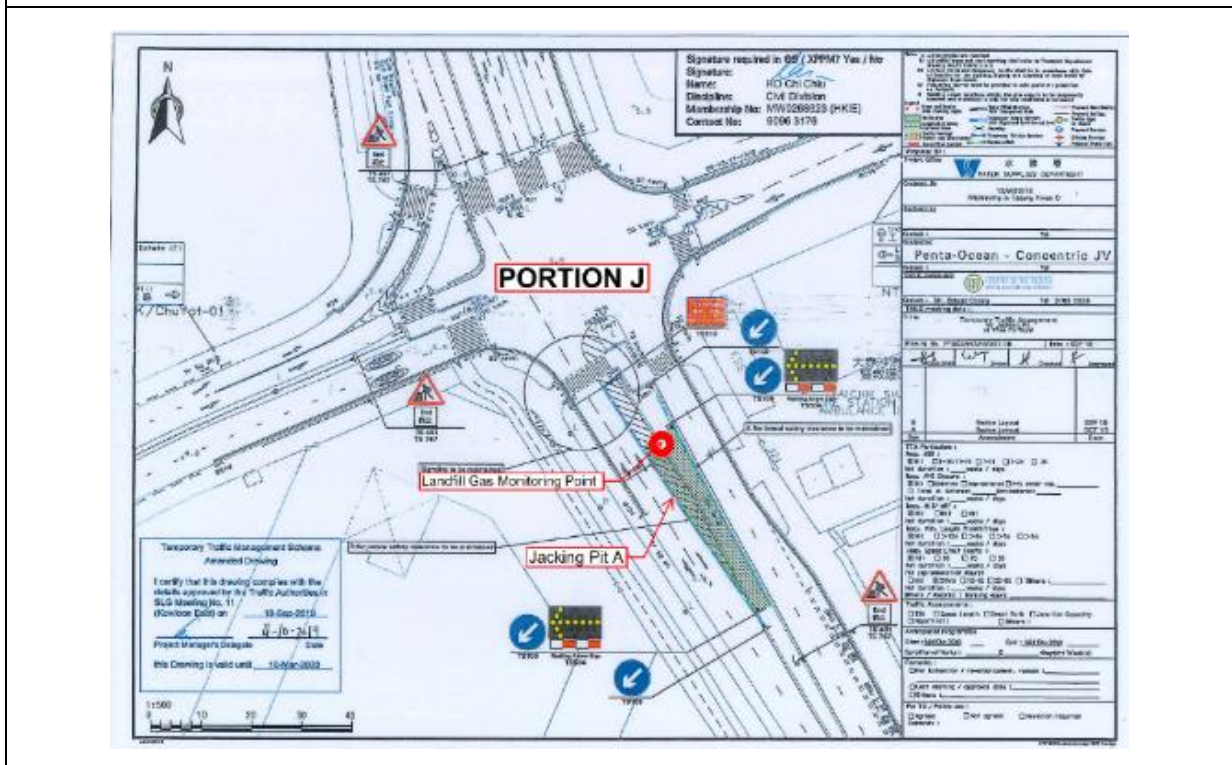


Figure 4.2 Monitoring Location - CH.A 13+50 ~ 14+00 (Pit A)

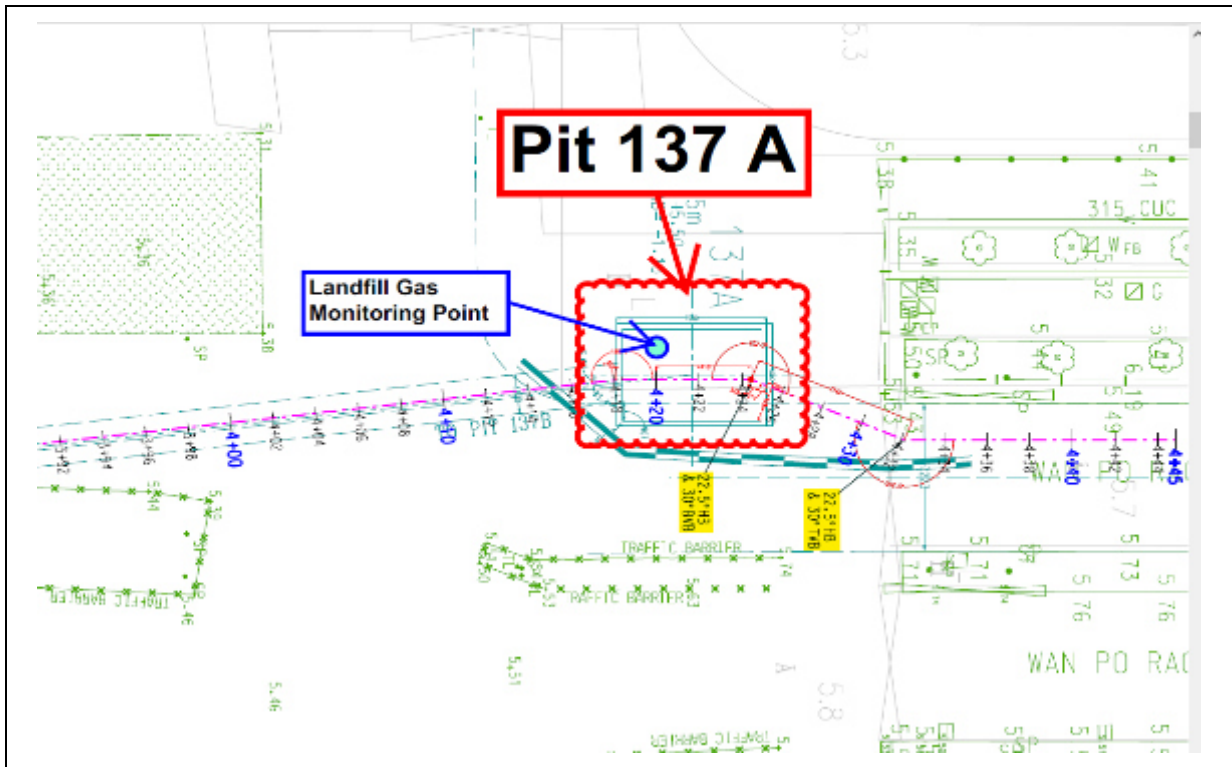


Figure 4.4 Monitoring Location – Pit 137A (137 Pit A)

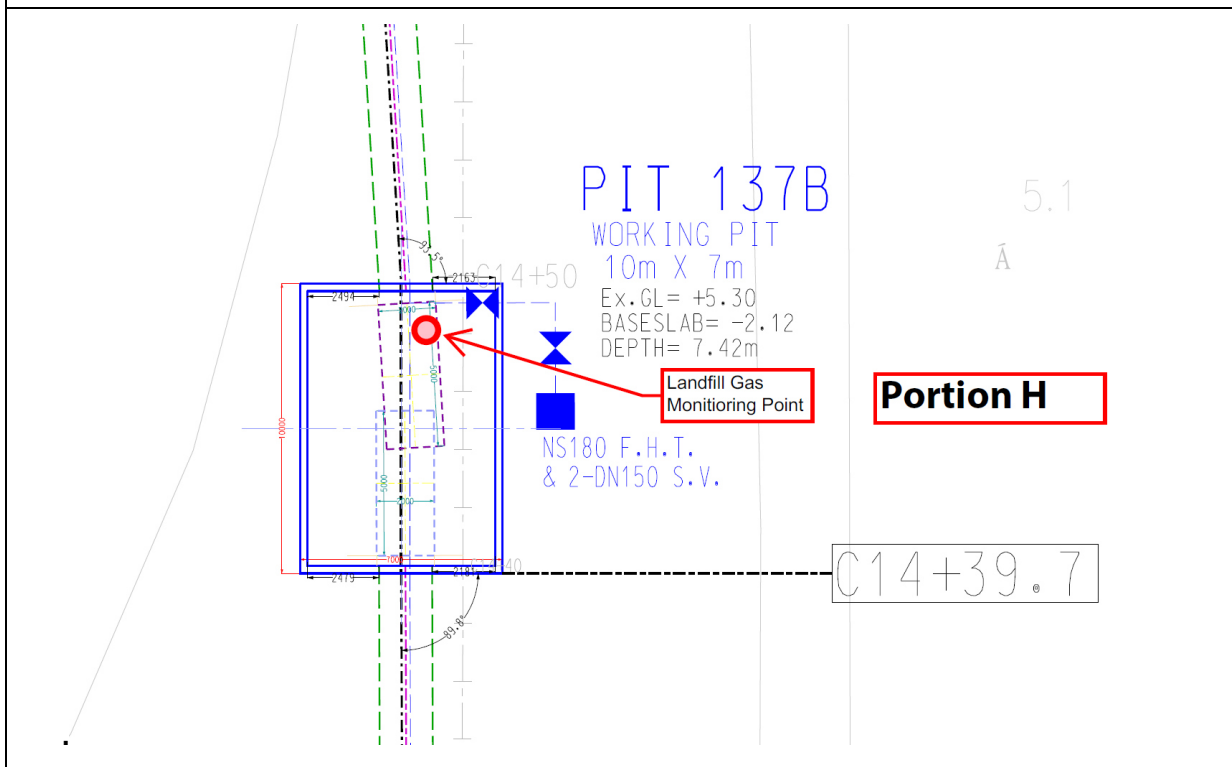


Figure 4.5 Monitoring Location – Pit 137B (137 Pit B)

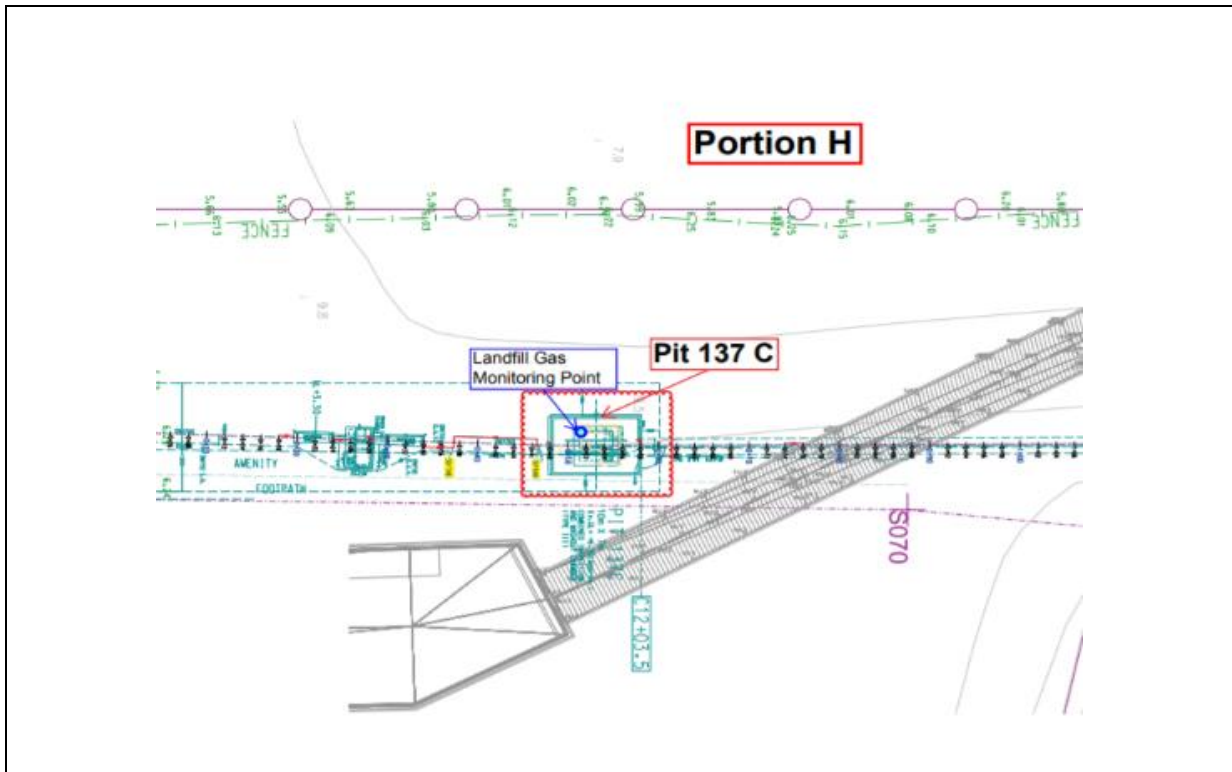


Figure 4.6 Monitoring Location - Pit 137C (137 Pit C)

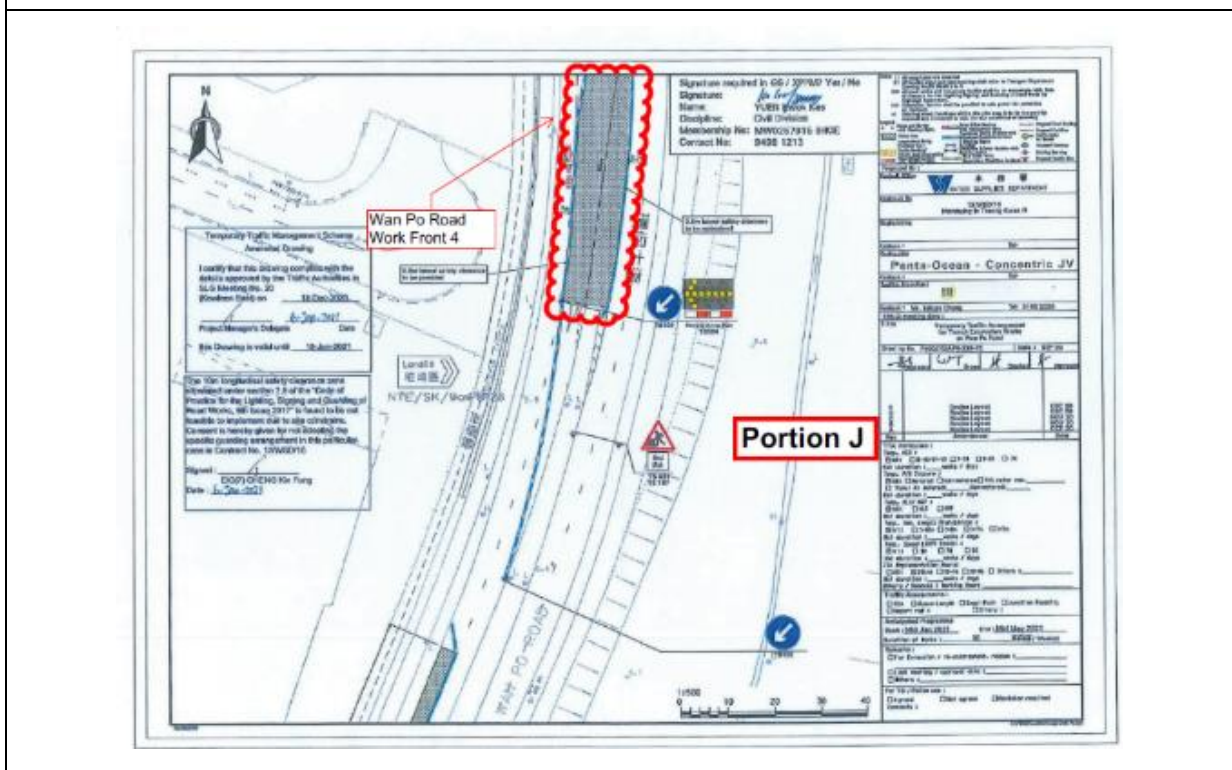


Figure 4.7 Monitoring Location - Wan Po Road 4

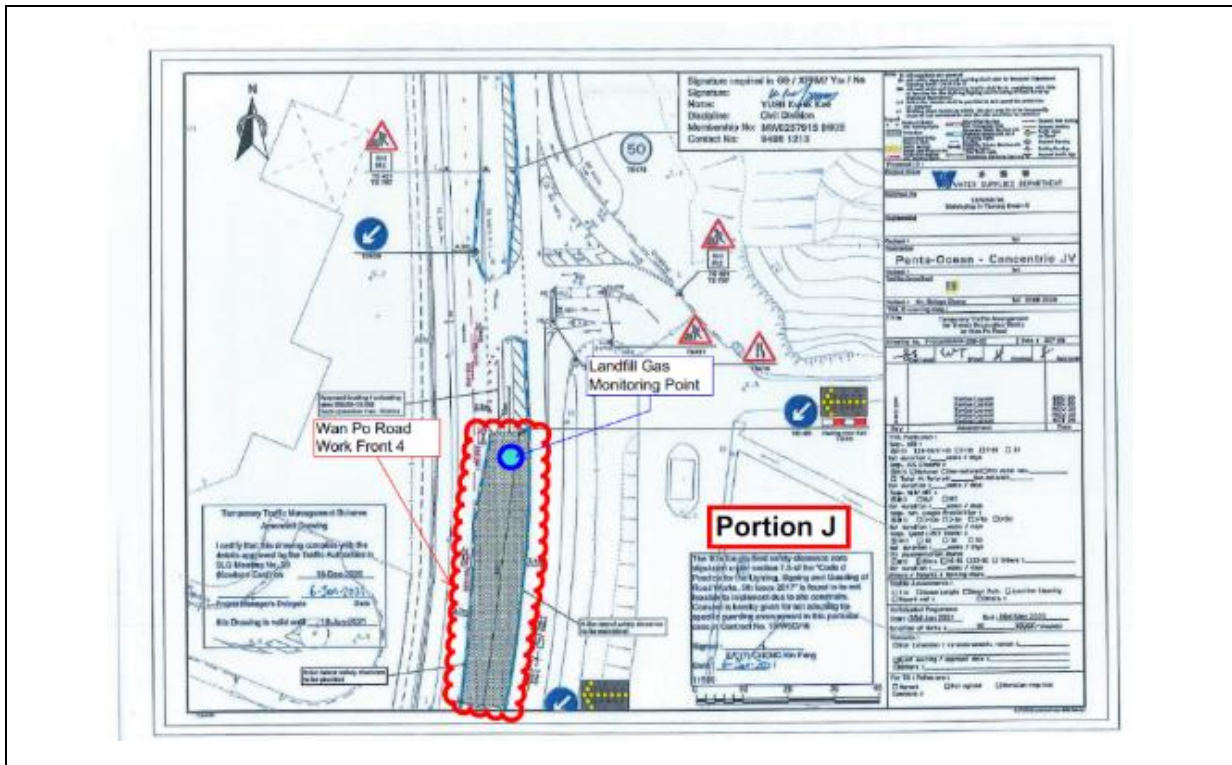


Figure 4.8 Monitoring Location – Wan Po Road 5

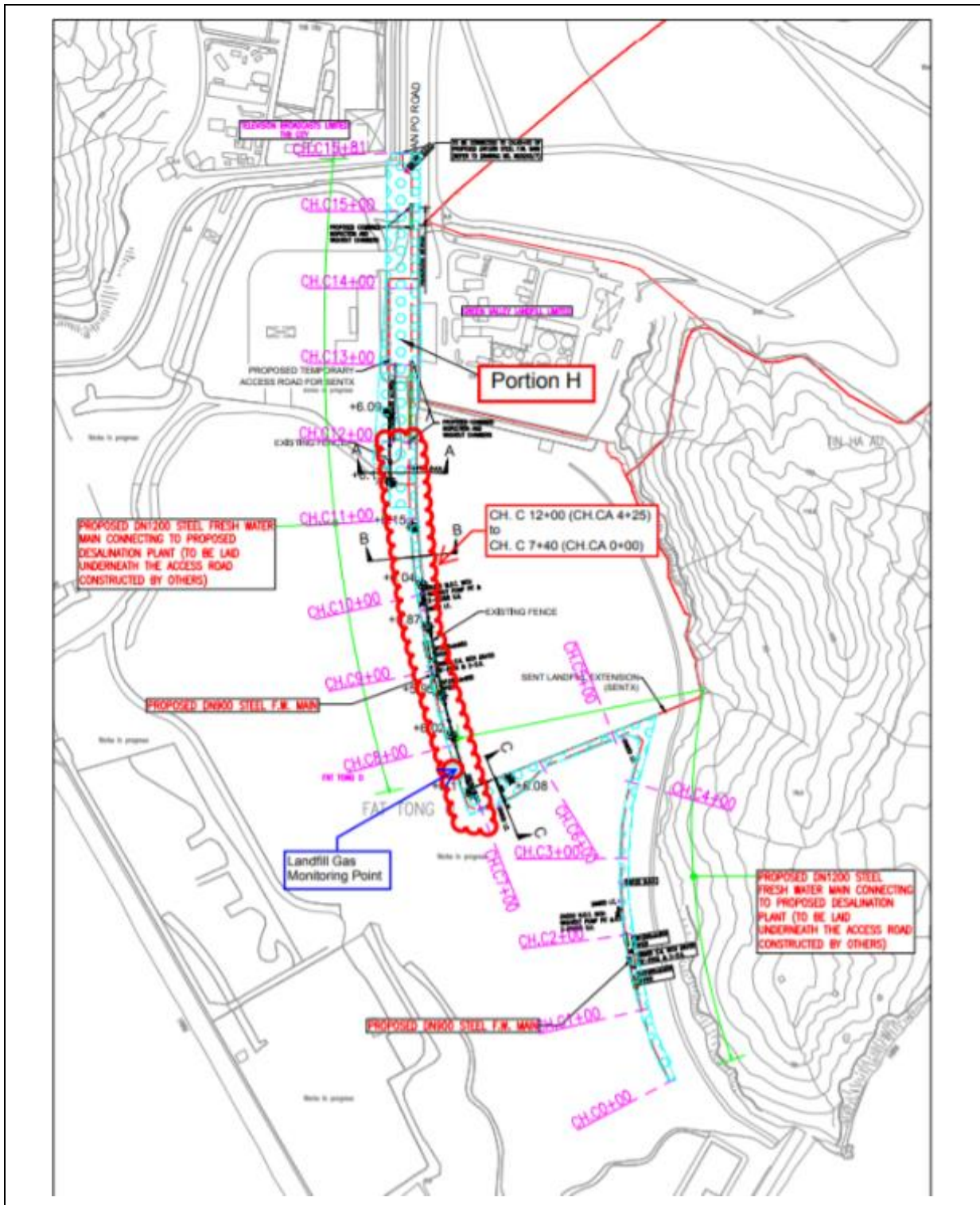


Figure 4.9 Monitoring Location –CH.CA 0+00 to CH.CA 04+25 (CH.C 7+40 ~ 12+00)

4.3 Monitoring Parameters

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

The following parameters were monitored:

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

4.4 Action and Limit Level

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

Table 4.1 Action and Limit Level for Landfill Gas Monitoring Equipment

Parameters	Action Level	Limit Level
Oxygen (O ₂)	<19% O ₂	<19% O ₂
Methane (CH ₄)	>10% LEL	>20% LEL
Carbon Dioxide (CO ₂)	>0.5% CO ₂	>1.5% CO ₂

4.5 Monitoring Equipment

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

- Complying with the Landfill Gas Hazard Assessment Guidance Note as intrinsically safe;
- Capable of continuous barometric pressure and gas pressure measurements;
- Normally operated in diffusion mode unless required for spot sampling, when it should be capable of operating by means of an aspirator or pump;
- Having low battery, fault and over range indication incorporated;
- Capable of storing 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	0-5% v/v; and
barometric pressure	mBar (absolute)

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

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

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

Table 4.2 Landfill Gas Monitoring Equipment

Equipment	Brand and Model	Calibration Expiry Date
Portable Gas Detector	PGM-2500 QRAE III	27 July 2023
	XT-XWHM-Y-OR	2 September 2023
CO2 Analyzer	TES, 1307H	16 November 2023

4.6 Monitoring Results

In the reporting period, construction works within the consultation zones, excavations of 1m depth or more was monitored. Landfill gas monitoring was carried out by the Registered Safety Officer of the Contractor at the excavation locations for 564 times. All the measured results were presented in **Appendix J** and were within the Action and Limit Levels.

Table 4.3 Action and Limit Levels and Event and Action Plan for LFG Hazard

Parameters	Level	Action
Oxygen (O ₂)	Action Level < 19% O ₂	Ventilate trench/void to restore O ₂ to > 19% Stop works
	Limit Level < 19% O ₂	Evacuate personnel/prohibit entry Increase ventilation to restore O ₂ to > 19%
Methane (CH ₄)	Action Level >10% LEL	Post "No Smoking" signs Prohibit hot works Increase ventilation to restore CH ₄ to <10% LEL Stop works
	Limit Level >20% LEL	Evacuate personnel/prohibit entry Increase ventilation to restore CH ₄ to <10% LEL
Carbon Dioxide (CO ₂)	Action Level >0.5% CO ₂	Ventilate to restore CO ₂ to < 0.5% Stop works
	Limit Level >1.5% CO ₂	Evacuate personnel / prohibit entry Increase ventilation to restore CO ₂ to <0.5%

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

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

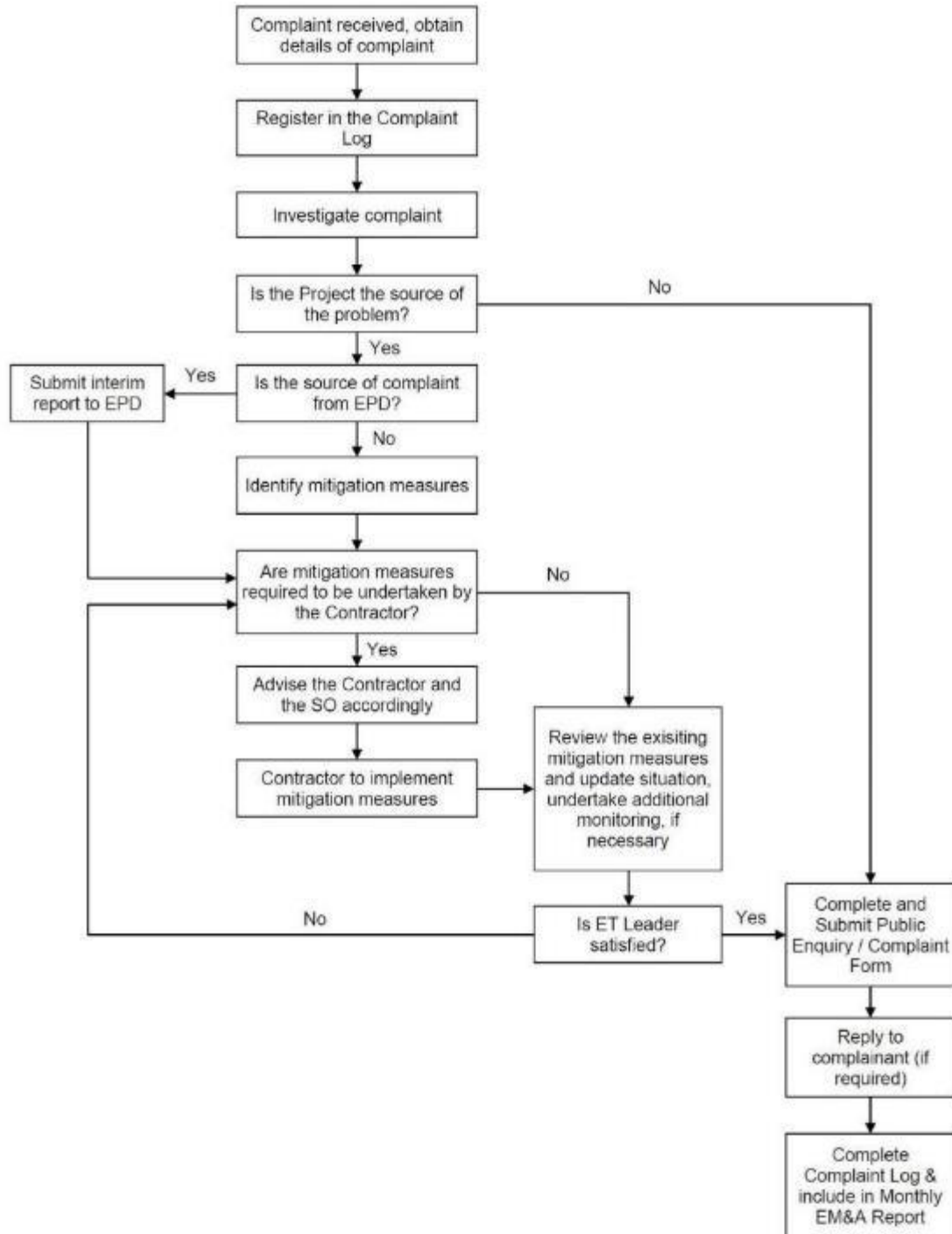


Figure 5.1 Environmental Complaint Handling Procedure

Impact monitoring for noise impact was scheduled in the reporting month for NSR4 – Creative Secondary School on 1, 7, 13, 24 and 30 March 2023 as construction works were conducted within 300m to the noise sensitive receiver. Detailed monitoring results can be found in **Appendix G**. No action or limit levels exceedance was recorded in the reporting period.

Landfill gas monitoring was carried out by the Registered Safety Officer of the Contractor at the excavation locations and within the consultation zones for 564 times. All the measured results were presented in **Appendix J** and were within the Action and Limit Levels.

No environmental complaint, notification of summons and prosecution was received in the reporting period.

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

6. EM&A SITE INSPECTION

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 1, 8, 14, 24 and 28 March 2023 at the site portions list in **Table 6.1** below. One joint site inspection with IEC was carried out on 28 March 2023.

Table 6.1 Site Inspection Record

Date	Inspected Site Portion	Time
1 March 2023	Portion J	09:30 - 10:30
8 March 2023	Portion J	09:30 - 10:30
14 March 2023	Portion J	09:30 - 10:30
24 March 2023	Portion J	09:30 - 10:30
28 March 2023	Portion J	14:30 - 15:30

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

Table 6.2 Site Observations

Date	Environmental Observations	Follow-up Status
1 March 2023	1. Chemical container shall be stored with drip tray.	1. Chemical container was stored with drip tray.
8 March 2023	1. Chemical container shall be stored with drip tray. 2. Seepage water should be treated properly to comply with the requirement of discharge license before discharge. (Pit O) 3. Stockpile of dusty materials should be covered with impervious materials to prevent dust emission. (Pit O) 4. Oil leakage from the excavator was observed at Pit O1. The Contractor was reminded to clear the oil stain to avoid further leakage from the excavator.	1. Chemical containers were stored with drip tray. 2. The watering pumping was stopped. 3. The dusty materials were removed. 4. The oil stain was cleared.
14 March 2023	1. Chemical containers should be stored with drip tray. (WF2) 2. Oil leakage from excavator was observed. The Contractor was required to clean the oil stain on ground. (WF2)	1. Chemical was removed. 2. The excavator was repaired, no oil leakage was observed. Oil stain on ground was cleared.
24 March 2023	1. The sediment tank shall be cleaned up asap. (Pit P1) 2. The blockage of the storm drain should be cleaned up. (Pit Y) 3. The chemical containers shall be stored on a drip tray with chemical label. (Pit P and O1) 4. The underground water shall be discharged through sedimentation tank. (Pit P)	1. The sediment tank was cleaned. 2. The blockage of the storm drain was cleaned up. 3. The chemical containers were removed. 4. This water pumping is for circulation and will not be discharged into storm drain.

Date	Environmental Observations	Follow-up Status
28 March 2023	1. Water pumped out from trench should be treated before discharge. (Shek Kok Road Roundabout)	1. Water pumped out from trench was stopped.

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

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

7. FUTURE KEY ISSUES

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

Table 7.1. Key works for the next reporting month

Location	Construction activities to be carried out in next reporting month
Wan Po Road and TKO Area 137	<ul style="list-style-type: none"> • Open trench method • Water main installation inside sleeve pipe
TKO Promenade (Stage 1 Landfill) & Po Yap Road Roundabout	<ul style="list-style-type: none"> • Open trench method • Water main installation inside sleeve pipe • Trenchless Method (sleeve pipe)
HK Velodrome	<ul style="list-style-type: none"> • Open trench method • Water main installation inside sleeve pipe • Trenchless Method (sleeve pipe)
Po Lam Road South / Ling Hong Road	<ul style="list-style-type: none"> • Open trench method • Water main installation inside sleeve pipe
Tsui Lam Road / Abandoned Road	<ul style="list-style-type: none"> • Open trench method

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

- Construction dust and noise generation of mainlaying of pipes, TBM break through, and excavation works;
- Waste generation from construction activities; and
- Impact on water quality from construction activities.

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 excavation works, mainlaying of pipes and TBM break through works;
- Reduction of noise from equipment and machinery on-site;
- Sorting and storage of general refuse and construction waste; and
- Treatment of wastewater with water treatment facilities before discharge.

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

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.

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

8. CONCLUSION AND RECOMMENDATIONS

This is the 56th monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works undertaken during the period from 1 March to 31 March 2023 in accordance with the EM&A Manual and the requirement under EP-503/2015/A.

Impact monitoring for noise impact was scheduled in the reporting month for NSR4 – Creative Secondary School on 1, 7, 13, 24 and 30 March 2023 as construction works were conducted within 300m to the noise sensitive received. No action and limit level exceedance for construction noise monitoring was recorded in the reporting period.

Landfill gas monitoring was carried out by the Registered Safety Officer of the Contractor at the excavation locations and within the consultation zones for 564 times. All the measured results were presented in **Appendix J** and were within the Action and Limit Levels.

No exceedance of the action and limit level for landfill gas monitoring was recorded during the reporting period.

Weekly environmental site inspections were conducted during the reporting month. Observations and Recommendation were made during site inspection, Contractor was reminded that sedimentation facilities shall be provided on site to remove silt particles from runoff before discharge and to meet the requirements of the TM standard under the WPCO.

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

No environmental complaint, notification of summons and prosecution was received in the reporting month.

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