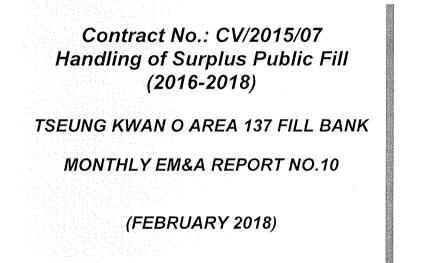


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China Harbour – Zhen Hua Joint Venture



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Issue Date: 13 March 2018

Report No.: ENA81074

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Ref.: CEDPFRSFEM02 0 0265L.18

26 March 2018

By Email and Fax No.: 2695 3944

ETS-Testconsult Limited 8/F, Block B, Veristrong Industrial Centre 34-36 Au Pui Wan Street Fo Tan, Hong Kong

Attention: Mr. C.L. Lau

Dear Mr. Lau,

Contract No. CV/2015/07 Re: Handling of Surplus Public Fill (2016 – 2018)

Monthly EM&A Report (No. 10) for February 2018 for the **Tseung Kwan O Area 137 Fill Bank**

Reference is made to your submission of the draft Monthly EM&A Report for February 2018 for the TKO Area 137 Fill Bank received by email on 20 March 2018 and finalized on 26 March 2018.

We are pleased to inform you that we have no further comment on the captioned report.

Thank you for your attention. Please do not hesitate to contact our Jason Lai or the undersigned should you have any gueries.

Yours sincerely, For and on behalf of Ramboll Hong Kong Limited

F. C. Tsang Independent Environmental Checker

c.c.

CEDD Attn: Mr. Simon Leung Attn: Mr. S W Sung CHZHJV

Fax No.: 2714 0113 By Email

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Contract No.: CV/2015/07 Handling of Surplus Public Fill (2016-2018) – Tseung Kwan O Area 137 Fill Bank ENA81074 Monthly EM&A Report No.10

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ENA81074 Monthly EM&A Report No.10

東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.

EXECUTIVE SUMMARY

This monthly Environmental Monitoring and Audit (EM&A) report No.10 was prepared by ETS-Testconsult Ltd (ET) for "Contract No: CV/2015/07 – Handling of Surplus Public Fill (2016-2018) – Tseung Kwan O (TKO) Area 137 Fill Bank" (The Project).

This report documented the findings of EM&A Works conducted during the operation phase of Fill Bank at TKO Area 137 in February 2018.

Site Activities

As informed by the Contractor, the site activities in this reporting period were as below:

- 1. Operation of the TKO137 Fill Bank.
- 2. Delivery of public fill to Taishan;
- 3. Operation of dewatering plant.
- 4. Operation of bentonite pool.
- 5. Concrete block breaking work.
- 6. Crushing plant operation.
- 7. Expansion of dewatering plant at TKOFB
- 8. Construction of new contractor site office at TKOFB

Environmental Monitoring Progress

The summary of the monitoring activities in this monitoring period is listed below:

- Noise Monitoring (Day-time): 1 Occasion at 1 designated location
- 24-hour TSP Monitoring: 5 Occasions at 2 designated locations
- 1-hour TSP Monitoring: 14 Occasions at 2 designated locations
- Marine Water Quality Monitoring:10 Occasions at 2 designated locations
- Weekly-site inspection: 4 Occasions

Noise Monitoring

No exceedance of Action and Limit levels for noise monitoring was recorded in the reporting period.

Air Monitoring

No exceedance of Action and Limit levels was recorded for 1-hr and 24-hr TSP monitoring in the reporting period.

Marine Water Quality Monitoring

According to the summary of marine water monitoring results, no exceedance of Action and Limit levels was recorded in this reporting period.

Weekly Site Inspections

In general, performance on environmental mitigation measures implemented was found to be satisfactory in this reporting period. The major findings observed during site inspections are presented in the Section 7.0.

Environmental Complaints, Notification of summons and successful prosecutions

No complaint, notification of summons or successful prosecutions with respect to environmental issues was received in this reporting period.

Future Key Issues

Based on site inspections and forecast of engineering works in coming month, key issues to be considered are as follows:

- Noise and air quality impact due to site works;
- Maintain wheel washing facilities properly;
- Maintain all drainage and desilting facilities properly;
- Use and maintain silt curtain properly;
- Clean up the fill material on concrete pavement along the BHA frequently;
- Sufficient drip trays for all oil drums / chemical containers;
- Implement all necessary preventive measures to avoid oil leakage. In the event an oil leakage happens, the Contractor should properly remove the leaked oil and handle the contaminated soil and all materials using for this cleaning works as chemical waste;
- Maintain good site practice and waste management to minimize environmental impacts at the site; and
- Follow-up improvements on waste management issues.

1.0 INTRODUCTION

China Harbour – Zhen Hua Joint V_enture (CHZH-JV) appointed Environmental Team (ET) of ETS-Testconsult Limited (ETL) to undertake the Environmental Monitoring and Audit (EM&A) for the "Contract No: CV/2015/07 –Handling of Surplus Public Fill (2016-2018) – Tseung Kwan O (TKO) Area 137 Fill Bank" (The Project).

In accordance with the Environmental Permit (No.: EP-134/2002/K) (the EP), an EM&A programme should be implemented in accordance with the procedures and requirements in the EM&A Manual of the approved EIA report (Registration No. AEIAR-060/2002). The EM&A programme for this study as stated in Section 2.3.1 of the EM&A Manual covers the following environmental aspects during the establishment, operation and removal phases of the Fill Bank at Tseung Kwan O Area 137:

- Fugitive Dust;
- Noise generation from onsite activities;
- Water Quality; and
- Landscape and Visual.

The EM&A programme requires environmental monitoring for air quality, noise and water quality and environmental site inspections for air quality, noise, water quality, landscape and visual, and waste management. The EM&A requirements for each parameter described in the following sections include:

- All monitoring parameters;
- Monitoring schedules for the reporting period and forthcoming months;
- Action and Limit levels for all environmental parameters;
- Event/Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirements in contract documents.

Baseline monitoring was completed in August and September 2002 by MateriaLab. Action and Limit Levels were established for air and water quality parameters based on the baseline monitoring results.

This report documented the findings of EM&A Works conducted during the operation phase of Fill Bank at Tseung Kwan O Area 137 in February 2018.

2.0 PROJECT INFORMATION

2.1 Scope of the Project

The scale and scope of the Project as stated in the EP include:

- Site clearance;
- Construction of a temporary storm water system;
- Stockpiling of 6 million m³ of public fill;
- Setting up two barging points: one at the TKO Basin and one at the Construction and Demolition Material Sorting Facility (C&DMSF) for transporting the stockpiled public fill by barges;
- Setting up a temporary barging point at the existing Explosive Off-loading Barging Point located in the south-eastern part of Area 137 for the month of May 2004 to December 2004 for transporting the stockpiled public fill by barge;
- Construction and operation of a Construction and Demolition Material Sorting Facility (C&DMSF);
- Setting up a Construction and Demolition Material Crushing Facility at the TKO Basin; and
- Remove the temporary fill bank.

2.2 Site Description

TKO Area 137 Fill Bank is located at the southern end of Wan Po Road. In the vicinity of the site are other industrial uses such as SENT landfill, TKO Industrial Estate, etc. Both Island Resort and Fullview Garden are also situated at more than 1.8km from the site. Other existing ASRs and NSRs, including resident developments and schools, are located at a further distance away from TKO Area 137.



2.3 Work Programme

Details of work programme are shown in Appendix G.

2.4 Project Organization and Management Structure

The project organization chart is shown in Appendix A.

2.5 Contact Details of Key Personnel

The key personnel contact names and telephone numbers are shown in Table 2.1.

	Table 2.1	Contact Details	of Key	Personnel
--	-----------	------------------------	--------	-----------

Organization	Name of Key Staff	Project Role	Tel. No.	Fax No.
CEDD	Simon Leung, May Lau, James Sze, Phoebe Tang	Engineer's Representative	2762 5555	2714 0113
IEC (Ramboll)	F C Tsang	IEC	3465 2888	3465 2899
Contractor (CHZH-JV))	Zhou Chang Ying	Project Director	96266299	22474108
ET (ETL)	C. L. Lau	ET Leader	2946 7791	2695 3944

3.0 WORK PROGRESS IN THIS REPORTING PERIOD

As informed by the Contractor, the activities in the reporting period include:

- 1. Operation of the TKO137 Fill Bank.
- 2. Delivery of public fill to Taishan;
- 3. Operation of dewatering plant.
- 4. Operation of bentonite pool.
- 5. Concrete block breaking work.
- 6. Crushing plant operation.
- 7. Expansion of dewatering plant at TKOFB

8. Construction of new contractor site office at TKOFB

4.0 AIR QUALITY MONITORING

4.1 Monitoring Requirement

TSP levels were monitored in the reporting period in accordance with the EM&A Manual. Table 4.4 shows the Action and Limit Levels for the environmental monitoring works.

4.2 Monitoring Equipment

Both 1-hour and 24-hour TSP air quality monitoring was performed using a GMWS2310 High Volume Air Sampler (HVS) located at each of the designated monitoring station. Table 4.1 summarizes the equipment used in the air quality monitoring programme. A copy of the calibration certificates for the HVS and calibrator are attached in Appendix B1.

Table 4.1	Air Quality Monitoring Equipment
-----------	----------------------------------

Equipment	Model and Make
HVS	Greasby GMWS2310
Calibrator	Tisch TE-5025A

4.3 Monitoring Parameters, Frequency and Duration

Table 4.2 summarizes the monitoring parameters, monitoring duration and frequencies of air quality monitoring.

 Table 4.2
 Monitoring parameters, duration, frequency of air quality monitoring

Parameter	Duration	Frequency	
24-hr TSP	24 hr	Once every six days	
1-hr TSP 1 hr		Three times per day every six days	

4.4 Monitoring Locations

Table 4.3 tabulates the air quality monitoring locations of this project.

	Table 4.3	Air quality monitoring locations
--	-----------	----------------------------------

Monitoring station	Location
TKO-A1	Site Egress
TKO-A2a	CREO

4.5 Monitoring Methodology

Both 1-hr and 24-hr air quality monitoring (High Volume Sampler)

Instrumentation

High volume sampler, as HVS, (Greasby GMWS2310) complete with appropriate sampling inlets were employed for both 1-hour and 24-hour TSP monitoring. The sampler is composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

Installation

The installation of HVS refers to the requirement stated in EM&A Manual.

Operation/Analytical Procedures

Operating/analytical procedures for the operation of HVS are as below:

- Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 0.6m³/min and 1.7m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50. The flow rate was indicated on the flow rate chart.
- For TSP sampling, fiberglass filters (Whatman G653) were used.
- The power supply was checked to ensure the sampler worked properly.
- On sampling, the sampler was operated 5 minutes to establish thermal equilibrium before placing any filter media at designated air monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
- The filter was aligned on the screen so that the gasket formed an air-tight seal on the outer edges of the filter. Then the filter holder frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The programmable timer will be set for a sampling month of 1 hour or 24 hours. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number.).
- After sampling, the filter was transferred from the filter holder of the HVS to a sealed plastic bag and sent to the laboratory for weighting. The elapsed time was also recoded.
- Before weighting, all filters were equilibrated in a desiccator for 24 hour with the temperature of 25°C <u>+</u> 3°C and the relative humidity (RH) <50% <u>+</u>5%.
- All measurement procedures in Section 2.3 of the EM&A Manual were followed during the reporting period.

Maintenance & Calibration

- HVS and their accessories should be maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- HVS should be calibrated at bi-monthly intervals.

Wind Data Monitoring

Wind data (wind speed and wind direction) were directly extracted from Tseung Kwan O Station of Hong Kong Observatory. All wind data during this reporting period are shown in Appendix E.

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4.6 Action and Limit Levels

Table 4.4 shows the Action and Limit levels for 24-hr TSP and 1-hr TSP monitoring.

Monitoring Logation 24-hr TSP ($\mu g/m^3$) 1-hr TSP ($\mu g/m^3$)		24-hr TSP (μ g/m ³)		Ρ (μg/m³)
Monitoring Location	Action Level	Limit Level	Action Level	Limit Level
TKO-A1	210	260	376	500
TKO-A2a *	210	260	376	500

Table 4.4Action and Limit Levels for 24-hr TSP and 1-hr TSP

Remark (*): Since dust monitoring stations TKO-A2 and TKO-A2a are located close to the major dust emission sources and also close to the same sensitive receptor and no significant difference between them on the prevailing meteorological conditions, the baseline data from TKO-A2 (August and September 2002 by MateriaLab) can also be valid in the case of TKO-A2a.

4.7 Event-Action Plans

Please refer to Appendix F for details.

4.8 Results and Observation

4.8.1 1-hour and 24-hour TSP Monitoring results

Monitoring data of both 1-hour and 24-hour TSP monitoring carried out in this reporting period are summarized in Appendix B2. Graphical presentation of 1-hour and 24-hour TSP monitoring results for the reporting period is shown in Appendix B3. Wind data included wind speed and wind direction was extracted from Tseung Kwan O Station of Hong Kong Observatory during this reporting period and is presented in Appendix E.

No exceedance of Action and Limit Level of 1-hr TSP and 24-hour TSP monitoring results was recorded during the reporting period.

4.8.2 Observation

Generally, the Contractor implemented sufficient dust mitigation measures, including operation of the mist spraying systems at the CEDD Combined Reception Office and the site egress area, wheel washing facilities, road dampening by water bowsers and automatic water sprinklers on the main haul roads. Other dust sources near TKO Area 137 also included operation of the temporary CWSF and dumping activities at the SENT Landfill.

5.0 Noise Monitoring

5.1 Monitoring Requirements

Noise monitoring was conducted at 1 monitoring station as specified in the approved EM&A Monitoring Proposal for good site practice. The equipment, parameter, frequency, duration, methodology, calibration details, results and observations of the noise monitoring for the reporting period are presented in this section.

5.2 Monitoring Equipment

An Integrating Sound Level Meter was used for noise monitoring. It was a Type 1 sound level meter capable of giving a continuous readout of the noise level reading including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (Lx). It complies with International Electro Technical Commission Publications IEC 61672 Type 1 specification, and speed in m/s was used to monitor the wind speed.

Table 5.1 summarizes noise monitoring equipment model being used. A copy of the calibration certificate for noise meter and calibrator are attached in Appendix C1



Table 5.1 Noise Monitoring Equipment	
Equipment	Model
Sound Level Meter	Rion NL-31 / Rion NL-52
Sound Level Calibrator	Rion NC-73 / Castle GA607

5.3 Monitoring Parameters, Duration and Frequency

Duration, frequencies and parameters of noise measurement are presented in Table 5.2.

	_			
Table 5.2	Duration	Fraguancias	and Parameters	of Noise Monitoring
	Duration,	1 ICQUCITOICS		

Time	Duration/min	Parameters	Frequency
Day-time: 0700-1900 hrs on normal week day	30	L _{eq} , L ₁₀ , L ₉₀	Once per month

5.4 Monitoring Locations

One Noise monitoring was conducted at the noise monitoring location, TKO-N1 as shown in Figure 2 during the reporting period. Table 5.3 describes the location of the monitoring station.

Table 5.3Noise Monitoring Location

Monitoring station	Location	Type of Measurement
TKO-N1	Outside site Egress along Wan Po Road	Free Field

5.5 Monitoring Procedures and Calibration Details

Operation/Analysis Procedures

- The Sound Level Meter was set on a tripod at a height of 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - Frequency weighting: A
 - Time weighting : Fast
 - Time measurement : 30 mins
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1000HZ. If the difference in the calibration level before and after measurement was more than 1dB(A), the measurement would be considered invalid and repeat measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with a portable wind meter.
- During the monitoring period, the Leq, L10 and L90 were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Correction factor of +3dB(A) should be made to the free Field measurements.
- Noise monitoring would be cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind gusts exceeding 10m/s.

Maintenance and Calibration

- The microphone head of the sound level meter and calibrator are cleaned with soft cloth in quarterly intervals.
- The meter is sent to the supplier or HOKLAS laboratory to check and calibrated in yearly intervals.

5.6 Action and Limit Levels

The Action and Limit levels for noise levels derived as illustrated in Table 5.4.

Table 5.4	Action and Limit L	evels for no	bise monitoring

Time Period	Action	Limit
0700-1900 hrs on normal week days	When one documented complaint is received	75 dB(A)

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5.7 Event-Action Plans

Please refer to the Appendix F for details.

5.8 Results and Observation

5.8.1 Results

Only Day-time noise monitoring was carried out at monitoring station TKO-N1 in this reporting period. The detail of the noise monitoring is provided in Appendix C2. Graphical presentation of the monitoring result for the reporting period is shown in Appendix C3.

Since no documented complaints on noise issue were received in this reporting period, no Action Level exceedance was recorded. Besides, no exceedance in Limit Level was recorded according to the result from Day-time monitoring.

5.8.2 Observation

The major noise source during the monitoring event was the dump truck traffic.

6.0 MARINE WATER QUALITY MONITORING

6.1 Monitoring Requirements

In accordance with the EM&A Manual, impact marine water quality monitoring was conducted three days per week. Measurements were taken at both mid-flood and mid-ebb tides at three depths (i.e. 1m below surface, mid depth and 1m from seabed) at Control Station, C1 and Monitoring Station, M4.

6.2 Monitoring Locations

For the Reclamation Project, there were 4 Designated Monitoring Stations and 2 Designated Control Stations specified in the EM&A Manual. Upon the completion of the monitoring programme under Stage 2 reclamation works, the ET started monitoring events at the impact station M4 and the control station C1 from 18 May 2004 onwards. Figure 1 shows the location of the marine water quality monitoring stations. Table 6.1 describes the locations of the monitoring stations in the reporting period.

Table 6.1	Locations of Marine Water Monitoring Stations
-----------	---

Station Description	Code	HK Metric Grid E	HK Metric Grid N
Control Station (Ebb tide)	TKO-C1	844 740.208	815 371.502
Monitoring Station, Tung Lung Chau Fish Culture Zone	TKO-M4	847 741.029	812 977.878

6.3 Monitoring Parameters

Monitoring of the marine water quality parameters are listed in Table 6.2.

Table 6.2 Marine Water Quality Monitoring Parameters

In-situ measurement	Laboratory analysis
Depth (m)	Suspended solids (mg/L)
Temperature (°C)	
Dissolved Oxygen (mg/L and % saturation)	
Turbidity (NTU)	
Salinity (ppt)	

6.4 Monitoring Frequency

The monitoring frequency of the marine water monitoring is summarized in Table 6.3.

Table 6.3Monitoring frequency of the marine water



Parameter	Frequency	No. of Location	No. of Depths
Temperature			
Salinity	2 days (up als	2	3
DO	3 days/week, 2 tides/day	(TKO-C1 and TKO-	(Surface, mid-depth
Turbidity	2 lides/day	M4)	& bottom)
Suspended solids			

6.5 Monitoring Methodology and Equipment Used

For Location of the monitoring stations

Global Positing System (GPS)

A hand-held digital GPS was used to identify the designated monitoring stations prior to water sampling.

For Water Depth measurement

Echo Sounder

A portable, battery-operated echo sounder was used for the determination of water depth at each designated monitoring station.

For In-situ Water Quality Measurement

All in-situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme before use, and subsequently re-calibrated at 3 monthly intervals or sometimes longer throughout all stages of the water quality monitoring.

Dissolved Oxygen, Salinity and Temperature Measuring Equipment

A portable, weatherproof dissolved oxygen & salinity measuring instrument, which complete with cable, sensor and DC power source (e.g. YSI 85 or equivalent) was used for measuring:

- a dissolved oxygen level in the range of 0-20 mg/L and 0-200 % saturation;
- a salinity in range 0-40 ppt; and
- a temperature of 0-45 degree Celsius

A membrane electrode with automatic temperature compensation complete with a cable was installed.

Turbidity Measurement Instrument

A portable and weatherproof turbidity meter (HACH model 2100Q) was used during impact monitoring. It has a photoelectric sensor capable of measuring turbidity between 0-1000 NTU. Response of the sensor was checked with certified standard Turbidity solutions before the start of measurement.

For Water Sampling and Sample Analysis

In-situ monitoring was carried out at three depths: 1 meter below water surface, at mid-depth and 1 meter above the seabed. If the water depth is less than 6 m, the mid-depth station shall be omitted and if the water depth is below 3 m, only the mid depth station shall be monitored.

Water Sampler

A water sampler comprising a transparent PVC cylinder, with a capacity of not less than 2 liters, was lowered into the water body at the predetermined depth. The both opening ends of the sampler were then closed accordingly by dead weight and water samples were collected.

Water Container

The sample container, made by high-density polythene, was rinsed with a portion of the water sample. The water sample was then transferred to the container, labelled with a unique sample ID and sealed with a screw cap. The water samples were stored in a cool box maintained at 4°C. The water samples were then delivered to a local HOKLAS-accredited laboratory (Environmental Laboratory, ETS-Testconsult Ltd, HOKLAS Registration No. 022) on the same day for analysis.



The summary of testing method of testing parameter as recommended by EIA or required by EPD, with the QA/QC results in accordance with the requirement of HOKLAS or international accredited scheme is shown in Table 6.4.

Laboratory Analysis	Testing Procedure	Detection Limit
Total suspended solids	In house method based on APHA 19 th ed 2540D	1.0 mg/L

In-situ measurement

All in-situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme before use. Responses of sensors and electrodes were checked with certified standard solutions before each use. Wet bulb calibration for a DO meter was carried out before the start of measurement.

At each measurement/sampling depth, two consecutive measurements of dissolved oxygen (DO), dissolved oxygen saturation (DOS), turbidity and salinity were taken. For turbidity measurement, the sample was collected by using sampler and then transferred to the cell. The reading of turbidity of the sample was directly recorded from the Turbidimeter (HACH 2100Q) after inserting the cell to the Turbidimeter. For DO, DOS and Salinity, duplicate measurements were performed by dropping the calibrated probes of the corresponding monitoring equipments to the designated depths of the water column and taking readings after stabilized. The duplicate measurements were averaged if the difference was not greater than 25%. If the difference is greater than 25%, repeat measurement will be required.

Table 6.5 shows the equipment used for in-situ monitoring of water quality. The calibration certificates are attached in Appendix D1.

				/
Parameter	Model	Date of Calibration	Due Date	Equipment No.
Coordinate of Monitoring stations	Garmin eTrex 10			ET/EW/005/09
Dissolved Oxygen (Saturation), Temperature, Salinity	YSI Dissolved Oxygen, Salinity & Temperature Meter, YSI 2030	15/01/18	14/04/18	ET/EW/008/006*
Turbidity	HACH Model 2100Q Turbid Meter	09/01/18	08/04/18	ET/0505/016*
Water Depth	Speedtech SM-5			ET/EW/002/08

 Table 6.5
 Details of Marine Water Quality Monitoring Equipment (In-site measurement)

Remark:(*) indicates the instrument should be calibrated on use.

6.6 Action and Limit Level

The water quality criteria, namely Action and Limit (A/L) levels are presented in the table below.

	Water duality Aetion and Ennit Levelo	
Parameter	Action Level	Limit Level
DO (mg/L)	Surface & Middle	Surface & Middle
	<5.45 mg/L (5%-ile of baseline data)	<5.10 mg/L (1%-ile of baseline data)
	<u>Bottom</u>	<u>Bottom</u>
	<4.72 mg/L (5%-ile of baseline data)	<2.00 mg/L
SS (mg/L)	>6.74 mg/L (95%-ile of baseline data) or	>7.67 mg/L (99%-ile of baseline data) or
(Depth-	>120% of the upstream control station's	>130% of the upstream control station's
averaged)	SS at the same tide on the same day	SS at the same tide on the same day
Turbidity	>4.28 NTU (95%-ile of baseline data) or	>4.58 NTU (99%-ile of baseline data) or
(NTU) (Depth-	>120% of the upstream control station's	>130% of the upstream control station's
averaged)	turbidity at the same tide on the same	turbidity at the same tide on the same
	day	day

Table 6.6 Water Quality Action and Limit Levels

6.7 Event and Action Plan

Please refer to the Appendix F for details.

6.8 Monitoring Duration in this reporting period

Below is the time schedule for the marine water quality monitoring events that were conducted in this reporting period:

February 2018										
Sunday	Monday	Monday Tuesday Wednesday Thursday Friday Satu								
				1/2	2	3				
4	5	6	7	8	9	10				
11	12	13	14	15	16	17				
18	19	20	21	22	23	24				
25	26 ▼	27	28							

 Table 6.7
 Time Schedule of Impact Marine Water Quality Monitoring

Remark: $(\mathbf{\nabla}) =$ Marine water quality monitoring carried out by ET.

The daily marine water quality monitoring duration are detailed in Appendix D2.

6.9 Marine Water Quality Monitoring Results

The impact water quality measurement results are detailed in Appendix D2. Appendix D3 presents the water quality monitoring data and graphical presentations of monitoring results respectively. The summary of marine water quality exceedances is shown in Table 6.8.

Table 6.8	Summary o	of Impact Marine	Water Quality	y Exceedances in th	is reporting period
-----------	-----------	------------------	---------------	---------------------	---------------------

Station	Exceedance	D	0	Turb	idity	S	S	То	tal
	Level	Flood	Ebb	Flood	Ebb	Flood	Ebb	Flood	Ebb
	Action	0	0	0	0	0	0	0	0
TKO-C1	Limit	0	0	0	0	0	0	0	0
	Action	0	0	0	0	0	0	0	0
TKO-M4	Limit	0	0	0	0	0	0	0	0

According to the summary of marine water monitoring results, no exceedance of Action and limit levels was recorded for this reporting period.



7.0 ENVIRONMENTAL AUDIT

7.1 Weekly ET Site Inspections and EPD's Site Inspection

7.1.1 Weekly ET Site Inspections

Weekly ET site inspections were carried out by ET to monitor the timely implementation of proper environmental pollution control and mitigation measures for the Project. In this reporting period, four weekly site inspections were conducted (07, 14, 21, 27 February 2018). Table 7.1 presents the key findings of weekly ET site inspection in this reporting period.

Table 7.1	Key Findings of Weekly	/ ET Site Audits in this r	eporting period	
Date	Key Findings	Action(s) Taken recommended by ET	Action(s) Taken by the Contractor during the ET weekly site audit	Rectification Status by ET
07 February 2018	U-channel was found accumulated general refuse and mud at CP5.(Previous item)	To clean the general refuse and mud properly	Accumulated general refuse and mud have been cleaned in U- channel at CP5.	Closed
	The derelict oil drums without drip tray were found at Area A6 workshop. (New item)	To clean the derelict oil drums properly.		Follow-up
14 February 2018	The derelict oil drums without drip tray were found at Area A6 workshop. (Previous item)	To clean the derelict oil drums properly.	The derelict oil drums at Area A6 workshop were cleaned.	Closed
21 February 2018	Oil container was found without chemical label at chemical wastes storage near A6 Workshop. (New item)	Provide the chemical label for oil container.		Follow-up
27 February 2018	Oil container was found without chemical label at chemical wastes storage near A6 Workshop. (Previous item)	Provide the chemical label for oil container.	Chemical label was provided.	Closed
	General refuse and stagnant water was found accumulated near A6 work shop. (New item)	To clean the general refuse and stagnant water properly.		Follow-up

7.1.2 **EPD's Site Inspection**

No EPD's site inspection was carried out at TKO137 Fill Bank in February 2018.

7.2 **Review of Environmental Monitoring Procedures**

The monitoring works conducted by the Environmental Team were inspected regularly. The observations for the monitoring works were recorded and summarized as follows:

Air Quality Monitoring

- The monitoring team recorded the observations around the monitoring stations within and outside of the site.
- . The monitoring team recorded the temperature, air pressure and general weather condition on the monitoring day.

Noise Monitoring

- The monitoring team recorded the observations around the monitoring station, which might affect the results.
- Major noise sources were identified and recorded.

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Water Quality Monitoring

 The monitoring team recorded the observations around the monitoring stations, which might affect the results.

7.3 Assessment of Environmental Monitoring Results

All monitoring results were audited against the Action and Limit levels and any exceedance would be validated.

No exceedance was recorded in water quality, air quality and noise monitoring in this reporting period.

The monitoring results in this reporting period were comparable with those of baseline month. Detailed discussions were given in Section 4, 5 and 6 of this Report.

7.4 Advice on the Solid and Liquid Waste Management Status

The Contractor usually disposed of non-inert waste, including general refuse and materials segregated from the existing stockpiles, to SENT landfill. Table 7.2 summarizes data on offsite waste disposal in this reporting period.

Waste Type	Actual Amount	Disposal Locations					
Public Fill ('000m ³)	0	TKO 137 Fill Bank					
C&D Waste ('000kg)	36.56	SENT Landfill / Refuse Collection Point					
Chemical Waste (kg/L)	0	Collected by licensed collector					

 Table 7.2
 Actual amounts of Waste generated in this reporting period

The Contractor should provide sufficient preventive measures during equipment maintenance works so as to avoid oil leakage on the ground. In the event of any oil leakage, the Contractor should clean up the polluted soil and handle all the materials used for this cleaning works as chemical waste.

Concrete bunding has erected outside the CEDD combined reception office and near the automatic wheel washing facilities for storing generator sets and oil drums. The drain outlet of all the bunded areas should be plugged properly. Besides, pre-cast drip trays were provided for oil drums at several areas, such as workshop and chemical storage area. The Contractor should collect and dispose of any stagnant water accumulated in the concrete bunding and drip trays and handle them as chemical waste.

The Contractor should use suitable containers with proper labels to store chemical wastes in accordance with Code of Practice on the Packaging, Labeling and Storage of Chemical Waste. The Contractor should also advise their workers of the proper procedures in handling the chemical waste. All the trip tickets for chemical waste disposal were properly kept in the site office.

The Contractor was reminded to increase the frequency of inspection and cleaning of the site drainage system, including permanent desilting chambers, desilting facilities, oil interceptor bypass tank, DP3 and DP4 and all the trapezoidal channels. Moreover, the Contractor should apply approved pesticides in the stagnant water ponds.

All the runoff from the parking area should be pumped to the desilting facilities and oil interceptors to remove suspended solids and oil & grease prior to discharge.

Contract No.: CV/2015/07 Handling of Surplus Public Fill (2016-2018) – Tseung Kwan O Area 137 Fill Bank ENA81074 Monthly EM&A Report No.10

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8.0 Status of Environmental Licensing and Permitting

All permits/licenses valid in this reporting period are summarized in Table 8.1.

Table 8.1	Summary of	envronme	ental licens	sing and permit status
Description	Permit No.	Valid	Period	Section
		From	То	
Amended Environmental Permit	EP- 134/2002/K	04/02/13		 Site clearance Construction of a temporary storm water system Stockpiling of 6 million m3 of public fill Setting up two barging points for transporting the stockpiled public fill by barges Setting up a temporary barging point at the existing Explosive Off-loading Barging Point for the month of May 2004 to December 2004 for transporting the stockpiled public fill by barge Construction of operation of a construction and Demolition Material Sorting Facility (C&DMSF) Setting up a Construction and Demolition Material Crushing Facility at the TKO Basin
Marine Dumping Permit	EP/MD/18- 100	05/01/18	31/03/18	 Remove the temporary fill bank Approval for dumping 3,000,000 tons (approximately equal to 1,666,667 cu.m. bulked quantity) of Public Fill (Reclamation Materials) from Tseung Kwan O Area 137 Fill Bank and Tuen Mun Area 38 Fill Bank to designated dumping area at Guanghaiwan of Taishan
Chemical Waste Producer	5919-839- C4181-01	19/04/17		 Spent battery cell containing heavy metals and spent lubricating oil
Effluent Discharge License	WT000291 78-2017	27/09/17	30/09/22	 Effluent, Surface Run-off, and all other wastewater discharges from screen and sedimentation tank
Billing Account for Waste Disposal	7027643	22/05/17		
Notification Pursuant to Section 3(1) of the Air Pollution Control (Construction Dust)	415682	12/04/17		

Table 8.1 Summary of environmental licensing and permit status

9.0 ENVIRONMENTAL NON-CONFORMANCE

9.1 Summary of air quality, noise and marine water quality

No Action and Limit level exceedance of 1-hour and 24-hr TSP monitoring was recorded in this reporting period.

Since no documented complaints on noise issue were received in this reporting period, no Action Level exceedance was recorded. Besides, no exceedance in Limit Level was recorded according to the result from Day-time monitoring.

According to the summary of marine water monitoring results, no exceedance of Action and Limit levels was recorded for this reporting period.

9.2 Summary of Environmental Complaints

No complaint was received in this reporting period.

9.3 Summary of Notification of Summons and successful Prosecution

There was no notification of summons and successful prosecution respect to environmental issues registered in this reporting period.

10.0 IMPLEMENTATION STATUS

10.1 Implementation Status of Environmental Mitigation Measures

An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is presented in Appendix I. Most of the necessary mitigation measures were implemented properly. Any deficiencies were noted in the remarks of the schedule.

10.2 Implementation Status of Event and Action Plan

Since no exceedance of Action and Limit level of air quality, noise and marine water monitoring results was recorded for this reporting period, no further action was required.

10.3 Implementation Status of Environmental Complaint, Notifications of Summons and Successful Prosecutions Handling

No complaint, notification of summon and successful prosecution was received in this reporting period.

A summary of environmental complaints, notifications of summons and successful prosecutions was given in Table 10.1 and further details of the complaint could be found in the Complaint Log (Appendix L).

Complaints logged		Summons s	served	Successful prosecution received		
February 2018	Cumulative	February 2018 Cumulative		February 2018	Cumulative	
0 2		0	0	0	0	

Table 10.1 Summary of Environmental Complaints and Prosecutions

11.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Impact monitoring of air quality, noise and water quality were carried out at designated locations in accordance with the EM&A Manual in this reporting period.

No Action and Limit level exceedance of 1-hour and 24-hr TSP monitoring was recorded in this reporting period.

Since no documented complaints on noise issue were received in this reporting period, no Action Level exceedance was recorded. Besides, no exceedance in Limit Level was recorded according to the result from Day-time monitoring.

According to the summary of marine water monitoring results, no exceedance of Action and Limit levels was recorded for this reporting period.

No complaint, prosecutions and notifications of summons were received in this reporting period.

According to the ET weekly site inspections carried out in this reporting period, the Contractor generally implemented sufficient dust mitigation measures, including operation of the mist spraying systems and automatic wheel washing facilities, dampening of haul roads and stockpiling areas.

Recommendations

According to the environmental site inspections performed in the reporting period, the following recommendations were provided:

Air Quality

- Ensure the frequency of water spraying on haul roads, unloading areas and stockpiles to be sufficient to suppress the dust sources;
- Provide proper maintenance for the powered mechanical equipment and barges to avoid emission of dark smoke;
- Provide water spraying onto the truckloads during inspection of fill material;
- Conduct road sweeping on all paved haul roads and public roads especially outside and near the site egress by the road sweeper. Undertake water spraying on stockpiling area by water bowser;
- Erect adequate speed limit signs to advise the truck drivers of the speed limit;
- Operate mist spraying systems and automatic water sprinklers in the Fill Bank;
- Implement the dust mitigation measures for the site activities;
- Designate proper haul roads to ensure effective water spraying; and
- Ensure all vehicles to be washed before leaving the site egress by provision, operation and maintenance of automatic wheel washing facilities.

Noise

Conduct noisy activities at a farther location from the NSRs.

Water Quality

- Maintain the drainage system, including the trapezoidal channels, permanent desilting chambers, regularly;
- Operate and maintain the silt curtains regularly;
- Operate the cleaning vessel within the TKO Basin regularly;
- Clean up the fill material on the concrete pavement at BHA frequently; and
- Remove the stagnant water or provide approved pesticides for the stagnant water in the permanent desilting chambers, if any.

Landscape and Visual

- Provide hydroseeding on the exposed slopes, on which the final profile has been formed;
- Erect all the site hoarding/chaining fences in accordance with agreed design at proper location;
- Maintain the hydroseeded slopes in accordance with the Landscape Plan.

Chemical and Waste Management

- Remove waste materials from the site to avoid accumulation regularly;
- Handle and store chemical wastes properly;
- Remove unwanted material in the existing stockpiles and avoid further dumping of such material;
- Provide and maintain sufficient drip trays for diesel drums, chemical containers, chemical waste storage drums and diesel operated generator set;
- Maintain mesh screen on top of the additional drainage to avoid improper dumping of rubbish;
- Maintain good housekeeping at the workshop area;
- Ensure sufficient tarpaulin sheets are provided to cover drip trays; and
- Avoid soil being polluted during oil filling and equipment maintenance; hence, properly remove and store the contaminated soil, if any

12.0 FUTURE KEY ISSUES

12.1 Work Programme for the Coming Month

As informed by the Contractor, the activities to be conducted by them in the next month included:

- 1. Renovation of dewatering plant;
- 2. Operation of crushing plant;
- 3. Renovation of tipping halls at both fill banks;
- 4. Public fill removal at Portion A6;
- 5. Repair work of Tipping Halls;
- 6. Re-construction of sampling platforms at TKOFB

12.2 Key Issues for the Coming Month

Key issues to be considered in the coming month include:

- Chemical and waste management;
- Treatment of runoff and wastewater prior to discharge;
- Dust generated from loading and unloading activities; and
- Dust generated from dump trucks traffic.

Mitigation measures to be required in the coming month:

Air Quality Impact

- To provide adequate water spraying on haul roads and working platform;
- To operate and maintain automatic wheel washing facilities properly;
- To dampen the fill material prior to unloading or movement;
- To provide road sweeping on haul road near site egress and public roads outside site egress;
- To ensure implementation of the dust mitigation measures for the site activities;
- To maintain proper operation of the mist spraying system;
- To provide proper maintenance for vehicles and machines on site; and
- To investigate any other dust sources around the air sensitive receivers

<u>Noise</u>

- To switch off equipment if not in use;
- To operate silent equipment;
- To identify the noise sources inside and outside of the site;
- To follow up any exceedance caused by the Fill Bank operation; and
- To re-schedule the work activities in the event of valid noise exceedance.

Water Quality Impact

- To maintain the drainage system in the Fill Bank;
- To ensure the cleanliness of oil interceptor bypass tanks and all the drainage channels;
- To maintain the existing silt trap to ensure good efficiency of wheel wash facilities;
- To repair, inspect and maintain the silt curtains regularly;
- To provide covers for the drip trays to avoid stagnant water pond due to rainfall;
- To deploy a cleaning vessel to remove floating rubbish in the TKO Basin;
- To clean up the concrete paved area at Portion I every night to avoid fill materials from being washed into the sea; and
- To avoid any stagnant water or provide insecticide to avoid mosquito breeding in the Fill Bank.

Chemical and Waste Management

- To remove waste from the site regularly;
- To properly store and handle chemical wastes on site;
- To implement trip ticket system for all the imported public fill and general refuse disposal;
- To provide and manage sufficiently sized drip trays for diesel drums or chemical containers;
- To remove existing unwanted material in the stockpiles and avoid improper disposal at the Fill Bank through inspection of imported truckloads;
- To maintain proper housekeeping at the workshop area;
- To remove the oil stains in the event of leakage and handle all materials using for this cleaning works as chemical waste;
- To maintain mesh screen on top of the additional drainage, DP3 opening to avoid improper dumping of rubbish into this channel; and
- To identify C&D material by packaging, labeling, storage, transportation and disposal in accordance with statutory regulations.

12.3 Monitoring Schedule for the Coming Month

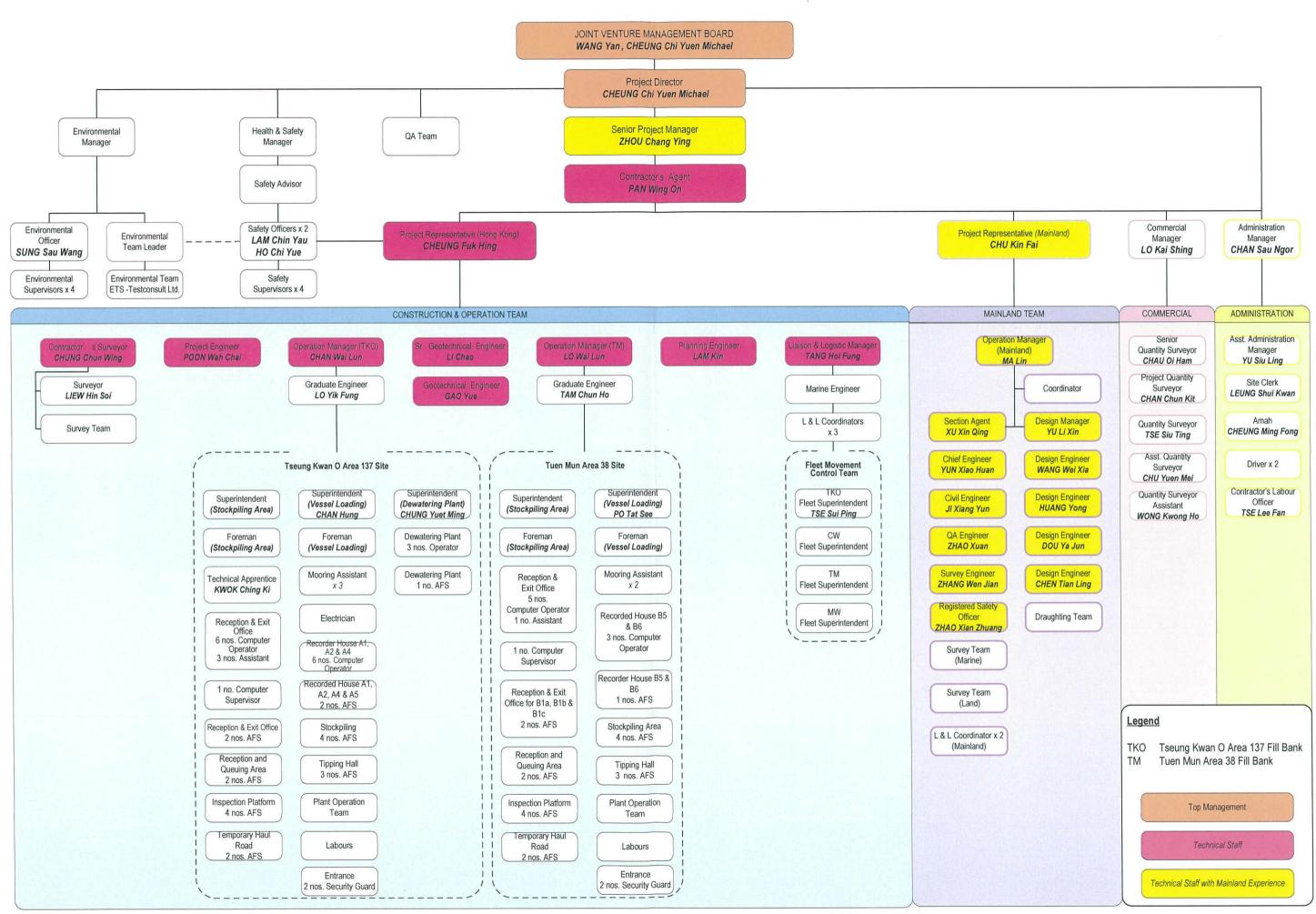
The proposed EM&A program of the coming month is attached in Appendix K.

- END OF REPORT -



Appendix A

Project Organization Chart







Organization Chart Rev. 3



Appendix B1

Calibration Certificates for Impact Air Quality Monitoring Equipment

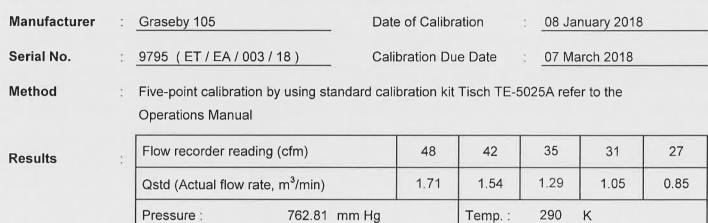


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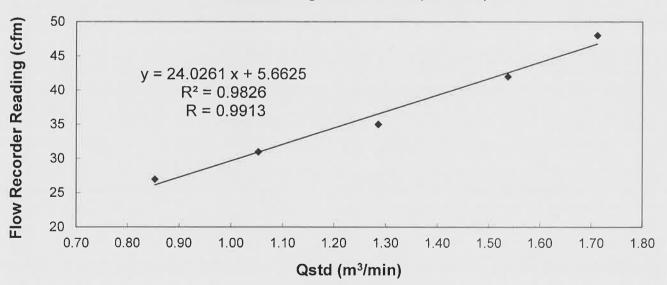
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Calibration Report of High Volume Air Sampler



Sampler 9795 Calibration Curve Site: Tseung Kwan O 137 (TKO-A1)



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies* / does not comply* with the specified requirements and is deemed acceptable*/ unacceptable* for use.

Calibrated by	Mab	tei	War	
	MAK, I	Kei W	ai	

MAK, Kei Wai (Assistant Supervisor) Checked by

LAU, Chi Leung (Environmental Team Leader)

- END OF REPORT -



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<u>Calibration Report</u> of <u>High Volume Air Sampler</u>

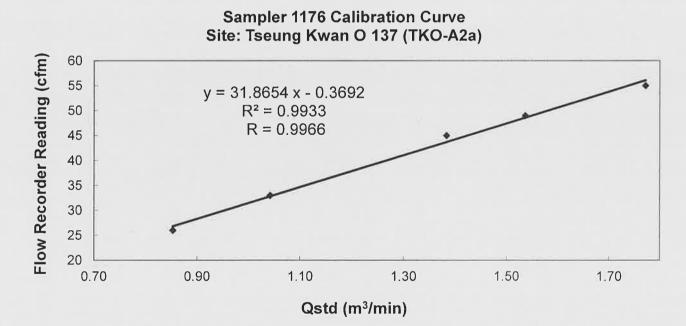
Manufacturer	3	Andersen G1051 Da	te of Calibi	ration	: 08 Jar	08 January 2018		
Serial No.	3	<u>1176 (ET / EA / 003 / 05)</u> Ca	(ET / EA / 003 / 05) Calibration Due Date 07 March 20					
Method	;	Based on Operations Manual for the 5-poir manufactured by Tisch TE-5025 A	nt calibratio	n using st	andard cal	ibration kit		
Results	4	Flow recorder reading (cfm)	55	49	45	33	26	
		Qstd (Actual flow rate, m ³ /min)	1.77	1.54	1.38	1.04	0.85	

762.81 mm Hg

Temp :

290

Κ



Acceptance Criteria: Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies* / does not comply* with the specified requirements and is deemed acceptable* / unacceptable * for use.

Calibrated by : MAK, Kei Wai

(Assistant Supervisor)

Pressure :

Checked by

LAU, Chi Leung (Environmental Team Leader)

ET/ EA/004/14



TISCH ENVIRONMENTAL, INC. 145 SOUTH MIAMI AVE VILLAGE OF CLEVES, OH 45002 513.467.9000 877.263.7610 TOLL FREE 513.467.9009 FAX

	ORIFICE 7	TRANSFER STAN	NDARD CERT	IFICATION	WORKSHEET	FE-5025A	
Date - Apr 03, 2017 Rootsmeter S/N0438320Ta (K) -295Operator TischOrifice I.D3297Pa (mm) -748.03							
PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)	
1 2 3 4 5	NA NA NA NA	NA NA NA NA	1.00 1.00 1.00 1.00 1.00	1.4360 1.0230 0.9170 0.8720 0.7180	3.2 6.4 7.9 8.8 12.7	2.00 4.00 5.00 5.50 8.00	

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9900 0.9858 0.9837 0.9825 0.9773	0.6894 0.9636 1.0727 1.1268 1.3612	1.4101 1.9943 2.2296 2.3385 2.8203		0.9957 0.9915 0.9893 0.9882 0.9830	0.6934 0.9692 1.0789 1.1333 1.3691	0.8881 1.2560 1.4042 1.4728 1.7762
Qstd slop intercept coefficie	: (b) =	2.10166 -0.03302 0.99984	n e r	Qa slope intercept coefficie	(b) =	1.31603 -0.02080 0.99984
y axis =	SQRT [H2O (H	Pa/760) (298/5	'y axis =	SQRT [H20 (1	[a/Pa)]	

CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta) Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa] Qa = Va/Time

For subsequent flow rate calculations:

 $Qstd = 1/m\{ [SQRT(H2O(Pa/760)(298/Ta))] - b \}$ $\tilde{Q}a = 1/m\{[SQRT H2O(Ta/Pa)] - b\}$



Appendix B2

Impact Air Quality Monitoring Results

Summary of 24-hr TSP Monitoring Results



Monitoring Station : TKO-A1

Location : Site Egress

St	art	Fini	sh	Elapse	e Time	Sampling	Flow Rate	e (m ³ /min.)	Average	Filter W	eight (g)	Conc. (μg/m ³)
Date	Time	Date	Time	Initial	Final	Time (hrs)	Initial	Final	(m³/min.)	Initial	Final	oonor (μg/m)
05/02/2018	11:20	06/02/2018	11:20	18158.74	18182.74	24.00	1.5957	1.5957	1.5957	2.6803	3.0282	151
10/02/2018	08:00	11/02/2018	08:00	18185.74	18209.74	24.00	1.2627	1.2627	1.2627	2.5502	2.7020	83
15/02/2018	08:00	16/02/2018	08:00	18212.74	18236.74	24.00	1.3459	1.3459	1.3459	2.6803	2.8524	89
21/02/2018	14:05	22/02/2018	14:05	18239.74	18263.74	24.00	1.0962	1.0962	1.0962	2.6692	2.7697	64
27/02/2018	08:00	28/02/2018	08:00	18266.74	18290.74	24.00	1.0962	1.0962	1.0962	2.8707	3.0543	116

Monitoring Station : TKO-A2a

Location : CREO

St	art	Fini	sh	Elapse	e Time	Sampling	Flow Rate	e (m ³ /min.)	Average	Filter W	eight (g)	Conc. (µg/m ³)
Date	Time	Date	Time	Initial	Final	Time (hrs)	Initial	Final	(m ³ /min.)	Initial	Final	Cono. (µg/m)
05/02/2018	11:25	06/02/2018	11:25	20252.61	20276.61	24.00	1.3296	1.3296	1.3296	2.6806	2.8418	84
10/02/2018	08:00	11/02/2018	08:00	20279.61	20303.61	24.00	1.1413	1.1413	1.1413	2.6580	2.8410	111
15/02/2018	08:00	16/02/2018	08:00	20306.61	20330.61	24.00	1.1100	1.1100	1.1100	2.6696	2.8472	111
21/02/2018	14:10	22/02/2018	14:10	20333.61	20357.61	24.00	1.2041	1.2041	1.2041	2.6653	2.7781	65
27/02/2018	08:00	28/02/2018	08:00	20360.61	20384.61	24.00	1.2669	1.2669	1.2669	2.6737	2.8315	86



Summary of 1-hr TSP Monitoring Results

Monitoring	Station	: TKO-A1
------------	---------	----------

Location : Site Egres Site Egress

St	art	Fini	sh	Elapse	e Time	Sampling	Flow Rate	e (m ³ /min.)	Average	Filter W	eight (g)	Conc. (μg/m ³)
Date	Time	Date	Time	Initial	Final	Time (hrs)	Initial	Final	(m³/min.)	Initial	Final	ουπο. (μg/m)
02/02/2018	13:00	02/02/2018	14:00	18157.74	18158.74	1.00	1.0130	1.0130	1.0130	2.6915	2.7123	342
07/02/2018	13:00	07/02/2018	14:00	18182.74	18183.74	1.00	1.5540	1.5540	1.5540	2.6559	2.6883	347
07/02/2018	14:40	07/02/2018	15:40	18183.74	18184.74	1.00	1.2627	1.2627	1.2627	2.6771	2.7046	363
09/02/2018	13:00	09/02/2018	14:00	18184.74	18185.74	1.00	1.4292	1.4292	1.4292	2.6686	2.6863	206
12/02/2018	13:20	12/02/2018	14:20	18209.74	18210.74	1.00	1.3876	1.3876	1.3876	2.6682	2.6831	179
12/02/2018	14:50	12/02/2018	15:50	18210.74	18211.74	1.00	1.3459	1.3459	1.3459	2.6647	2.6910	326
14/02/2018	10:55	14/02/2018	11:55	18211.74	18212.74	1.00	1.3459	1.3459	1.3459	2.6830	2.7116	354
21/02/2018	09:10	21/02/2018	10:10	18236.74	18237.74	1.00	1.2211	1.2211	1.2211	2.6881	2.6973	126
21/02/2018	10:11	21/02/2018	11:11	18237.74	18238.74	1.00	1.4292	1.4292	1.4292	2.6654	2.6794	163
21/02/2018	13:00	21/02/2018	14:00	18238.74	18239.74	1.00	1.0962	1.0962	1.0962	2.6675	2.6839	249
23/02/2018	14:50	23/02/2018	15:50	18263.74	18264.74	1.00	1.4292	1.4292	1.4292	2.6837	2.7133	345
26/02/2018	08:50	26/02/2018	09:50	18264.74	18265.74	1.00	1.3459	1.3459	1.3459	2.6804	2.6894	111
26/02/2018	09:56	26/02/2018	10:56	18265.74	18266.74	1.00	1.2627	1.2627	1.2627	2.6775	2.6925	198
28/02/2018	09:30	28/02/2018	10:30	18290.74	18291.74	1.00	1.0962	1.0962	1.0962	2.7408	2.7638	350

Monitoring Station : TKO-A2a





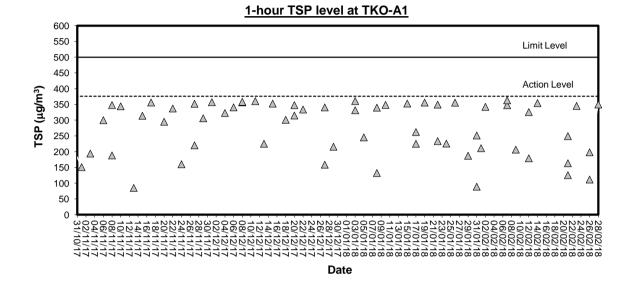
St	tart	Fini	sh	Elapse	e Time	Sampling	Flow Rate	e (m³/min.)	Average	Filter W	eight (g)	Conc. (µg/m ³)
Date	Time	Date	Time	Initial	Final	Time (hrs)	Initial	Final	(m ³ /min.)	Initial	Final	Conc. (μg/m)
02/02/2018	13:05	02/02/2018	14:05	20251.61	20252.61	1.00	1.0158	1.0158	1.0158	2.6787	2.6973	305
07/02/2018	13:05	07/02/2018	14:05	20276.61	20277.61	1.00	1.0786	1.0786	1.0786	2.6578	2.6720	219
07/02/2018	14:45	07/02/2018	15:45	20277.61	20278.61	1.00	1.1413	1.1413	1.1413	2.6539	2.6782	355
09/02/2018	13:05	09/02/2018	14:05	20278.61	20279.61	1.00	1.2669	1.2669	1.2669	2.6523	2.6590	88
12/02/2018	13:20	12/02/2018	14:20	20303.61	20304.61	1.00	1.1413	1.1413	1.1413	2.6585	2.6817	339
12/02/2018	14:55	12/02/2018	15:55	20304.61	20305.61	1.00	1.1413	1.1413	1.1413	2.6996	2.7239	355
14/02/2018	11:00	14/02/2018	12:00	20305.61	20306.61	1.00	1.1413	1.1413	1.1413	2.6831	2.6935	152
21/02/2018	09:15	21/02/2018	10:15	20330.61	20331.61	1.00	0.9530	0.9530	0.9530	2.6689	2.6782	163
21/02/2018	10:16	21/02/2018	11:16	20331.61	20332.61	1.00	1.2041	1.2041	1.2041	2.6737	2.6876	192
21/02/2018	13:05	21/02/2018	14:05	20332.61	20333.61	1.00	1.1413	1.1413	1.1413	2.6674	2.6800	184
23/02/2018	14:55	23/02/2018	15:55	20357.61	20358.61	1.00	1.2669	1.2669	1.2669	2.6817	2.6990	228
26/02/2018	08:55	26/02/2018	09:55	20358.61	20359.61	1.00	1.1413	1.1413	1.1413	2.6751	2.6896	212
26/02/2018	09:59	26/02/2018	10:59	20359.61	20360.61	1.00	1.2669	1.2669	1.2669	2.6663	2.6758	125
28/02/2018	14:20	28/02/2018	15:20	20384.61	20385.61	1.00	1.2041	1.2041	1.2041	2.6918	2.7131	295

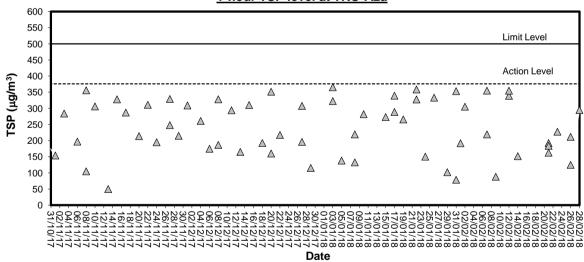


Appendix B3

Graphical Plots of Impact Air Quality Monitoring Data

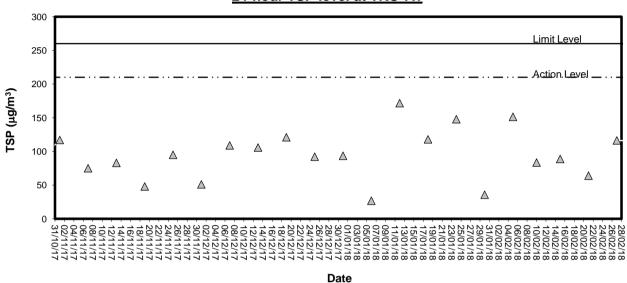




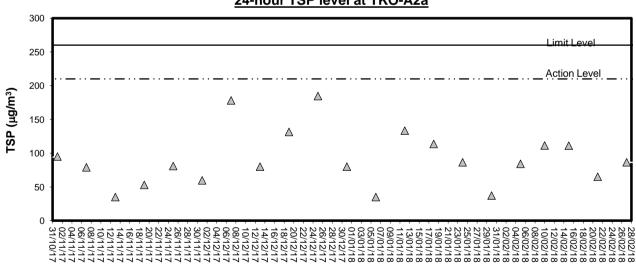


1-hour TSP level at TKO-A2a





24-hour TSP level at TKO-A1



24-hour TSP level at TKO-A2a

Date



Appendix C1

Calibration Certificates for Impact Noise Monitoring Equipment





Calibration Certificate

Certificate No. 709571	Page 1 of 2 Pages
Customer : ETS-Testconsult Limited	
Address : 8/F., Block B, Veristrong Industrial Cen	tre, 34-36 Au Pui Wan St., Fotan, Hong Kong.
Order No. : Q73909	Date of receipt : 6-Oct-17
Item Tested	-
Description : Sound Level Calibrator	
Manufacturer : Rion	I.D. : ET/EN/002/01
Model : NC-73	Serial No. : 10196943
Test Conditions	
Date of Test : 16-Oct-17	Supply Voltage :
Ambient Temperature : (23 ± 3)°C	Relative Humidity : (50 ± 25) %

Celibration check. Ref. Document/Procedure : F21, Z02,

Test Results

All results were within the manufacturer's specification. The results are shown in the attached page(s).

'Main Test equipment used;

Equipment No.	Description	Cert. No.	Traceable to
8014	Spectrum Analyzer	707126	NIM-PRC & SCL-HKSAR
-8240	Sound Level Calibrator	703741	NIM-PRC & SCL-HKSAR
-S041	Universal Counter	707135	SCL-HKSAR
S206	Sound Level Meter	707129	SCL-HKSAR

The volues given in this Calibration Cartificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, availability, mis-banding, or the capability of any other laboratory to repeat the measurement. Hong Kong Caribration Ltd, shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to international System of Units (Si), or by reference to a natural constant. The test results apply to the above Unit-Under-Test only.

Calibrated by :	Appro	wed by :	Alan Chu	
This Defilipse is lowed by: Heng Kong Gallavillon Ltd., UNI 98, 2471, WHI Fung Industrial Control, No. 58-78, To Chaen Ping Sanatyovys Charg The 2425 1997, The: 2425 2406	Date: . NT/Hong Kang.	16-Oct-17		
inter on control of their parall states of the Kolong M. Alf Mills on Hitchie in overset by Hisnip Kong Calibration Ltd., it may not be not	reduced except in tot.			E





Calibration Certificate

Certificate No. 709571

Page 2 of 2 Pages

Results :

1. Level Accuracy (at 1 kHz)

UUT Nominal Value	Measured Value	Mfr's Spec.
94 dB	94.0 dB	± 1 dB

Uncertainty : \pm 0.2 dB

2. Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's Spec.
1 kHz	0.987 kHz	±2%

Uncertainty : ± 0,1 %

- Level Stability : 0.0 dB Uncertainty : ± 0.01 dB
- Total Harmonic Distortion : < 0.5 % Mfr's Spec. : < 3 % Uncertainty : ± 2.3 % of reading

Remarks: 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1 025 hPa

END -----

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Hong Kong Calibration Ltd. 香港校正有限公司

Calibration Certificate

Certificate No.	713075		Page	1 of 3	Pages
	ETS-Testconsult Limited				
Address :	8/F., Block B, Veristrong Industria	al Centre, 34-36 Au	Pui Wan St., Fot	an, Hong Ko	ng.
Order No. :	Q80009		Date of receipt	-:	29-Dec-17
Item Tested					
Description :	Sound Level Meter				
Manufacturer :	Rion		I.D.	: ET/EN	/003/14
Model :	NL-52		Serial No.	: 003206	45
Test Conditi	ons				
Date of Test :	15-Jan-18		Supply Voltage	• :	
Ambient Tempo	erature : (23 ± 3)°C		Relative Humic	lity: (50 ± 2	5) %
Test Specific	cations				
Calibration chec	·k.				
Ref. Document/	Procedure : Z01, IEC 61672,				
Test Results	3				
The results are	shown in the attached page(s).				
Main Test equip	oment used:				
Equipment No.		<u>Cert. No.</u>		Traceable to	<u>D</u>
S017	Multi-Function Generator	C170120		SCL-HKSAI	२
S240	Sound Level Calibrator	703741		NIM-PRC &	SCL-HKSAR
The values given in	this Calibration Certificate only relate to t	the values measured at	the time of the test a	nd any uncertai	nties quoted

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

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant. The test results apply to the above Unit-Under-Test only

Calibrated by :		Approv	ved by :	Kin Wong
This Certificate is issued by: Hong Kong Calibration Ltd. Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT, Tel: 2425 8801 Fax: 2425 8646	Hong Ko	Date:	15-Jan-18	

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Calibration Certificate

Certificate No. 713075

Page 2 of 3 Pages

Results :

1. Self-generated noise: 17.6 dBA

2. Acoustical signal test

	UUT S	etting	n-		
	Frequency	Time	Octave	Applied	UUT
Range (dB)	Weighting	Weighting	Filter	Value (dB)	Reading (dB)
30-130	A	F	OFF	94.0	92.2
		S	OFF		92.3
	С	F	OFF		92.3
	Z	F	OFF		92.3
	A	F	OFF	114.0	112.3
		S	OFF		112.4
	C	F	OFF		112.3
	Z	F	OFF		112.3

IEC 61672 Type 1 Spec. : \pm 1.1 dB Uncertainty : \pm 0.1 dB

3 Electrical signal tests of frequency weightings (A weighting)

Frequency	Attenuation (dB)	IEC 61672 Type 1 Spec.
31.5 Hz	-39.6	- 39.4 dB, ± 2 dB
63 Hz	-26.2	- 26.2 dB, ± 1.5 dB
125 Hz	-16.2	- 16.1 dB, ± 1.5 dB
250 Hz	-8.6	- 8.6 dB, ± 1 dB
500 Hz	-3.2	- $3.2 \text{ dB}, \pm 1.4 \text{ dB}$
1 kHz	0.0 (Ref)	0 dB, ± 1.1 dB
2 kHz	+1.0	$+$ 1.2 dB, \pm 1.6 dB
4 kHz	+0.7	+ 1.0 dB, ± 1.6 dB
8 kHz	-1.2	- 1.1 dB, + 2.1 dB ~ -3.1 dB
16 kHz	-8.6	- 6.6 dB, + 3.5 dB ~ - 17.0 dB

Uncertainty : $\pm 0.1 \text{ dB}$



Calibration Certificate

Certificate No. 713075

Page 3 of 3 Pages

4. Frequency & Time weightings at 1 kHz

4.1 Frequency Weighting (Fast)

STRATE (* STRATE)			
Applied	UUT	Difference	IEC 61672
Value (dB)	Reading (dB)	(dB)	Type 1 Spec.
94.0	94.0 (Ref.)		± 0.4 dB
94.0	94.0	0.0	
94.0	94.0	0.0	
	Applied Value (dB) 94.0 94.0	Applied UUT Value (dB) Reading (dB) 94.0 94.0 (Ref.) 94.0 94.0	AppliedUUTDifferenceValue (dB)Reading (dB)(dB)94.094.0 (Ref.)94.094.00.0

4.2 Time Weighting (A-weighted)

UUT	Applied	UUT	Difference	IEC 61672
Setting	Value (dB)	Reading (dB)	(dB)	Type 1 Spec.
Fast	94.0	94.0 (Ref.)		± 0.3 dB
Slow	94.0	94.0	0.0	
Time-averaging	94.0	94.0	0.0	

Uncertainty : $\pm 0.1 \text{ dB}$

Remarks : 1. UUT : Unit-Under-Test

- 2. The uncertainty claimed is for a confidence probability of not less than 95%.
- 3. Atmospheric Pressure : 1 033 hPa.
- 4. Preamplifier model : NH-25, S/N : 10653
- 5. Firmware Version: 1.2
- 6. Power Supply Check: OK
- 7. The UUT was adjusted with the laboratory's sound calibrator at the reference sound pressure level before the calibration.

----- END -----



Appendix C2

Impact Noise Monitoring Results



Day-time Noise Monitoring

Monitoring Location: TKO-N1 (Site Egress)

Date	Start Sampling Time (hh:mm)	Wind Speed	Weather Condition			
		L _{eq(30min)}	L ₁₀	L ₉₀	(m/s)	
05/02/18	09:05	64.2	65.7	59.1	0.1	Cloudy

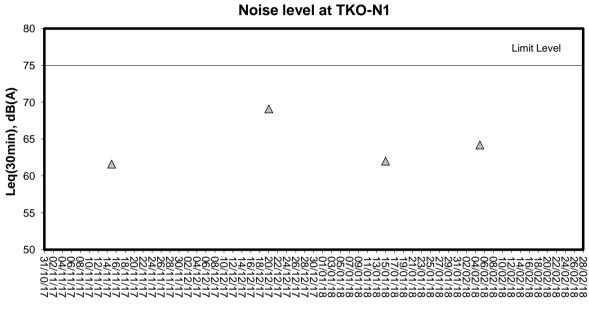


Appendix C3

Graphical Plots of Impact Noise Monitoring Data



Noise Monitoring (Day-time)



Date



Appendix D1

Calibration Certificates for Impact Marine Water Quality Monitoring Equipments



Performance C	heck of Turbidity	Meter											
Equipment Ref. No. : <u>ET/0505/01</u>	Equipment Ref. No. : <u>ET/0505/016</u> Manufacturer : <u>HACH</u>												
Model No. : <u>2100Q</u>	Serial No.	: <u>16030C048473</u>											
Date of Calibration : $9/1/2018$ Due Date : $8/4/2018$													
Theoretical Value of Turbidity Standard (NTU)	Measured Value (NTU)	Difference % *											
20	20.3	1.5%											
100	103	3%											
800	790	1.25%											
(*) Difference = (Measured Value	e – Theoretical Value) / The	oretical Value x 100											
Acceptance Criteria Diffe	erence : -5 % to 5 %												
The turbidity meter complies * / does not comply * with the specified requirements and is deemed acceptable * / unacceptable * for use. Measurements are traceable to national standards.													
Prepared by :	Checked by :	0-1											



東業德勤測試顧問有限公司 ETS-TESTCONSULT LIMITED

Form E/CE/R/12 Issue 8 (1/2) [05/13]

uipment Ref. No.	: ET/EW	//008/006			Manufactur	er	: YSI Incor	porated
odel No.	: Pro 203	30			Serial No.		: 12A1003	54
te of Calibration	: 15/1/20				Calibration	: 14/4/2018	3	
Temperature Verific	ation				······································			
Ref. No. of Reference	e Thermome	eter :		ET/0	521/026			
Ref. No. of Water Ba	th•			ET/0	533/001			
					Temp	erature (°C)		
Reference The	ermometer r	eading	Measured	i	19.4	Corrected	19.6	
	eter reading		Measured	i	19.2	Difference	0.4	
			~ ~ .					
Standardization of se	odium thios	ulphate (No	$a_2 S_2 O_3$) so	lution				
Reagent No. of Na ₂ S	$_{2}O_{3}$ titrant	CPE/012/4	.5/001/18	Reagent No	o. of 0.025N K	Cr ₂ O ₇	CPE/012/	4.4/002/25
					Trial	1	Tri	al 2
Initial Vol. of Na ₂ S ₂ C	03 (ml)				0.50		0.	90
Final Vol. of Na_2S_2O	3 (ml)				41.85	42.70		
Vol. of Na ₂ S ₂ O ₃ used	(ml)				41.35	5	41.	.80
Normality of Na ₂ S ₂ O	3 solution (N	1)			0.024	2	0.0	239
Average Normality (I	N) of Na_2S_2	O ₃ solution	(N)			0.0241		
Acceptance criteria, I						Less than ± ().001N	
Calculation:	Normality of	of $Na_2S_2O_3$,	N = 0.25 / m	nl $Na_2S_2O_3$ use	1			
Lineality Checking								
Determination of dis	solved oxyg	en content	by Winkler T	Titration *				
Purging Time (min)				2		5	1	0
Trial			1	2	1	2	1	2
Initial Vol. of Na ₂ S ₂ C			1.00	10.60	0.15	7.35	21.65	24.85
Final Vol. of Na ₂ S ₂ O			10.50	20.20	7.35	14.50	24.85	28.10
Vol. (V) of $Na_2S_2O_3$			9.50	9.60	7.20	7.15	3.20	3.25
Dissolved Oxygen (D			6.15	6.21	4.66	4.63	2.07	2.10
	Deviation DO (mg/L)			+ 0.3mg/L	Less that	n + 0.3mg/L	Less than	+ 0.3mg/L
Acceptance criteria, I	DO (mg/L)	$-\mathbf{v} \times \mathbf{N} \mathbf{X}$	0000/298					
L			ng. mg/L	Winkle	r Titration res	ult *, mg/L	Difference	(%) of DO
Calculation:	DO	meter readi			2	Average		itent
L	DO 1	meter readi 2	Averag	e 1			2.99	
Calculation:				6.15	6.21	6.18	2.9	99
Calculation: Purging time, min	1	2	Averag		6.21 4.63	6.18 4.64	2.9	
Calculation: Purging time, min 2	1 6.02	2 6.05	Averag 6.04	6.15				39



Form E/CE/R/12 Issue 8 (2/2) [05/13]

Zero Point Checking	5							
	DO meter re	ading, m	g/L			0.04		
Salinity Checking								
Reagent No. of NaC	l (10ppt)		CPE/012/4.7/004/1	5 Reage	nt No. of Na	Cl (30ppt)	CPE/012/4.8/004/15	
Determination of dis	solved oxyg	en conte	nt by Winkler Titra	ution **				
Salinity (ppt)				10			30	
Trial			1		2	1	2	
Initial Vol. of Na_2S_2	D ₃ (ml)		0.45		14.60	1.10	14.20	
Final Vol. of Na ₂ S ₂ C	93 (ml)		14.60		28.70	14.20	27.15	
Vol. (V) of $Na_2S_2O_3$	used (ml)		14.15		14.10	13.10	12.95	
Dissolved Oxygen (I)0), mg/L		9.15		9.12	8.48	8.38	
Acceptance criteria,	Deviation		Less th	an + 0.3mg/	Ľ	Les	s than + 0.3mg/L	
Calculation:	DO (mg/L)	$= \mathbf{V} \times \mathbf{N}$	x 8000/298					
Salinity (ppt)	DO	meter rea	ding, mg/L	Winkler	Titration res	ult**, mg/L	Difference (%) of DO	
, The second sec	1	2	Average	1	2	Average	Content	
10	9.15	9.21	9.18	9.15	9.12	9.14	0.44	
30	8.22	8.25	8.24	8.48	8.38	8.43	1.86	
Acceptance Criteria (1) Differenc betwee (2) Linear regression (3) Zero checking: 0. (4) Difference (%) of	coefficient 0mg/L	: >0.99	-		-		nometer : < 0.5 °C	
		not comp	ly [#] with the specif	ied requirem	ients and is d	eemed accepta	ble [#]	
The equipment comp / unacceptable [#] for u [#] Delete as appropria					<u></u>			

ī



Appendix D2

Impact Marine Water Quality Monitoring Results

Mid-Ebb Tide



Monitoring Station : TKO-C1

Image: burner	Date	Sampling	Ambient Temp	Monitorin	ng Depth	Temp	Salini	ty (ppt)	Dissolv	ved Oxyger	n (mg/L)		d Oxygen tion (%)	Τι	urbidity (NT	Ū)	Susper	nded Solids	s (mg/L)
bit 1 bit 1 <th< td=""><td>Date</td><td>Duration</td><td>(°C) / Weather Condition</td><td>(m</td><td>ו)</td><td>(°C)</td><td>Value</td><td>Average</td><td>Value</td><td>Average</td><td>•</td><td>Value</td><td>Average</td><td>Value</td><td>Average</td><td></td><td>Value</td><td>Average</td><td></td></th<>	Date	Duration	(°C) / Weather Condition	(m	ו)	(°C)	Value	Average	Value	Average	•	Value	Average	Value	Average		Value	Average	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Surface	1.0	15.3		29.3		7.80			93.2		3.36			4.7	
1211131 10100ug Mide 9.7 15.5 20.4 22.6 7.68 7.67 92.1 92.0 3.47 3.44 3.46 4.2 4.0 3.9 0510211 15.7 20.6 20.6 7.64 7.52 7.52 91.0 90.7 3.52 3.9 3.4 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>7.73</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>											7.73								
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	02/02/18	1311-1331	10/Cloudy	Middle	9.7	15.5		29.5		7.67			92.0		3.44	3.46		4.0	3.9
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$												-		-		•			
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Bottom	18.4	15.7		29.6		7.52	7.52		90.7		3.59			3.2	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Surface	1.0	15.6	31.0	21.0	7.07	7.09		85.8	96.0	3.73	2 72		3.1	2.1	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Sunace	1.0	15.6	31.0	31.0	7.09	7.08	7.02	86.1	86.0	3.70	3.72		3.1	3.1	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	05/02/18	1525-1530	7/Cloudy	Middle	9.8	15.7	31.1	31.2	6.94	6.96	7.02	84.4	84.7	3.94	3.92	3.87	3.5	3.6	3.9
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	00,01,10	1020 1000	., 0.000	inidalo	0.0			0.1.2		0.00			•		0.02			0.0	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $				Bottom	18.6	15.8		31.3		6.87	6.87		83.8		3.96			5.0	
$ \begin{tabular}{ 1006102 100602 100$																			
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Surface	1.0	15.5		30.3		7.74			93.4		3.20			3.2	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$											7.66								
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	07/02/18	1721-1740	12/Cloudy	Middle	9.7	15.7		30.6		7.57			91.8		3.29	3.30		2.5	2.7
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Bottom 18	40.0	15.0				7.44	7 /1	90.6	00.4		0.40		2.7		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Bottom	18.3	15.9	30.9	30.9		7.41	7.41	90.2	90.4	3.41	3.43		2.4	2.6	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Surface	1.0	15.3	31.1	31.2		7.04		85.1	84.9	3.27	3.26		2.0	17	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Ounace	1.0	10.0	31.2	51.2	7.02	7.04	7.00	84.7	04.5		0.20		1.3	1.7	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	09/02/18	0745-0800	15/Cloudy	Middle	9.9	15.5		31.4		6.96			84.4		2.97	3.11		3.5	2.6
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$,																
$ 12/02/18 \ 106-1023 \ 16/Cloudy \ 16/Cl$				Bottom	18.8	15.6		31.5		6.87	6.87		83.7		3.11			2.7	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$							-										-		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Surface	1.0	16.4		30.0		7.30			91.7		3.45			3.0	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$											7.46								
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	12/02/18	1006-1023	16/Cloudy	Middle	9.7	16.5	30.3	30.2	7.68	7.63		96.5	95.8	3.26	3.25	3.27	5.6	4.8	4.2
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $				Pottom	10.2	16.9	30.5	20.6	7.52	7 5 7	7 57	94.5	05.1	3.11	2 1 2		3.7	5.0	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $				Bollom	10.5	10.0	30.6	30.0	7.61	7.57	7.57	95.6	95.1	3.14	3.13		6.3	5.0	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $				Surface	1.0	16.5		31.9		7.19			89.3		3.06			2.7	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $											7.12								
Bottom 19.2 16.2 32.2 32.2 6.85 6.83 6.83 84.7 84.4 2.95 2.93 2.3 2.4	14/02/18	1147-1200	15/Cloudy	Middle	10.1	16.3		32.2		7.04			87.3		2.90	2.96		3.2	2.7
$ \begin{bmatrix} 1 \\ 1 \\ 2 \\ 3 \\ 2 \\ 3 \\ 2 \\ 3 \\ 2 \\ 3 \\ 3 \\ 2 \\ 3 \\ 6 \\ 8 \\ 3 \\ 6 \\ 8 \\ 3 \\ 6 \\ 8 \\ 3 \\ 6 \\ 8 \\ 3 \\ 6 \\ 8 \\ 3 \\ 6 \\ 8 \\ 3 \\ 6 \\ 8 \\ 4 \\ 4 \\ 3 \\ 2 \\ 9 \\ 3 \\ 2 \\ 9 \\ 3 \\ 2 \\ 1 \\ 1 \\ 2 \\ 1 \\ 1 \\ 2 \\ 1 \\ 2 \\ 1 \\ 1$							-					-				1			
				Bottom	19.2	16.2	32.2	32.2	6.85	6.83	6.83	84.7 84.1	84.4	2.95	2.93		2.3	2.4	

<u>Mid-Ebb Tide</u>



Monitoring Station : TKO-C1

Date	Sampling	Ambient Temp (°C) / Weather	Monitorir	Monitoring Depth		Salini	ty (ppt)	Dissolv	ved Oxyger	n (mg/L)		d Oxygen tion (%)	Т	urbidity (NT	⁻ U)	Susper	nded Solids	s (mg/L)
Date	Duration	Condition	(m)		(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	17.4	30.0	30.0	7.48	7.52		93.5	94.0	3.58	3.60		1.7	1.9	
			Oundoe	1.0	17.4	29.9	00.0	7.56	1.02	7.39	94.5	04.0	3.61	0.00		2.0	1.0	
21/02/18	1544-1559	18/Cloudy	Middle	9.7	17.7	29.9	29.9	7.23	7.26		90.8	91.2	3.75	3.76	3.73	1.9	1.7	2.1
		,				29.9		7.29			91.6		3.77			1.5		
			Bottom	18.4	17.8	30.1	30.2	7.07	7.12	7.12	89.2	89.8	3.80	3.82		2.6	2.9	
				-		30.2		7.16			90.3		3.84			3.1		
			Surface	1.0	17.4	30.2	30.2	7.24	7.27		90.6	90.9	3.27	3.29		3.0	2.9	
						30.1		7.29		7.38	91.2		3.31			2.8		
23/02/18	1757-1813	17/Cloudy	Middle	9.7	17.5	30.3	30.4	7.44	7.50		93.4	94.2	3.42	3.43	3.42	3.3	2.8	2.8
						30.4		7.56			94.9		3.44			2.2		
			Bottom	18.3	17.7	30.6	30.7	7.61	7.66	7.66	96.0	96.6	3.56	3.54		2.5	2.7	
						30.7		7.70			97.1		3.52			2.9		
			Surface	1.0	17.4	30.7	30.8	7.08	7.07		88.8	88.6	3.04	3.06		2.2	2.3	
						30.8		7.05		6.95	88.4 86.1		3.08		4	2.3		-
26/02/18	0844-0859	18/Cloudy	Middle	9.8	17.5	31.3 31.4	31.4	6.82 6.86	6.84		86.7	86.4	3.12 3.15	3.14	3.05	3.2 3.0	3.1	2.8
						31.4		6.93			87.5		2.92		-	2.2		-
			Bottom	18.6	17.5	31.4	31.4	6.95	6.95	6.95	87.9	87.7	2.92	2.95		3.8	3.0	
						29.2		7.54			94.0		3.37			4.2		
			Surface	1.0	17.5	29.2	29.2	7.58	7.56		94.0 94.4	94.2	3.32	3.35		4.2	4.6	
						29.4		7.33		7.46	91.9		3.48		1	5.3		
28/02/18	1044-1102	22/Cloudy	Middle	9.0	17.7	29.3	29.4	7.37	7.35		92.2	92.1	3.47	3.48	3.49	6.0	5.7	4.8
					29.7		7.15			<u> </u>	90.1		3.68		1	3.3		t l
			Bottom	17.9	17.9	29.7	29.7	7.10	7.13	7.13	89.6	89.9	3.64	3.66		4.9	4.1	

<u>Mid-Ebb Tide</u>



Monitoring Station : TKO-M4

Date	Sampling	Ambient Temp (°C) / Weather	Monitoring [Depth (m)	Temp	Salini	ty (ppt)	Dissolv	ved Oxyger	n (mg/L)		d Oxygen tion (%)	Τι	ırbidity (NT	Ū)	Susper	nded Solids	(mg/L)
Date	Duration	Condition		Septit (III)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	15.3	29.3 29.2	29.3	7.74 7.78	7.76	7 74	92.5 92.8	92.7	3.26 3.31	3.29		3.1 3.1	3.1	
02/02/18	1340-1402	10/Cloudy	Middle	4.5	15.4	29.3 29.3	29.3	7.69 7.64	7.67	7.71	92.0 91.4	91.7	3.36 3.32	3.34	3.35	4.8 4.6	4.7	3.5
			Bottom	7.9	15.5	29.4 29.3	29.4	7.76	7.74	7.74	93.1 92.5	92.8	3.45 3.38	3.42		2.9	2.8	,
			Surface	1.0	15.5	31.1	31.1	7.11	7.13		86.1	86.4	3.40	3.43		3.3	4.1	
05/02/18	1540-1555	7/Cloudy	Middle	4.6	15.6	31.0 31.2	31.3	7.14 6.98	6.97	7.05	86.6 84.8	84.6	3.46 3.22	3.24	3.41	4.8 2.6	2.6	3.8
00,02,10		., 0.000				31.3 31.3		6.95 6.79		0.77	84.4 82.7		3.25 3.59			2.5 6.7	4.8	0.0
			Bottom	8.2	15.7	31.4 30.2	31.4	6.75 7.74	6.77	6.77	82.2 93.1	82.5	3.55 3.19	3.57		2.9 3.4		
			Surface	1.0	15.4	30.3	30.3	7.69	7.72	7.68	92.5	92.8	3.24	3.22		0.6	2.0	
07/02/18	1752-1813	12/Cloudy	Middle	4.6	15.5	30.4 30.3	30.4	7.67 7.61	7.64		92.6 91.8	92.2	3.27 3.23	3.25	3.26	2.8 2.2	2.5	2.5
			Bottom	8.1	15.6	30.5 30.4	30.5	7.52 7.56	7.54	7.54	91.0 91.4	91.2	3.28 3.34	3.31		2.6 3.1	2.9	
			Surface	1.0	15.4	31.1 31.0	31.1	7.17 7.14	7.16	7.10	86.7 86.3	86.5	2.94 2.90	2.92		2.6 0.7	1.7	
09/02/18	0810-0825	15/Cloudy	Middle	4.6	15.5	31.3 31.2	31.3	7.02 7.05	7.04	7.10	85.1 85.5	85.3	3.27 3.21	3.24	3.08	3.5 2.7	3.1	2.4
			Bottom	8.2	15.6	31.3 31.4	31.4	6.94 6.90	6.92	6.92	84.4 83.9	84.2	3.08 3.05	3.07		2.7 2.1	2.4	
			Surface	1.0	16.3	30.1 30.1	30.1	7.03 7.11	7.07		88.3 89.3	88.8	3.26 3.28	3.27		4.7	5.2	
12/02/18	1032-1051	16/Cloudy	Middle	4.7	16.4	30.2	30.3	7.28	7.32	7.19	91.5	91.9	3.20	3.22	3.20	4.0	3.8	4.4
			Bottom	8.3	16.4	30.3 30.6	30.6	7.35 7.42	7.46	7.46	92.3 93.2	93.7	3.23 3.09	3.11		3.5 5.9	4.2	,
			Surface	1.0	16.5	30.5 31.7	31.8	7.49 7.33	7.35		94.1 90.9	91.2	3.12 2.64	2.62		2.4 2.8	2.9	
1.1/00/40	44.47.4000	45/0level				31.8 32.0		7.37 7.12		7.25	91.5 88.3	-	2.60 2.43		0.50	2.9 3.8		
14/02/18	1147-1200	15/Cloudy	Middle	4.7	16.4	32.1 32.1	32.1	7.16 7.17	7.14		88.8 88.8	88.6	2.38 2.55	2.41	2.52	3.7 1.5	3.8	2.8
			Bottom	8.4	16.3	32.1	32.1	7.17	7.15	7.15	88.2	88.5	2.55 2.51	2.53		2.3	1.9	

<u>Mid-Ebb Tide</u>



Monitoring Station : TKO-M4

Date	Sampling	Ambient Temp	Monitoring I	Dopth (m)	Temp	Salinit	ty (ppt)	Dissolv	ved Oxyger	n (mg/L)		d Oxygen tion (%)	Tu	urbidity (NT	U)	Susper	nded Solids	s (mg/L)
Date	Duration	(°C) / Weather Condition	wontoning i	Deptin (iii)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	17.4	29.8	29.9	7.36	7.32		91.9	91.4	3.69	3.71		1.8	2.1	
			Oundoo	1.0	17.4	29.9	20.0	7.27	1.02	7.25	90.8	01.4	3.72	0.71		2.4	2.1	
21/02/18	1608-1623	18/Cloudy	Middle	4.8	17.5	30.1	30.1	7.24	7.18	1.20	90.7	89.9	3.88	3.90	3.85	1.7	1.9	1.7
21/02/10	1000 1020	io, cloudy	maaro	1.0	11.0	30.1	00.1	7.11	1.10		89.1	00.0	3.92	0.00	0.00	2.0	1.0	
			Bottom	8.5	17.6	30.2	30.3	7.02	7.05	7.05	88.2	88.6	3.96	3.94		1.0	1.2	
			Dottom	0.0		30.3	0010	7.08			88.9	00.0	3.92	0.01		1.3		
			Surface	1.0	17.4	30.1	30.1	7.16	7.22		89.5	90.3	3.36	3.37		2.0	2.6	
				-		30.1		7.28		7.26	91.0		3.38			3.2		
23/02/18	1821-1836	17/Cloudy	Middle	4.6	17.4	30.2	30.3	7.27	7.30	-	91.0	91.4	3.40	3.38	3.39	3.2	3.3	2.8
		, , , , , , , , , , , , , , , , , , ,				30.3		7.33			91.7	_	3.35			3.3		
			Bottom	8.1	17.6	30.4	30.4	7.58	7.64	7.64	95.4	96.1	3.46	3.44		2.7	2.6	
						30.4		7.69			96.7		3.41			2.5		
			Surface	1.0	17.5	30.9	31.0	7.17	7.18		90.3	90.5	2.67	2.70		3.8	2.3	
						31.0		7.19		7.12	90.7		2.72			0.7		
26/02/18	0912-0927	18/Cloudy	Middle	4.4	17.6	31.2	31.2	7.04	7.06		89.0	89.3	2.94	2.92	2.82	2.8	2.5	2.7
						31.2		7.08			89.5		2.90			2.2		
			Bottom	7.8	17.6	31.2	31.3	6.95	6.93	6.93	87.8	87.6	2.85	2.83		3.8	3.4	
						31.3		6.91			87.3		2.81			2.9		
			Surface	1.0	17.4	28.9	29.0	7.61	7.59		94.5	94.3	3.29	3.32		3.3	4.1	
						29.0		7.57		7.57	94.0		3.35			4.9		
28/02/18	1109-1129	22/Cloudy	Middle	4.6	17.5	29.0	29.0	7.53	7.54		93.8	93.9	3.36	3.34	3.35	3.1	3.4	3.0
						29.0		7.55			94.0		3.32			3.7		
			Bottom	8.1	17.5	29.2	29.2	7.47	7.46	7.46	93.1	93.0	3.42	3.40		1.4	1.5	
						29.1		7.45			92.8		3.38			1.5		



Monitoring Station : TKO-C1

Date	Sampling	Ambient Temp (°C) / Weather	Monitorir	ng Depth	Temp	Salinit	ty (ppt)	Dissolv	ved Oxyger	ı (mg/L)		d Oxygen tion (%)	Τι	ırbidity (NT	Ū)	Susper	nded Solids	s (mg/L)
Date	Duration	Condition	(n	ר)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	15.2	29.3 29.2	29.3	7.93 7.89	7.91		94.5 93.9	94.2	3.24 3.29	3.27		2.9 4.5	3.7	
02/02/18	0800-0816	9/Cloudy	Middle	9.9	15.4	29.4 29.4	29.4	7.76 7.79	7.78	7.84	92.9 93.3	93.1	3.36 3.32	3.34	3.36	3.7 4.1	3.9	3.7
			Bottom	18.8	15.7	29.7	29.7	7.58	7.61	7.61	91.4	91.7	3.51	3.49		3.1	3.5	
			Surface	1.0	15.4	29.6 30.9	30.9	7.63 7.21	7.23		92.0 87.0	87.2	3.46 3.86	3.88		3.9 2.5	3.0	
05/02/18	0936-0951	7/Cloudy	Middle	10.4	15.6	30.8 31.2	31.3	7.24 7.04	7.06	7.14	87.4 85.5	85.8	3.89 3.75	3.73	3.85	3.4 3.7	5.1	3.7
05/02/18	0930-0931	7/Cloudy				31.3 31.4		7.08 6.92			86.0 84.3		3.71 3.92		3.65	6.4 2.9		5.7
			Bottom	19.8	15.7	31.3	31.4	6.95	6.94	6.94	84.7	84.5	3.96	3.94		3.3	3.1	
			Surface	1.0	15.4	30.3 30.2	30.3	7.87 7.82	7.85	7.76	94.7 94.1	94.4	3.08 3.13	3.11		2.5 1.1	1.8	
07/02/18	1100-1122	15/Cloudy	Middle	9.9	15.6	30.6 30.6	30.6	7.66 7.69	7.68		92.7 93.1	92.9	3.21 3.16	3.19	3.21	3.4 5.0	4.2	2.8
			Bottom	18.7	15.9	30.9 31.0	31.0	7.49 7.53	7.51	7.51	91.5 91.9	91.7	3.35 3.32	3.34		2.2 2.4	2.3	
			Surface	1.0	15.5	31.0 31.1	31.1	7.24	7.22		87.7 87.2	87.5	3.13 3.16	3.15		2.1 2.4	2.3	
09/02/18	1230-1245	15/Cloudy	Middle	10.3	15.6	31.2	31.2	7.09	7.08	7.15	86.1	86.0	3.24	3.22	3.23	3.1	3.1	2.4
			Bottom	19.6	15.6	31.2 31.2	31.3	7.07 6.96	6.94	6.94	85.8 84.5	84.3	3.20 3.30	3.33		3.1 1.5	1.9	
						31.3 30.0		6.92 7.58		0.04	84.0 94.7		3.36 3.06			2.2 2.3		
			Surface	1.0	16.5	30.0	30.0	7.63 7.81	7.61	7.74	95.3 97.6	95.0	3.10 3.15	3.08		2.9 4.2	2.6	
12/02/18	1503-1519	16/Cloudy	Middle	9.9	16.7	30.1 30.3	30.2	7.94	7.88		99.2	98.4	3.12	3.14	3.03	2.3	3.3	3.2
			Bottom	18.7	16.9	30.4 30.5	30.5	8.03 7.92	7.98	7.98	100.3 99.0	99.7	2.87 2.90	2.89		2.6 4.7	3.7	
			Surface	1.0	16.6	31.7 31.8	31.8	7.38 7.34	7.36		91.7 91.2	91.5	2.92 2.96	2.94		3.2 2.7	3.0	
14/02/18	1626-1640	17/Cloudy	Middle	10.4	16.3	31.9 32.0	32.0	7.27	7.28	7.32	89.9 90.2	90.1	2.82 2.86	2.84	2.94	2.0 2.6	2.3	2.8
			Bottom	19.8	16.2	32.1	32.2	7.08	7.07	7.07	87.5	87.3	3.02	3.04		2.8	3.0	
						32.2		7.05			87.1		3.06			3.2		



Monitoring Station : TKO-C1

Date	Sampling	Ambient Temp	Monitorir	ng Depth	Temp	Salini	ty (ppt)	Dissolv	ed Oxyger	n (mg/L)		d Oxygen tion (%)	Τι	urbidity (NT	U)	Susper	nded Solids	s (mg/L)
Date	Duration	(°C) / Weather Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	17.5	30.2	30.3	7.71	7.78		96.7	97.6	3.26	3.28		1.7	2.5	
			Ganade	1.0	17.0	30.3	00.0	7.84	1.10	7.69	98.4	57.0	3.29	0.20		3.3	2.0	
21/02/18	0930-0946	18/Cloudy	Middle	10.0	17.8	30.5	30.6	7.56	7.60	1.00	95.6	96.1	3.40	3.42	3.40	1.9	1.8	2.0
21/02/10	0000 0040	10,010000	Wildule	10.0	17.0	30.6	00.0	7.63	7.00		96.5	50.1	3.43	0.42	0.40	1.7	1.0	2.0
			Bottom	18.9	17.9	30.8	30.8	7.55	7.49	7.49	95.7	95.0	3.51	3.52		1.5	1.7	
			Dottoin	10.5	17.5	30.8	00.0	7.43	7.40	7.40	94.2	00.0	3.52	0.02		1.8	1.7	
			Surface	1.0	17.3	30.1	30.2	7.63	7.68		95.3	95.9	3.09	3.10		3.5	3.4	
			Canado			30.2	00.2	7.72		7.75	96.4	00.0	3.10	0110		3.2	0.1	
23/02/18	1054-1111	17/Cloudy	Middle	9.8	17.5	30.3	30.3	7.89	7.83	1.10	99.0	98.2	3.17	3.20	3.22	3.2	3.8	3.3
		,				30.3		7.76			97.4		3.23		•	4.3		
			Bottom	18.6	17.7	30.4	30.5	7.98	8.01	8.01	100.6	101.0	3.36	3.37		2.0	2.9	
						30.5		8.04			101.4		3.38			3.7		
			Surface	1.0	17.6	30.8	30.8	7.23	7.25		91.1	91.3	2.78	2.77		2.0	2.0	
						30.8		7.26		7.19	91.5		2.75			1.9		
26/02/18	1400-1415	18/Cloudy	Middle	10.2	17.6	31.2	31.3	7.12	7.14	_	90.0	90.3	3.04	3.06	2.98	2.3	2.2	2.6
		,				31.3		7.16			90.5		3.08			2.0		
			Bottom	19.4	17.7	31.4	31.5	6.90	6.92	6.92	87.4	87.7	3.08	3.11		3.3	3.8	
						31.5		6.94			88.0		3.14			4.3		
			Surface	1.0	17.6	29.1	29.1	7.67	7.66		95.8	95.6	3.21	3.24		4.0	5.1	
						29.1		7.64		7.55	95.4		3.27			6.2		
28/02/18	1613-1634	24/Cloudy	Middle	9.7	17.9	29.3	29.3	7.48	7.45		94.0	93.6	3.39	3.38	3.39	6.6	6.5	5.7
						29.3		7.42			93.2		3.36			6.3		
			Bottom	18.4	18.0	29.8	29.8	7.22	7.24	7.24	91.1	91.4	3.54	3.57		6.0	5.5	
				-		29.7		7.26			91.7	-	3.59			4.9		



Monitoring Station : TKO-M4

Duration Condition (III) (C) Value Average Value<	Date	Sampling	Ambient Temp (°C) / Weather	Monitorin	0 1	Temp	Salinit	ty (ppt)	Dissolv	ved Oxyger	ı (mg/L)		d Oxygen tion (%)	Τι	urbidity (NT	Ū)	Susper	nded Solids	s (mg/L)
$ \left[02/02/18 \right] \\ 02/02/18 \\ 0822\cdot084 \\ 9/Cloudy \\ 9/Cloudy \\ 9/Cloudy \\ 9/Cloudy \\ 0822\cdot084 \\ 9/Cloudy \\ 0822 \\ 0822 \\ 0822 \\ 0822 \\ 0822 \\ 0822 \\ 0822 \\ 0822 \\ 0822 \\ 0822 \\ 0822 \\ 0822 \\ 082 \\ $	Duic	Duration	· /	(m	n)	(°C)	Value	Average	Value	Average		Value	Average	Value	Average		Value	Average	Depth- average
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Surface	1.0	15.3	29.2	29.2	7.87	7 85		93.9	93.7		3 20		-	26	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Oundoo	1.0	10.0		20.2		1.00	7.81		00.1		0.20			2.0	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	02/02/18	0822-0841	9/Cloudy	Middle	4.7	15.3		29.3		7.77	-		92.8		3.25	3.25		2.8	3.0
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$																			
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Bottom	8.3	15.4		29.3		7.71	7.71		92.3		3.32			3.8	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Curtons	1.0		31.0	24.0		7.07		89.4	00.0		2.22			2.0	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Surface	1.0	15.5	31.0	31.0	7.35	1.31	7.26	88.9	89.2	3.30	3.32		3.6	3.8	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	05/02/18	1005-1020	7/Cloudy	Middle	4.0	15 7	31.3	31 /	7.15	7 16	7.20	87.0	87.2	3.57	3 5 8	3 5 2	3.7	33	3.5
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	03/02/10	1003-1020	77Cloudy	Initudie	4.9	15.7	31.4	51.4	7.17	7.10		87.3	07.2	3.59	5.50	5.52	2.8	5.5	5.5
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Bottom	8.8	15.7	31.4	31.4	7.02	7 04	7 04		85.9	3.66	3 65		3.4	3.5	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Bottom	0.0	10.1	-	0		1.01	1.01		00.0	3.63	0.00			0.0	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Surface	1.0	15.3		30.2		7.81			93.7		3.13			3.1	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$											7.77						-		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	07/02/18	1132-1151	15/Cloudy	Middle	4.8	15.3		30.3		7.74			93.0		3.16	3.16		2.6	2.6
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$									-					-					
Surface 1.0 15.6 31.1 7.35 7.33 89.3 89.0 2.82 2.84 1.7 1.3				Bottom	8.5	15.5		30.5		7.65	7.65		92.3		3.20			2.1	
Surface 1.0 15.6 31.0 7.31 7.33 88.7 89.0 2.86 2.84 0.8									-					-					
				Surface	1.0	15.6		31.1		7.33			89.0		2.84			1.3	
	00/00/40	1000 1015			1.0	45.7	31.3	04.0	7.10	7.40	7.23	86.4	00.7	2.99	0.07		1.7	4.0	4.0
09/02/18 1300-1315 15/Cloudy Middle 4.9 15.7 31.3 31.3 7.14 7.12 87.0 86.7 2.95 2.97 2.98 1.5 1.6	09/02/18	1300-1315	15/Cloudy	Middle	4.9	15.7	31.3	31.3	7.14	7.12		87.0	86.7	2.95	2.97	2.98	1.5	1.6	1.6
Bottom 8.8 15.7 31.3 31.3 6.91 6.90 6.90 84.1 83.9 3.12 3.14 0.7 1.9				Pottom	0 0	15 7	31.3	21.2	6.91	6.00	6.00	84.1	02.0	3.12	2.14		0.7	1.0	
31.2 6.88 83.7 3.16 3.0				Bollom	0.0	15.7	31.2	31.3		0.90	0.90	83.7	03.9		5.14		3.0	1.9	
Surface 1.0 16.4 30.2 30.3 7.36 7.40 91.9 92.4 3.15 3.16 3.2 3.6				Surface	1.0	16.4	30.2	30.3	7.36	7.40		91.9	92.4		3.16		3.2	3.6	
30.3 7.44 7.57 92.8 3.17 3.9											7.57								
12/02/18 1529-1547 16/Cloudy Middle 4.8 16.5 30.4 30.5 7.67 7.73 95.8 96.6 3.04 3.06 3.11 3.2 2.9	12/02/18	1529-1547	16/Cloudy	Middle	4.8	16.5		30.5		7.73	-		96.6		3.06	3.11		2.9	3.1
12/02/10 10/010000 10/010000 10/010000 10/010000 10/010000 10/01000 10/010000 10/01000 10/010000 10/010000 10/010000 10/010000 10/010000 10/010000 10/010000 10/010000 10/010000 10/010000 10/010000 10/010000 10/0100000 10/0100000 10/010000 10/0100000 10/010000 10/01000000 10/01000000 10/0100000000									-								-		
Bottom 8.6 16.5 30.7 7.86 7.90 7.90 98.2 98.7 3.07 3.10 3.5 3.0				Bottom	8.6	16.5		30.7		7.90	7.90		98.7		3.10			3.0	
Dottom O.0 10.0 30.7 7.93 7.00 99.1 30.7 3.12 0.10 2.4																			
Surface 1.0 16.6 31.8 7.45 7.46 92.6 92.8 2.43 2.42 2.3 2.1				Surface	1.0	16.6		31.8		7.46			92.8		2.42			2.1	
											7.32			-		1	-		
14/02/18 1653-1708 17/Cloudy Middle 4.9 16.4 32.1 7.15 7.17 89.0 2.27 2.30 2.39 2.4	14/02/18	1653-1708	17/Cloudy	Middle	4.9	16.4		32.1		7.17			89.0		2.30	2.39		2.9	2.4
				Detter	0.0	40.0		00.4		744	7.4.4				0.47	1			
Bottom 8.8 16.2 32.1 7.14 7.14 7.14 88.3 2.45 2.47 2.3				Bottom	8.8	16.2	32.1	32.1	7.16	7.14	7.14	88.5	88.3	2.45	2.47		1.6	2.3	



Monitoring Station : TKO-M4

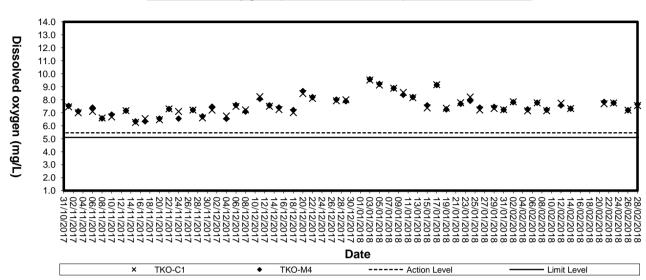
Date	Sampling	Ambient Temp (°C) / Weather	Monitorir	ng Depth	Temp	Salinit	y (ppt)	Dissolv	ed Oxyger	n (mg/L)		d Oxygen tion (%)	Τι	urbidity (NT	Ū)	Susper	nded Solids	s (mg/L)
Duio	Duration	Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	17.4	30.1	30.1	7.87	7.89		98.4	98.7	3.33	3.35		3.4	3.9	
						30.1		7.91		7.84	98.9		3.37		-	4.3		
21/02/18	0957-1016	18/Cloudy	Middle	4.9	17.6	30.2	30.3	7.75	7.79	-	97.4	97.8	3.47	3.49	3.36	1.8	1.3	2.3
		,		-	-	30.3		7.82	_		98.2		3.50			0.7		-
			Bottom	8.8	17.8	30.4	30.5	7.58	7.61	7.61	95.7	96.1	3.21	3.24		1.8	1.9	
						30.5		7.64		-	96.5		3.26	_		2.0		
			Surface	1.0	17.3	30.0	30.0	7.79	7.84		97.1	97.7	3.16	3.15		3.1	2.1	
						30.0		7.88	_	7.76	98.3	_	3.13		-	1.0		
23/02/18	1123-1142	17/Cloudy	Middle	4.8	17.4	30.1	30.2	7.64	7.68	-	95.6	96.1	3.07	3.09	3.17	2.2	2.0	2.0
	-	,				30.2		7.72			96.6		3.10			1.8		
			Bottom	8.5	17.5	30.3	30.4	7.95	7.92	7.92	99.8	99.4	3.26	3.27		1.1	1.8	
					_	30.4		7.89	_	-	99.0		3.28	_		2.5		
			Surface	1.0	17.5	30.9	31.0	7.34	7.32		92.4	92.2	2.43	2.45		3.6	3.0	
						31.0		7.30		7.19	91.9	_	2.47			2.3		
26/02/18	1430-1444	18/Cloudy	Middle	4.9	17.6	31.3	31.3	7.08	7.07		89.5	89.3	2.82	2.84	2.72	2.2	1.7	2.2
		,				31.2		7.05			89.1		2.86	_	-	1.1		
			Bottom	8.8	17.6	31.3	31.4	7.13	7.11	7.11	90.1	89.9	2.88	2.87		1.1	2.1	
						31.4		7.09			89.6		2.85			3.0		
			Surface	1.0	17.5	28.9	28.9	7.74	7.72		96.3	96.0	3.26	3.24		3.6	4.2	
						28.9		7.69		7.65	95.7		3.21			4.7		
28/02/18	1641-1658	24/Cloudy	Middle	4.8	17.6	29.0	29.0	7.56	7.58		94.3	94.5	3.24	3.26	3.27	1.9	2.0	2.9
						28.9		7.59			94.6	••	3.28			2.0		
			Bottom	8.5	17.6	29.1	29.1	7.64	7.65	7.65	95.4	95.5	3.31	3.30		2.8	2.7	
			20110111	0.0		29.1	_0	7.66			95.6	00.0	3.29	0.00		2.6		



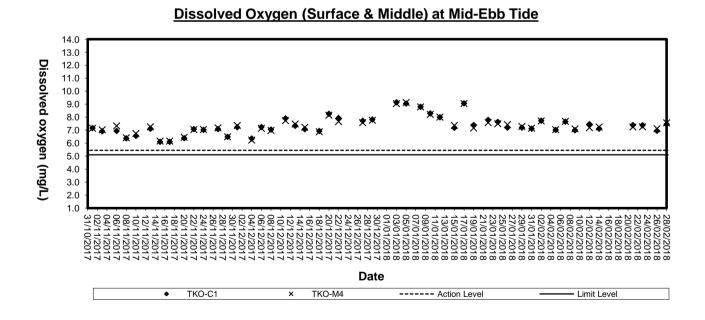
Appendix D3

Graphical Plots of Impact Marine Water Quality Monitoring Data

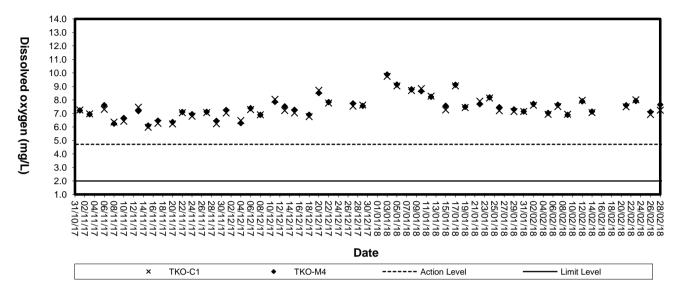




Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide

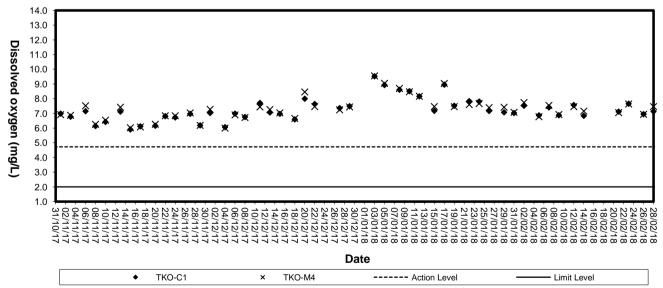




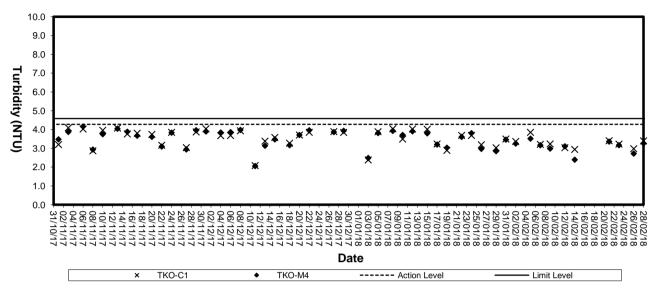


Dissolved Oxygen (Bottom) at Mid-Flood Tide

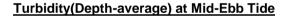


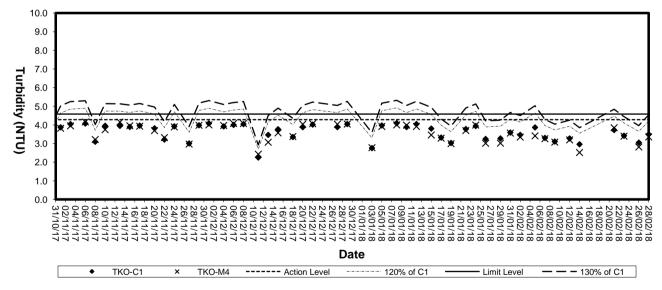






Turbidity (Depth-average) at Mid-Flood Tide







۰

228/02/18 226/02/18 224/02/18 222/02/18 222/02/18 222/02/18 222/02/18 16/02/18 16/02/18 122/02/18 112/02/18 112/02/18 112/02/18 112/02/18 106/02/18 006/02/18 006/02/18 006/02/18

— — — 130% of C1

21/01/18 19/01/18 17/01/18

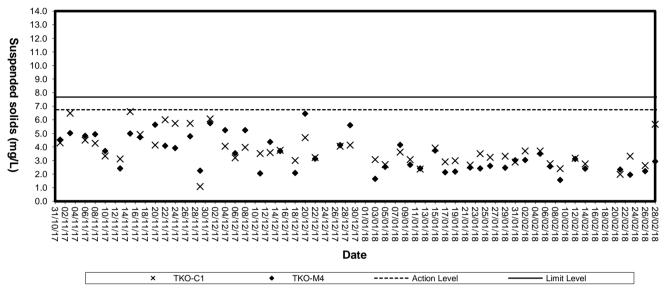
15/01/18 13/01/18 1/01/18

— · — · 120% of C1

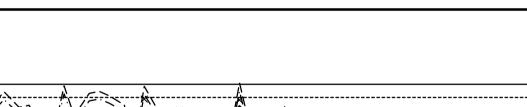
29/01/18 27/01/18 25/01/18 23/01/18

- Limit Level

\$



Suspended solids (Depth-average) at Mid-Flood Tide



TKO-M4

×

TKO-C1

13.0 12.0 11.0

10.0 9.0 8.0 7.0 6.0 5.0 4.0 3.0

2.0

1.0 0.0

Suspended solids (mg/L)

Suspended Solids (Depth-average) at Mid-Ebb Tide

Date

----- Action Level



Appendix E

Weather Condition

	Mean			,	Mean	Mean	Total	Prevailing	Mean
Day	Pressure (hPa)		Air Temperat		Dew Point	Relative Humidity	Rainfall (mm)	Wind Direction	Wind Speed
		Absolute Daily Max (deg. C)	Mean (deg.C)	Absolute Daily Min (deg. C)	(deg. C)	(%)		(degrees)	(km/h)
1	***	12.3#	9.8#	5.2#	4.0#	68#	0	60	6.4
2	* * *	11.9	10.4	8.6	4.6	67	0	60	7.1
3	* * *	11.5	9.7	7.9	1.6	57	0	50	7.2
4	* * *	10.3#	8.8#	8.2#	0.9#	58#	0	50	8.4
5	***	12.1#	9.0#	7.5#	-0.2#	53#	0	330#	6.2#
6	* * *	14.8	10.1	5.9	1.2	55	0	30	6.8
7	* * *	16.2	11.8	8.8	4.2	61	0	60	5
8	* * *	17.2	13.1	9.3	6.4	64	0	50	5.6
9	* * *	16.4	14.7	12.9	10.8	78	0	10	4.7
10	* * *	22.6	17	14.5	13.6	81	0	70	3.8
11	* * *	19.9	15.4	13	8.4	64	0	20	7.8
12	* * *	20.0#	13.4	9.6#	6.2	63	0	60	5.3
13	* * *	18.1#	13.3	9.5#	7.5	70	0	20	6.3
14	* * *	18.3	15.4	11.6	8.2	63	0	330	3.8
15	* * *	24.7	18.4	14.5	15	81	0	350	3
16	* * *	25.9	19.2	14.8	16	83	0	180#	2.4
17	* * *	17.7	16.5	15.6	14.9	91	0.5	360	7.2
18	***	19.1	17.1	15.6	14.4	84	0	360	4.5
19	* * *	22.9	20	17.2	17.7	87	0	340	2.5
20	* * *	24.8	19.3	17.4	17.9	92	0	360	4.3
21	* * *	18.2	17.1	15.3	15.1	88	1	10	5.3
22	* * *	15.6	13.9	12	12.7	92	3	60	5.5
23	* * *	16.2	14	11.8	11.9	88	2	10	4.8
24	* * *	19.9	17.1	14.3	13.5	80	0.5	70	3.5
25	* * *	26	20	17.1	16.5	81	0	60	5
26	* * *	17.7	16.1	15.1	13.9	87	1	10	5.7
27	* * *	23.1	18.2	14.1	13	73	0	70	5
28	* * *	25.4	20.3	17.3	17.4	84	0	170	2.6

Daily Extract of Meteorological Observations , February 2018 - Tseung Kwan O

*** unavailable

data incomplete

Rainfall measured in increment of 0.5 mm. Amount of < 0.5 mm cannot be detected



Appendix F

Event-Action Plans

5. Assess the effectiveness of 5. Supervise implementation of remedial
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東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.

ACTION ET Leader ACTION ER Contractor 2. Exceedance 1. Identify source, Investigata the causes of exceedance and propose namedial extreme 1. Discuss amongst ER, ET and Contractor on of exceedance and propose namedial of exceedance and propose namedial of exceedance and propose namedial of exceedance and propose namedial of exceedance and propose namedial exercise 1. Confirm receipt of notification of fabre in writing avoid furthe exceedences working procedance and propose namedial exercise 2. Reve Contractor on frations 1. Take immediate action to evoid furthe exceedences and the Exceedence inding 3. Notify Contractor working grooted in properation inding 3. Notify Contractor or consultance in properation inding 3. Notify Contractor inding 3. Notify Contractor inding 3. Notify Contractor inding 6. Arrange meeting with ICE] and ER to consister while procedance to indice with procedance to intractor to the consister what portion of the exceedances confinues. 3. Supervise the remedial mations in ICE] and ER to implemented 4. Exam remedial mations in ICE] and ER to implemented 5. Supp the relevant activity of working procedances in frat portion of the exceedance is absted 7. Assess effectiveness of Contractor's ended 7. Assess effectiveness of Contractor's intermedial actions is absted 5. Sitp the relevant activity of working proceedance is absted 8. Ferromations intermedial actions stops, coase additional multifiergi 7. Assess effectiveness of the relevant interemedial actions is absted 5. Sitp the r	EVENT				EVENTIACTION PLAN FOR AIR QUALITY EXCEEDANCE	Ę	Y EXCEEDANCE			
ET Leader IC(E) ER 1. Identify source, inwestigate the causes of exceedance and propose namedial de exceedance and propose namedial de exceedance and propose namedial measures 1. Discuss amongst ER, ET and Contractor on of exceedance and propose namedial measures 1. Discuss amongst ER, ET and Contractor on of exceedance and propose namedial measures 1. Discuss amongst ER, ET and Contractor on of exceedance and propose namedial measures 1. Discuss amongst ER, ET and Contractor on of exceedance and propose namedial measures 1. Discuss amongst ER, ET and Contractor on of exceedance and propose namedial measures 1. Discuss amongst ER, ET and Contractor on of failure in writing 2. Notity Contractor 2. 3. Respect measurement to confirm finding 3. In consultation with the IC(E), and failure in writing 3. 4. 4. 4. Increase monitoring frequency to daity finding 5. Cerry out aneities of monitors frequency to daity fremedia actions to be file 3. 6. 4. 6. Arrange meeting with IC(E) and ER to focuss the remedial actions to be file 6. 6. 6. 6. 6. 6. 6. 7. Assess effectiveness of Contractor's file 1. 6. 6. 6. 6. 6. 6. 6. Arrange meeting with IC(E), EPD and ER informed of the resuits monithoring 6. 6.	_				ACTION					-
1. Identify source, Investigate the causes of accordance and propose nemediat the causes of accordance and propose nemediat the contractor on the accordance and propose nemediations of accordance and propose nemediations. 1. Discuss amongst ER, ET and Contractor on the mediations of accordance and propose nemediations the potential nemediations of accordance and propose nemediations. 1. Confirm receipt of notification the mediations of failure in writing the potentiation writing accordance and propose nemediations of tailure in writing. 1. Discuss amongst ER, ET and Contractor on the potentiation with the IC(E). ER, EPD and Contractor on finding the potenting frequency to dality IC(E). ER, EPD and Contractor and finding the potentiation of tailors to the potentiation with IC(E) and ER to consult the mediation with IC(E) and ER to consult the potentiation of the potential measures to be to an active the implemented field the results. 1. Configure the implemented field to the potentiation with the Contractor on the potentiation of the potentiation of the potential measures to be to the potentiation of the potention of the potentiation of the potention of the potentiation of the potention of the potention of the potenting the potention of the potentiation of the po				ET Leader	1C(E)		ER		Contractor	-
o or of exceedance and propose numedial measures the potential remedial actions measures 2. Nolify C(E), ER, EPD and Contractor measures 2. Nolify C(E), ER 2. Nolify C(E), ER 2. 6. Inding 3. Supervise the implemented measures 3. 1.	2. Exceedan	8	÷.	dentify source, investigate the causes	1. Discuss amongst ER, ET and Contractor on	÷	Confirm receipt of notification	÷	Take immediate action to	-
measures 2. Nolify IC(E), ER, EPD and Contractor 2. Review Contractor 2. Nolify C(E), ER, EPD and Contractor 2. Nolify IC(E), EPD and Contractor 2. Nolify IC(E), EPD and Contractor 2. Nolify IC(E), EPD and ER 2. Nolify IC(E), EPD and Contractor 2. Nolify IC(E), EPD and ER 3. 3. Nonsultation with the IC(E), and ER 3. 3. 3. 3. Nonsultation with the IC(E), and ER 3.<	for two or		0	if exceedance and propose remedial	the potential nemedial actions		of failure in writing		avoid further exceedances	
Bits 2. Notify IC(E), ER, EPD and Contractor finding 3. In consultation with the IC(E), finding 1. In consultation with the IC(E), finding 3. Supervise the implemented implemented 3. In consultation with the IC(E), finding 3. In consultation of the remedial measures finding 3. In consultation of the remedial measures finding 3. In consultation of the remedial measures finding 4. Increase confinues, finding 4. Increase confinues, finding 5. In consultation of the remedial measures finding 4. Increase confinues, finding 5. In consultation of the remedial measures to be finding 5.	more		E	nedsurbs	Review Contractor's remedial actions	esi	Notify Contractor	e i	Submit proposals for remedial	70
 Repet mesurement to confirm finding Repet mesurement to confirm Repet mesurement to confirm Increase monitoring frequency to daily for transfer monitoring frequency to daily Carry out analysis of contractor's working procedures to determine possible mitigation to be implemented Arrange meeting with IC(E) and ER to discuss the remedial actions to be discuss the remedial actions to be taken Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken Research of the remedial actions to be taken Research of the remedial actions of the results Research of the research of	consecutiv		~	totily IC(E), ER, EPD and Contractor	Whenever necessary to assure their	eż	In consultation with the IC(E),		actions to IC(E) within 3	-
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possible mitigation to be implemented Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken Assess effectiveness of Contractor's Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results if exceedance stops, cease additional monitoring			*	vorking procedures to determine			are property implemented		problem still not under control	-
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discuss the remedial actions to be taken work is responsible and taken taken and taken and taken and taken and keep IC(E), EPD and ER informed of the results and taken actions and keep IC(E), EPD and ER informed of the results and taken actions actions and taken actions actions and taken actions actio		0		vrange meeting with IC(E) and ER to			consider what portion of the	_	works as determined by the	-
taken instruct the Contractor to step transformedial actions and keep (C(E), EPD ended actions and keep (C(E), EPD end ER informed of the results if exceedance stops, cease additional monitoring			9	liscuss the remedial actions to be			work is responsible and		ER until the exceedance is	-
Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results if exceedance stops, cease additional monitoring			3	ektern			instruct the Contractor to stop		abated	-
remedial actions and keep IC(E), EPD - and ER informed of the results if exceedance stops, cease additional monitoring		-		kases effectiveness of Contractor's			that portion of work until the			-
and ER informed of the stops, the monitoring of the stops, the stops of the stops of the stops of the stop of the			2	emedial actions and keep IC(E), EPD			exceedance is abaled			
lif exceedance stops, monitoring			40	and ER informed of the results						-
monitoring		10								_
		_	E	nonttoring						7

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EVENT									_
				ACTION	NO				
		ET Leader		IC(E)	L	ER		Contractor	- 7
Level	ಗಳ ಸ್	Notify the IC(E) and the Contractor. Carry out investigation. Report the results of investigation to the IC(E) and the Contractor and Discuss with the Contractor and formulate remedial measures. Increase monitoring frequency to check miligation effectiveness	r' 61 61	Review the amalysed results submitted by the ET. Review the proposed remedial measures by the Contractor and advise the ER accordingly. Supervise the implementation of remedial measures.	ને લોલે 4	Confirm receipt of notification of failure in writing. Notify the Contractor to propose Require the Contractor to propose remedial measures for the snetysed noise problem. Ensure remedial measures are property implemented.	, v	Submit noise miligation proposals to IC(E). Implement noise miligation proposals.	
, Lmit	÷		÷	Discuss amongst the ER, the ET	÷	Confirm receipt of notification of follows in unified	÷.	Take immediate action to avoid futbar avcandance	
n and	~	and the Contractor.		Leader and the Contractor on the rotantial tempetial sections.	e	Notify the Contractor.	2		_
	ici		N	Review the Contractor's remedial	ાં ભ	Require the Contractor to propose	i		
		-		actions whenever necessary to		remedial measures for the		working days of notification.	
	÷.			assure their effectiveness and		analysed noise problem.	ri.	Implement the agreed	
	ń	working procedures to determine	e	summente the inclementation of	ŕ	property implemented.	4	Resubmit proposals if problem	
		possible miligation to be	;	remedial measures.	ьć	If ecceedances continue, consider		still not under control.	
						what activity of the work is	က်	Stop the relevant activity of	-
	ó	EDD eta restata & actions taken for				Destructure allo rearrow une Contractor to store that activity of		worke as determined by all Cry	
		the exceedances.				work until the exceedances is		abated.	_
	r,					abshed.			
		Contractor's remedial actions and							
		keep the IC(E), the EPD and the							-
	œ	EK informed of the results If avoandance due to the							
	ś				_				_
		additional monitoring							

EVENT AND ACTION PLAN FOR WATER QUALITY EXCEEDANCE	ER		 Nolify EPD and other relevant 1. 0 	of governmental agencies in writing			2. Discuss with IEC, ET and	8	days of mitigation measures; Contractor on the mitigation	Require contractor to propose	Ń	king analysed problem if related to the mitigation measures	construction works	 Ensure remodial measures are ensure their effectiveness 		5. Assess the effectiveness of the	mitigation measure 5. 8		aton of measures .		tigation	ble time			
AND ACTION PLAN	Contractor	1		within 24 hours of identification of	exceedance				and ER within 3 working days of	the identification of an	encedance	Consider changes of working	method if exceedance is due to	the construction works	Discuss with ET, IEC and ER and	propose mitigation measures to	IEC and ER if exceedance	to the construction works within 4	working days of identification of	an exceedance	 Implement the sgreed mitigation 	measures within reasonable time	scale		
ENT			γ ²			-	ei		تريد			ó	8	8	¢		2		ş		<u>کر</u> 14		1ay		
EV	RT Laster		Identify source(s) of impact;	Repeat in-situ measurement to	confirm findings:			exceedance			working methods:			to the Contractor within 3 working	days of identification of	exceedance and advise	contractor if exceedance is due to	contractor's construction works	 Discuss miligation measures with 	Contractor if exceedance is due	to the construction works within 4	working days	 Repeat measurement on next day 	of exceedance if ecceedance is	due to the construction works
		4		e i		ei			4			uş	യ		_				1-				ග්		
Event			Action level	being exceeded	by one	sampling day																			

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ActToN ActToN fimpact, surrement 1. Notify IEC and ER in writing surrement 1. Notify IEC and ER in writing writing writing at hours of dentification of exceedance 1. Notify IEC and Other relevant 1. surrement aurement 1. Notify IEC and ER in writing dentification of exceedance 1. Notify IEC and CR 2. writing 3. Check all plant and dentification of exceedance 1. Notify IEC and ER 3. an dentification of exceedance 2. Discuss with IEC, ET and methods; 3. 3. an methods; 5. Submit the results of the equine contractor on the proposed miligation measures; 3. 4. for Contractor 8. 3. 3. op openities contractor on the proposed miligation measures; 3. 4. for Contractor 4. Ensure remedial measures for the measures to iEC and ER 4. for 10 methods; 6. Discuss with ET, IEC and ER 5. for 10 10 10 10 10 10 5. for 10 10 10 10 10 10 5.	Event				EVENT AND ACTION PLAN FOR WATER QUALITY	5	DR WATER QUALITY	
ET Leader Contractor ER Ieweil 1. Identify seurice(s) of impact. Notify ED and other relevant 1. ded by 2. Repeat in-glu measurement within 24 hours of the identification of exceedance Notify ED and other relevant 1. ded by 3. Notify Contractor In writing 2. Rectify unacceptable practice, worth 24 hours of the identification of the confinance 2. data 3. Notify Contractor In writing 2. Check monitoring data, all Notify ED and other relevant 1. data 3. Notify Contractor In writing 2. Check monitoring data, all Notify ED and other relevant 2. data 3. Notify Contractor In writing 3. Check monitoring data, all Notify ED and other setwarts 3. data 3. Notify data 4. Consider data and 3. 3. Contractor working methods: 5. Carry out investigation to the Contractor if methods: 3. 3. 3. 3. 5. Carry out investigation to the Contractor within 3 working days of the investigation of an exceedance in the constructor if and advise contractor if and advise co					ACTIC	Ň		
 Identify source(s) of impact, indext indext in the second merine indext in the source of the second merine indext in the second merine indext in the second merine indext in the second merine indext indext in the second merine indext i			ET Leader		Contractor	_	ж	IEC
2. Repeat In-sllur measurement within 24 hours of the two of exceedance 2. Repeat In-sllur measurement 2. Repeat In-sllur measurement 2. Submit Table 24 hours of the two of exceedance 2. Submit Table 24 hours of the two of exceedance 2. Consider the measurement 3. Consider the two of exceedance 3. Consider the two of two of the two of two of the two of t	Action level	÷	Identify source(s) of impact;	÷	Notify IEC and ER in writing	ų.		 Check monitoring data
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3. Notify Contractor in writing writin 24 hours of montoring data, all montoring montoring data, all montoring mont	exceeded by		to confirm findings		identification of exceedance		writing within 24 hours of the	
within 24 hours of identification 3. Check all plant and identification 3. Check all plant and identification 3. Check all plant and plant equipment; 4. Consider changes of working methods; 3. Check all plant and methods; 3. Check all plant and proposed methods; 3. Check all plant and methods; 4. Consider changes of working methods; 4. Consider changes of working methods; 4. Constactor on the proposed methods; 3. Check all plant and methods; 4. Consider changes of working methods; 3. Check all plant and methods; 4. Consider changes of working methods; 4. Constactor the methods; 4. Constactor the methods; 4. Constactor the mediation of an exceedance 5. Submit the construction works 4. Construction works 5. Castor ER <	more than one	eś	Notify Contractor In writing	2	Rectify unacceptable practice;		identification of the	if exceedance is due /
 Cherkification Cherkification Check monitoring data, all plant, exuptiment and contractor's working methods; Consider changes of working plant, exuption and contractor's working methods; Consider changes of working methods; Consider changes of working methods; Submit the results of investigation to the Contractor within 3 working days of the investigation to the Contractor within 3 working days of investigation to the Contractor within 3 working days of investigation to the Contractor within 3 working days of investigation to the Contractor within 3 working days of identification of an exceedance Discuss mitigation measures identification of an exceedance Discuss mitigation measures and propose mitigation works Discuss mitigation measures in exceedance Discuss mitigation measures and secontractor works Discuss mitigation measures and propose mitigation works Discuss mitigation measures and propose mitigation measures and propose mitigation measures and propose mitigation measures and propose and propose mitigation measures and propose and avoid or an exceedance Discuss mitigation measures and propert and exceedance Discuss mitigation measures are implemented; Prepare to increase the monitoring frequency to daily to feetification of an ereceedance Discuss mitigation measures are implemented; Discuss mitigation measures are implemented; Discuss mitigation measures are implemented; Discuss mitigation measures are implemented; 	consecutive		within 24 hours of	က်	Check all plant and		exceedance	not due to the works
Check monitoring data, all 4. Consider changes of working Contractor on the proposed plant, equipment and 5. Submit the results of 7. Require contractor to proposed Contractor's working methods; 5. Submit the results of 7. Require contractor to proposed Carry out investigation 6. Consider changes of working 3. Require contractor to propose Report the results of 5. Submit the results of 3. Require contractor to propose Report the results of 6. Discuss within 3 working days of the 3. Require contractor works within 3 working days of 6. Discuss with ET, IEC and ER 4. Ensure remedial measures and advise contractor if 6. Discuss with ET, IEC and ER 4. Ensure remedial measures and advise contractor if 6. Discuss with ET, IEC and ER 4. Ensure remedial measures and advise contractor if 6. Discuss with ET, IEC and ER 5. Assess the effectiveness of works exceedance 6. Assess the effectiveness of 5. Discuss mitigation measures intentification of an 6. Assess the effectiveness of 5. Montactor's construction measures 7. Implemented 5. Montactor is due to measures 6. Assess the effectiveness of	sempling days		identification	_	equipment;	N	in the	_
plant, equipment and contractor's working methods; 5. Submit the results of the remedial measures; 3. Require contractor to propose investigation to the Contractor to remedial measures for the investigation to the Contractor if investigation to the Contractor if within 3 working days of identification of an within 3 working days of identification of an works 3. Require contractor to propose investigation works 4. Contractor if investigation to the Contractor investigation within 3 working days of identification of an works 6. Discuss with ET, IEC and ER and propose identification of an works 4. 4. Contractor if investigation measures identification of an works 6. Discuss with ET, IEC and ER are properly implemented identification of an works 7. 4. Discuss miligation works 1. Passess the effectiveness of identification of an works 5. Assess the effectiveness of the miligation measures with IEC and Contractor with an exceedance 5. Assess the effectiveness of identification of an exceedance 7. Implement an the miligation measures with IEC and Contractor with an exceedance 5.		÷	Check monitoring data, all	Ť	Consider changes of working		Contractor on the proposed	Contractor on the
Contractor's working methods: 5. Submit the results of the carry out investigation 3. Require contractor to propose investigation to the Contractor to propose investigation to the Contractor if within 3 working days of the interestingation of encellation of encelation of encellation of encellation of enc			plant, equipment and		methods;		miligation measures;	mitigation measures.
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Report the results of investigation to the Contractor within 3 working days of identification of the and advise contractor if and advise contractor if and advise contractor if and advise contractor if and propose miligation exceedance within 3 working days of the identification of an exceedance analysed problem if related to the construction works within 3 working days of dentification of exceedance 6. Discuss with ET, IEC and ER and propose miligation exceedance 4. Ensure remedial measures are properly implemented are properly implemented are properly implemented are properly implemented within EC and CR with IEC and Contractor within tecsoures the monitoring of identification of an exceedance 5. Assess the affectiveness of the miligation measures are properly implemented are		ທ່	Carry out investigation		investigation to IEC and ER		remedial measures for the	mitigation measures
Investigation to the Contractor within 3 working days of and advise contractor if and advise contractor and advise contractor and advise contractor and advise contractor and advise contractor and advise contractor and propose mitigation exceedance contractor's construction works Ensure remedial measures and advise contractor within 3 working days of contractor's construction works Ensure sures with EC and ER within 4 working days of identification of an works Ensure mitigation measures with EC and Contractor within an exceedance Finplemented, an exceedance Finplemented, fav of exceedance, Finplemented, an exceedance Finplemented, fav of exceedance, Finplemented, fav of exceedance, Finplemented, fav of exceedance,		ω	Report the results of		within 3 working days of the		analysed problem If related to	whenever necessary to
within 3 working days of identification of exceedance 6. Discuss with ET, IEC and ER and advise contractor if and propose mitigation exceedance is due to contractor's construction works 6. Discuss with ET, IEC and ER and propose mitigation messures to IEC and ER within 4 working days of identification of an works 4. Ensure remedial measures are properly implemented are properly implemented are properly implemented and propose mitigation messures to IEC and ER within 4 working days of identification of an exceedance Ensure mitigation measures with IEC and Contractor within a exceedance Ensure mitigation measures with IEC and Contractor within a exceedance Ensure mitigation measures with IEC and Contractor within a exceedance Ensure mitigation measures with IEC and Contractor vithin a exceedance Ensure mitigation measures with IEC and Contractor vithin a exceedance Ensure mitigation measures are implemented. 4. Ensure remedial measures are properly implemented for dentification of an exceedance Ensure mitigation measures with IEC and Contractor vithin a exceedance Ensure mitigation measures with IEC and Contractor vithin a exceedance Ensure mitigation measures with IEC and Contractor vithin a exceedance 5. Assess the effectiveness of the mitigation measures are implemented.			investigation to the Contractor		identification of an		the construction works	ensure their
Identification of exceedance and advise contractor if and propose mitigation and advise contractor if exceedance is due to contractor's construction works works mitigation measures to EC and ER and propose mitigation measures within EC and Contractor with IEC and Contractor with IEC and Contractor within EC and Contractor with EC and Contractor within the agreed and exceedance are implemented. Frepare to increase the monitoring frequency to daily, Repeat measurement on next day of exceedance.			within 3 working days of		exceedance	÷	Ensure remedial measures	effectiveness and advise
and advise contractor if and propose mitigation escondance is due to contractor's construction works contractor's construction works with IEC and Contractor within 4 working days of contractor within EC and Contractor within 4 working of identification of an exceedance within ET and properent on measures and advise the mitigation measures of an exceedance within the agreed and an exceedance and exceedance are implemented; Frepare to increase the monitoring frequency to daily; Repeat measurement on measures within a work and exceedance.			identification of exceedance	ø	Discuss with ET, IEC and ER		are properly implemented	the ER accordingly
exceedance is due to contractor's construction works works the mitigation measures with IEC and Contractor within the EC and Contractor within the EC and Contractor within the EC and Contractor within the mitigation measures with IEC and Contractor within the mitigation measures with IEC and Contractor within the scale Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; Repeat measurement on next			and advise contractor if		and propose mitigation	uś	Assess the effectiveness of	5. Assess the effectiveness
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works Discuss mitigation measures with IEC and Contractor within 4 working of Identification of an exceedance Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; Repeat measurement on next day of exceedance.			contractor's construction		within 4 working days of			mitigation measures.
Discuss mitigation measures with IEC and Contractor within 7. I 4 working of Identification of an exceedance Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; Repeat measurement on next day of exceedance.			works		identification of an			I
with IEC and Contractor within 7. 1 4 working of Identification of an exceedance Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; Repeat measurement on next day of exceedance.		<u>к</u>	Discuss mitigation measures		exceedance			
4 working of Identification of an exceedance Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; Repeat measurement on next day of exceedance.			with IEC and Contractor within	Þ.				
an exceedance Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily, Repeat measurement on next day of exceedance.			4 working of Identification of		mitigation measures within			
			an exceedance		reasonable time scale			
		œ	Ensure mitigation measures					
			are implemented;					
		σ	Prepare to increase the					
day of exceedance.		6						
			day of exceedance.					



Event		EVEN	E	EVENT AND ACTION PLAN FOR WATER QUALITY EXCEEDANCE	AT	ER QUALITY EXCEEDANCI	ш	
	_			ACTION	z			
		ET Leader	L	Contractor		ER		IEC
Limit level		Repeat in-situ measurement		. Notify IEC and ER in writing:	÷	_	÷	Check monitoring data
being	_	to confirm findings;		within 24 hours of the		governmental agencies in		submitted by E1
exceeded by	ŝ			identification of the	_	writing within 24 hours of	ŝ	Confirm ET assessment
one sampling	-		_	exceedance	_	identification of exceedance		If exceedance is due /
dav	5		N		ñ	Discuss with IEC, ET and		not due to the works
600		identification of the	eò	-	_	Contractor on the proposed	ei	Discuss with ET, ER and
		exceedance		equipment;		mitigation measures;		Contractor on the
	4		4	Ξ.	က်	Request Contractor to critically		-
			_	methods;		review the working methods;	×	
		Contractor's working methods:	ц	Submit the results of the	Ý	Ensure remedial measures		milligation measures
	u,		_			are properly implemented		submitted by Contractor
	i e			within 3 working days of the	цó	Assess the effectiveness of		and advise the ER
	i .			identification of an		the implemented miligation		
	_	within 3 working days of		exceedance	_	measures.	ம்	
		identification of exceedance	φ	Discuss with ET, IEC and ER				of the implemented
		and advise contractor if						mitigation measures
		exceedance is due to		measures to IEC and ER			_	
		contractor's construction	_	within 4 working days of the				
		works	-	identification of an				
	ř	Discuss mitigation measures	_	_	_			
	_	with IEC, ER and Contractor	~	Implement the agreed				
		within 4 working of		miligation measures within				
		identification of an		reasonable time scale				
	_	exceedance			_			8
	œ	Ensure mitigation measures						
	_	are implemented;			_			
	á							
		frequency to daily until no						
		exceedance of Limit Level.	-		1		Į.	



				ACTION	N			
		ET Leader	L	Contractor	L	ER		IEC
Limit Level	-	Recest in-situ measurement	÷	Notify ER and IEC in writing	÷	Notify EPD and other relevant	÷	Check monitoring data
being		to confirm findings:		within 24 hours of the		governmental agencies in		submitted by ET
avranded hv	\$	Identify source(s) of impact:	_	identification of the		writing within 24 hours of	N	Confirm ET assessment
more than one	i e		_	exceedance and		Identification of exceedance		if exceedance is due /
and the user one	5		5	Rectify unacceptable practice:	ŝ	Discuss with IEC, ET and		not due to the works
consecutive compline date		Manufication of the	i et	Check all plant and		Contractor on the proposed	ę	Discuss with ER, ET and
edan fuurfuise			i	equipment:		mitigation messures;		Contractor on the
	4	Check monitoring data, all	٩	Consider changes of working	ભં	Request Contractor to critically		miligation measures.
	-	plant accibment and		methods:		review the working methods;	ŧ	Review proposals on
		Contractor's working methods:	-00	Submit the results of the	ശ്	Ensure remedial measures		mitigation measures
	u2	Cerv out investingion		investigation to IEC and ER		are properly implemented		submitted by Contractor
	śœ	Report the results of	_	within 3 working days of the	Ť	Assess the effectiveness of		and advise the ER
	i	investination to the Contractor		identification of an		the implemented mitigation		accordingly.
		within 3 working days of		exceedance	_	measures;	ю	Assess the effectiveness
	_	identification of exceedance	чó	Discuss with ET, IEC and ER	ъ	Consider and instruct, if		of the implemented
	_	and advice contractor if		and propose mitigation		necessary, the Contractor to		mitigation measures.
		exceedance is due to		messures to IEC and ER		slow down or to stop all or part		
		contractor's construction		within 4 working days;		of the marine work until no		
		works	ώ	Implement the agreed		exceedance of Limit Level.		
	2	Discuss miligation measures		mitigetion measures within				
		with IEC, ER and Contractor,		reasonable time scale				
	ဆ်		ř	As directed by the Engineer,				
		are implemented;		to slow down or to stop all or				
	ø	Increase the monitoring		part of the marine work or				
		frequency to daily until no		construction actives.			_	
		exceedance of Limit Level for						
	_	two consecutive days.	_		_			



Appendix G

Works Programme

Three Months Rolling Programme (1-December-2017 to 28-February-2018)

Item	Description	From	То	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5	Jan-18 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
1	Section 1	1-Dec-17	28-Feb-18		
1.1	Take over existing site faiclities	11-May-17	11-May-17		
1.2	Operation of Fill Bank, surveillance system and tipping halls	1-Dec-17	28-Feb-18		
1.3	Design, provision and operation of crushing plant	1-Dec-17	28-Feb-18		
1.4	Operation of the existing dewatering plant	1-Dec-17	28-Feb-18		
1.5	Collection and delivery of Public Fill from CWPFBP and MWPFRF to TKOFB	1-Dec-17	28-Feb-18		
1.6	Design, provision and operation of the expanded de-watering plant	1-Dec-17	28-Feb-18		
1.7	Breaking up the incoming precast concrete units	1-Dec-17	28-Feb-18		
2	Section 2	1-Dec-17	28-Feb-18		
2.1	Take over existing site faiclities	11-May-17	11-May-17		
2.2	Operation of Fill Bank, surveillance system and tipping halls	1-Dec-17	28-Feb-18		
2.3	Design and construction of 750mm U-channel and catchpits	1-Dec-17	28-Feb-18		
2.4	Design, construction and operation of New Secondary Site Office for the Engineer	1-Dec-17	28-Feb-18		
2.5	Raising up and replacement of 5 nos. of weighbridges at CREO	1-Dec-17	28-Feb-18		
2.6	Breaking up the incoming precast concrete units	1-Dec-17	28-Feb-18		
2.7	Design and construction of glass cullet storage compartment at Portion B7	1-Dec-17	5-Jan-18		
3	Section 3	1-Dec-17	28-Feb-18		
3.1	Design and construction of of seawalls at Zone B (approx. 900m)	1-Dec-17	28-Feb-18		
3.2	Design and construction of of seawalls at at Zone C (approx. 2000m)	1-Dec-17	28-Feb-18		
4	Section 3A	1-Dec-17	28-Feb-18		
4.1	Design, construction and operation of new berthing facilities at Zone B	1-Dec-17	28-Feb-18		
4.2	Design, construction and operation of new navigation chaneel and turning basin inassociated with the berthing facilities at Zone B	1-Dec-17	28-Feb-18		
4.3	Design and construction of seawalls at Zone B (approx. 1500m)	1-Dec-17	28-Feb-18		
5	Section 4	1-Dec-17	28-Feb-18		
5.1	Collection and delivery of Public Fill to the Designated Reclamation Sites in the Mainland	1-Dec-17	28-Feb-18		

30 31	Feb-18 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28



Appendix H

Weekly ET's Site Inspection Record

Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank	CEDD Contract No.: CV/2015/07
Tseu	
Bur	
Kwan	
70	
Irea	
137	
Fill	
Bank	

Inspection Date

• •

7/2/18



Title	Name:	Signature:	Inspected by		Humidity	Temperature	Wind	Weather	Time
J.	Y Tan G	2	CEDD	(: High / Moderate (Loy	12°(: Calm (Light) / Breeze / Strong	: Sunny / Fine /Cloudy / Overcast / Drizzle / Rain / Storm / Hazy	
Jer 2	Zelrsler		Contractor / Sub-Contactor					zzle / Rain / Storm / Hazy	
	Mak this Was	Huk	ΕT						

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Ц П



Environmental Checklist shall be provided to prevent dust nuisance. II be maintained between the edge of the stockpiling area and the nearest ASRs at the TKO Industrial lusty material shall be stockpiled and no loading / unloading and similar activities should be allowed. 1 used to dampen materials. site shall be provided to minimize the fugitive dust emissions. ximum speed of 10 km per hour. g area used for moving materials which has the potential to create dust shall have properly fitting side potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be provided at the entrance of work site. Ishall be paved or regular watering. I be at least three times per day. nigh-pressure water jet shall be provided at the entrance of work site. amove any dusty materials from its body and wheels before leaving the fill bank. well maintained e.g. without black smoke emission.	Implementation Remark Stages* No N/A Ves No N/A V No N/A No N/A N/A No N/A No N/A No N/A
Frequent watering of work site shall be at least three times per day.	
All plant and equipment should be well maintained e.g. without black smoke emission.	
Open burning should be prohibited.	
 The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with vater or protected by other method approved by CEDD. Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vagetation values values values and values v	
planting or sealing with shot concrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD. When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.	
The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	
The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the material landing point is maintained at no more than 1m.	
Approval or exemption Non-road Mobile Machinery (NRMM) labels should be painted or securely fixed on regulated machines and non- road vehicles at a conspicuous position according to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation (APCO Cap.311).	
Noise Impact	
The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	~
construction works.	
Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials. Air compressors and hand held breakers should have noise labels	
t down between work periods or should be throttled down to a minimum.	~
Noisy equipment and mobile plant shall always be site away from NSRs.	



	A waste collection vessel shall be deployed to remove floating debris.	 A waste colle
	Existing silt curtain at the outward side of the basin near the Barging Handling Area (BHA) throughout the period shall be repair, maintain and service when there is public fill intake by barges to the Fill Bank in accordance with PS Clause 1.68. The total length of the silt curtains shall not be less than 160m, and a gap of about 80m shall be left open for access of barges. The silt curtain shall be properly maintained such that it can also serve the function of refuse containment boom to confine floating refuse.	Existing silt of and service version shall not be such that it c
	The work activities shall not cause any visible foam, oil, grease, scum, litter or other objectionable matters to be present on the water in the vicinity of the barging facilities.	The work act vicinity of the
	Barges shall not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents shall be $$ properly collected and treated before disposal.	 Barges shall not be properly collected ar
	Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.	 Adequate en
	All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during V transport.	 All vessels u transport.
	The barges shall be in right size such that adequate clearance in maintained between the vessels and the seabed at all states of the tide to versure the undue turbidity is not generated by turbulence from vessel movement or propeller wash.	 The barges s ensure the u
	Tipping halls enclosed with top and 3-side to prevent spillage of material into marine water. $\sqrt{1-1}$	 Tipping halls
√ ltem 2	Oil interceptor shall be provided at work shop.	Oil intercepto
	Oil intercept in addition of sand / silt removal facilities shall be provided at the car parking areas. $$	 Oil intercept
	Sewage from toilets shall be discharged in to a foul sewer, or chemical toilets shall be provided. The chemical toilets (if use) shall be $\sqrt{provided}$ by a licensed contractor, who will be responsible for disposal and maintenance of these facilities.	 Sewage from provided by a
	The section of construction road between wheel washing bay and the public road shall be paved with concrete, bituminous materials or $$ hardcores to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	 The section hardcores to
	A wheel washing bay shall be provided at the site exit and wash-water shall have sand and silt settled out or removed before being discharged into storm drains.	 A wheel was discharged in
	Existing and newly constructed Catchpits, sand and silt removal facilities and intercepting channels shall be maintained, and the deposited $$ silt and grit shall be removed weekly and on a need basis especially at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	 Existing and silt and grit s are functionir
	Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation vegetation vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	 Final slope s planting or se
	The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with vater or protected by other method approved by CEDD.	The tempora water or prote
	The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge. $$	 The stormwa
	A buffer distance of at least 20m shall be maintained between the boundary of the C&DMSF and the seafront. $\sqrt{1-1}$	 A buffer dista
	A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front. $$	 A buffer dista
	Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding. $$	 Unnecessary
	Manholes should be covered and sealed.	 Manholes sh
	Temporary intercepting drains should be used at the stockpiling area to divert polluted stormwater to the intercepting channels. Earth v bunds and sand bay barriers shall be used to assist the diversion of polluted stormwater to the intercepting channels.	 Temporary in bunds and sa
	The permanent drainage channels should have sediment basin, traps and baffles and maintain properly. $\sqrt{1-1}$	 The permane
	Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms. $ee \sqrt{ee}$	 Drainage sys
		Water Quality
Stages*	Environmental Checklist Yes V	
Implementation Remark	lmplam	



Environmental Checklist	Implementation Remark Stages* Yes No N/A
Landscape and Visual	
 The design of the fill bank and platform heights adopted should allow the fill bank to fit into the general topography of the surrounding land. Straight edged slopes should be avoided. 	~
 The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD. 	~
 Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green a brown) once completed. 	~
 The barging point and the C&DMSF at the fill bank shall not be in operation from 07:00 pm to 08:00 am daily to avoid potential visual impact from glare. 	~
Other Environmental Factors	
 C&D waste sorted from mixed C&D material shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal. 	~
 Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnece ssary generation of waste. 	~
 Any unused materials or those with remaining functional capacity should be recycled and stored properly. 	~
All generators, fuel and oil storage are within bundle areas.	~
Oil leakage from machinery, vehicle and plant is prevented.	V
The Environmental Permit should be displaced conspicuously on site.	~
 Good site practices should be adopted to clean the rubbish and litter on a regular basis so as to prevent the rubbish and litter from dropping into the nearby environment. 	~
To encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse generated by the workforce.	~



Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank

Summary of the Weekly Site Inspection:

]]
N		Item
The derelict oil drums without drip tray were found at Area A6 workshop.	Follow up the action to item no.1 on 31/01/2018, accumulated general refuse and mud have been cleaned in U-channel at CP5.	Details of defective works or observations
To clean the derelict oil drums properly.		Proposed Follow Up Action
180207_002	180207_001	Photo Ref.
Yes	No	Photo Ref. Further Action Follow up Required Date (Yes/No)
14/02/17	1	Follow up Date

Remark

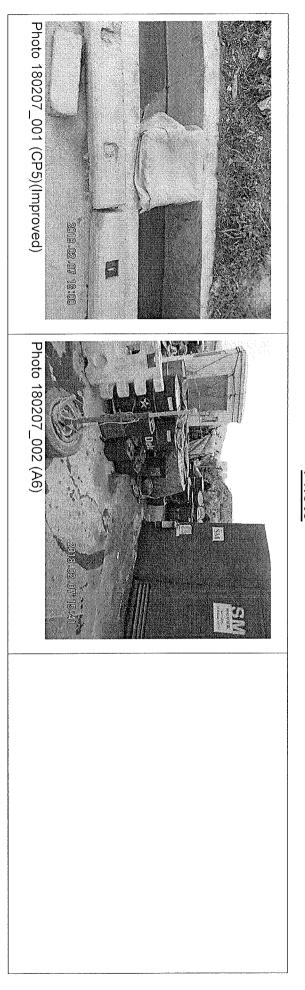
Checked by Name Frankie Tang ET Representative Title Signature Date 07 February 2018

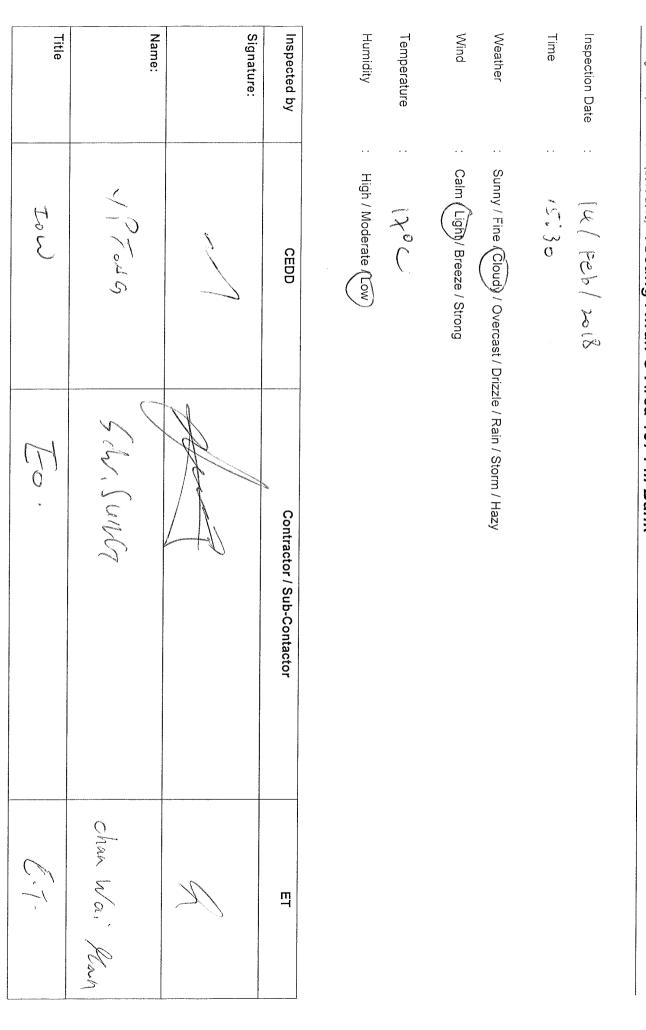
Page 5 of 6

Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank

東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.

<u>Photo</u>





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CEDD Contract No.: CV/2015/07

Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank

東莱德勤測試顧問有限公司 ETS-TESTCONSULT LTD.



 Noisy equipment and mobile plant shall always be site away from NSRs 	 Machines and plants that may be in intermittent use shou 	 Air compressors and hand held breakers should have noise labels 	 Powered mechanical equipment (PME) should be covered or shielded 	 Only well maintained plant should be operated on-site and 	 The approved method of working, equipment and sound-reducing measures adapted. 	Noise Impact	 Approval or exemption Non-road Mobile Machinery (NRI road vehicles at a conspicuous position according to the Cap.311). 	 The level of stockpiling belt conveyor shall be adjustable adjustable point is maintained at no more than 1m. 	 The belt scraper shall be equipped with bottom plates or c 	When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides	 Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by planting or sealing with shot concrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD 	 The temporary slope surfaces, especially those facing to water or protected by other method approved by CEDD. 	 Open burning should be prohibited. 	All plant and equipment should be well maintained e.g. without black smoke emission.	Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank	 Wheel washing facilities including high-pressure water jet shall be provided at the entrance 	 Frequent watering of work site shall be at least three times per day 	 The designated site main haul road shall be paved or regular watering 	 Any vehicle with open load carrying area used for moving materials which has and tail boards. Material having the potential to create dust shall not be loaded covered by a clean tarpaulin. 	 All vehicles shall be restrict to a maximum speed of 10 km per hour. 	 Regular cleaning and watering the site shall be provided to minimize 	 Water sprays shall be provided and used to dampen materials 	 A buffer zone of at least 100m shall be maintained betwee Estate. Within the buffer zone, no dusty material shall be s 	Dust control / mitigation measures shall be provided to prevent dust nuisance	Fugitive Dust Emission	
ay from NSRs.	Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	se labels.	d or shielded by appropriate acoustic materials.	Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	nd-reducing measures (e.g. use of silenced type of equipment, etc.) shall be		Approval or exemption Non-road Mobile Machinery (NRMM) labels should be painted or securely fixed on regulated machines and non- road vehicles at a conspicuous position according to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation (APCO Cap.311).	The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the material landing point is maintained at no more than 1m.	The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	conveyors shall be enclosed on top and 2 sides.	Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shot concrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with thod approved by CEDD.		hout black smoke emission.	als from its body and wheels before leaving the fill bank.	shall be provided at the entrance of work site.	s per day.	lar watering.	Any vehicle with open load carrying area used for moving materials which has the potential to create dust shall have properly fitting side and tail boards. Material having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin.	per hour.	o minimize the fugitive dust emissions.	rials.	A buffer zone of at least 100m shall be maintained between the edge of the stockpiling area and the nearest ASRs at the TKO Industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading / unloading and similar activities should be allowed.	vent dust nuisance.		
~	. ~	~ ~	. <	~	ve V	-		<u>ā</u>	. <	. <		. <	<	2	~	~	<	<	0 0	<	~	~		~		Yes No N/A



Checklist Type flooding and overflow, especially after rain storms. and baffles and maintain properly. and baffles and the seaffort. and be avoided to prevent mosquito breeding. and baffles and the seaffort. and baffles and the seaffort. and baffles and the seaffort. and the seaffort. and baffles and the seaffort. and the seaffort. and baffles and the seaffort. and baffles and the seaffort. and the capused with impermeable sheet or sprayed with shall be treated by compaction, followed by hydroseeding, vegetation it it bas and intercepting channels shall be maintained, and the deposited at the onset or and after each rainstorm to ensure that these facilities and intercepting public road drains. and the deposited at the seaffort. and baffles and the seaffort. and the seaffle at the seaffle at the seaffle at the onset of and after each rainstorm to ensure that these facilities are the anster shall have sand and slit settled out or removed before being at the car parking areas. and the car parking areas. at the car parking areas.			<	A waste collection vessel shall be deployed to remove floating debris.	-	
Environmental Checklist Grange system should be adequate and well maintained to prevent hooding and overflow, especially after rain storms. The permanent drainage channels should be used at the stockpiling area to driver polluted astormwater to the intercepting channels. Earth burds and surface are prepared and seaded. Uncreases any well related in covered and seaded. Uncreases any well related in covered and seaded. Intercepting channels, should be used at the stockpiling area to driver polluted astormwater to the intercepting channels. Earth burds and surface of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front. A buffer distance of at least 200m shall be maintained between the boundary of the covered with impermable bateries especially tools frain the seaffort. The stormwater intercepting system shall be effective to collect of runoff and tence suspended solds before discharge. The temporary store surfaces, sepecially those facing to the north of the sits shall be covered with impermable baterie of sprayed with water or protected by other method approved by CCEDD. Final store surfaces with shotchorcectie, latex, viryl, blumen, or other suitable surface stallager approved by CCEDD. Final store surface of a least 200m shall be provided at the site and after each rainstorm to ensure that these facilities are functioning poly shall be provided at the site and a still the provided fare. Sewage from takes shall be facturing of an and still expensible for disposal and and still search built road drame. Sewage from takes and and addition of said to the prevent splauge of material by provided at the sets facilities are functioning poly shall be provided at the site and analysis and as a still be provided at the sets facilities. C O interceptin a addition of said to the prevent splauge of material into material poly shall be provided at the sets of the sets facilities. C O interceptin and saids to prevent splauge of frametrai into material provi			-			
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Environmental Checklist Vator Quality Trapergrav intercapting drans should have sediment basin, traps and baffies and maintain properly. Temporary intercapting drans should be used at the stockpling area to diver polluted stormwater to the intercepting channels. Earth Marholes should be covered and sealed. Unnecessary water relained in receptaces and standing water should be avoided to prevent modulo be provided and the seaform. A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpling area and the seaform. A buffer distance of at least 20m shall be maintained between the boundary of the public fill stockpling and the seaform. A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpling area and the seaform. A buffer distance of at least 100m shall be maintained between the boundary of the CADNSF and the seaform. The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge. Final slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other menoral facilities and and silt removal facilities and intercepting channels shall be avoided to grave and you constructed Catching and and silt removal facilities and intercepting channels is all be avoided at the set facilities at functioning public road between wheel washing bay corporated at lines. A wheel washing bay shall be provided at the site shall be provided at the set facilities of a least of the set facilities shall be provided at the set or removed before being being channels is all be provided at the set set of a least of removed before being being channels and the seale and intercepting channels and the seale facilities of head with oncerete, bluminous materials of harderes shall be provided at the sesponsible for disposal and maintence of theseset facilities.			. ~	ause any visible foam, oil, grease, scum, litter or other objectionable matters to be present	•	
Environmental Checklist Vator Quality Topriange system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms. The permanent drainage channels should have sediment basin, traps and baffies and maintain properly. Temporary intercepting drains should be used at the stockpiling area to divert polluled stormwater to the intercepting channels. Earth Manholes Shand bay varriets shall be maintained between the boundary of the public flip stockpiling area and the seaform. Manholes formwater intercepting system shall be maintained between the boundary of the public flip stockpiling area and the seafore. A buffer distance of at least 100m shall be maintained between the boundary of the 26D/GF and the seafore. Final stope surfaces, especially those facing to the north of the site shall be covered with impermeable sheel or sprayed with alter or protected by other method approved by CEDD. Final stope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing your should calcibratize and intercepting channels and intercepting approved by CEDD. Final stope surfaces, sepecially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing your should calcibratize and intercepting channels shall be maintained, and the deposited site and grit shall be provided at thesite exit and wash-water shall have sand and sit settled out or removed before before for long to regult on oble by environed the site shall be provided at these facilities are functioning property at all the disparged in to a four server, or chernical toites shall be provided drines. Seevage from role between wheel washing bay and the public road shall be provided at lone shall be provided at the shall be provided at the seabol at all states of the tole to edingences. Seevage form role obletwe			_ <	Barges shall not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents shall be properly collected and treated before disposal.	•	
Environmental Checklist Vater Quality Dranage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms. Image system should be adequate and well maintained to prevent flooding area to divier polluled stormwater to the intercepting channels. Faith burds and sand bay barriers shall be used at the stockpiling area to divier polluled stormwater to the intercepting channels. Earth burds and sand bay barriers shall be used at standing water should be avoided to prevent mosquito breading. A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front. A buffer distance of at least 20m shall be effective to collect of norf and remove suspended solids before discharge. The stormwater intercepting system shall be effective to collect of norf and remove suspended solids before discharge. The stormwater intercepting vistem shall be effective to collect of norf and remove suspended solids before discharge. The stormwater intercepting vistem shall be effective to collect of norf and remove suspended solids before discharge. The stormwater intercepting vistem shall be effective to collect of norf and remove suspended solids before discharge. The stormwater intercepting vistem shall be effective to collect of norf and remove suspended solids before discharge. The stormwater intercepting vistem shall be effective to collect of normatic with impermetable sheet or sprayed with variables. Shall be reproved by CEDD. Final stope strates, sepecially those facing to the north of the			<	-	-	
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Environmental Checklist Vater Quality Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms. The permanent drainage channels should have sediment basin, traps and baffles and maintain property. Temporary intercepting drains should be used at the stockpiling area to divert polluted stormwater to the intercepting channels. Earth bunds and sand bar barriets shall be used at the stockpiling area to divert polluted stormwater to the intercepting channels. Unnecessary water retained in receptacles and standing water should be avoided to prevent mesulto breading. Unnecessary water retained in receptacles and standing water should be avoided to prevent mesulto breading. Unnecessary water retained in receptacles and standing water should be avoided to prevent mesulto breading. Unnecessary water retained in receptacles and standing water should be avoided to prevent mesulto breading. Unnecessary water retained in receptacles and standing water should be avoided to prevent mesulto breading. Unnecessary water retained in receptacles and standing water should be avoided to prevent mesulto breading. Unnecessary water or protected by other method approved by CEDD. Final stope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or saling with shotconcrete, latex, viryl, blurnen, or other suitable sand and atter capting channels, and the deposite sil and gift shall be removed weakly and on a need basis especially at the onset of and after each anistom to ensure that these facilities all on software weakly and on an each basis especially at the onset of and after each anistom to ensure that these facilities sil and gift shall be provided at the sile exit and wash-water shall have sand and silt settled out or removed before being discharge ton tolets shall be provided at the sile exit and wash-water shall ha			_ <	and the seabed at all states of the tide to	•	
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Environmental Checklist Vater Quality Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms. The permanent drainage channels should have sediment basin, traps and baffles and maintain properly.			<	pting channels. Earth	-	
Environmental Checklist Vater Quality Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms.			<		-	
Environmental Checklist			~			
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	n Remark	entatio Jes*	npieme Stag			

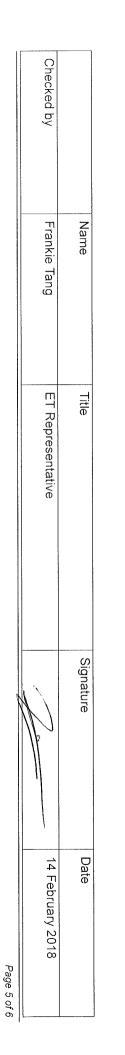


7		
	Environmental Checklist	Implementation Remark Stages*
		Yes No N/A
<u>۲</u>	Landscape and Visual	
	The design of the fill bank and platform heights adopted should allow the fill bank to fit into the general topography of the surrounding land. Straight edged slopes should be avoided.	2
•	The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.	~
•	Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green / brown) once completed.	2
•	The barging point and the C&DMSF at the fill bank shall not be in operation from 07:00 pm to 08:00 am daily to avoid potential visual impact from glare.	~
0	Other Environmental Factors	
-	C&D waste sorted from mixed C&D material shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal.	~
	Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnece ssary generation of waste.	~
-	Any unused materials or those with remaining functional capacity should be recycled and stored properly.	~
-	All generators, fuel and oil storage are within bundle areas.	~
•	Oil leakage from machinery, vehicle and plant is prevented.	2
-	The Environmental Permit should be displaced conspicuously on site.	2
•	Good site practices should be adopted to clean the rubbish and litter on a regular basis so as to prevent the rubbish and litter from dropping into the nearby environment.	~
	To encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse generated by the workforce.	2

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Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank

N	ـــ	Item	
	Follow up the action to item no.2 on 07/02/2018, the derelict oil drums at Area A6 workshop was cleaned.	Details of defective works or observations	Sumr
		Proposed Follow Up Action	Summary of the Weekly Site Inspection:
	180214_001	Photo Ref.	
		Further Action Follow up Required Date (Yes/No)	
	1	Follow up Date	

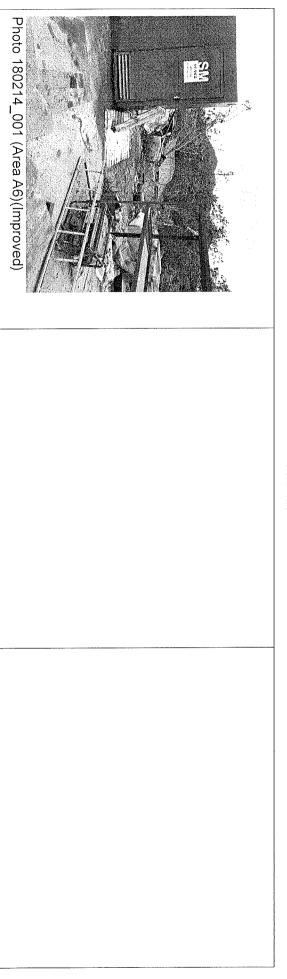


Remark

Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank



Photo



Title	Name:	Signature:	Inspected by	Humidity	Temperature	Wind	Weather	Time	Inspection Date	CEDD Contract No.: CV/2015/07 Handling of Surplus Public Fill (2
Tow	Y P Tos 9	Z	CEDD	High / Moderate /	3° 7 1	Calm / Light / Breeze / Strong	: Sunny / Fine / Cloudy / Overcast / Drizzle / Rain / Storm / Hazy	0:30	3/12/18	CEDD Contract No.; CV/2015/07 Handling of Surplus Public Fill (2016-2018) - TSeung Kwan O Area 137 Fill Bank
All Too.	sh surg		Contractor / Sub-Contactor				izzle / Rain / Storm / Hazy			Area 137 Fill Bank
E,T	Hat the Win	Mark	ET							東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD:

東紫德勤測試顧問有限公司 ETS-TESTCONSULT LTD:

Environmental Checklist	Implementation Stages*	tation s*
Fugitive Dust Emission		_
Dust control / mitigation measures shall be provided to prevent dust nuisance.	~	
A buffer zone of at least 100m shall be maintained between the edge of the stockpiling area and the nearest ASRs at the TKO industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading / unloading and similar activities should be allowed.	~	
Water sprays shall be provided and used to dampen materials	~	
Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	~	
All vehicles shall be restrict to a maximum speed of 10 km per hour.	<	
Any vehicle with open load carrying area used for moving materials which has the potential to create dust shall have properly fitting side and tail boards. Material having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin.	~	
The designated site main haul road shall be paved or regular watering.	<	
Frequent watering of work site shall be at least three times per day.	<	
Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site.	~	
Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank.	~	
All plant and equipment should be well maintained e.g. without black smoke emission.	~	
Open burning should be prohibited.	4	
The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	~	
Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shot concrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	~	
When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.	~	
The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	~	
The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the material landing point is maintained at no more than 1m.	~	
Approval or exemption Non-road Mobile Machinery (NRMM) labels should be painted or securely fixed on regulated machines and non- road vehicles at a conspicuous position according to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation (APCO Cap.311).	2	
Noise Impact		
The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	~	
Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works,	<	
Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	~	
Air compressors and hand held breakers should have noise labels.	<	
Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum,	2	
Noisy equipment and mobile plant shall always be site away from NSRs.	<	



	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Existing silt curtain at the outward side of the basin near the Barging Handling Area (BHA) throughout the period shall be repair, maintain and service when there is public fill intake by barges to the Fill Bank in accordance with PS Clause 1.68. The total length of the silt curtains shall not be less than 160m, and a gap of about 80m shall be left open for access of barges. The silt curtain shall be properly maintained shall not be less than 160m, and a gap of about 80m shall be left open for access of barges. The silt curtain shall be properly maintained shall have the function of refuse containment boom to confine floation refuse.	be repair, maintain √ h of the silt curtains properly maintained
on the water in the	on the water in the $\checkmark$
effluents shall be	effluents shall be $$
the transfer.	ne transfer. 🛛 🗸
of material during	f material during
tates of the tide to	es of the tide to $$
(if use) shall be	if use) shall be $$
The section of construction road between wheel washing bay and the public road shall be paved with concrete, bituminous materials or hardcores to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	us materials or
out or removed before being	I before being ↓
and the deposited that these facilities	the deposited these facilities √
eeding, vegetation	ling, vegetation
et or sprayed with	or sprayed with $\checkmark$
front.	ont. V
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channels, Earth	channels. Earth √
	V
	V
	Yes No

東葉德勤測試顧問有限公司 ETS-TESTCONSULT LTD.

	Environmental Checklist	Implen	lementat Stages*	ion T	Implementation Remark Stages*
		Yes	No N	NIA	
Ľ	Landscape and Visual				
۲	The design of the fill bank and platform heights adopted should allow the fill bank to fit into the general topography of the surrounding land. Straight edged slopes should be avoided.	~		_	
3	The maximum stockpiling height at the fill bank shall be limited to a maximum of +35,2mPD.	2		_	
•	Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green / brown) once completed.	2	_		
	The barging point and the C&DMSF at the fill bank shall not be in operation from 07:00 pm to 08:00 am daily to avoid potential visual impact from glare.	2			
Q	Other Environmental Factors				
	C&D waste sorted from mixed C&D material shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal.	~		-	
	Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnece ssary generation of waste.	2			
۲	Any unused materials or those with remaining functional capacity should be recycled and stored properly.	2		_	
۲	All generators, fuel and oil storage are within bundle areas.	2	_		
	Oil leakage from machinery, vehicle and plant is prevented,	<	_		
•	The Environmental Permit should be displaced conspicuously on site.	<	_	_	
×.	Good site practices should be adopted to clean the rubbish and litter on a regular basis so as to prevent the rubbish and litter from dropping into the nearby environment.	2			
	To encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse generated by the workforce.	2			

Page 5 of 6

	Checked by	
	Frankie Tang	Name
	ET Representative	Title
1	12	Signature
	21 February 2018	Date

Handli	Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank	a 137 Fill Bank	EIS-	EIS-IESICONSULI LID.	
	Summ	Summary of the Weekly Site Inspection:			
Item	Details of defective works or observations	Proposed Follow Up Action	Photo Ref.	Further Action Required (Yes/No)	Follow up Date
<u>ب</u>	Oil container was found without chemical label at chemical wastes storage near A6 Workshop.		180221_001	Yes	28/02/18
Remark	ark			-	
1					

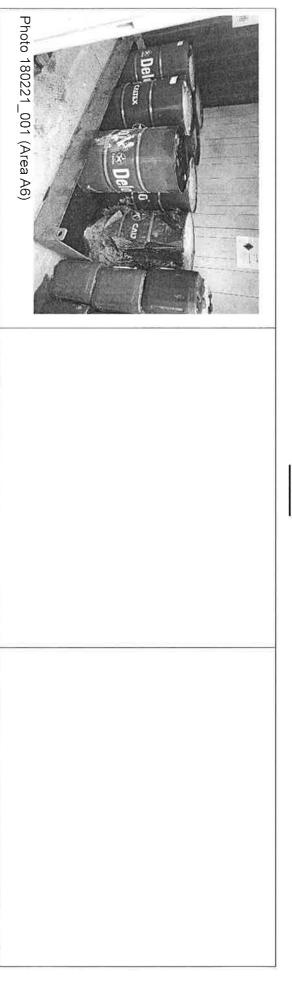
CEDD Contract No.: CV/2015/07

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CEDD Contract No.: CV/2015/07 Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank

> 東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.

### Photo



Title	Name:	Signature:	Inspected by	Humidity	Temperature	Wind	Weather	Time	Inspection Date
7 S	YP Tan G	2	CEDD	: High / Moderate /Low	, bl	: Calm (Light) Breeze / Strong	: Sunny / Fine /Cloudy / Overcast / Drizzle / Rain / Storm / Hazy	: 10=30	: 27/2/18
Z.	L Sursan	A	Contractor / Sub-Contactor				zzle / Rain / Storm / Hazy		
E,)(	Make the War	Mak	ET						

Page 1 of 6

CEDD Contract No.: CV/2015/07

Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank

1

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Environmental Checklist	Implementation Stages* Yes No N/A	Remark
Fugitive Dust Emission		
Dust control / mitigation measures shall be provided to prevent dust nuisance.	~	
A buffer zone of at least 100m shall be maintained between the edge of the stockpiling area and the nearest ASRs at the TKO industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading / unloading and similar activities should be allowed	~	
Water sprays shall be provided and used to dampen materials.	~	
Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	<	
All vehicles shall be restrict to a maximum speed of 10 km per hour.	<	
Any vehicle with open load carrying area used for moving materials which has the potential to create dust shall have properly fitting side and tail boards. Material having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be	~	
covered by a clean tarpaulin.		
The designated site main haul road shall be paved or regular watering.	~	
Frequent watering of work site shall be at least three times per day.	<	
Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site.	~	
Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank.	<	
All plant and equipment should be well maintained e.g. without black smoke emission.	V	
Open burning should be prohibited.	~	
The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	~	
Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shot concrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	~	
When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.	~	
The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	~	
The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the material landing point is maintained at no more than 1m.	~	
Approval or exemption Non-road Mobile Machinery (NRMM) labels should be painted or securely fixed on regulated machines and non- road vehicles at a conspicuous position according to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation (APCO Cap.311).	2	
Noise Impact		
The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	~	
Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	V	
Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	~	
Air compressors and hand held breakers should have noise labels.	~	
Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	~	
Noisy equipment and mobile plant shall always be site away from NSRs.		



	~	A waste collection vessel shall be deployed to remove floating debris.	
		The work activities shall not cause any visible roam, oit, grease, scuttl, litter of other objectionable matters to be present on the water in the vicinity of the barging facilities.	• •
			•
	<	Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.	•
	~	All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during transport.	
	<	The barges shall be in right size such that adequate clearance in maintained between the vessels and the seabed at all states of the tide to ensure the undue turbidity is not generated by turbulence from vessel movement or propeller wash.	-
	<	Tipping halls enclosed with top and 3-side to prevent spillage of material into marine water.	•
	~	Oil interceptor shall be provided at work shop.	•
	~	Oil intercept in addition of sand / silt removal facilities shall be provided at the car parking areas.	•
	~	Sewage from toilets shall be discharged in to a foul sewer, or chemical toilets shall be provided. The chemical toilets (if use) shall be provided by a licensed contractor, who will be responsible for disposal and maintenance of these facilities.	-
	~	The section of construction road between wheel washing bay and the public road shall be paved with concrete, bituminous materials or hardcores to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	-
	~	A wheel washing bay shall be provided at the site exit and wash-water shall have sand and silt settled out or removed before being discharged into storm drains.	•
		Existing and newly constructed Catchpits, sand and silt removal facilities and intercepting channels shall be maintained, and the deposited silt and grit shall be removed weekly and on a need basis especially at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	•
	~	Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	•
	~	The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	•
	$\checkmark$	The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.	-
	~	A buffer distance of at least 20m shall be maintained between the boundary of the C&DMSF and the seafront.	•
	~	A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front.	•
Item 2	~	Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.	•
	$\checkmark$	Manholes should be covered and sealed.	•
	V	Temporary intercepting drains should be used at the stockpiling area to divert polluted stormwater to the intercepting channels. Earth bunds and sand bay barriers shall be used to assist the diversion of polluted stormwater to the intercepting channels.	-
	$\checkmark$	The permanent drainage channels should have sediment basin, traps and baffles and maintain properly.	•
	<	Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms.	•
		Water Quality	Wat
	Yes No N/A		
1 Remark	Stages*		



]	Environmental Checklist	Implementation Remark Stages* Yes No N/A
	Landscape and Visual	
	The design of the fill bank and platform heights adopted should allow the fill bank to fit into the general topography of the surrounding land. Straight edged slopes should be avoided.	<
	The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.	~
	Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green / brown) once completed.	~
-	The barging point and the C&DMSF at the fill bank shall not be in operation from 07:00 pm to 08:00 am daily to avoid potential visual impact from glare.	2
	Other Environmental Factors	
	C&D waste sorted from mixed C&D material shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal.	2
	Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnece ssary generation of waste.	~
	Any unused materials or those with remaining functional capacity should be recycled and stored property.	~
E	All generators, fuel and oil storage are within bundle areas.	√ Item 2
	Oil leakage from machinery, vehicle and plant is prevented.	~
	The Environmental Permit should be displaced conspicuously on site.	~
-	Good site practices should be adopted to clean the rubbish and litter on a regular basis so as to prevent the rubbish and litter from dropping into the nearby environment.	2
	To encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse generated by the workforce.	



# Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank

### ltem Ν General refuse and stagnant water was found accumulated near A6 work shop. Follow up action to item no.1 on 21/02/18, Oil container was provided chemical label at chemical wastes storage near A6 Workshop. Details of defective works or observations Summary of the Weekly Site Inspection: To clean the general refuse and stagnant water properly. Proposed Follow Up Action ļ 180227_001 180227_002 Photo Ref. Further Action Required (Yes/No) Yes No Follow up 06/03/18 Date ł

	1	 <b></b>
		Remark
Name		
Title		
Signature		
Date		

Checked by

Frankie Tang

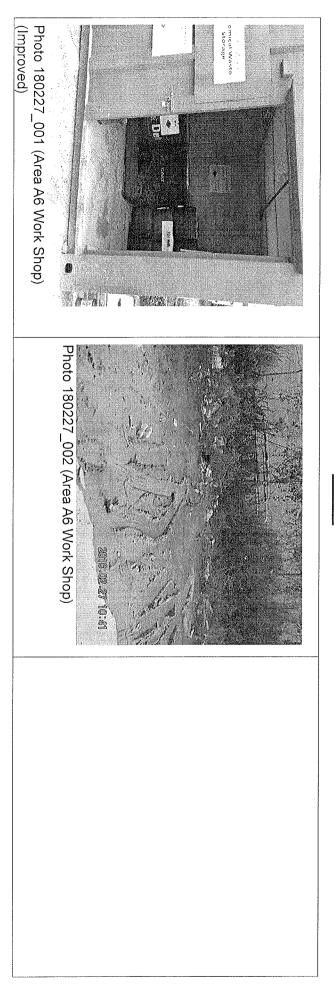
ET Representative

27 February 2018

Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank



### <u>Photo</u>





Appendix I

Implementation Schedule of Mitigation Measures



Handling of Surplus Public Fill (2016-2018) – Tseung Kwan O Area 137 Fill Bank Contract No.: CV/2015/07

### Environmental Mitigation Implementation Schedule

		Location		Implementat	tion Status	
	Environmental Protection Measures		Implemente d	Partially implemented	Not implemente d	Not Applicable
Α	r Quality					
	Dust control / mitigation measures shall be provided to prevent dust nuisance.	All areas	$\checkmark$			1
•	A buffer zone of at least 100m shall be maintained betw een the edge of the stockpiling area and the nearest ASRs at the TKO Industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading / unloading and similar activities should be allow ed.	Northern Site Boundary	$\checkmark$			
	Water sprays shall be provided and used to dampen materials.	All areas	$\checkmark$			
	Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	All areas	$\checkmark$			1
	All vehicles shall be restrict to a maximum speed of 10 km per hour.	All areas	$\checkmark$			1
•	Any vehicle with open load carrying area used for moving materials which has the potential to create dust shall have properly fitting side and tail boards. Material having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin.	Site Egress	$\checkmark$			
	The designated site main haul rout shall be paved or regular watering.	All haul roads	$\checkmark$			1
	Frequent watering of work site shall be at least three times per day.	All areas				i
	Wheel w ashing facilities including high pressure w ater jet shall be provided at the entrance of w ork site.	Site Egress				i
	Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank.	Site Egress				1
•	The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	All areas	$\checkmark$			
•	Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, follow ed by hydroseeding, vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	All areas				
•	When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.	C&DMSF				
	The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	C&DMFS				
•	The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the material landing point is maintained at no more than 1m.	C&DMFS				
	All plant and equipment should be w ell maintained e.g. w ithout black smoke emission.	All areas	$\checkmark$			1
•	Approval or exemption Non-road Mobile Machinery (NRMM) labels should be painted or securely fixed on regulated machines and non-road vehicles at a conspicuous position according to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation (APCO Cap.311).	All areas	N			
No	bise Impact					(
•	Approved method of w orking, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	All areas	$\checkmark$			
•	Only well maintained plant should be operated on-site and plant should be serviced regularly during the site works.	All areas	$\checkmark$			1
•	Pow ered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	All areas				1
•	Air compressors and hand held breakers should have noise labels.	All areas				1
•	Machines and plants that may be in intermittent use should be shut dow n between w ork months or should be throttled dow n to a minimum.	All areas	$\checkmark$			
•	Noisy equipment and mobile plant shall alw ays be site aw ay from NSRs.	All areas		1		i



Handling of Surplus Public Fill (2016-2018) – Tseung Kwan O Area 137 Fill Bank Contract No.: CV/2015/07

Environmental Protection Measures		Implementation Status			
		Implemente	Partially	Not	Not
Water Ouglite		d	implemented	implemented	Applicable
Water Quality		1			
Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms.	All areas	N			
The permanent drainage channels should have sediment basin, traps and baffles and maintain properly.	All areas				
<ul> <li>Temporary intercepting drains should be used at the stockpiling area to divert polluted stormw ater to the intercepting channels.</li> <li>Earth bunds and sand bay barriers shall be used to assist the diversion of polluted stormw ater to the intercepting channels.</li> </ul>	All areas				
<ul> <li>Manholes should be covered and sealed.</li> </ul>	All areas	$\checkmark$			
<ul> <li>Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.</li> </ul>	All areas		$\checkmark$		
• A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front.	Public fill stockpiling area	$\checkmark$			
<ul> <li>A buffer distance of at least 20m shall be maintained betw een the boundary of the C&amp;DMSF and the seafront.</li> </ul>	C&DMFS				
The stormw ater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.	All areas				
<ul> <li>The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.</li> </ul>	Temporary Slopes	$\checkmark$			
<ul> <li>Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, follow ed by hydroseeding, vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.</li> </ul>	Temporary Slopes				
<ul> <li>Existing and new ly constructed Catchpits, sand and silt removal facilities and intercepting channels shall be maintained, and the deposited silt and grit shall be removed weekly and on a need basis especially at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.</li> </ul>	All areas	N			
<ul> <li>A wheel washing bay shall be provided at the site exit and wash-water shall have sand and silt settled out or removed before being discharged into storm drains.</li> </ul>	Wheel Washing facility	$\checkmark$			
<ul> <li>The section of construction road between wheel washing bay and the public road shall be paved with concrete, bituminous materials or hardcores to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.</li> </ul>	Wheel Washing facility	$\checkmark$			
<ul> <li>Sew age from toilets shall be discharged in to a foul sew er, or chemical toilets shall be provided. The chemical toilets (if use) shall be provided by a licensed contractor, who will be responsible for disposal and maintenance of these facilities.</li> </ul>	All areas	$\checkmark$			
<ul> <li>Oil intercept in addition of sand / silt removal facilities shall be provided at the car parking areas and w ork shop.</li> </ul>	All areas		$\checkmark$		
<ul> <li>Tipping halls enclosed with top and 3-side to prevent spillage of material into marine water.</li> </ul>	Barge Handling Area (BHA)	$\checkmark$			
<ul> <li>The barges shall be in right size such that adequate clearance in maintained betw een the vessels and the seabed at all states of the tide to ensure the undue turbidity is not generated by turbulence from vessel movement or propeller w ash.</li> </ul>	Barge Handling Area (BHA)	$\checkmark$			
<ul> <li>All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during transport.</li> </ul>	Barge Handling Area (BHA)	$\checkmark$			
<ul> <li>Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.</li> </ul>	Along the seafront	$\checkmark$			
<ul> <li>Barges shall not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents shall be properly collected and treated before disposal.</li> </ul>	Barge Handling Area (BHA)	$\checkmark$			
<ul> <li>The work activities shall not cause any visible foam, oil, grease, scum, litter or other objectionable matters to be present on the water in the vicinity of the barging facilities.</li> </ul>	Along the seafront	$\checkmark$			



Handling of Surplus Public Fill (2016-2018) – Tseung Kwan O Area 137 Fill Bank Contract No.: CV/2015/07

•	Existing silt curtain at the outward side of the basin near the Barging Handling Area throughout the period shall be repair, maintain and service when there is public fill intake by barges to the Fill Bank in accordance with PS Clause 1.68. The total length of the silt curtains shall not be less than 160m, and a gap of about 80m shall be left open for access of barges. The silt curtain shall be properly maintained such that it can also serve the function of refuse containment boom to confine floating refuse.	Along the seafront	$\checkmark$		
•	A waste collection vessel shall be deployed to remove floating debris.	Along the seafront	$\checkmark$		

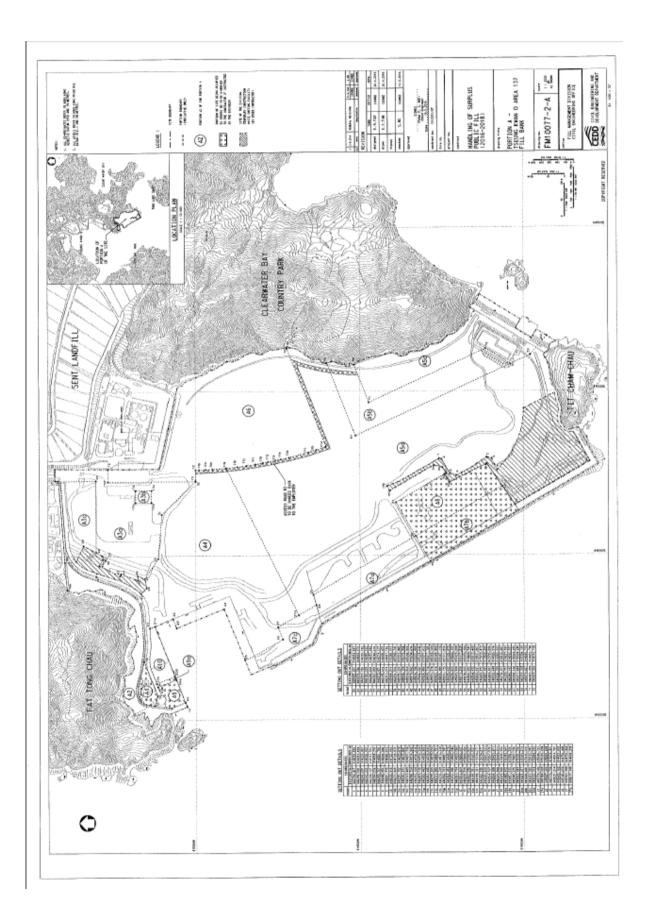
	Location	Implementation Status			
Environmental Protection Measures		Implemente d	Partially implemented	Not implemente d	Not Applicable
Landscape and Visual					
• The design of the fill bank and platform heights adopted should allow the fill bank to fit into the general topography of the surrounding land. Straight edged slopes should be avoided.	All areas	$\checkmark$			
• The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.	Completed slopes	$\checkmark$			
• Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green / brow n) once completed.	Site boundary	$\checkmark$			
• The barging point and the C&DMSF at the fill bank shall not be in operation from 07:00 pm to 08:00 am daily to avoid potential visual impact from glare.	All areas	$\checkmark$			
Other Environmental Factors					
C&D waste sorted from mixed C&D material shall be transfer to SENT landfill for disposal.	All areas	$\checkmark$			
Plan and stock construction materials carefully to minimise generation of waste.	All areas	$\checkmark$			
Any unused materials or those with remaining functional capacity should be recycled.	All areas	$\checkmark$			
All generators, fuel and oil storage are within bunded areas.	All areas				
Oil leakage from machinery, vehicle and plant is prevented.	All areas	$\checkmark$			
The Environmental Permit should be displaced conspicuously on site.	All areas				
• Good site practices should be adopted to clean the rubbish and litter on a regular basis so as to prevent the rubbish and litter from dropping into the nearby environment.	All areas	$\checkmark$			
• To encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse generated by the workforce.	All areas	$\checkmark$			



Appendix J

Site General Layout plan







Appendix K

Monitoring Schedule for the Coming Month



### Contract No. CV/2015/07 Handling of Surplus Public Fill (2016-2018)

### Tseung Kwan O Area 137

Time Schedule for Impact Water Quality Monitoring (WQM), Impact Air Monitoring (1-hr TSP, 24-hr TSP and 24-hr RSP), Weekly Site Inspection (Weekly SI) and Impact Noise Monitoring (NM)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1/3	2 <u>1-hr TSPx2</u> <u>WQM</u> Mid-ebb (12:30-13:30) Mid-flood (18:15-19:15)	3
4	5 24 hr TSP 24-hr RSP WQM Mid-flood (08:07-09:07) Mid-ebb (14:05-15:05)	6	7 <u>1-hr TSPx2</u> <u>Weekly SI (pm)</u> <u>WQM</u> Mid-flood (09:08-10:08) Mid-ebb (15:24-16:24)	8	9 <u>1-hr TSPx1</u> <u>WQM</u> Mid-flood (10:12-11:12) Mid-ebb (17:36-18:36)	10
11 <u>24 hr TSP</u> <u>24-hr RSP</u>	12 <u>1-hr TSPx2</u> <u>WQM</u> Mid-ebb (08:55-09:55) Mid-flood (13:08-14:08)	13	14 <u>1-hr TSPx1</u> <u>MM</u> <u>Weekly SI (pm)</u> <u>WQM</u> Mid-ebb (10:25-11:25) Mid-flood (15:21-16:21)	15	16 <u>WQM</u> Mid-ebb (11:31-12:31) Mid-flood (17:00-18:00)	17 <u>24 hr TSP</u> 24-hr RSP
18	19 <u>1-hr TSPx2</u> <u>WQM</u> Mid-ebb (13:08-14:08) Mid-flood (19:00-20:00)	20	21 <u>1-hr TSPx1</u> <u>Weekly SI (pm)</u> <u>WQM</u> Mid-flood (08:07-09:07) Mid-ebb (14:27-15:27)	22	23 24 hr TSP 24-hr RSP WQM Mid-flood (09:18-10:18) Mid-ebb (16:08-17:08)	24
25	26 <u>1-hr TSPx1</u> <u>WQM</u> Mid-ebb (07:40-08:40) Mid-flood (12:19-13:19)	27	28 <u>1-hr TSPx2</u> <u>24 hr TSP</u> <u>24-hr RSP</u> <u>Weekly SI (pm)</u> <u>WQM</u> Mid-ebb (09:45-10:45) Mid-flood (15:10-16:10)	29	30	31

### March 2018



Appendix L

**Complaint Log** 

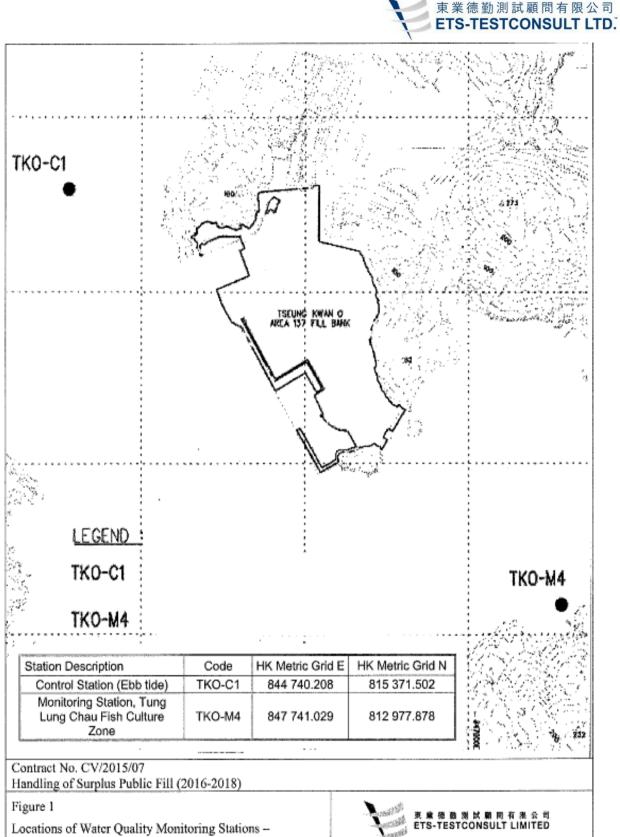


### **Complaint Logs**

Log Ref.	Location	Received Date	Details of Complaint	Investigation / Mitigation Action	Status
001	Barge handling area (BHA) at Tseung Kwan O 137	15 May 2017	One complaint received on 15 May 2017, which was forwarded to ET on 11 August 2017, from CEDD (Complaint NCF-N08/RE/00014875-17 Sent By CSO[RN]3 [CASE#2- 3943858817 Int.Comm WS170513A57354] against illegal dumping at sea without permit in TKO137 fill bank.	<ul> <li>Refer to the ET site investigation on 14 August 2017, the contractor clarified that the contractor conducted vessel loading test at Tseung Kwan O 137 Fill bank on 13 May 2017 and the material was then unloaded from the vessels.</li> <li>Follow up action to complaint by ET and contractor: Contractor under the valid dumping permit to dump fill materials and the site works shall be complied with the relevant environmental protection and pollution control ordinances.</li> <li>ET reminded contractor that the dump fill material under the valid dumping permit should be checked and confirmed. In addition, record should be kept for ET reference.</li> <li>Details of Action(s) Taken by the Contactor:</li> <li>The contractor started to dump fill materials from 19 May 2017 after receiving the valid dumping permit.</li> <li>The contractor dump fill materials were followed by the valid dumping permit and the permit was kept apply every three month</li> <li>The contractor kept the permit for ET reference.</li> </ul>	Closed
002	Tseung Kwan O 137 Fill Bank	12 Oct 2017	One complaint received on 12 October 2017, which was forwarded to ET on 18 October 2017, from public against dust emission at the fill bank and discharge of muddy water to the seafront.	<ul> <li>Refer to the ET weekly site inspection on 18 October 2017, no defective observation related to dust emission and discharge of water was recorded during the investigation.</li> <li>Details of Action(s) Taken by the Contactor: <ul> <li>Regular water spraying by water lorries is provided for dust suppression inside the Fill Bank;</li> <li>Mist spraying systems at the site entrance are operated properly;</li> <li>Site vehicles are washed to remove any dusty materials from their bodies and wheels by using high pressure water jet manually at the entrance of work site before leaving;</li> <li>All dusty material is sprayed with water prior to loading, unloading or transfer so as to maintain the material wet;</li> <li>Site vehicle for transporting materials are covered properly by using clean tarpaulin sheets;</li> <li>Regular cleaning at the site haul road is provided to minimize the fugitive dust emission;</li> <li>Silt curtains are provided at the outward side of the basin near the Fill Bank;</li> <li>Drainage systems are adequate and maintained to prevent flooding and overflow;</li> <li>Catchpits, sand and silt removal facilities and intercepting channels are maintained and functioning properly.</li> </ul> </li> </ul>	Closed



Figures



Tseung Kwan O Area 137 Fill Bank

