

OSCAR Bioenergy Joint Venture

Contract No. EP/SP/61/10
Organic Resources Recovery
Centre (Phase 1):
Forty-second Monthly EM&A Report

1 November 2018 - 30 November 2018

Environmental Resources Management

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Meinhardt Infrastructure and Environment Limited

**Organic Resources Recovery Centre,
Phase I**

Monthly EM&A Report
(1 November 2018 – 30 November 2018)

(December 2018)

Verified by: Helen Cochrane 

Position: Independent Environmental Checker

Date: 12 Dec 2018

MONTHLY EM&A REPORT

OSCAR Bioenergy Joint Venture

Contract No. EP/SP/61/10
Organic Resources Recovery
Centre (Phase 1):
Forty-second Monthly EM&A Report

1 November 2018 - 30 November 2018

Reference 0279222

For and on behalf of ERM-Hong Kong, Limited	
Approved by:	Frank Wan
Signed:	
Position:	Partner
Certified by:	
	(Environmental Team Leader - Mandy To)
Certified by:	
	(Registered Landscape Architect No. R-150 - Albert Chung)
Date:	10 December 2018

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EXECUTIVE SUMMARY

The construction works of *No. EP/SP/61/10 Organic Resources Recovery Centre Phase 1 (the Project)* commenced on 21 May 2015. This is the 42nd monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 to 30 November 2018 in accordance with the EM&A Manual.

Summary of Construction Works undertaken during the Reporting Month

Works undertaken in the reporting month included:

- Building 1 - ABWF/finishing works and BS installation;
- Building 2 & 3 - ABWF/finishing works and BS installation;
- Electrical installation (cable trays, Local Control panels/switch installation, general cabling works, instrumentation and control installation, lighting , ELV and SCADA installation);
- BS works (MVAC, FS, P/D);
- Systems being operated - waste reception, pre-treatment, CAPC extraction, the digesters, the centrifuge, the desulphurisation, the emergency flare, the CHPs, the ASP and the biological wastewater treatment plant; and
- Process commissioning in progress, operations included waste reception, pre-treatment, CAPC extraction, the digesters, the centrifuge, the composting tunnels, the desulphurisation, the emergency flare, the CHPs, the ASP and the biological waste water treatment plant (about 100-120t/d SSOW input).

Environmental Monitoring and Audit Progress

A summary of the monitoring activities undertaken in this reporting period is listed below:

- | | |
|----------------------------------------|---------|
| • Joint Environmental Site Inspections | 5 times |
| • Landscape & Visual Inspections | 2 times |

Odour

Odour patrol were conducted by representatives of the Contractor, the ER and Employer (EPD Project Team) on 2, 5, 7, 9, 12, 14, 16, 19, 21, 23, 26, 28 and 30 November 2018. The Independent Odour Patrol Team, ALS Technichem (HK) Pty Ltd (ALS), has also joined the odour patrols on 30 November 2018. No Level 2 Odour Intensity was recorded during odour patrols.

Air samples were also collected at the CAPC unit for olfactometry analysis at the laboratory on 5, 12, 19, 26 October 2018 and 1, 5, 23 November 2018. The odour level of the samples collected on 5, 12, 19, 26 October 2018 and 1, 5 November 2018 have exceeded the odour limit. An investigation of the cause of the exceedance has been carried out. The investigation report is shown in *Annex I*.

Waste Management

Waste generated from this Project includes inert construction and demolition (C&D) materials (public fill) and non-inert C&D materials (construction wastes).

Inert C&D materials (public fill) include bricks, concrete, building debris, rubble and excavated spoil. In total, 77.71 tonnes of inert C&D material were generated from the Project.

Non-inert C&D materials (construction wastes) include metals, paper / cardboard packaging waste, plastics and other wastes such as general refuse. 0.00 kg of metals, 0.00 kg of papers/ cardboard packing and 0.00 kg of plastics were sent to recyclers for recycling during the reporting period. 30.18 tonnes of general refuse was disposed of at the landfill.

0.00 L of chemical waste was collected by licenced waste collector.

Environmental Site Inspection

Five weekly joint environmental site inspections were carried out by the representatives of the Contractor, ER, IC and the ET. The IEC was also present at the joint inspection on 28 November 2018. Details of the audit findings and implementation status of the mitigation measures are presented in *Section 6.1*.

Landscape & Visual

On-site inspections on landscape and visual mitigation measures were performed on 5 and 19 November 2018. Details of the audit findings and implementation status of the mitigation measures are presented in *Sections 6.2*.

Environmental Exceedance/Non-conformance/Compliant/Summons and Prosecution

No exceedance related to odour was recorded during the reporting period.

No non-compliance event was received during the reporting period.

No summon/prosecution was received in this reporting period but one odour complaint was received.

Future Key Issues

Works to be undertaken in the next reporting month include:

- Building 1 - ABWF/finishing works and BS installation;
- Building 2 & 3 - ABWF/finishing works and BS installation;
- Electrical installation (cable trays, Local Control panels/switch installation, general cabling works);
- BS works (MVAC, FS, P/D);
- Continue testing and process commissioning works.

Environmental impacts arising from the above construction activities are mainly associated with odour, construction noise, site runoffs, waste management and landscaping issues.

1 INTRODUCTION

ERM-Hong Kong, Limited (ERM) was appointed by OSCAR Bioenergy Joint Venture (the Contractor) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme for the *Contract No. EP/SP/61/10 of Organic Waste Treatment Facilities Phase I*, which the project name has been updated to *Organic Resources Recovery Centre (Phase I) (the Project)* since November 2017.

1.1 PURPOSE OF THE REPORT

This is the 42nd EM&A report which summarises the monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 30 November 2018.

1.2 STRUCTURE OF THE REPORT

The structure of the report is as follows:

Section 1: **Introduction**

It details the scope and structure of the report.

Section 2: **Project Information**

It summarises the background and scope of the Project, site description, project organization, construction programme, construction works undertaken and status of the Environmental Permits (EP)/licences over the construction phase of the Project.

Section 3: **Environmental Monitoring Requirements**

It summarises the environmental monitoring requirements including monitoring parameters, programmes, methodologies, frequency, locations, Action and Limit Levels, Event/ Action Plans, environmental mitigation measures as recommended in the EM&A Manual and approved EIA report.

Section 4: **Implementation Status on Environmental Mitigation Measures**

It summarises the implementation of environmental protection measures during the reporting period.

Section 5: **Waste Management**

It summarises the quantity of public fill and construction waste generated in the reporting period

Section 6: **Environmental Site Inspection**

It summarises the audit findings of the weekly site inspections undertaken within the reporting period.

Section 7: **Environmental Non-conformance**

It summarises any exceedance of environmental performance standard, environmental complaints and summons received within the reporting period.

Section 8: **Further Key Issues**

It summarises the impact forecast and monitoring schedule for the next reporting month.

Section 9: **Conclusions**

2.1**BACKGROUND**

The Organic Resources Recovery Centre (ORRC) Phase I development (hereinafter referred to as “the Project”) is to design, construct and operate a biological treatment facility with a capacity of about 200 tonnes per day and convert source-separated organic waste from commercial and industrial sectors (mostly food waste) into compost and biogas through proven biological treatment technologies.

The environmental acceptability of the construction and operation of the Project had been confirmed by findings of the associated Environmental Impact Assessment (EIA) Study completed in 2009. The Director of Environmental Protection approved this EIA Report under the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) in February 2010 (Register No.: AEIAR-149/2010) (hereafter referred to as the approved EIA Report). Subsequent Report on Re-assessment on Environmental Implications and Report on Re-assessment on Hazard to Life Implications were completed in 2013, respectively.

An Environmental Permit (EP) (No. EP-395/2010) was issued by the Environmental Protection Department (EPD) to the EPD, the Permit Holder, on 21 June 2010 and varied on 18 March 2013 (No. EP-395/2010/A) and 21 May 2013 (No. EP-395/2010/B), respectively. The Design Build and Operate Contract for the ORRC Phase 1 (Contract No. EP/SP/61/10 Organic Resources Recovery Centre (Phase 1) (the Contract)) was awarded to SITA Waste Services Limited, ATAL Engineering Limited and Ros-Roca, Sociedad Anonima jointly trading as the OSCAR Bioenergy Joint Venture (OSCAR or the Contractor). A Further EP (No. FEP-01/395/2010/B) was issued by the EPD to the OSCAR on 16 February 2015. Variation to both EPs No. EP-395/2010/B and No. FEP-01/395/2010/B were made in December 2015. The latest EPs, No. EP-395/2010/C and No. FEP-01/395/2010/C, were issued by the EPD on 21 December 2015.

Under the requirements of Condition 5 of the EP (No. FEP-01/395/2010/C), an Environmental Monitoring and Audit (EM&A) programme as set out in the Agreement No. CE7/2008 (EP) EM&A Manual (hereinafter referred to as EM&A Manual) is required to be implemented. ERM-Hong Kong, Ltd (ERM) has been appointed by OSCAR as the Environmental Team (ET) to undertake the EM&A programme for the Contract.

The construction works commenced on 21 May 2015 and are scheduled for completion by December 2018 tentatively.

2.2**GENERAL SITE DESCRIPTION**

The Project Site is located at Siu Ho Wan in North Lantau with an area of about 2 hectares. The layout of the Project Site is illustrated in *Annex A*.

2.3 CONSTRUCTION ACTIVITIES

A summary of the major construction activities undertaken in the reporting period is shown in *Table 2.1*. The locations of the construction activities are shown in *Annex B*. The construction programme of the Project is presented in *Annex C*.

Table 2.1 *Summary of Construction Activities Undertaken in the Reporting Period*

Construction Activities Undertaken	
•	Building 1 – ABWF/finishing works and BS installation;
•	Building 2 & 3 – ABWF/finishing works and BS installation;
•	Electrical installation (cable trays, Local Control panels/switch installation, general cabling works, instrumentation and control installation, lighting, ELV and SCADA installation);
•	BS works (MVAC, FS, P/D);
•	Systems being operated – waste reception, pre-treatment, CAPCS extraction, the digesters, the centrifuge, the desulphurization, the emergency flare, the CHPs, the ASP and the biological waste water treatment plant;
•	Process commissioning in progress - waste reception, pre-treatment, CAPCS extraction, the digesters, the centrifuge, the composting tunnels, the desulphurisation, the emergency flare, the CHPs, the ASP and the biological waste water treatment plant (about 100-120 t/d SSOW input).

2.4 PROJECT ORGANISATION AND MANAGEMENT STRUCTURE

The project organisation chart and contact details are shown in *Annex D*.

2.5 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the valid permits, licences, and/or notifications on environmental protection for this Project is presented in *Table 2.2*.

Table 2.2 *Summary of Environmental Licensing, Notification and Permit Status*

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Environmental Permit	FEP-01/395/2010/C	Throughout the Contract	Permit granted on 21 December 2015
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation	Ref No. 386715	Throughout the Contract	-
Effluent Discharge License	WT00021482-2015	21 May 2015 – 31 May 2020	Approved on 21 May 2015
Construction Noise Permit – P1&P2	GW-RW0229-18 (Superseded CNP GW- RW0637-17)	21 July 2018 - 20 January 2019	Approved on 19 June 2018
Construction Noise Permit – P5 (Slope)	GW-RW0347-18 (Superseded the GW-RW0107-18)	30 September 2018 – 29 March 2019	Approved on 15 August 2018

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Chemical Waste Producer Registration	WPN 5213-961- O2231-01	Throughout the Contract	Approved on 29 April 2015
Waste Disposal Billing Account	Account number: 702310	Throughout the Contract	-

ENVIRONMENTAL MONITORING REQUIREMENTS, ENVIRONMENTAL MITIGATION MEASURES

All the relevant environmental mitigation measures listed in the approved EIA Report and EM&A Manual are summarised in *Annex E*.

According to the EM&A Manual and EP requirements, no air quality, noise and water quality monitoring is required during the construction phase.

According to the EM&A Manual and EP requirements, odour monitoring is required during the commissioning phase.

The odour patrols shall be conducted by an odour patrol team. The odour patrol team will patrol and sniff along an odour patrol route at the site boundary. The implementation of the odour patrol shall be subject to the prevailing weather forecast condition and no odour patrol should be carried out during rainy day. The odour patrol team should be comprised of at least two independent trained personnel / competent persons, who should pass a set of screening tests.

Odour patrols were conducted by representatives of the Contractor, the ER and Employer (EPD Project Team) on 2, 5, 7, 9, 12, 14, 16, 19, 21, 23, 26, 28 and 30 November 2018. The Independent Odour Patrol Team, ALS Technichem (HK) Pty Ltd (ALS), has also joined the odour patrols on 30 November 2018. According to the EM&A Manual and EP requirements, it is considered an exceedance if the odour intensity recorded by the panellists is Level 2 or above. During this reporting period, no Level 2 Odour Intensity was recorded. The odour patrol results are shown in *Annex H*. The official report from ALS is not yet available at the time when this report was prepared. The results will be presented in the next monthly EM&A report.

On 5, 12, 19 and 26 October 2018, air samples were also collected from the outlet of the Centralised Air Pollution Control (CAPC) unit by ALS for measurement of the Odour Intensity by olfactometry analysis at the laboratory. According to the EM&A Manual and EP requirements, it is considered an exceedance if the odour level is more than 220 OU/Nm³. On 5, 12, 19 and 26 October 2018, the odour level of the odour samples collected from the CAPC unit have exceeded the odour limits stated in Table 2.2 of the EM&A Manual. The laboratory results are shown in *Annex H*.

Investigation of the exceedances has been conducted. The investigation report is shown in *Annex I*.

On 1, 5 and 23 November 2018, air samples were also collected from the outlet of the Centralised Air Pollution Control (CAPC) unit by ALS for measurement of the Odour Intensity by olfactometry analysis at the laboratory. On 1 and 5 November 2018, the odour level of the odour samples collected from the CAPC unit have exceeded the odour limits stated in Table 2.2 of the EM&A Manual. No exceedance for the samples collected on 23 November 2018. The laboratory results are shown in *Annex H*.

Investigation of the exceedances has been conducted. The investigation report is shown in *Annex I*.

Bi-weekly landscape and visual audit is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures recommended in the approved EIA Report are fully achieved.

IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor has implemented environmental mitigation measures and requirements as stated in the approved EIA Report and EM&A Manual. The implementation status of the measures during the reporting period is summarised in *Annex E*.

Wastes generated from this Project include inert construction and demolition (C&D) materials (public fill) and non-inert C&D materials (construction waste). Construction waste comprises general refuse, metals and paper/cardboard packaging materials. Metals generated from the Project are also grouped into construction waste as the materials were not disposed of with others at public fill. Reference has been made to the Monthly Summary Waste Flow Table prepared by the Contractor (see *Annex F*). With reference to the relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 5.1*.

Table 5.1 *Quantities of Waste Generated from the Project*

Month / Year	Quantity			
	Total Inert C&D Materials Generated ^(a)	Non-inert C&D Materials ^(b)		
		C&D Materials Recycled ^(c)	C&D Waste Disposed of at Landfill ^(d)	Chemical Waste
November 2018	77.71 tonnes	0.00 kg	30.18 tonnes	0.00 L

Notes:

- (a) Inert C&D materials (public fill) include bricks, concrete, building debris, rubble and excavated spoil. In total, 77.71 tonnes of inert C&D material were generated from the Project. The detailed waste flow is presented in *Annex F*.
- (b) Non-inert C&D materials (construction wastes) include metals, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Metals generated from the Project were grouped into construction wastes as the materials were not disposed of with others at the public fill.
- (c) 0.00 kg of metals, 0.00 kg of papers/ cardboard packing and 0.00 kg of plastics were sent to recyclers for recycling during the reporting period.
- (d) Construction wastes other than metals, paper/cardboard packaging, plastics and chemicals were disposed of at NENT Landfill by subcontractors.

6 ENVIRONMENTAL INSPECTIONS

6.1 WEEKLY SITE AUDITS

Joint site inspections were conducted by representatives of the Contractor, the ER, IC and the ET on 3, 7, 15, 20 and 28 November 2018. The IEC was also present at the joint inspection on 28 November 2018. Follow-up actions resulting from the last site inspections were generally taken as reported by the Contractor.

Key observations during the reporting period are summarised as follows:

3 November 2018

- No particular observation during this site inspection.

7 November 2018

- No particular observation during this site inspection.

15 November 2018

- No particular observation during this site inspection..

20 November 2018

- No particular observation during this site inspection.

28 November 2018

- Chemical waste containers were observed near Building 2 and the Contractor was advised to remove the chemical waste container to designated storage area and disposed of according to the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes..*

6.2 LANDSCAPE AND VISUAL AUDIT

In accordance with the EM&A Manual, bi-weekly landscape and visual inspection is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures recommended in the EIA Report are fully achieved. On-site inspections of the landscape and visual mitigation measures were performed on 5 and 19 November 2018.

It was confirmed that the necessary landscape and visual mitigation measures as summarised in *Annex E* were generally implemented by the Contractor. No specific observation was found during site inspections on 5 and 19 November 2018.

7 *ENVIRONMENTAL NON-CONFORMANCE*

7.1 *SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE*

No non-compliance event was received during the reporting period.

7.2 *SUMMARY OF ENVIRONMENTAL COMPLAINT*

No odour complaint was received during the reporting period.

7.3 *SUMMARY OF ENVIRONMENTAL SUMMON AND SUCCESSFUL PROSECUTION*

No summon/prosecution was received during the reporting period. The cumulative summons/prosecution log is shown in *Annex G*.

8 FUTURE KEY ISSUES

8.1 KEY ISSUES FOR THE COMING MONTH

Works to be undertaken for the coming reporting period are summarised in *Table 8.1*.

Table 8.1 Construction Works to be undertaken in the Next Reporting Period

Construction Activities Undertaken
<ul style="list-style-type: none">• Building 1 – ABWF/finishing works and BS installation;• Building 2 & 3 – ABWF/finishing works and BS installation;• Electrical installation (cable trays, Local Control panels/switch installation, general cabling works);• BS works (MVAC, FS, P/D);• Continue the testing and process commissioning works.

Potential environmental impacts arising from the above construction activities will be mainly associated with odour, construction noise, site runoffs, waste management and landscaping issues.

8.2 CONSTRUCTION PROGRAMME

The most up-to-date construction programme for the Project is presented in *Annex C*.

This EM&A Report presents the EM&A programme undertaken during the reporting period from 1 to 31 October 2018 in accordance with EM&A Manual and requirements of EP (FEP-01/395/2010/C).

No air quality, noise and water quality monitoring is required during the construction phase.

Odour patrols and monitoring are required during the commissioning phase. No exceedance of odour intensity limit for all odour patrol events. Air samples were also collected at the CAPC unit for olfactometry analysis at the laboratory on 5, 12, 19, 26 October 2018 and on 1, 5, 23 November 2018. The odour level of the samples collected on 5, 12, 19, 26 October 2018 and 1, 5 November 2018 have exceeded the odour limit. An investigation of the cause of the exceedance has been carried out. The investigation report is shown in *Annex I*.

Bi-weekly landscape and visual monitoring was conducted in the reporting period. The necessary landscape and visual mitigation measures recommended in the approved EIA Report were generally implemented by the Contractor.

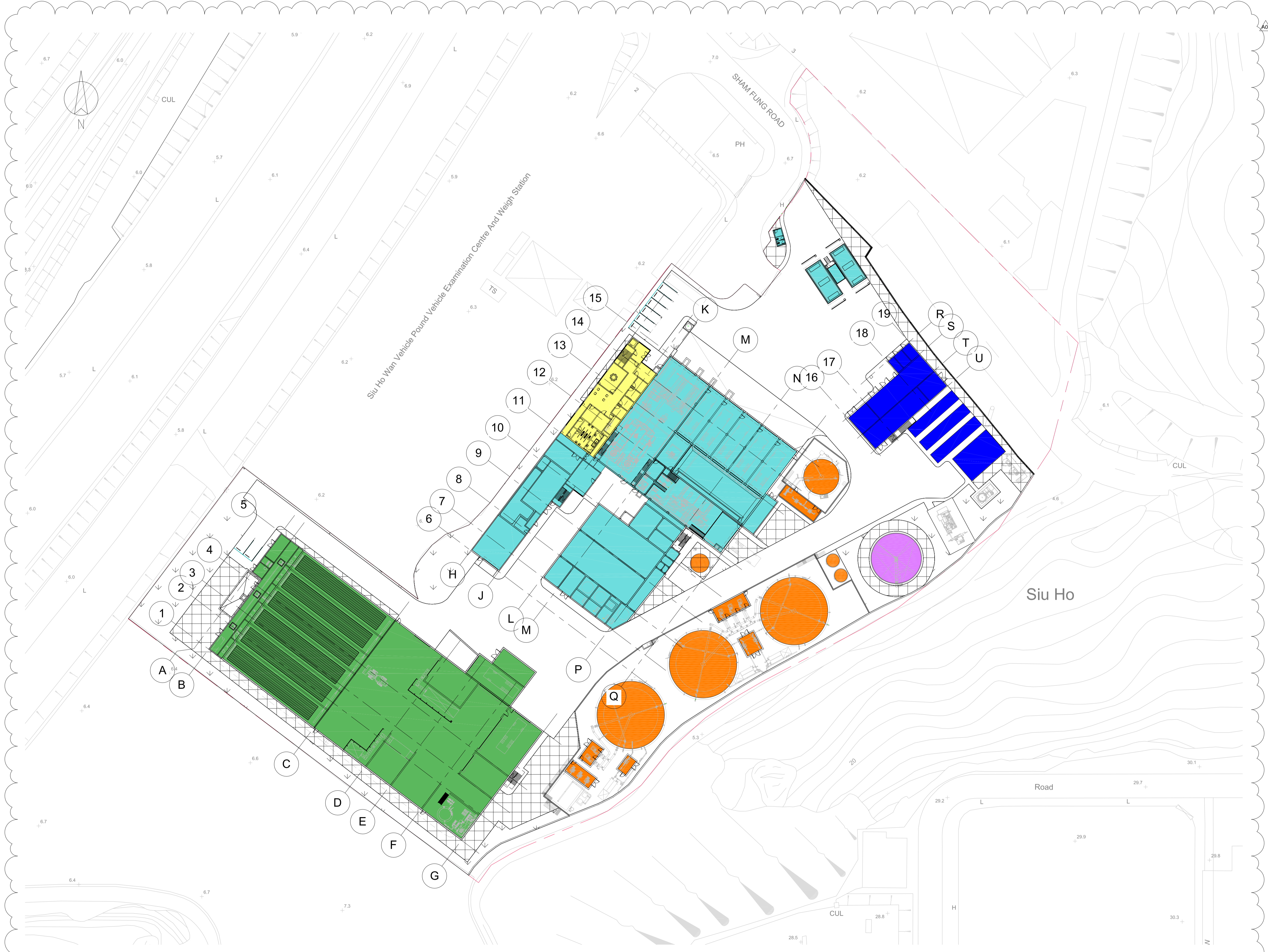
No non-compliance event was received during reporting period.

No summon/prosecution was received.

The ET will keep track of the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all the necessary mitigation measures in the coming periods.

Annex A


Project Layout



A01	05/03/15	CW	MB	IMTECH BACKGROUNDS UPDATED
A00	18/02/15	CW	MB	DRAFT ISSUE
REV	DATE	BY	APP	DESCRIPTION

CLIENT
 ENVIRONMENTAL PROTECTION DEPARTMENT
 GOVERNMENT OF THE HKSAR

CLIENT'S CONSULTANT
 **AECOM**
 AECOM ASIA CO. LTD.

CONTRACTOR
  
 OSCAR BIOENERGY JV

LEAD DESIGNER
 **ARUP**
 Ove Arup & Partners Hong Kong Limited

ENVIRONMENTAL TEAM
 **ERM**
 ERM HONG KONG LIMITED

INDEPENDENT CONSULTANTS
 **MEINHARDT**
 Meinhardt Infrastructure and Environment Limited
 邁達基建環保工程顧問有限公司

PROJECT
 ORGANIC WASTE TREATMENT FACILITIES
 PHASE 1
 EP/SP/61/10

STATUS
 DRAFT ISSUE

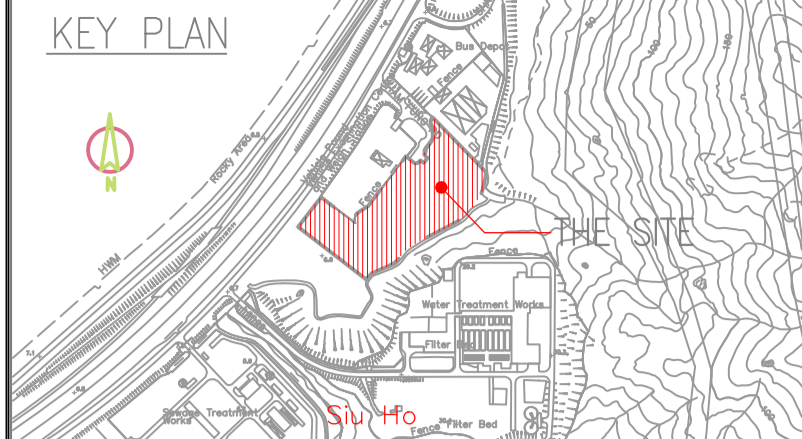
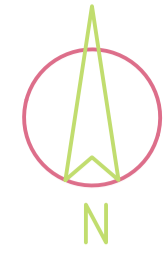
DRAWING TITLE
 SITE LAYOUT

DRAWN	CW	CHECKED	RS	APPROVED	DP
SCALE	1:500@A1 / 1:1000@A3		DATE	12/02/15	
JOB NO.	239956	DRAWING NO.	DR-OAP-20-0-CA-1001	REV.	A01

Plot Time: 05/03/15 21:20:07
 Plot Location: C:\Users\mathew.brown\Documents\QWTF_Architectural Working Model (Combined) CEH_mathew.brown.rvt

Annex B


Works Location



LEGEND

- SITE BOUNDARY
- T T T T T PROPOSED HOARDING TYPE 1
- +++++ EXISTING CHAIN-LINK FENCE
- ~~~~~ PROPOSED 6 m TYPE II SHEET PILE PLANKING WALL WITH 3 m EXTRUDED ABOVE GROUND
- XXXXX EXISTING FENCE WALL
- - - - DISCHARGE DRAINAGE
- 300mm(W) PROPOSED TEMP. CHANNEL
- 300mm(W) EXISTING U-CHANNEL
- 50/75mm FLEXIBLE DRAIN
- PROPOSED TEMP. CATCH PIT
- PORTABLE WATER PIPE
- TRAFFIC DIRECTION
- REBAR STORAGE AREA AND BENDING YARD
- GENERAL MATERIAL STORAGE AREA
- C & D MATERIAL STORAGE AREA
- VEHICLE WHEEL WASH
- WATER TREATMENT PLANT

REV	DATE	BY	APP	DESCRIPTION
J	01 SEP 2016	LL	JC	REVISED LAYOUT
I	27 APR 2016	LL	JC	REVISED LAYOUT
H	30 DEC 2015	LL	JC	REVISED LAYOUT
G	30 MAY 2015	LL	CL	REVISED LAYOUT


CLIENT
 ENVIRONMENTAL PROTECTION DEPARTMENT
 GOVERNMENT OF THE HKSAR

CLIENT'S CONSULTANT
 **AECOM**
 AECOM ASIA CO. LTD.

CONTRACTOR

OSCAR Bioenergy Joint Venture

LEAD DESIGNER
 **ARUP**
 Ove Arup & Partners Hong Kong Limited

ENVIRONMENTAL TEAM
 **ERM HONG KONG LIMITED**

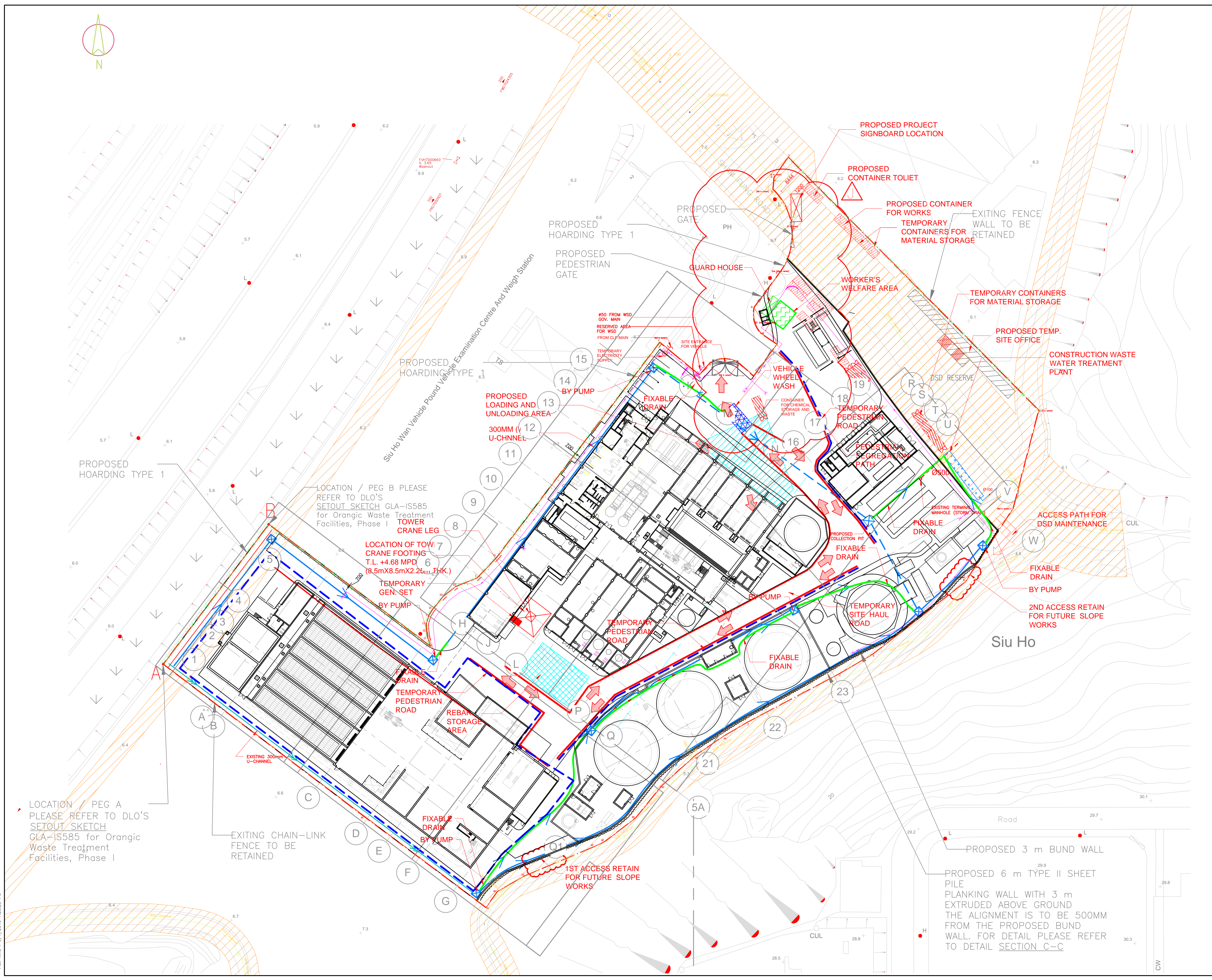
INDEPENDENT CONSULTANTS
 **MEINHARDT**
 Meinhardt Infrastructure and Environment Limited
 邁進基達環境工程顧問有限公司

PROJECT
 ORGANIC WASTE TREATMENT FACILITIES
 PHASE I
 EP/SP/61/10

STATUS
 ISSUED FOR COMMENT

DRAWING TITLE
**GENERAL SITE LAYOUT PLAN
 AT PORTION 1**

DRAWN LL	CHECKED JC	APPROVED JC
SCALE 1:500@A1; 1:1000@A3	DATE 01 SEP 2016	REV. J
JOB NO. P00424	DRAWING NO. DR-PSC-00-0-CN-1002	REV. J



Plot By: LeoAM
 Plot Time: 9/7/2016 7:26:29 PM

DR-PSC-00-0-CN-1002

Annex C

Construction Programme of the Project

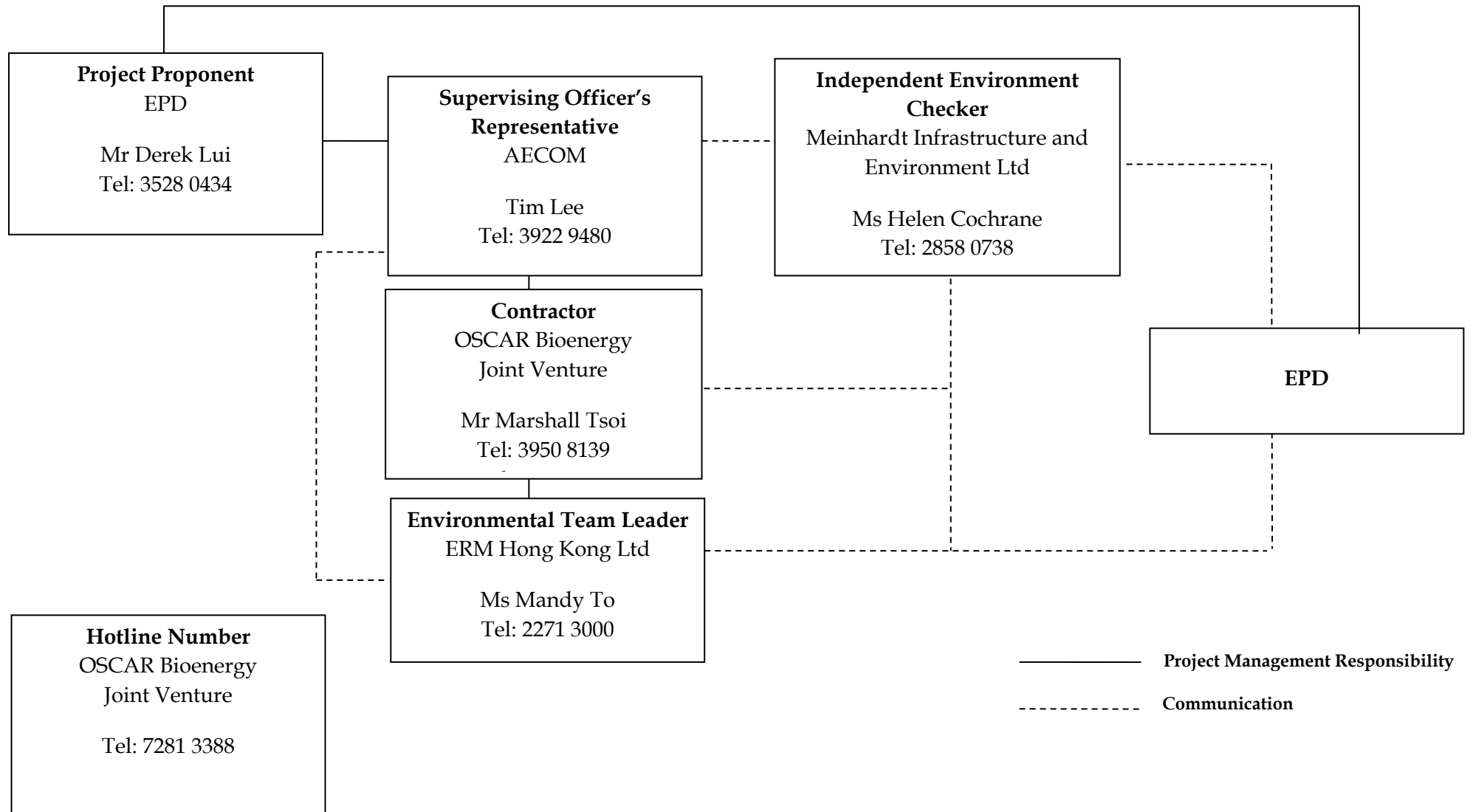
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											N	D	J	F	M	A	M	J	Jul	A	S	O	N	D	J	F	M	A	M	J	Jul	A	S	O	N	D	J	F	M	A	M	J	Jul	A	S	O	N	D	J	F	M	A	M	J	Jul	A	S	O	N
1	Contract No. EP/SP/61/10 - The Design & Construction Works																																																										
2	Preliminary and Site Establishment																																																										
3	ESum110	Preliminary and Site Establishment	217	20-Nov-14	15-Aug-15	0	20-Nov-14 A	19-Oct-16 A	100%	-349																																																	
4	Design																																																										
5	ESum120	Design Criteria and Design Preparation	80	20-Nov-14	27-Feb-15	0	20-Nov-14 A	01-Sep-15 A	100%	-151																																																	
6	ESum130	Detailed Design Submission (DDS) - General, Civil, ABWF and Landscape	289	19-Dec-14	23-Feb-16	0	18-Dec-14 A	27-Nov-17 A	100%	-437																																																	
7	ESum132	Detailed Design Submission (DDS) - Building 1	151	21-Apr-15	25-Nov-15	0	13-Apr-15 A	27-Jul-16 A	100%	-164																																																	
8	ESum134	Detailed Design Submission (DDS) - Building 2	158	12-Mar-15	30-Oct-15	0	12-Mar-15 A	07-Apr-16 A	100%	-106																																																	
9	ESum136	Detailed Design Submission (DDS) - Building 3	103	03-Jun-15	29-Oct-15	0	20-Jul-15 A	30-Mar-16 A	100%	-102																																																	
10	ESum138	Detailed Design Submission (DDS) - Auxilliary Buildings & Facilities	177	10-Feb-15	29-Oct-15	0	11-Feb-15 A	08-Aug-16 A	100%	-191																																																	
11	ESum140	Detailed Design Submission (DDS) - E&M and BS	216	18-Dec-14	04-Nov-15	0	18-Dec-14 A	05-Mar-18 A	100%	-577																																																	
12	Procurement																																																										
13	ESum150	Procurement, Manufacturing, F.A.T., Shipment & Delivery of E&M Systems Equipment	507	12-Feb-15	02-Jul-16	25	01-Mar-15 A	11-May-18	99.94%	-678																																																	
14	Construction																																																										
15	ESum160	Construction of Building #1 (Waste Receiving, Pre-treatment & Administration)	178	19-Aug-15	23-Mar-16	0	02-Sep-15 A	06-Sep-17 A	100%	-431																																																	
16	ESum170	Construction of Building #2 (Composting & Maturation, and Link Bridge)	262	23-May-15	11-Apr-16	0	16-Jun-15 A	24-Mar-17 A	100%	-285																																																	
17	ESum175	Construction of Building #3 (Energy Centre)	87	30-Oct-15	15-Feb-16	0	24-Mar-16 A	24-Oct-16 A	100%	-205																																																	
18	ESum180	Construction of Auxilliary Buildings & Facilities	263	13-May-15	31-Mar-16	0	04-May-15 A	02-Sep-17 A	100%	-424																																																	
19	ESum190	ABWF, Finishing and Fitting-out Works to Building #1, #2, #3 and Auxilliary Buildings & Facilities (excl. EEC)	259	23-Dec-15	08-Nov-16	21	21-Mar-16 A	11-May-18	97.1%	-443																																																	
20	ESum200	Sitewide, Boundary Wall and Roadworks	326	02-Sep-15	07-Oct-16	34	13-Nov-15 A	28-May-18	98.5%	-482																																																	
21	ESum210	Statutory and Utilities Works (excl. Lifting Platform)	148	04-Mar-16	06-Oct-16	102	02-Nov-16 A	17-Aug-18	99.4%	-551																																																	
22	ESum215	Green Roof and Landscaping	129	29-Jul-16	31-Dec-16	135	20-Jan-18 A	26-Sep-18	3%	-513																																																	
23	E&M and Building Services Installation																																																										
24	ESum220	E&M Installation - Mechanical	164	04-Feb-16	25-Aug-16	50	11-May-16 A	15-Jun-18	99.6%	-533																																																	
25	ESum222	E&M Installation - Piping	144	24-May-16	12-Nov-16	0	28-Nov-16 A	30-Nov-17 A	100%	-311																																																	
26	ESum224	E&M Installation - Electrical, Instrumentation & Control	181	02-Apr-16	08-Nov-16	23	28-Sep-16 A	14-May-18	99.9%	-445																																																	
27	ESum226	Building Services Installation (excl. EEC)	125	18-Apr-16	14-Sep-16	59	24-Jun-16 A	27-Jun-18	86.9%	-525																																																	
28	ESum230	Energisation of Switchboards / MCC with SAT	1	28-Jul-16	28-Jul-16	0	02-Feb-17 A	26-May-17 A	100%	-244																																																	
29	Testing & Commissioning and Completion *Note																																																										
30	ESum240	Pre-Commissioning	144	29-Jul-16	19-Jan-17	81	24-Apr-17 A	06-Jul-18	61.2%	-533																																																	
31	ESum241	System Commissioning	0			50	11-May-18	29-Jun-18	0%																																																		
32	ESum250	Process Commissioning, Performance & Acceptance Testing	119	22-Oct-16	16-Mar-17	127	23-May-18	26-Sep-18	0%	-559																																																	
33	KD100360	Completion of the Design and the Works including Testing and Commissioning (Extended Completion Date: 10-Jun-2017 noon)	0		16-Mar-17	0	1-May-18	30-Dec-18	0%	-589																																																	
34	KD100380	Commencement of the Operation	0	17-Mar-17		0	31-Dec-18*		0%	-588																																																	

*Note: The T&C completion date has been postponed to end of December 2018.

Annex D

Project Organization Chart with Contact Details

Project Organization During Construction Phase (with contact details)



Annex E

Implementation Schedule of Mitigation Measures

Annex E Summary of Mitigation Measures Implementation Schedule

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location/ Timing	Status
<i>Summary of Environmental Mitigation Measures in the EIA and EM&A Manual</i>				
A. Air Quality				
3.73	2.5	<p><u>Air Pollution Control (Construction Dust) Regulation & Good Site Practices</u></p> <ul style="list-style-type: none"> • Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs. • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines. • Open stockpiles should be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. • Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading points, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. • Imposition of speed controls for vehicles on unpaved site roads. 8 kilometers per hour is the recommended limit. • Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs. • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed. • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system. 	Construction Site / During Construction Period	√
B. Hazard to Life				
4.102	3.3	<u>Construction Phase</u>	Construction Site / During	√

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location/ Timing	Status
		<ul style="list-style-type: none"> • The number of workers on site during construction stage should be kept at the same level as the assessment. • Construction works should be suspended when delivery of chlorine takes place. • 3m high fence should be constructed along the boundary facing the SHWWTW. • Emergency evacuation procedures should be formulated and the Contractor should ensure all workers on site should be familiar with these procedures as well as the route to escape in case of gas release incident. Relevant Departments, such as Fire Services Department (FSD), should be consulted during the development of Emergency procedures. Diagram showing the escape routes to a safe place should be posted in the site notice boards and at the entrance/exit of site. A copy of the latest version emergency procedures should be dispatched to Tung Chung Fire Station for reference once available. • The emergency procedures should specify means of providing a rapid and direct warning (e.g. Siren and Flashing Light) to construction workers in the event of chlorine gas release in the SHWWTW. • The Contractor should establish a communication channel with the SHWWTW operation personnel and FSD during construction stage. In case of any hazardous incidents in the treatment works, operation personnel of SHWWTW should advise the Contractor to inform construction workers to proceed with emergency procedure. The Contractor should appoint a Liaison Officer to communicate with FSD Incident Commander on site in case of emergency. • Introduction training should be provided to any staff before carryout construction works at the Project site. • Periodic drills should be coordinated and conducted to ensure all construction personnel are familiar with the emergency procedures. Upon completion of the drills, a review on every step taken should be conducted to identify area of improvement. Prior notice of periodic drills should be given to Station Commander of Tung Chung Fire Station. Joint operational exercise with FSD and SHWWTW is recommended. 	Construction Period	
<i>C. Water Quality</i>				
5.44	4.5	<u>Construction site run-off and general construction activities:</u> The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.	Construction Site / During Construction Period	√
5.45	4.5	<u>Excavation of Soil Materials</u> The construction programme should be properly planned to minimise soil excavation, if any, in rainy seasons. This prevents soil erosion from exposed soil surfaces. Any exposed soil surfaces should also be properly protected to minimise dust emission. In areas where a large amount of exposed soils exist, earth bunds or sand bags should be provided. Exposed	Construction Site / During Construction Period	√

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location/ Timing	Status
		stockpiles should be covered with tarpaulin or impervious sheets at all times. The stockpiles of materials should be placed at locations away from any stream courses so as to avoid releasing materials into the water bodies. Final surfaces of earthworks should be compacted and protected by permanent work.		
5.46	4.5	<u>Accidental spillage of chemicals:</u> Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	Construction Site / During Construction Period	√
5.47	4.5	Maintenance of vehicles and equipments involving activities with potential for leakage and spillage should only be undertaken within the areas which appropriately equipped to control these discharges.	Construction Site / During Construction Period	√
5.48	4.5	Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. All fuel tanks and storage areas should be sited on sealed areas in order to prevent spillage of fuels and solvents to the nearby watercourses. All waste oils and fuels should be collected in designated tanks prior to disposal.	Construction Site / During Construction Period	√
5.49	4.5	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labeled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 	Construction Site / During Construction Period	<>
5.50		Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid entering to the nearby watercourses. Stockpiles of cement and other construction materials should be kept covered when not being used. Rubbish and litter from construction sites should also be collected to prevent spreading of rubbish and litter from the site area. It is recommended to clean the construction sites on a regular basis.	Construction Site / During Construction Period	√

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location/ Timing	Status
5.51	4.5	<u>Sewage Effluent</u> The presence of construction workers generates sewage. It is recommended to provide sufficient chemical toilets in the works areas. The toilet facilities should be more than 30m from any watercourse. A licensed waste collector should be deployed to clean the chemical toilets on a regular basis.	Work site/During the construction period	√
5.52	4.5	Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the project. Regular environmental audit on the construction site can provide an effective control of any malpractices and can achieve continual improvement of environmental performance on site.	Work Site / During Construction Period	√
5.53	4.5	<u>Nullah Decking</u> To minimize the potential water quality impacts from the nullah reconstruction works, the practices outlined below should be adopted where applicable: <ul style="list-style-type: none"> • The proposed works should be carried out within the dry season between October and March when the flow in the open nullah is low. • The use of less or smaller construction plants may be specified to reduce the disturbance to the nullah bed. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from the nullah and any water courses during carrying out of the construction works. • Stockpiling of construction materials and dusty materials should be covered and located away from the nullah any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nullah and nearby water receivers. • Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the nullah, where practicable. • Construction effluent, site run-off and sewage should be properly collected and/or treated. • Any works site inside the nullah should be temporarily isolated, such as by placing of sandbags or silt curtains with lead edge at bottom and properly supported props to prevent adverse impact on the water quality. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the nullah and nearby watercourse. • Supervisory staff should be assigned to station 	Work Site / During Construction Period	N/A

D. Waste Management

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location/ Timing	Status
6.41	5.4	<p><u>Good Site Practices</u> Recommendations for good site practices during the construction phase would include:</p> <ul style="list-style-type: none"> • Obtain relevant waste disposal permits from appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354) and subsidiary Regulations and the Land (Miscellaneous Provisions) Ordinance (Cap. 28); • Provide staff training for proper waste management and chemical handling procedures; • Provide sufficient waste disposal points and regular waste collection; • Provide appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • Carry out regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; • Separate chemical wastes for special handling and disposed of to licensed facility for treatment; and • Employ licensed waste collector to collect waste. 	Work Site / During Construction Period	<>
6.42	5.5	<p><u>Waste Reduction Measures</u> Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> • Design foundation works that could minimise the amount of excavated material to be generated; • Provide training to workers on the importance of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling; • Sort out demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.); • Segregate and store different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • Encourage the collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the workforce; and • Plan and stock construction materials carefully to minimize the amount of waste to be generated and to avoid unnecessary generation of waste. 	Work Site/During Design & Construction Period	√
6.44	5.7	<p><u>Excavated and C&D Materials</u> In order to minimise the impact resulting from collection and transportation of C&D material for off-site disposal, the excavated material arising from site formation and foundation works should be reused on-site as backfilling material and for landscaping works as far as practicable. Other mitigation requirements are listed below:</p> <ul style="list-style-type: none"> • A WMP, which becomes part of the Environmental Management Plan (EMP), should be 	Work Site/During Design & Construction Period	√

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location/ Timing	Status
		<p>prepared in accordance with ETWB TCW No.19/2005;</p> <ul style="list-style-type: none"> • A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites) should be adopted for easy tracking; and • In order to monitor the disposal of excavated and C&D material at public filling facilities and landfills and to control fly-tipping, a trip-ticket system should be adopted (refer to ETWB TCW No. 31/2004). 		
6.45 - 6.46	5.8 - 5.9	<p>An EMP should be prepared and implemented in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from construction activities. The EMP should be submitted to the Supervising Officer (SO) and Supervising Officer's Representative (SOR) for approval. The EMP should be reviewed regularly and updated, preferably on a monthly basis.</p> <p>A system should be devised to work for on-site sorting of excavated and C&D materials and promptly removing all sorted and process materials arising from the construction activities to minimize temporary stockpiling on-site. The system should be included in the EMP identifying the source of generation, estimated quantity, arrangement for on-site sorting, collection, temporary storage areas and frequency of collection by recycling Contractors or frequency of removal off-site.</p>	Work Site/During Design & Construction Period	√
6.47	5.10	<p><u>Chemical Waste</u></p> <p>Should chemical wastes be produced at the construction site, the Contractor would be required to register with EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste (such as explosive, flammable, oxidizing, irritant, toxic, harmful, or corrosive). The Contractor should employ a licensed collector to transport and dispose of the chemical wastes, to either the CWTC in Tsing Yi, or any other licensed facilities, in accordance with the Waste Disposal (Chemical Waste) General Regulation.</p>	Work Site / During Construction Period	√
6.48	5.11	<p><u>General Refuse</u></p> <p>General refuse should be stored in enclosed bins or compaction units separated from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.</p>	Work Site / During Construction Period	√
<i>E. Landscape and Visual</i>				
7.99 & Table 7.7	Table 6.1	<u>Construction Phase</u>	Work site/During Design &	√

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location/ Timing	Status
		<ul style="list-style-type: none"> • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical • Compensatory tree planting should be provided to compensate for felled trees. <ul style="list-style-type: none"> - Compensation tree species shall be chosen from both indigenous and ornamental species - Compensatory tree planting quantities shall be as per DLO approved requirement. • Control of night-time lighting • Erection of decorative screen hoarding compatible with the surrounding setting 	Construction Stages	
<i>F. Noise</i>				
8.25	7.3	<p>Good Site Practice:</p> <ul style="list-style-type: none"> • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • Mobile plant, if any, should be sited as far from noise sensitive receivers (NSRs) as possible; • Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities. 	Work site/During Design & Construction Stages	√

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by OSCAR Bioenergy JV
- Δ Deficiency of Mitigation Measures but rectified by OSCAR Bioenergy JV
- N/A Not Applicable in Reporting Period

Annex F

Waste Flow Table

**No. EP/SP/61/10 of Organic Resources Recovery Centre (Phase I)
Monthly Summary Waste Flow Table**

Month	Actual Quantities of Inert C&D Materials Generated					Actual Quantities of Non-inert C&D Materials (Construction Waste) Generated				
	Total Quantity Generated	Reused in the Contract	Reused in other Projects	Hard Rocks & Large Broken Concrete	Disposed as Public Fill	Metals (see Note 1)	Paper/ cardboard packaging (see Note 1)	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse (see Note 3)
	tonne	tonne	tonne	tonne	tonne	kilogram	kilogram	kilogram	Litre	tonne
May 2015	29.58	0.00	0.00	0.00	29.58	0.00	0.00	0.00	0.00	0.00
June 2015	2226.90	0.00	0.00	0.00	2226.90	0.00	0.00	0.00	0.00	9.66
July 2015	2832.27	0.00	0.00	0.00	2832.27	0.00	0.00	0.00	0.00	33.68
August 2015	6657.25	0.00	0.00	0.00	6657.25	0.00	20.00	0.00	0.00	55.06
September 2015	5467.05	0.00	0.00	0.00	5467.05	3480.00	0.00	0.00	0.00	83.81
October 2015	5419.04	0.00	0.00	0.00	5419.04	18710.00	0.00	0.00	0.00	20.45
November 2015	1375.26	0.00	0.00	0.00	1375.26	21610.00	0.00	0.00	0.00	17.38
December 2015	2199.56	75.28	0.00	0.00	2124.28	0.00	41.00	0.00	0.00	21.83
January 2016	4601.43	0.00	0.00	0.00	4601.43	18140.00	50.00	0.00	640.00	20.86
February 2016	4167.01	0.00	0.00	0.00	4167.01	510.00	79.00	0.00	0.00	16.57
March 2016	299.92	41.28	0.00	0.00	258.64	22320.00	75.00	0.00	0.00	22.69
April 2016	3186.37	98.37	0.00	0.00	3088.00	60690.00	77.00	0.00	255.00	37.63
May 2016	1612.33	63.41	0.00	0.00	1548.92	13490.00	35000.00	0.00	0.00	40.76
June 2016	1144.73	30.43	0.00	0.00	1114.30	14600.00	120.00	0.00	0.00	58.34
July 2016	662.76	0.00	0.00	0.00	662.76	13370.00	0.00	0.00	0.00	40.48
August 2016	391.88	0.00	0.00	0.00	391.88	18660.00	84.00	0.00	0.00	61.91
September 2016	324.35	0.00	0.00	0.00	324.35	56800.00	2780.00	0.00	0.00	138.25
October 2016	1561.82	39.00	0.00	0.00	1522.82	40000	9.30	0.00	700.00	114.47
November 2016	897.23	507.94	00.00	0.00	389.76	0.00	123.00	0.00	0.00	154.22
December 2016	2477.95	489.00	0.00	0.00	1988.95	2960.00	93.00	0.00	0.00	136.80

Month	Actual Quantities of Inert C&D Materials Generated					Actual Quantities of Non-inert C&D Materials (Construction Waste) Generated				
	Total Quantity Generated	Reused in the Contract	Reused in other Projects	Hard Rocks & Large Broken Concrete	Disposed as Public Fill	Metals (see Note 1)	Paper/ cardboard packaging (see Note 1)	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse (see Note 3)
	tonne	tonne	tonne	tonne	tonne	kilogram	kilogram	kilogram	Litre	tonne
January 2017	2150.92	503.60	0.00	0.00	1647.32	31240.00	21051.00	3630.00	0.00	127.43
February 2017	553.80	440.00	0.00	0.00	113.80	14940.00	18820.00	2880.00	460.00	83.46
March 2017	665.93	460.00	0.00	0.00	205.93	11660.00	29370.00	4400.00	660.00	99.59
April 2017	553.41	220.00	0.00	0.00	333.41	8600.00	25610.00	520.00	700.00	81.83
May 2017	388.82	211.00	0.00	0.00	177.82	1090.00	64.00	0.00	0.00	109.10
June 2017	352.12	104.00	0.00	0.00	248.12	1800.00	16400.00	12030.00	700.00	70.58
July 2017	400.72	165.00	0.00	0.00	235.72	6500.00	12330.00	4690.00	0.00	52.20
August 2017	589.89	202.00	0.00	0.00	387.89	23330.00	27079.00	5220.00	700.00	69.52
September 2017	3347.18	1364.00	0.00	0.00	1983.18	33379.00	29426.00	3990.00	0.00	62.82
October 2017	2384.86	984.00	0.00	0.00	1400.86	11842.00	34071.00	5230.00	0.00	74.13
November 2017	797.42	384.18	0.00	0.00	413.24	20210.00	25225.00	4030.00	0.00	163.03
December 2017	106.32	51.00	0.00	0.00	55.32	17650.00	19520.00	3210.00	0.00	82.23
January 2018	283.65	125.83	0.00	0.00	157.82	12900.00	15600.00	12330.00	0.00	30.93
February 2018	122.31	55.70	0.00	0.00	66.61	10950.00	13260.00	6570.00	0.00	16.95
March 2018	217.06	99.80	0.00	0.00	117.26	12260.00	12120.00	5960.00	0.00	32.53
April 2018	1118.36	460.58	0.00	0.00	657.78	16320.00	12590.00	6280.00	0.00	33.90
May 2018	475.54	198.85	0.00	0.00	276.69	15230.00	11024.00	0.00	0.00	40.02
June 2018	684.10	256.50	0.00	0.00	427.60	14320.00	10260.00	2630.00	0.00	43.01
July 2018	93.99	42.00	0.00	0.00	51.99	11220.00	6200.00	0.00	0.00	59.77
August 2018	528.56	225.00	0.00	0.00	303.56	13620.00	33400.00	26760.00	0.00	44.50
September 2018	765.70	325.00	0.00	0.00	440.70	10600.00	4500.00	0.00	0.00	41.82
October 2018	0.00	0.00	0.00	0.00	0.00	0.00	2330.00	0.00	0.00	109.49
November 2018	77.71 (Note 4)	0.00	0.00	0.00	77.71	0.00	0.00	0.00	0.00	30.18

Total	64210.44	8222.28	0	0	55988.16	605001	418801.3	110360	4815	2643.87
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- Notes:
- (1) Metal and paper/cardboard packaging were collected by recycler for recycling.
 - (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material collected by recycler for recycling.
 - (3) General refuse was disposed of at NENT by subcontractors.
 - (4) In total, 77.71 tonnes of inert C&D material were disposed as public fill to Fill Bank at Tuen Mun Area 38 and TKO137 in reporting period.

Annex G

Environmental Complaint,
Environmental Summons
and Persecution Log

Annex G Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
May 2015	0	0
June 2015	0	0
July 2015	0	0
August 2015	0	0
September 2015	0	0
October 2015	0	0
November 2015	0	0
December 2015	0	0
January 2016	0	0
February 2016	0	0
March 2016	0	0
April 2016	0	0
May 2016	0	0
June 2016	0	0
July 2016	0	0
August 2016	0	0
September 2016	0	0
October 2016	0	0

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
November 2016	0	0
December 2016	0	0
January 2017	0	0
February 2017	0	0
March 2017	0	0
April 2017	0	0
May 2017	0	0
June 2017	0	0
July 2017	0	0
August 2017	0	0
September 2017	0	0
October 2017	0	0
November 2017	0	0
December 2017	0	0
January 2018	0	0
February 2018	0	0
March 2018	0	0
April 2018	0	0
May 2018	0	0
June 2018	0	0

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
July 2018	0	0
August 2018	0	0
September 2018	1	0
October 2018	0	0
November 2018	0	0
Overall Total	1	0

Annex H

Odour Monitoring Result

Annex H1

Odour Patrol Result

Odour Patrol Result Summary




Date	Result Summary	Remark
02-Nov-18	No level 2 identified.	
05-Nov-18	No level 2 identified.	
07-Nov-18	No level 2 identified.	
09-Nov-18	No level 2 identified.	
12-Nov-18	No level 2 identified.	
14-Nov-18	No level 2 identified.	
16-Nov-18	No level 2 identified.	
19-Nov-18	No level 2 identified.	
21-Nov-18	No level 2 identified.	
23-Nov-18	No level 2 identified.	
26-Nov-18	No level 2 identified.	
28-Nov-18	No level 2 identified.	
30-Nov-18	No level 2 identified, waiting for the official report.	External Odour Patrol (Afternoon) was conducted by ALS.
30-Nov-18	No level 2 identified, waiting for the official report.	External Odour Patrol (Evening) was conducted by ALS.

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	2 / 11 / 2018
Start & End Time (24hr)	From 14:00 To 14:25
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up / T & C Period
Weather Condition	Sunny / <u>Cloudy</u> / Windy / Humid / Foggy /
Temperature (°C)	24.6
Relative Humidity (%)	62
Monitoring Point	① / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / ② / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Hot Plastic
Possible Source of Odour	PSV of Biogas Holder
Monitoring Point	1 / 2 / ③ / 4 / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / ④ / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / ⑤ / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Minor Compost smell
Possible Source of Odour	Composting Hall
Monitoring Point	1 / 2 / 3 / 4 / 5 / ⑥ / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions Remark	



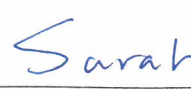
	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Daniel Chor	Patrick Jm		Sarah HO
Signature			NA	
Date	2/11/2018	2/11/18		2/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	2 / 11 / 2018
Start & End Time (24hr)	From 14:00 To 14:25
Type of Patrol	Weekly / Monthly / Ad hoc / Follow up / T & C Period
Weather Condition	Sunny / <u>Cloudy</u> / Windy / Humid / Foggy /
Temperature (°C)	24.6
Relative Humidity (%)	62
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / <u>7</u> / 8
Intensity of Odour	<u>0</u> / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / <u>8</u>
Intensity of Odour	0 / <u>1</u> / 2 / 3 / 4
Characteristic of Odour	SSOW smell
Possible Source of Odour	Waste Collection Truck
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions Remark	




	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Daniel Choi	Patricia Jm		Sarah Ho
Signature			NA	
Date	2/11/2018	2/11/18		2/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	5 / 11 / 2018
Start & End Time (24hr)	From 14:04 To 14:29
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up / T & C Period
Weather Condition	<u>Sunny</u> / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	27.3
Relative Humidity (%)	65
Monitoring Point	① / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Hot gas smell
Possible Source of Odour	CHP
Monitoring Point	1 / ② / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / ② / 2 / 3 / 4
Characteristic of Odour	Hot Plastic
Possible Source of Odour	PSV of Biogas Holder
Monitoring Point	1 / 2 / ③ / 4 / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / ④ / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Digestate Smell
Possible Source of Odour	IDT
Monitoring Point	1 / 2 / 3 / 4 / ⑤ / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / ⑥ / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Digestate Smell
Possible Source of Odour	IDT
Follow-up Actions Remark	




	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	TESS CHAN	Patricia Jim		Sarah HO
Signature			NA	
Date	05 Nov 2018	5/11/18		5/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	5 / 11 / 2018
Start & End Time (24hr)	From 14:04 To 14:29
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up - T & C Period
Weather Condition	Sunny / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	27.3
Relative Humidity (%)	65
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	Minor Hot Plastic
Possible Source of Odour	PSV of Biogas Holder
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions Remark	




	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	TESS CHAN	Patrick Yim		Sarah HO
Signature			NA	
Date	05 Nov 2018	5 / 11 / 18.		5 / 11 / 2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	7 / 11 / 2018
Start & End Time (24hr)	From 11:05 To 11:28
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up / T & C Period
Weather Condition	Sunny / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	26.3
Relative Humidity (%)	70
Monitoring Point	① / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / ② / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Hot Plastic
Possible Source of Odour	PSV of Biogas Holder
Monitoring Point	1 / 2 / ③ / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Hot Plastic, wastewater smell
Possible Source of Odour	PSV of Biogas Holder, Building 1
Monitoring Point	1 / 2 / 3 / ④ / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Digestate smell, wastewater smell
Possible Source of Odour	Mixing Unit, Collection chamber
Monitoring Point	1 / 2 / 3 / 4 / ⑤ / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / ⑥ / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions Remark	




	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Fiona LAM	Derek Jim		Sarah HO
Signature			NA	
Date	7/11/2018	7/11/18.		7/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	7 / 11 / 2018
Start & End Time (24hr)	From 11:05 To 11:28
Type of Patrol	Weekly / Monthly / Ad hoc / Follow up / T & C Period
Weather Condition	<u>Sunny</u> / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	26.3
Relative Humidity (%)	70
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / <u>7</u> / 8
Intensity of Odour	<u>0</u> / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / <u>8</u>
Intensity of Odour	<u>0</u> / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions Remark	

	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Fiona Lam	Patrick Yip		Sarah HO
Signature			NA	
Date	7/11/2018	7/11/18		7/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	9 / 11 / 2018
Start & End Time (24hr)	From 11:30 To 11:45
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up T & C Period
Weather Condition	Sunny / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	25.3
Relative Humidity (%)	58
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	Hot
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	Hot Plastic
Possible Source of Odour	PSV of Biogas Holder
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow up Actions Remark	




	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Tess CHAN	Patrick Yin		Sarah Ho
Signature	Tess	[Signature]	NA	Sarah
Date	9 Nov 2018	9/11/18.		9/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	9 / 11 / 2018
Start & End Time (24hr)	From 11:30 To 11:45
Type of Patrol	Weekly / Monthly / Ad hoc / Follow up / T & C Period
Weather Condition	Sunny / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	25.3
Relative Humidity (%)	58
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions Remark	



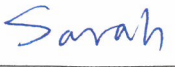
	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Tess CHAN	Patrick Ym		Sarah Ho
Signature			NA	
Date	P Nov 2018	9/11/18		9/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	12 / 11 / 2018
Start & End Time (24hr)	From 14:03 To 14:26
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up / T & C Period
Weather Condition	Sunny / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	27
Relative Humidity (%)	73
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	Hot Plastic
Possible Source of Odour	PSV of Biogas Holder
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow up Actions Remark	



	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Daniel Choi	Vatank Jom		Sarah HO
Signature			NA	
Date	12/11/18	12/11/18		12/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	12 / 11 / 2018
Start & End Time (24hr)	From 14:03 To 14:26
Type of Patrol	Weekly / Monthly / Ad hoc / Follow up / T & C Period
Weather Condition	Sunny / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	27
Relative Humidity (%)	73
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions Remark	


	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Daniel Choi	Patrick Joo		Sarah HO
Signature			NA	Sarah
Date	12/11/18	12/11/18		12/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	14 / 11 / 2018
Start & End Time (24hr)	From 11:30 To 11:54
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up / T & C Period
Weather Condition	Sunny / <u>Cloudy</u> / Windy / Humid / Foggy /
Temperature (°C)	25.3
Relative Humidity (%)	69
Monitoring Point	① / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / ② / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Hot Plastic
Possible Source of Odour	PSV of Biogas Holder
Monitoring Point	1 / 2 / ③ / 4 / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / ④ / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / ⑤ / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / ⑥ / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Minor Hot Plastic
Possible Source of Odour	PSV of Biogas Holder
Follow up Actions Remark	



	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Daniel Choi			Sarah HO
Signature		NA	NA	Sarah
Date	14/11/2018			14/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	14 / 11 / 2018
Start & End Time (24hr)	From 11:30 To 11:54
Type of Patrol	Weekly / Monthly / Ad hoc / Follow up / T & C Period
Weather Condition	Sunny / <u>Cloudy</u> / Windy / Humid / Foggy /
Temperature (°C)	25.3
Relative Humidity (%)	69
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / <u>7</u> / 8
Intensity of Odour	<u>0</u> / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / <u>8</u>
Intensity of Odour	<u>0</u> / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions Remark	
	Main lobby (U turn location) has rubbish smell.



	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Daniel Choi			Sarah HO
Signature		NA	NA	
Date	14/11/2018			14/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	16 / 11 / 2018
Start & End Time (24hr)	From 11:40 To 12:05
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up T & C Period
Weather Condition	Sunny / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	25.5
Relative Humidity (%)	75
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	Hot plastic (Intermittent)
Possible Source of Odour	PSV of Biogas Holder
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	Wastewater (Very minor)
Possible Source of Odour	Building 2
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions Remark	



	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Fiona Lam			Sarah Ho
Signature		NA	NA	
Date	16/11/2018			16/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	16 / 11 / 2018
Start & End Time (24hr)	From 11:40 To 12:05
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up / T & C Period
Weather Condition	<u>Sunny</u> / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	25.5
Relative Humidity (%)	75
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / <u>7</u> / 8
Intensity of Odour	0 / <u>1</u> / 2 / 3 / 4
Characteristic of Odour	Rubbish smell
Possible Source of Odour	Pre-treatment skip area
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / <u>8</u>
Intensity of Odour	<u>0</u> / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions Remark	




	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	FRANK LAM			Sarah HO
Signature		NA	NA	
Date	16/11/2018			16/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	19 / 11 / 2018
Start & End Time (24hr)	From 11:30 To 11:56
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up T & C Period
Weather Condition	Sunny / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	25.9
Relative Humidity (%)	55
Monitoring Point	① / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / ② / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Hot Plastic
Possible Source of Odour	PSV of Biogas Holder
Monitoring Point	1 / 2 / ③ / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Digestate Smell
Possible Source of Odour	Around AD 1 Area
Monitoring Point	1 / 2 / 3 / ④ / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / ⑤ / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	compost smell
Possible Source of Odour	composting Hall, lower of pipe gallery
Monitoring Point	1 / 2 / 3 / 4 / 5 / ⑥ / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions Remark	




	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Fiona Lam	Patrick Yim		Sarah HO
Signature			NA	
Date	19/11/2018	19/11/18		19/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	19 / 11 / 2018
Start & End Time (24hr)	From 11:30 To 11:56
Type of Patrol	Weekly / Monthly / Ad hoc / Follow up / T & C Period
Weather Condition	<u>Sunny</u> / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	25.9
Relative Humidity (%)	55
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / <u>7</u> / 8
Intensity of Odour	<u>0</u> / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / <u>8</u>
Intensity of Odour	0 / <u>1</u> / 2 / 3 / 4
Characteristic of Odour	Smoking smell
Possible Source of Odour	Staff
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions Remark	


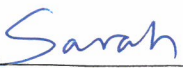
	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Fiona Lam	Patrick Jun		Sarah HO
Signature			NA	
Date	19/11/2018	19/11/18		19/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet



Parameter	Observations
Date	21 / 11 / 2018
Start & End Time (24hr)	From 11:33 To 11:55
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up / T & C Period
Weather Condition	Sunny / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	26.2
Relative Humidity (%)	71
Monitoring Point	① / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / ② / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Hot Plastic
Possible Source of Odour	PSV of Biogas Holder
Monitoring Point	1 / 2 / ③ / 4 / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / ④ / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / ⑤ / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / ⑥ / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions Remark	Centrifuge lower has strong digestate smell.

	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	FIONA LAM			Sarah HO
Signature		NA	NA	
Date	21/11/2018			21 / 11 / 2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)
Odour Patrol Record Log Sheet

Parameter	Observations
Date	21 / 11 / 2018
Start & End Time (24hr)	From 11:37 To 11:55
Type of Patrol	Weekly / Monthly / Ad hoc / Follow up / T & C Period
Weather Condition	<u>Sunny</u> / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	26.2
Relative Humidity (%)	71
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / <u>7</u> / 8
Intensity of Odour	<u>0</u> / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / <u>8</u>
Intensity of Odour	<u>0</u> / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions Remark	

	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Fiona Lam			Sarah Ho
Signature		NA	NA	
Date	21/11/2018			21/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	23 Nov 2018
Start & End Time (24hr)	From 10:30 To 10:47
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up T & C Period
Weather Condition	<u>Sunny</u> / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	25°C
Relative Humidity (%)	54%
Monitoring Point	① / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / ② / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Plastic smell
Possible Source of Odour	PSV of Gas Holder
Monitoring Point	1 / 2 / ③ / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Smell of food waste
Possible Source of Odour	Opening of maintenance platform gate
Monitoring Point	1 / 2 / 3 / ④ / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / ⑤ / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / ⑥ / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions Remark	


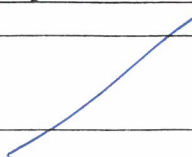

	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Daniel Chor	/		Terence CHAN
Signature	[Signature]	/	NA	[Signature]
Date	23/11/2018	/		23/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet



Parameter	Observations
Date	23 Nov 2018
Start & End Time (24hr)	From 10:30 To 10:47
Type of Patrol	Weekly / Monthly / Ad hoc / Follow up / T & C Period
Weather Condition	Sunny / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	25°C
Relative Humidity (%)	54%
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions Remark	

	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Daniel Choi			Terence CHAN
Signature			NA	
Date	23/11/2018			23/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)
Odour Patrol Record Log Sheet

Parameter	Observations
Date	26 / 11 / 2018
Start & End Time (24hr)	From 13:36 To 14:01
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up / T&C Period Patrol
Weather Condition	Sunny / <u>Cloudy</u> / Windy / Humid / Foggy /
Temperature (°C)	23.6
Relative Humidity (%)	66
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	Strong Hot Plastic (intermittent) (nearly 2)
Possible Source of Odour	PSV of Biogas Holder
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	Grass Smell
Possible Source of Odour	Plant
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions	




	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Fiona Lam	Patrick J. N.		Sarah HO
Signature			NA	Sarah
Date	26/11/2018	26/11/18.		26/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	26 / 11 / 2018
Start & End Time (24hr)	From 13:36 To 14:01
Type of Patrol	Weekly / Monthly / Ad hoc / Follow up / T&C Period Patrol
Weather Condition	Sunny / <u>Cloudy</u> / Windy / Humid / Foggy /
Temperature (°C)	23.6
Relative Humidity (%)	66
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / <u>7</u> / 8
Intensity of Odour	<u>0</u> / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / <u>8</u>
Intensity of Odour	<u>0</u> / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions	



	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Fiona Lam	Patrick Jin		Sarah HO
Signature			NA	
Date	26/11/2018	26/11/18		26/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	28 / 11 / 2018
Start & End Time (24hr)	From 11:26 To 11:44
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up / T&C Period Patrol
Weather Condition	Sunny / <u>Cloudy</u> / Windy / Humid / Foggy /
Temperature (°C)	23.2
Relative Humidity (%)	74
Monitoring Point	① / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / ② / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Minor Hot Plastic
Possible Source of Odour	PSV of Biogas Holder
Monitoring Point	1 / 2 / ③ / 4 / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / ④ / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Compost smell
Possible Source of Odour	Mixing Unit
Monitoring Point	1 / 2 / 3 / 4 / ⑤ / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Grass smell
Possible Source of Odour	Tree
Monitoring Point	1 / 2 / 3 / 4 / 5 / ⑥ / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions	Centrifuge lower with digestate smell (minor).

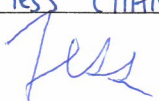
	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Tess CHAN			Sarah HO
Signature		NA	NA	
Date	28 Nov 2018			28/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	28 / 11 / 2018
Start & End Time (24hr)	From 11:26 To 11:44
Type of Patrol	Weekly / Monthly / Ad hoc / Follow up / T&C Period Patrol
Weather Condition	Sunny / <u>Cloudy</u> / Windy / Humid / Foggy /
Temperature (°C)	23.2
Relative Humidity (%)	74
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	sewage smell
Possible Source of Odour	Main Gate Channel
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions	





	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Tess CHAN			Sarah HO
Signature		NA	NA	Sarah
Date	28 Nov 2018			28 / 11 / 2018

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Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	30 / 11 / 2018
Start & End Time (24hr)	From 11:21 To 11:40
Type of Patrol	Weekly / <u>Monthly</u> / Ad hoc / Follow-up / T&C Period
Weather Condition	<u>Sunny</u> / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	24.6
Relative Humidity (%)	59.6
Monitoring Point	① / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / ② / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Plastic
Possible Source of Odour	Biogas Holder resealed valve
Monitoring Point	1 / 2 / ③ / 4 / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / ④ / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / ⑤ / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	P1: 0 P2: 1 Grass
Possible Source of Odour	Grass
Monitoring Point	1 / 2 / 3 / 4 / 5 / ⑥ / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	P1: 0 P2: 1 Garbage
Possible Source of Odour	Process hall
Follow-up Actions	





	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Fiona Lam	Patrick Yim	Pan Yuen / Edwin Wong	Sarah HO
Signature				
Date	30/11/2018	30/11/18	30/11/2018	30/11/2018

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Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	30 / 11 / 2018
Start & End Time (24hr)	From 11:21 To 11:40
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up / T&C Period
Weather Condition	Sunny / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	24.6
Relative Humidity (%)	59.6
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	Garbage
Possible Source of Odour	Unloading Bay
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions	



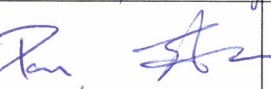
	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Fiona Lam	Patrick Jun	Pan YUEN / Edwin Wong	Sarah HO
Signature				
Date	30/11/2018	30/11/2018	30/11/2018	30/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	30 / 11 / 2018
Start & End Time (24hr)	From 17:55 To 18:16
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up / T&C Period
Weather Condition	Sunny / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	23.5
Relative Humidity (%)	67.8
Monitoring Point	① / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / ② / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Plastic
Possible Source of Odour	Biogas Holder Relief Valve
Monitoring Point	1 / 2 / ③ / 4 / 5 / 6 / 7 / 8
Intensity of Odour	① / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / ④ / 5 / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Biogas
Possible Source of Odour	Composting Building
Monitoring Point	1 / 2 / 3 / 4 / ⑤ / 6 / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	Ammonia
Possible Source of Odour	Process Hall
Monitoring Point	1 / 2 / 3 / 4 / 5 / ⑥ / 7 / 8
Intensity of Odour	0 / ① / 2 / 3 / 4
Characteristic of Odour	compost
Possible Source of Odour	Process Hall
Follow-up Actions	

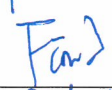


	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Fiona Lam	Philip Cheung	Pan Yuen / Edwin Wong	Sarah HO
Signature				Sarah
Date	30/11/2018	30/11/2018	30/11/2018	30/11/2018

6. Appendix

Organic Resources Recovery Centre (Phase 1)

Odour Patrol Record Log Sheet

Parameter	Observations
Date	30 / 11 / 2018
Start & End Time (24hr)	From 17:55 To 18:16
Type of Patrol	Weekly / Monthly / Ad hoc / Follow-up / T&C Period
Weather Condition	Sunny / Cloudy / Windy / Humid / Foggy /
Temperature (°C)	23.5
Relative Humidity (%)	67.8
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Monitoring Point	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
Intensity of Odour	0 / 1 / 2 / 3 / 4
Characteristic of Odour	
Possible Source of Odour	
Follow-up Actions	

	EPD Representative	Employer Representative	Independent Odour Patrol Team	OSCAR Bioenergy JV
Name	Fiona Lam	Philip Cheung	Pan Yuen / Edwin	Sarah HO
Signature				Sarah
Date	30/11/2018	30/11/2018	30/11/2018	30/11/2018

CERTIFICATE OF ANALYSIS

CLIENT:	Oscar Bioenergy Joint Venture	WORK ORDER:	HK1856263
CONTACT:	Edwin Wong	LABORATORY:	Hong Kong
ADDRESS:	No. 5, Sham Fung Road, Siu Ho Wan, North Lantau Island, NT, Hong Kong	SUB-BATCH:	0
		DATE OF PATROL:	26 October 2018
		DATE OF ISSUE:	5 November 2018
PROJECT:	Odour Patrol for the Organic Resources Recovery Centre Phase 1 in Siu Ho Wan		
SITE:	Organic Resources Recovery Centre Phase 1 (ORRC1)		

COMMENTS

Date of Odour Patrol: 26 October 2018.
Odour Patrols were conducted by ALS Technichem (HK) Pty Ltd staff during 10:05- 10:20 and 18:03 - 18:15.

NOTES

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

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Richard Fung
General Manager - Hong Kong

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1. Summary of Work

The odour patrol was conducted during daytime and evening / night time.

2. Odour Patrol

Odour patrolling is a process to make use of the calibrated olfactory senses (ie the nasal sense) of the patrol members to evaluate the odour and its intensity during a patrol exercise at the site.

Two odour patrol team members from ALS Technichem (HK) Pty Ltd were sent to conduct the patrol work during each session. All members are free from any respiratory diseases during patrol day. None of the members has been working or living in the area in the vicinity of the inspection area.

The odour patrol was conducted during daytime and evening / night time.

The patrol team was required to move slowly from one to the other monitoring locations and use their olfactory senses to detect odour at each location.

The location of odour sources and the areas to be affected by the odour nuisance were identified as much as possible.

During the patrolling, the meteorological and surrounding information are recorded:

- the prevailing weather condition;
- the wind direction;
- the wind speed;
- location where odour is spotted;
- possible source of odour;
- perceived intensity of the odour;
- duration of odour; and
- characteristics of the odour detected

The perceived intensity is to be divided into 5 levels which are ranked in an ascending order as follows:

0	Not detected	No odour perceives or an odour so weak that it cannot be easily characterised or described
1	Slight	Identifiable odour, slight
2	Moderate	Identifiable odour, moderate
3	Strong	Identifiable odour, strong
4	Extreme	Severe odour

The odour patrol location is shown in Appendix 1.



3. Odour Patrol Result:
3.1. Daytime:

Location	Panellist	Weather	Time	T (°C)	RH (%)	WS (m/s)	WD (Degree)	Odour Intensity	Duration of Odour	Direction from Source	On-Site Observation	
											Odour Characteristics	Potential Odour Source
1	1	Sunny	10:05	27.8	72.8	0.9	025	0	NA	NA	NA	NA
	2							0				
2	1	Sunny	10:06	29.8	69.8	0.7	329	1	Continuous	Downwind	Plastic	Biogas Holder Tank Relief Valve
	2							1	Continuous	Downwind		
3	1	Sunny	10:08	29.2	70.2	0	NA	0	NA	NA	NA	NA
	2							0				
4	1	Sunny	10:10	28.2	70.0	0	NA	1	Intermittent	NA	Grassy	Vegetation
	2							0	NA	NA		
5	1	Sunny	10:12	28.0	74.7	0.2	312	1	Continuous	Side wind	Grassy	Vegetation
	2							1	Continuous	Side wind		



Location	Panellist	Weather	Time	T (°C)	RH (%)	WS (m/s)	WD (Degree)	Odour Intensity	Duration of Odour	Direction from Source	On-Site Observation	
											Odour Characteristics	Potential Odour Source
6	1	Sunny	10:14	29.4	89.8	1.2	335	1	Intermittent	Upwind	Garbage and plastic	Process Hall Exhaust Fan
	2							1	Intermittent	Upwind		
7	1	Sunny	10:16	28.6	74.1	0.9	349	1	Intermittent	Side wind	Vehicle exhaust gas	Vehicles
	2							0	NA	NA		
8	1	Sunny	10:20	30.3	75.4	0.4	323	0	NA	NA	Garbage	Garbage Truck
	2							1	Intermittent	Side wind		

Remark:

T: Air Temperature;
 RH: Relative Humidity;
 WD: Wind Direction;
 WS: Wind Speed.



3.2. Evening / Night time:

Location	Panellist	Weather	Time	T (°C)	RH (%)	WS (m/s)	WD (Degree)	Odour Intensity	Duration of Odour	Direction from Source	On-Site Observation	
											Odour Characteristics	Potential Odour Source
1	1	Cloudy	18:03	27.5	77.2	0.8	007	1	Continuous	Side wind	Grassy	Vegetation
	2							Continuous				
2	1	Cloudy	18:04	27.4	79.5	0.8	349	1	Continuous	Downwind	Plastic	Biogas Holder Tank Relief Valve
	2							Continuous				
3	1	Cloudy	18:05	27.1	79.4	0.6	349	0	NA	Downwind	Plastic	Biogas Holder Tank Relief Valve
	2							Continuous				
4	1	Cloudy	18:07	27.4	80.9	0	NA	0	NA	NA	NA	NA
	2							0				
5	1	Cloudy	18:09	27.1	83.1	0.6	343	0	NA	NA	NA	NA
	2							0				



Location	Panellist	Weather	Time	T (°C)	RH (%)	WS (m/s)	WD (Degree)	Odour Intensity	Duration of Odour	Direction from Source	On-Site Observation	
											Odour Characteristics	Potential Odour Source
6	1	Cloudy	18:11	27.1	83.4	0.9	329	0	NA	Upwind	Garbage	Process Hall Exhaust Fan
	2							1	Continuous			
7	1	Cloudy	18:14	27.2	82.3	0.9	343	0	NA	NA	NA	NA
	2							0				
8	1	Cloudy	18:15	27.5	82.6	0	NA	1	Intermittent	NA	Garbage	From the plant
	2							1				

Remark:

T: Air Temperature;
 RH: Relative Humidity;
 WD: Wind Direction;
 WS: Wind Speed.



APPENDIX 1 Odour Patrol Route



→ Proposed Patrol Route

8 Possible Odour Sources (No.) / Checkpoint

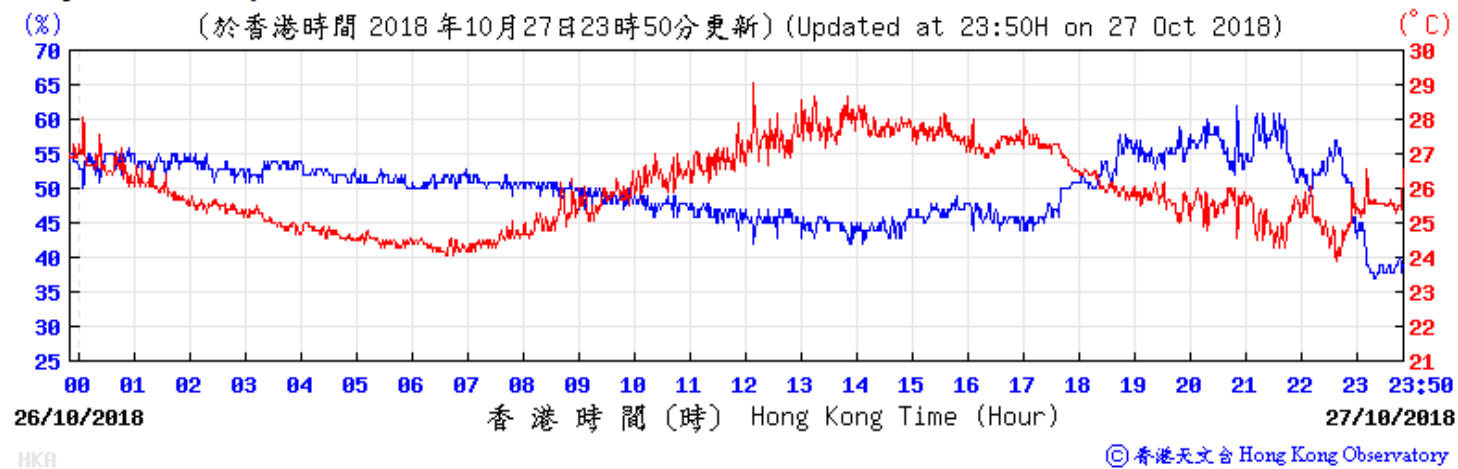
1 Assumed Odour Potential (normal operation)
From 1 (min.) to 3 (max.)



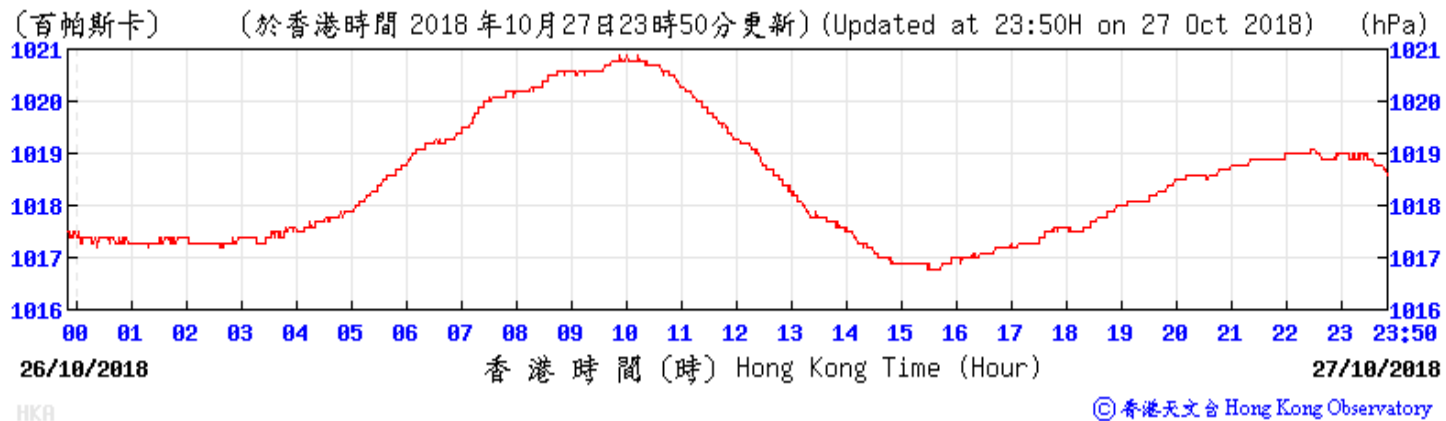
APPENDIX 2

Extract Of Meteorological Observations from Hong Kong Airport Observatory Station

Temperature/Humidity:

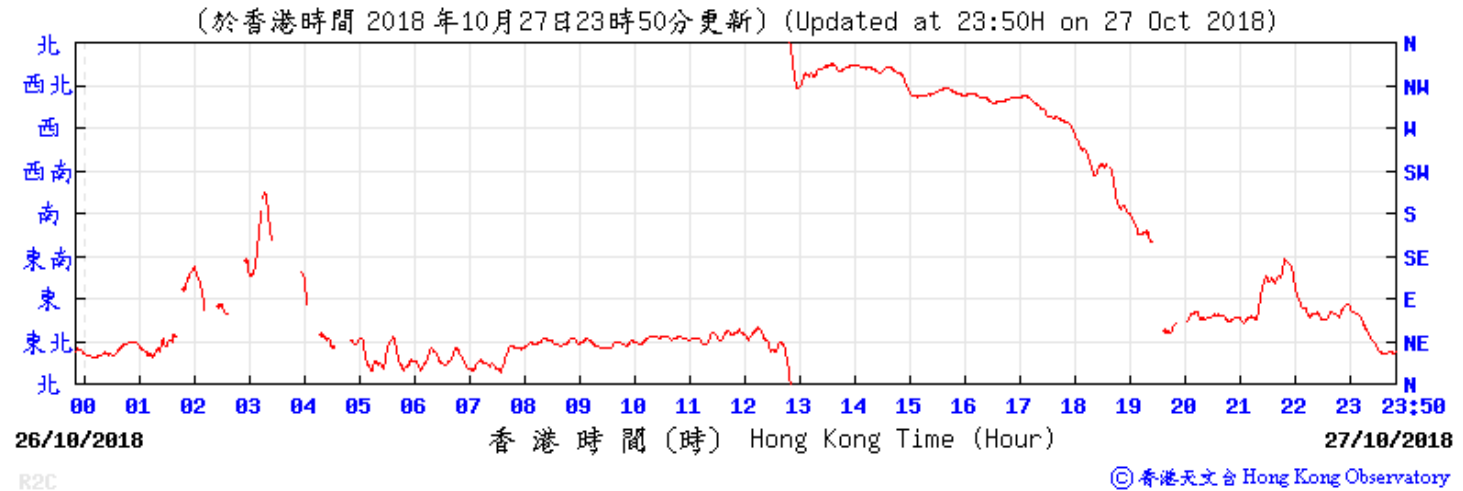


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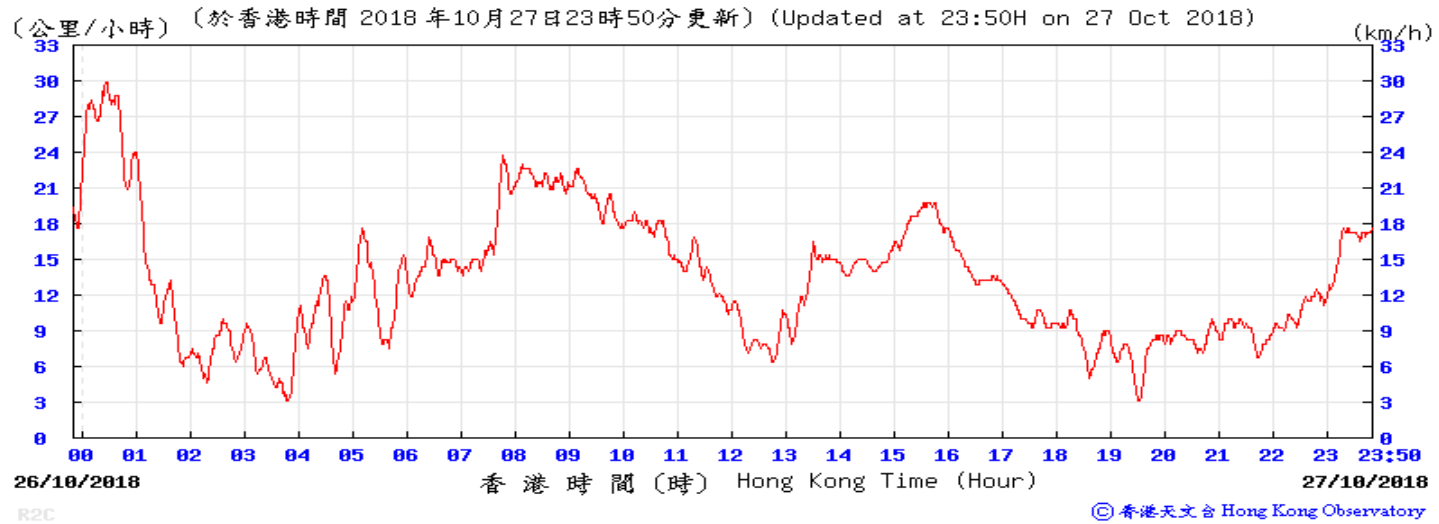




Wind Direction:



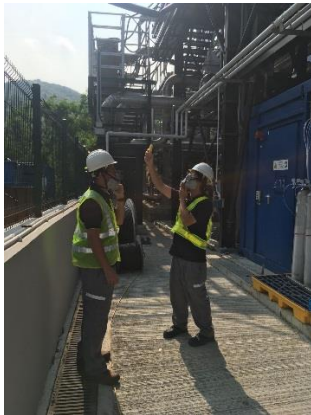
Wind Speed:





APPENDIX 3

A3.1. Odour Patrol at Different Locations – Daytime



Location: 1



Location: 2



Location: 3



Location: 4



Location: 5



Location: 6



Location: 7



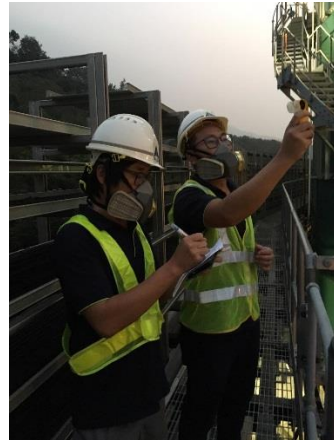
Location: 8



A3.2. Odour Patrol at Different Locations – Evening / Night time



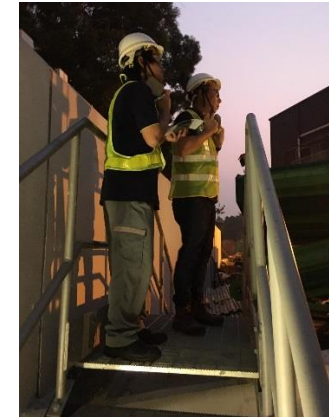
Location: 1



Location: 2



Location: 3



Location: 4



Location: 5



Location: 6



Location: 7

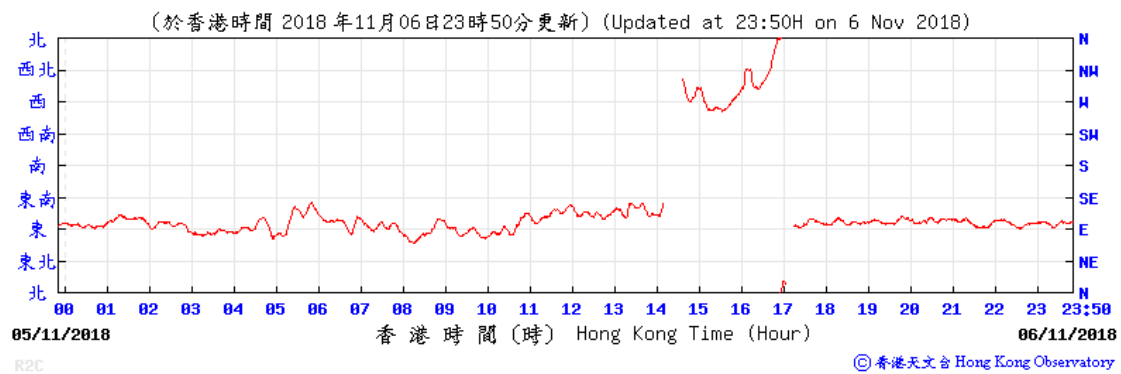
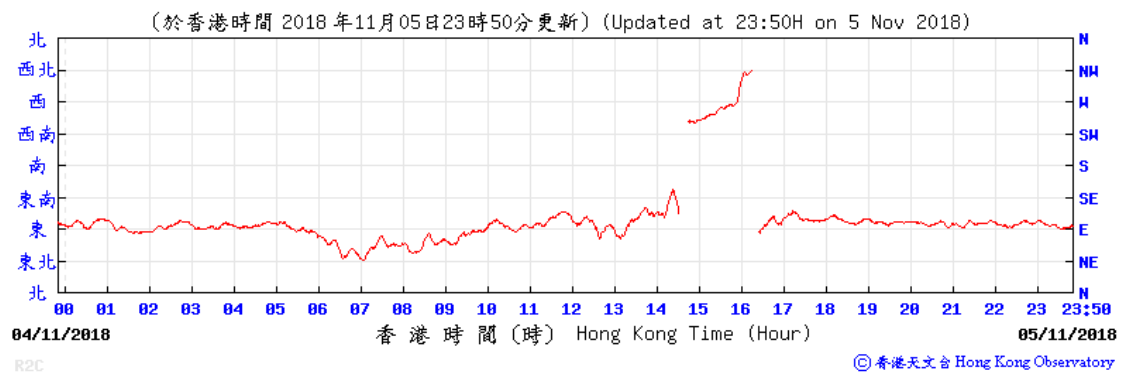
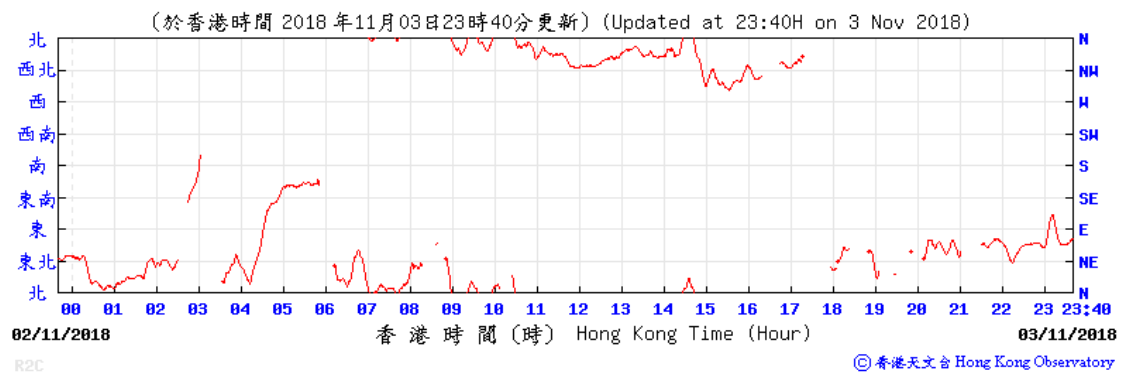
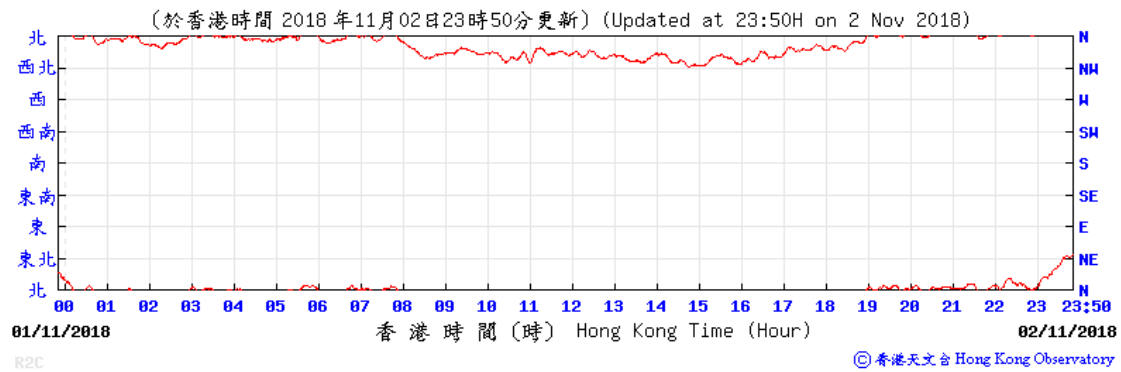


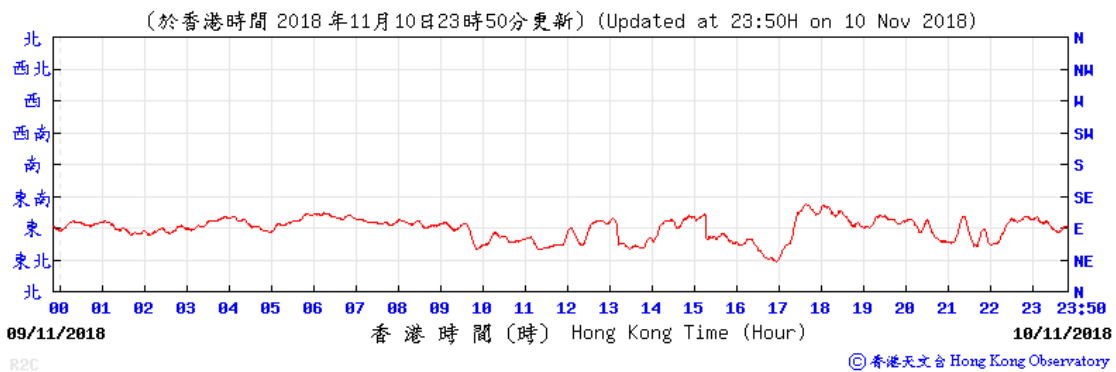
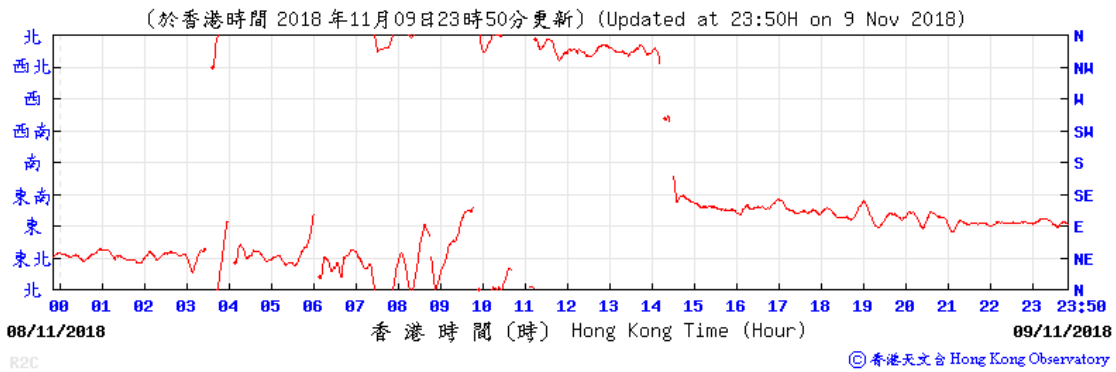
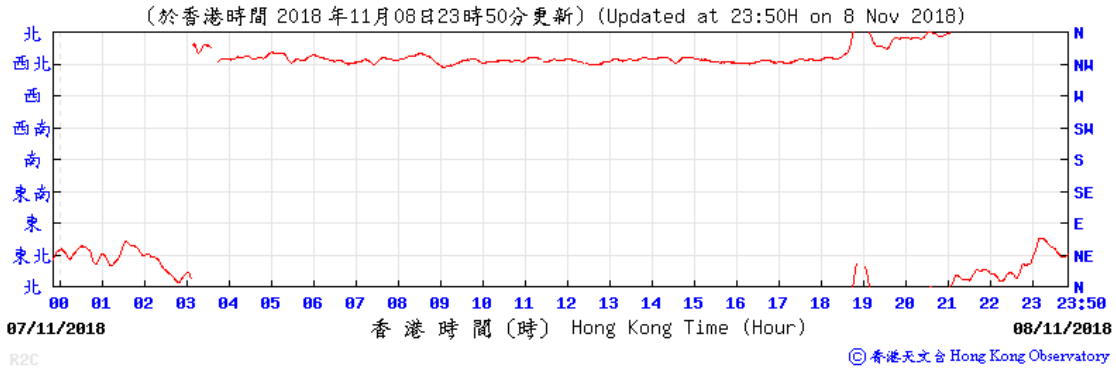
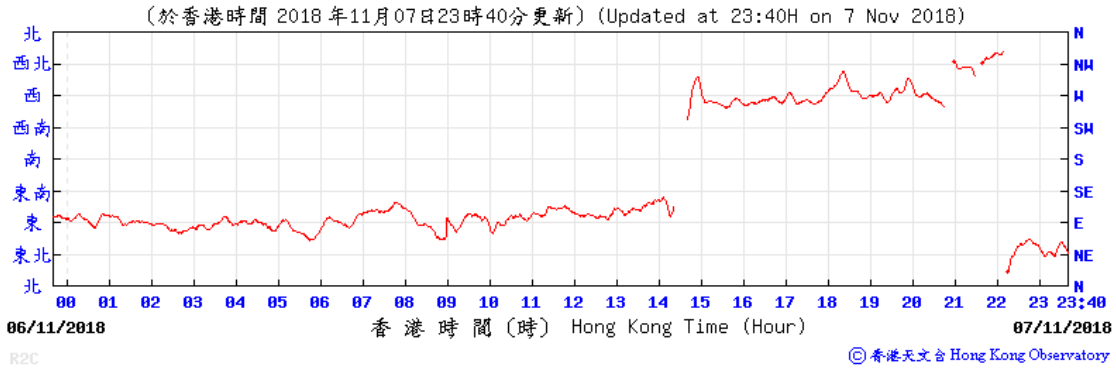
Location: 8

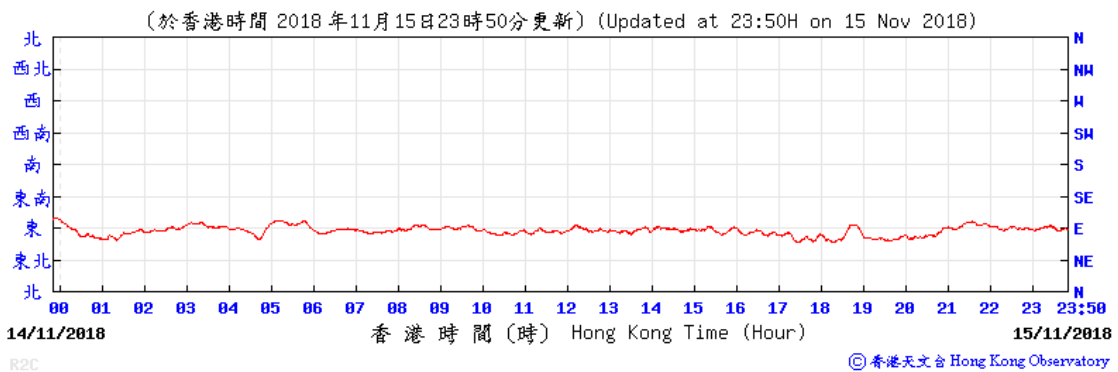
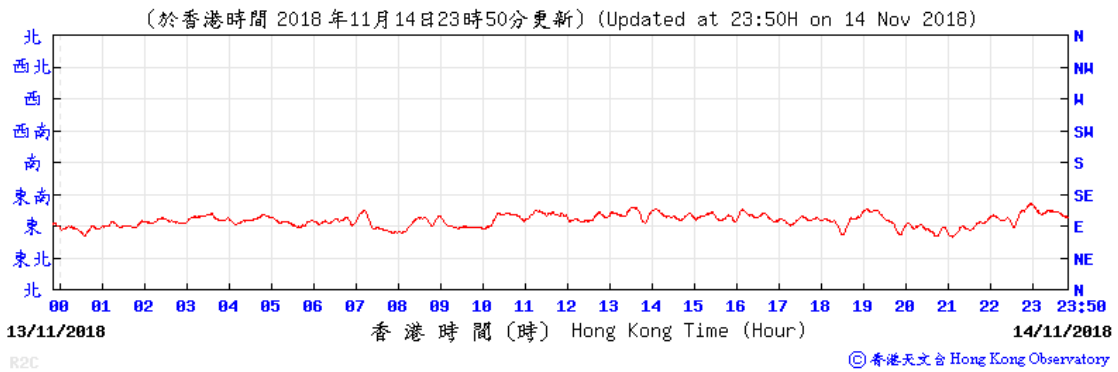
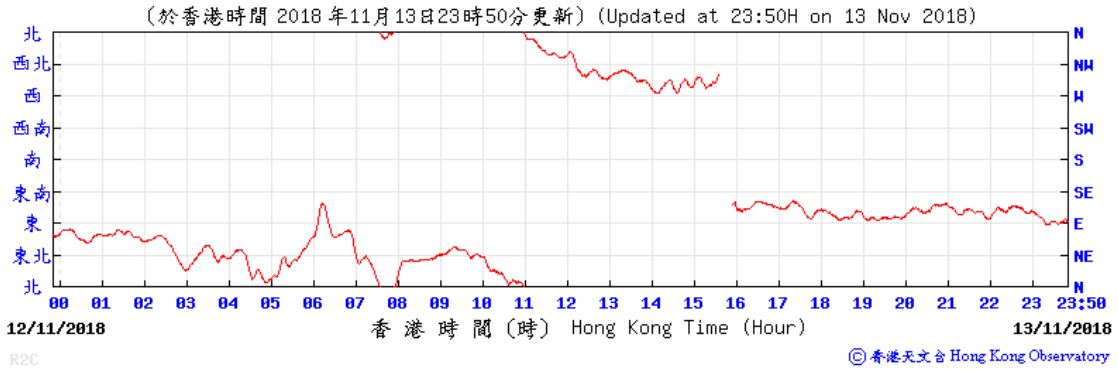
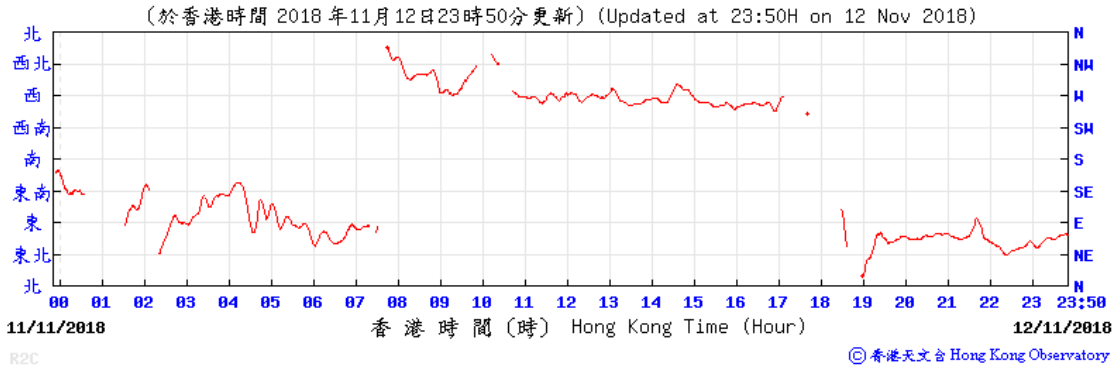
Annex H2

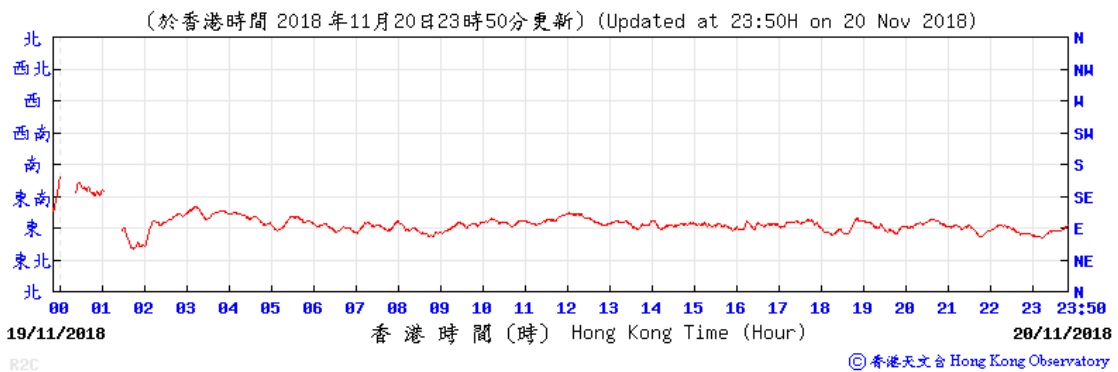
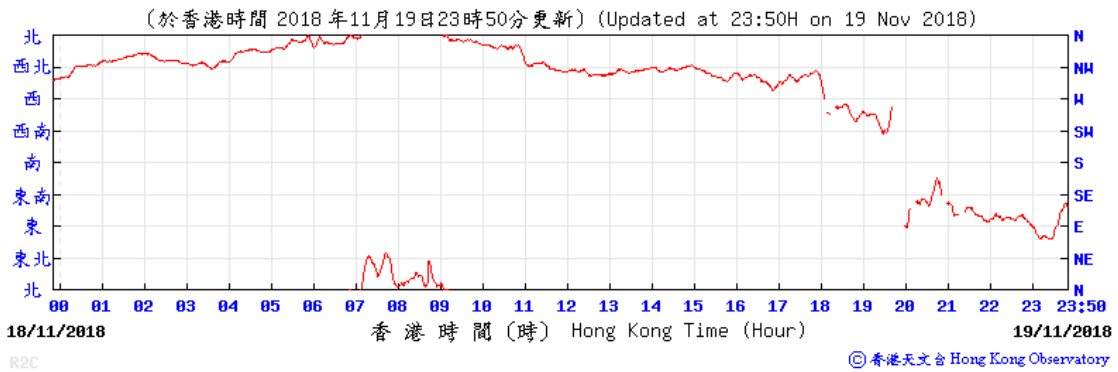
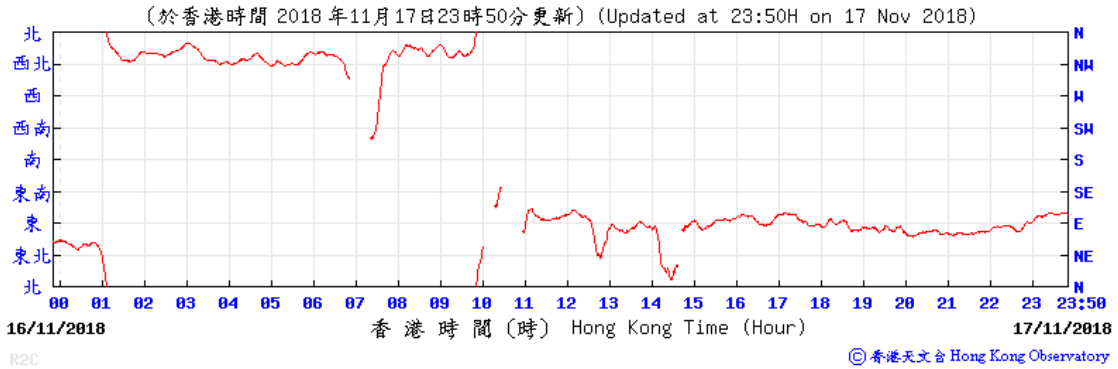
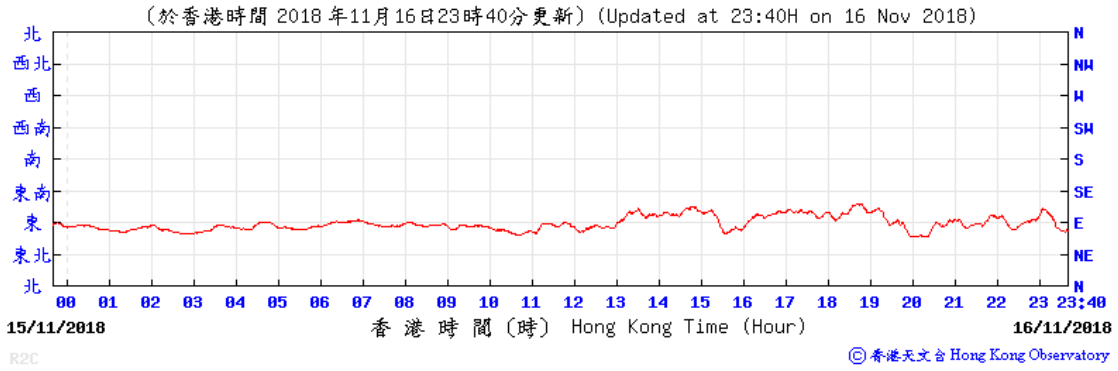
Local Wind Direction and Wind Speed

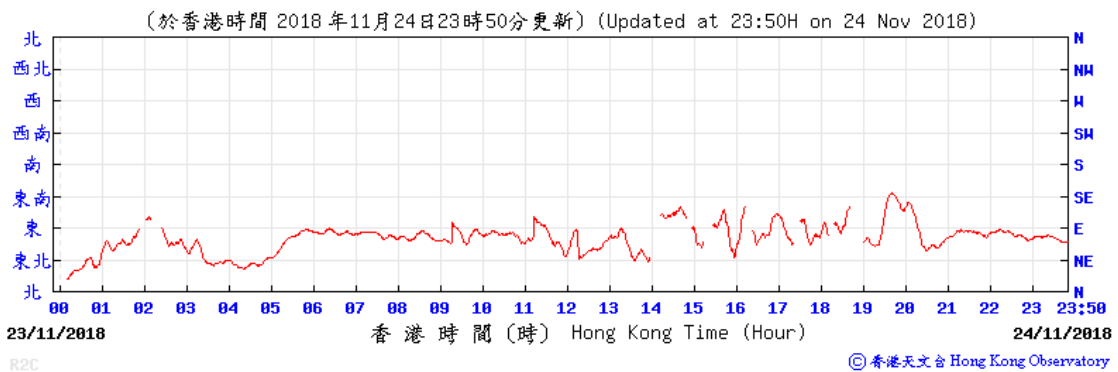
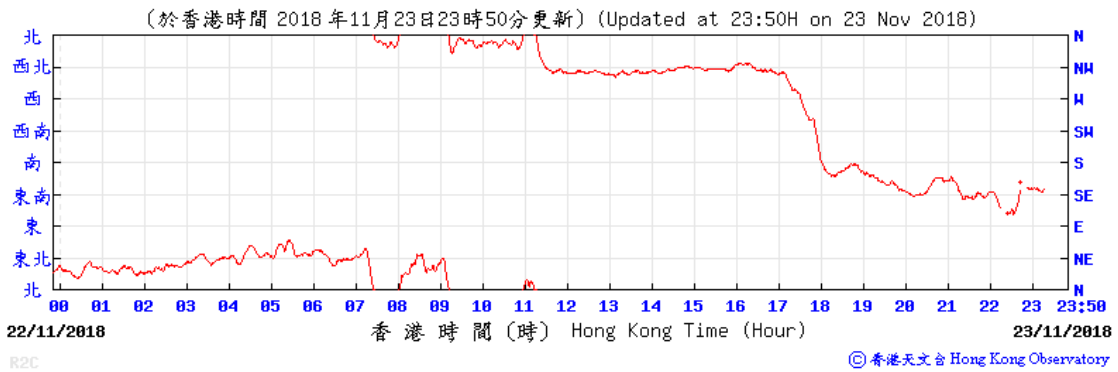
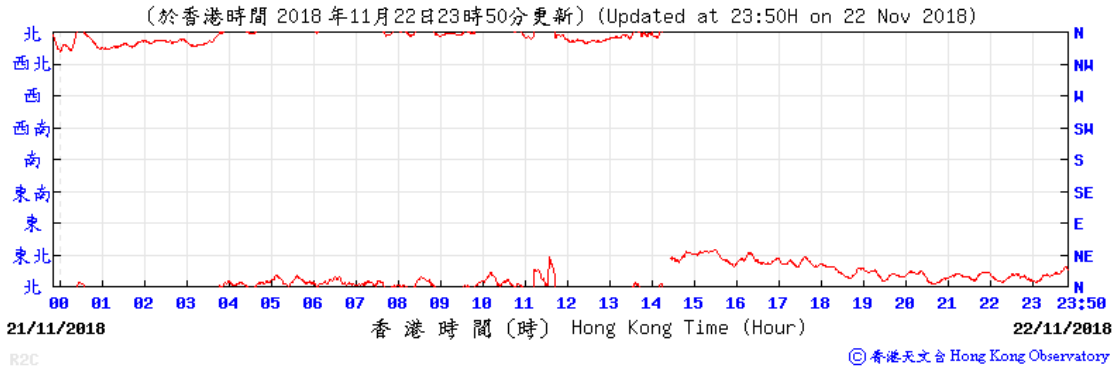
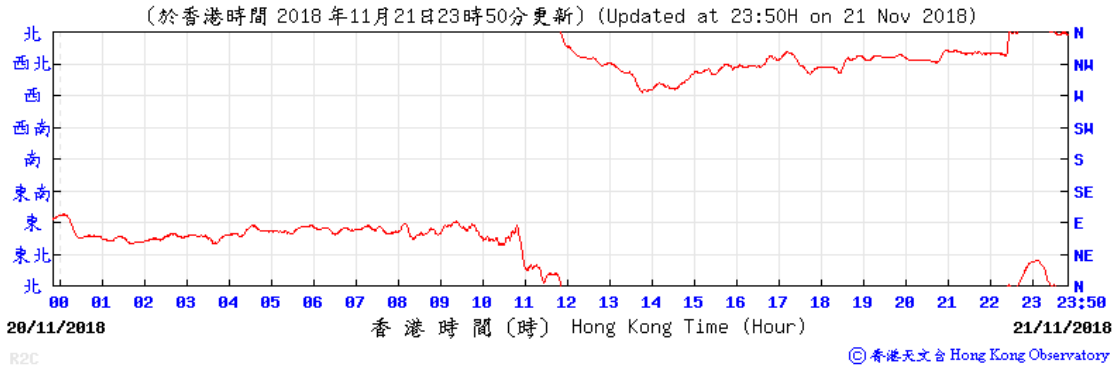
Wind Direction



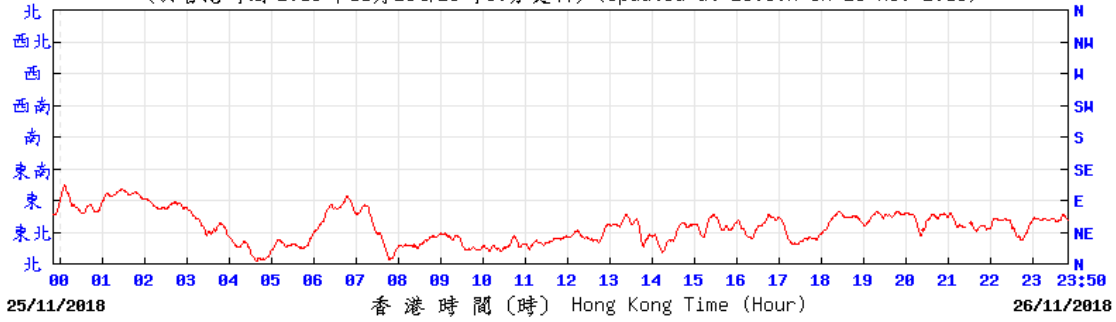








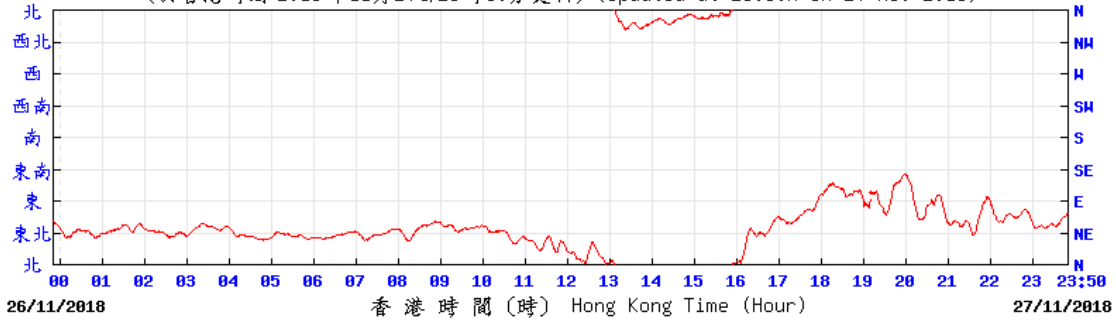
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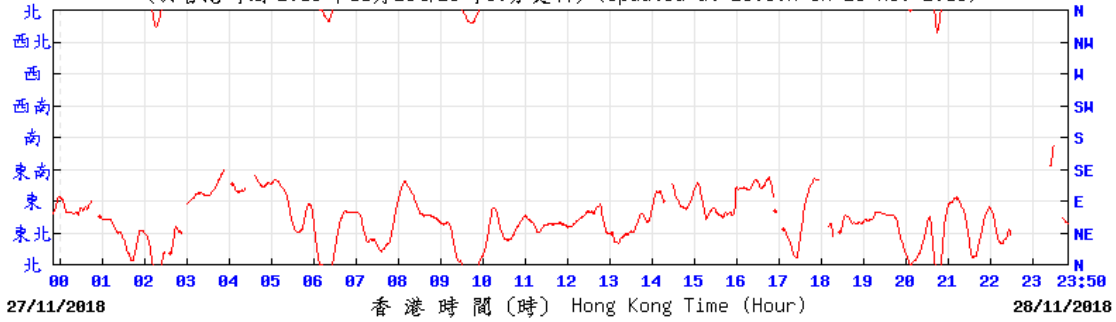
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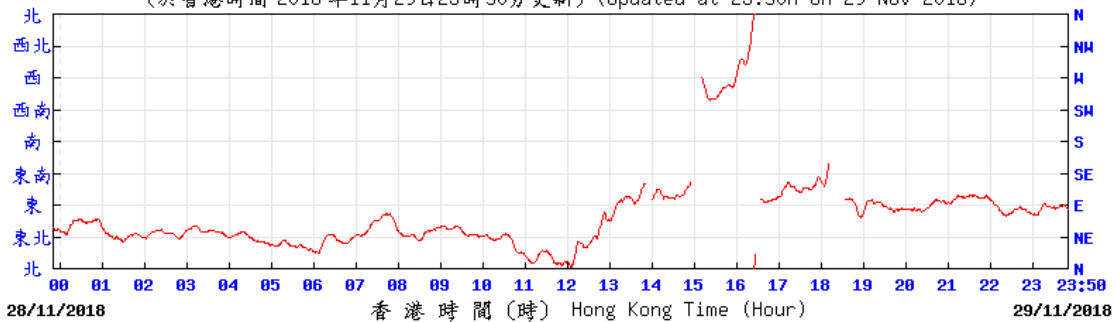
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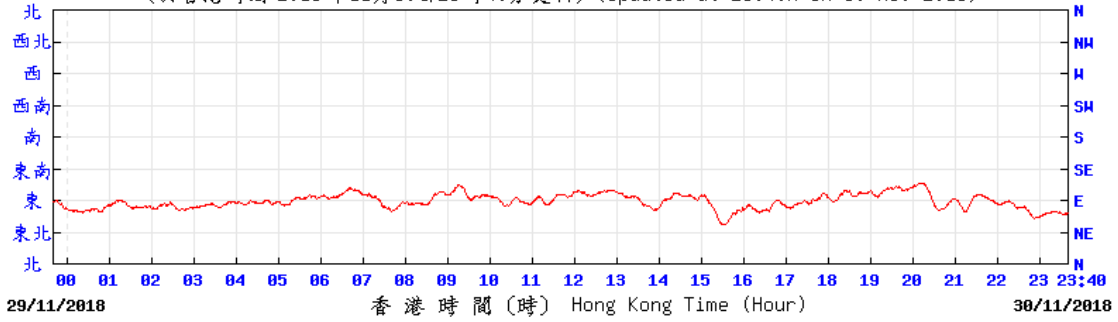
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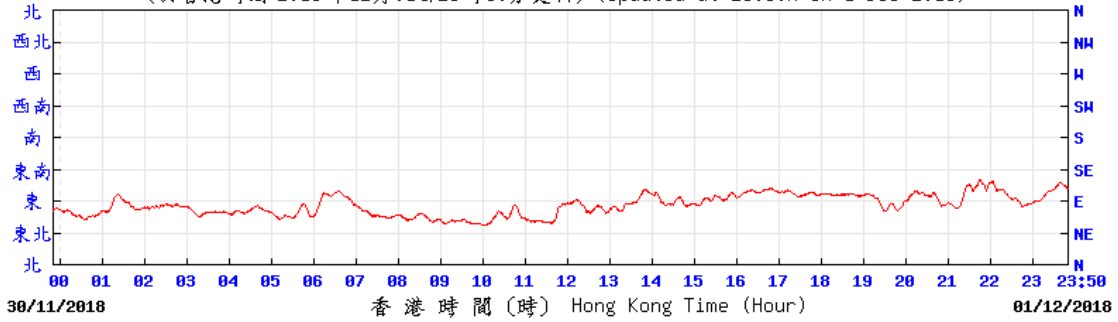
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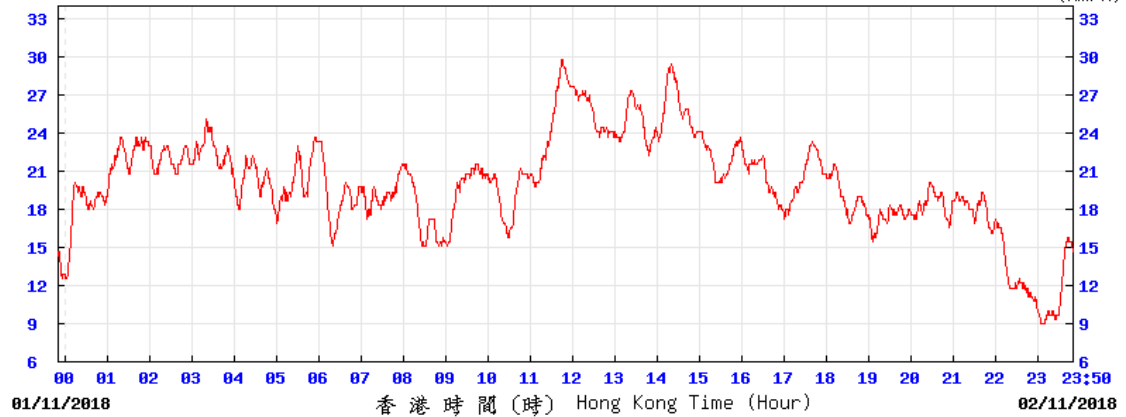


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Wind Speed

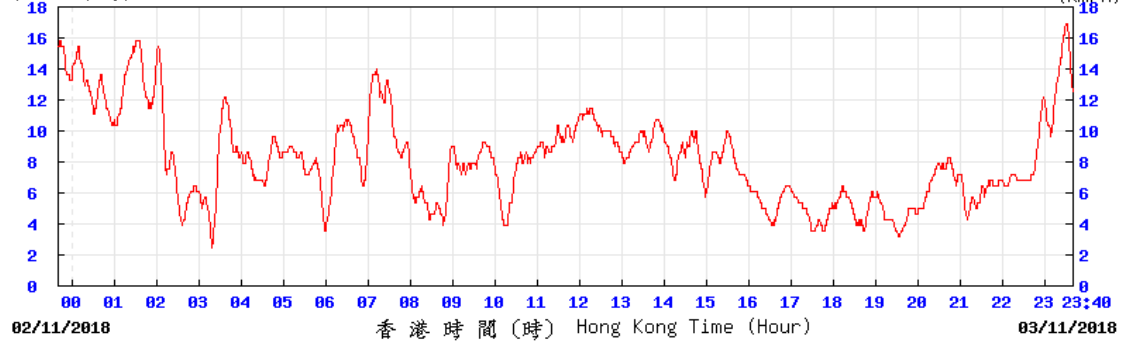
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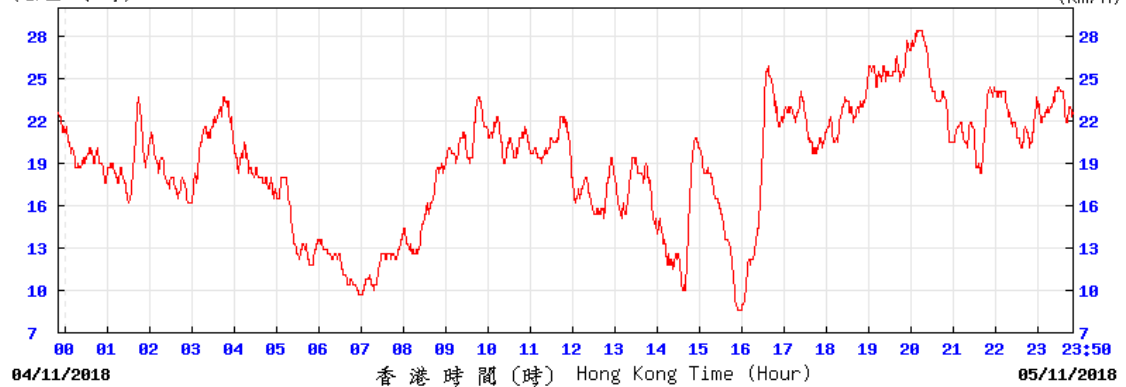
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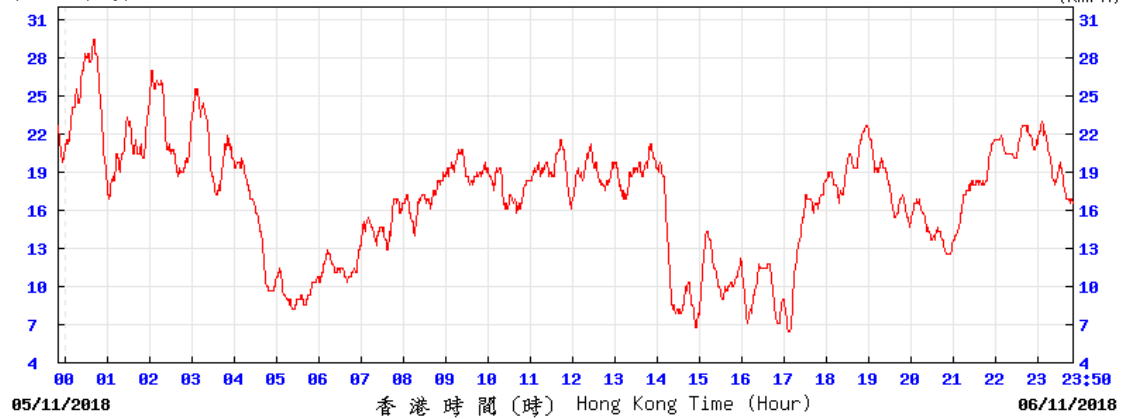
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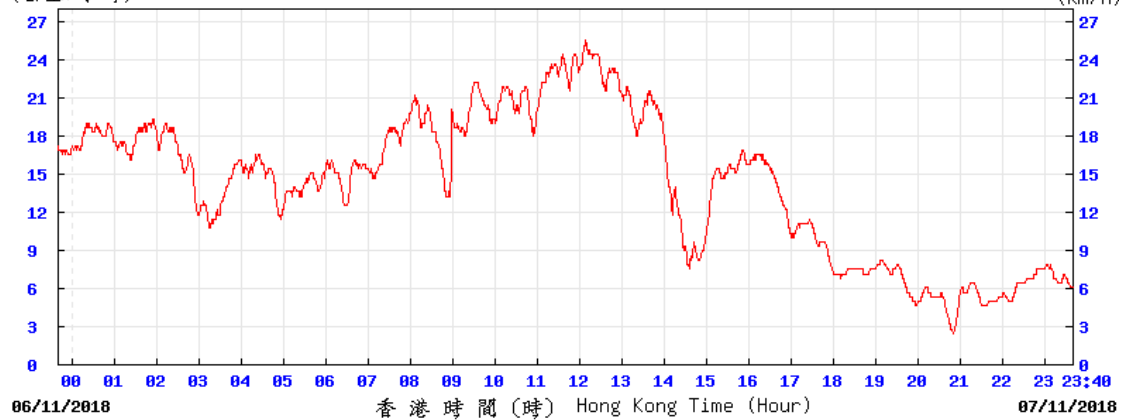
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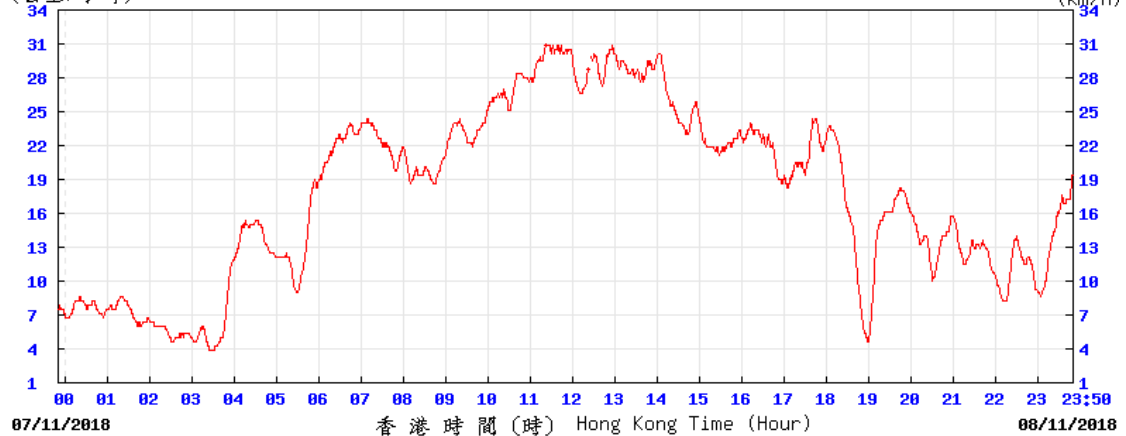
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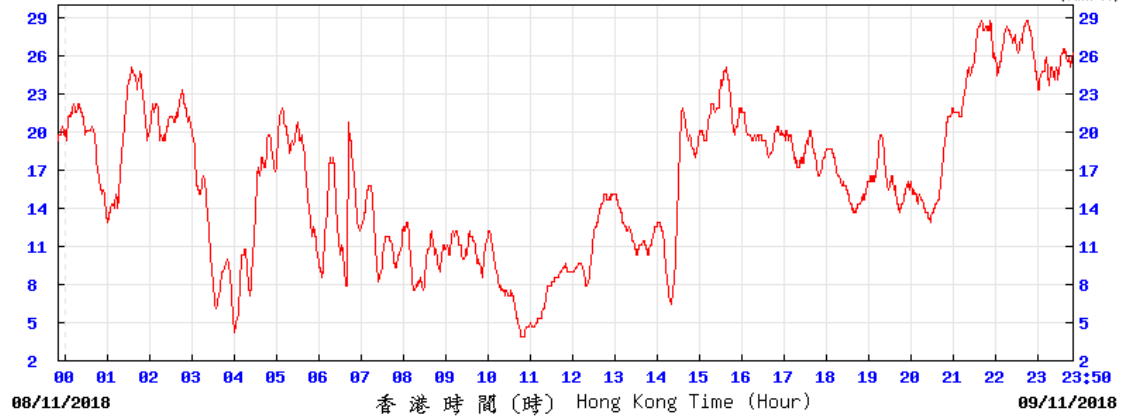
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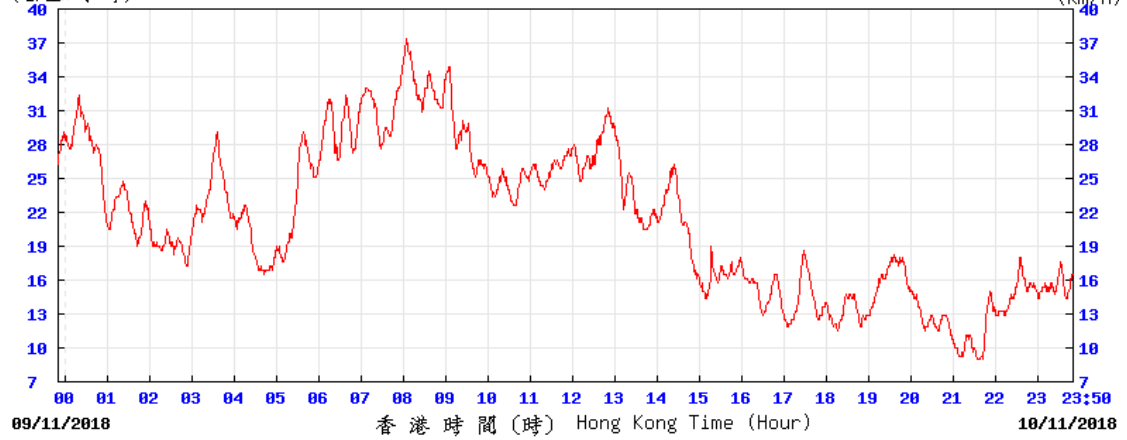
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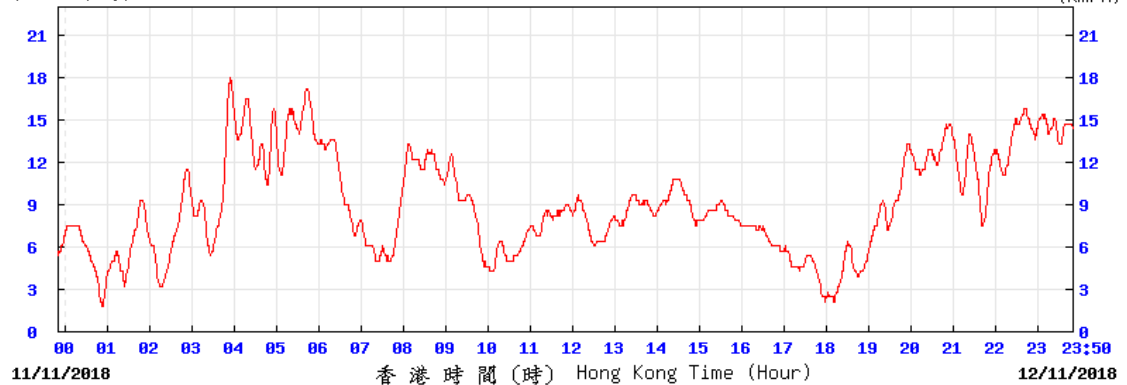
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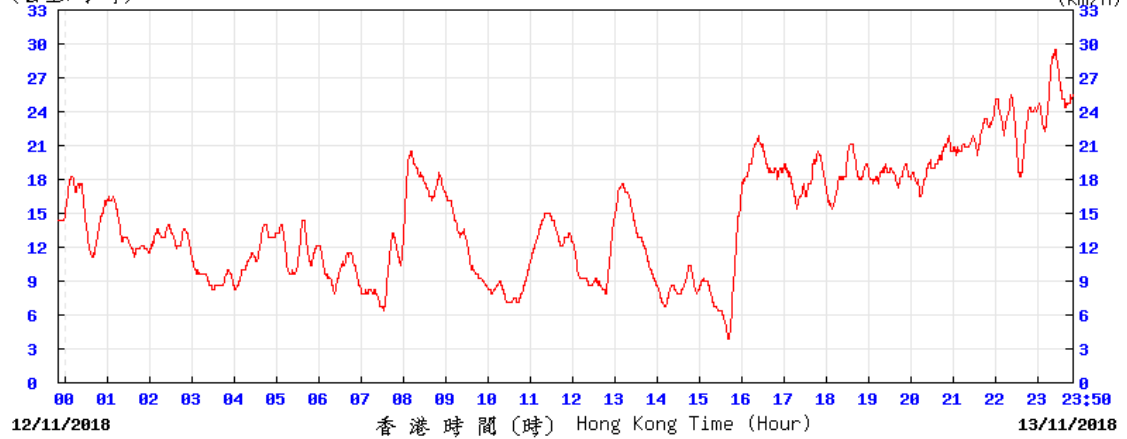
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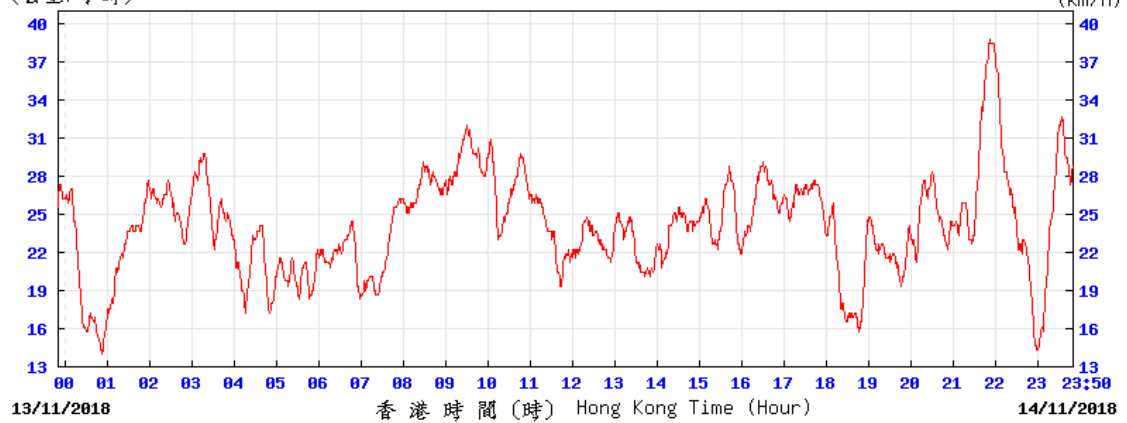
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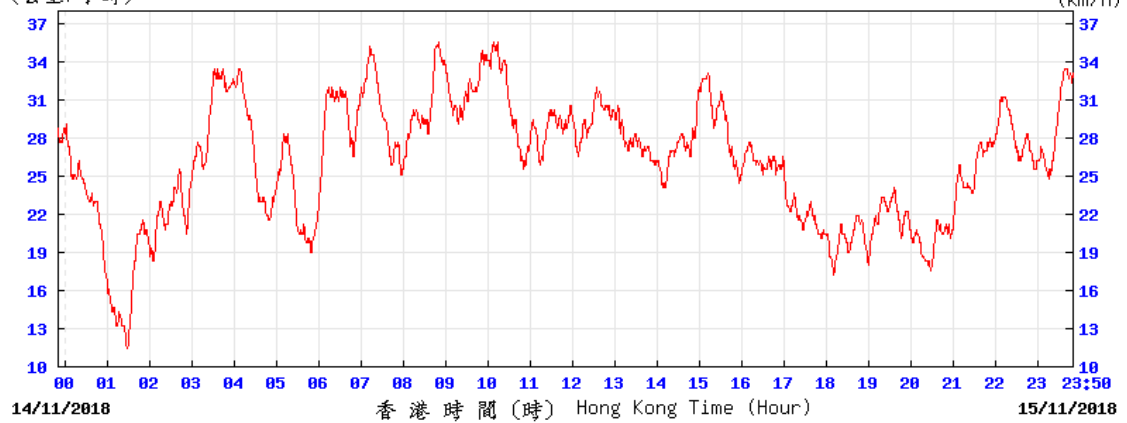
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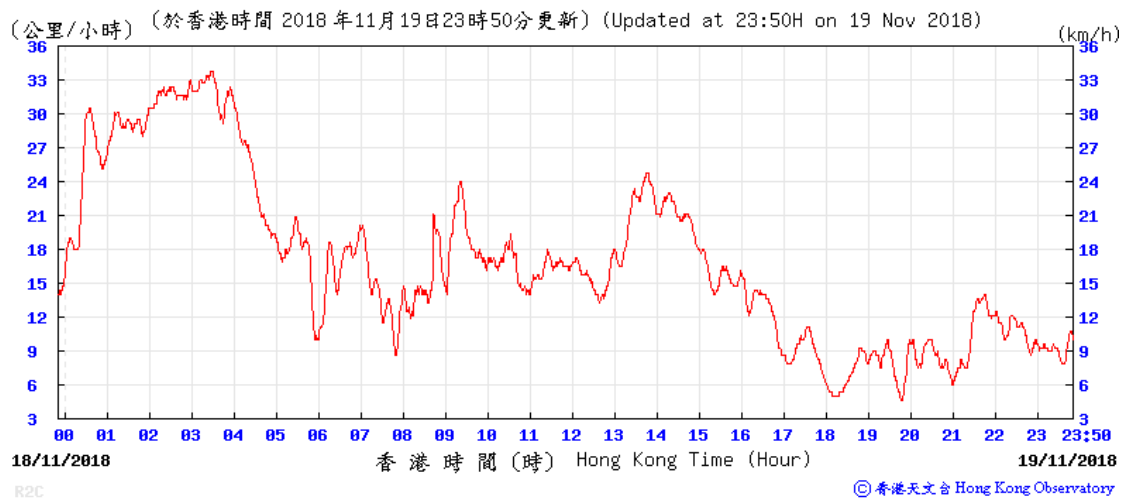
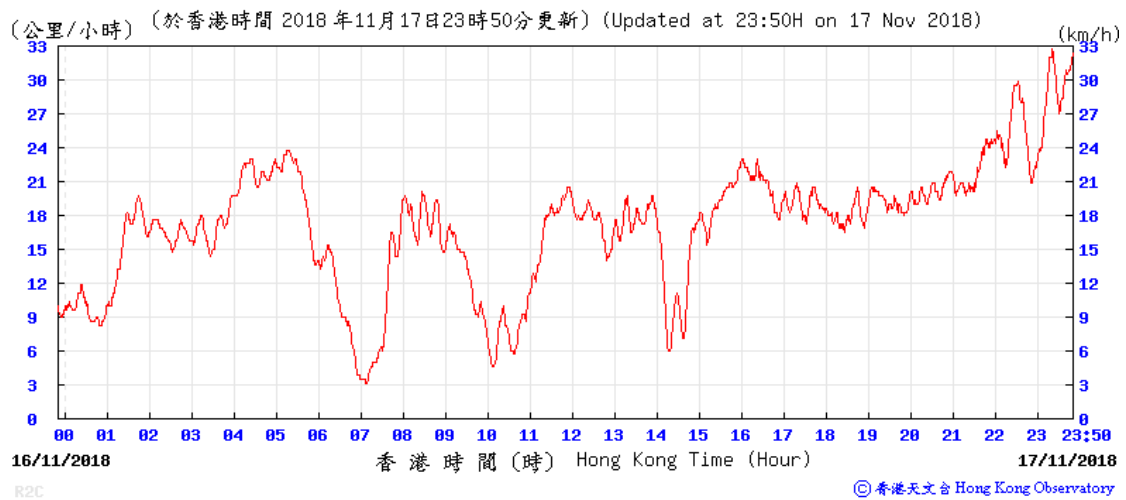
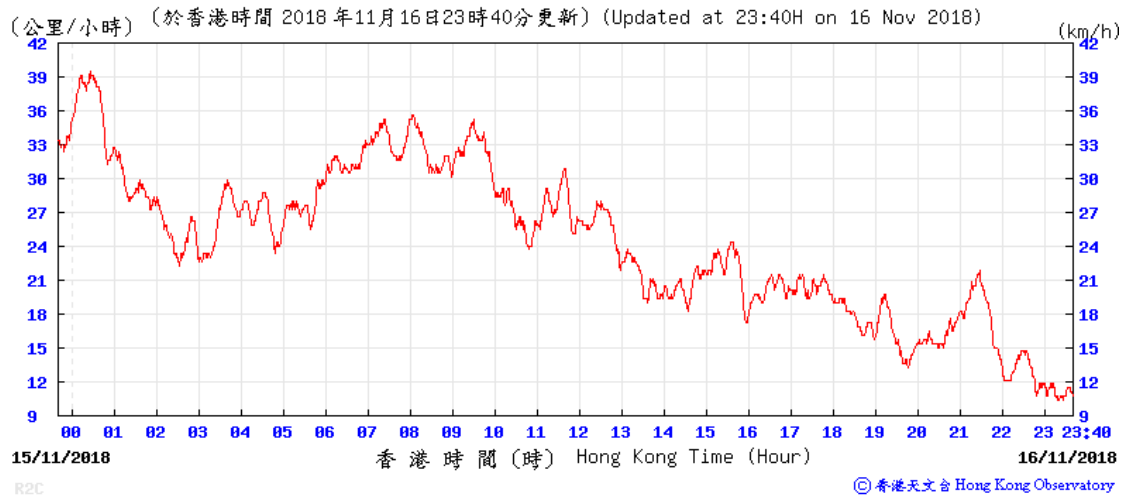


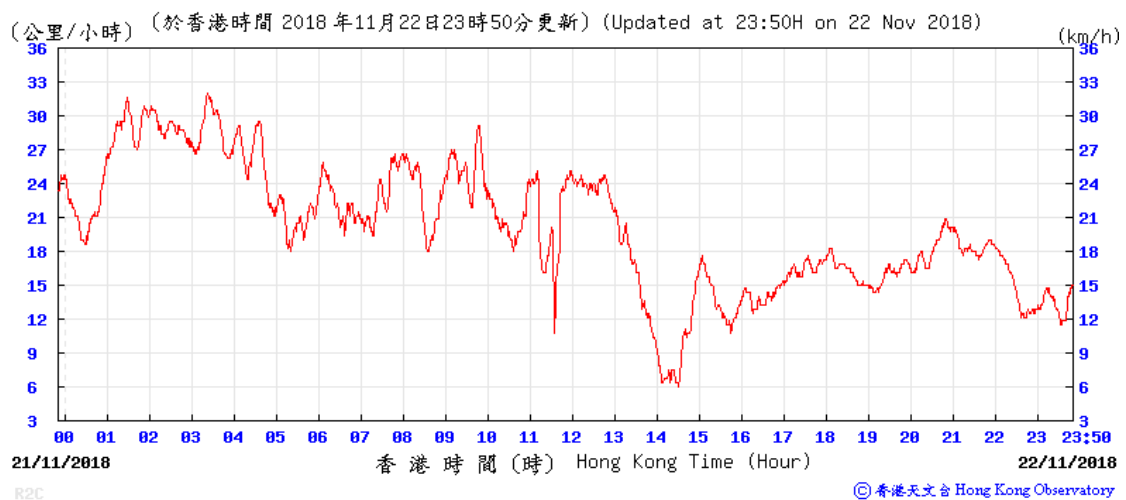
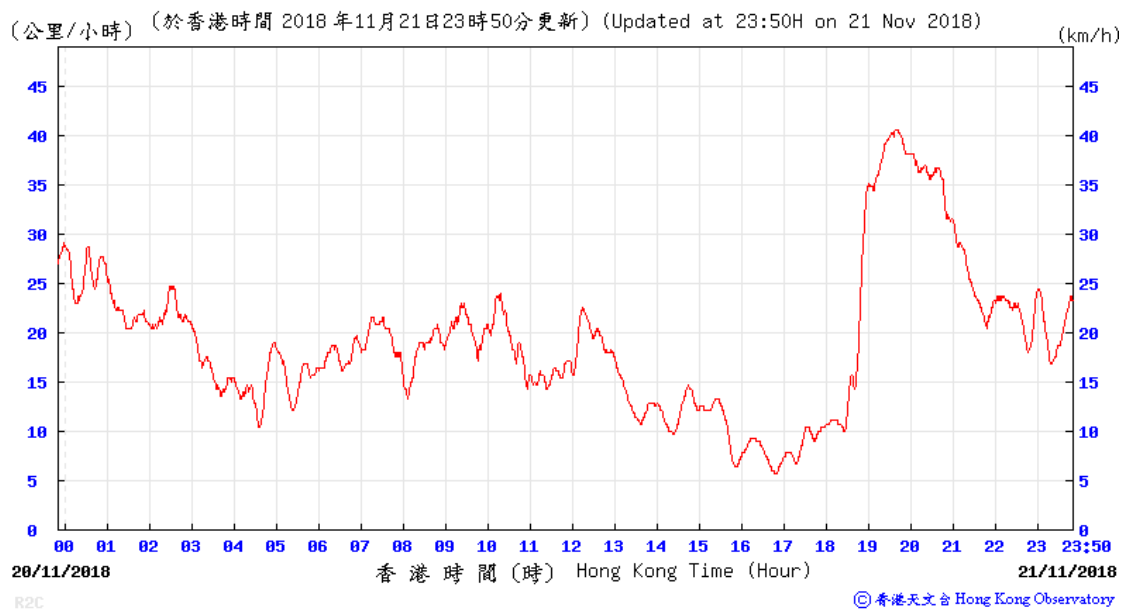
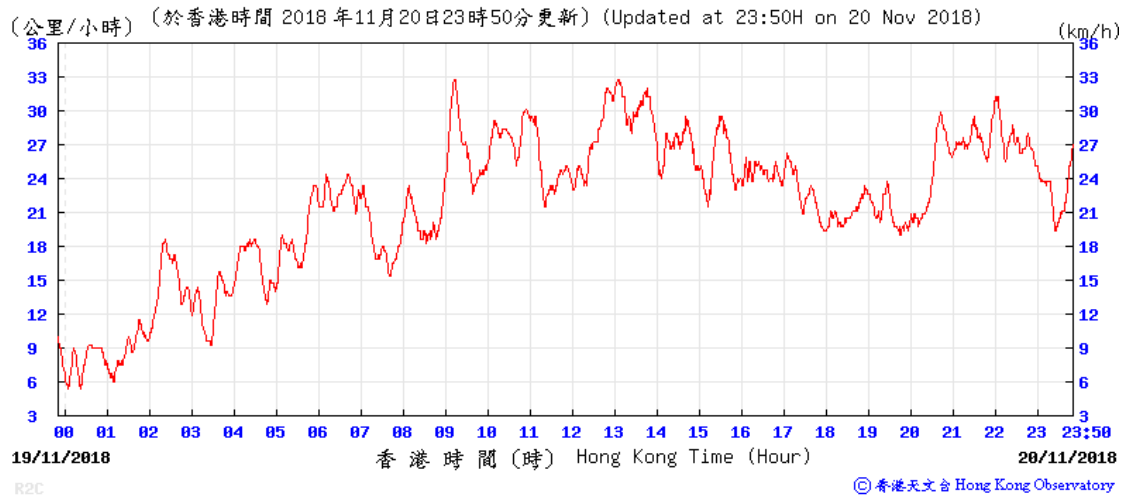
R2C ©香港天文台 Hong Kong Observatory

(公里/小時) (於香港時間 2018 年11月15日23時50分更新) (Updated at 23:50H on 15 Nov 2018)

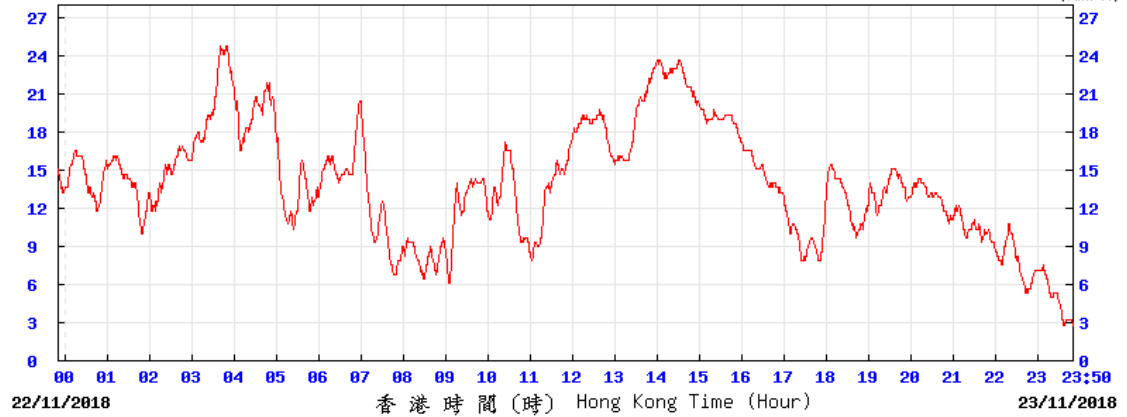


R2C ©香港天文台 Hong Kong Observatory



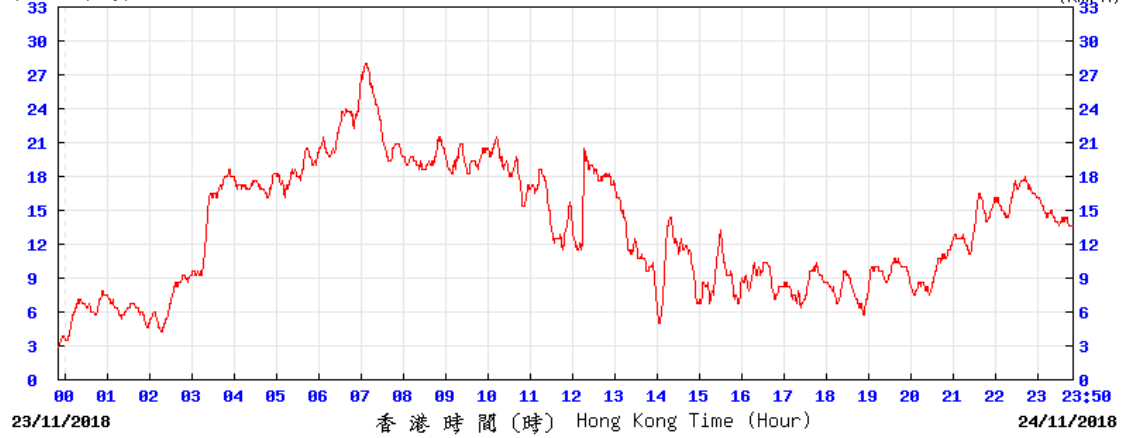


(公里/小時) (於香港時間 2018 年11月23日23時50分更新) (Updated at 23:50H on 23 Nov 2018) (km/h)



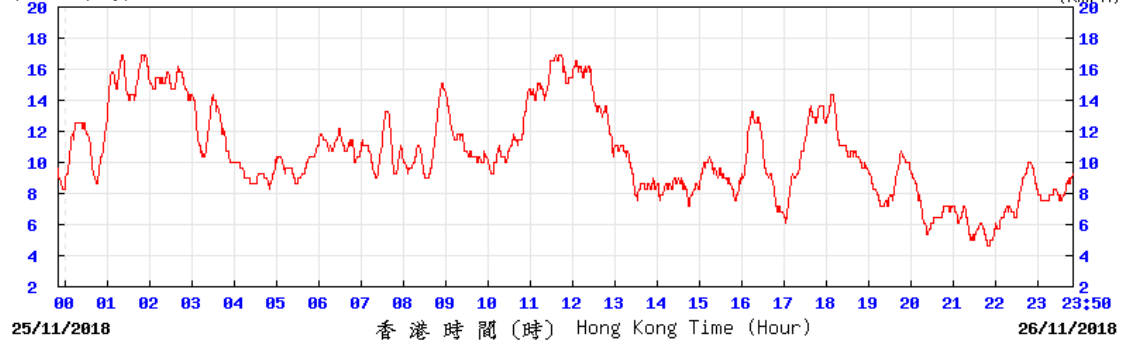
R2C ©香港天文台 Hong Kong Observatory

(公里/小時) (於香港時間 2018 年11月24日23時50分更新) (Updated at 23:50H on 24 Nov 2018) (km/h)



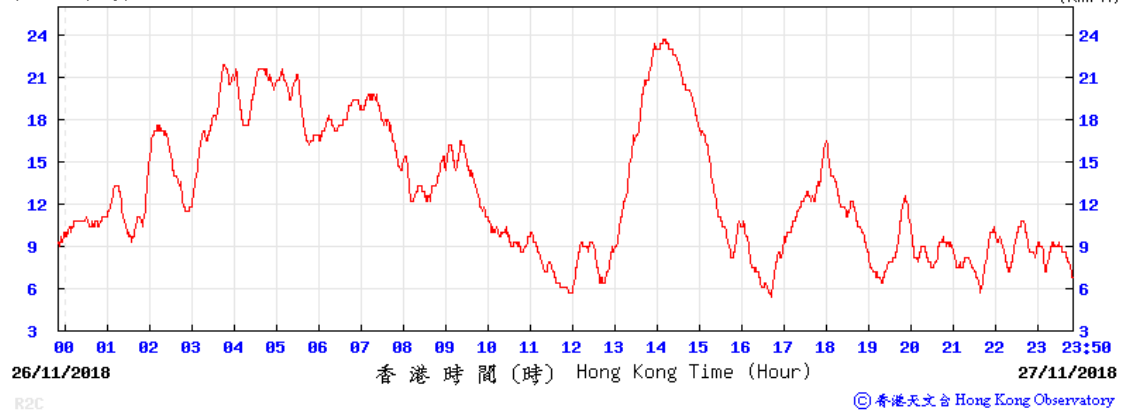
R2C ©香港天文台 Hong Kong Observatory

(公里/小時) (於香港時間 2018 年11月26日23時50分更新) (Updated at 23:50H on 26 Nov 2018) (km/h)

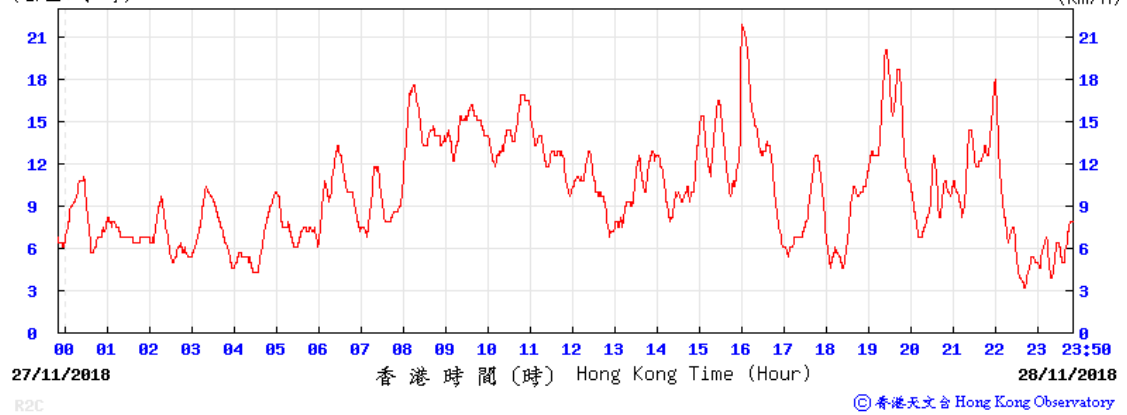


R2C ©香港天文台 Hong Kong Observatory

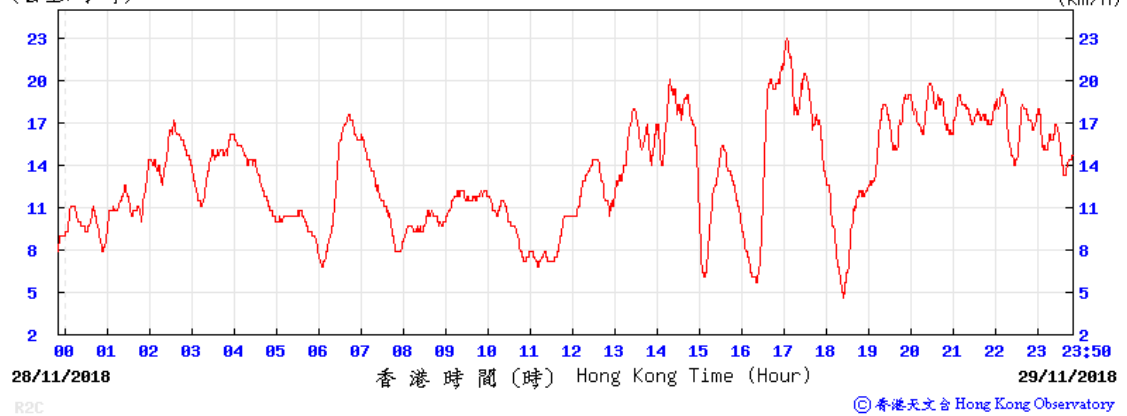
(公里/小時) (於香港時間 2018 年11月27日23時50分更新) (Updated at 23:50H on 27 Nov 2018) (km/h)



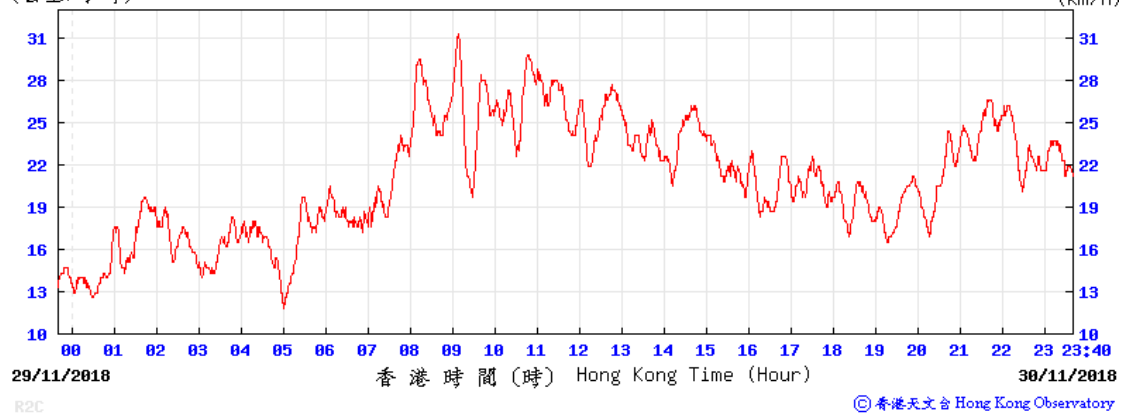
(公里/小時) (於香港時間 2018 年11月28日23時50分更新) (Updated at 23:50H on 28 Nov 2018) (km/h)



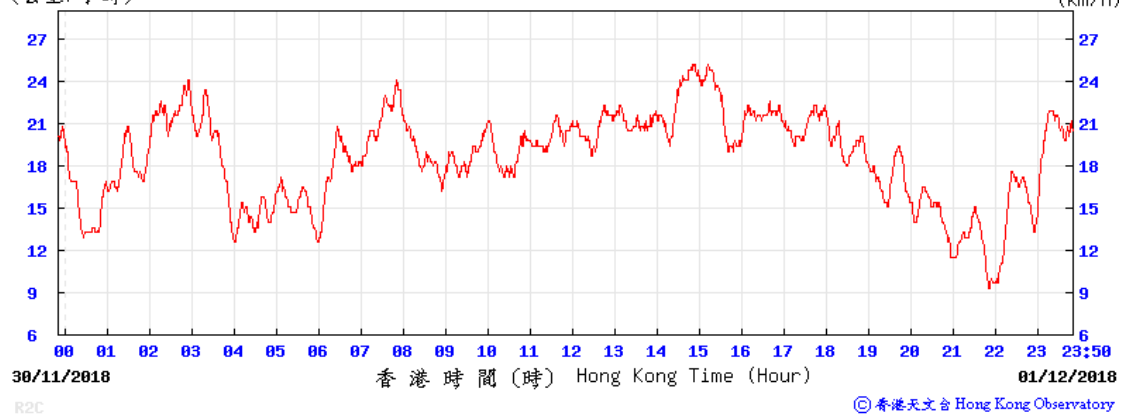
(公里/小時) (於香港時間 2018 年11月29日23時50分更新) (Updated at 23:50H on 29 Nov 2018) (km/h)



(公里/小時) (於香港時間 2018 年11月30日23時40分更新) (Updated at 23:40H on 30 Nov 2018) (km/h)



(公里/小時) (於香港時間 2018 年12月 1日23時50分更新) (Updated at 23:50H on 1 Dec 2018) (km/h)



Annex H3

Odour Sampling Result

Odour Sampling Results Summary

Sampling Date	Sampling Time	Odour Concentration (OU /Nm ³) ^{Note}
5 Oct 2018	11:05-11:10	1204
5 Oct 2018	11:11-11:18	1087
12 Oct 2018	15:08-15:12	2107
12 Oct 2018	15:12-15:16	2463
19 Oct 2018	11:01-11:05	2273
19 Oct 2018	11:06-11:09	2273
26 Oct 2018	10:35-10:40	1817
26 Oct 2018	10:40-10:44	1668
1 Nov 2018	11:08-11:12	1283
1 Nov 2018	11:13-11:16	1016
5 Nov 2018	11:11-11:14	1016
5 Nov 2018	11:15-11:17	1016
5 Nov 2018	11:31-11:35	1016
5 Nov 2018	11:36-11:40	933
23 Nov 2018	11:08-11:13	134
23 Nov 2018	11:14-11:19	144

Note: According to the EM&A Manual and EP requirements, it is considered an exceedance if the odour level is more than 220 OU/Nm³.

CERTIFICATE OF ANALYSIS

CLIENT:	Oscar Bioenergy Joint Venture	WORK ORDER:	HK1853489
CONTACT:	Mr Edwin Wong	LABORATORY:	Hong Kong
ADDRESS:	No. 5, Sham Fung Road, Siu Ho Wan, North Lantau Island, NT, Hong Kong	SUB-BATCH:	0
		DATE RECEIVED:	5 October 2018
		DATE OF ISSUE:	11 October 2018
PROJECT:	Odour Monitoring for the Organic Resources Recovery Centre Phase 1 in Siu Ho Wan	SAMPLE TYPE:	Air
SITE:	Organic Resources Recovery Centre Phase 1 (ORRC1)	NO OF SAMPLES:	3
PO:	---		

COMMENTS

Air sample(s) were collected by ALS Technichem (HK) staff on 5th October, 2018 at the Organic Resources Recovery Centre Phase 1 (ORRC1) in Siu Ho Wan for Odour Monitoring.

The sample(s) were analysed and reported on an as received basis.

NOTES

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

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Richard Fung
General Manager - Hong Kong

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METHOD STATEMENT

A. Odour Concentration

1. Odour Sampling

Odour gas sample was collected by passive sampling technique. A Nalophan™ sampling bag was placed inside an air-tight sampler and then drawn to vacuum. Approximately 60 litre of gas sample was collected into the sampling bag for testing.

The odour sample was collected at the Organic Recovery Resources Centre Phase 1 (ORRC1) and sampling location was shown in Appendix A3.

2. Olfactometry Testing

Odour concentration was determined by a Forced-choice Dynamic Olfactometer in accordance with the European Standard Method (EN13725).

This European Standard specifies a method for the objective determination of the odour concentration of a gaseous sample using dynamic olfactometry with human assessors and the emission rate of odours emanating from point sources, area sources with outward flow and area sources without outward flow.

This European Standard is applicable to the measurement of odour concentration of pure substances, defined mixtures and undefined mixtures of gaseous odorants in air or nitrogen, using dynamic olfactometry with a panel of human assessors being the sensor.

The unit of measurement is the odour unit per cubic metre: OU_e/m^3 . The odour concentration is measured by determining the dilution factor required to reach the detection threshold. The odour concentration at the detection threshold is by definition 1 OU_e/m^3 . The odour concentration is then expressed in terms of multiples of the detection threshold. The range of measurement including pre-dilution prior to the olfactometry analysis is typically from 10^1 OU_e/m^3 to 10^7 OU_e/m^3 .

Olfactometry Testing was performed by using the Scentroid™ SS600 Olfactometer. The testing was performed by at least five qualified panellists who have been selected through an n-butanol screening test.

All testing finished within 24 hours after sample receipt.

**RESULT****1. Odour Concentration**

Sample ID	Location	Sampling Date	Sampling Time	LOR (OU _E /Nm ³)	Odour Concentration (OU _E /Nm ³)	Characteristics of the odour detected of the gas sample	Volumetric Flow Rate (Nm ³ /min)	Emission rate (OU _E /hr)
HK1853489-001	CAPC Unit	5-Oct-18	11:05 - 11:10	11	1204	Smell of Garbage	1295	93,550,000
HK1853489-002	CAPC Unit	5-Oct-18	11:11 - 11:18	11	1087	Smell of Garbage	1295	84,460,000
HK1853489-003	Field Blank	5-Oct-18	--	11	<11	--	--	--

Remark:

1. LOR denotes limit of reporting.
2. The collected sample volume of the gas bag is sufficient for olfactometry analysis.
3. Field Blank containing pure nitrogen gas was collected and filled by ALS staff on site.
4. The volumetric flow rate value for calculation of the emission rate was provided by the client.



APPENDIX 1

A1. SITE CONDITIONS AND OBSERVATION

Location	Date	Time	Ambient Temperature (°C)	Relative Humidity (%)	Ambient Pressure (hPa)	Wind Speed (m/s)	Wind Direction (Degree)	Direction from Source ¹	Duration of Odour	On-Site Observation		Weather Condition
										Odour Nature	Possible Source	
CAPC Unit	5-10-18	11:05 -11:11	28.0	41.1	1010.9	1.3	306	NA	NA	No odour was smelled.	NA	Sunny

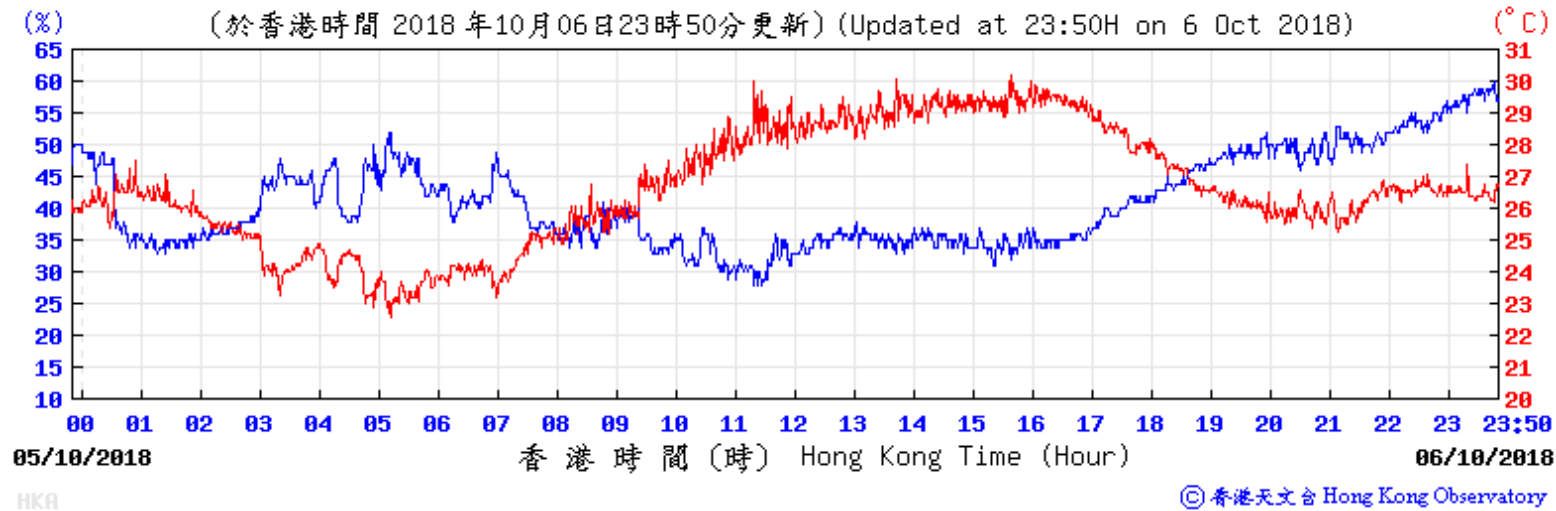
Note:

1. It was assumed that the exhaust of the CAPC Unit was from the odour source.

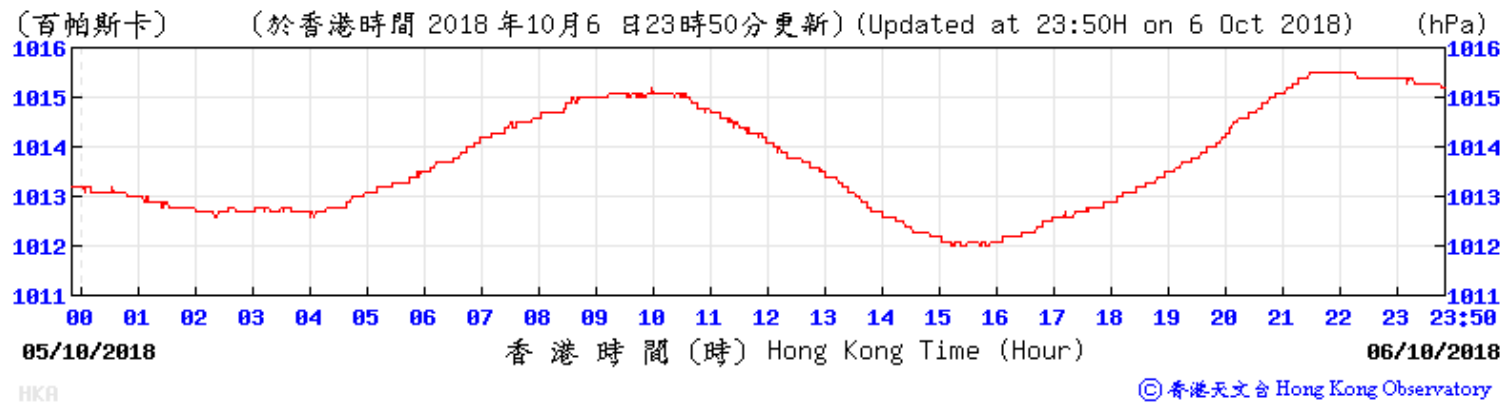
APPENDIX 2

A2. EXTRACT OF METEOROLOGICAL OBSERVATIONS FROM THE HONG KONG AIRPORT OBSERVATORY STATION

Temperature/Humidity:

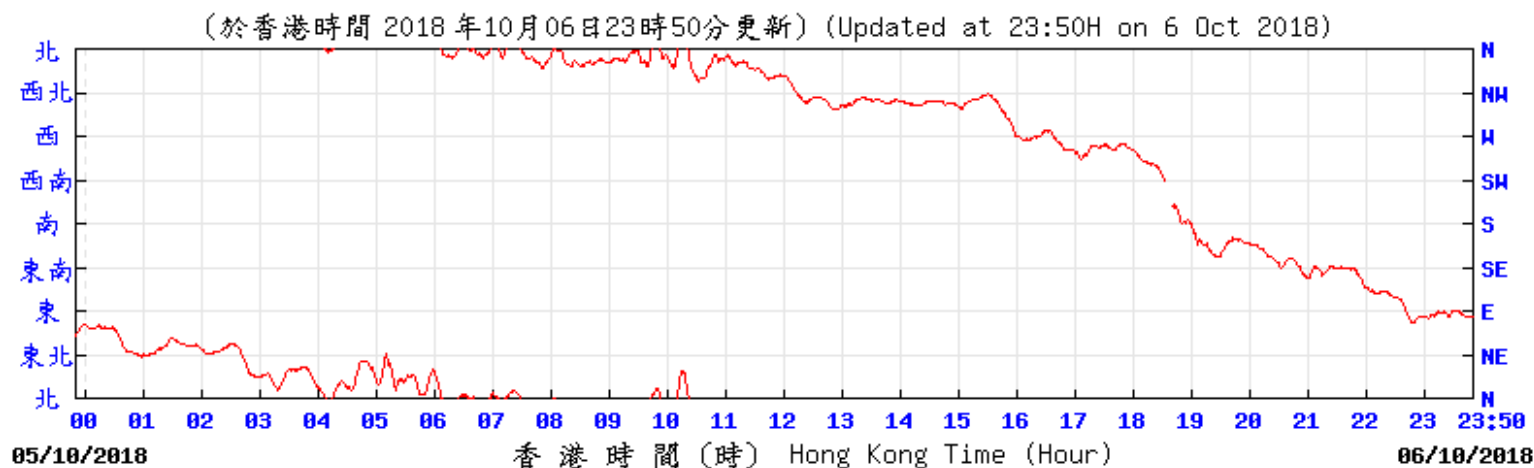


Pressure:





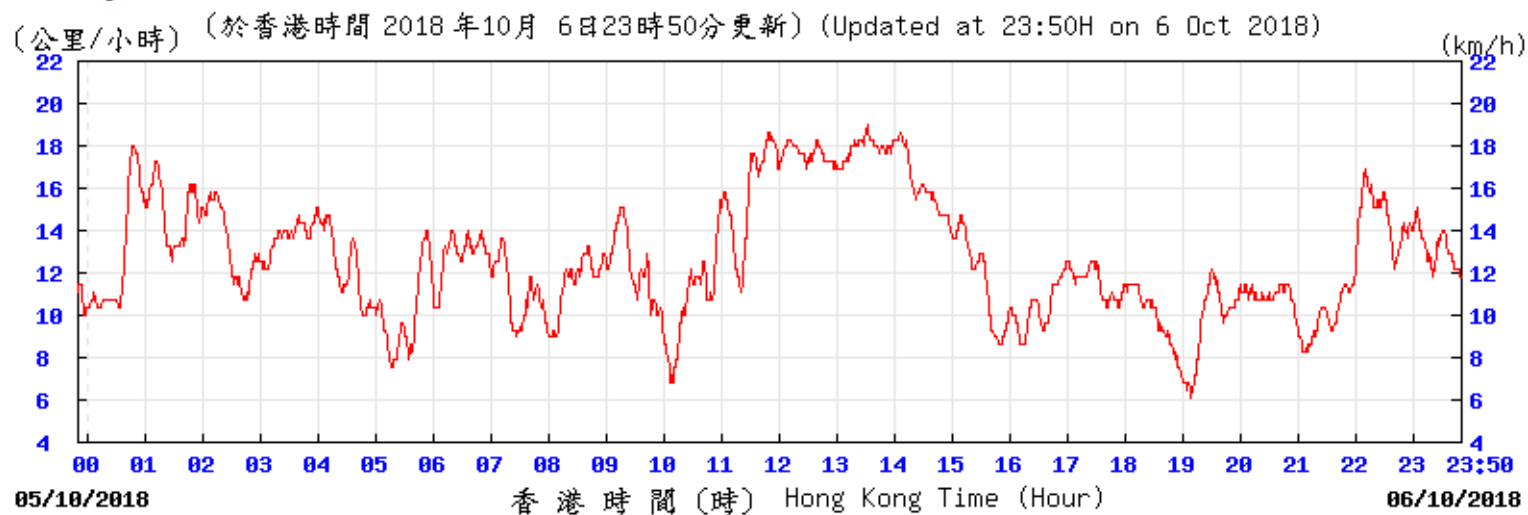
Wind Direction:



R2C

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Wind Speed:



R2C

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APPENDIX 3

A3. PHOTO OF THE SAMPLING LOCATION



CERTIFICATE OF ANALYSIS

CLIENT:	Oscar Bioenergy Joint Venture	WORK ORDER:	HK1854516
CONTACT:	Mr Edwin Wong	LABORATORY:	Hong Kong
ADDRESS:	No. 5, Sham Fung Road, Siu Ho Wan, North Lantau Island, NT, Hong Kong	SUB-BATCH:	0
		DATE RECEIVED:	12 October 2018
		DATE OF ISSUE:	18 October 2018
PROJECT:	Odour Monitoring for the Organic Resources Recovery Centre Phase 1 in Siu Ho Wan	SAMPLE TYPE:	Air
SITE:	Organic Resources Recovery Centre Phase 1 (ORRC1)	NO OF SAMPLES:	3
PO:	---		

COMMENTS

Air sample(s) were collected by ALS Technichem (HK) staff on 12th October, 2018 at the Organic Resources Recovery Centre Phase 1 (ORRC1) in Siu Ho Wan for Odour Monitoring.

The sample(s) were analysed and reported on an as received basis.

NOTES

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

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Richard Fung
General Manager - Hong Kong

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METHOD STATEMENT

A. Odour Concentration

1. Odour Sampling

Odour gas sample was collected by passive sampling technique. A Nalophan™ sampling bag was placed inside an air-tight sampler and then drawn to vacuum. Approximately 60 litre of gas sample was collected into the sampling bag for testing.

The odour sample was collected at the Organic Recovery Resources Centre Phase 1 (ORRC1) and sampling location was shown in Appendix A3.

2. Olfactometry Testing

Odour concentration was determined by a Forced-choice Dynamic Olfactometer in accordance with the European Standard Method (EN13725).

This European Standard specifies a method for the objective determination of the odour concentration of a gaseous sample using dynamic olfactometry with human assessors and the emission rate of odours emanating from point sources, area sources with outward flow and area sources without outward flow.

This European Standard is applicable to the measurement of odour concentration of pure substances, defined mixtures and undefined mixtures of gaseous odorants in air or nitrogen, using dynamic olfactometry with a panel of human assessors being the sensor.

The unit of measurement is the odour unit per cubic metre: OU_e/m^3 . The odour concentration is measured by determining the dilution factor required to reach the detection threshold. The odour concentration at the detection threshold is by definition 1 OU_e/m^3 . The odour concentration is then expressed in terms of multiples of the detection threshold. The range of measurement including pre-dilution prior to the olfactometry analysis is typically from 10^1 OU_e/m^3 to 10^7 OU_e/m^3 .

Olfactometry Testing was performed by using the Scentroid™ SS600 Olfactometer. The testing was performed by at least five qualified panellists who have been selected through an n-butanol screening test.

All testing finished within 24 hours after sample receipt.

**RESULT****1. Odour Concentration**

Sample ID	Location	Sampling Date	Sampling Time	LOR (OU _E /Nm ³)	Odour Concentration (OU _E /Nm ³)	Characteristics of the odour detected of the gas sample	Volumetric Flow Rate (Nm ³ /min)	Emission rate (OU _E /hr)
HK1854516-001	CAPC Unit	12-Oct-18	15:08 - 15:12	11	2107	Smell of Garbage	1820	230,000,000
HK1854516-002	CAPC Unit	12-Oct-18	15:12 - 15:16	11	2463	Smell of Garbage	1820	269,000,000
HK1854516-003	Field Blank	12-Oct-18	--	11	<11	--	--	--

Remark:

1. LOR denotes limit of reporting.
2. The collected sample volume of the gas bag is sufficient for olfactometry analysis.
3. Field Blank containing pure nitrogen gas was collected and filled by ALS staff.
4. The volumetric flow rate value for calculation of the emission rate was provided by the client.



APPENDIX 1

A1. SITE CONDITIONS AND OBSERVATION

Location	Date	Time	Ambient Temperature (°C)	Relative Humidity (%)	Ambient Pressure (hPa)	Wind Speed (m/s)	Wind Direction (Degree)	Direction from Source ¹	Duration of Odour	On-Site Observation		Weather Condition
										Odour Nature	Possible Source	
CAPC Unit	12-10-18	15:08 -15:16	25.2	62.1	1012.7	2.0	109	NA	NA	No odour was smelled.	NA	Sunny

Note:

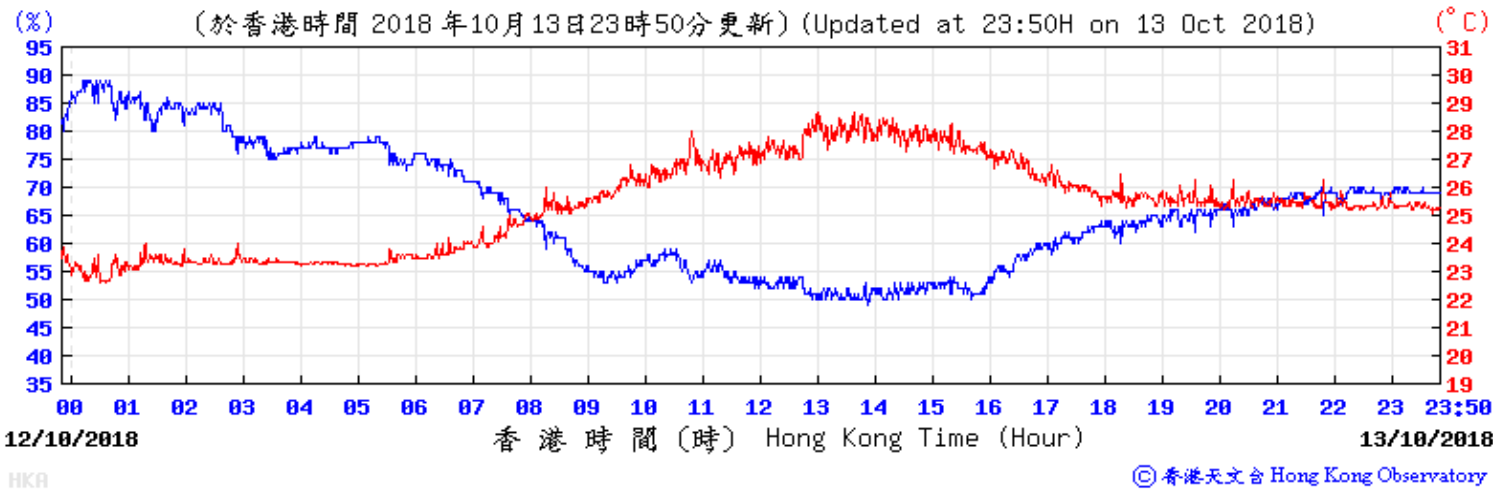
1. It was assumed that the exhaust of the CAPC Unit was from the odour source.



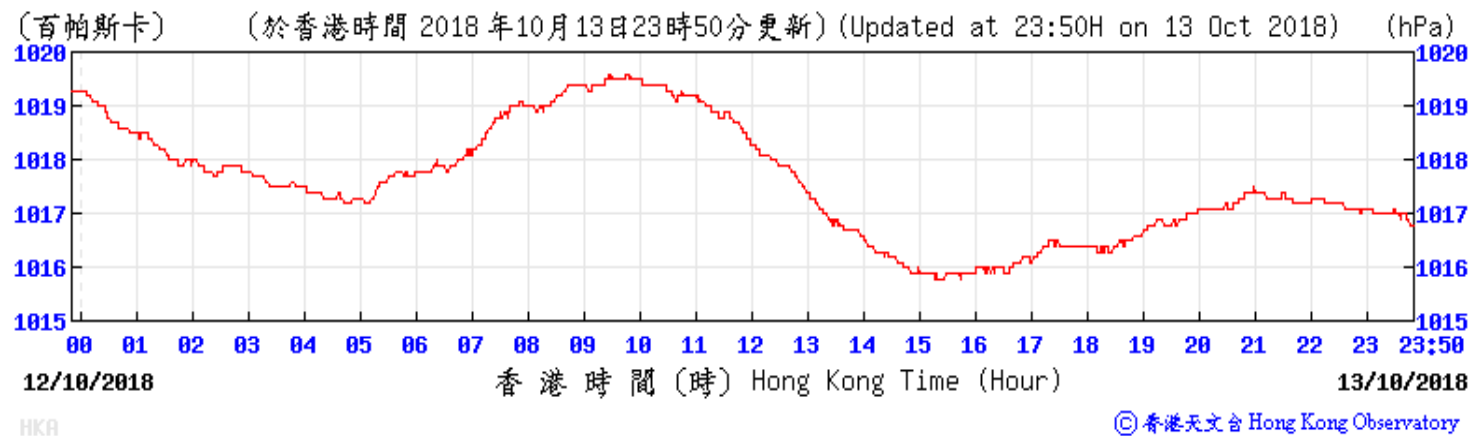
APPENDIX 2

A2. EXTRACT OF METEOROLOGICAL OBSERVATIONS FROM THE HONG KONG AIRPORT OBSERVATORY STATION

Temperature/Humidity:

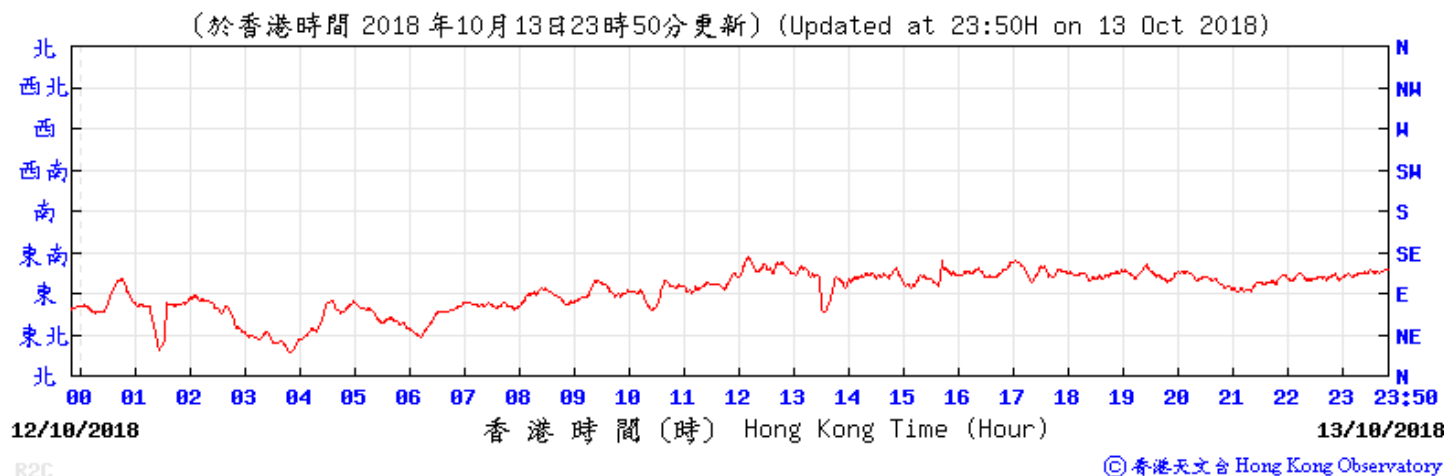


Pressure:

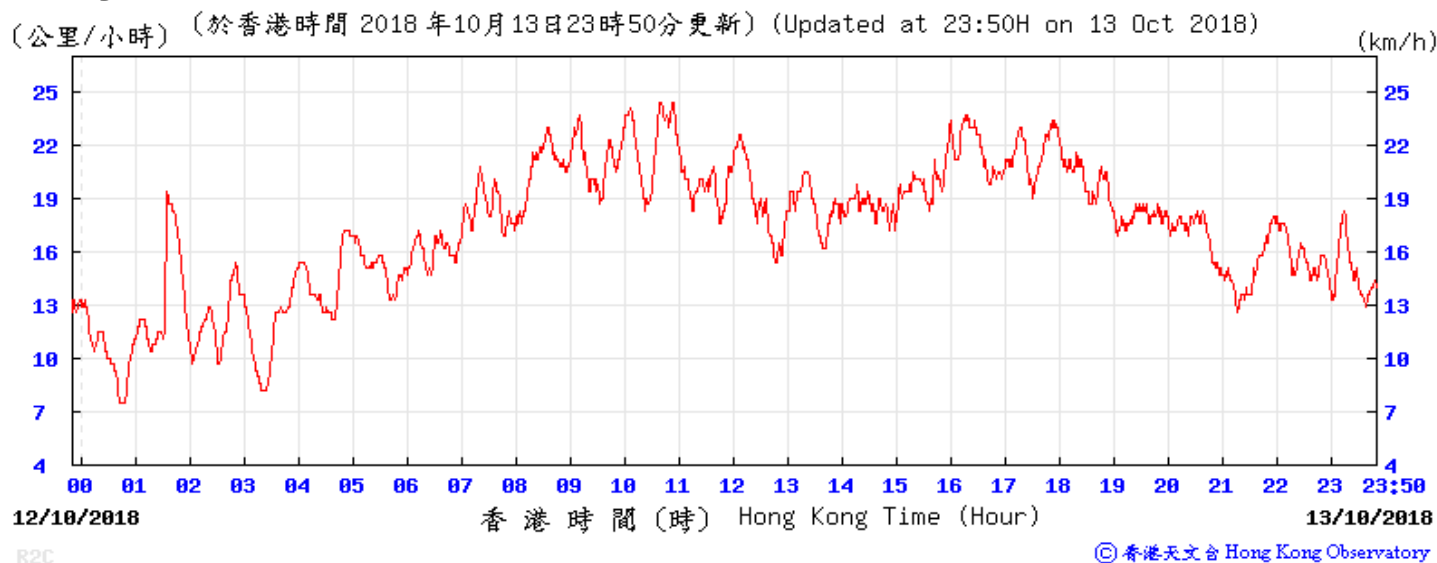




Wind Direction:



Wind Speed:



APPENDIX 3

A3. PHOTO OF THE SAMPLING LOCATION



CERTIFICATE OF ANALYSIS

CLIENT:	Oscar Bioenergy Joint Venture	WORK ORDER:	HK1855605
CONTACT:	Mr Edwin Wong	LABORATORY:	Hong Kong
ADDRESS:	No. 5, Sham Fung Road, Siu Ho Wan, North Lantau Island, NT, Hong Kong	SUB-BATCH:	0
		DATE RECEIVED:	19 October 2018
		DATE OF ISSUE:	29 October 2018
PROJECT:	Odour Monitoring for the Organic Resources Recovery Centre Phase 1 in Siu Ho Wan	SAMPLE TYPE:	Air
SITE:	Organic Resources Recovery Centre Phase 1 (ORRC1)	NO OF SAMPLES:	3
PO:	---		

COMMENTS

Air sample(s) were collected by ALS Technichem (HK) staff on 19th October, 2018 at the Organic Resources Recovery Centre Phase 1 (ORRC1) in Siu Ho Wan for Odour Monitoring.

The sample(s) were analysed and reported on an as received basis.

NOTES

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

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Richard Fung
General Manager - Hong Kong

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METHOD STATEMENT

A. Odour Concentration

1. Odour Sampling

Odour gas sample was collected by passive sampling technique. A Nalophan™ sampling bag was placed inside an air-tight sampler and then drawn to vacuum. Approximately 60 litre of gas sample was collected into the sampling bag for testing.

The odour sample was collected at the Organic Recovery Resources Centre Phase 1 (ORRC1) and sampling location was shown in Appendix A3.

2. Olfactometry Testing

Odour concentration was determined by a Forced-choice Dynamic Olfactometer in accordance with the European Standard Method (EN13725).

This European Standard specifies a method for the objective determination of the odour concentration of a gaseous sample using dynamic olfactometry with human assessors and the emission rate of odours emanating from point sources, area sources with outward flow and area sources without outward flow.

This European Standard is applicable to the measurement of odour concentration of pure substances, defined mixtures and undefined mixtures of gaseous odorants in air or nitrogen, using dynamic olfactometry with a panel of human assessors being the sensor.

The unit of measurement is the odour unit per cubic metre: OU_e/m^3 . The odour concentration is measured by determining the dilution factor required to reach the detection threshold. The odour concentration at the detection threshold is by definition 1 OU_e/m^3 . The odour concentration is then expressed in terms of multiples of the detection threshold. The range of measurement including pre-dilution prior to the olfactometry analysis is typically from 10^1 OU_e/m^3 to 10^7 OU_e/m^3 .

Olfactometry Testing was performed by using the Scentroid™ SS600 Olfactometer. The testing was performed by at least five qualified panellists who have been selected through an n-butanol screening test.

All testing finished within 24 hours after sample receipt.

**RESULT****1. Odour Concentration**

Sample ID	Location	Sampling Date	Sampling Time	LOR (OU _E /Nm ³)	Odour Concentration (OU _E /Nm ³)	Characteristics of the odour detected of the gas sample	Volumetric Flow Rate (Nm ³ /min)	Emission rate (OU _E /hr)
HK1855605-001	CAPC Unit	19-Oct-18	11:01 - 11:05	11	2273	Smell of Garbage	1250	170,000,000
HK1855605-002	CAPC Unit	19-Oct-18	11:06 - 11:09	11	2273	Smell of Garbage	1250	170,000,000
HK1855605-003	Field Blank	19-Oct-18	--	11	<11	--	--	--

Remark:

1. LOR denotes limit of reporting.
2. The collected sample volume of the gas bag is sufficient for olfactometry analysis.
3. Field Blank containing pure nitrogen gas was collected and filled by ALS staff.
4. The volumetric flow rate value for calculation of the emission rate was provided by the client.



APPENDIX 1

A1. SITE CONDITIONS AND OBSERVATION

Location	Date	Time	Ambient Temperature (°C)	Relative Humidity (%)	Ambient Pressure (hPa)	Wind Speed (m/s)	Wind Direction (Degree)	Direction from Source ¹	Duration of Odour	On-Site Observation		Weather Condition
										Odour Nature	Possible Source	
CAPC Unit	19-10-18	11:01 -11:09	25.7	67.5	1013.5	1.5	113	NA	NA	No odour was smelled.	NA	Sunny

Note:

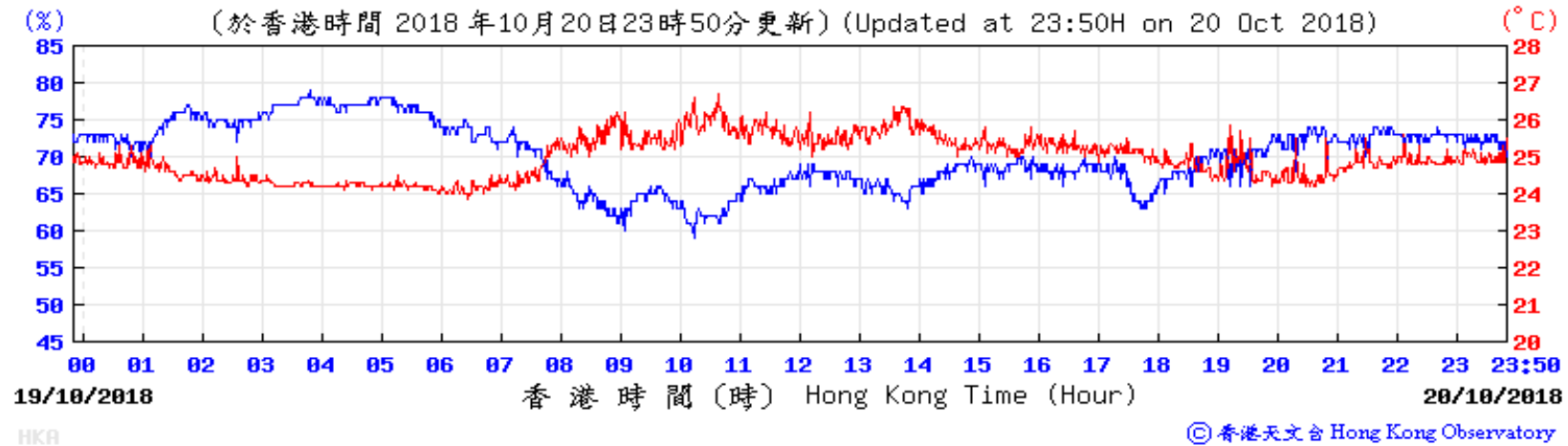
1. It was assumed that the exhaust of the CAPC Unit was from the odour source.



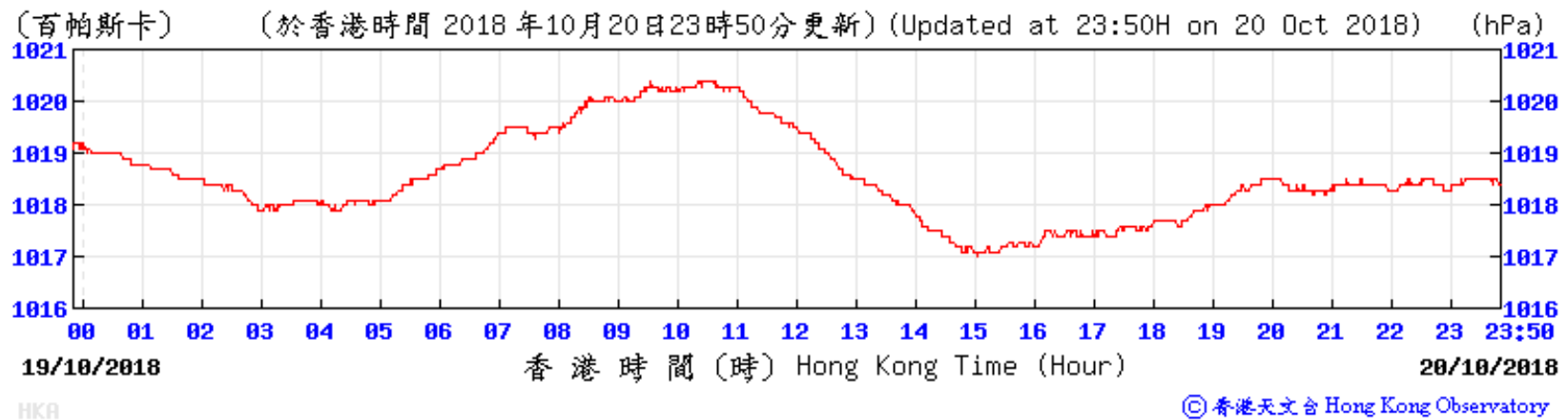
APPENDIX 2

A2. EXTRACT OF METEOROLOGICAL OBSERVATIONS FROM THE HONG KONG AIRPORT OBSERVATORY STATION

Temperature/Humidity:

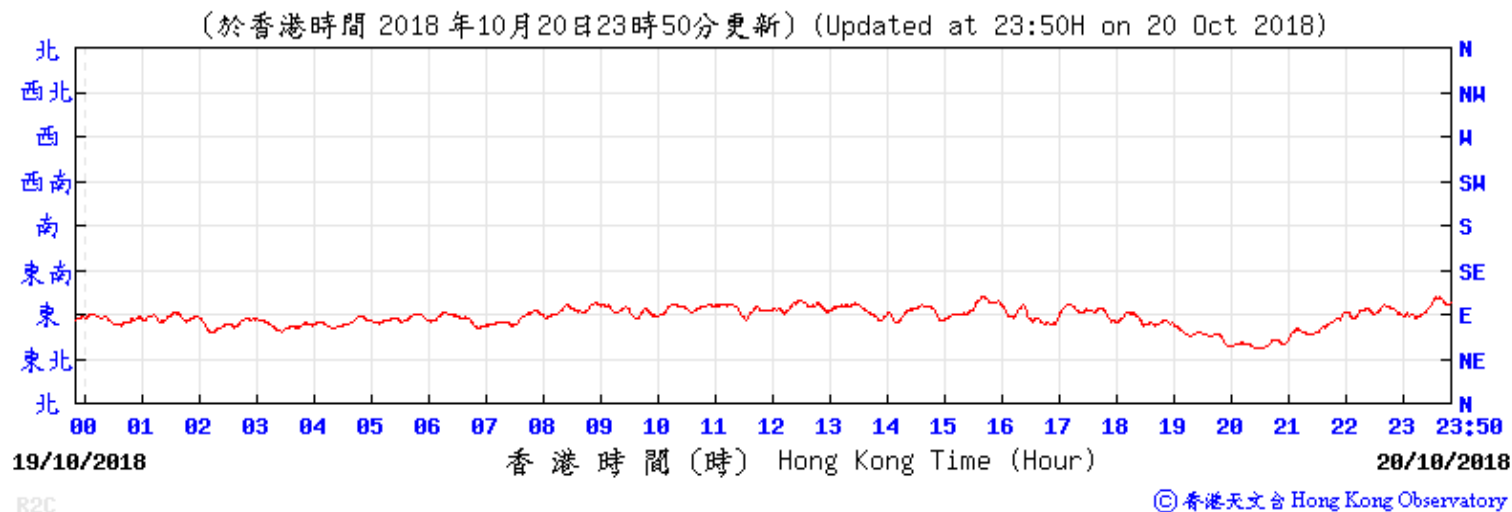


Pressure:

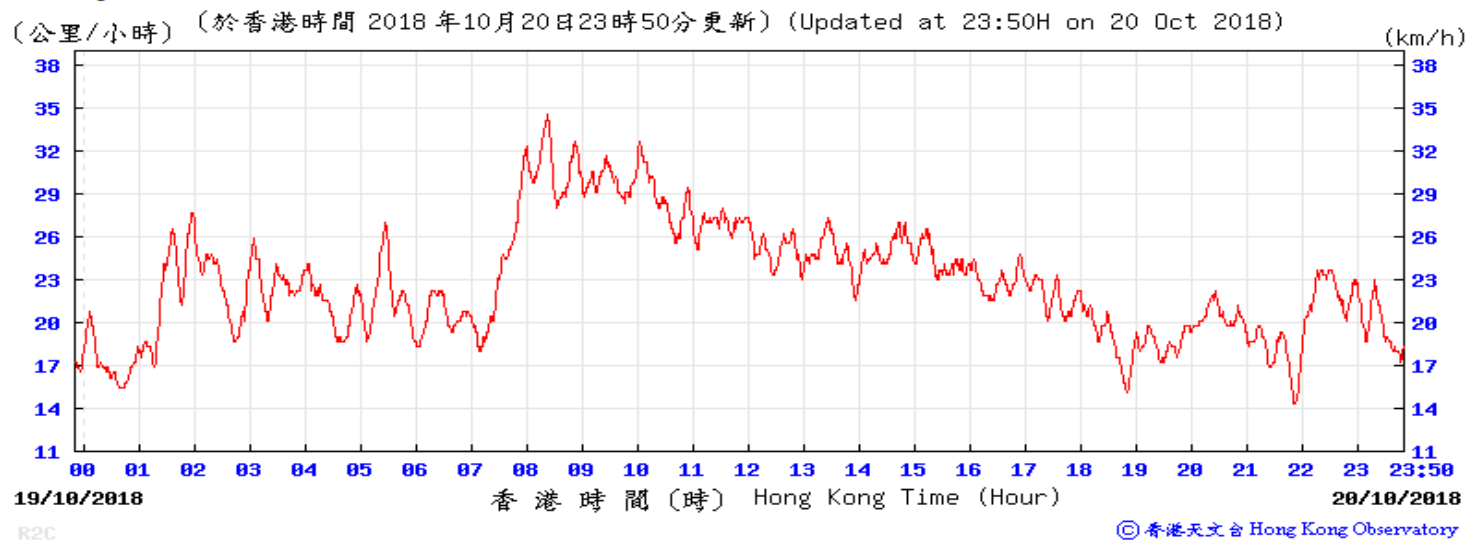




Wind Direction:



Wind Speed:



APPENDIX 3

A3. PHOTO OF THE SAMPLING LOCATION



CERTIFICATE OF ANALYSIS

CLIENT:	Oscar Bioenergy Joint Venture	WORK ORDER:	HK1856261
CONTACT:	Mr Edwin Wong	LABORATORY:	Hong Kong
ADDRESS:	No. 5, Sham Fung Road, Siu Ho Wan, North Lantau Island, NT, Hong Kong	SUB-BATCH:	0
		DATE RECEIVED:	26 October 2018
		DATE OF ISSUE:	29 October 2018
PROJECT:	Odour Monitoring for the Organic Resources Recovery Centre Phase 1 in Siu Ho Wan	SAMPLE TYPE:	Air
SITE:	Organic Resources Recovery Centre Phase 1 (ORRC1)	NO OF SAMPLES:	3
PO:	---		

COMMENTS

Air sample(s) were collected by ALS Technichem (HK) staff on 26th October, 2018 at the Organic Resources Recovery Centre Phase 1 (ORRC1) in Siu Ho Wan for Odour Monitoring.

The sample(s) were analysed and reported on an as received basis.

NOTES

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

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Richard Fung
General Manager - Hong Kong



METHOD STATEMENT

A. Odour Concentration

1. Odour Sampling

Odour gas sample was collected by passive sampling technique. A Nalophan™ sampling bag was placed inside an air-tight sampler and then drawn to vacuum. Approximately 60 litre of gas sample was collected into the sampling bag for testing.

The odour sample was collected at the Organic Recovery Resources Centre Phase 1 (ORRC1) and sampling location was shown in Appendix A3.

2. Olfactometry Testing

Odour concentration was determined by a Forced-choice Dynamic Olfactometer in accordance with the European Standard Method (EN13725).

This European Standard specifies a method for the objective determination of the odour concentration of a gaseous sample using dynamic olfactometry with human assessors and the emission rate of odours emanating from point sources, area sources with outward flow and area sources without outward flow.

This European Standard is applicable to the measurement of odour concentration of pure substances, defined mixtures and undefined mixtures of gaseous odorants in air or nitrogen, using dynamic olfactometry with a panel of human assessors being the sensor.

The unit of measurement is the odour unit per cubic metre: OU_e/m^3 . The odour concentration is measured by determining the dilution factor required to reach the detection threshold. The odour concentration at the detection threshold is by definition 1 OU_e/m^3 . The odour concentration is then expressed in terms of multiples of the detection threshold. The range of measurement including pre-dilution prior to the olfactometry analysis is typically from 10^1 OU_e/m^3 to 10^7 OU_e/m^3 .

Olfactometry Testing was performed by using the Scentroid™ SS600 Olfactometer. The testing was performed by at least five qualified panellists who have been selected through an n-butanol screening test.

All testing finished within 24 hours after sample receipt.

**RESULT****1. Odour Concentration**

Sample ID	Location	Sampling Date	Sampling Time	LOR (OU _E /Nm ³)	Odour Concentration (OU _E /Nm ³)	Characteristics of the odour detected of the gas sample	Volumetric Flow Rate (Nm ³ /min)	Emission rate (OU _E /hr)
HK1856261-001	CAPC Unit	26-Oct-18	10:35 - 10:40	11	1817	Smell of Garbage	1760	192,000,000
HK1856261-002	CAPC Unit	26-Oct-18	10:40 - 10:44	11	1668	Smell of Garbage	1760	176,000,000
HK1856261-003	Field Blank	26-Oct-18	--	11	<11	--	--	--

Remark:

1. LOR denotes limit of reporting.
2. The collected sample volume of the gas bag is sufficient for olfactometry analysis.
3. Field Blank containing pure nitrogen gas was collected and filled by ALS staff.
4. The volumetric flow rate value for calculation of the emission rate was provided by the client.



APPENDIX 1

A1. SITE CONDITIONS AND OBSERVATION

Location	Date	Time	Ambient Temperature (°C)	Relative Humidity (%)	Ambient Pressure (hPa)	Wind Speed (m/s)	Wind Direction (Degree)	Direction from Source ¹	Duration of Odour	On-Site Observation		Weather Condition
										Odour Nature	Possible Source	
CAPC Unit	26-10-18	10:35 -10:44	29.3	67.3	1016.5	0.9	293	NA	NA	No odour was smelled.	NA	Sunny

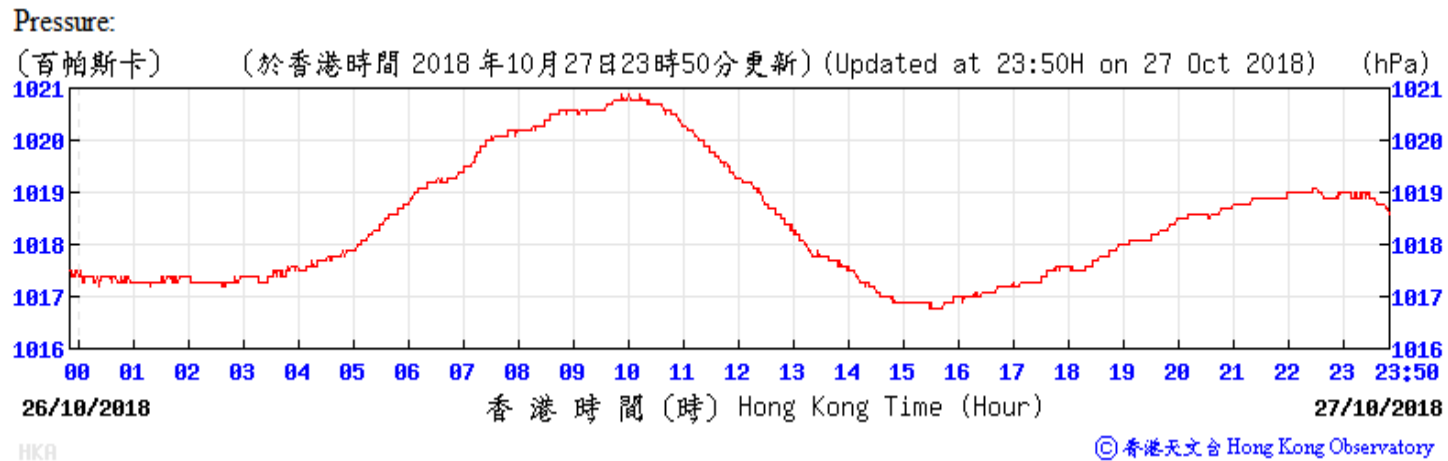
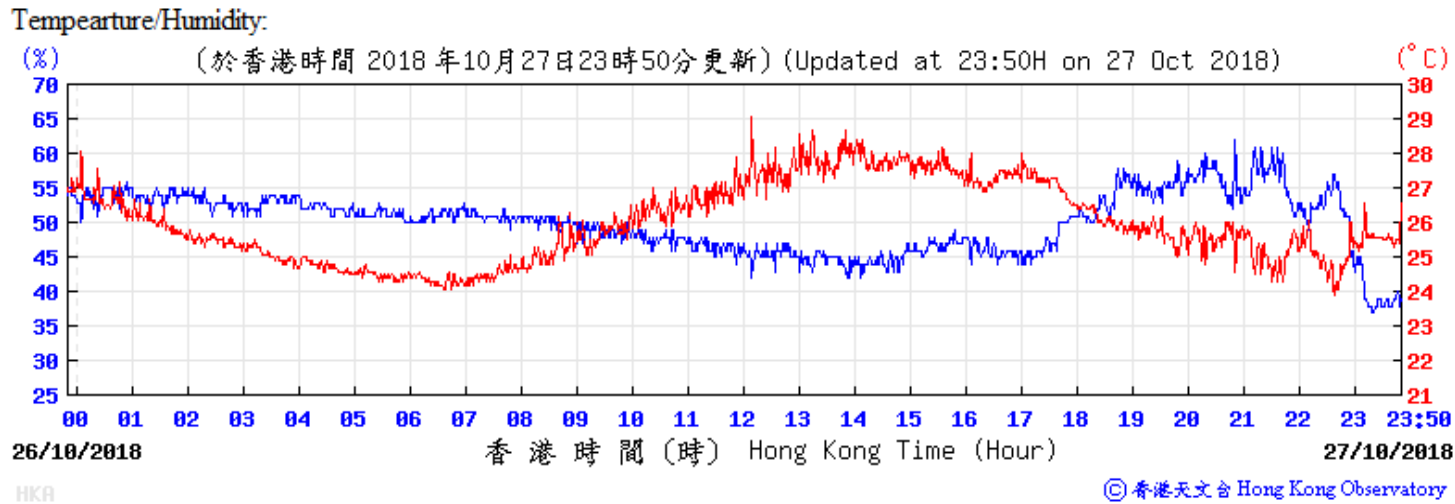
Note:

1. It was assumed that the exhaust of the CAPC Unit was from the odour source.



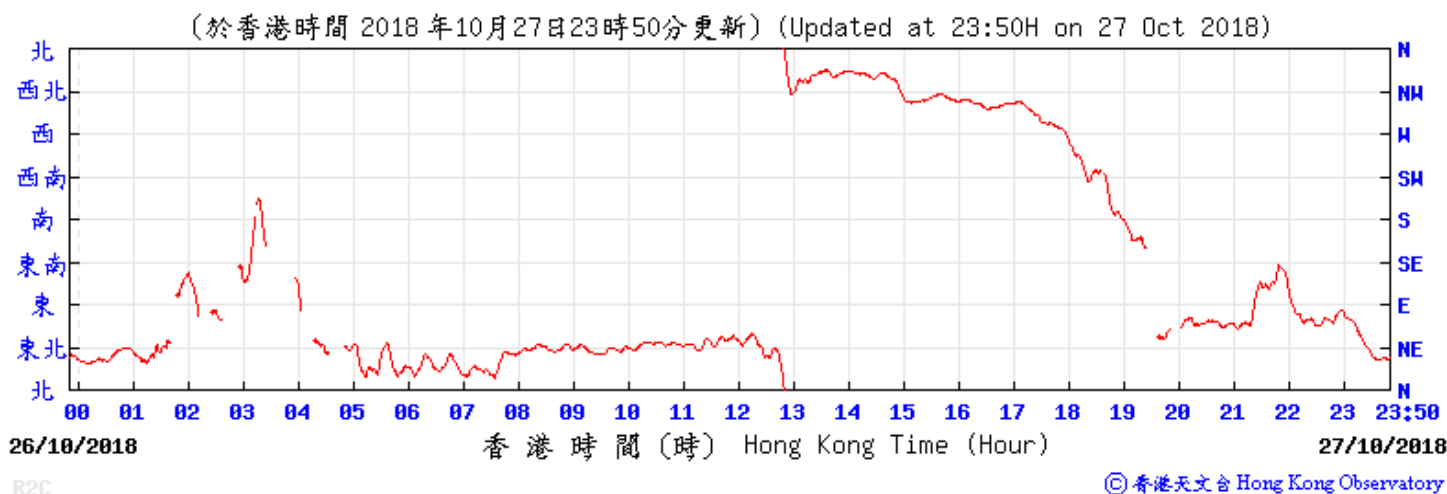
APPENDIX 2

A2. EXTRACT OF METEOROLOGICAL OBSERVATIONS FROM THE HONG KONG AIRPORT OBSERVATORY STATION

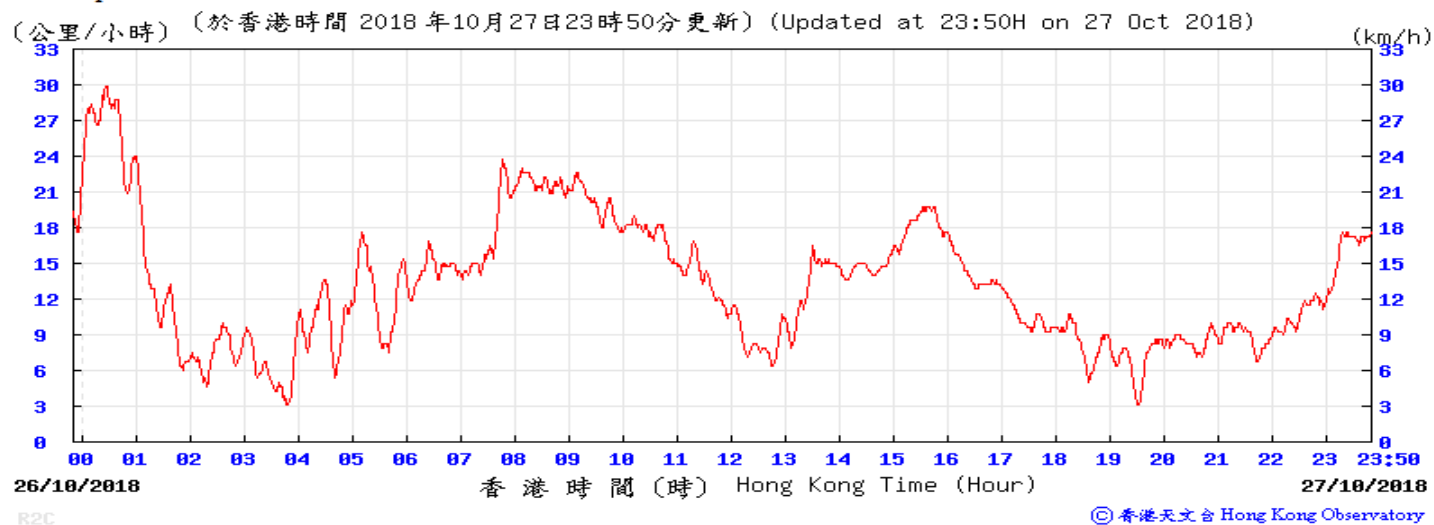




Wind Direction:



Wind Speed:



APPENDIX 3

A3. PHOTO OF THE SAMPLING LOCATION



CERTIFICATE OF ANALYSIS

CLIENT:	Oscar Bioenergy Joint Venture	WORK ORDER:	HK1857944
CONTACT:	Mr Edwin Wong	LABORATORY:	Hong Kong
ADDRESS:	No. 5, Sham Fung Road, Siu Ho Wan, North Lantau Island, NT, Hong Kong	SUB-BATCH:	0
		DATE RECEIVED:	1 November 2018
		DATE OF ISSUE:	9 November 2018
PROJECT:	Odour Monitoring for the Organic Resources Recovery Centre Phase 1 in Siu Ho Wan	SAMPLE TYPE:	Air
SITE:	Organic Resources Recovery Centre Phase 1 (ORRC1)	NO OF SAMPLES:	3
PO:	---		

COMMENTS

Air sample(s) were collected by ALS Technichem (HK) staff on 1st November, 2018 at the Organic Resources Recovery Centre Phase 1 (ORRC1) in Siu Ho Wan for Odour Monitoring.

The sample(s) were analysed and reported on an as received basis.

NOTES

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

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Richard Fung
General Manager - Hong Kong

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METHOD STATEMENT

A. Odour Concentration

1. Odour Sampling

Odour gas sample was collected by passive sampling technique. A Nalophan™ sampling bag was placed inside an air-tight sampler and then drawn to vacuum. Approximately 60 litre of gas sample was collected into the sampling bag for testing.

The odour sample was collected at the Organic Recovery Resources Centre Phase 1 (ORRC1) and sampling location was shown in Appendix A3.

2. Olfactometry Testing

Odour concentration was determined by a Forced-choice Dynamic Olfactometer in accordance with the European Standard Method (EN13725).

This European Standard specifies a method for the objective determination of the odour concentration of a gaseous sample using dynamic olfactometry with human assessors and the emission rate of odours emanating from point sources, area sources with outward flow and area sources without outward flow.

This European Standard is applicable to the measurement of odour concentration of pure substances, defined mixtures and undefined mixtures of gaseous odorants in air or nitrogen, using dynamic olfactometry with a panel of human assessors being the sensor.

The unit of measurement is the odour unit per cubic metre: OU_e/m^3 . The odour concentration is measured by determining the dilution factor required to reach the detection threshold. The odour concentration at the detection threshold is by definition 1 OU_e/m^3 . The odour concentration is then expressed in terms of multiples of the detection threshold. The range of measurement including pre-dilution prior to the olfactometry analysis is typically from 10^1 OU_e/m^3 to 10^7 OU_e/m^3 .

Olfactometry Testing was performed by using the Scentroid™ SS600 Olfactometer. The testing was performed by at least five qualified panellists who have been selected through an n-butanol screening test.

All testing finished within 24 hours after sample receipt.

**RESULT****1. Odour Concentration**

Sample ID	Location	Sampling Date	Sampling Time	LOR (OU _E /Nm ³)	Odour Concentration (OU _E /Nm ³)	Characteristics of the odour detected of the gas sample	Volumetric Flow Rate (Nm ³ /min)	Emission rate (OU _E /hr)
HK1857944-001	CAPC Unit	1-Nov-18	11:08 - 11:12	11	1283	Smell of Garbage	1746	134,000,000
HK1857944-002	CAPC Unit	1-Nov-18	11:13 - 11:16	11	1016	Smell of Garbage	1746	106,000,000
HK1857944-003	Field Blank	1-Nov-18	--	11	<11	--	--	--

Remark:

1. LOR denotes limit of reporting.
2. The collected sample volume of the gas bag is sufficient for olfactometry analysis.
3. Field Blank containing pure nitrogen gas was collected and filled by ALS staff.
4. The volumetric flow rate value for calculation of the emission rate was provided by the client.



APPENDIX 1

A1. SITE CONDITIONS AND OBSERVATION

Location	Date	Time	Ambient Temperature (°C)	Relative Humidity (%)	Ambient Pressure (hPa)	Wind Speed (m/s)	Wind Direction (Degree)	Direction from Source ¹	Duration of Odour	On-Site Observation		Weather Condition
										Odour Nature	Possible Source	
CAPC Unit	1-11-18	11:08 -11:16	26.4	41.1	1011.1	2.8	313	NA	NA	No odour was smelled.	NA	Sunny

Note:

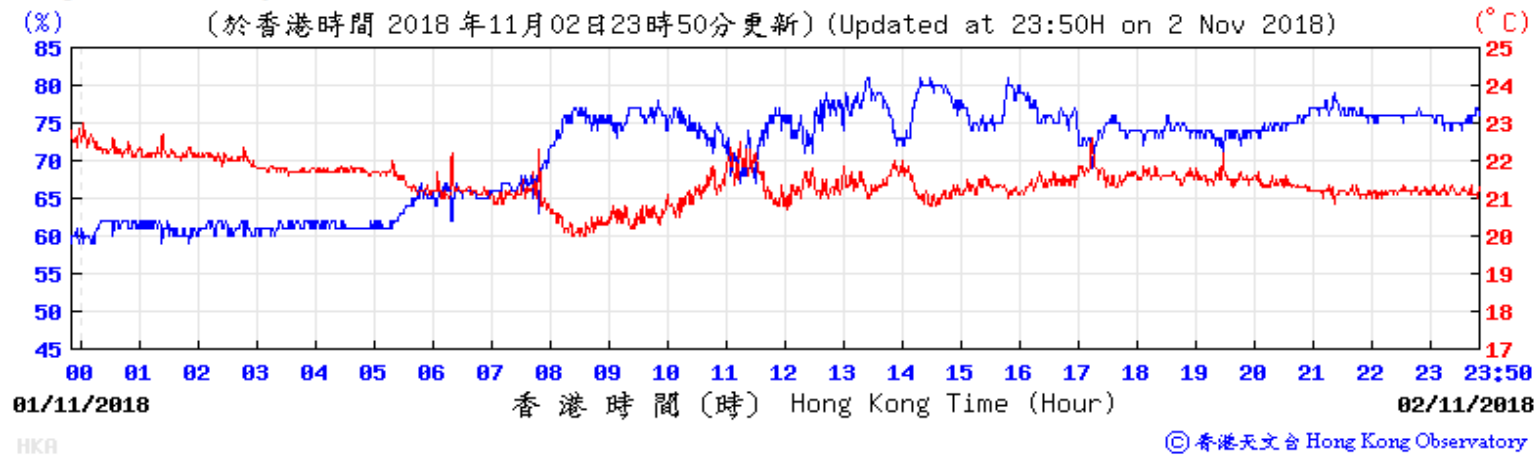
1. It was assumed that the exhaust of the CAPC Unit was from the odour source.



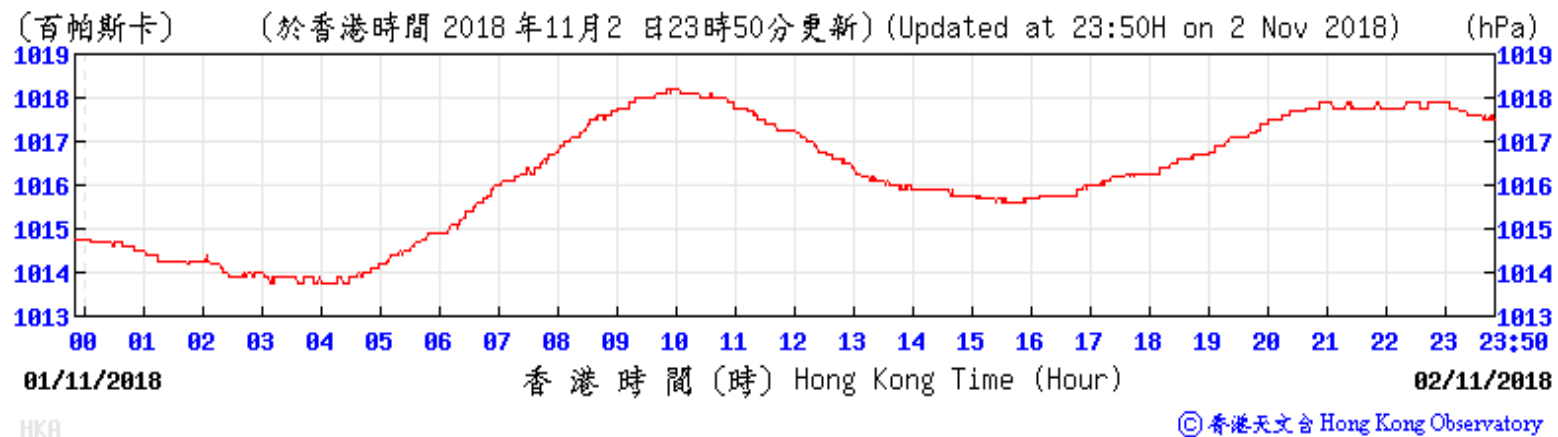
APPENDIX 2

A2. EXTRACT OF METEOROLOGICAL OBSERVATIONS FROM THE HONG KONG AIRPORT OBSERVATORY STATION

Temperature/Humidity:

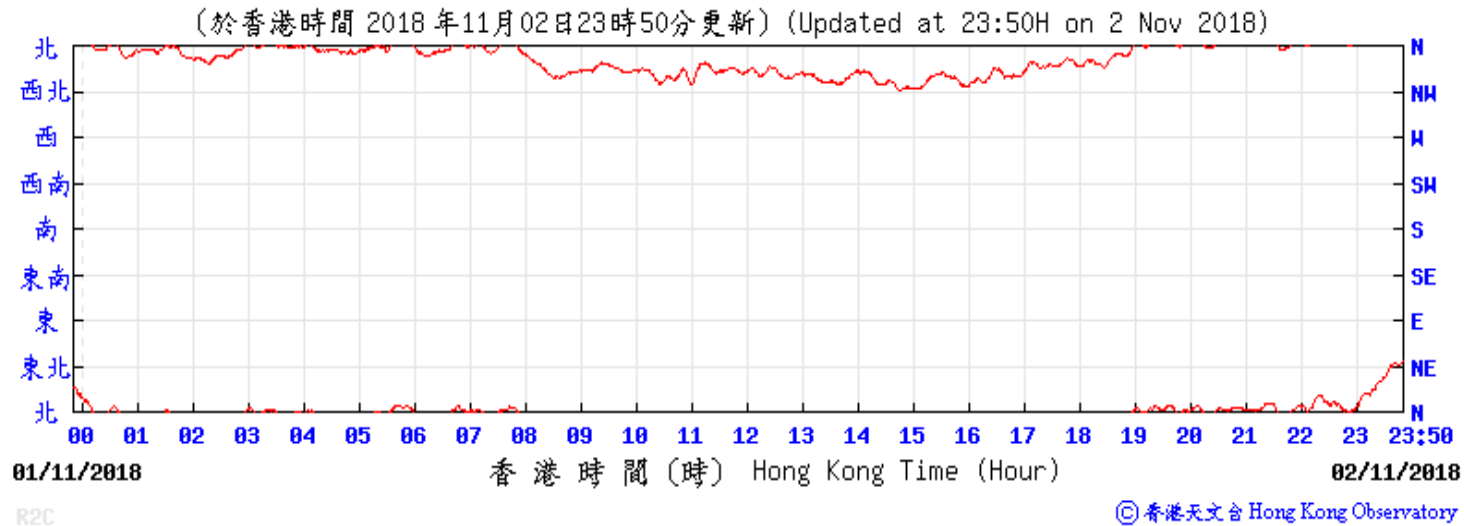


Pressure:

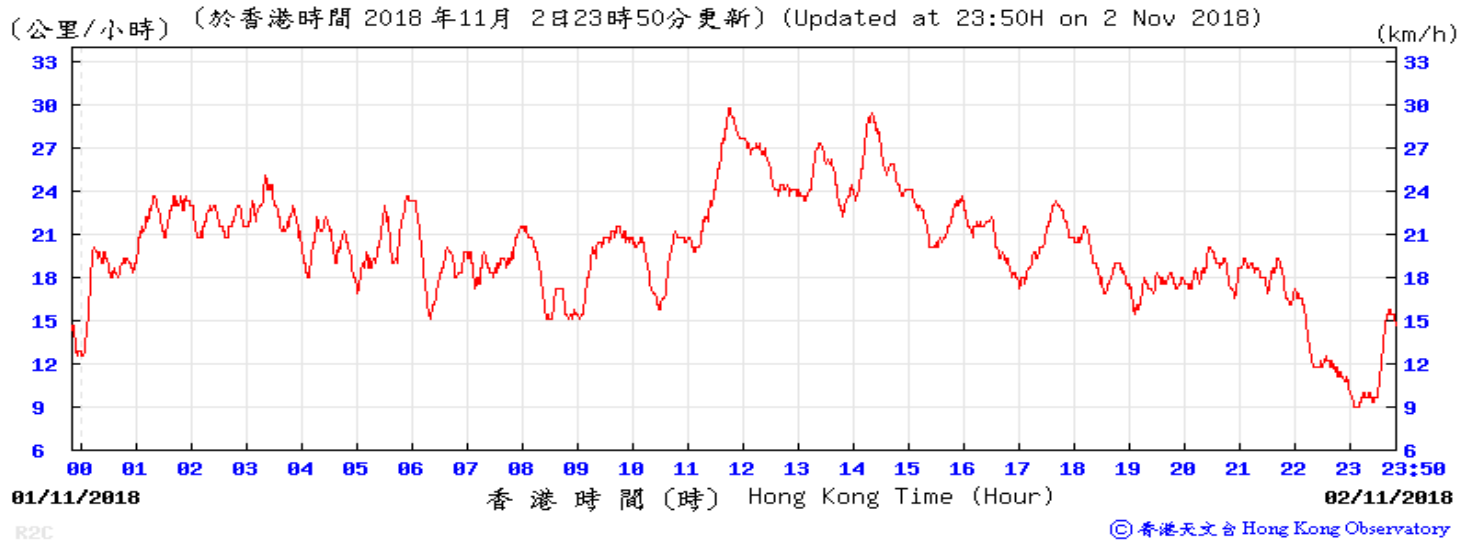




Wind Direction:



Wind Speed:



APPENDIX 3

A3. PHOTO OF THE SAMPLING LOCATION



CERTIFICATE OF ANALYSIS

CLIENT:	Oscar Bioenergy Joint Venture	WORK ORDER:	HK1857945
CONTACT:	Mr Edwin Wong	LABORATORY:	Hong Kong
ADDRESS:	No. 5, Sham Fung Road, Siu Ho Wan, North Lantau Island, NT, Hong Kong	SUB-BATCH:	0
		DATE RECEIVED:	1 November 2018
		DATE OF ISSUE:	9 November 2018
PROJECT:	Odour Monitoring for the Organic Resources Recovery Centre Phase 1 in Siu Ho Wan	SAMPLE TYPE:	Air
SITE:	Organic Resources Recovery Centre Phase 1 (ORRC1)	NO OF SAMPLES:	5
PO:	---		

COMMENTS

Air sample(s) were collected by ALS Technichem (HK) staff on 1st November, 2018 at the Organic Resources Recovery Centre Phase 1 (ORRC1) in Siu Ho Wan for Odour Monitoring.

The sample(s) were analysed and reported on an as received basis.

NOTES

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

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Richard Fung
General Manager - Hong Kong

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METHOD STATEMENT

A. Odour Concentration

1. Odour Sampling

Odour gas sample was collected by passive sampling technique. A Nalophan™ sampling bag was placed inside an air-tight sampler and then drawn to vacuum. Approximately 60 litre of gas sample was collected into the sampling bag for testing.

The odour sample was collected at the Organic Recovery Resources Centre Phase 1 (ORRC1) and sampling location was shown in Appendix A3.

2. Olfactometry Testing

Odour concentration was determined by a Forced-choice Dynamic Olfactometer in accordance with the European Standard Method (EN13725).

This European Standard specifies a method for the objective determination of the odour concentration of a gaseous sample using dynamic olfactometry with human assessors and the emission rate of odours emanating from point sources, area sources with outward flow and area sources without outward flow.

This European Standard is applicable to the measurement of odour concentration of pure substances, defined mixtures and undefined mixtures of gaseous odorants in air or nitrogen, using dynamic olfactometry with a panel of human assessors being the sensor.

The unit of measurement is the odour unit per cubic metre: OU_e/m^3 . The odour concentration is measured by determining the dilution factor required to reach the detection threshold. The odour concentration at the detection threshold is by definition 1 OU_e/m^3 . The odour concentration is then expressed in terms of multiples of the detection threshold. The range of measurement including pre-dilution prior to the olfactometry analysis is typically from 10^1 OU_e/m^3 to 10^7 OU_e/m^3 .

Olfactometry Testing was performed by using the Scentroid™ SS600 Olfactometer. The testing was performed by at least five qualified panellists who have been selected through an n-butanol screening test.

All testing finished within 24 hours after sample receipt.

**RESULT****1. Odour Concentration**

Sample ID	Location	Sampling Date	Sampling Time	LOR (OU _E /Nm ³)	Odour Concentration (OU _E /Nm ³)	Characteristics of the odour detected of the gas sample	Volumetric Flow Rate (Nm ³ /min)	Emission rate (OU _E /hr)
HK1857945-001	CAPC Unit	5-Nov-18	11:11 - 11:14	11	1016	Smell of Garbage	1793.8	109,000,000
HK1857945-002	CAPC Unit	5-Nov-18	11:15 - 11:17	11	1016	Smell of Garbage	1793.8	109,000,000
HK1857945-003	CAPC Unit	5-Nov-18	11:31 - 11:35	11	1016	Smell of Garbage	2027.6	124,000,000
HK1857945-004	CAPC Unit	5-Nov-18	11:36 - 11:40	11	933	Smell of Garbage	2027.6	114,000,000
HK1857945-005	Field Blank	5-Nov-18	--	11	<11	--	--	--

Remark:

1. LOR denotes limit of reporting.
2. The collected sample volume of the gas bag is sufficient for olfactometry analysis.
3. Field Blank containing pure nitrogen gas was collected and filled by ALS staff.
4. The volumetric flow rate value for calculation of the emission rate was provided by the client.

**APPENDIX 1****A1. SITE CONDITIONS AND OBSERVATION**

Location	Date	Time	Ambient Temperature (°C)	Relative Humidity (%)	Ambient Pressure (hPa)	Wind Speed (m/s)	Wind Direction (Degree)	Direction from Source ¹	Duration of Odour	On-Site Observation		Weather Condition
										Odour Nature	Possible Source	
CAPC Unit	5-11-18	11:11 - 11:40	25.5	67.3	1015.5	2.5	330	NA	NA	No odour was smelled.	NA	Cloudy

Note:

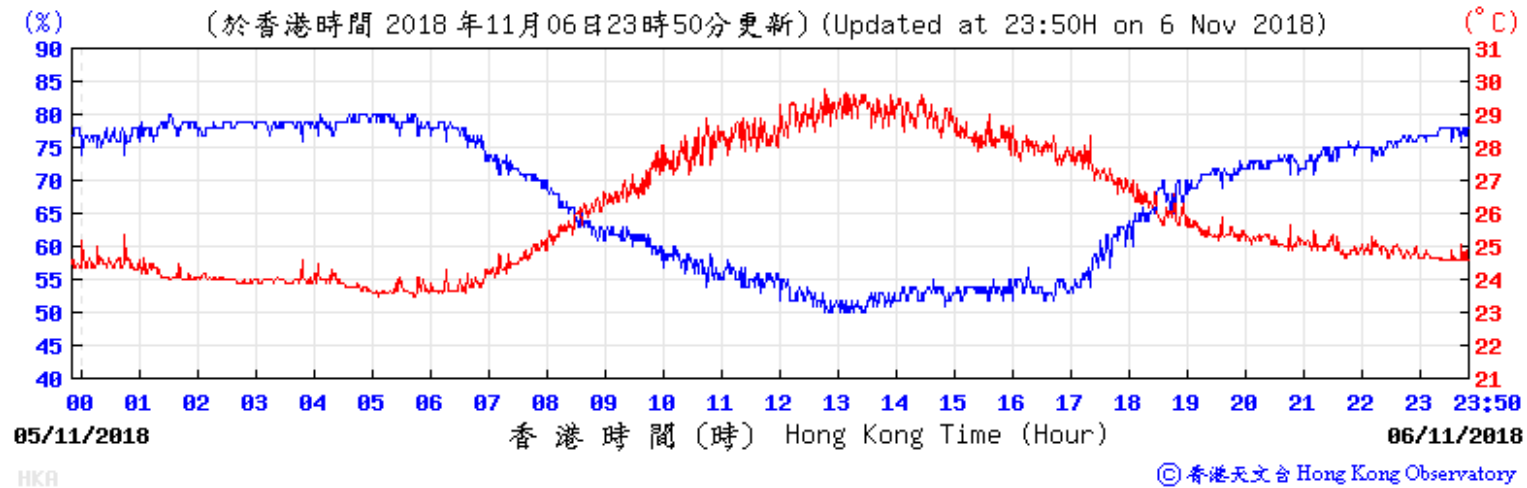
1. It was assumed that the exhaust of the CAPC Unit was from the odour source.



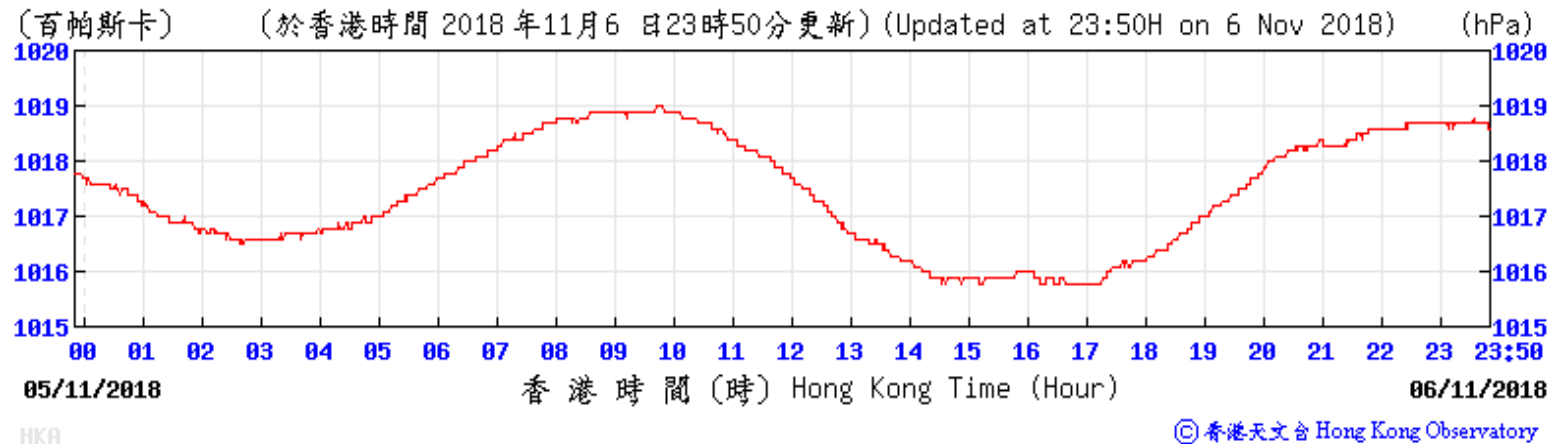
APPENDIX 2

A2. EXTRACT OF METEOROLOGICAL OBSERVATIONS FROM THE HONG KONG AIRPORT OBSERVATORY STATION

Temperature/Humidity:

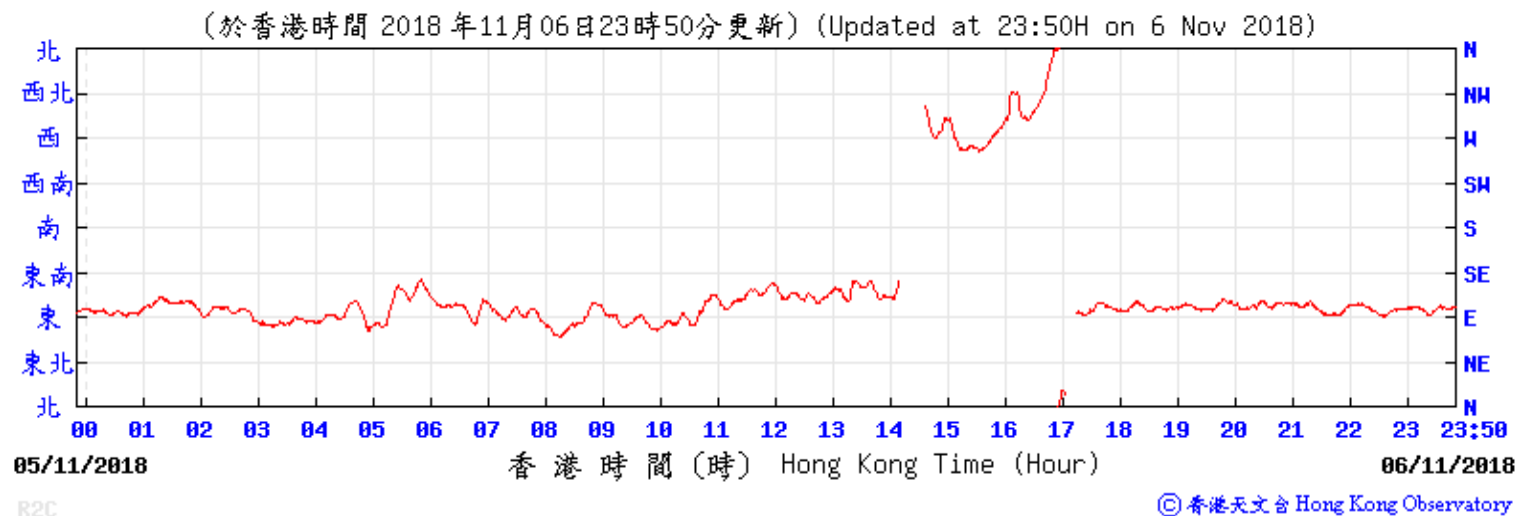


Pressure:

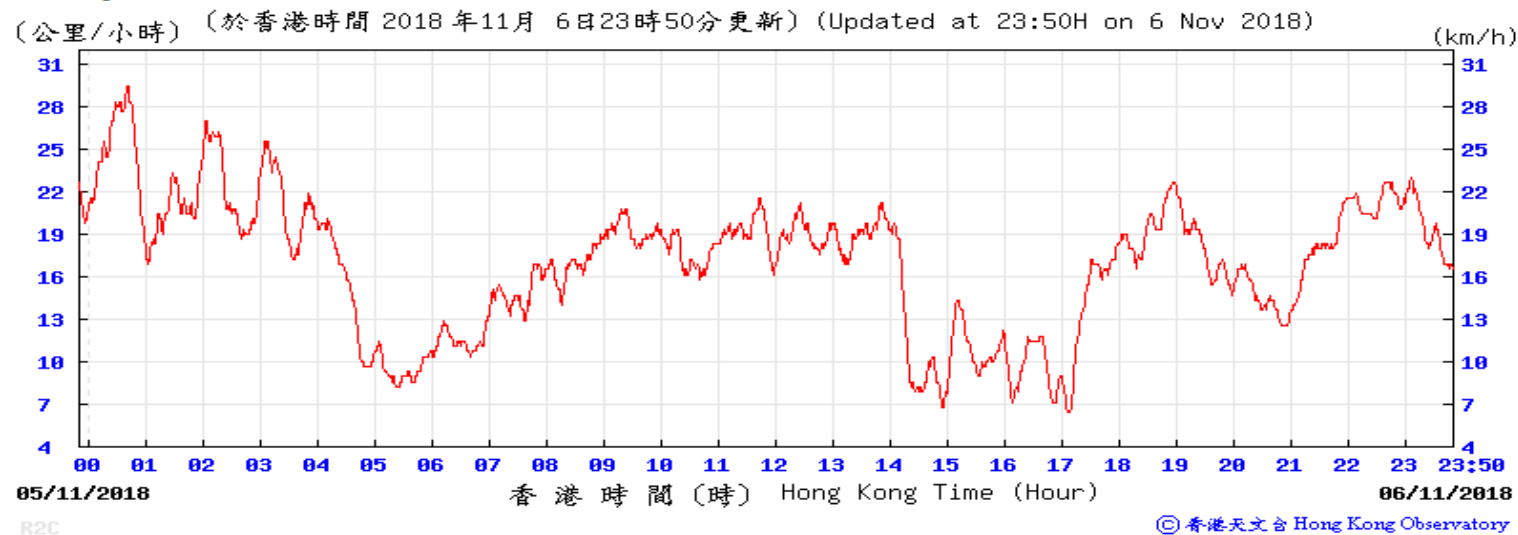




Wind Direction:



Wind Speed:



APPENDIX 3

A3. PHOTO OF THE SAMPLING LOCATION



CERTIFICATE OF ANALYSIS

CLIENT:	Oscar Bioenergy Joint Venture	WORK ORDER:	HK1861624
CONTACT:	Mr Edwin Wong	LABORATORY:	Hong Kong
ADDRESS:	No. 5, Sham Fung Road, Siu Ho Wan, North Lantau Island, NT, Hong Kong	SUB-BATCH:	0
		DATE RECEIVED:	23 November 2018
		DATE OF ISSUE:	26 November 2018
PROJECT:	Odour Monitoring for the Organic Resources Recovery Centre Phase 1 in Siu Ho Wan	SAMPLE TYPE:	Air
SITE:	Organic Resources Recovery Centre Phase 1 (ORRC1)	NO OF SAMPLES:	3
PO:	---		

COMMENTS

Air sample(s) were collected by ALS Technichem (HK) staff on 23rd November, 2018 at the Organic Resources Recovery Centre Phase 1 (ORRC1) in Siu Ho Wan for Odour Monitoring.

The sample(s) were analysed and reported on an as received basis.

NOTES

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

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Richard Fung
General Manager - Hong Kong

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METHOD STATEMENT

A. Odour Concentration

1. Odour Sampling

Odour gas sample was collected by passive sampling technique. A Nalophan™ sampling bag was placed inside an air-tight sampler and then drawn to vacuum. Approximately 60 litre of gas sample was collected into the sampling bag for testing.

The odour sample was collected at the Organic Recovery Resources Centre Phase 1 (ORRC1) and sampling location was shown in Appendix A3.

2. Olfactometry Testing

Odour concentration was determined by a Forced-choice Dynamic Olfactometer in accordance with the European Standard Method (EN13725).

This European Standard specifies a method for the objective determination of the odour concentration of a gaseous sample using dynamic olfactometry with human assessors and the emission rate of odours emanating from point sources, area sources with outward flow and area sources without outward flow.

This European Standard is applicable to the measurement of odour concentration of pure substances, defined mixtures and undefined mixtures of gaseous odorants in air or nitrogen, using dynamic olfactometry with a panel of human assessors being the sensor.

The unit of measurement is the odour unit per cubic metre: OU_e/m^3 . The odour concentration is measured by determining the dilution factor required to reach the detection threshold. The odour concentration at the detection threshold is by definition 1 OU_e/m^3 . The odour concentration is then expressed in terms of multiples of the detection threshold. The range of measurement including pre-dilution prior to the olfactometry analysis is typically from 10^1 OU_e/m^3 to 10^7 OU_e/m^3 .

Olfactometry Testing was performed by using the Scentroid™ SS600 Olfactometer. The testing was performed by at least five qualified panellists who have been selected through an n-butanol screening test.

All testing finished within 24 hours after sample receipt.

**RESULT****1. Odour Concentration**

Sample ID	Location	Sampling Date	Sampling Time	LOR (OU _E /Nm ³)	Odour Concentration (OU _E /Nm ³)	Characteristics of the odour detected of the gas sample	Volumetric Flow Rate (Nm ³ /min)	Emission rate (OU _E /hr)
HK1861624-001	CAPC Unit	23-Nov-18	11:08 - 11:13	11	134	Smell of garbage and bleach	1075.5	8,650,000
HK1861624-002	CAPC Unit	23-Nov-18	11:14 - 11:19	11	144	Smell of garbage and bleach	1075.5	9,290,000
HK1861624-003	Field Blank	23-Nov-18	--	11	<11	--	--	--

Remark:

1. LOR denotes limit of reporting.
2. The collected sample volume of the gas bag is sufficient for olfactometry analysis.
3. Field Blank containing pure nitrogen gas was collected and filled by ALS staff.
4. The volumetric flow rate value for calculation of the emission rate was provided by the client.



APPENDIX 1

A1. SITE CONDITIONS AND OBSERVATION

Location	Date	Time	Ambient Temperature (°C)	Relative Humidity (%)	Ambient Pressure (hPa)	Wind Speed (m/s)	Wind Direction (Degree)	Direction from Source ¹	Duration of Odour	On-Site Observation		Weather Condition
										Odour Nature	Possible Source	
CAPC Unit	23-11-18	11:08 - 11:19	20.9	63.8	1021.1	1.0	316	NA	NA	No odour was smelled.	NA	Sunny

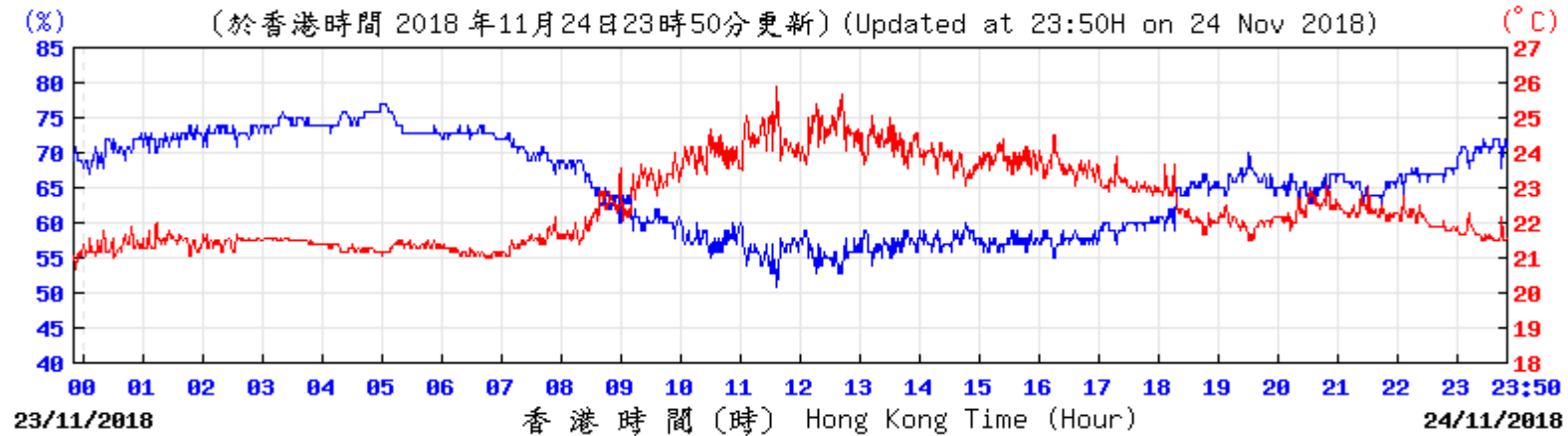
Note:

1. It was assumed that the exhaust of the CAPC Unit was from the odour source.

APPENDIX 2

A2. EXTRACT OF METEOROLOGICAL OBSERVATIONS FROM THE HONG KONG AIRPORT OBSERVATORY STATION

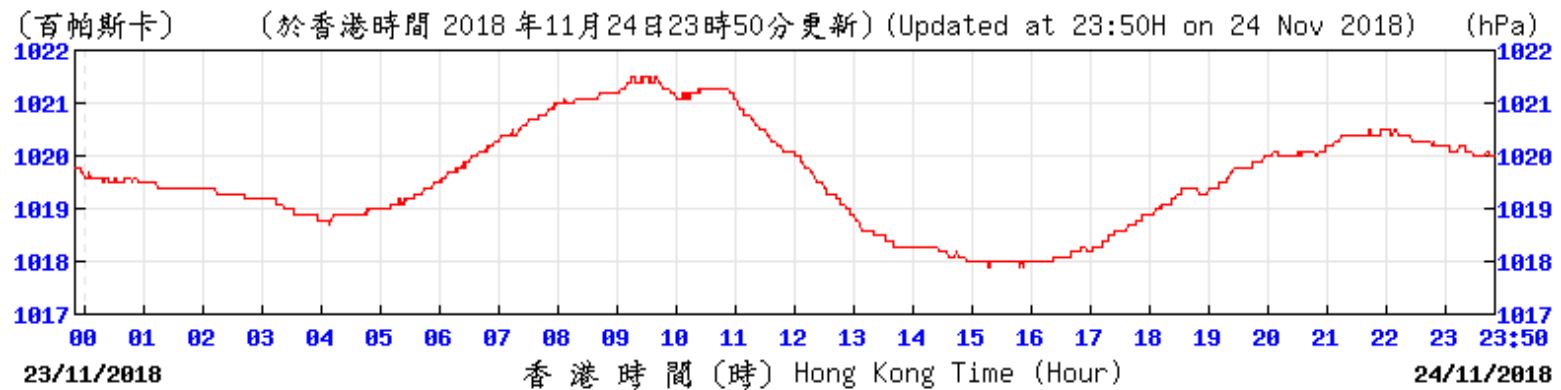
Temperature/Humidity:



HKA

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Pressure:

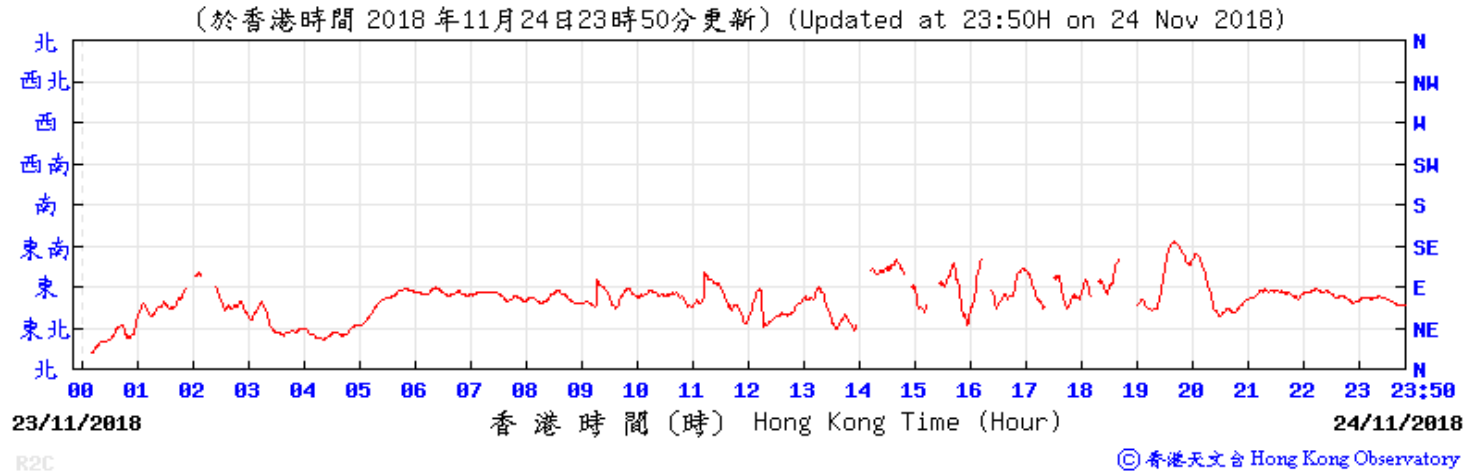


HKA

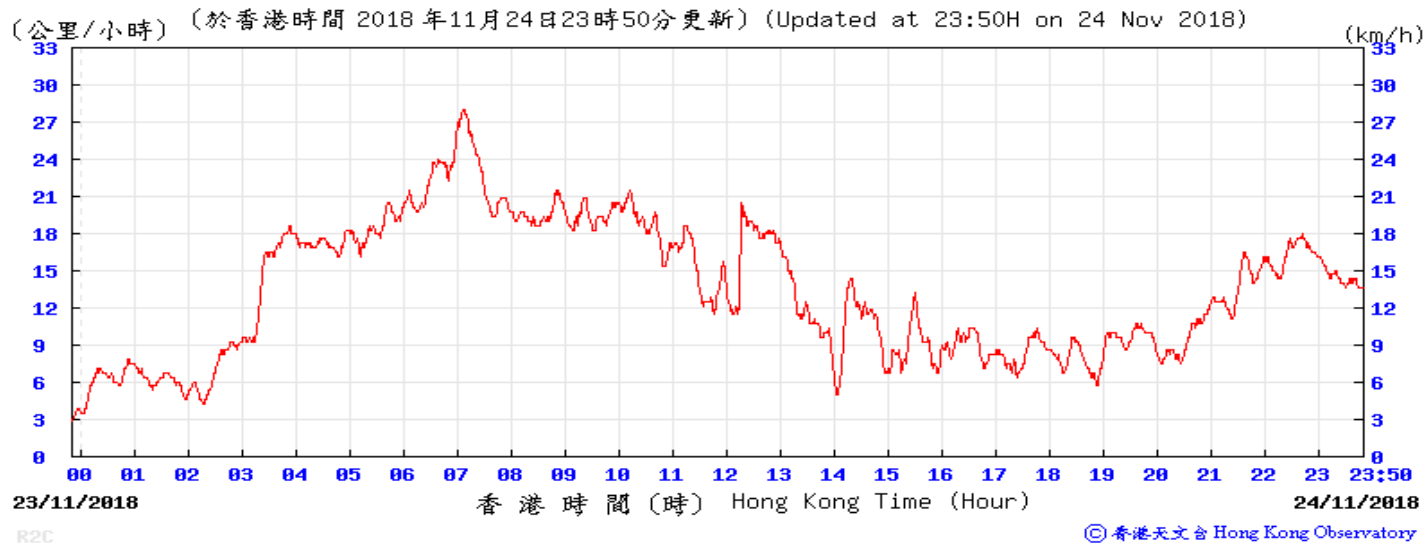
© 香港天文台 Hong Kong Observatory



Wind Direction:



Wind Speed:



APPENDIX 3

A3. PHOTO OF THE SAMPLING LOCATION



Annex H4

Action and Limit Levels for Odour Nuisance

Odour Intensity Level

Level	Odour Intensity
0	Not detected. No odour perceived or an odour so weak that it cannot be easily
1	Slight identifiable odour, and slight chance to have odour
2	Moderate identifiable odour, and moderate chance to have odour
3	Strong identifiable, likely to have odour nuisance
4	Extreme severe odour, and unacceptable odour level

Action and Limit Levels for Odour Nuisance

Parameter	Action Level	Limit Level
Odour Nuisance (from odour patrol)	When one documented compliant is received ⁽¹⁾ , or Odour Intensity of 2 is measured from odour patrol.	Two or more documented complaints are received ⁽¹⁾ within a week; or Odour intensity of 3 or above is measured from odour patrol.

Note:

(1) Once the compliant is received by the Project Proponent (EPD), the Project Proponent would investigate and verify the complaint whether it is related to the potential odour emission from the OWTF and its on-site wastewater treatment unit.

Event and Action Plan for Odour Monitoring

EVENT	ACTION	
	Person-in-charge of Odour	Project Proponent ⁽¹⁾
ACTION LEVEL		
Exceedance of action level (Odour Patrol)	<ol style="list-style-type: none"> 1. Identify source/reason of exceedance; 2. Repeat odour patrol to confirm finding. 	<ol style="list-style-type: none"> 1. Carry out investigation to identify the source/reason of exceedance. Investigation should be completed within 2 weeks; 2. Rectify any unacceptable practice; 3. Implement more mitigation measures if necessary; 4. Inform DSD or the operator of the Siu Ho Wan Sewage Treatment Works (SHWSTW) if exceedance is considered to be caused by the operation of the SHWSTW. 5. Inform North Lantau Refuse Transfer Station (NLTS) operator if exceedance is considered to be caused by the operation of NLTS.

EVENT	ACTION	
	Person-in-charge of Odour	Project Proponent ⁽¹⁾
Exceedance of action level (Odour Complaints)	<ol style="list-style-type: none"> 1. Identify source/reason of exceedance; 2. Carry out odour patrol to determinate odour intensity. 	<ol style="list-style-type: none"> 1. Carry out investigation and verify the complaint whether it is related to potential odour emission from the nearby SHWSTW; 2. Carry out investigation to identify the source/reason of exceedance. Investigation should be completed within 2 weeks; 3. Rectify any unacceptable practice; 4. Implement more mitigation measures if necessary; 5. Inform DSD or the operator of the SHWSTW if exceedance is considered to be caused by the operation of the SHWSTW.

EVENT	ACTION	
	Person-in-charge of Odour	Project Proponent ⁽¹⁾
LIMIT LEVEL		
Exceedance of Limit level	<ol style="list-style-type: none"> 1. Identify source/reason of exceedance; 2. Inform EPD; 3. Repeat odour patrol to confirm findings; 4. Increase odour patrol frequency to bi-weekly; 5. Assess effectiveness of remedial action and keep EPD informed of the results; 6. If exceedance stops, cease additional odour patrol. 	<ol style="list-style-type: none"> 1. Carry out investigation to identify the source/reason of exceedance. Investigation should be completed within 2 week; 2. Rectify any unacceptable practice; 3. Formulate remedial actions; 4. Ensure remedial actions properly implemented; 5. If exceedance continues, consider what more/enhanced mitigation measures should be implemented;

Note: ⁽¹⁾Project Proponent shall identify an implementation agent

Annex I

Investigation Report

Investigation Report of Odour Sampling Exceedances

Date	5, 12, 19 and 26 October 2018; 1 and 5 November 2018
Time	Sampling times were shown in Appendix B .
Monitoring Location	Centralized Air Pollution Control (CAPC) Unit ((Detailed location and photos shown on the marked drawing DR-OAP-20-0-CA-1001 attached as Appendix A)
Weather	Fine
Parameter	Odour
Exceedance Description	<ol style="list-style-type: none"> 1. On 5, 12, 19, 26 October 2018 and 1, 5 November 2018, air samples were collected from the outlet of the Centralised Air Pollution Control (CAPC) unit by ALS for measurement of the Odour Intensity by olfactometry analysis at the laboratory. According to the EM&A Manual and EP requirements, it is considered an exceedance if the odour level is more than 220 OU/Nm³. the odour level of the odour samples collected from the CAPC unit have exceeded the odour limits stated in Table 2.2 of the EM&A Manual. The detail sampling results are shown in Appendix B. 2. The plant was operated normally. Odour emitting activities, including wastewater treatment plant, waste receiving pretreatment, AD process, sludge dewatering and composting were operating on those sampling days. The CAPC system was operating during the odour sampling. 3. The plant received an average of 100 tonnes of SSOW daily in the reporting period. 4. The contractor reported that CAPCS system was running with 1 of 2 line chemical scrubber, wet scrubber and venturi scrubber with activated carbon (AC) filter. Another 1 of 2 line chemical scrubber, wet scrubber and venturi scrubber were not operating at the time of the sampling as they are still under testing and commissioning. The exceedances could be due to saturation of the AC filter as an increase of VOCs concentration was observed.
Action Taken / Action to be Taken	The contractor has replaced all AC filter media in mid (15 th - 20 th) of November 2018 (Photograph record attached as Appendix C). The odour sampling collected on 23 November 2018 from CAPCs complied with EM&A Manual.
Remedial Works and Follow-up Actions	To avoid saturation of the filter media, it is recommended that the contractor should test the medium regularly or indicator medium should be used to provide an indication of the condition of the media. ET will carry out follow-up audit regarding the progress next month.

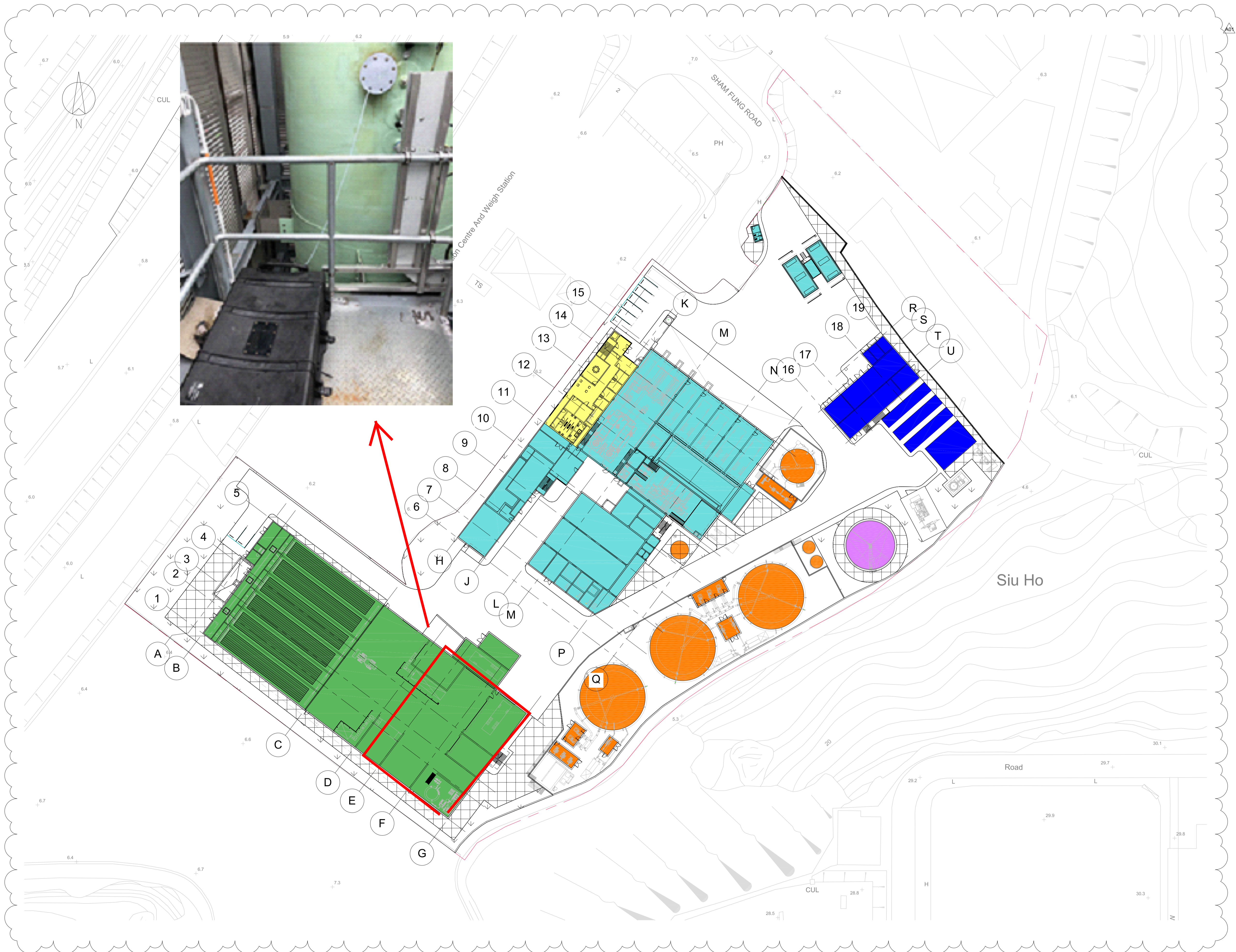
OSCAR Bioenergy Joint Venture
EP/SP/61/10 – Organic Resources Recovery Centre Phase 1

Prepared by: Leah Pak, ET Representatives

Date 10-December-2018

Appendix A

Monitoring Location



A01	05/03/15	CW	MB	IMTECH BACKGROUNDS UPDATED
A00	18/02/15	CW	MB	DRAFT ISSUE
REV	DATE	BY	APP	DESCRIPTION

CLIENT
EPD ENVIRONMENTAL PROTECTION DEPARTMENT
 GOVERNMENT OF THE HKSAR

CLIENT'S CONSULTANT
AECOM
 AECOM ASIA CO. LTD.

CONTRACTOR
Suez SITA ATAL RosRoca
 OSCAR BIOENERGY JV

LEAD DESIGNER
ARUP
 Ove Arup & Partners Hong Kong Limited

ENVIRONMENTAL TEAM
ERM
 ERM HONG KONG LIMITED

INDEPENDENT CONSULTANTS
MEINHARDT
 Meinhardt Infrastructure and Environment Limited
 邁達基建築環保工程顧問有限公司

PROJECT
 ORGANIC WASTE TREATMENT FACILITIES
 PHASE 1
 EP/SP/61/10

STATUS
 DRAFT ISSUE

DRAWING TITLE
 SITE LAYOUT

DRAWN CW	CHECKED RS	APPROVED DP
SCALE 1:500@A1 / 1:1000@A3	DATE 12/02/15	
JOB NO. 239956	DRAWING NO. DR-OAP-20-0-CA-1001	REV. A01

Appendix B

Odour Sampling Results Summary

OSCAR Bioenergy Joint Venture
 EP/SP/61/10 – Organic Resources Recovery Centre Phase 1

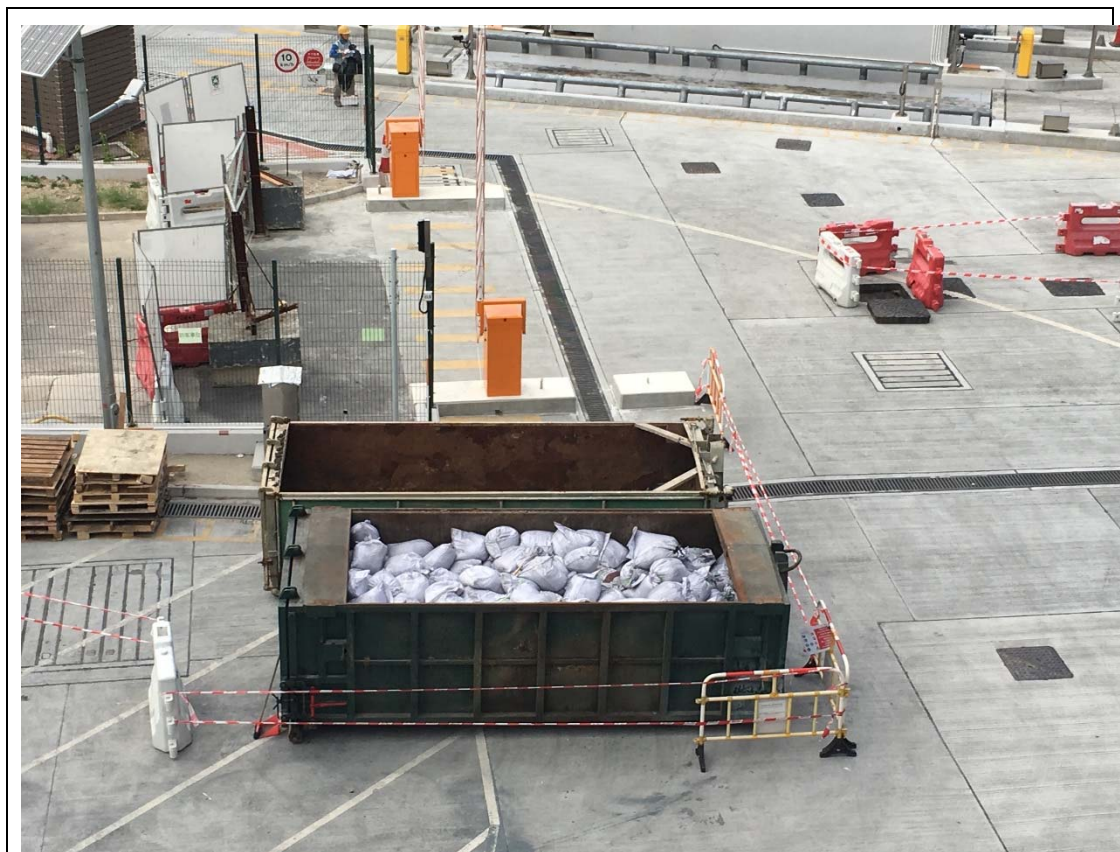
Sampling Date	Sampling Time	Odour Concentration (OU /Nm ³) ^{Note}
5 Oct 2018	11:05-11:10	1204
5 Oct 2018	11:11-11:18	1087
12 Oct 2018	15:08-15:12	2107
12 Oct 2018	15:12-15:16	2463
19 Oct 2018	11:01-11:05	2273
19 Oct 2018	11:06-11:09	2273
26 Oct 2018	10:35-10:40	1817
26 Oct 2018	10:40-10:44	1668
1 Nov 2018	11:08-11:12	1283
1 Nov 2018	11:13-11:16	1016
5 Nov 2018	11:11-11:14	1016
5 Nov 2018	11:15-11:17	1016
5 Nov 2018	11:31-11:35	1016
5 Nov 2018	11:36-11:40	933
23 Nov 2018	11:08-11:13	134
23 Nov 2018	11:14-11:19	144

Note: According to the EM&A Manual and EP requirements, it is considered an exceedance if the odour level is more than 220 OU/Nm³.

Appendix C

Photographs Taken On-Site

OSCAR Bioenergy Joint Venture
EP/SP/61/10 - Organic Resources Recovery Centre Phase 1



The activated carbons (ACs) were standby for replacement on site in mid-November 2018.

OSCAR Bioenergy Joint Venture
EP/SP/61/10 - Organic Resources Recovery Centre Phase 1



The AC bags were being lifted to roof of the Building 2 and ready for replacement.



The ACs were being replaced by on site workers.