



# **South East New Territories (SENT) Landfill Extension**

**Annual Environmental Monitoring & Audit Review Report No.1** 

April 2020

#### **ERM**

2507, 25/F One Harbourfront 18 Tak Fung Street Hunghom, Kowloon Hong Kong T: 2271 3000 F: 2723 5660 www.erm.com





#### South East New Territories (SENT) Landfill Extension

# Environmental Certification Sheet EP-308/2008/B and FEP-01/308/2008/B

#### Reference Document/Plan

Annual Environmental Monitoring & Audit Review Report

Document/Plan to be Certified/Verified: No.1 for South East New Territories (SENT) Landfill

Extension

Date of Report: 28 April 2020

#### Reference EM&A Manual Requirement

EM&A Manual: Section 11.5

The Annual EM&A Review Report shall be prepared by the ET, certified by the ET Leader and verified by the IEC. The Annual EM&A Review Report should contain all information listed under Section 11.5 of the approved EM&A Manual.

#### **ET Certification**

I hereby certify that the above referenced document/plan complies with the above referenced EM&A Manual requirement.

Wardist T.

Frank Wan,

Environmental Team Leader:

(ERM Hong-Kong, Limited)

Date: 28 April 2020

Date: 4 May 2020

#### **IEC Verification**

I hereby verify that the above referenced document/plan complies with the above referenced EM&A Manual requirement.

W.K. Chiu,

Independent Environmental Checker:

(Meinhardt Infrastructure and

Environment Limited)

# **South East New Territories (SENT) Landfill Extension**

# **Annual Environmental Monitoring & Audit Review Report No.1**

### **Environmental Resources Management**

2507, 25/F, One Harbourfront 18 Tak Fung Street Hunghom, Kowloon Hong Kong

Telephone: (852) 2271 3000 Facsimile: (852) 2723 5660 E-mail: post.hk@erm.com http://www.erm.com

Client:		Projec	t No:		
Green Valley Landfill Ltd.		0465169			
Summary		Date:			
			oril 2020		
This document presents the Annual EM&A Review Report No.1 for South East New Territories (SENT) Landfill Extension		Approved by:			
		Frank Wan Partner			
1	Annual EM&A Review Report No.1 (ES, Section 2.8 & 4, Table 2.7, 2.8 & 2.9, Annex F1, F3 & G1 revised)	AL	FW	FW	28 Apr 20
0	Annual EM&A Review Report No.1	AL	FW	FW	31 Jan 20
Revision	Description	Ву	Checked	Approved	Date
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We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.			Public	Cer	OHSAS 18001:2007 tificate No. OHS 515956
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#### **EXECUTIVE SUMMARY**

The SENT Landfill Extension (SENTX) forms an integral part in the Strategic Plan in maintaining the continuity of landfill capacity in the Hong Kong for the cost-effective and environmentally satisfactory disposal of waste. ERM-Hong Kong, Limited (ERM) is commissioned to undertake the role of Environmental Team (ET) for the construction, operation/restoration and aftercare of SENTX Project ("the Project") in accordance with the requirements specified in the Environmental Permit (EP), updated Environmental Monitoring and Audit (EM&A) Manual, the approved Environmental Impact Assessment (EIA) Report of the Project taking account of the latest design and other relevant statutory requirements. The construction (not including works related to site clearance and preparation) of the Project commenced on 2 January 2019.

This Annual EM&A Review Report presents the EM&A works carried out during the period from 2 January to 31 December 2019 for the Project in accordance with the updated EM&A Manual.

#### **Exceedance of Action and Limit Levels for Air Quality**

No exceedance of Action and Limit Levels for construction air quality monitoring was recorded in the reporting period.

#### **Exceedance of Action and Limit Levels for Noise**

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

#### **Exceedance of Action and Limit Levels for Surface Water Quality**

2 exceedances of the Limit Level for DO, 13 exceedances of the Limit Level for pH and 17 exceedances of the Limit Level for Suspended Solids (SS) were recorded for surface water quality impact monitoring in the reporting period. The exceedances were considered non Project-related upon further investigations, except the pH and SS exceedances at DP4 (Future, temporary) and SS exceedance at DP6 on 23 May 2019 and SS exceedance at DP4 (Future, temporary) on 25 July 2019 which were found deemed to Project-related activities.

#### **Environmental Complaints, Summons and Prosecutions**

There were no notification of summons or prosecution recorded in the reporting period.

One environmental complaint related to dust nuisance was received during the reporting period. Investigation on the environmental complaint was conducted in accordance with the complaint handling process as stated in the Updated EM&A Manual.

# **Reporting Change** There was no reporting change in the reporting period.

#### 1 INTRODUCTION

#### 1.1 BACKGROUND

The SENT Landfill Extension (SENTX) forms an integral part in the Strategic Plan in maintaining the continuity of landfill capacity in the Hong Kong for the cost-effective and environmentally satisfactory disposal of waste. The *Environmental Impact Assessment (EIA) Report* and the associated *Environmental Monitoring and Audit (EM&A) Manual* for the construction, operation, restoration and aftercare of the SENTX (hereafter referred to as "the Project") have been approved under the *Environmental Impact Assessment Ordinance (EIAO)* in May 2008 (Register No.: AEIAR-117/2008) (hereafter referred to as the approved EIA Report) and an Environmental Permit (EP-308/2008) (EP) was granted by the Director of Environmental Protection (DEP) on 5 August 2008.

Since then, applications for Variation of an Environmental Permit (No. VEP-531/2017) were submitted to EPD and the Variation of Environmental Permits (EP-308/2008/A and EP-308/2008/B) were granted on 6 January 2012 and 20 January 2017, respectively, as the Hong Kong SAR Government has decided to reduce the scale of the design scheme of SENTX assessed in the approved EIA Report and SENTX will only receive construction waste. In May 2018, a Further Environmental Permit (FEP) (FEP-01/308/2008/B) was granted to the SENTX's contractor, Green Valley Landfill, Limited (GVL).

ERM-Hong Kong, Limited (ERM) and Meinhardt Infrastructure and Environment Limited (Meinhardt) are commissioned to undertake the roles of Environmental Team (ET) and the Independent Environmental Checker (IEC), respectively, to undertake the EM&A activities for the Project in accordance with the requirements specified in the EP, updated EM&A Manual (1), approved EIA Report (2) taking account of the latest design and other relevant statutory requirements.

#### 1.2 PROJECT DESCRIPTION

The SENTX is a piggyback landfill, occupying the southern part of the existing SENT Landfill (including its infrastructure area) and 13 ha of Tseung Kwan O (TKO) Area 137. A layout plan of the SENTX is shown in *Figure 1.1*. Under the latest design, the SENTX has a net void capacity of about 6.5 Mm³ and provides an additional lifespan of about 6 years, commencing operation upon exhaustion of the SENT Landfill. The SENTX will receive construction waste only.

The key implementation milestones of the Project are indicatively summarised in *Table 1.1*. The construction works of the Project commenced on 2 January 2019.

<sup>(1)</sup> ERM (2018). South East New Territories (SENT) Landfill Extension: Environmental Monitoring & Audit Manual

<sup>(2)</sup> ERM (2007). South East New Territories (SENT) Landfill Extension - Feasibility Study: Environmental Impact Assessment Report

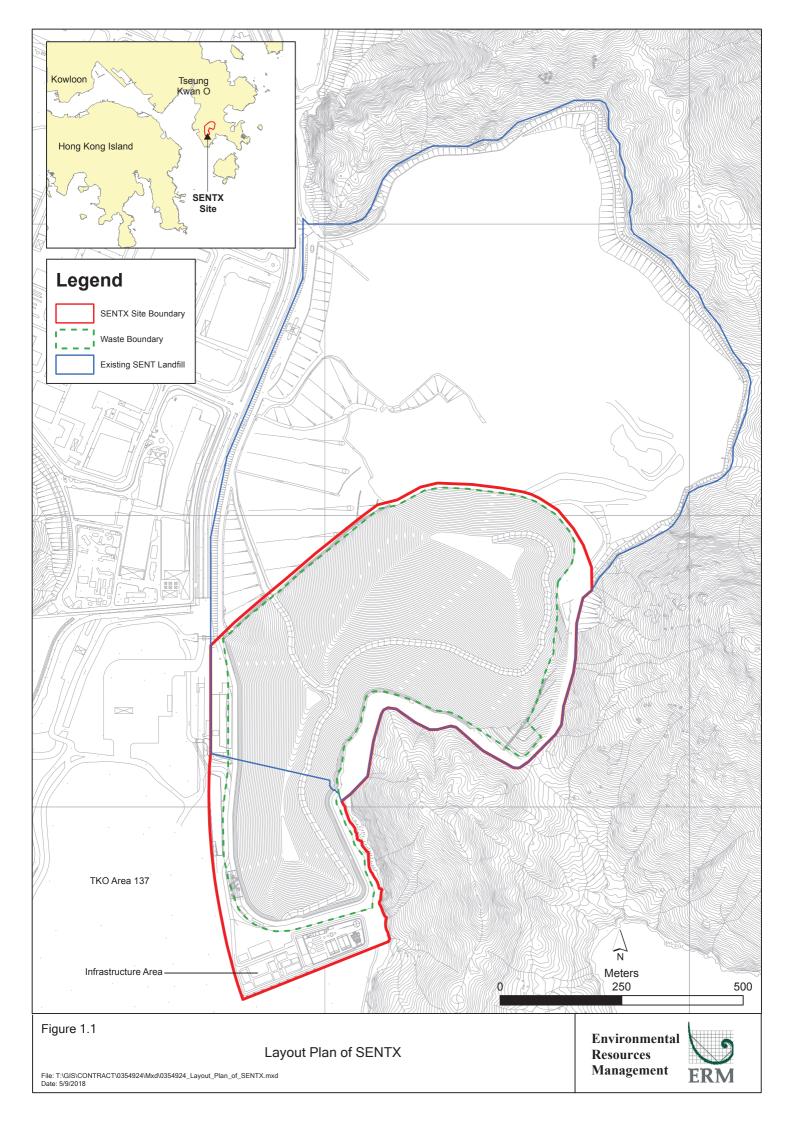


Table 1.1 Estimated Key Dates of Implementation Programme

Key Stage of the Project	Indicative Date
Start construction	2 January 2019
Commissioning of new infrastructure facilities	2020
Demolition of existing infrastructure facilities	2021
Start waste intake at SENTX	2021 or upon exhaustion of SENT Landfill
Estimated exhaustion date of SENTX	2027
End of aftercare for SENTX	2057

The major construction works of the SENTX includes:

- Site formation at the TKO Area 137 and the existing infrastructure area at SENT Landfill;
- Construction of surface and groundwater drainage systems;
- Construction of the leachate containment and collection systems;
- Construction of new leachate and landfill gas treatment facilities, site offices, maintenance yards at the new infrastructure area;
- Construction of new pipelines to transfer the leachate and landfill gas collected from the existing SENT Landfill to the treatment facilities at the new infrastructure area;
- Construction of the site access and new waste reception facilities; and
- Demolition of the facilities at the existing SENT Landfill infrastructure area.

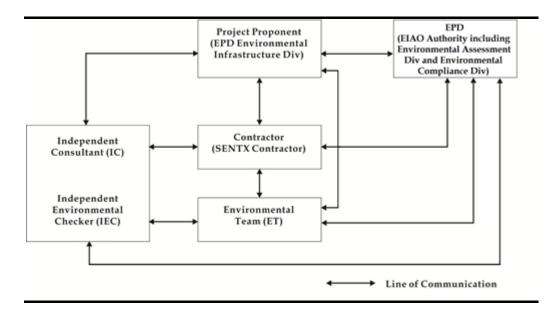
#### 1.3 Scope of the EM&A Report

This is the Annual EM&A Review Report for the Project which summarises the key findings of the EM&A programme during the reporting period from 2 January to 31 December 2019 for the construction works.

#### 1.4 PROJECT ORGANISATION

The organisation structure of the Project is presented in *Figure 1.2*.

Figure 1.2 Organisation Chart



Contact details of the key personnel are summarized in *Table 1.2* below.

Table 1.2 Contact Information of Key Personnel

Party	Position	Name	Telephone
Contractor	Project Manager	Gary Barnicott	2706 8827
(Green Valley Landfill	Complaint Hotline		2706 8682
Limited)			
Environmental Team (ET)	ET Leader	Frank Wan	2271 3152
(ERM-Hong Kong, Limited)			
Independent Environmental	IEC	Fredrick Leong	2859 1739
Checker (IEC)			
(Meinhardt Infrastructure			
and Environment Limited)			

#### 1.5 SUMMARY OF CONSTRUCTION WORKS

The programme of the construction is shown in *Annex A*. As informed by the Contractor, the major works carried out in this reporting period include:

- Site entrance establishment;
- Installation of chain link fence;
- Construction of wheel wash facilities;
- Site formation, site clearance and construction of perimeter bund for Cell 1X and 2X;
- Site formation works for the new infrastructure area;
- Excavating, removing and replacing unsuitable fill material;

- Erection of site fencing;
- Plate load tests;
- Site clearance, excavation, rebar fixing, formwork, concreting and construction of sediment trap, drop inlet shaft, MHX1 manhole and inlet and outlet box culverts;
- Initial site clearance works, geotechnical review, utilities diversion erection of temporary protection and application of initial shotcrete trial panel at buttress wall;
- Shotcreting of the permanent works at buttress wall area and mass concrete for buttress wall;
- Advance screen planting;
- DP4 channel improvement works;
- Preparation of the temporary surface water management, including construction of temporary discharge monitoring points DP4 and DP6, shotcrete lining of the DP4 channel, cut-off channel around SENTX and temporary drainage to DP4 and DP6 channels;
- Maintenance and improvement of the temporary surface water drainage;
- Rebar fixing, formwork and concreting for Leachate Treatment Plant (LTP) area, plinth and control building;
- Construction of superstructure of bioplant building;
- Installation of groundwater pipe along eastern perimeter bund;
- CLP trench works at Area X2;
- Rebar fixing, concreting, formwork erection, building services and fitting-out works for control building at Landfill Gas Plant area and placing of landfill gas generator;
- Road paving of Landfill Gas Plant;
- Flares and cooling towers installation;
- Rebar, formwork and concreting for the substructure of infrastructure buildings (EPD building, GVL building and laboratory);
- Construction of X12 channel and X9B channel;
- Installation of ammonia stripping plant, equalization tank, sequencing batch reactor tank and treated effluent tank at LTP area;

- Backfilling works around the raft foundation of maintenance building;
- Liner installation at Cell 1X and Cell 2X; and
- Construction of pits and ducting for underground utilities in Area X1 and X2.

The implementation schedule of the mitigation measures recommended in the Updated EM&A Manual is presented in *Annex B*.

#### 1.6 SUMMARY OF EM&A PROGRAMME REQUIREMENTS

The status for all environmental aspects are presented in *Table 1.3*. The EM&A requirements remained unchanged during the reporting period.

Table 1.3 Summary of Status for the Environmental Aspects under the Updated EM&A Manual

Parameters	Status
Air Quality	
Baseline Monitoring	The results of baseline air quality monitoring were reported in
	Baseline Monitoring Report and submitted to EPD under EP
	Condition 3.3
Impact Monitoring	On-going On-going
Noise	
Baseline Monitoring	The results of baseline noise monitoring were reported in
	Baseline Monitoring Report and submitted to EPD under EP
	Condition 3.3
Impact Monitoring	On-going On-going
Surface Water Quality	
Baseline Monitoring	The results of baseline surface water quality monitoring were
	reported in Baseline Monitoring Report and submitted to EPD
	under EP Condition 3.3
Impact Monitoring	On-going On-going
Waste Management	
Waste Monitoring	On-going On-going
Landscape and Visual	
Baseline Monitoring	The results of baseline landscape and visual monitoring were
	reported in Baseline Monitoring Report and submitted to EPD
	under EP Condition 3.3
Construction Phase Audit	On-going On-going
Site Environmental Audit	
Regular Site Inspection	On-going On-going
Complaint Hotline and Email	On-going On-going
Channel	
Environmental Log Book	On-going

Taking into account the construction works, impact monitoring of air quality, noise, surface water quality and waste management were carried out in the reporting period. The monitoring schedule of air quality, noise and surface water quality monitoring are provided in *Annex C*.

The EM&A programme also involved environmental site inspections and related auditing conducted by the ET for checking the implementation of the required environmental mitigation measures recommended in the approved

EIA Report and relevant EP submissions. To promote the environmental awareness and enhance the environmental performance of the contractors, environmental trainings and regular environmental management meetings were conducted during the reporting period, which are summarised as below:

- Twelve environmental management meetings were held with the Contractor, ER, ET, IEC and EPD on 17 January, 14 February, 14 March, 11 April, 9 May, 13 June, 11 July, 21 August, 18 September, 16 October, 13 November and 19 December 2019; and
- Environmental toolbox trainings on the following topics were provided by the Contractor to the workers:
  - Dark Smoke on 11 January 2019;
  - Air Pollution Control (NRMM) (Emission) Regulation on 25 January 2019;
  - Illegal Dumping on 13 February 2019;
  - Noise Control Ordinance on 21 February 2019;
  - Waste Water Management on 11 March 2019;
  - Vehicle Maintenance Practices on 26 March 2019;
  - Mosquito Control on 10 April 2019;
  - Recycling Measures on 24 April 2019;
  - Chemical Waste Handling on 15 May 2019;
  - Quality Powered Mechanical Equipment on 28 May 2019;
  - Trip Ticket System on 12 June 2019;
  - Green Procurement on 24 June 2019;
  - Construction Dust on 12 July 2019;
  - Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation on 19 July 2019;
  - VOC and Smog on 12 August 2019;
  - Illegal Dumping on 26 August 2019;
  - Mosquito Nuisance on 11 September 2019;
  - Persistent Organic Pollutants on 23 September 2019;
  - Tree Protection on 15 October 2019;
  - Renewable Energy on 31 October 2019;

- Waste Reduction in Construction Industry on 7 November 2019;
- Good Practice of Wastewater Management in Construction Sites on 26 November 2019;
- Chemical Waste Handling on 10 December 2019; and
- Vehicle Maintenance Practices on 16 December 2019.

# 1.7 STATUS OF STATUTORY ENVIRONMENTAL COMPLIANCE WITH THE ENVIRONMENTAL PERMIT

The status of statutory environmental compliance with the EP conditions under the EIAO, submission status under the EP and implementation status of the recommended mitigation measures are presented in *Table 1.4*.

Table 1.4 Status of Submissions required under the EP and Implementation Status of the recommended Mitigation Measures

EP Condition	Submission / Implementation Status	Status
2.3	Management Organisation of Main Construction Companies	Submitted and accepted by EPD.
2.4	Setting up of Community Liaison Group	Community Liaison Group was set up.
2.5	Submission of Detailed Landfill Gas Hazard Assessment Report	Submitted, and accepted by EPD on 10 January 2019.
2.6	Submission of Restoration and Ecological Enhancement Plan	Submitted to EPD on 28 June 2019.
2.7	Setting up of Trial Nursery	Trial Nursery works was commenced on 28 August 2019.
2.8	Advance Screen Planting	Advance Screen Planting works were completed on 28 June 2019.
2.9	Provision of Multi-layer Composite Liner System	Under implementation.

#### 1.8 STATUS OF OTHER STATUTORY ENVIRONMENTAL REQUIREMENTS

The environmental licenses and permits (including EP, *Water Pollution Control Ordinance* (WPCO) discharge license, registration as a chemical waste producer, and construction noise permit) that are valid in the reporting period are presented in *Table 1.5*. No non-compliance with environmental statutory requirements was identified.

 Table 1.5
 Status of Statutory Environmental Requirements

Description	Ref No.	Status
Environmental Permit	EP-308/2008	Granted on 5 August 2008
Variation of Environmental Permit	EP-308/2008/A	Granted on 6 January 2012
	EP-308/2008/B	Granted on 20 January 2017
Further Environmental Permit	FEP-01/308/2008/B	Granted on 16 May 2018

Description	Ref No.	Status
Water Discharge License under WPCO (Permit Holder: Chun Wo)	Licence No.: WT00033525- 2019	Validity from 27 March 2019 to 31 March 2024
Billing Account for Disposal of Construction Waste	Chit Account Number: 5001692	Approved on 28 December 2005
Registration as a Chemical Waste Producer (Permit Holder: Chun Wo)	5213-839-C3507-10	Issued on 23 August 2018
Registration as a Chemical Waste Producer (Permit Holder: REC)	5518-839-R2289-06	Issued on 24 October 2019
Construction Noise Permit (Permit Holder: Chun Wo)	GW-RE1001-19	Validity from 16 December 2019 to 10 June 2020
	GW-RE0695-19	Validity from 9 September 2019 to 3 March 2020 (cancelled with effect from 16 December 2019 at 07:00 hrs)
	GW-RE0404-19	Validity from 28 May 2019 to 22 November 2019 (cancelled with effect from 9 September 2019 at 07:00 hrs)
	GW-RE0259-19	Validity from 15 April 2019 to 8 October 2019 (cancelled with effect from 28 May 2019 at 07:00 hrs)
	GW-RE0002-19	Validity from 8 January 2019 to 1 July 2019 (cancelled with effect from 15 April 2019 at 07:00 hrs)
Construction Noise Permit (Permit Holder: REC)	GW-RE0831-19	Validity from 17 October 2019 to 30 December 2019

#### 2 EM&A RESULTS

The EM&A programme for the Project required environmental monitoring for air quality, noise and surface water quality as well as environmental site inspections for air quality, noise, surface water quality, waste management, and landscape and visual impacts. The EM&A requirements and related findings for each component are summarised in the following sections.

#### 2.1 AIR QUALITY MONITORING

#### 2.1.1 Monitoring Requirements and Equipment

According to the updated EM&A Manual of the Project, impact air quality monitoring (dust, in term of Total Suspended Particulates (TSP)) was carried out at the two designated monitoring locations (i.e. DM1 and DM2) at a 6-day interval. It is proposed and agreed by IEC and EPD that the two existing TSP monitoring stations (i.e. TKO-A1 and TKO-A2a) currently operating by the Civil Engineering and Development Department (CEDD) can be used to monitor the 24-hour TSP impact associated with the SENTX construction. The dust monitoring results were obtained from CEDD on regular basis.

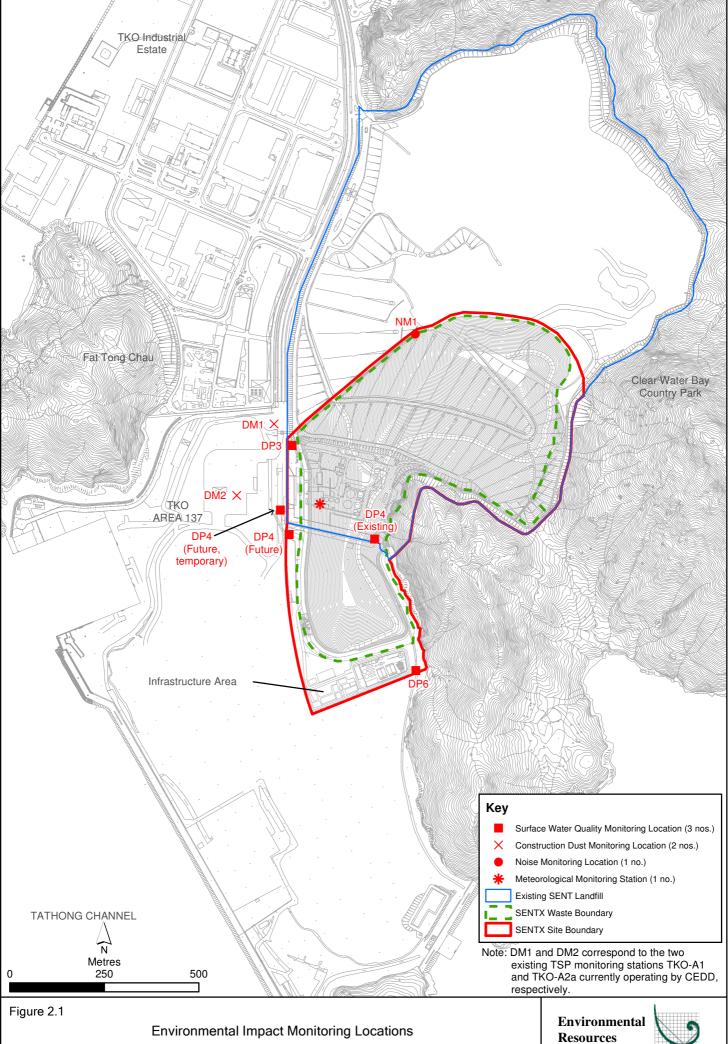
The Action and Limit Levels of the air quality monitoring is provided in *Table* 2.1 below.

Table 2.1 Action and Limit Levels for 24-hour TSP

Monitoring Station	Action Level	Limit Level
DM-1 - Site Egress of TKO Area 137 Fill Bank	204 μg m- <sup>3</sup>	260 μg m- <sup>3</sup>
DM-2A -Combined Reception and Exit Office (CREO) of TKO Area 137 Fill Bank	193 μg m- <sup>3</sup>	260 μg m- <sup>3</sup>

High volume air samplers (HVSs) in compliance with the specifications listed under Section 3.2.2 of the updated EM&A Manual were used to measure 24-hour TSP levels at the CEDD dust monitoring stations. The HVSs were calibrated upon installation and thereafter at bi-monthly intervals to check the validity and accuracy of the results.

The equipment used in the impact air quality monitoring programme and monitoring locations are summarised in *Table 2.2* and illustrated in *Figure 2.1* respectively.



 $File: T. \\ IGIS/CONTRACT/0465169 \\ Imxd/0465169 \\ Environmental\_Impact\_Monitoring\_Locations. \\ mxd/Date: 28/5/2019$ 

Management



Table 2.2 Dust Monitoring Details

Monitoring Station	Location	Parameter	Frequency and Duration	Equipment
DM1	Site Egress of TKO Area 137 Fill Bank	24-hour TSP	Once every 6 days during the	HVS Greasby 105 (S/N: 9795 (ET/EA/003/18))
DM2	Combined Reception and Exit Office (CREO) of TKO Area 137 Fill Bank		construction phase of the Project	HVS Andersen G1051 (S/N: 1176 (ET/EA/003/05))

#### 2.1.2 Monitoring Schedule for the Reporting Period

The schedule for air quality monitoring during the reporting period is provided in *Annex C*.

#### 2.1.3 Results and Observations

The 24-hour TSP monitoring results are summarised in *Table 2.3*. The detailed monitoring results and the graphical presentation of the 24-hour TSP monitoring results at each monitoring location are provided in *Annex D1*.

Table 2.3 Summary of 24-hour TSP Monitoring Results in the Reporting Period

Month	Monitoring	24-hr TSP Concentration (μg m <sup>-3</sup> )		Action Level	Limit Level
	Station	Average	Range	(μg/m³)	(μg/m³)
January 2019	DM-1	110	79 - 146	204	260
	DM-2	113	84 - 161	193	260
February 2019	DM-1	111	83 - 134	204	260
	DM-2	116	82 - 160	193	260
March 2019	DM-1	88	67 - 107	204	260
	DM-2	95	68 - 113	193	260
April 2019	DM-1	89	76 - 100	204	260
	DM-2	77	70 - 91	193	260
May 2019	DM-1	92	73 - 105	204	260
	DM-2	84	68- 103	193	260
June 2019	DM-1	82	63 - 109	204	260
	DM-2	88	64 - 123	193	260
July 2019	DM-1	88	74 - 112	204	260
	DM-2	93	82 - 111	193	260
August 2019	DM-1	71	55 - 85	204	260
	DM-2	72	49 - 95	193	260
September 2019	DM-1	103	67 - 134	204	260
	DM-2	108	79 - 146	193	260
October 2019	DM-1	91	80 - 102	204	260
	DM-2	90	87 - 97	193	260
November 2019	DM-1	95	84 - 106	204	260
	DM-2	100	88 - 106	193	260
December 2019	DM-1	108	92 - 116	204	260
	DM-2	93	80 - 102	193	260

The major dust sources in the reporting period included fugitive dust emission from exposed area in SENTX, as well as nearby operations of the existing SENT landfill and the TKO Area 137 Fill Bank.

All the 24-hour TSP results measured at the two monitoring stations were below the Action and Limit Levels in the reporting period. No additional measure is thus required in accordance with the Event and Action Plan presented in *Annex D2*.

#### 2.1.4 Meteorological Data

Meteorological data obtained from the on-site meteorological monitoring station at the existing SENT landfill (see *Figure 2.1*) were used for the dust monitoring and are shown in *Annex D3*. The meteorological station will be moved to a new location at SENTX infrastructure area as per the updated EM&A Manual after the construction of the new infrastructure area is completed. For the purpose of this EM&A programme, it is considered that meteorological data obtained at the existing SENT landfill meteorological monitoring station are representative of the Project area and could be used for the interpretation of the construction phase dust monitoring results.

#### 2.2 Noise Monitoring

#### 2.2.1 Monitoring Requirements and Equipment

According to the updated EM&A Manual of the Project, impact noise monitoring was conducted weekly at the monitoring location (i.e. NM1) to obtain one set of 30 minutes measurement between 07:00 and 19:00 hours on normal weekdays.

The Action and Limit Levels for construction noise of the Project are provided in *Table 2.4* below.

Table 2.4 Action and Limit Levels for Construction Noise

Time Period	Action Level (a)	Limit Level (b)
07:00 – 19:00 hrs on normal weekdays	When one documented complaint is received from any one of the noise sensitive receivers (NSRs)	75 dB(A) at NSRs
	or	
	75 dB(A) recorded at the monitoring station	

#### Notes:

- (a) 75dB(A) along and at about 100m from the SENTX site boundary was set as the Action Level.
- (b) Limits specified in the GW-TM and IND-TM for construction and operational noise, respectively.

Noise monitoring was performed by ALS Technichem (HK) Pty Ltd (HOKLAS Registration No. 066) using a sound level meter placed at the

designated monitoring station NM1 (see *Figure* 2.1) in accordance with the requirements stipulated in the updated EM&A Manual. Acoustic calibrator was deployed to check the sound level meter at a known sound pressure level. Details of the deployed equipment are provided in *Table* 2.5.

Table 2.5 Noise Monitoring Details

3.6 '' '	T (*	D (	Т 1	T
Monitoring	Location	Parameter	Frequency and	Equipment
Station (1)			Duration	
NM1	SENTX Site	Leq (30 min)	Once per week for 30	Sound Level Meter:
	Boundary	measurement	mins during the	B&K 2238 (S/N: 2285762)
	(North)	between 07:00	construction period	(S/N: 2285722) (S/N:
		and 19:00 hours	of the Project	2285690)
		on normal	,	,
		weekdays		B&K 2250 (S/N: 3012330)
		(Monday to		,
		Saturday)		Acoustic Calibrator:
		•		Quest QC-20 (S/N:
				QO9090006)
				,
				3M AC-300 (S/N:
				AC300006213) (S/N:
				AC300005555)
				,
				Rion NC-75 (S/N:
				34680623)
				,
				Rion NC-74 (S/N:
				34657231) (S/N:
				34246492)

#### 2.2.2 Monitoring Schedule for the Reporting Period

The schedule for noise monitoring during the reporting period is provided in *Annex C*.

#### 2.2.3 Results and Observations

A total of 52 impact noise monitoring events were scheduled during the reporting period. However, monitoring was not conducted on 3 March, 8 and 23 May, 1 and 29 August and 5 December 2019 due to adverse weather condition. The noise monitoring results are summarised in *Table 2.6* and graphically presented in *Annex E1*.

Table 2.6 Summary of Construction Noise Monitoring Results in the Reporting Period

Month	Monitoring	Measured Noise Level Leq (30 min), dB(A)							
	Station	Average	Range	Action and Limit Level					
January 2019	NM1	52.0	48.9 - 53.6	75					
February 2019	NM1	51.0	48.0 - 52.5	75					
March 2019	NM1	52.2	51.1 - 53.1	75					
April 2019	NM1	52.1	50.4 - 53.8	75					
May 2019	NM1	52.8	51.6 - 54.6	75					
June 2019	NM1	54.4	53.2 - 55.4	75					
July 2019	NM1	54.0	52.0 - 56.1	75					

ENVIRONMENTAL RESOURCES MANAGEMENT

Month	Monitoring	Measured Noise Level L <sub>eq (30 min)</sub> , dB(A)							
	Station	Average	Range	Action and Limit Level					
August 2019	NM1	55.3	51.8 - 59.7	75					
September 2019	NM1	52.6	51.0 - 54.8	75					
October 2019	NM1	53.1	50.8 - 55.1	75					
November 2019	NM1	54.0	52.1 - 57.0	75					
December 2019	NM1	51.9	51.6 - 52.3	75					

Major noise sources identified during the noise monitoring included noise from operations of the existing SENT landfill and the TKO Area 137 Fill Bank, aircrafts and insects.

No exceedance of the Action and Limit Levels for construction noise monitoring was recorded in the reporting period. No further mitigation measure was required in accordance with the Event and Action Plan presented in *Annex E2*.

#### 2.3 SURFACE WATER QUALITY MONITORING

#### 2.3.1 Monitoring Requirements and Equipment

According to the updated EM&A Manual of the Project, impact surface water quality monitoring were carried out at the three designated surface water discharge points (i.e. DP3, DP4 and DP6) weekly to ensure that the SENTX will not cause adverse water quality impact. Temporary relocation of surface water discharge point DP4 to DP4 (Future, temporary) as an interim arrangement due to site constraints and construction sequence was approved by EPD on 14 May 2019. Impact surface water quality monitoring was carried out at DP4 (Future, temporary) (i.e. DP4T) from the monitoring event on 16 May 2019. In addition, suspension of impact surface water quality monitoring at DP3 was approved under the Baseline Monitoring Report by EPD on 24 July 2019 until the actual commencement of construction works affecting DP3 in 2021.

Dissolved Oxygen (DO) and pH value were measured *in situ* whereas the level of suspended solids (SS) were determined by ALS Technichem (HK) Pty Ltd (HOKLAS Registration No. 066).

The Action and Limit Levels of the surface water quality impact monitoring are provided in *Table 2.7*.

Table 2.7 Action and Limit Levels for Surface Water Quality

Parameters	Action Level	Limit Level	
	DP4 & DP6		
DO	< 5.80 mg/L	< 5.42 mg/L	
SS	> 11.7 mg/L	> 12.7 mg/L	
pН	> 8.39	> 8.40	

The locations of the monitoring stations for the Project are shown in *Figure* 2.1. All in-situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or other international accreditation scheme before use, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the surface water quality monitoring programme. Calibration for a DO meter was carried out before measurement according to the instruction manual of the equipment model. Details of the equipment used in the impact surface water quality monitoring works are provided in *Table* 2.8.

Table 2.8 Impact Surface Water Quality Monitoring Details

Monitoring Station	Location	Frequency	Parameter	Equipment
DP4 (Future, temporary)	Surface water discharge point DP4	Weekly	•pH •DO	YSI Professional Plus (S/N: HK1923829) (S/N: JC024046)
			•SS	YSI Professional DSS (S/N: 15H102620) (S/N: 17B102764) (S/N: 15H103928)
DP6	Surface water discharge point DP6	-		pH Meter AZ8685 (S/N: 1118396)

#### Notes:

- (a) DP4 was temporary relocated to DP4 (Future, temporary) (i.e. DP4T) as an interim discharge point from the monitoring event on 16 May 2019.
- (b) Impact surface water quality monitoring at DP3 was suspended from the monitoring event on 25 July 2019 until the actual commencement of construction works affecting DP3 in 2021.

#### 2.3.2 Monitoring Schedule for the Reporting Period

The schedule for surface water quality monitoring during the reporting period is provided in *Annex C*.

#### 2.3.3 Results and Observations

A total of 52 monitoring events for impact surface water quality monitoring were scheduled at all designated monitoring stations during the reporting period. However, sampling could not be carried out on the following monitoring events due to insufficient flow:

- January 2019 at all monitoring stations;
- February 2019 at all monitoring stations;
- 8 March 2019 at DP6, 13 March 2019 at DP4 and DP6 and 22 and 28 March 2019 at all monitoring locations;
- April 2019 at all monitoring stations;
- 8 and 16 May 2019 at all monitoring locations;

- 14, 20 and 27 June 2019 at DP6;
- 4 July 2019 at DP6, 12 July 2019 at DP4 (Future, temporary) and DP6 and 18 July 2019 at DP6;
- 8 and 15 August 2019 at DP4 (Future, temporary);
- 5 and 26 September 2019 at DP6 and 19 September 2019 at all monitoring stations;
- 3 October 2019 at DP6 and on 24 and 31 October 2019;
- November 2019 at all monitoring stations; and
- December 2019 at all monitoring stations.

Monitoring was cancelled on 1 and 29 August 2019 due to adverse weather condition. Impact water quality monitoring results and graphical presentations are provided in *Annex F1*.

Exceedances of the Action and Limit Levels were recorded for impact surface water quality monitoring in the reporting period and actions in accordance with the Event and Action Plan presented in *Annex F2* were undertaken. Investigations on the Action and Limit Levels exceedances were conducted and summarised in *Table 2.9* below. Investigation reports of the exceedances are presented in *Annex F3*.

Table 2.9 Details of Exceedances of Action and Limit Levels for the Impact Surface Water Quality Monitoring

Date	Monitoring Location	Parameter	Type of Exceedance	Remarks
8 March 2019	DP4	SS	Limit Level	Non Project-related
8 May 2019	DP6	рН	Limit Level	Non Project-related
8 May 2019	DP6	SS	Limit Level	Non Project-related
23 May 2019	DP4 (Future, temporary)	рН	Limit Level	Project-related
23 May 2019	DP4 (Future, temporary)	SS	Limit Level	Project-related
23 May 2019	DP6	pН	Limit Level	Non Project-related
23 May 2019	DP6	SS	Limit Level	Project-related
30 May 2019	DP4 (Future, temporary)	рН	Limit Level	Non Project-related
30 May 2019	DP4 (Future, temporary)	SS	Limit Level	Non Project-related
30 May 2019	DP6	рН	Limit Level	Non Project-related
30 May 2019	DP6	SS	Limit Level	Non Project-related
6 June 2019	DP4 (Future, temporary)	DO	Limit Level	Non Project-related
6 June 2019	DP4 (Future, temporary)	SS	Limit Level	Non Project-related
6 June 2019	DP6	SS	Limit Level	Non Project-related
14 June 2019	DP4 (Future, temporary)	SS	Limit Level	Non Project-related
20 June 2019	DP4 (Future, temporary)	рН	Limit Level	Non Project-related
20 June 2019	DP4 (Future, temporary)	SS	Limit Level	Non Project-related
27 June 2019	DP4 (Future, temporary)	DO	Limit Level	Non Project-related
27 June 2019	DP4 (Future, temporary)	pН	Limit Level	Non Project-related
27 June 2019	DP4 (Future, temporary)	SS	Limit Level	Non Project-related
4 July 2019	DP4 (Future, temporary)	pН	Limit Level	Non Project-related
4 July 2019	DP4 (Future, temporary)	SS	Limit Level	Non Project-related
18 July 2019	DP4 (Future, temporary)	pН	Limit Level	Non Project-related
18 July 2019	DP4 (Future, temporary)	SS	Limit Level	Non Project-related
25 July 2019	DP4 (Future, temporary)	pН	Limit Level	Non Project-related
25 July 2019	DP4 (Future, temporary)	SS	Limit Level	Project-related
8 August 2019	DP6	SS	Limit Level	Non Project-related
22 August 2019	DP4 (Future, temporary)	pН	Limit Level	Non Project-related
22 August 2019	DP4 (Future, temporary)	SS	Limit Level	Non Project-related
5 September 2019	DP4 (Future, temporary)	pН	Limit Level	Non Project-related
5 September 2019	DP4 (Future, temporary)	SS	Limit Level	Non Project-related
12 September 2019	DP4 (Future, temporary)	рН	Limit Level	Non Project-related

Based on the investigation conducted for each of the monitoring event with potential Action and Limit Levels exceedances with the Contractor, the ER and the IEC, there is no evidence showing the exceedances were related to the Project, except the exceedances of pH and SS at DP4 (Future, temporary) and exceedance of SS at DP6 on 23 May 2019 and exceedance of SS at DP4 (Future, temporary) on 25 July 2019 which were found deemed to Project-related activities.

The Contractor shall implement all relevant mitigation measures for the construction works and maintain good site practice. The Contractor was reminded to control the surface water discharge from site to minimise the potential surface water impact in the coming rainy season. The ET will keep

track on the monitoring data and ensure Contractor's compliance of the environmental requirements.

#### 2.4 LANDSCAPE AND VISUAL MONITORING

#### 2.4.1 Monitoring Requirements

According to the updated EM&A Manual of the Project, the monthly landscape and visual audit was conducted on 17 January, 13 February, 21 March, 18 April, 23 May, 20 June, 22 July, 21 August, 27 September, 25 October, 26 November and 30 December 2019 to monitor the implementation of the landscape and visual mitigation measures during construction phase.

All relevant environmental mitigation measures listed in the approved EIA Report and the updated EM&A Manual and their implementation status are summarised in *Annex B*.

#### 2.4.2 Results and Observations

The Contractor has implemented environmental mitigation measures as stated in the approved EIA Report and the EM&A Manual.

Regarding the landscape and visual audit, the Contractor was reminded to maintain the advance screen planting works as soon as possible to ensure effective screening of views of project works from the High Junk Peak Trail. The Contractor has considered the mitigation measures during the design phase, including the preparation of the Construction Drawings and Detailed Landscape Design Drawings.

#### 2.5 EM&A SITE INSPECTION

Site inspections were carried out on a weekly basis with the Contractor, IEC and ER to monitor the implementation of proper environmental pollution control and mitigation measures for air quality, noise, surface water quality and waste management under the Project. In the reporting period, 52 site inspections were carried out on the following dates:

- 3, 10, 17, 24 and 31 January 2019;
- 8, 14, 21 and 28 February 2019;
- 7, 14, 21 and 28 March 2019;
- 4, 11, 18 and 24 April 2019;
- 2, 9, 16, 23 and 30 May 2019;
- 6, 13, 20 and 27 June 2019;
- 5, 11, 18 and 25 July 2019;

- 1, 8, 15, 21 and 29 August 2019;
- 5, 12, 18 and 26 September 2019;
- 3, 10, 16, 24 and 31 October 2019;
- 7, 13, 21 and 28 November 2019; and
- 5, 12, 19, 24 and 31 December 2019.

The Contractor has rectified all of the observations identified during environmental site inspections in the reporting period. Key environmental deficiencies identified and the corresponding rectification actions are presented in *Table 2.10*.

Table 2.10 Summary of Environmental Deficiencies Identified and Corresponding Additional Control Measures

Deficiencies	Rectifications Implemented	Proposed Additional Control Measures
Surface Water		
Intercepting channels & drainage system	Reviewed drainage plan.	<ul> <li>Provision of additional drainage channels.</li> <li>Expedite the construction of permanent sediment trap and discharge culverts.</li> </ul>
DP channels (design & regular silt removal)	<ul> <li>Carried out regular maintenance and cleaning of channels.</li> <li>DP4 channel: Area near the channel was paved with concrete and a bund was built.</li> <li>DP6 channel: Gravel piles on the channel were covered with concrete which serve as blocks for running water and to divide the channel into several sections. A pump was placed in the water zone in the upstream section to pump water to the Wetsep for treatment prior to the discharge to the last section before the weir plate.</li> <li>DP6: Pipes through the gravel piles between different channel sections were covered with geotextiles to block debris and silt.</li> </ul>	N.A.
Stockpiles & exposed soil	Installed silt fencing near surface water channel along DP6 channel.	<ul><li>Improve soil covering.</li><li>Compaction and cover for stockpiles and soil slopes.</li></ul>
Wetsep (treatment capacity & number)	<ul> <li>Reviewed Wetsep capacity.</li> <li>Chemicals dosage of the Wetsep was increased to enhance the efficiency.</li> </ul>	Install additional Wetsep.
Backflow / ponding during heavy rainfall	Raised with EPD (LDG) and CEDD.	N.A.

#### 2.6 WASTE MANAGEMENT STATUS

The Contractor has registered as a chemical waste producer under the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.

As informed by the Contractor, waste generated during this reporting period include mainly inert C&D materials. Reference has been made to the waste flow table prepared by the Contractor. The quantities of different types of wastes and imported fill materials are summarised in *Table 2.11*.

Table 2.11 Quantities of Different Waste Disposed and Imported Fill Materials

Month/ Year	Inert C&D Materials	Importe (in '000k		Inert Construction Waste Re- used	Non-inert Construction Waste (b) (in '000m³)	Recyclable Materials (c) (in '000kg)	Chemical Wastes (in '000kg)
	(in '000m <sup>3</sup> )	Rock Soil		(in '000m³)			
January 2019	0.061	0	0	0	0	0	0
February 2019	0.008	0	0	0	0.005	0	0
March 2019	0.032	1482.09	0	0	0.006	0	0
April 2019	0.251	0	2194.24	0	0.023	0	0
May 2019	0.015	0	3897.15	0	0.019	0	0
June 2019	0.034	0	689.72	0	0.020	0	0
July 19	0.028	0	6889.13	0	0.049	0	0
August 19	0.014	0	17110.67	0	0.051	0	0
September 19	0.007	0	12560.05	0	0.048	0	0.09
October 19	0.064	0	10567.52	0	0.087	0	0
November 19	0.410	0	17130.00	0	0.077	0	0
December 19	0	0	4954.21	0	0.065	0	0

#### Notes:

- (a) Inert construction wastes include hard rock and large broken concrete, and materials disposed as public fill. Density assumption:  $1.6 \text{ (t/m}^3)$  for public fill
- (b) Non-inert construction wastes include general refuse disposed at landfill. Density assumption:  $0.9 \, (t/m^3)$  for general refuse.
- (c) Recyclable materials include metals, paper, cardboard, plastics and others.

#### 2.7 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

A summary of the Environmental Mitigation Implementation Schedule is presented in *Annex B*. The necessary mitigation measures were implemented properly for the Project.

## 2.8 SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT

The 24-hour TSP monitoring results and construction noise monitoring results complied with the Action and Limit Levels in the reporting period. 2

exceedances of the Limit Level for DO, 13 exceedances of the Limit Level for pH and 17 exceedances of the Limit Level for Suspended Solids (SS) were recorded for surface water quality impact monitoring in the reporting period. The exceedances were investigated and considered non Project-related, except the pH and SS exceedances at DP4 (Future, temporary) and SS exceedance at DP6 on 23 May 2019 and SS exceedance at DP4 (Future, temporary) on 25 July 2019 which were found deemed to Project-related activities.

Cumulative statistics on exceedances is provided in *Annex G1*.

## 2.9 SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

There were no notification of summons or prosecution recorded in the reporting period.

One environmental complaint related to dust nuisance was received during the reporting period. Investigation on the environmental complaint was conducted in accordance with the complaint handling process as stated in the Updated EM&A Manual. The implementation of the relevant mitigation measures recommended in the updated EM&A Manual by the Contractor might suggest that the dust nuisance was deemed to activities that are not related to the Project. Investigation report of the complaint is presented in *Annex G2*.

Statistics on complaints, notifications of summons and successful prosecutions are summarised in *Annex G1*.

#### 3 CONCLUSION AND RECOMMENDATION

This Annual EM&A Review Report presents the findings of the EM&A activities undertaken during the period from 2 January to 31 December 2019 in accordance with the updated EM&A Manual and the requirements of the Environmental Permit (*EP-308/2008/B*).

Air quality (24-hour TSP), noise and water quality (DO, pH and SS) monitoring were carried out in the reporting period. Results for air quality monitoring (24-hour TSP) complied with the Action and Limit Levels in the reporting period. No Action and Limit Levels exceedances were recorded for construction noise monitoring. 2 exceedances of the Limit Level for DO, 13 exceedances of the Limit Level for pH and 17 exceedances of the Limit Level for Suspended Solids (SS) were recorded for surface water quality impact monitoring in the reporting period. The exceedances were considered non Project-related upon further investigations, except the pH and SS exceedances at DP4 (Future, temporary) and SS exceedance at DP6 on 23 May 2019 and SS exceedance at DP4 (Future, temporary) on 25 July 2019 which were found deemed to Project-related activities.

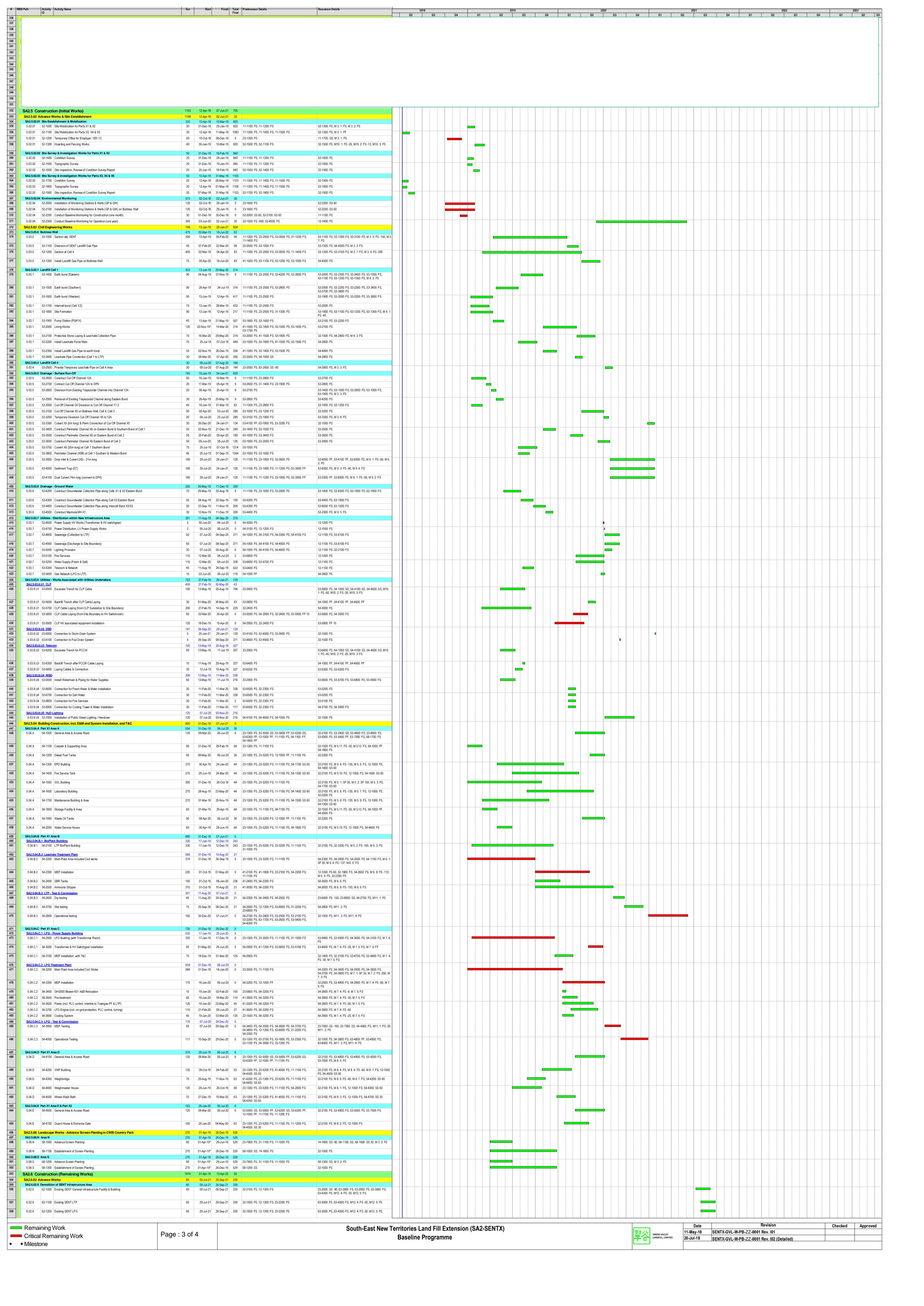
Fifty-two environmental site inspections were carried out during the reporting period. Environmental deficiencies were identified during the site inspection and the Contractor has proposed additional control measures to rectify the deficiencies.

There were no notification of summons or prosecution recorded in the reporting period. One environmental complaint related to dust nuisance was received during the reporting period. Investigation on the environmental complaint was conducted in accordance with the complaint handling process as stated in the Updated EM&A Manual.

It is noted that most environmental pollution control and mitigation measures were properly implemented and the construction activities of the Project did not introduce any adverse impact to the sensitive receivers in the reporting period. Yet, some environmental deficiencies were identified during the reporting period and additional control measures have been proposed by the Contractor to rectify the corresponding deficiencies. The monitoring programme has been reviewed and was considered as adequate to cater for the nature of works in progress. Change to the monitoring programme was thus not recommended at this stage. The monitoring programme will be evaluated as appropriate in the next reporting period. The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

#### Annex A

# Work Programme



# V	VDC D-/I		officit	Activity Name				Total Predecessor Details	Successor Details
		I	D .		Dur			Float	Successor Details
509 510	SA2.6.			neering Works Cell 2			19 13-Apr-23 19 23-Jan-21		
511	6.03.2	2 6	3-1000	Earth bund (Eastern)				9 11-1100: FS, 23-2500: FS, 53-4200: FS, 53-1400: FS 53-2800: FS	53-3500: FS, 63-1500: FS, 63-1800: FS, 63-1900: FS, 63-2000: FS, 63-2100: FS, 63-2200: FS, M12. 1: FS -50, M12.
								00 2000.11 0	2: FS, 63-1100: FS
512	6.03.2	2 6	3-1100	Earth bund (Western)	110	20-Feb-	20 08-Jun-20	84 11-1100: FS, 23-2500: FS, 53-1800: FS, 53-1400: FS	
513	6.03	2 6	3-1200	Intercell bund (Cell 2/3)	90	09-Jun-	20 06-Sen-20	63-1000: FS 734 11-1100: FS, 23-2500: FS, 53-1800: FS, 53-1400: FS	63-3600: FS, 63-1200: FS 63-1500: FS
313				, ,			·	53-4400: FS, 63-1100: FS	
514	6.03.2	2 6	3-1300	Site Formation	75	02-Nov-	15-Jan-20	14   11-1100: FS, 23-2500: FS, 53-1800: FS, 53-1400: FS	63-1400: FS, 63-4200: FS
515	6.03.2	2 6	3-1400	Pump Station (PS#2X)	45	09-Jun-	20 23-Jul-20	84 63-1300: FS, 63-1100: FS	63-1600: FS, 63-1700: FS
516	6.03.2	2 6	3-1500	Lining Works	90	01-Oct-2	0* 29-Dec-20	710 41-1500: FS, 63-1000: FS, 63-1100: FS, 63-1200: FS	63-1600: FS, M12. 3: FS, 63-2400: FS
517	6.03.2	2 6	3-1600	Protective Stone Laying & Leachate Collection Pipe	25	30-Dec-	20 23-Jan-21	810 63-1500: FS, 41-1500: FS, 63-1400: FS	32-1600: FS, M12. 3: FS
518	6.03.2	2 6	3-1700	Install Leachate Force Main	75	24-Jul-	20 06-Oct-20	84 63-1100: FS, 41-1500: FS, 63-1400: FS	54-2800: FS, M12. 3: FS
519	6.03.2	2 6	3-1800	Install Landfill Gas Pipe on earth bund	35	20-Feb-	20 25-Mar-20	168 41-1500: FS, 63-1000: FS	54-4000: FS, M12. 3: FS
520	SA2.6						20 02-Feb-22		50,000 50 50,000 50 00 000 50 00 000 50 00 000 50 00 0
521	6.03.3	3 (6	3-1900	Earth bund (Eastern)	110	20-Feb-	20 08-Jun-20	9 11-1100: FS, 53-4200: FS, 63-1000: FS, 53-4300: FS 53-2800: FS, 63-4200: FS	53-3300: FS, 53-3600: FS, 63-2400: FS, 63-2700: FS, M12. 1: FS -50, M12. 2: FS, 63-2000: FS -45, 63-2200: FS
522	0.00	2	2 2000	Forth hand (Markey)	440	05 4	20 40 4 00	40 444400 FO 62 4000 FO 62 4000 FO 45	02 0000 F0 02 0400 F0 02 0000 F0 02 0700 F0
522	6.03.	3 6	3-2000	Earth bund (Western)	110	25-Apr-	20 12-Aug-20	19 11-1100: FS, 63-1000: FS, 63-1900: FS -45	63-2300: FS, 63-2400: FS, 63-2600: FS, 63-3700: FS, 63-2100: FS -45
523	6.03.3	3 6	3-2100	Intercell bund (Cell 3/4)	105	29-Jun-	20 11-Oct-20	789 11-1100: FS, 63-1000: FS, 63-4200: FS, 63-2000: FS	6-45 63-2400: FS
524	6.03.3	3 6	3-2200	Site Formation	75	09-Jun-	20 22-Aug-20	9 11-1100: FS, 63-1000: FS, 63-1900: FS	63-2300: FS
525				Pump Station (PS#3X)				9 63-2200: FS, 63-2000: FS	63-2500: FS, 63-2600: FS
526	<u> </u>			Lining Works				435 41-1500: FS, 63-1900: FS, 63-2000: FS, 63-2100: FS	·
527				Protective Stone Laying & Leachate Collection Pipe	05	00 1	00 5-4 00	63-1500: FS 435 63-2400: FS, 41-1500: FS, 63-2300: FS	32-1700: FS, M12. 3: FS
528	<mark> </mark>			Install Leachate Force Main				9 63-2000: FS, 41-1500: FS, 63-2300: FS	53-2500: SS -90. 54-2800: FS. M12. 3: FS
529				Install Landfill Gas Pipe on earth bund				58 41-1500: FS, 63-1900: FS	54-4000: FS, M12. 3: FS
530	SA2.6			·			21 13-Apr-23	· · · · · · · · · · · · · · · · · · ·	01 1000.1 G, III 2. 0.1 G
531	6.03.4	4 6	3-2800	Remaining Portion of Buttress Wall				494 62-1000: FS	
532	6.03.4	4 6	3-2900	Earth bund (Western) incl. MSE Wall	120	07-Sep-	21 04-Jan-22	239 62-1000: FS	63-3000: FS, 63-3100: FS, 63-3200: FS, 63-3400: FS, 63-3800: FS, 63-3900: FS, 63-4100: SS -90, M 9. 6: FS -60,
									M 9. 7: FS -30, M 9. 8: FS
533	6.03	1 6	3_3000	Site Formation	120	05_lan_	22	239 62-1000: FS, 62-1100: FS, 62-1200: FS, 63-2900: FS	63, 63-3100: FS
							•	63-4100: FS	
534	<mark> </mark>			Pump Station (PS#4X)				239 63-3000: FS, 63-2900: FS	63-3300: FS, 63-3400: FS
535				Lining Works				0 41-1500: FS, 63-2900: FS	63-3300: FS, M12. 6: FS
536				Protective Stone Laying & Leachate Collection Pipe			-	0 41-1500: FS, 63-3200: FS, 63-3100: FS	12-1900: FS, 32-1800: FS, M12. 6: FS
537				Install Leachate Force Main & Remove Temporary Leachate Pipe				269 41-1500: FS, 63-2900: FS, 63-3100: FS	12-1900: FS, 32-1800: FS, M12. 6: FS
538				- Surface Run-Off Perimeter Channel (X9A) at Cell 2 Western Bund			20 03-Feb-22 20 23-Jun-20	464 1054 63-1100: FS	12-1900: FS
540				Perimeter Channel (X10A) at Cell 2 Western Bund				1029 63-1100: FS	63-4000: FS
541				Perimeter Channel (X10A) at Cell 3 Western Bund				964 63-2000: FS	63-4000: FS
542				Perimeter Channel (X10A) at Cell 4 Western Bund				464 63-2900: FS	63-4000: FS
543				Perimeter Channel (X10C) at Cell 4 Western Bund				469 63-2900: FS	63-4000: FS
544	6.03.	5 6	3-4000	Connection to Existing DP3	10	25-Jan-	22 03-Feb-22	464 63-3900: FS, 63-3600: FS, 63-3700: FS, 63-3800: FS	12-1900: FS
545	E U3 1	5 4	3-4100	Remove Cut-Off Channel C-7 at bottom of Buttress Wall	20	مینا ۔۵۵	01 <u>08</u> Int 04	419 63-2900: SS -90	63-3000: FS
546				Temporary Channel (X7T) at SENT Infrastructure Area				419 63-2900: SS -90 14 63-1300: FS	63-3000: FS 63-1900: FS, 63-2100: FS
547				e - Ground Water			20 14-Feb-20 21 30-Nov-21		55 1555.1 5, 55-2100.1 5
548			_	Construct Temporary Channel (TC-1), from MH-1 to Existing UC-825				529 23-1900: FS, 11-1300: FS, 62-1000: FS	63-4400: FS
549				Divert GW at MH-1 to TC-1				529 63-4300: FS	63-4500: FS, M 9. 9: FS
550				Reconnection of GWCP across Cell 4				529 62-1100: FS, 62-1200: FS, 63-4400: FS	12-1900: FS
551 552		.03.8 U 6.03.8.U		Works Associated with Utilities Undertakers			20 27-Jul-21 20 27-Jul-21		
553				LFG Generator On-grid Testing				655 32-2500: FS, 12-1200: FS, 54-4000: FS	63-4700: FS
554	6.03	.8.U1 6	3-4700	LFG Generator On-grid Inspection & Verify	30	28-Jun-	21 27-Jul-21	655 63-4600: FS	12-1900: FS
555		6.03.8.U					08-Jan-21		20 1000 =
556 557				Laying Gas Mains (from LFG to Town Gas PF)				855 54-4000: FF	63-4900: FS
557				Gas Meter Relocation & Connection at LFG  & E&M Works			08-Jan-21 19 22-Jul-21	855 63-4800: FS, 54-4000: FS	12-1900: FS
559	SA2.6.		_				19 22-Jul-21 19 22-Jul-21		
560	SA2.0	6.04.C.0	LFG	Treatment Plant	661	01-Oct-	19 22-Jul-21	660	10 1000 F0
561				GHS600 Blower 601 C Relocation				660 32-1500: FS	12-1900: FS
562				Absorption Chiller (Optional)  De Works			19 29-Dec-19 19 03-Dec-20	1231 54-2200: FS	12-1900: FS
564				ea - Tree Removal & Transplanting			19 03-Dec-20 19 26-Nov-19		
565	6.08.	1 6	8-1000	Access trees condition and select for transplanting	30	01-Apr-1	9* 30-Apr-19	1264 14-1300: FS	68-1100: FS, 68-1200: FS, 68-1400: FS
566	6.08.	1 6	8-1100	Prepare new site to receive trees				1264 68-1000: FS	68-1200: SS
300				Transplant selected trees				1264 68-1000: FS, 68-1100: SS	68-1300: FS
567		1 6	8-1200				10 00 N 40	1264 68-1200: FS	12-1900: FS
567	6.08.	1 6	8-1200 8-1300	Prune trees prior to removal from Cell 4				1001 00 0000 70 00 0000	10 1000 =0
567 568 569	6.08.	1 6 1 6	8-1200 8-1300 8-1400	Tree Felling - Part X3	90	01-May-	19 29-Jul-19	1384 23-8200: FS, 31-1600: FS, 68-1000: FS	12-1900: FS
567 568 569 570	6.08. <sup>-</sup> 6.08. <sup>-</sup> <b>SA2.6</b>	1 6 1 6 .08.2 SI	8-1200 8-1300 8-1400 ENTX Ar	Tree Felling - Part X3  area - Trial Nursery & Tree Planting	90 583	01-May- 01-May-	29-Jul-19 03-Dec-20	891	
567 568 569 570 571 572	6.08.2 6.08.2 <b>SA2.6</b> 6.08.2	1 6 1 6 1 6 .08.2 SI 2 6	8-1200 8-1300 8-1400 ENTX Ar 8-1600	Tree Felling - Part X3	90 583 300	01-May- 01-May- 01-May-	29-Jul-19 03-Dec-20 24-Feb-20		12-1900: FS  12-1900: FS, M 3. 2: FS  12-1900: FS

#### Annex B

## Environmental Mitigation Implementation Schedule

#### Annex B Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?	the n	neast	impleme ure? <sup>(1)</sup> O/R A	or standards for the	Implementation Status and Remarks
Air Quali	ty - Cons	truction Phase								
4.8.1	AQ1	Blasting	To minimise potential	Blasting area	SENTX		✓		Air Pollution Control	Not applicable.
		• The area within 30m of the blasting area will be wetted prior to blasting.	dust nuisance	and 30m of blasting area	Contractor				(Construction Dust) Regulations	Blasting is not required in the latest landfill design
		<ul> <li>Blasting will not be carried out when the strong wind signal or tropical cyclone warning signal No. 3 or higher is hoisted, unless this is with the express prior permission of the Commissioner of Mines.</li> </ul>								
		<ul> <li>loose material and stones in the Site will be removed prior to the blast operation</li> </ul>								
		<ul> <li>During blasting, blast nets, screens and other protective covers will be used to prevent the projection of flying fragments and material resulting from blasting</li> </ul>								
4.8.1	AQ2	Rock Drilling	To minimise potential	Rock drilling	SENTX		✓		Air Pollution Control	Not applicable. Rock
		<ul> <li>Watering will be carried out at the rock drilling activities to avoid fugitive dust emissions.</li> </ul>	dust nuisance	area	Contractor				(Construction Dust) Regulations	drilling is not required in the latest landfill design
(1) D=Desig	gn; C=Const	ruction; O/R=Operation/Restoration; A=Aftercare								

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?		implement ure? <sup>(1)</sup> O/R A	What requirements or standards for the measure to achieve?	Implementation Status and Remarks
4.8.1	AQ3	<ul> <li>Site Access Road</li> <li>The main haul road will be kept clear of dusty materials or sprayed with water.</li> <li>The main haul road will be paved with aggregate or gravel.</li> <li>Vehicle speed will be limited to 10kph.</li> </ul>	To minimise potential dust nuisance	Main haul road	SENTX Contractor	<b>√</b>		Air Pollution Control (Construction Dust) Regulations HKAQO and EIAO- TM Annex 4	Deficiency of mitigation measures but rectified by the Contractor
4.8.1	AQ4	<ul> <li>Stockpiling of Dusty Materials</li> <li>Any stockpile of dusty materials will be covered entirely by impervious sheeting or placed in an area sheltered on the top and three sides or sprayed with water so as to ensure that the entire surface is wet.</li> </ul>	To minimise potential dust nuisance	All construction works area	SENTX Contractor	✓		Air Pollution Control (Construction Dust) Regulations HKAQO and EIAO- TM Annex 4	Deficiency of mitigation measures but rectified by the Contractor
4.8.1	AQ5	<ul> <li>Loading, unloading or transfer of dusty materials</li> <li>All dusty materials will be sprayed with water immediately prior to any loading, unloading or transfer operation so as to maintain the dusty material wet.</li> </ul>	To minimise potential dust nuisance	All construction works area	SENTX Contractor	<b>✓</b>		Air Pollution Control (Construction Dust) Regulations HKAQO and EIAO- TM Annex 4	Deficiency of mitigation measures but rectified by the Contractor
4.8.1	AQ6	<ul> <li>Site Boundary and Entrance</li> <li>Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of height not less than 2.4m from</li> </ul>	To minimise potential dust nuisance	Site boundary and entrance	SENTX Contractor	✓		Air Pollution Control (Construction Dust) Regulations HKAQO and EIAO-	Implemented

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended	Location of the Measures	Who to implement	the n	neas	implement ure? <sup>(1)</sup>	What requirements or standards for the	Implementation Status and Remarks
			Measure & Main Concerns to address		the measure?	D	С	O/R A	measure to achieve?	
		ground level will be provided along the entire length of that portion of the site boundary except for the site entrance or exit.							TM Annex 4	
4.8.1	AQ7	Excavation Works	To minimise potential dust nuisance	All construction	SENTX Contractor		✓		Air Pollution Control (Construction Dust)	Deficiency of mitigation measures
		<ul> <li>Working area of any excavation or earth moving operation will be</li> </ul>	dust nuisance	works area	Contractor				Regulations	but rectified by the Contractor
		sprayed with water immediately before, during and immediately after the operation so as to ensure that the entire surface is wet.							HKAQO and EIAO- TM Annex 4	Contractor
4.8.1	AQ8	Building Demolition	To minimise potential dust nuisance		SENTX		✓		Air Pollution Control (Construction Dust)	Not applicable
		• The area where the demolition works are planned to take place will be	dust nuisance	construction works area	Contractor				Regulations	
		sprayed with water immediately prior to, during and immediately after the demolition activities.							HKAQO and EIAO- TM Annex 4	
		<ul> <li>Any dusty materials remaining after a stockpile is removed will be wetted with water and cleared from the surface of roads or street.</li> </ul>								
4.8.1	AQ9	Construction of the Superstructure of	To minimise potential	All	SENTX		<b>✓</b>		Air Pollution Control	Implemented
		Building	dust nuisance	construction works area	Contractor				(Construction Dust) Regulations	
		<ul> <li>Effective dust screens, sheeting or netting will be provided to enclose the scaffolding from the ground level up to the highest level of the scaffolding.</li> </ul>		works area					HKAQO and EIAO- TM Annex 4	

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measure & Main	Location of the Measures	Who to implement the measure?		imples sure? (1) O/R		What requirements or standards for the measure to achieve?	Implementation Status and Remarks
4.8.1	AQ10	Should a stone crushing plant be needed on site, the control measures recommended in the <i>Best Practicable Means Requirement for Mineral Works (Stone Crushing Plants) BPM 11/1</i> should be implemented.	To minimise potential dust nuisance	Stone crushing plant/ construction phase	SENTX Contractor	✓			Best Practicable Means Requirement for Mineral Works (Stone Crushing Plants) BPM 11/1	Not applicable. Stone crushing plant is not required in the latest landfill design
4.8.1	AQ11	Good site practices such as regular maintenance and checking of the diesel powered mechanical equipment will be adopted to avoid any black smoke emissions and to minimize gaseous emissions.	To minimise potential dust nuisance	All construction works area	SENTX Contractor	✓			HKAQO and EIAO- TM Annex 4	Reminder was given to Contractor
4.10.1	AQ12	Dust monitoring once every 6 days	Ensure the dust generated from the project meets the air quality requirement	At monitoring locations shown in Figure 3.2a	SENTX Contractor	✓			HKAQO and EIAO- TM Annex 4	Implemented
4.10.2	AQ41	Monitoring of ambient TSP once every 6 days	Ensure the dust emission from the project meets the dust requirement	At monitoring locations shown in Figure 11.3a	SENTX Contractor	✓	✓		HKAQO and EIAO- TM Annex 4	Implemented
4.10.2	AQ46	Monitoring of meteorological station, continuously	Collect site specific meteorological data	At meteorologica l station shown in Figure 11.3a	SENTX Contractor	✓	✓	<b>√</b>	-	Implemented

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended	Location of the Measures	Who to implement			implemo ure? <sup>(1)</sup>	ent	What requirements or standards for the	Implementation Status and Remarks
			Measure & Main Concerns to address	<b>V2.0</b> 1/2 <b>0</b> 40 <b>0</b> 20	the measure?	D	С	O/R	A	measure to achieve?	<b>3 11 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2</b>
5.7.1	N1	<ul> <li>Adopt good site practice listed below:</li> <li>Only well-maintained plant will be operated on-site and plant should be serviced regularly during the</li> </ul>	To minimise potential construction noise nuisance.	All construction works area	SENTX Contractor		✓			Noise Control Ordinance (NCO) and EIAO-TM Annex 5	Implemented
		construction program;									
		<ul> <li>Silencers or mufflers on construction equipment should be utilized and will be properly maintained during the construction program;</li> </ul>									
		• Mobile plant, if any, will be sited as far from NSRs as possible;									
		<ul> <li>Machines and plant (such as trucks) that may be in intermittent use will be shut down between work periods or should be throttled down to a minimum;</li> </ul>									
		Plant known to emit noise strongly in one direction will, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and									
		<ul> <li>Material stockpiles and other structures will be effectively utilised, wherever practicable, in screening noise from on-site construction activities.</li> </ul>									

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended	Location of the Measures	Who to implement			implement sure? (1)	What requirements or standards for the	Implementation Status and Remarks
			Measure & Main Concerns to address		the measure?	D	С	O/R A	measure to achieve?	
5.8	N2	Weekly noise monitoring	Ensure noise generated from the project meets the criteria	At monitoring locations shown in Figure 6.4a	SENTX Contractor		✓		Noise Control Ordinance (NCO) and EIAO-TM Annex 5	Implemented
Water Qua	ality - Co	nstruction Phase								
6.8.1	WQ1	Construction Runoff								
		• Exposed soil areas will be minimised	To minimise potential		SENTX		✓		ProPECC PN 1/94	Deficiency of
		to reduce the contamination of runoff and erosion.	water quality impacts arising from the construction works	construction works area	Contractor				EIAO-TM Annex 6	mitigation measures but rectified by the Contractor
6.8.1	WQ2	Perimeter channels will be	To minimise potential		SENTX	✓	✓		ProPECC PN 1/94	Deficiency of
		constructed in advance of site formation works and earthworks and intercepting channels will be provided	water quality impacts arising from the construction works	construction works area	Contractor				Water Pollution Control Ordinance (WPCO)	mitigation measures but rectified by the Contractor
		for example along the edge of excavation.							EIAO-TM Annex 6	
6.8.1	WQ3	Silt removal facilities, channels and	To minimise potential		SENTX		✓		ProPECC PN 1/94	Deficiency of
		manholes will be maintained and the deposited silt and grit should be	water quality impacts arising from the	construction works area	Contractor				WPCO	mitigation measures but rectified by the
		removed regularly to ensure they are functioning properly at all times.	construction works	works area					EIAO-TM Annex 6	Contractor
6.8.1	WQ4	Temporary covers such as tarpaulin	To minimise potential		SENTX		✓		ProPECC PN 1/94	Reminder was given to
		will also be provided to minimise the generation of high SS runoff.	water quality impacts arising from the construction works	construction works area	Contractor				WPCO	Contractor
6.8.1	WQ5	The surface runoff contained any oil	To minimise potential	All	SENTX		✓		ProPECC PN 1/94	Not applicable

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended	Location of the Measures	Who to implement			implement ure? <sup>(1)</sup>	What requirements or standards for the	Implementation Status and Remarks
			Measure & Main Concerns to address		the measure?	D	C	O/R A	measure to achieve?	
		and grease will pass through the oil	water quality impacts	construction	Contractor				WPCO	
		interceptors.	arising from the construction works	works area					EIAO-TM Annex 6	
6.8.1	WQ6	• All sewer and drains will be sealed to	To minimise potential				✓		ProPECC PN 1/94	Not applicable
		prevent building debris, soil etc from entering public sewers/drains before	water quality impacts arising from the	area at existing SENT	Contractor				WPCO	
		commencing any demolition works	demolition works	Landfill					EIAO-TM Annex 6	
6.8.1	WQ7	During the excavation works for the	To minimise potential	Tunnel boring	SENTX		✓		ProPECC PN 1/94	Not applicable.
		twin drainage tunnels, the recycle water for cooling the cutter head of	water quality impacts arising from the	sites	Contractor				WPCO	Excavation of drainage tunnels is not required
		the TBM will be conveyed to the sedimentation tanks for treatment and most of the treated water will be reused, where applicable and as much as possible, in the boring operations.	tunnel works						EIAO-TM Annex 6	in the latest landfill design.
6.8.1	WQ8	• The fuel and waste lubricant oil from	To minimise potential	SENTX Site	SENTX		✓		ProPECC PN 1/94	Implemented
		the on-site maintenance of machinery and equipment will be collected by a	water quality impacts arising from improper		Contractor				WPCO	
		licensed chemical waste collector.	handling of fuel and oil						Waste Disposal Ordinance (WDO)	
6.8.1	WQ9	Implementation of excavation	To minimise	All	SENTX		✓		ProPECC PN 1/94	Implemented
		schedules, lining and covering of excavated stockpiles	contaminated stormwater run-off	construction works	Contractor				WPCO	
		excavated stockpiles	from the SENTX Site	WOIKS					EIAO-TM Annex 6	
6.13	WQ10	Monitoring of surface water quality	To minimise potential	SENTX Site	SENTX		✓		WPCO	Implemented
		will be conducted on a regular basis as stated in the EM&A Manual.	water quality impacts on surface water arising from the construction works		Contractor				Water-TM	

EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended	Location of the Measures	Who to implement	the	meas	ure? (1)	What requirements or standards for the	Implementation Status and Remarks
		Concerns to address		tne measure?	D	C	O/R A	measure to achieve?	
WQ11	Sewage Effluents								
	• Sufficient chemical toilets will be provided for the construction workforce.	To minimise potential water quality impacts arising from the sewage effluents	SENTX Site	SENTX Contractor		✓		WPCO	Implemented
WQ12		_	SENTX Site	SENTX		✓		WPCO	Deficiency of
	to discharge into the surrounding water body.	water quality impacts arising from the sewage effluents		Contractor				WDO	mitigation measures but rectified by the Contractor
WQ13	A licensed waste collector will be	-	SENTX Site	SENTX		✓		WPCO	Implemented
	employed to clean the chemical toilets on a regular basis.	water quality impacts arising from the sewage effluents		Contractor				WDO	
ınagement	- Construction Phase								
WM1	All the necessary waste disposal permits are obtained prior to the commencement of construction work.	To ensure compliance with relevant statutory requirements	Before construction works commence	SENTX Contractor	✓	✓		WDO	Implemented
WM2	Management of Waste Disposal								
	The construction contractor will open a	To ensure that	SENTX Site	SENTX		✓		WDO	Implemented
	construction waste or public fill load to be transferred to the Government waste disposal facilities such as public fill	environmental impacts are prevented		Contractor				Waste Disposal (Charges for Disposal of Construction Waste) Regulation;	
	landfills will required a valid "chit" which contains the information of the account holder to facilitate waste							Works Bureau Technical Circular No.31/2004; and	
	Ref  WQ11  WQ12  WQ13	<ul> <li>WQ11 Sewage Effluents         <ul> <li>Sufficient chemical toilets will be provided for the construction workforce.</li> </ul> </li> <li>WQ12 Untreated sewage will not be allowed to discharge into the surrounding water body.</li> <li>WQ13 A licensed waste collector will be employed to clean the chemical toilets on a regular basis.</li> <li>MM1 All the necessary waste disposal permits are obtained prior to the commencement of construction work.</li> <li>WM2 Management of Waste Disposal         <ul> <li>The construction contractor will open a billing account with the EPD. Every construction waste or public fill load to be transferred to the Government waste disposal facilities such as public fill reception facilities, sorting facilities, landfills will required a valid "chit" which contains the information of the</li> </ul> </li> </ul>	Ref Mitigation Measures Recommended Measure & Main Concerns to address  WQ11 Sewage Effluents  • Sufficient chemical toilets will be provided for the construction workforce.  WQ12 • Untreated sewage will not be allowed to discharge into the surrounding water body.  WQ13 • A licensed waste collector will be employed to clean the chemical toilets on a regular basis.  WM1 All the necessary waste disposal permits are obtained prior to the commencement of construction work.  WM2 Management of Waste Disposal  The construction vill open a billing account with the EPD. Every construction waste or public fill load to be transferred to the Government waste disposal facilities such as public fill reception facilities, sorting facilities, landfills will required a valid "chit" which contains the information of the	Ref Mitigation Measures Recommended Measure & Main Concerns to address  WQ11 Sewage Effluents  Sufficient chemical toilets will be provided for the construction workforce.  WQ12 Untreated sewage will not be allowed to discharge into the surrounding water body.  WQ13 A licensed waste collector will be employed to clean the chemical toilets on a regular basis.  WM1 All the necessary waste disposal permits are obtained prior to the commencement of construction work.  WM2 Management of Waste Disposal  The construction waste or public fill load to be transferred to the Government waste disposal facilities, sorting facilities, landfills will required a valid "chit" which contains the information of the	Ref         Mitigation Measures         Recommended Measure & Main Concerns to address         the Measures implement the measure?           WQ11         Sewage Effluents              In ominimise potential water quality impacts arising from the sewage effluents          SENTX Site water quality impacts arising from the sewage effluents          SENTX Site water quality impacts arising from the sewage effluents          SENTX Site water quality impacts arising from the sewage effluents          SENTX Site water quality impacts arising from the sewage effluents          SENTX Site water quality impacts arising from the sewage effluents          SENTX Site water quality impacts arising from the sewage effluents          SENTX Site water quality impacts arising from the sewage effluents          SENTX Site water quality impacts arising from the sewage effluents               Imagement - Construction Phase             To minimise potential water quality impacts arising from the sewage effluents	## Mitigation Measures Recommended Measure & Main Concerns to address  ### WQ11 Sewage Effluents    Sufficient chemical toilets will be provided for the construction workforce.	Ref Mitigation Measures Recommended Measures Main Concerns to address  WQ11 Sewage Effluents  Sufficient chemical toilets will be provided for the construction workforce.  WQ12 Untreated sewage will not be allowed to discharge into the surrounding water body.  WQ13 A licensed waste collector will be employed to clean the chemical toilets on a regular basis.  WQ14 All the necessary waste disposal permits are obtained prior to the commencement of construction work.  WM1 All the necessary waste disposal permits are obtained prior to the commencement of construction work.  WM2 Management of Waste Disposal  The construction contractor will open a billing account with the EPD. Every construction waste or public fill reception facilities, landfills will required a valid "chit" which contains the information of the commence of	Measure & Main   Measures & Measure & Main   Measures & Measure & Main   Measures & Measure & Main   Measures & Measures & Measures & Measures & Measures   Measures & Measures & Measures   Measures & Measures   Measures & Measures   Measures & Measures & Measures   Measures & Measures   Measures & Measures	Meditagation Measures   Recommended Measure & Main Concerns to address   Sentra   Sentra

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?		to implemer asure? <sup>(1)</sup> O/R A	or standards for the	Implementation Status and Remarks
		transaction recording and billing to the waste producer. A trip-ticket system will also be established to monitor the disposal of construction waste at the SENT Landfill and to control fly-tipping. The trip-ticket system will be included as one of the contractual requirements and implemented by the contractor.						Annex 5 and Annex 6 of Appendix G of ETWBTC No. 19/2005)	
		A recording system for the amount of waste generated, recycled and disposed of (including the disposal sites) will be established.							
7.6.1	WM3	Measures for the Reduction of Construction Waste Generation							
		Inert and non-inert construction waste will be segregated and stored in different containers or skips to facilitate reuse or recycling of the inert waste and proper disposal of the non-inert construction waste. Specific areas of the work site will be designated for such segregation and storage if immediate use is not practicable.	To reduce construction waste generation	SENTX Site	SENTX Contractor	<b>✓</b>		WDO EIAO-TM Annex 7	Deficiency of mitigation measures but rectified by the Contractor
7.6.1	WM4	<u>Chemical Waste</u>						N.T. O	
		The construction contractor will register as a chemical waste producer with the EPD. Chemical waste will be handled in accordance with the <i>Code of Practice on the Packaging, Handling and Storage of</i>	To ensure proper handling of chemical waste	SENTX Site	SENTX Contractor	✓		WDO  Code of Practice on the Packaging, Handling and Storage of Chemical Wastes	Deficiency of mitigation measures but rectified by the Contractor

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?	the n		implement ure? <sup>(1)</sup> O/R A	What requirements or standards for the measure to achieve?	Implementation Status and Remarks
		Chemical Wastes.								
7.6.1	WM5	<u>Sewage</u>								
		An adequate number of portable toilets will be provided at the site to ensure that sewage from site staff is properly collected. The portable toilets will be desludged and maintained regularly by a specialist contractor.	To ensure proper handling of sewage	SENTX Site	SENTX Contractor		✓		WDO EIAO-TM Annex 7	Implemented
7.6.1 and	WM6	General Refuse								
SENTX latest design		General refuse will be stored in enclosed bins separately from construction and chemical wastes. The general refuse will be delivered to a transfer station or other landfill, separately from construction and chemical wastes, on a daily basis to reduce odour, pest and litter impacts.	To ensure proper handling of general refuse	SENTX Site	SENTX Contractor		✓		WDO EIAO-TM Annex 7	Deficiency of mitigation measures but rectified by the Contractor
		Recycling bins will be provided at strategic locations to facilitate recovery of aluminium can and waste paper from the SENTX Site. Materials recovered will be sold for recycling.								
7.6.1	WM7	Staff Training								
		At the commencement of the construction works, training will be provided to workers on the concepts of site cleanliness and on appropriate waste management procedures, including	To ensure that adverse environmental impacts are prevented	SENTX Site	SENTX Contractor		<b>√</b>			Implemented

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?	the n		implement ure? <sup>(1)</sup> O/R A	What requirements or standards for the measure to achieve?	Implementation Status and Remarks
		waste reduction, reuse and recycling.								
7.8	WM8	Environmental Monitoring & Audit Requirements  Weekly audits of the waste management practices will be carried out during the construction phase. The audits examine all aspects of waste management including waste generation, storage, recycling, transport and disposal.	To ensure that adverse environmental impacts are prevented	SENTX Site	SENTX Contractor		✓		WDO	Implemented
Landfill G	Gas Hazar	ds - Design and Construction Phase								
8.6.2 and SENTX latest design	LFG1	Precautionary measures to be adopted by the contractors at the Project site and the adjacent development site within the landfill consultation zone are outlined in Paragraphs 8.3 to 8.49 of EPD's Landfill Gas Hazard Assessment Guidance Notes (the Guidance Note). Those precautionary measures applicable to the SENTX will be confirmed in the detailed Qualitative Landfill Gas Hazard Assessment to be submitted by the contractor.	-	All construction works area	SENTX Contractor		✓		Paragraphs 8.3 to 8.49 of EPD's Landfill Gas Hazards Assessment Guidance Note EIAO-TM Annex 7	Deficiency of mitigation measures but rectified by the Contractor
8.6.2	LFG2	Monitoring will be undertaken when construction works are carried out in confined space within the consultation zone with reference to the monitoring requirements and procedures specified in Paragraphs 8.23 to 8.28 of EPD's <i>Guidance Note</i> will be followed.	To protect workers from landfill gas risk	Confined space within the construction works area	SENTX Contractor		✓			Not applicable

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended	Location of the Measures	Who to implement			implei sure? (1)		What requirements or standards for the	Implementation Status and Remarks
			Measure & Main Concerns to address		the measure?	D	С	O/R	A	measure to achieve?	
		In the event of the trigger levels being exceeded, it is recommended that a person, such as the Safety Officer, is nominated, with deputies, to be responsible for dealing with any emergency which may occur due to landfill gas. In an emergency situation, the nominated person, or his deputies, shall have the necessary authority and shall ensure that the confined space is evacuated and the necessary works implemented for reducing the concentrations of gas. The appropriate organisations shall be contact.									
8.6.3	LFG4	Implementation of engineering measures according to Contract Specification requirements. These measures will include the placement of liner and installation of landfill gas management system to contain, manage and control landfill gas.	To protect workers from landfill gas risk	SENTX Site	SENTX Contractor	✓	✓	✓	✓	EIAO-TM Annex 7	Implemented
8.6.3	LFG5	Engineering measures to significant engineering measures will be required in the design of the SENTX to protect the staff working in the infrastructure area. These measures include a combination of passive and active systems (examples are recommended in EPD's <i>Guidance Notes</i> ). Landfill gas monitoring boreholes will be installed at the edge of the waste slope	Ü	Infrastructure Area	SENTX Contractor	<b>√</b>	<b>✓</b>			EPD's Landfill Gas Hazards Assessment Guidance Note EIAO-TM Annex 7	Not applicable

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended	Location of the Measures	Who to implement		implem ure? <sup>(1)</sup>	ent	What requirements or standards for the	Implementation Status and Remarks
	Kei	Willigation Weasures	Measure & Main Concerns to address	the weasures	the measure?		O/R	A	measure to achieve?	Status and Remarks
		between the waste and the new infrastructure area to monitor the migration of landfill gas, if any.								
Ecology –	Construc	tion Phase								
9.10.2	EC1	Measures to control construction runoff:	To minimise potential		SENTX	✓			EIAO-TM Annex 16	Deficiency of
		• Exposed soil areas will be	water quality impacts affecting ecological	construction works area	Contractor				ProPECC PN 1/94	mitigation measures but rectified by the
		minimised to reduce the contamination of runoff and erosion;	resources						Water Pollution Control Ordinance (WPCO)	Contractor
									EIAO-TM Annex 6	
		<ul> <li>To prevent stormwater runoff from washing across exposed soil surfaces, perimeter channels will be constructed in advance of site formation works and earthworks and intercepting channels will be provided for example along the edge of excavation;</li> </ul>							-	Deficiency of mitigation measures but rectified by the Contractor
		<ul> <li>Silt removal facilities, channels and manholes will be maintained and the deposited silt and grit will be removed regularly to ensure they are functioning properly at all times;</li> </ul>							-	Deficiency of mitigation measures but rectified by the Contractor
		<ul> <li>Temporary covers such as tarpaulin will also be provided to minimise the generation of high suspended solids runoff;</li> </ul>							-	Reminder was giver Contractor

		Objectives of the	Location of the Measures	Who to			-		What requirements or standards for the	Implementation Status and Remarks
		Measure & Main Concerns to address		the measure?					measure to achieve?	
	<ul> <li>The surface runoff contained any oil and grease will pass through the oil interceptors; and,</li> </ul>								-	Not applicable
	<ul> <li>Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the SENTX site.</li> </ul>								-	Implemented
EC2	Good Construction Practice:									
	<ul> <li>Fences along the boundary of the SENTX Site will be erected before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas.</li> </ul>	To minimise potential ecological impacts arising from the Project	SENTX Site	SENTX Contractor		✓			EIAO-TM Annex 16	Implemented
	<ul> <li>The work site boundaries will be regularly checked to ensure that they are not breached and that damage does not occur to surrounding areas.</li> </ul>									
EC9	Environmental Monitoring & Audit Requirements	m	CENTEN.	OED HED		,	,	,	FIAO TM A 16	
	The implementation of the ecological mitigation measures should be checked as part of the environmental monitoring and audit procedures during the	To ensure that adverse ecological impacts are prevented	SENTX	SENTX Contractor		<b>V</b>	✓	•	EIAO-IM Annex 16	Implemented
	Ref  EC2	The surface runoff contained any oil and grease will pass through the oil interceptors; and,  Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the SENTX site.  EC2 Good Construction Practice:  Fences along the boundary of the SENTX Site will be erected before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas.  The work site boundaries will be regularly checked to ensure that they are not breached and that damage does not occur to surrounding areas.  EC9 Environmental Monitoring & Audit Requirements  The implementation of the ecological mitigation measures should be checked as part of the environmental monitoring	Ref Mitigation Measures  Procedure & Main Concerns to address  The surface runoff contained any oil and grease will pass through the oil interceptors; and,  Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the SENTX site.  Fec2 Good Construction Practice:  Fences along the boundary of the SENTX Site will be erected before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas.  The work site boundaries will be regularly checked to ensure that they are not breached and that damage does not occur to surrounding areas.  EC9 Environmental Monitoring & Audit Requirements  The implementation of the ecological mitigation measures should be checked as part of the environmental monitoring	Ref Mitigation Measures Recommended Measure & Main Concerns to address  * The surface runoff contained any oil and grease will pass through the oil interceptors; and,  * Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the SENTX site.  **Fences along the boundary of the SENTX Site will be erected before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas.  * The work site boundaries will be regularly checked to ensure that they are not breached and that damage does not occur to surrounding areas.  **EC9***Environmental Monitoring & Audit Requirements**  The implementation of the ecological mitigation measures should be checked as part of the environmental monitoring in the prevented and prevented and the adverse ecological impacts are prevented and prevented and the adverse ecological impacts are prevented and the adverse ecological impacts are prevented and prevented and the adverse ecological impacts are prevented and prevented and the adverse ecological impacts are prevented and prevente	Recommended Measures Econocerns to address implement the measure?  The surface runoff contained any oil and grease will pass through the oil interceptors; and,  Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the SENTX site.  EC2 Good Construction Practice:  Fences along the boundary of the SENTX Site will be erected before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas.  The work site boundaries will be regularly checked to ensure that they are not breached and that damage does not occur to surrounding areas.  EC9 Environmental Monitoring & Audit Requirements The implementation of the ecological mitigation measures should be checked as part of the environmental monitoring and covering of excavation should be checked as part of the environmental monitoring and covering of excavation schedules, lining and covering of excavated stockpiles will be implementation of excavation schedules, lining and covering of excavated stockpiles will be erected before the continued of the evolution of the ecological impacts are prevented and that damage does not occur to surrounding areas.  To ensure that adverse ecological impacts are prevented and everse ecological impacts are prevented	Recommended Measures implement the measure?  * The surface runoff contained any oil and grease will pass through the oil interceptors; and,  * Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the SENTX site.  **EC2*** Good Construction Practice:**  * Fences along the boundary of the SENTX Site will be erected before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas.  * The work site boundaries will be regularly checked to ensure that they are not breached and that damage does not occur to surrounding areas.  **EC2*** Environmental Monitoring & Audit Requirements**  **The implementation of the ecological mitigation measures should be checked and mitigation measures should be checked and part of the environmental monitoring impacts are prevented and part of the environmental monitoring and covering of exact and the damage does not occur to surrounding areas.  **To ensure that SENTX SENTX SENTX Contractor impacts are prevented and that damage does not occur to surrounding areas.**  **To ensure that adverse ecological impacts are prevented and that damage does not occur to surrounding areas.**  **To ensure that adverse ecological impacts are prevented and that damage does not occur to surrounding areas.**  **To ensure that adverse ecological impacts are prevented and that damage does not occur to surrounding areas.**  **To ensure that adverse ecological impacts are prevented and that damage does not occur to surrounding areas.**  **To ensure that adverse ecological impacts are prevented and that damage does not occur to surrounding areas.**  **To ensure that adverse ecological impacts are prevented and that damage does not occur to surrounding areas.**  **To ensure that adverse ecological impacts are prevented and that damage does not occur to surrounding areas.**  **To ensure that adverse ecological impacts are prevented and tha	Recommended Measures implement the measure? Do Concerns to address  * The surface runoff contained any oil and grease will pass through the oil interceptors; and,  * Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the SENTX site.  **ECZ***  * Fences along the boundary of the SENTX Site will be erected before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas.  * The work site boundaries will be regularly checked to ensure that they are not breached and that damage does not occur to surrounding areas.  **ECS***  **ECZ***  **ENTX**  **ENTX**  **ENTX**  **ENTX*  **EN	Recommended Measures implement the measure? Potential Measure & Main Concerns to address  * The surface runoff contained any oil and grease will pass through the oil interceptors; and,  * Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the SENTX site.  **Fences along the boundary of the SENTX Site will be erected before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas.  **Fine work site boundaries will be regularly checked to ensure that they are not breached and that damage does not occur to surrounding areas.  **Foreignation of the ecological minimates and the damage does not occur to surrounding areas.  **To ensure that adverse ecological minacts arising from the Project  **To ensure that adverse ecological minacts arising from the Project  **To ensure that adverse ecological minacts arising from the Project  **To ensure that adverse ecological minacts arising from the Project  **To ensure that adverse ecological minacts arising from the Project  **To ensure that adverse ecological minacts are prevented impacts are prevented and the damage does not occur to surrounding areas.  **To ensure that adverse ecological minacts are prevented and the environmental monitoring and the	Recommended Measure & Main Concerns to address	Ref         Mitigation Measures         Recommended Measure & Main Concerns to address         the Measure on the measure? Use the measure? Use the measure? Use the measure of the measure of the measure of the measure? Use the measure of the contained and greate will pass through the oil interceptors; and,         For the surface runoff contained any oil and greate will pass through the oil interceptors; and,         For the surface runoff contained any oil and greate will pass through the oil interceptors; and,         For the surface runoff contained any oil and greate will pass through the oil interceptors; and,         For the surface runoff contained any oil and greate will pass through the oil interceptors; and,         For the surface runoff contained any oil and greate will pass through the oil interceptors; and,         For the surface runoff contained and greate will pass through the oil interceptors; and,         For the surface runoff contained and greate will pass through the oil interceptors; and,         For the surface runoff contained and greate will pass through the oil interceptors; and,         For the surface runoff contained and greate will pass through the oil interceptors; and,         For the contained and greate will pass through the oil interceptors; and,         For the contained and,         For the conta

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended	Location of the Measures	Who to implement	the	meas	implement sure? (1)	What requirements or standards for the	Implementation Status and Remarks
			Measure & Main Concerns to address		the measure?	D	С	O/R A	measure to achieve?	
		construction period.								
Landscape	e and Visu	aal - Construction Phase								
10.6.5	LV1	CM1 - The construction area and area allowed for the contractor's office, leachate treatment plant and laboratory areas will be minimised to a practical minimum, to avoid impacts on adjacent landscape.	To minimise the landscape and visual impacts	SENTX Site	SENTX Contractor		<b>√</b>		EIAO-TM Annex 18 and ETWBC 3/2006	Implemented
10.6.5	LV2	CM2 - Topsoil, where identified, will be stripped and stored for re-use in the construction of the soft landscape works, where practical. The Contract Specification will include storage and reuse of topsoil as appropriate.	To minimise the landscape and visual impacts	All construction works area	SENTX Contractor		<b>✓</b>		EIAO-TM Annex 18	Not applicable
10.6.5	LV3	CM3 - All existing trees at the edges of the landfill will be carefully protected during construction. Detailed Tree Protection Specification will be provided in the Contract Specification. Under this Specification, the Contractor will be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in Contractor's works areas.	To minimise the landscape and visual impacts	Potential impacted area	SENTX Contractor		<b>✓</b>		EIAO-TM Annex 18 and ETWBC 3/2006	Implemented
10.6.5	LV4	CM4 - Trees unavoidably affected by the works will be transplanted, where necessary and practical. A detailed Tree	landscape and visual	Potential impacted area	SENTX Contractor	✓	✓		EIAO-TM Annex 18 and ETWBC 3/2006	Not applicable

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended	Location of the Measures	Who to implement			implement sure? (1)	What requirements or standards for the	Implementation Status and Remarks
			Measure & Main Concerns to address		the measure?	D	С	O/R A	measure to achieve?	
		Transplanting Specification will be provided in the Contract Specification, if applicable. Sufficient time for necessary tree root and crown preparation periods will be allowed in the project programme.								
10.6.5 and SENTX latest design	LV5	CM5 - Within 3 months of taking possession of the SENTX Site, the Contractor will plant advance screen planting of native species at Light Standard size at 1.5m centres along the High Junk Peak Trail so as to screen views of the Works from the trail. Tree planting locations will be agreed with AFCD. Works will be completed within 9 months of taking possession of the SENTX Site.	To minimise the landscape and visual impacts	At High Junk Peak Hiking Trail	SENTX Contractor		✓		EIAO-TM Annex 18	Reminder was given to Contractor
10.6.5	LV6	CM6 - The Contractor's office, leachate treatment plant and laboratory will be given an aesthetic treatment in earth tones to reduce their visual impact and albedo and blend them into the surrounding landscape.	To minimise the landscape and visual impacts	Infrastructure area	SENTX Contractor	<b>✓</b>	<b>√</b>		EIAO-TM Annex 18	Implemented
10.6.5	LV7	CM7 - The Contractor's office, leachate treatment plant and laboratory will be surrounded by a minimum of 5m wide and 0.75m high earth bund on the west and south sides planted with a dense screen of tree and shrub vegetation. Additional tree planting will be provided in unused spaces with thin infrastructure	To minimise the landscape and visual impacts	Infrastructure area	SENTX Contractor	<b>√</b>	<b>✓</b>		EIAO-TM Annex 18 and ETWBC 7/2002	Implemented

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended	Location of the Measures	Who to implement			implement ure? <sup>(1)</sup>	What requirements or standards for the	Implementation Status and Remarks
		-	Measure & Main Concerns to address		the measure?	D	С	O/R A	measure to achieve?	
		site, along access roads and in and around car parks. This will be supplemented with shrub planting, where appropriate.								
10.6.5	LV8	CM8 - Planting trials will be carried out in an on-site nursery prior to implementation of the first phase of restoration to establish the best planting matrix and management intensity of the recommended plant materials for the restoration.	To minimise the landscape and visual impacts	SENTX Site	SENTX Contractor		✓		EIAO-TM Annex 18	Implemented
11.4.1 and SENTX latest design	LV9	During the preparation of the detailed landscape design plan, the design submission will be audited against the recommendation proposed in the <i>ER Report</i> by the Registered Landscape Architect from the ET.	To ensure the implementation of mitigation measures proposed in this EIA Report	SENTX Site	SENTX Contractor/E T	✓	<b>✓</b>		EIAO-TM Annex 18	Implemented

#### Annex C

### Monitoring Schedule for This Reporting Period

January 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3 Surface Water Monitoring Noise Monitoring	4  Dust Monitoring	5
6	7	8	9	Surface Water Monitoring Noise Monitoring Dust Monitoring	11	12
13	14	15	Dust Monitoring	Surface Water Monitoring Noise Monitoring	18	19
20	21	Dust Monitoring	23	24 Surface Water Monitoring Noise Monitoring	25	26
27	28 Dust Monitoring	29	30	31 Surface Water Monitoring Noise Monitoring		

Note:

February 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
Dust Monitoring					Surface Water Monitoring	Dust Monitoring
					Noise Monitoring	
10	11	12				16
			Surface Water Monitoring Noise Monitoring		Dust Monitoring	
			Noise Monitoring			
17	18	19	20	21	22	23
			Surface Water Monitoring	Dust Monitoring		
			Noise Monitoring			
24	25	26	27	28		
			Surface Water Monitoring			
			Noise Monitoring			
			Dust Monitoring			

Note:

March 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5 Dust Monitoring	6	7 Noise Monitoring (pm)	8 Surface Water Monitoring (am)	9
10	Dust Monitoring	12	Surface Water Monitoring (pm) Noise Monitoring (pm)	14	15	16
17 Dust Monitoring	18	19	20	21	22 Surface Water Monitoring (pm) Noise Monitoring (pm)	Dust Monitoring
24	25	26	27	28 Surface Water Monitoring (pm) Noise Monitoring (pm)	29 Dust Monitoring	30
31						

Note

April 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
				Dust Monitoring		
				Surface Water Monitoring (pm)		
				Noise Monitoring (pm)		
7	8	9	10	11	12	13
			<b>Dust Monitoring</b>			
			Surface Water Monitoring (pm)			
			Noise Monitoring (pm)			
14	15	16	17	18	19	20
		Dust Monitoring		Surface Water Monitoring (pm)		
				Noise Monitoring (pm)		
21	22	23	24	25	26	27
	Dust Monitoring		Surface Water Monitoring (pm)			
			Noise Monitoring (pm)			
28	29	30				
Dust Monitoring						

Note:

May 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
				Surface Water Monitoring (pm)		Dust Monitoring
				Noise Monitoring (pm)		
5	6	7	8	9	10	11
			Surface Water Monitoring (pm)		Dust Monitoring	
			Noise Monitoring (pm)			
12	13	14	15	16	17	18
				Dust Monitoring		
				Surface Water Monitoring (pm)		
				Noise Monitoring (pm)		
19	20	21	22	23	24	25
			<b>Dust Monitoring</b>	Surface Water Monitoring (pm)		
				Noise Monitoring (pm)		
26	27	28	29	30	31	
		Dust Monitoring		Surface Water Monitoring (pm)		
				Noise Monitoring (pm)		

Note:

June 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
	Dust Monitoring			Surface Water Monitoring (pm)		
				Noise Monitoring (pm)		
9	10	11	12	13	14	15
Dust Monitoring					Surface Water Monitoring (pm)	<b>Dust Monitoring</b>
					Noise Monitoring (pm)	
16	17	18	19	20	21	22
				Surface Water Monitoring (pm)	Dust Monitoring	
				Noise Monitoring (pm)		
23	24	25	26	27	28	29
				Surface Water Monitoring (pm)		
				Noise Monitoring (pm)		
				Dust Monitoring		
30						

Note

July 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3 Dust Monitoring	4 Surface Water Monitoring (pm) Noise Monitoring (pm)	5	6
7	8	9 Dust Monitoring	10	11	Surface Water Monitoring (pm) Noise Monitoring (pm)	13
14	Dust Monitoring	16	17	Surface Water Monitoring (pm) Noise Monitoring (pm)	19	20
Dust Monitoring	22	23	24	25 Surface Water Monitoring (pm) Noise Monitoring (pm)	26	27 Dust Monitoring
28	29	30	31			

Note

August 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				Surface Water Monitoring (pm)  Noise Monitoring (pm)	Dust Monitoring	3
4	5	6	7	8 Surface Water Monitoring (pm) Noise Monitoring (pm) Dust Monitoring	9	10
11	12	13	14 Dust Monitoring	Surface Water Monitoring (pm)  Noise Monitoring (pm)	16	17
18	19	20 Dust Monitoring	21	Surface Water Monitoring (pm)  Noise Monitoring (pm)	23	24
25	26 Dust Monitoring	27	28	29 Surface Water Monitoring (pm) Noise Monitoring (pm)	30	31

Note

September 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
Dust Monitoring	2	3	4	5 Surface Water Monitoring (pm) Noise Monitoring (pm)	6	7 Dust Monitoring
8	9	10	11	Surface Water Monitoring (pm) Noise Monitoring (pm)	Dust Monitoring	14
15	16	17	18	Surface Water Monitoring (pm) Noise Monitoring (pm) Dust Monitoring	20	21
22	23	24	Dust Monitoring	26 Surface Water Monitoring (pm) Noise Monitoring (pm)	27	28
29	30					

Note

October 2019

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

Note:

November 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
			Dust Monitoring	Surface Water Monitoring (pm)		
				Noise Monitoring (pm)		
10	11	12	13	14	15	16
		Dust Monitoring			Surface Water Monitoring (pm)	
					Noise Monitoring (pm)	
17	18	19	20	21	22	23
	Dust Monitoring			Surface Water Monitoring (pm)		
				Noise Monitoring (pm)		
24	25	26	27	28	29	30
Dust Monitoring				Surface Water Monitoring (pm)		Dust Monitoring
				Noise Monitoring (pm)		

Note

December 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	Surface Water Monitoring (pm) Noise Monitoring (pm)	6  Dust Monitoring	7
8	9	10	11	Dust Monitoring Surface Water Monitoring (pm) Noise Monitoring (pm)	13	14
15	16	17	Dust Monitoring Surface Water Monitoring (pm) Noise Monitoring (pm)	19	20	21
22	23	24 Dust Monitoring	25	26	Surface Water Monitoring (pm)  Noise Monitoring (pm)	28
29	30 Dust Monitoring	31				

Note

#### Annex D

### Air Quality

#### Annex D1

### 24-hour TSP Monitoring Results

Table D1.1 24-hour TSP Monitoring Results at DM1

Start Date	Start Time	Finish Date	Finish Time	Weather	24-hour TSP (μg/m3)
4 Jan 19	15:00	5 Jan 19	15:00	Fine	109
10 Jan 19	8:00	11 Jan 19	8:00	Fine	92
16 Jan 19	15:00	17 Jan 19	15:00	Fine	79
22 Jan 19	8:00	23 Jan 19	8:00	Sunny	146
28 Jan 19	9:55	29 Jan 19	9:55	Fine	123
3 Feb 19	8:00	4 Feb 19	8:00	Sunny	132
9 Feb 19	8:00	10 Feb 19	8:00	Sunny	134
15 Feb 19	13:00	16 Feb 19	13:00	Fine	83
21 Feb 19	8:00	22 Feb 19	8:00	Sunny	86
27 Feb 19	14:00	28 Feb 19	14:00	Fine	119
5 Mar 19	8:00	6 Mar 19	8:00	Fine	71
11 Mar 19	10:00	12 Mar 19	10:00	Fine	67
17 Mar 19	8:00	18 Mar 19	8:00	Fine	107
23 Mar 19	8:00	24 Mar 19	8:00	Fine	87
29 Mar 19	10:15	30 Mar 19	10:15	Fine	106
4 Apr 19	8:00	5 Apr 19	8:00	Fine	90
10 Apr 19	14:30	11 Apr 19	14:30	Fine	100
16 Apr 19	8:00	17 Apr 19	8:00	Fine	99
22 Apr 19	8:00	23 Apr 19	8:00	Fine	76
28 Apr 19	8:00	29 Apr 19	8:00	Fine	82
4 May 19	8:00	5 May 19	8:00	Fine	99
10 May 19	9:00	11 May 19	9:00	Fine	105
16 May 19	8:30	17 May 19	8:30	Fine	73
22 May 19	16:10	23 May 19	16:10	Fine	105
28 May 19	8:00	29 May 19	8:00	Rainy	79
3 Jun 19	9:30	4 Jun 19	9:30	Rainy	63
9 Jun 19	8:30	10 Jun 19	8:30	Fine	80
15 Jun 19	8:00	16 Jun 19	8:00	Cloudy	76
21 Jun 19	9:00	22 Jun 19	9:00	Rainy	109
27 Jun 19	8:30	28 Jun 19	8:30	Rainy	81
3 Jul 19	8:50	4 Jul 19	8:50	Rainy	79
9 Jul 19	8:00	10 Jul 19	8:00	Fine	84
15 Jul 19	10:40	16 Jul 19	10:40	Sunny	112
21 Jul 19	8:00	22 Jul 19	8:00	Fine	74
27 Jul 19	8:00	28 Jul 19	8:00	Cloudy	93
2 Aug 19	9:35	3 Aug 19	9:35	Cloudy	85
8 Aug 19	8:00	9 Aug 19	8:00	Fine	77
14 Aug 19	8:00	15 Aug 19	8:00	Fine	71
20 Aug 19	8:30	21 Aug 19	8:30	Fine	55
26 Aug 19	9:15	27 Aug 19	9:15	Rainy	69
1 Sep 19	8:00	2 Sep 19	8:00	Fine	94
7 Sep 19	8:00	8 Sep 19	8:00	Fine	134
13 Sep 19	11:25	14 Sep 19	11:25	Cloudy	89
19 Sep 19	8:00	20 Sep 19	8:00	Fine	129
25 Sep 19	8:00	26 Sep 19	8:00	Fine	67
1 Oct 19	8:00	2 Oct 19	8:00	Fine	102
7 Oct 19	8:30	8 Oct 19	8:30	Rainy	86
13 Oct 19	8:30	14 Oct 19	8:30	Rainy	99
19 Oct 19	8:30	20 Oct 19	8:30	Cloudy	80
25 Oct 19	16:40	26 Oct 19	16:40	Cloudy	85
31 Oct 19	8:00	1 Nov 19	8:00	Fine	92
6 Nov 19	8:30	7 Nov 19	8:30	Fine	106
12 Nov 19	8:30	13 Nov 19	8:30	Cloudy	96
18 Nov 19	12:30	19 Nov 19	12:30	Fine	97
24 Nov 19	8:00	25 Nov 19	8:00	Fine	91
30 Nov 19	8:00	1 Dec 19	8:00	Cloudy	84
50 INOV 19	0.00	1 Dec 19	0.00	Cloudy	UT

ENVIRONMENTAL RESOURCES MANAGEMENT

Start Date	Start Time	Finish Date	Finish Time	Weather	24-hour TSP (μg/m3)
6 Dec 19	10:33	7 Dec 19	10:33	Fine	116
12 Dec 19	8:00	13 Dec 19	8:00	Fine	92
18 Dec 19	8:55	19 Dec 19	8:55	Cloudy	115
24 Dec 19	8:00	25 Dec 19	8:00	Fine	104
30 Dec 19	9:28	31 Dec 19	9:28	Rainy	112
				Average	94
				Min	55
				Max	146

Note:

DM1 corresponds to the existing TSP monitoring station TKO-A1 currently operating by CEDD.

Figure D1.1 Graphical Presentation for 24-hr TSP Monitoring at DM1

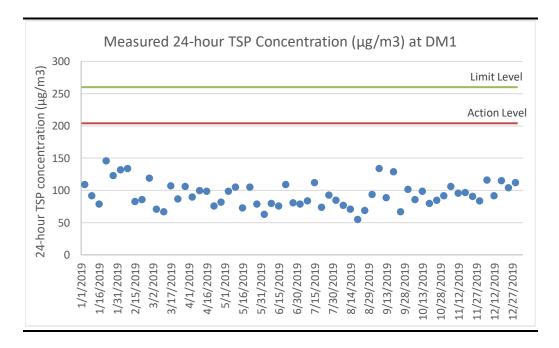


Table D1.2 24-hour TSP Monitoring Results at DM2

Jan 19	Weatl	me Weather	24-hour TSP (μg/m3)
16 Jan 19         15:00         17 Jan 19         15:00         Fine         79           22 Jan 19         8:00         23 Jan 19         8:00         Sunny         146           28 Jan 19         9:55         29 Jan 19         9:55         Fine         123           3 Feb 19         8:00         4 Feb 19         8:00         Sunny         132           9 Feb 19         8:00         10 Feb 19         8:00         Sunny         134           15 Feb 19         13:00         16 Feb 19         13:00         Fine         83           21 Feb 19         8:00         22 Feb 19         8:00         Sunny         86           27 Feb 19         14:00         28 Feb 19         14:00         Fine         71           11 Mar 19         10:00         12 Mar 19         8:00         Fine         67           17 Mar 19         8:00         18 Mar 19         8:00         Fine         67           29 Mar 19         10:15         30 Mar 19         10:15         Fine         106           4 Apr 19         8:00         5 Apr 19         8:00         Fine         80           10 Apr 19         14:30         11 Apr 19         14:30         Fi	Fine	Fine	109
22 Jan 19         8:00         23 Jan 19         8:00         Sunny         146           28 Jan 19         9:55         Fine         123           3 Feb 19         8:00         10 Feb 19         8:00         Sunny         132           9 Feb 19         8:00         10 Feb 19         8:00         Sunny         134           15 Feb 19         13:00         16 Feb 19         13:00         Fine         83           21 Feb 19         14:00         28 Feb 19         14:00         Fine         119           5 Mar 19         8:00         6 Mar 19         8:00         Fine         71           11 Mar 19         10:00         12 Mar 19         8:00         Fine         67           17 Mar 19         8:00         24 Mar 19         8:00         Fine         67           17 Mar 19         8:00         24 Mar 19         8:00         Fine         67           29 Mar 19         10:15         30 Mar 19         10:15         Fine         106           4 Apr 19         8:00         5 Apr 19         8:00         Fine         90           10 Apr 19         14:30         11 Apr 19         14:30         Fine         100	Fine	Fine	92
28 Jan 19         9:55         29 Jan 19         9:55         Fine         123           3 Feb 19         8:00         4 Feb 19         8:00         Sunny         134           15 Feb 19         8:00         10 Feb 19         8:00         Sunny         134           15 Feb 19         8:00         22 Feb 19         8:00         Sunny         86           21 Feb 19         8:00         22 Feb 19         8:00         Sunny         86           27 Feb 19         14:00         28 Feb 19         14:00         Fine         119           5 Mar 19         8:00         6 Mar 19         8:00         Fine         71           11 Mar 19         10:00         12 Mar 19         8:00         Fine         67           23 Mar 19         8:00         24 Mar 19         8:00         Fine         87           29 Mar 19         10:15         30 Mar 19         10:15         Fine         106           4 Apr 19         8:00         5 Apr 19         8:00         Fine         90           16 Apr 19         8:00         17 Apr 19         8:00         Fine         90           22 Apr 19         8:00         29 Apr 19         8:00         Fine	Fine	Fine	79
3 Feb 19         8:00         4 Feb 19         8:00         Sunny         132           9 Feb 19         8:00         10 Feb 19         8:00         Sunny         134           15 Feb 19         13:00         16 Feb 19         13:00         Fine         83           21 Feb 19         8:00         22 Feb 19         8:00         Sunny         86           27 Feb 19         14:00         28 Feb 19         14:00         Fine         119           5 Mar 19         8:00         6 Mar 19         8:00         Fine         71           11 Mar 19         10:00         12 Mar 19         10:00         Fine         67           17 Mar 19         8:00         24 Mar 19         8:00         Fine         107           23 Mar 19         8:00         24 Mar 19         8:00         Fine         106           4 Apr 19         8:00         5 Apr 19         8:00         Fine         90           10 Apr 19         14:30         11 Apr 19         4:430         Fine         106           4 Apr 19         8:00         23 Apr 19         8:00         Fine         76           28 Apr 19         8:00         24 Apr 19         8:00         Fine <td>Sunny</td> <td>Sunny</td> <td>146</td>	Sunny	Sunny	146
9 Feb 19 8:00 10 Feb 19 8:00 Sumy 134 15 Feb 19 13:00 16 Feb 19 13:00 Fine 83   27 Feb 19 13:00 22 Feb 19 8:00 Sunny 86   27 Feb 19 14:00 28 Feb 19 14:00 Fine 119   5 Mar 19 8:00 6 Mar 19 8:00 Fine 71   11 Mar 19 10:00 12 Mar 19 10:00 Fine 67   17 Mar 19 8:00 24 Mar 19 8:00 Fine 107   23 Mar 19 8:00 24 Mar 19 8:00 Fine 107   23 Mar 19 8:00 24 Mar 19 8:00 Fine 106   4 Apr 19 8:00 5 Apr 19 8:00 Fine 106   4 Apr 19 8:00 5 Apr 19 8:00 Fine 100   16 Apr 19 8:00 17 Apr 19 8:00 Fine 90   10 Apr 19 14:30 11 Apr 19 14:30 Fine 100   16 Apr 19 8:00 23 Apr 19 8:00 Fine 99   22 Apr 19 8:00 29 Apr 19 8:00 Fine 99   22 Apr 19 8:00 29 Apr 19 8:00 Fine 99   10 May 19 9:00 11 May 19 9:00 Fine 82   24 May 19 8:30 17 May 19 8:30 Fine 105   16 May 19 9:30 17 May 19 8:30 Fine 105   16 May 19 8:30 17 May 19 8:30 Fine 105   28 May 19 8:00 29 May 19 8:00 Fine 99   10 May 19 9:00 11 May 19 9:00 Fine 105   16 May 19 8:30 17 May 19 8:30 Fine 105   16 May 19 8:30 17 May 19 8:30 Fine 105   15 Jun 19 9:30 4 Jun 19 9:30 Rainy 79   3 Jun 19 9:30 4 Jun 19 9:30 Rainy 63   15 Jun 19 8:30 10 Jun 19 8:30 Fine 80   15 Jun 19 8:00 16 Jun 19 8:30 Fine 80   15 Jun 19 8:00 15 Jun 19 8:00 Fine 80   15 Jun 19 8:00 10 Jul 19 8:00 Fine 84   15 Jul 19 8:00 22 Jun 19 9:00 Rainy 19   9 Jul 19 8:00 10 Jul 19 8:00 Fine 84   15 Jul 19 8:00 25 Jun 19 9:00 Fine 84   15 Jul 19 8:00 25 Jun 19 8:00 Fine 84   15 Jul 19 8:00 25 Jun 19 8:00 Fine 84   15 Jul 19 8:00 15 Jun 19 8:00 Fine 84   15 Jul 19 8:00 25 Jul 19 8:00 Fine 77   24 May 19 8:00 25 Jul 19 8:00 Fine 77   25 Aug 19 8:30 15 Aug 19 8:00 Fine 77   26 Aug 19 8:30 15 Aug 19 8:00 Fine 77   27 Jul 19 8:00 25 Jul 19 8:00 Fine 77   27 Jul 19 8:00 25 Jul 19 8:00 Fine 77   28 Aug 19 8:30 15 Aug 19 8:30 Fine 55   28 Aug 19 8:30 15 Aug 19 8:30 Fine 77   25 Aug 19 8:30 15 Aug 19 8:30 Fine 77   26 Aug 19 8:30 15 Aug 19 8:30 Fine 77   27 Jul 19 8:00 25 Eep 19 8:00 Fine 94   28 Aug 19 8:30 15 Aug 19 8:30 Fine 95   29 Fine 98:00 25 Eep 19 8:00 Fine 102   20 Aug 19 8:30 15 Aug 19 8:30 Fine 102   20 Aug 19 8:30 15 Aug 19 8:30 F	Fine	Fine	123
15 Feb 19         13:00         16 Feb 19         13:00         Fine         83           21 Feb 19         8:00         22 Feb 19         8:00         Sunny         86           27 Feb 19         14:00         28 Feb 19         14:00         Fine         119           5 Mar 19         8:00         6 Mar 19         8:00         Fine         71           11 Mar 19         10:00         12 Mar 19         10:00         Fine         67           17 Mar 19         8:00         18 Mar 19         8:00         Fine         87           29 Mar 19         10:15         30 Mar 19         10:15         Fine         106           4 Apr 19         8:00         5 Apr 19         8:00         Fine         90           10 Apr 19         14:30         11 Apr 19         14:30         Fine         99           22 Apr 19         8:00         23 Apr 19         8:00         Fine         99           22 Apr 19         8:00         23 Apr 19         8:00         Fine         99           10 May 19         9:00         11 May 19         9:00         Fine         80           28 Apr 19         8:00         29 May 19         8:00         Fine <td>Sunny</td> <td>Sunny</td> <td>132</td>	Sunny	Sunny	132
21 Feb 19         8:00         22 Feb 19         8:00         Fine         119           27 Feb 19         14:00         28 Feb 19         14:00         Fine         119           5 Mar 19         8:00         6 Mar 19         8:00         Fine         71           11 Mar 19         10:00         12 Mar 19         10:00         Fine         67           17 Mar 19         8:00         24 Mar 19         8:00         Fine         107           23 Mar 19         8:00         5 Apr 19         8:00         Fine         106           4 Apr 19         8:00         5 Apr 19         8:00         Fine         90           10 Apr 19         14:30         11 Apr 19         14:30         Fine         100           16 Apr 19         8:00         17 Apr 19         8:00         Fine         90           22 Apr 19         8:00         29 Apr 19         8:00         Fine         76           28 Apr 19         8:00         5 May 19         8:00         Fine         82           4 May 19         8:00         5 May 19         8:00         Fine         105           16 May 19         8:30         11 May 19         9:00         Fine	Sunny	Sunny	134
27 Feb 19         14:00         28 Feb 19         14:00         Fine         119           5 Mar 19         8:00         6 Mar 19         8:00         Fine         71           11 Mar 19         10:00         12 Mar 19         10:00         Fine         67           17 Mar 19         8:00         18 Mar 19         8:00         Fine         67           17 Mar 19         8:00         24 Mar 19         8:00         Fine         87           29 Mar 19         10:15         30 Mar 19         10:15         Fine         106           4 Apr 19         8:00         5 Apr 19         8:00         Fine         90           10 Apr 19         14:30         11 Apr 19         14:30         Fine         90           16 Apr 19         8:00         23 Apr 19         8:00         Fine         99           22 Apr 19         8:00         29 Apr 19         8:00         Fine         76           28 Apr 19         8:00         5 May 19         8:00         Fine         82           4 May 19         8:30         17 May 19         8:30         Fine         105           16 May 19         8:30         17 May 19         8:30         Fine	Fine	Fine	83
5 Mar 19         8:00         6 Mar 19         8:00         Fine         71           11 Mar 19         10:00         12 Mar 19         10:00         Fine         67           17 Mar 19         8:00         18 Mar 19         8:00         Fine         107           23 Mar 19         8:00         24 Mar 19         8:00         Fine         106           4 Apr 19         8:00         5 Apr 19         8:00         Fine         106           4 Apr 19         8:00         5 Apr 19         8:00         Fine         90           10 Apr 19         14:30         11 Apr 19         8:00         Fine         99           22 Apr 19         8:00         23 Apr 19         8:00         Fine         76           28 Apr 19         8:00         29 Apr 19         8:00         Fine         76           28 Apr 19         8:00         29 Apr 19         8:00         Fine         99           10 May 19         9:00         11 May 19         8:00         Fine         90           16 May 19         8:30         17 May 19         8:30         Fine         73           22 May 19         16:10         23 May 19         16:10         Fine	Sunny	Sunny	86
11 Mar 19         10:00         12 Mar 19         8:00         Fine         67           17 Mar 19         8:00         18 Mar 19         8:00         Fine         107           23 Mar 19         8:00         24 Mar 19         8:00         Fine         87           29 Mar 19         10:15         30 Mar 19         10:15         Fine         106           4 Apr 19         8:00         5 Apr 19         8:00         Fine         90           10 Apr 19         14:30         11 Apr 19         14:30         Fine         90           10 Apr 19         8:00         17 Apr 19         8:00         Fine         90           22 Apr 19         8:00         29 Apr 19         8:00         Fine         76           28 Apr 19         8:00         29 Apr 19         8:00         Fine         82           4 May 19         8:00         5 May 19         8:00         Fine         99           10 May 19         9:00         11 May 19         9:00         Fine         105           16 May 19         8:00         17 May 19         8:30         Fine         73           22 May 19         16:10         23 May 19         8:00         Rainy	Fine	Fine	119
17 Mar 19         8:00         18 Mar 19         8:00         Fine         107           23 Mar 19         8:00         24 Mar 19         8:00         Fine         87           29 Mar 19         10:15         30 Mar 19         10:15         Fine         106           4 Apr 19         8:00         5 Apr 19         8:00         Fine         90           10 Apr 19         14:30         11 Apr 19         14:30         Fine         100           16 Apr 19         8:00         17 Apr 19         8:00         Fine         99           22 Apr 19         8:00         29 Apr 19         8:00         Fine         76           28 Apr 19         8:00         29 Apr 19         8:00         Fine         76           28 Apr 19         8:00         5 May 19         8:00         Fine         76           28 Apr 19         8:00         5 May 19         8:00         Fine         99           10 May 19         9:00         11 May 19         9:00         Fine         105           16 May 19         8:30         17 May 19         8:30         Fine         73           22 May 19         16:10         23 May 19         8:00         Rainy	Fine	Fine	71
23 Mar 19         8:00         24 Mar 19         8:00         Fine         106           29 Mar 19         10:15         30 Mar 19         10:15         Fine         106           4 Apr 19         8:00         5 Apr 19         8:00         Fine         90           10 Apr 19         14:30         11 Apr 19         14:30         Fine         99           22 Apr 19         8:00         23 Apr 19         8:00         Fine         76           28 Apr 19         8:00         29 Apr 19         8:00         Fine         76           28 Apr 19         8:00         29 Apr 19         8:00         Fine         76           28 Apr 19         8:00         29 Apr 19         8:00         Fine         99           10 May 19         9:00         11 May 19         9:00         Fine         90           16 May 19         8:00         17 May 19         8:30         Fine         73           22 May 19         16:10         23 May 19         16:10         Fine         105           28 May 19         8:00         28 May 19         8:30         Rainy         79           3 Jun 19         9:30         4 Jun 19         9:30         Rainy	Fine	Fine	67
29 Mar 19         10:15         30 Mar 19         10:15         Fine         106           4 Apr 19         8:00         5 Apr 19         8:00         Fine         90           10 Apr 19         14:30         11 Apr 19         14:30         Fine         100           16 Apr 19         8:00         17 Apr 19         8:00         Fine         99           22 Apr 19         8:00         23 Apr 19         8:00         Fine         76           28 Apr 19         8:00         5 May 19         8:00         Fine         82           4 May 19         8:00         5 May 19         8:00         Fine         99           10 May 19         9:00         11 May 19         9:00         Fine         105           16 May 19         8:30         17 May 19         8:30         Fine         105           28 May 19         8:00         29 May 19         8:00         Rainy         79           3 Jun 19         9:30         4 Jun 19         9:30         Rainy         79           3 Jun 19         8:30         10 Jun 19         8:00         Cloudy         76           21 Jun 19         9:00         22 Jun 19         9:00         Rainy	Fine	Fine	107
4 Apr 19         8:00         5 Apr 19         8:00         Fine         90           10 Apr 19         14:30         11 Apr 19         14:30         Fine         100           16 Apr 19         8:00         17 Apr 19         8:00         Fine         99           22 Apr 19         8:00         23 Apr 19         8:00         Fine         76           28 Apr 19         8:00         29 Apr 19         8:00         Fine         82           4 May 19         8:00         5 May 19         8:00         Fine         99           10 May 19         9:00         11 May 19         9:00         Fine         105           16 May 19         8:30         17 May 19         8:30         Fine         73           22 May 19         16:10         23 May 19         16:10         Fine         105           28 May 19         8:00         29 May 19         8:00         Rainy         79           3 Jun 19         9:30         4 Jun 19         9:30         Rainy         79           3 Jun 19         9:30         10 Jun 19         8:30         Fine         80           15 Jun 19         8:00         12 Jun 19         9:00         Rainy	Fine	Fine	87
10 Apr 19         14:30         11 Apr 19         14:30         Fine         100           16 Apr 19         8:00         17 Apr 19         8:00         Fine         99           22 Apr 19         8:00         23 Apr 19         8:00         Fine         76           28 Apr 19         8:00         5 May 19         8:00         Fine         82           4 May 19         8:00         5 May 19         8:00         Fine         99           10 May 19         9:00         11 May 19         9:00         Fine         105           16 May 19         8:30         17 May 19         8:30         Fine         73           22 May 19         16:10         23 May 19         16:10         Fine         105           28 May 19         8:00         29 May 19         8:00         Rainy         79           3 Jun 19         9:30         4 Jun 19         9:30         Rainy         63           9 Jun 19         8:30         10 Jun 19         8:30         Fine         80           15 Jun 19         8:00         16 Jun 19         8:00         Cloudy         76           21 Jun 19         8:00         22 Jun 19         8:00         Rainy	Fine	Fine	106
10 Apr 19         14:30         11 Apr 19         14:30         Fine         100           16 Apr 19         8:00         17 Apr 19         8:00         Fine         99           22 Apr 19         8:00         23 Apr 19         8:00         Fine         76           28 Apr 19         8:00         5 May 19         8:00         Fine         82           4 May 19         8:00         5 May 19         8:00         Fine         99           10 May 19         9:00         11 May 19         9:00         Fine         105           16 May 19         8:30         17 May 19         8:30         Fine         73           22 May 19         16:10         23 May 19         16:10         Fine         105           28 May 19         8:00         29 May 19         8:00         Rainy         79           3 Jun 19         9:30         4 Jun 19         9:30         Rainy         63           9 Jun 19         8:30         10 Jun 19         8:30         Fine         80           15 Jun 19         8:00         16 Jun 19         8:00         Cloudy         76           21 Jun 19         8:00         22 Jun 19         8:00         Rainy	Fine	Fine	90
16 Apr 19         8:00         17 Apr 19         8:00         Fine         99           22 Apr 19         8:00         23 Apr 19         8:00         Fine         76           28 Apr 19         8:00         29 Apr 19         8:00         Fine         76           28 Apr 19         8:00         29 Apr 19         8:00         Fine         99           10 May 19         9:00         11 May 19         9:00         Fine         105           16 May 19         8:30         17 May 19         8:30         Fine         73           22 May 19         16:10         23 May 19         16:10         Fine         105           28 May 19         8:00         29 May 19         8:00         Rainy         63           3 Jun 19         9:30         4 Jun 19         9:30         Rainy         63           9 Jun 19         8:30         10 Jun 19         8:30         Fine         80           15 Jun 19         9:00         22 Jun 19         9:00         Rainy         109           27 Jun 19         8:30         28 Jun 19         8:30         Rainy         79           9 Jul 19         8:00         10 Jul 19         8:00         Fine			
22 Apr 19         8:00         23 Apr 19         8:00         Fine         76           28 Apr 19         8:00         29 Apr 19         8:00         Fine         82           4 May 19         8:00         5 May 19         8:00         Fine         99           10 May 19         9:00         11 May 19         9:00         Fine         105           16 May 19         8:30         17 May 19         8:30         Fine         73           22 May 19         16:10         23 May 19         16:10         Fine         105           28 May 19         8:00         29 May 19         8:00         Rainy         79           3 Jun 19         9:30         4 Jun 19         9:30         Rainy         63           9 Jun 19         8:30         10 Jun 19         8:30         Fine         80           15 Jun 19         8:00         16 Jun 19         8:00         Cloudy         76           21 Jun 19         9:00         22 Jun 19         9:00         Rainy         109           27 Jun 19         8:00         28 Jun 19         8:30         Rainy         79           9 Jul 19         8:00         10 Jul 19         8:00         Fine			
28 Apr 19         8:00         29 Apr 19         8:00         Fine         82           4 May 19         8:00         5 May 19         8:00         Fine         99           10 May 19         9:00         11 May 19         9:00         Fine         105           16 May 19         8:30         17 May 19         8:30         Fine         73           22 May 19         16:10         23 May 19         16:10         Fine         73           22 May 19         16:10         23 May 19         8:00         Rainy         79           3 Jun 19         9:30         4 Jun 19         9:30         Rainy         63           9 Jun 19         8:30         10 Jun 19         8:30         Fine         80           15 Jun 19         9:00         22 Jun 19         9:00         Rainy         109           27 Jun 19         8:00         16 Jun 19         8:00         Cloudy         76           21 Jun 19         9:00         22 Jun 19         9:00         Rainy         109           27 Jun 19         8:00         16 Jul 19         8:00         Rainy         79           9 Jul 19         8:00         10 Jul 19         8:00         Rainy			
4 May 19         8:00         5 May 19         8:00         Fine         99           10 May 19         9:00         11 May 19         9:00         Fine         105           16 May 19         8:30         17 May 19         8:30         Fine         73           22 May 19         16:10         23 May 19         16:10         Fine         105           28 May 19         8:00         29 May 19         8:00         Rainy         79           3 Jun 19         9:30         4 Jun 19         9:30         Rainy         63           9 Jun 19         8:30         10 Jun 19         8:30         Fine         80           15 Jun 19         8:00         16 Jun 19         8:00         Cloudy         76           21 Jun 19         9:00         22 Jun 19         9:00         Rainy         109           27 Jun 19         8:30         28 Jun 19         8:30         Rainy         79           9 Jul 19         8:50         4 Jul 19         8:50         Rainy         79           9 Jul 19         8:00         10 Jul 19         8:00         Fine         84           15 Jul 19         10:40         16 Jul 19         10:40         Sunny			
10 May 19         9:00         11 May 19         9:00         Fine         105           16 May 19         8:30         17 May 19         8:30         Fine         73           22 May 19         16:10         23 May 19         16:10         Fine         105           28 May 19         8:00         29 May 19         8:00         Rainy         79           3 Jun 19         9:30         4 Jun 19         9:30         Rainy         63           9 Jun 19         8:30         10 Jun 19         8:30         Fine         80           15 Jun 19         8:30         16 Jun 19         8:00         Cloudy         76           21 Jun 19         9:00         22 Jun 19         9:00         Rainy         109           27 Jun 19         8:30         28 Jun 19         8:30         Rainy         79           9 Jul 19         8:00         10 Jul 19         8:00         Fine         84           15 Jul 19         8:00         10 Jul 19         8:00         Fine         84           15 Jul 19         10:40         16 Jul 19         10:40         Sunny         112           21 Jul 19         8:00         25 Jul 19         8:00         Fine </td <td></td> <td></td> <td></td>			
16 May 19         8:30         17 May 19         8:30         Fine         73           22 May 19         16:10         23 May 19         16:10         Fine         105           28 May 19         8:00         29 May 19         8:00         Rainy         79           3 Jun 19         9:30         4 Jun 19         9:30         Rainy         63           9 Jun 19         8:30         10 Jun 19         8:30         Fine         80           15 Jun 19         8:00         16 Jun 19         8:00         Cloudy         76           21 Jun 19         9:00         22 Jun 19         9:00         Rainy         109           27 Jun 19         8:30         28 Jun 19         8:30         Rainy         109           27 Jun 19         8:30         28 Jun 19         8:50         Rainy         79           9 Jul 19         8:00         10 Jul 19         8:00         Fine         84           15 Jul 19         10:40         16 Jul 19         10:40         Sunny         112           21 Jul 19         8:00         25 Jul 19         8:00         Fine         74           27 Jul 19         8:00         28 Jul 19         8:00         Cloud			
22 May 19         16:10         23 May 19         16:10         Fine         105           28 May 19         8:00         29 May 19         8:00         Rainy         79           3 Jun 19         9:30         4 Jun 19         9:30         Rainy         63           9 Jun 19         8:30         10 Jun 19         8:30         Fine         80           15 Jun 19         8:00         16 Jun 19         8:00         Cloudy         76           21 Jun 19         9:00         22 Jun 19         9:00         Rainy         109           27 Jun 19         8:30         28 Jun 19         8:30         Rainy         79           9 Jul 19         8:50         4 Jul 19         8:50         Rainy         79           9 Jul 19         8:00         10 Jul 19         8:00         Fine         84           15 Jul 19         10:40         16 Jul 19         10:40         Sunny         112           21 Jul 19         8:00         22 Jul 19         8:00         Fine         74           27 Jul 19         8:00         28 Jul 19         8:00         Cloudy         93           2 Aug 19         9:35         3 Aug 19         9:35         Cloudy </td <td></td> <td></td> <td></td>			
28 May 19         8:00         29 May 19         8:00         Rainy         79           3 Jun 19         9:30         4 Jun 19         9:30         Rainy         63           9 Jun 19         8:30         10 Jun 19         8:30         Fine         80           15 Jun 19         8:00         16 Jun 19         8:00         Cloudy         76           21 Jun 19         9:00         22 Jun 19         9:00         Rainy         109           27 Jun 19         8:30         28 Jun 19         8:30         Rainy         79           9 Jul 19         8:50         4 Jul 19         8:50         Rainy         79           9 Jul 19         8:00         10 Jul 19         8:00         Fine         84           15 Jul 19         8:00         16 Jul 19         10:40         Sunny         79           9 Jul 19         8:00         16 Jul 19         10:40         Sunny         79           9 Jul 19         8:00         16 Jul 19         10:40         Sunny         79           9 Jul 19         8:00         16 Jul 19         10:40         Sunny         79           9 Jul 19         8:00         16 Jul 19         10:40         Sunny			
3 Jun 19         9:30         4 Jun 19         9:30         Rainy         63           9 Jun 19         8:30         10 Jun 19         8:30         Fine         80           15 Jun 19         8:00         16 Jun 19         8:00         Cloudy         76           21 Jun 19         9:00         22 Jun 19         9:00         Rainy         109           27 Jun 19         8:30         28 Jun 19         8:30         Rainy         79           9 Jul 19         8:50         4 Jul 19         8:50         Rainy         79           9 Jul 19         8:00         10 Jul 19         8:00         Fine         84           15 Jul 19         8:00         16 Jul 19         10:40         Sunny         112           21 Jul 19         8:00         22 Jul 19         8:00         Fine         74           27 Jul 19         8:00         28 Jul 19         8:00         Cloudy         93           2 Aug 19         9:35         3 Aug 19         9:35         Cloudy         93           2 Aug 19         8:00         9 Aug 19         8:00         Fine         71           14 Aug 19         8:00         Fine         71         20 Aug 19			
9 Jun 19         8:30         10 Jun 19         8:30         Fine         80           15 Jun 19         8:00         16 Jun 19         8:00         Cloudy         76           21 Jun 19         9:00         22 Jun 19         9:00         Rainy         109           27 Jun 19         8:30         28 Jun 19         8:30         Rainy         81           3 Jul 19         8:50         4 Jul 19         8:50         Rainy         79           9 Jul 19         8:00         10 Jul 19         8:00         Fine         84           15 Jul 19         10:40         16 Jul 19         10:40         Sunny         112           21 Jul 19         8:00         22 Jul 19         8:00         Fine         74           27 Jul 19         8:00         28 Jul 19         8:00         Cloudy         93           2 Aug 19         9:35         3 Aug 19         9:35         Cloudy         93           2 Aug 19         9:35         3 Aug 19         9:35         Cloudy         85           8 Aug 19         8:00         15 Aug 19         8:00         Fine         71           20 Aug 19         8:30         21 Aug 19         8:00         Fine		•	
15 Jun 19       8:00       16 Jun 19       8:00       Cloudy       76         21 Jun 19       9:00       22 Jun 19       9:00       Rainy       109         27 Jun 19       8:30       28 Jun 19       8:30       Rainy       81         3 Jul 19       8:50       4 Jul 19       8:50       Rainy       79         9 Jul 19       8:00       10 Jul 19       8:00       Fine       84         15 Jul 19       10:40       16 Jul 19       10:40       Sunny       112         21 Jul 19       8:00       22 Jul 19       8:00       Fine       74         27 Jul 19       8:00       28 Jul 19       8:00       Cloudy       93         2 Aug 19       8:00       28 Jul 19       8:00       Cloudy       93         2 Aug 19       9:35       3 Aug 19       9:35       Cloudy       85         8 Aug 19       8:00       9 Aug 19       8:00       Fine       77         14 Aug 19       8:00       15 Aug 19       8:00       Fine       71         20 Aug 19       8:30       21 Aug 19       8:30       Fine       55         26 Aug 19       9:15       27 Aug 19       9:15       Rainy<		5	
21 Jun 19       9:00       22 Jun 19       9:00       Rainy       109         27 Jun 19       8:30       28 Jun 19       8:30       Rainy       81         3 Jul 19       8:50       4 Jul 19       8:50       Rainy       79         9 Jul 19       8:00       10 Jul 19       8:00       Fine       84         15 Jul 19       10:40       16 Jul 19       10:40       Sunny       112         21 Jul 19       8:00       22 Jul 19       8:00       Fine       74         27 Jul 19       8:00       28 Jul 19       8:00       Cloudy       93         2 Aug 19       9:35       3 Aug 19       9:35       Cloudy       85         8 Aug 19       8:00       9 Aug 19       8:00       Fine       77         14 Aug 19       8:00       15 Aug 19       8:00       Fine       71         20 Aug 19       8:30       21 Aug 19       8:30       Fine       55         26 Aug 19       9:15       27 Aug 19       9:15       Rainy       69         1 Sep 19       8:00       2 Sep 19       8:00       Fine       94         7 Sep 19       8:00       8 Sep 19       8:00       Fine			
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27 Jul 19       8:00       28 Jul 19       8:00       Cloudy       93         2 Aug 19       9:35       3 Aug 19       9:35       Cloudy       85         8 Aug 19       8:00       9 Aug 19       8:00       Fine       77         14 Aug 19       8:00       15 Aug 19       8:00       Fine       71         20 Aug 19       8:30       21 Aug 19       8:30       Fine       55         26 Aug 19       9:15       27 Aug 19       9:15       Rainy       69         1 Sep 19       8:00       2 Sep 19       8:00       Fine       94         7 Sep 19       8:00       8 Sep 19       8:00       Fine       134         13 Sep 19       11:25       14 Sep 19       11:25       Cloudy       89         19 Sep 19       8:00       20 Sep 19       8:00       Fine       129         25 Sep 19       8:00       5ine       129         25 Sep 19       8:00       67       102         7 Oct 19       8:30       8 Oct 19       8:30       Rainy       86         13 Oct 19       8:30       14 Oct 19       8:30       Rainy       99         19 Oct 19       8:30 <td< td=""><td>,</td><td>,</td><td></td></td<>	,	,	
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7 Oct 19       8:30       8 Oct 19       8:30       Rainy       86         13 Oct 19       8:30       14 Oct 19       8:30       Rainy       99         19 Oct 19       8:30       20 Oct 19       8:30       Cloudy       80         25 Oct 19       16:40       26 Oct 19       16:40       Cloudy       85         31 Oct 19       8:00       1 Nov 19       8:00       Fine       92         6 Nov 19       8:30       7 Nov 19       8:30       Fine       106         12 Nov 19       8:30       13 Nov 19       8:30       Cloudy       96         18 Nov 19       12:30       19 Nov 19       12:30       Fine       97			
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19 Oct 19     8:30     20 Oct 19     8:30     Cloudy     80       25 Oct 19     16:40     26 Oct 19     16:40     Cloudy     85       31 Oct 19     8:00     1 Nov 19     8:00     Fine     92       6 Nov 19     8:30     7 Nov 19     8:30     Fine     106       12 Nov 19     8:30     13 Nov 19     8:30     Cloudy     96       18 Nov 19     12:30     19 Nov 19     12:30     Fine     97	Rainy	Rainy	
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31 Oct 19     8:00     1 Nov 19     8:00     Fine     92       6 Nov 19     8:30     7 Nov 19     8:30     Fine     106       12 Nov 19     8:30     13 Nov 19     8:30     Cloudy     96       18 Nov 19     12:30     19 Nov 19     12:30     Fine     97		•	
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18 Nov 19 12:30 19 Nov 19 12:30 Fine 97	Fine	Fine	106
18 Nov 19 12:30 19 Nov 19 12:30 Fine 97	Cloud	Cloudy	96
24 Nov 19 8:00 25 Nov 19 8:00 Fine 91		-	97
	Fine	Fine	91
30 Nov 19 8:00 1 Dec 19 8:00 Cloudy 84	Cloud	Cloudy	84
6 Dec 19 10:33 7 Dec 19 10:33 Fine 116			

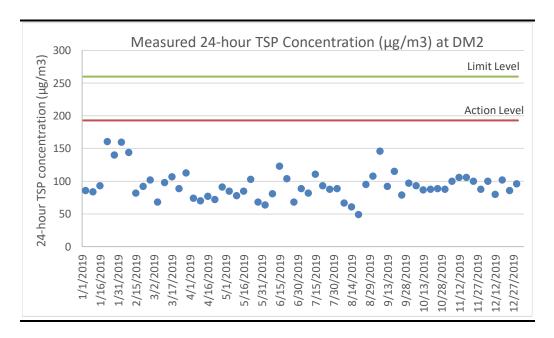
ENVIRONMENTAL RESOURCES MANAGEMENT

Start Date	Start Time	Finish Date	Finish Time	Weather	24-hour TSP (μg/m3)
12 Dec 19	8:00	13 Dec 19	8:00	Fine	92
18 Dec 19	8:55	19 Dec 19	8:55	Cloudy	115
24 Dec 19	8:00	25 Dec 19	8:00	Fine	104
30 Dec 19	9:28	31 Dec 19	9:28	Rainy	112
				Average	94
				Min	55
				Max	146

Note:

DM2 corresponds to the existing TSP monitoring station TKO-A2a currently operating by CEDD.

Figure D1.2 Graphical Presentation for 24-hr TSP Monitoring at DM2



#### Annex D2

# Event and Action Plan for Dust Monitoring

#### Annex D2 Event and Action Plan for Dust Monitoring During Construction Phase

		Action	
Event	ET	IEC	Contractor
Action Level			
Exceedance for one sample	<ul> <li>Identify the source(s) and investigate the cause(s) of exceedance</li> <li>Prepare Notification of Exceedance within 24 hours</li> <li>Inform Contractor, IEC and Project Proponent whether the cause of exceedance is due to the Project</li> <li>Repeat measurement to confirm finding if exceedance is due to the Project</li> <li>Increase monitoring frequency to daily if exceedance is due to the Project and continue until the monitoring results reduce to below action level</li> </ul>	<ul> <li>Verify the Notification of Exceedance</li> <li>Check monitoring data submitted by ET</li> <li>Check Contractor's working methods</li> </ul>	<ul> <li>Rectify any unacceptable practice</li> <li>Amend working methods if appropriate</li> </ul>
Exceedance for two or more consecutive samples	<ul> <li>Identify the source(s) and investigate the cause(s) of exceedance</li> <li>Prepare Notification of Exceedance within 24 hours</li> <li>Inform Contractor, IEC and Project Proponent whether the cause of exceedance is due to the Project</li> <li>Discuss with Contractor and IEC for remedial measures required</li> <li>Ensure remedial measures are properly implemented</li> <li>If exceedance continues, arrange meeting with Contractor &amp; IEC</li> <li>Continue monitoring at daily intervals if exceedance is due to the Project</li> <li>If no exceedance for 3 consecutive days, cease additional monitoring</li> </ul>	<ul> <li>Check monitoring data submitted by ET</li> </ul>	<ul> <li>Submit proposals for remedial measures to IEC</li> <li>Implement the agreed proposals</li> <li>Amend proposal if appropriate</li> </ul>

Action			
Event	ET	IEC	Contractor
Limit Level			
Exceedance for one sample	<ul> <li>Identify the source(s) and investigate the cause(s) of exceedance</li> <li>Prepare Notification of Exceedance within 24 hours</li> <li>Inform Contractor, IEC, Project Proponent and EPD whether the cause of exceedance is due to the Project</li> <li>Discuss with Contractor and IEC for remedial measures required</li> <li>Ensure remedial measures are properly implemented</li> <li>Repeat measurement to confirm finding if exceedance is due to the Project</li> <li>Increase monitoring frequency to daily if exceedance is due to the Project and continue until the monitoring results reduce to below limit level</li> </ul>	<ul><li>Check monitoring data submitted by ET</li><li>Check Contractor's working methods</li></ul>	<ul> <li>Take immediate action to avoid further exceedance</li> <li>Submit proposals for remedial measures to IEC</li> <li>Implement the agreed proposals</li> <li>Amend proposal if appropriate</li> </ul>
Exceedance for two or more consecutive samples	<ul> <li>Identify source(s) and investigate the cause(s) of exceedance</li> <li>Prepare Notification of Exceedance within 24 hours</li> <li>Inform Contractor, IEC, Project Proponent and EPD the causes &amp; actions taken for the exceedances</li> <li>Discuss with Contractor and IEC for remedial measures required</li> <li>Ensure remedial measures are properly implemented</li> <li>Continue monitoring at daily intervals if exceedance is due to the Project</li> <li>If no exceedance for 3 consecutive days, cease additional monitoring</li> <li>If exceedance due to the Project continues, consider what portion of the work is responsible and stop that portion of work until the exceedance is abated</li> </ul>		<ul> <li>Take immediate action to avoid further exceedance</li> <li>Submit proposals for remedial measures to IEC</li> <li>Implement the agreed proposals</li> <li>Resubmit proposals if problem still not under control</li> </ul>

ENVIRONMENTAL RESOURCES MANAGEMENT

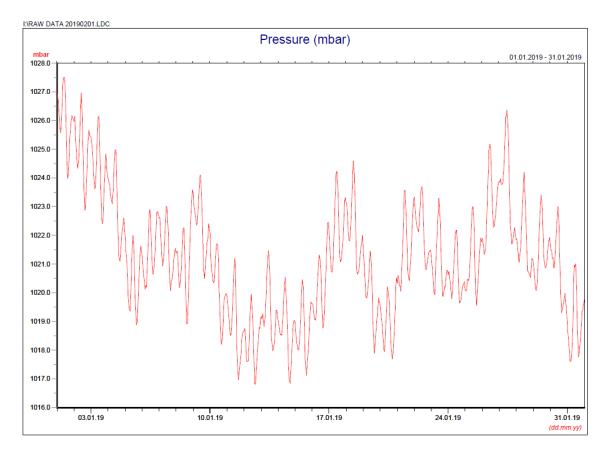
GREEN VALLEY LANDFILL LTD.

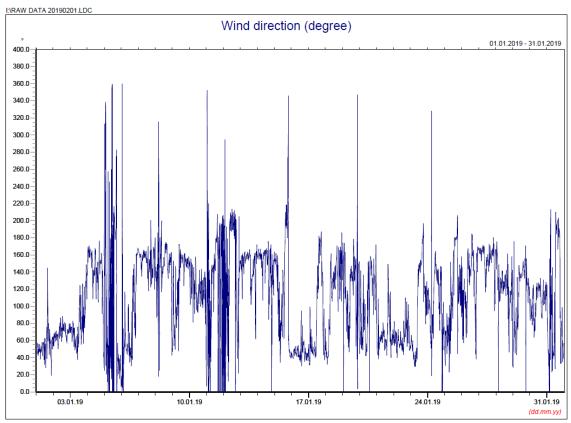
# Annex D3

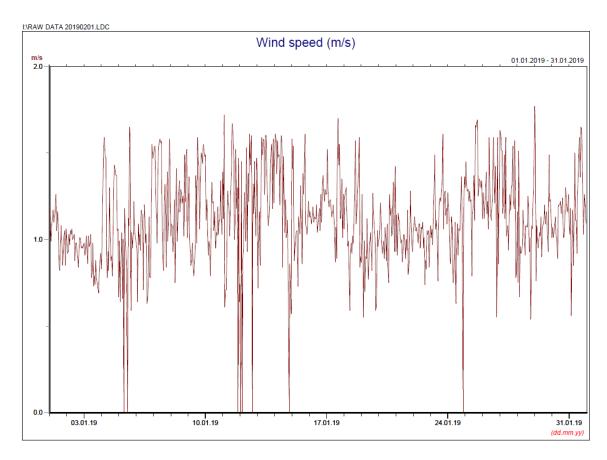
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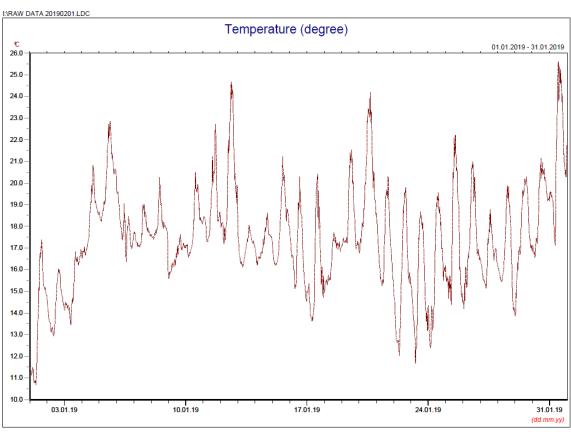
## Annex D3 Meteorological Data

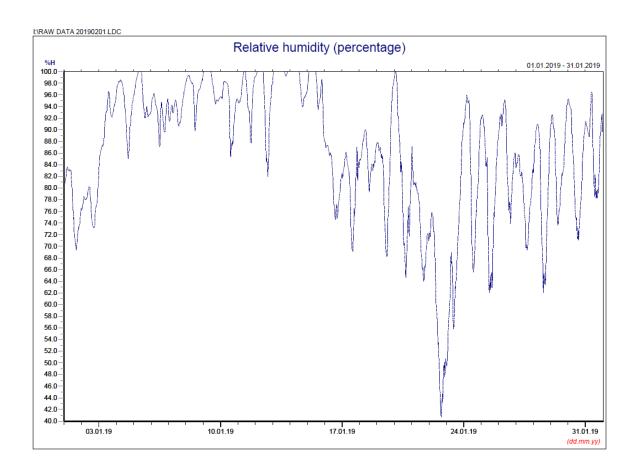
### January 2019









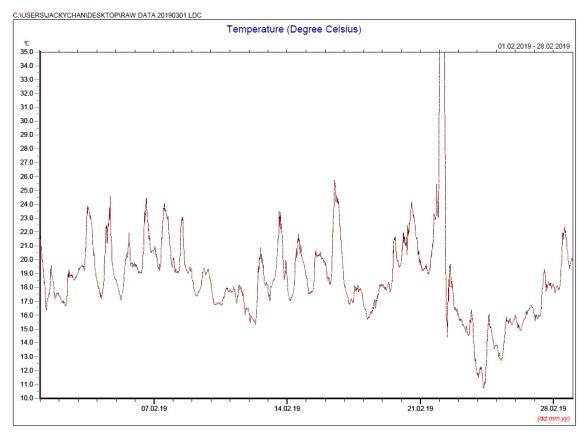


Manual Rain Gauge Readings

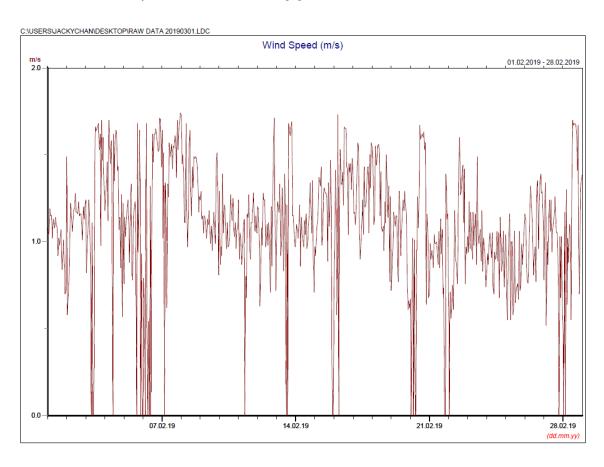
January 2019

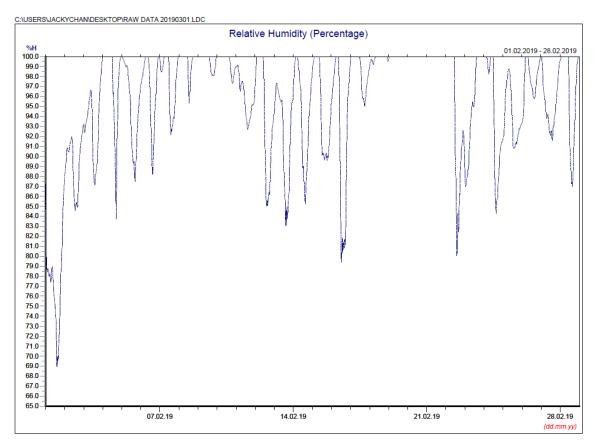
Date	Rainfall
	(mm)
1 Jan 19	0.0
2 Jan 19	0.0
3 Jan 19	0.3
4 Jan 19	0.1
5 Jan 19	0.0
6 Jan 19	0.0
7 Jan 19	0.0
8 Jan 19	1.2
9 Jan 19	0.4
10 Jan 19	0.0
11 Jan 19	0.0
12 Jan 19	1.6
13 Jan 19	0.6
14 Jan 19	1.6
15 Jan 19	0.1
16 Jan 19	0.0
17 Jan 19	0.0
18 Jan 19	0.0
19 Jan 19	0.4
20 Jan 19	0.0
21 Jan 19	0.0
22 Jan 19	0.0
23 Jan 19	0.0
24 Jan 19	0.0
25 Jan 19	0.0
26 Jan 19	0.0
27 Jan 19	0.0
28 Jan 19	0.0
29 Jan 19	0.0
30 Jan 19	0.0
31 Jan 19	0.0
TOTAL RAINFALL	6.3

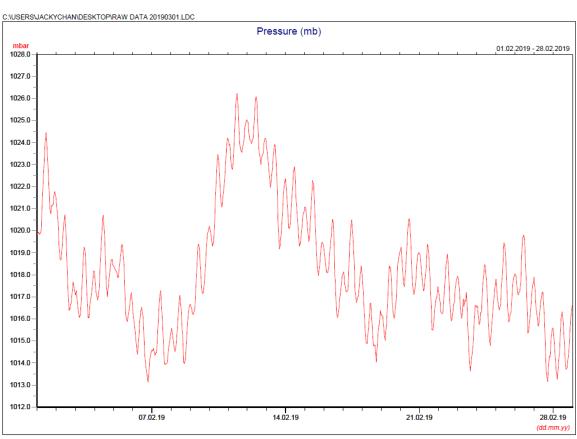
#### February 2019

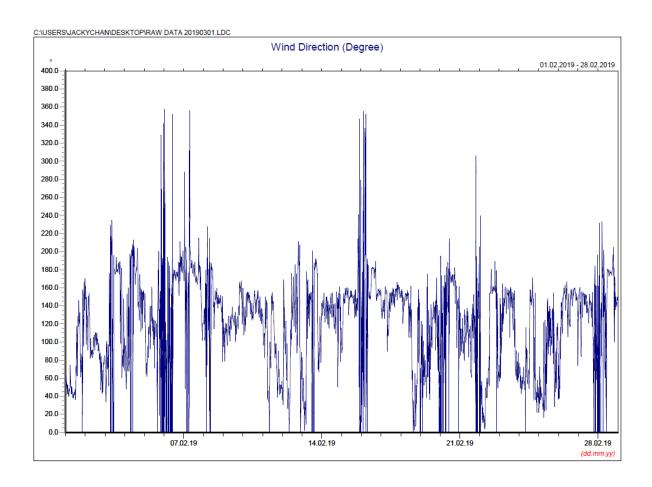


 $\ensuremath{^{*}}$  Note: Data on 22 February 2019 was discarded due to equipment failure.





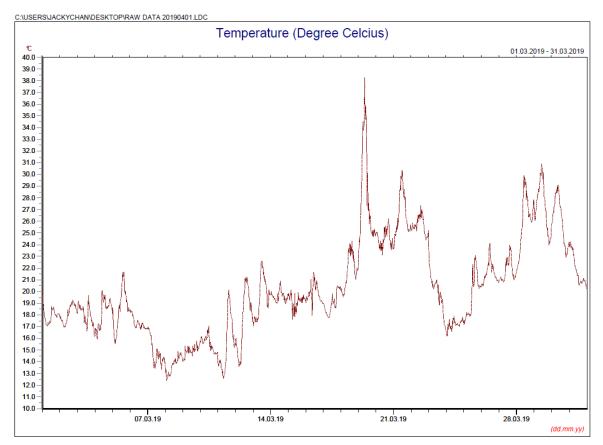




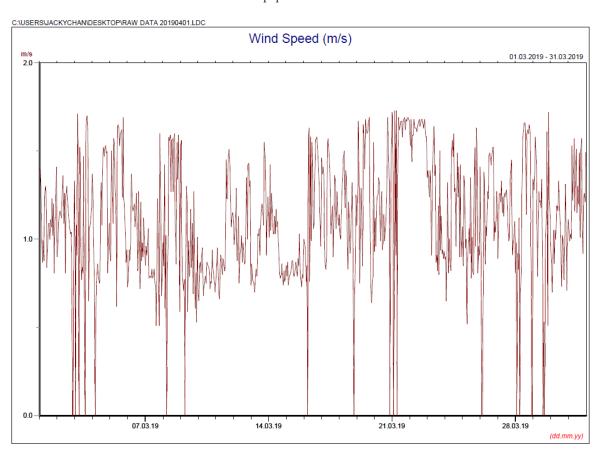
February 2019

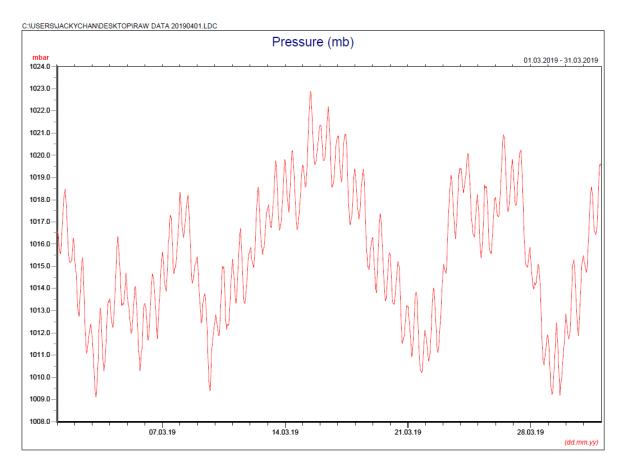
Date	Rainfall
	(mm)
1 Feb 19	0.0
2 Feb 19	0.0
3 Feb 19	0.0
4 Feb 19	0.0
5 Feb 19	0.0
6 Feb 19	0.0
7 Feb 19	0.0
8 Feb 19	0.4
9 Feb 19	1.4
10 Feb 19	0.2
11 Feb 19	0.6
12 Feb 19	0.0
13 Feb 19	0.0
14 Feb 19	0.3
15 Feb 19	0.1
16 Feb 19	0.0
17 Feb 19	0.0
18 Feb 19	21.4
19 Feb 19	42.8
20 Feb 19	0.2
21 Feb 19	0.2
22 Feb 19	0.0
23 Feb 19	16.0
24 Feb 19	0.2
25 Feb 19	0.3
26 Feb 19	0.4
27 Feb 19	0.0
28 Feb 19	0.0
TOTAL RAINFALL	84.5

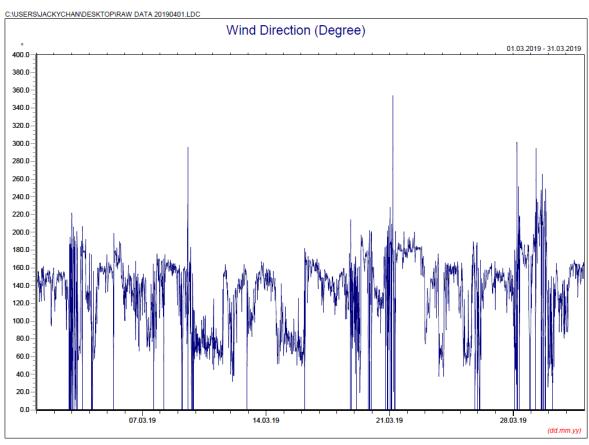
## March 2019

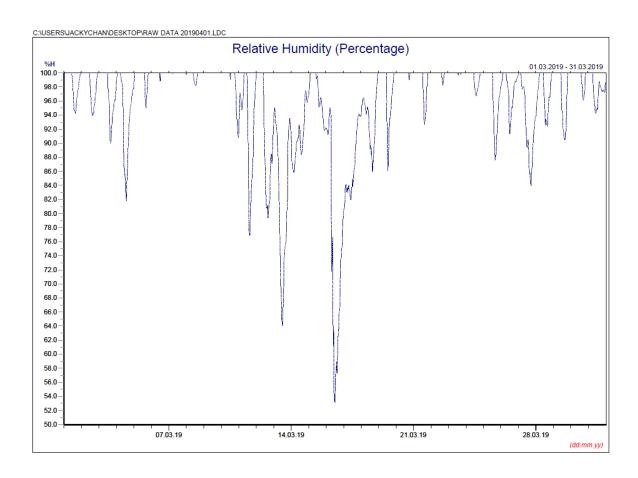


 $^{\ast}$  Note: Data on 19 March 2019 was discarded due to equipment failure.





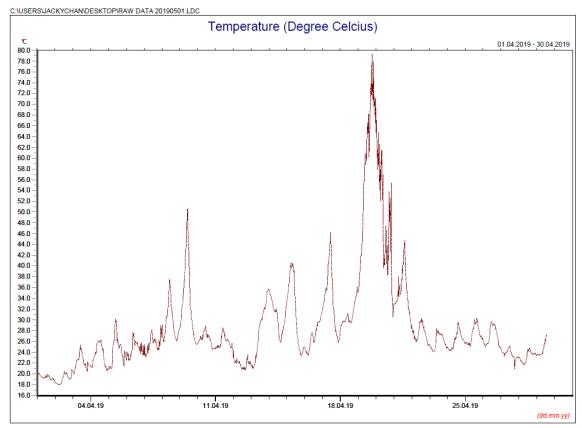




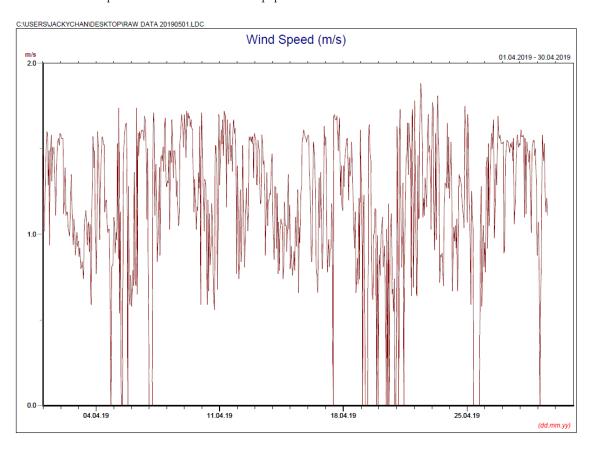
March 2019

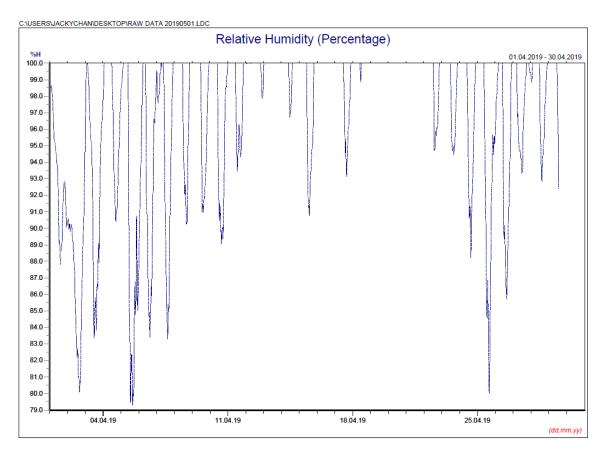
Date	Rainfall
	(mm)
1 Mar 19	0.0
2 Mar 19	0.0
3 Mar 19	1.7
4 Mar 19	56.5
5 Mar 19	0.8
6 Mar 19	24.8
7 Mar 19	30.0
8 Mar 19	8.2
9 Mar 19	16.0
10 Mar 19	17.0
11 Mar 19	0.4
12 Mar 19	0.2
13 Mar 19	4.4
14 Mar 19	2.6
15 Mar 19	1.4
16 Mar 19	0.2
17 Mar 19	0.0
18 Mar 19	0.0
19 Mar 19	0.0
20 Mar 19	0.1
21 Mar 19	0.0
22 Mar 19	3.6
23 Mar 19	6.5
24 Mar 19	3.6
25 Mar 19	1.3
26 Mar 19	0.2
27 Mar 19	0.0
28 Mar 19	0.0
29 Mar 19	6.3
30 Mar 19	0.6
31 Mar 19	5.8
TOTAL RAINFALL	192.2

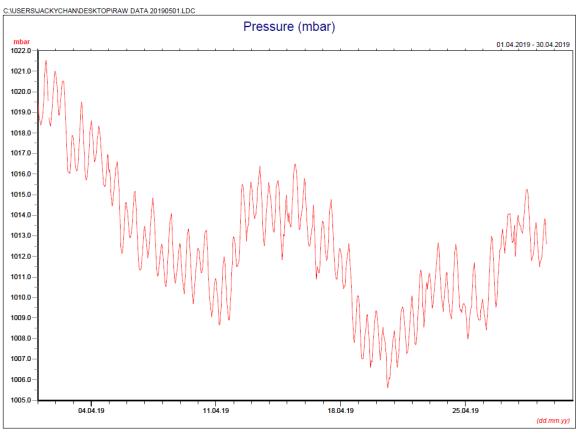
#### April 2019

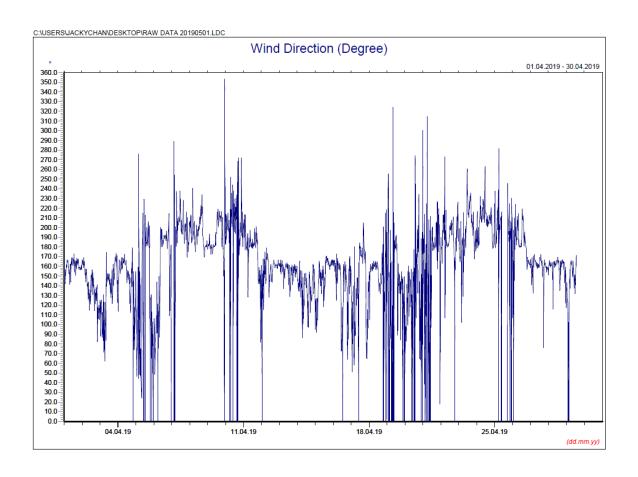


 $^{\star}$  Note: Data on 20 April 2019 was discarded due to equipment failure.



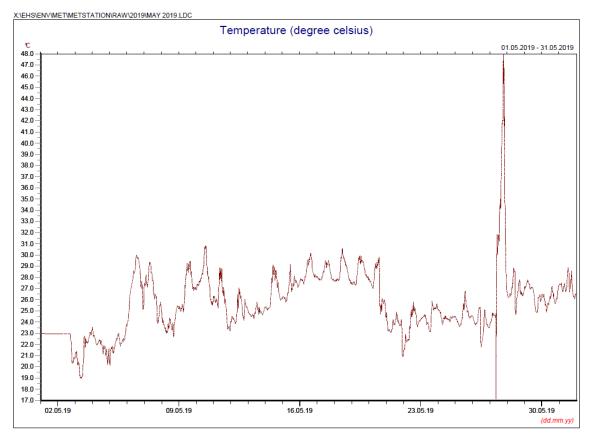




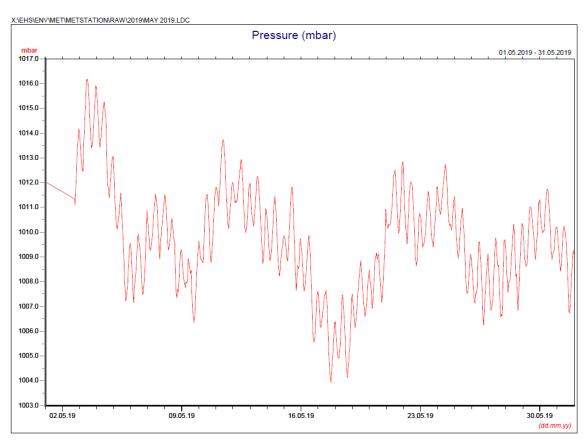


April 2019

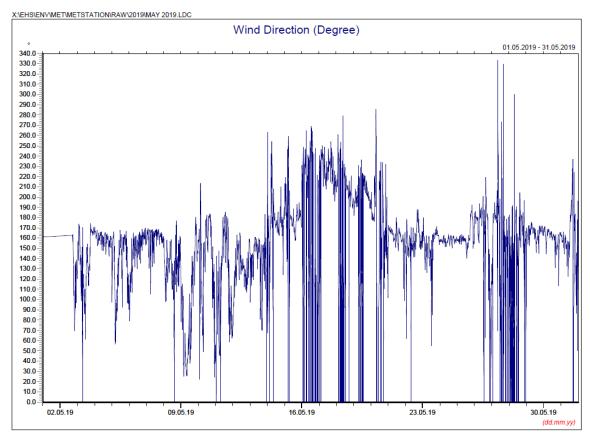
Date	Rainfall
	(mm)
1 Apr 19	0.2
2 Apr 19	0.0
3 Apr 19	0.4
4 Apr 19	0.0
5 Apr 19	0.0
6 Apr 19	0.0
7 Apr 19	0.0
8 Apr 19	0.0
9 Apr 19	0.0
10 Apr 19	0.0
11 Apr 19	0.5
12 Apr 19	23.8
13 Apr 19	1.6
14 Apr 19	10.2
15 Apr 19	3.7
16 Apr 19	8.2
17 Apr 19	0.2
18 Apr 19	23.4
19 Apr 19	95.4
20 Apr 19	28.9
21 Apr 19	0.3
22 Apr 19	0.0
23 Apr 19	0.0
24 Apr 19	0.0
25 Apr 19	0.0
26 Apr 19	0.1
27 Apr 19	15.2
28 Apr 19	0.1
29 Apr 19	0.0
30 Apr 19	13.9
TOTAL RAINFALL	226.1



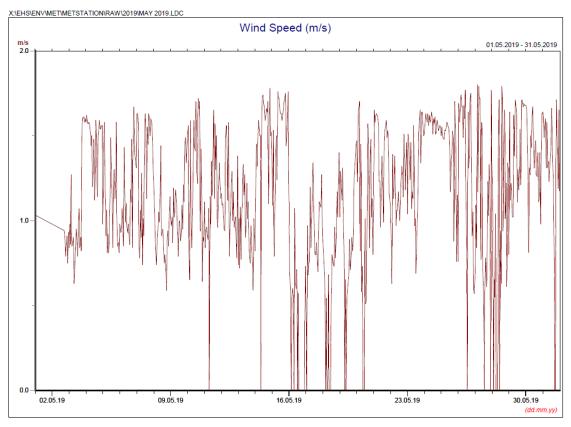
\* Note: Data from 1 May 00:00 to 2 May 2019 17:00 was lost due to malfunction of the meteorological station. Data on 27 May 2019 was discarded due to equipment failure.



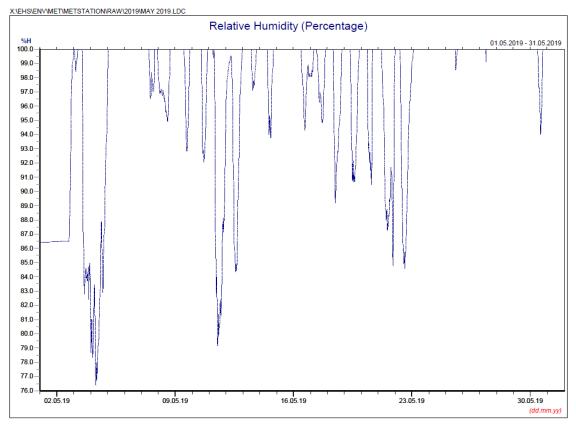
<sup>\*</sup> Note: Data from 1 May 00:00 to 2 May 2019 17:00 was lost due to malfunction of the meteorological station.



\* Note: Data from 1 May 00:00 to 2 May 2019 17:00 was lost due to malfunction of the meteorological station.



<sup>\*</sup> Note: Data from 1 May 00:00 to 2 May 2019 17:00 was lost due to malfunction of the meteorological station.

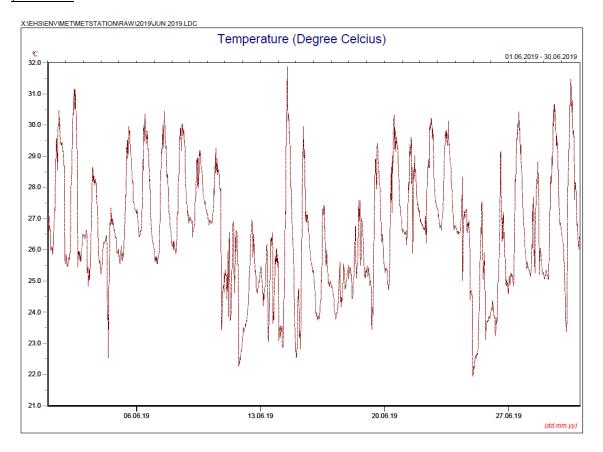


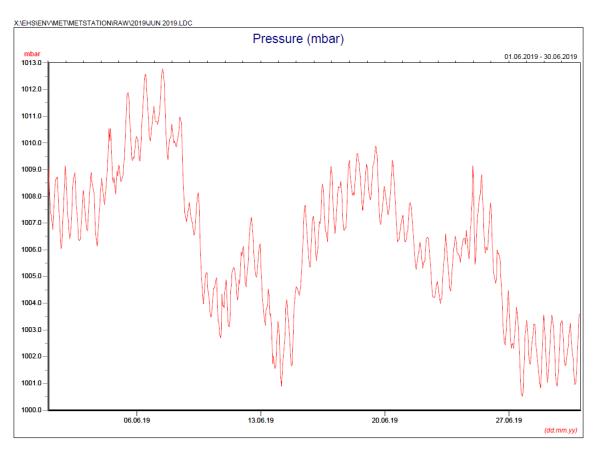
 $<sup>^{\</sup>star}$  Note: Data from 1 May 00:00 to 2 May 2019 17:00 was lost due to malfunction of the meteorological station.

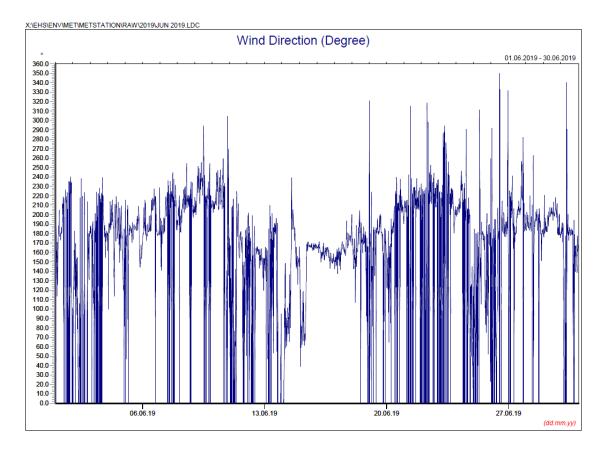
May 2019

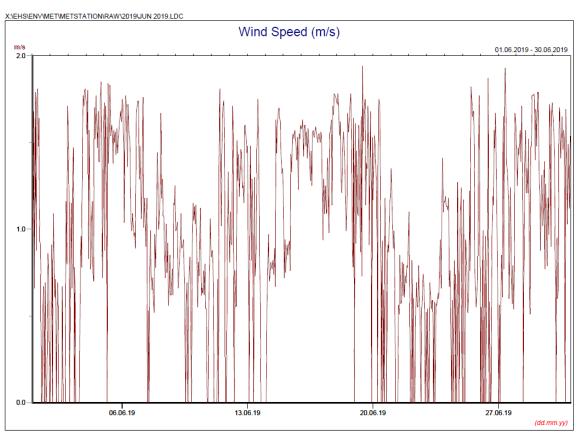
Date	Rainfall
	(mm)
1 May 19	2.8
2 May 19	9.5
3 May 19	0.1
4 May 19	34.4
5 May 19	14.0
6 May 19	21.7
7 May 19	23.7
8 May 19	37.0
9 May 19	0.1
10 May 19	0.0
11 May 19	0.0
12 May 19	0.4
13 May 19	0.1
14 May 19	0.0
15 May 19	0.0
16 May 19	0.0
17 May 19	0.0
18 May 19	0.0
19 May 19	0.0
20 May 19	20.2
21 May 19	15.1
22 May 19	2.0
23 May 19	51.0
24 May 19	0.8
25 May 19	6.2
26 May 19	19.2
27 May 19	18.6
28 May 19	34.7
29 May 19	26.6
30 May 19	3.0
31 May 19	47.4
TOTAL RAINFALL	388.6

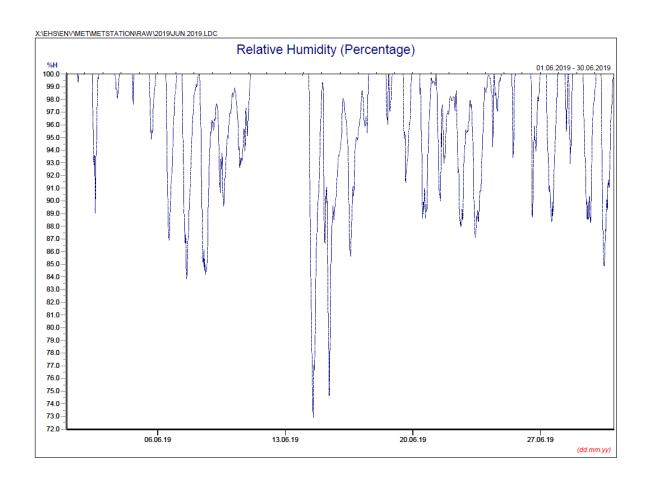
#### June 2019





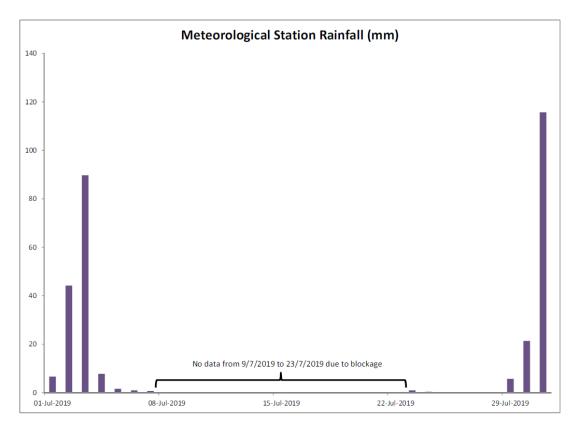


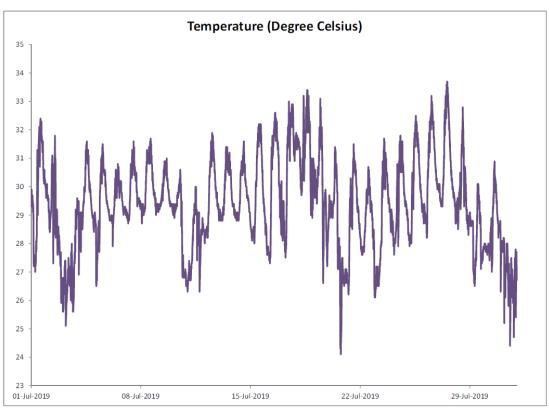


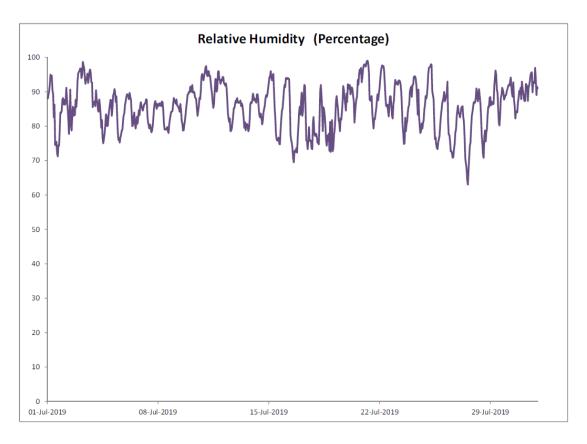


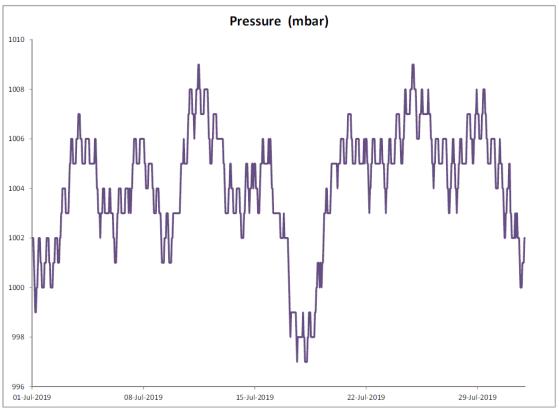
June 2019

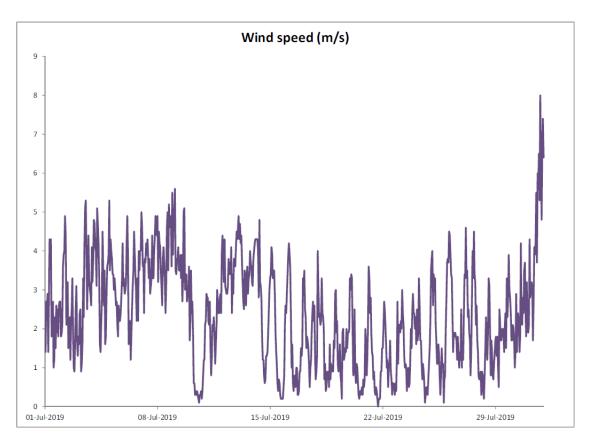
Date	Rainfall
	(mm)
1 Jun 19	6.0
2 Jun 19	27.0
3 Jun 19	13.0
4 Jun 19	142.0
5 Jun 19	0.2
6 Jun 19	2.0
7 Jun 19	0.0
8 Jun 19	1.0
9 Jun 19	1.2
10 Jun 19	73.0
11 Jun 19	17.2
12 Jun 19	6.5
13 Jun 19	68.4
14 Jun 19	0.2
15 Jun 19	0.0
16 Jun 19	0.0
17 Jun 19	6.8
18 Jun 19	18.8
19 Jun 19	1.4
20 Jun 19	2.4
21 Jun 19	8.8
22 Jun 19	2.4
23 Jun 19	0.0
24 Jun 19	20.6
25 Jun 19	50.2
26 Jun 19	0.8
27 Jun 19	0.0
28 Jun 19	27.0
29 Jun 19	4.3
30 Jun 19	7.5
TOTAL RAINFALL	508.7

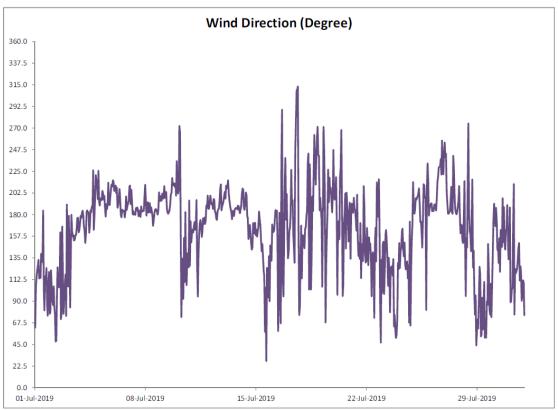


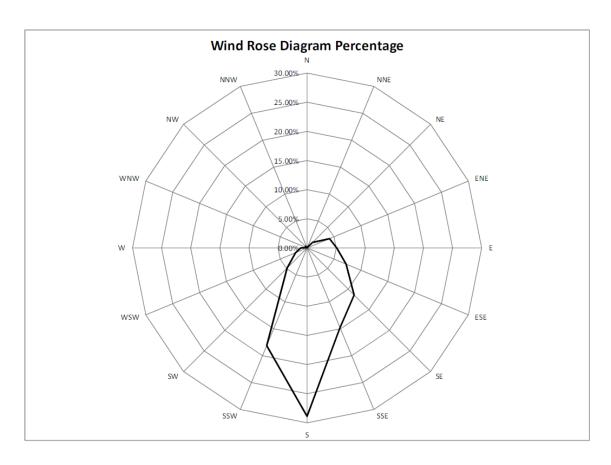






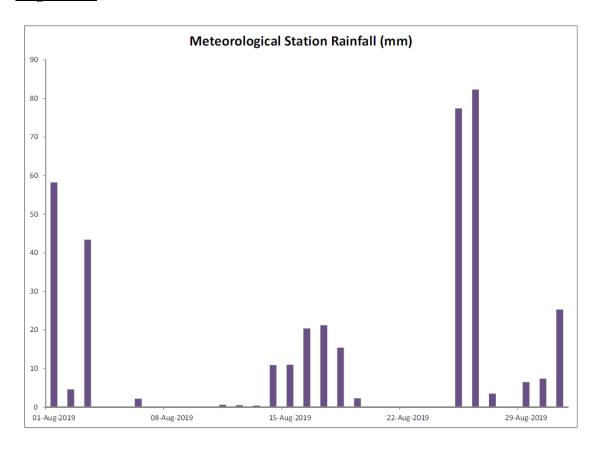


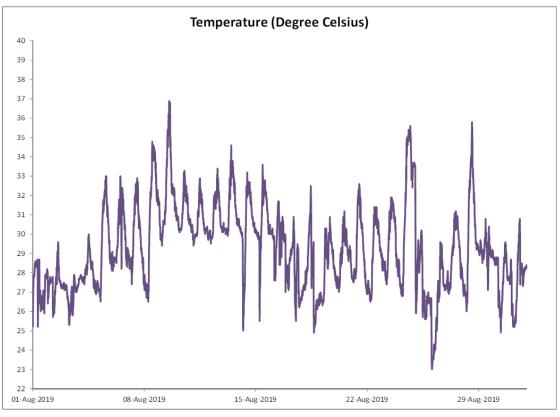


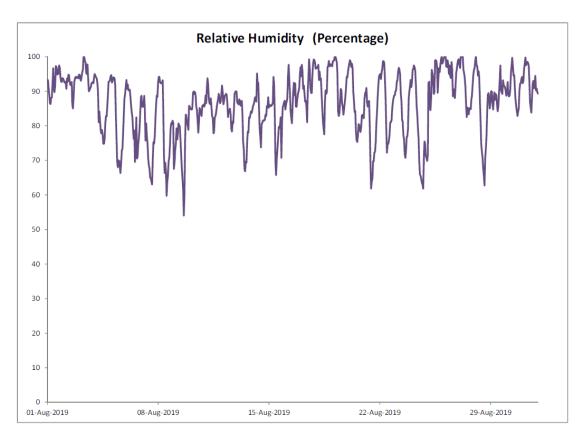


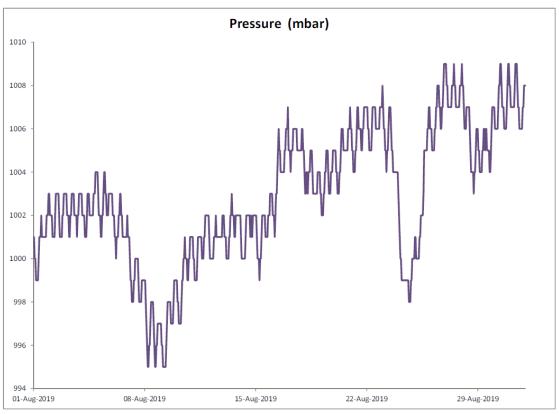
July 2019

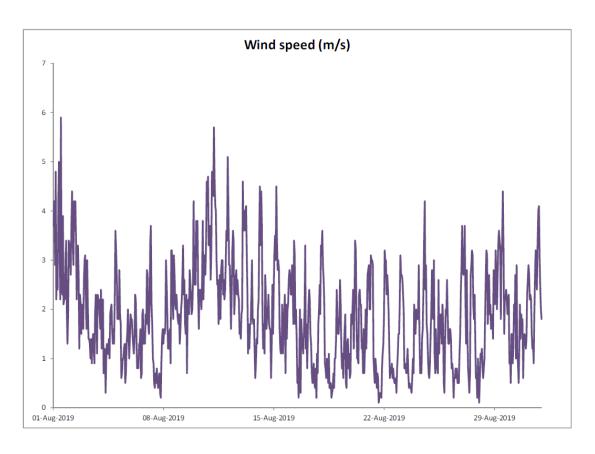
Date	Rainfall
	(mm)
1 Jul 19	1.6
2 Jul 19	105.2
3 Jul 19	69.4
4 Jul 19	2.6
5 Jul 19	4.0
6 Jul 19	1.1
7 Jul 19	0.4
8 Jul 19	0.0
9 Jul 19	4.8
10 Jul 19	6.2
11 Jul 19	19.0
12 Jul 19	0.0
13 Jul 19	0.3
14 Jul 19	0.2
15 Jul 19	0.0
16 Jul 19	0.0
17 Jul 19	0.0
18 Jul 19	0.0
19 Jul 19	2.8
20 Jul 19	24.0
21 Jul 19	0.6
22 Jul 19	0.4
23 Jul 19	0.0
24 Jul 19	1.4
25 Jul 19	0.4
26 Jul 19	0.0
27 Jul 19	0.0
28 Jul 19	6.2
29 Jul 19	3.8
30 Jul 19	31.6
31 Jul 19	153.4
TOTAL RAINFALL	439.4

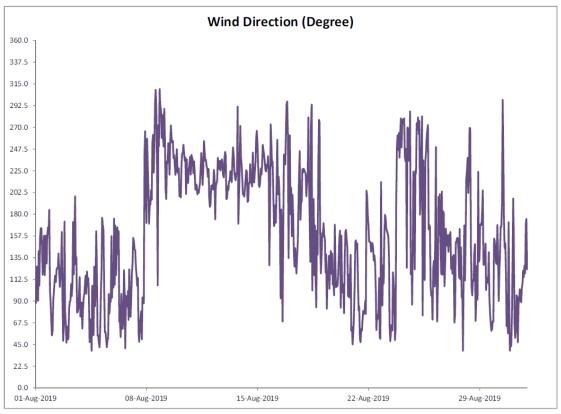


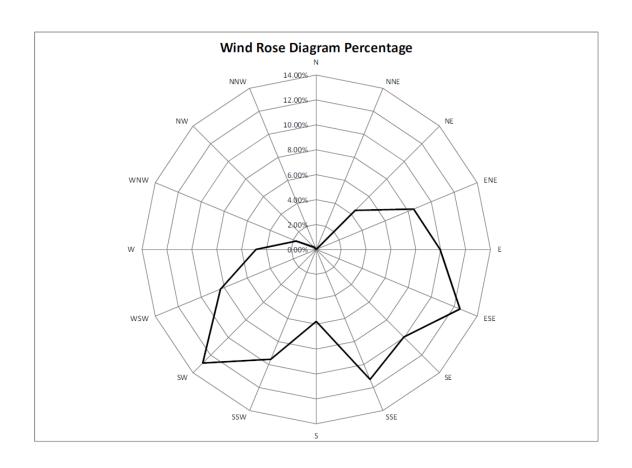








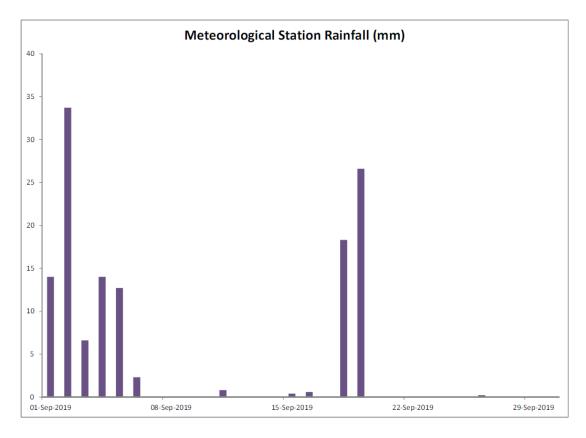


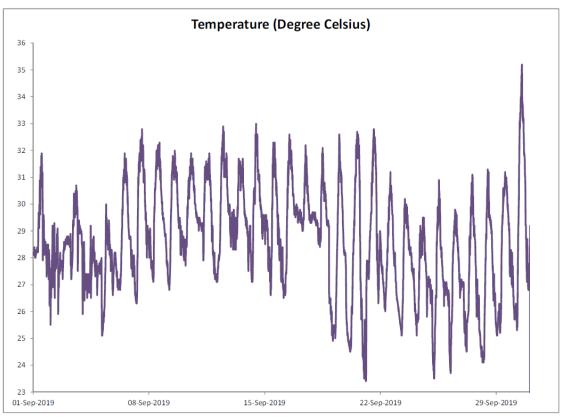


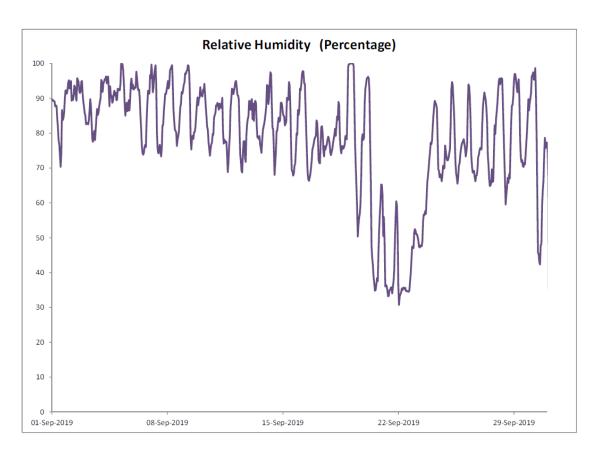
August 2019

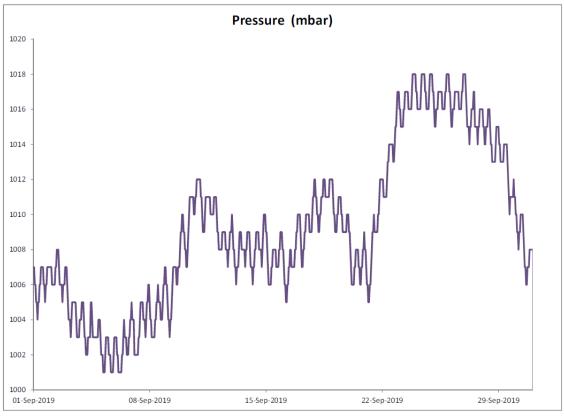
Date	Rainfall
	(mm)
1 Aug 19	48.8
2 Aug 19	49.6
3 Aug 19	6.6
4 Aug 19	0.2
5 Aug 19	0.0
6 Aug 19	24.0
7 Aug 19	1.0
8 Aug 19	0.0
9 Aug 19	0.0
10 Aug 19	1.6
11 Aug 19	20.0
12 Aug 19	3.0
13 Aug 19	12.0
14 Aug 19	13.0
15 Aug 19	19.0
16 Aug 19	9.2
17 Aug 19	25.4
18 Aug 19	18.4
19 Aug 19	3.0
20 Aug 19	0.5
21 Aug 19	0.0
22 Aug 19	0.0
23 Aug 19	0.0
24 Aug 19	12.0
25 Aug 19	80.0
26 Aug 19	29.5
27 Aug 19	1.0
28 Aug 19	0.0
29 Aug 19	10.0
30 Aug 19	44.2
31 Aug 19	10.2
TOTAL RAINFALL	442.2

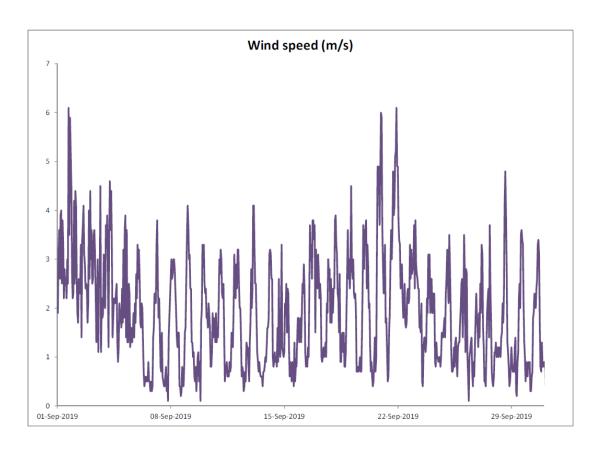
#### September 2019

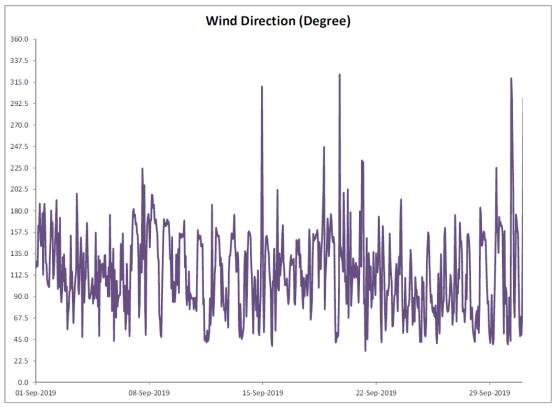


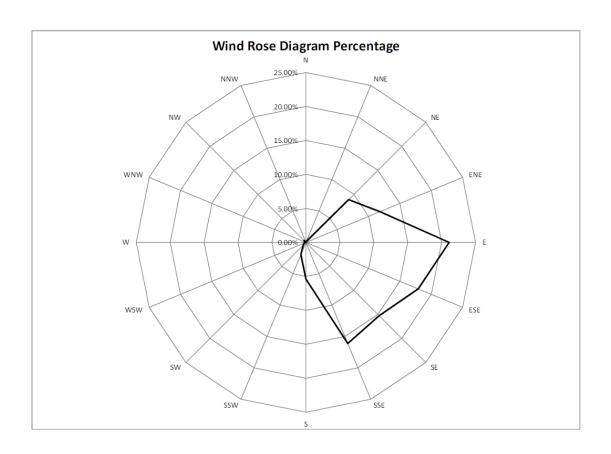






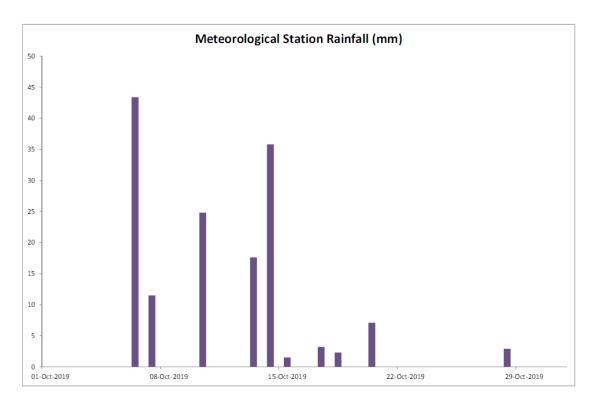


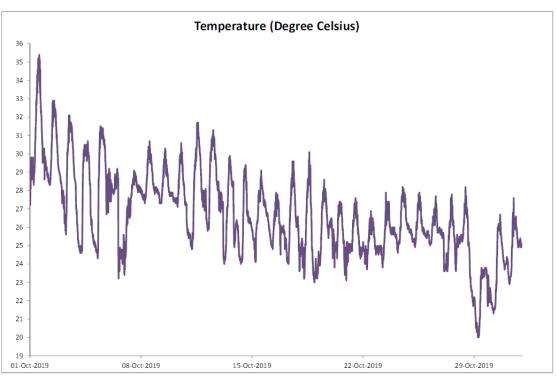


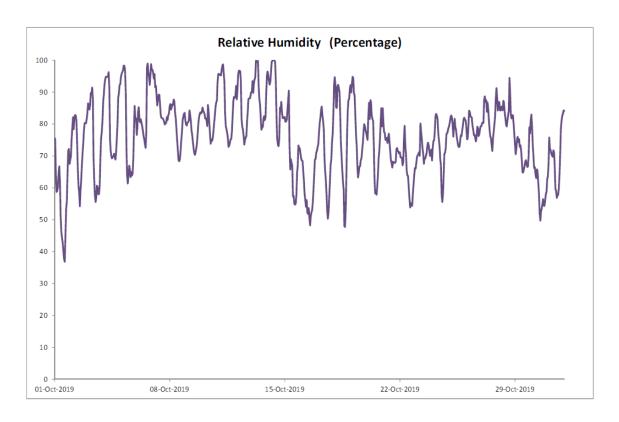


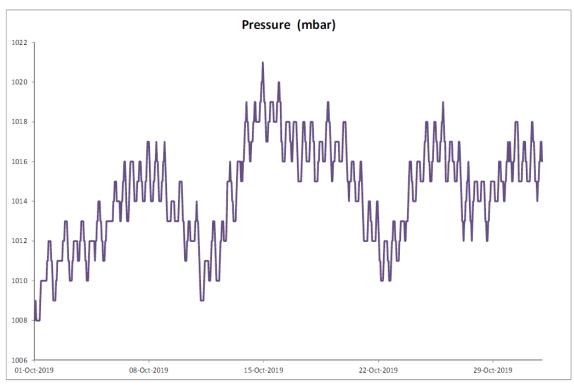
September 2019

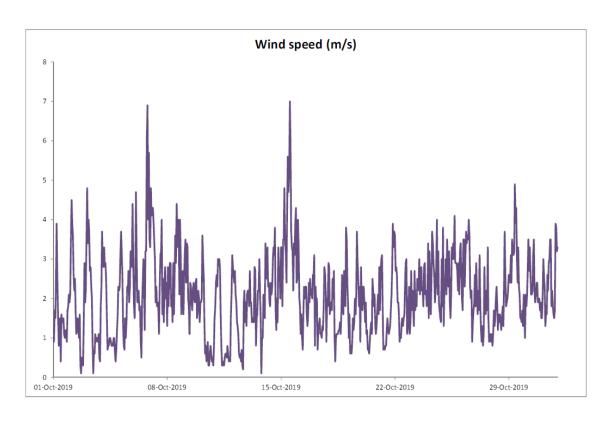
Date	Rainfall
	(mm)
1 Sep 19	35.4
2 Sep 19	25.8
3 Sep 19	18.0
4 Sep 19	24.0
5 Sep 19	4.0
6 Sep 19	1.0
7 Sep 19	0.0
8 Sep 19	0.0
9 Sep 19	0.0
10 Sep 19	1.2
11 Sep 19	0.0
12 Sep 19	0.0
13 Sep 19	0.0
14 Sep 19	0.4
15 Sep 19	1.2
16 Sep 19	0.0
17 Sep 19	0.0
18 Sep 19	55.2
19 Sep 19	1.0
20 Sep 19	0.0
21 Sep 19	0.0
22 Sep 19	0.0
23 Sep 19	0.0
24 Sep 19	0.0
25 Sep 19	0.3
26 Sep 19	0.0
27 Sep 19	0.0
28 Sep 19	0.0
29 Sep 19	0.0
30 Sep 19	0.0
TOTAL RAINFALL	167.5

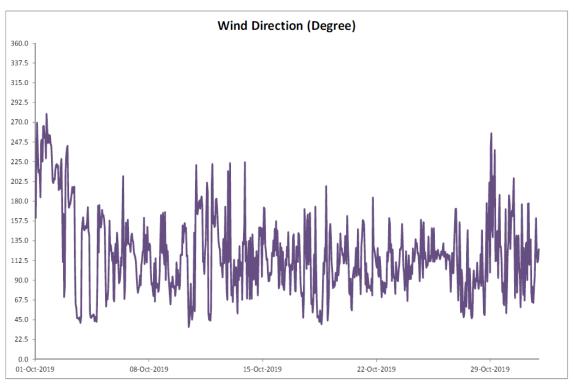


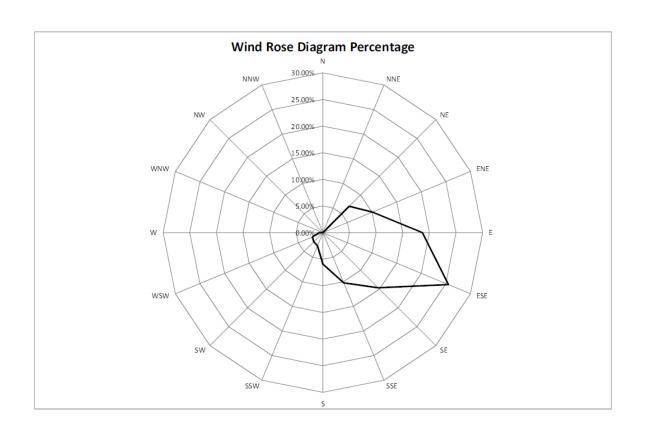








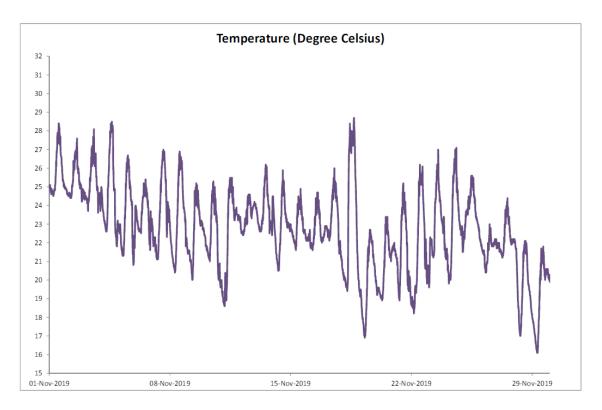


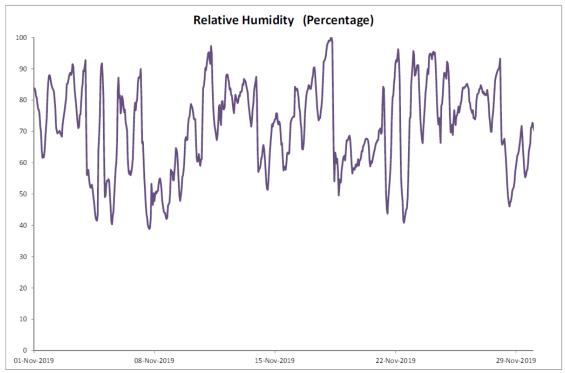


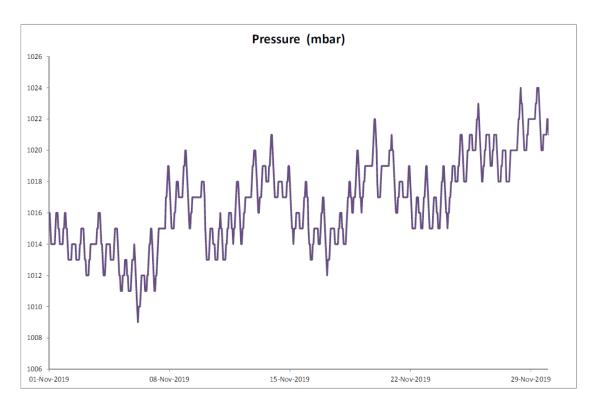
October 2019

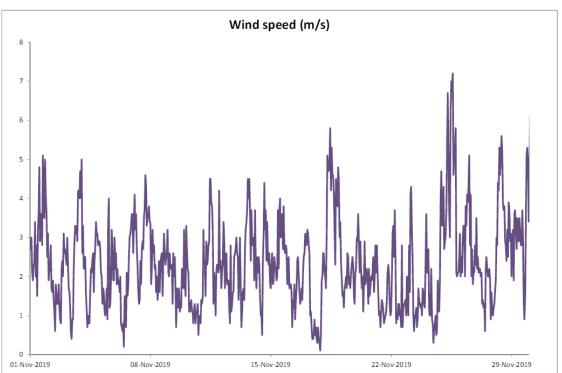
Date	Rainfall
	(mm)
1/Oct/19	0.0
2/Oct/19	0.0
3/Oct/19	0.0
4/Oct/19	0.0
5/Oct/19	0.0
6/Oct/19	25.0
7/Oct/19	0.2
8/Oct/19	0.0
9/Oct/19	0.0
10/Oct/19	0.0
11/Oct/19	0.0
12/Oct/19	18.8
13/Oct/19	33.7
14/Oct/19	16.2
15/Oct/19	0.2
16/Oct/19	0.1
17/Oct/19	7.2
18/Oct/19	0.2
19/Oct/19	7.8
20/Oct/19	0.2
21/Oct/19	0.0
22/Oct/19	0.0
23/Oct/19	0.0
24/Oct/19	0.0
25/Oct/19	0.0
26/Oct/19	0.0
27/Oct/19	0.0
28/Oct/19	0.3
29/Oct/19	0.2
30/Oct/19	0.0
31/Oct/19	0.0
TOTAL RAINFALL	110.1

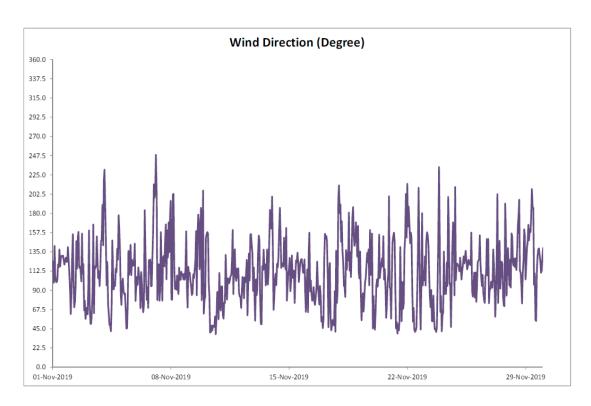
#### November 2019

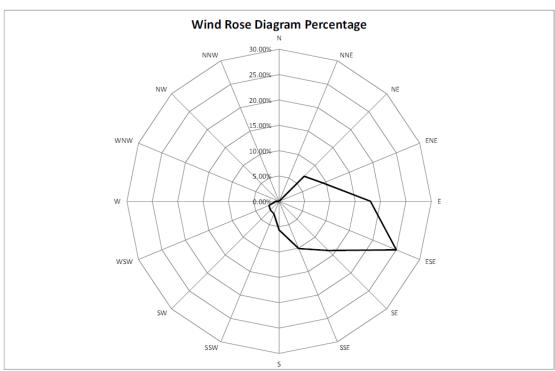










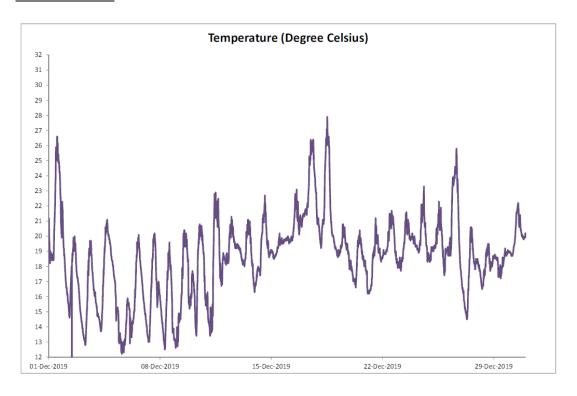


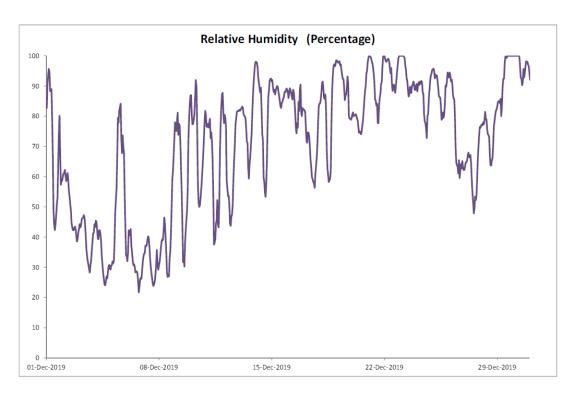
#### Manual Rain Gauge Readings

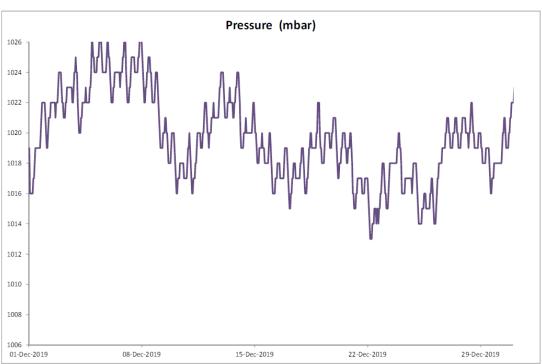
November 2019

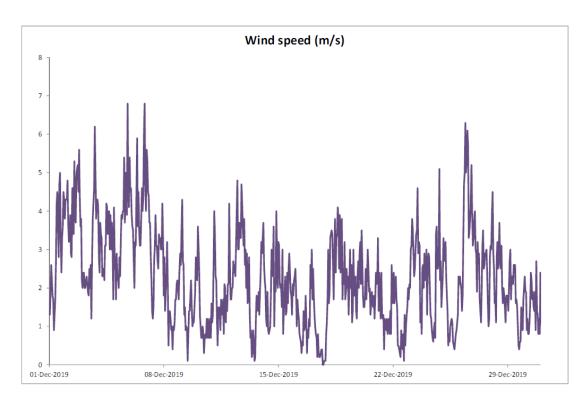
Date	Rainfall
	(mm)
1-Nov-19	0.0
2-Nov-19	0.0
3-Nov-19	0.0
4-Nov-19	0.0
5-Nov-19	0.0
6-Nov-19	0.0
7-Nov-19	0.0
8-Nov-19	0.0
9-Nov-19	0.0
10-Nov-19	0.0
11-Nov-19	0.0
12-Nov-19	0.0
13-Nov-19	0.0
14-Nov-19	0.0
15-Nov-19	0.0
16-Nov-19	0.0
17-Nov-19	0.0
18-Nov-19	0.0
19-Nov-19	0.0
20-Nov-19	0.0
21-Nov-19	0.0
22-Nov-19	0.0
23-Nov-19	0.0
24-Nov-19	0.0
25-Nov-19	0.0
26-Nov-19	0.0
27-Nov-19	0.0
28-Nov-19	0.0
29-Nov-19	0.0
30-Nov-19	0.0
TOTAL RAINFALL	0.0

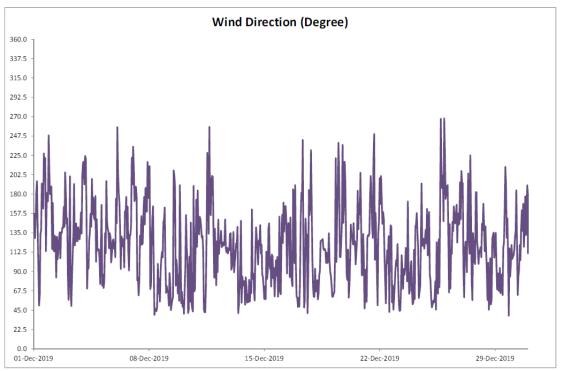
### December 2019

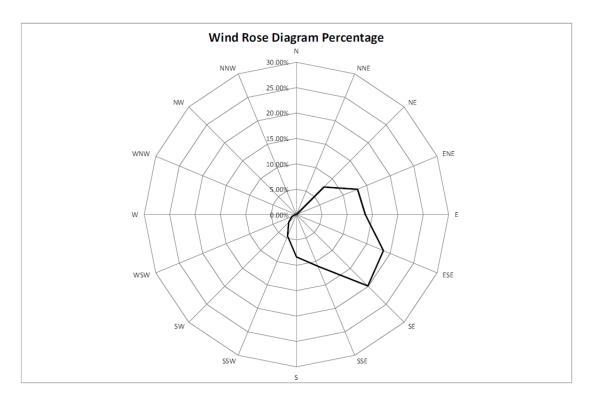


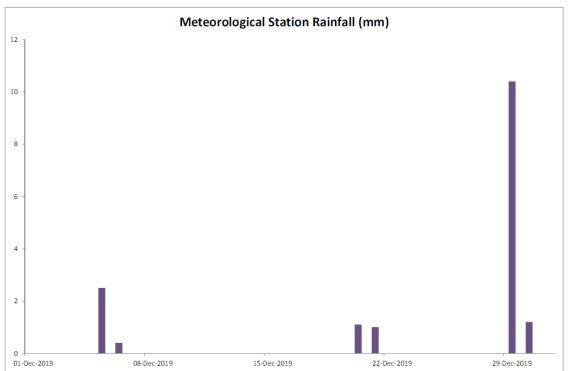












### Manual Rain Gauge Readings

#### December 2019

Date	Rainfall
	(mm)
1 Dec 19	0.0
2 Dec 19	0.0
3 Dec 19	0.0
4 Dec 19	0.0
5 Dec 19	3.6
6 Dec 19	0.0
7 Dec 19	0.0
8 Dec 19	0.0
9 Dec 19	0.0
10 Dec 19	0.0
11 Dec 19	0.0
12 Dec 19	0.0
13 Dec 19	0.0
14 Dec 19	0.0
15 Dec 19	0.0
16 Dec 19	0.0
17 Dec 19	0.0
18 Dec 19	0.1
19 Dec 19	0.0
20 Dec 19	2.8
21 Dec 19	0.4
22 Dec 19	0.2
23 Dec 19	0.0
24 Dec 19	0.0
25 Dec 19	0.0
26 Dec 19	0.0
27 Dec 19	0.0
28 Dec 19	0.0
29 Dec 19	15.0
30 Dec 19	0.2
31 Dec 19	0.2
TOTAL RAINFALL	22.5

Annex E

Noise

### Annex E1

# Noise Monitoring Results

Table E1.1 Measured Noise Levels (dB(A)) at NM1 during Normal Working Hours (0700-1900 hours; Normal Weekdays)

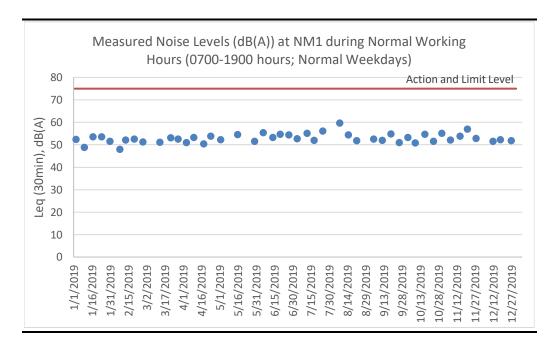
Date	Start Time	Finish Time	Weather	L <sub>10 (30min)</sub>	L <sub>90 (30min)</sub>	Leq (30min)
3 Jan 19	16:15	16:45	Cloudy	54.0	50.5	52.4
10 Jan 19	15:25	15:55	Cloudy	50.5	46.5	48.9
17 Jan 19	9:43	10:13	Sunny	55.5	50.5	53.5
24 Jan 19	14:17	14:47	Sunny	55.0	49.5	53.6
31 Jan 19	14:14	14:44	Sunny	52.5	50.0	51.6
8 Feb 19	14:17	14:47	Sunny	50.0	45.5	48.0
13 Feb 19	14:48	15:18	Sunny	54.5	46.0	52.1
20 Feb 19	14:48	15:18	Sunny	53.5	50.0	52.5
27 Feb 19	14:44	15:14	Sunny	53.5	47.0	51.2
7 Mar 19	NA	NA	Rainy		ng was cance	
7 IVICII 19	1 1/2 1	1 1/2 1	Rairry		dverse weath	
13 Mar 19	15:46	16:16	Sunny	52.5	48	51.1
22 Mar 19	14:56	15:26	Sunny	54.0	50.5	53.1
28 Mar 19	14:24	14:54	Sunny	54.5	48.5	52.5
4 Apr 19	14:54	15:24	Sunny	52.5	48.5	51.0
10 Apr 19	14:26	14:56	Sunny	54.0	51.0	53.2
18 Apr 19	14:36	15:06	Sunny	51.5	48.5	50.4
24 Apr 19	14:55	15:25	Sunny	55.5	52.0	53.8
24 Apr 19 2 May 19	14:31	15:01	Cloudy	53.5	49.0	52.2
8 May 19	14.31 NA	15.01 NA	Pouring		ng was cance	
8 May 19	NA	IVA	Pouring		ng was cance dverse weath	
16 May 19	14:41	15:11	Sunny	56.0	52.0	54.6
23 May 19	14.41 NA	15.11 NA	Drizzle		ng was cance	
23 Way 19	IVA	IVA	DHZZIE		dverse weath	
30 May 19	16:18	16:48	Cloudy	53.0	47.5	51.6
6 Jun 19	16:07	16:37	Sunny	55.5	51.5	55.4
•		16:17		67.0	49.2	53.4
14 Jun 19 20 Jun 19	15:47 15:42	16:17	Sunny	57.0 57.0	52.1	54.7
-			Sunny			
27 Jun 19	15:55	16:25	Sunny	56.3	51.3 F0.8	54.4
4 Jul 19	15:31	16:01	Sunny	54.3	50.8	52.7
12 Jul 19	15:30	16:30	Sunny	56.7	53.0 50.1	55.1
18 Jul 19	15:48	16:18	Sunny	53.7	50.1	52 57.1
25 Jul 19	15:38	16:08	Sunny	57.5	54.1	56.1
1 Aug 19	NA	NA	Pouring		ng was cance dverse weath	
8 Aug 19	15:25	15:55	Sunny	59.8	56.0	59.7
15 Aug 19	15:00	15:30	Sunny	55.5	53.1	54.4
22 Aug 19	15:21	15:51	Sunny	53.2	49.4	51.8
29 Aug 19	NA	NA	Pouring		ng was cance	
2) / lug 1)	1 1/2 1	1 1/2 1	Tournig		dverse weath	
5 Sep 19	15:42	16:12	Cloudy	53.9	49.6	52.5
12 Sep 19	15:25	15:55	Sunny	53.5	49.5	52.0
19 Sep 19	14:56	15:26	Sunny	56.0	52.0	54.8
26 Sep 19	15:07	15:37	Sunny	52.5	48.5	51.0
3 Oct 19	15:07	15:30	5	54.5	46.5 51.5	53.3
9 Oct 19	15:00	15:30 15:42	Sunny Sunny	54.5 52.5	48.5	50.8
17 Oct 19	15:12	15:42	3	52.5 57.0	46.5 50.5	54.7
			Sunny			
24 Oct 19	14:39	15:09 15:07	Sunny	53.0 57.5	48.5	51.6 55.1
31 Oct 19	14:37	15:07	Sunny	57.5	50.5 50.0	55.1 53.1
7 Nov 19	14:37	15:07	Sunny	53.5 56.0	50.0	52.1
15 Nov 19	15:01	15:31	Sunny	56.0	48.0	53.8
21 Nov 19	14:34	15:04	Sunny	58.5	54.5	57.0
28 Nov 19	14:39	15:09	Sunny	54.0	51.0	52.9
5 Dec 19	NA	NA	Rainy		ng was cance	
10 D 10	1450	15.04	C		dverse weath	
12 Dec 19	14:56	15:26	Sunny	53.0	49.0	51.6

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Date	Start Time	Finish Time	Weather	L <sub>10 (30min)</sub>	L <sub>90 (30min)</sub>	Leq (30min)
18 Dec 19	15:01	15:31	Sunny	54.5	47.5	52.3
27 Dec 19	14:59	15:29	Sunny	53.0	48.0	51.8
					Average	e 52.9
					Mir	1 48.0
					Max	<b>c</b> 59.7
Note:						
Correction of	of +3 dB(A) was	made for free	field measur	ements.		

Figure E1.1 Graphical Presentation for Noise Monitoring at NM1



### Annex E2

# Event and Action Plan for Noise Monitoring

Annex E2 Event and Action Plan for Construction Noise

<b>Event</b>		Action	
	ET	IEC	Contractor
Action Level	<ul> <li>Identify the source(s) and investigate the cause(s) of exceedance and complaint</li> <li>Prepare Notification of Exceedance within 24 hours</li> <li>Inform Contractor, IEC and Project Proponent whether the cause of exceedance is due to the Project</li> <li>Discuss with Contractor and IEC for remedial measures required</li> <li>Ensure remedial measures are properly implemented</li> <li>Have additional monitoring if exceedance is due to the Project. If exceedance stops, cease additional monitoring</li> </ul>	<ul> <li>Verify the Notification of Exceedance</li> <li>Check monitoring data submitted by ET</li> <li>Discuss with ET and Contractor on proposed remedial measures</li> <li>Review proposals on remedial measures</li> <li>Audit the implementation of the remedial measures</li> <li>Audit the effectiveness of the implemented remedial measures</li> </ul>	<ul> <li>Submit proposals for remedial measures to IEC</li> <li>Implement the agreed proposals</li> </ul>
Limit Level	<ul> <li>Identify the source(s) and investigate the cause(s) of exceedance and complaint</li> <li>Prepare Notification of Exceedance within 24 hours</li> <li>Inform Contractor, IEC, Project Proponent and EPD whether the cause of exceedance is due to the Project</li> <li>Analyse the operation of SENTX and investigate the causes of exceedance</li> <li>Provide interim report to Contractor, IEC, Project Proponent and EPD the causes of the exceedances</li> <li>Discuss with Contractor and IEC for remedial measures required</li> <li>Ensure remedial measures are properly implemented</li> <li>Report the remedial measures implemented and the additional monitoring results to Contactor, IEC, Project Proponent and EPD</li> <li>Have additional monitoring if exceedance is due to the Project. If exceedance stops, cease additional monitoring</li> </ul>	<ul> <li>Verify the Notification of Exceedance</li> <li>Check monitoring data submitted by ET</li> <li>Discuss with ET and Contractor on proposed remedial measures</li> <li>Review proposals on remedial measures</li> <li>Audit the implementation of the remedial measures</li> <li>Audit the effectiveness of the implemented remedial measures</li> </ul>	<ul> <li>Take immediate measures to avoid further exceedance</li> <li>Submit proposals for remedial measures to IEC within 3 working days of notification</li> <li>Implement the agreed proposals</li> <li>Resubmit proposals if problem still not under control</li> <li>Stop the relevant activity of works as determined by the Project Proponent until the exceedance is abated</li> </ul>

### Annex F

# Surface Water Quality

### Annex F1

# Surface Water Quality Monitoring Results

Table F1.1 Surface Water Quality Monitoring Results at DP4

Date	Time	Weather Condition	Water Appearance	Water Condition	Water Temperature	Dissolved Oxygen (DO)	pН	Suspended Solids (SS)	Remarks
		Condition	Appearance	Condition	(°C)	(mg/L)		(mg/L)	
3 Jan 2019	15:26	Cloudy		Unable to	collect water samp		ient flow	, ,	-
10 Jan 2019	15:06	Cloudy		Unable to	collect water samp	ole due to insuffic	ient flow		-
17 Jan 2019	9:32	Sunny		Unable to	collect water samp	ole due to insuffic	ient flow		-
24 Jan 2019	11:32	Sunny		Unable to	collect water samp	ole due to insuffic	ient flow		-
31 Jan 2019	9:55	Sunny		Unable to	collect water samp	ole due to insuffic	ient flow		-
8 Feb 2019	10:30	Sunny		Unable to	collect water samp	ole due to insuffic	ient flow		-
13 Feb 2019	14:35	Sunny		Unable to	collect water samp	ole due to insuffic	ient flow		-
20 Feb 2019	14:15	Sunny		Unable to	collect water samp	ole due to insuffic	ient flow		-
27 Feb 2019	14:12	Sunny		Unable to	collect water samp	ole due to insuffic	ient flow		-
8 Mar 2019	11:00	Fine	Green	Semi-clear	16.1	9.83	8.38	22.9	-
13 Mar 2019	15:20	Overcast		Unable to	collect water samp	ole due to insuffic	ient flow		-
22 Mar 2019	14:24	Sunny		Unable to	collect water samp	ole due to insuffic	ient flow		-
28 Mar 2019	14:05	Sunny		Unable to	collect water samp	ole due to insuffic	ient flow		-
4 Apr 19	14:13	Sunny		Unable to	collect water samp	ole due to insuffic	ient flow		-
10 Apr 19	14:05	Sunny		Unable to	collect water samp	ole due to insuffic	ient flow		-
18 Apr 19	14:15	Sunny		Unable to	collect water samp	ole due to insuffic	ient flow		-
24 Apr 19	14:33	Sunny		Unable to	collect water samp	ole due to insuffic	ient flow		-
2 May 19	14:08	Cloudy		Unable to	collect water samp	ole due to insuffic	ient flow		-
8 May 19	14:51	Rainy	Light yellow	Semi-clear	21.5	8.84	8.33	1.2	-
16 May 19	14:30	Sunny	0 ,	Unable to	collect water samp	ole due to insuffic	ient flow		-
23 May 19	15:55	Rainy	Yellow	Turbid	24.9	7.48	10.92	191.0	-
23 May 19	15:55	Rainy	Yellow	Turbid	24.9	7.42	10.80	-	DP4 (Future, temporary) (Remeasurement)
30 May 19	15:48	Overcast	Light yellow	Semi-clear	26.1	7.59	8.84	32.2	-
30 May 19	15:48	Overcast	Light yellow	Semi-clear	26.1	7.60	8.90	-	DP4 (Future, temporary)
									(Remeasurement)
6 Jun 19	15:39	Sunny	Light yellow	Turbid	33.0	5.19	6.90	125.0	<u>-</u>
6 Jun 19	15:39	Sunny	Light yellow	Turbid	33.1	5.12	6.90	-	DP4 (Future, temporary) (Remeasurement)
14 Jun 19	15:26	Sunny	Yellow	Turbid	31.7	6.02	8.38	62.2	-
20 Jun 19	15:15	Sunny	Light green	Semi-clear	32.0	6.71	9.37	19.6	-
20 Jun 19	15:15	Sunny	Light green	Semi-clear	32.0	6.70	9.37	-	DP4 (Future, temporary) (Remeasurement)
27 Jun 19	15:14	Sunny	Light green	Semi-clear	33.7	5.28	8.75	29.2	·

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Date	Time	Weather Condition	Water Appearance	Water Condition	Water Temperature (°C)	Dissolved Oxygen (DO) (mg/L)	рН	Suspended Solids (SS) (mg/L)	Remarks
27 Jun 19	15:14	Sunny	Light green	Semi-clear	33.6	5.45	8.75	-	DP4 (Future, temporary)
									(Remeasurement)
4 Jul 19	15:09	Sunny	Yellow	Turbid	30.2	5.96	8.53	68.5	-
4 Jul 19	15:09	Sunny	Yellow	Turbid	30.1	5.81	8.56	-	DP4 (Future, temporary) (Remeasurement)
12 Jul 19	15:04	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
18 Jul 19	15:04	Sunny	Pale yellow	Semi-clear	37	13.59	9.4	14.2	-
18 Jul 19	15:04	Sunny	Pale yellow	Semi-clear	37.1	13.5	9.41	-	DP4 (Future, temporary) (Remeasurement)
25 Jul 19	15:08	Sunny	Pale yellow	Semi-clear	34	9.58	9.11	21.8	-
25 Jul 19	15:08	Sunny	Pale yellow	Semi-clear	34.1	9.32	9.11	-	DP4 (Future, temporary) (Remeasurement)
l Aug 19	14:16	Pouring		Monitor	ring was cancelled	due to adverse we	eather.		-
3 Aug 19	14:58	Sunny			collect water samp				-
15 Aug 19	14:53	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
22 Aug 19	14:54	Sunny	Light yellow	Semi-clear	34.2	10.05	8.91	31.2	-
22 Aug 19	14:54	Sunny	Light yellow	Semi-clear	34.2	9.58	8.91	-	DP4 (Future, temporary) (Remeasurement)
29 Aug 19	NA	Pouring		Monitor	ring was cancelled	due to adverse we	eather.		-
5 Sep 19	14:50	Cloudy	Light yellow	Semi-clear	29.8	6.79	8.49	67.8	-
5 Sep 19	14:50	Cloudy	Light yellow	Semi-clear	29.9	6.70	8.51	-	DP4 (Future, temporary) (Remeasurement)
5 Sep 19	15:00	Cloudy	Light yellow	Semi-clear	29.8	8.12	8.49	66.1	DP4 (Future, temporary) (Duplicate)
5 Sep 19	15:00	Cloudy	Light yellow	Semi-clear	29.8	6.92	8.52	-	DP4 (Future, temporary) (Duplicate) (Remeasurement)
12 Sep 19	14:59	Sunny	Light yellow	Semi-clear	34.0	10.73	8.82	9.9	-
12 Sep 19	14:59	Sunny	Light yellow	Semi-clear	34.2	11.29	8.87	-	DP4 (Future, temporary) (Remeasurement)
19 Sep 19	14:44	Sunny		Unable to	collect water samp	ole due to insuffici	ient flow		-
26 Sep 19	14:48	Sunny	Light yellow	Semi-clear	29.2	9.28	8.38	7.3	-
26 Sep 19	14:50	Sunny	Light yellow	Semi-clear	28.3	9.15	8.37	5.3	DP4 (Future, temporary) (Duplicate)
3 Oct 19	14:31	Sunny	Light yellow	Clear	29.7	8.12	7.92	6.2	-
3 Oct 19	14:40	Sunny	Light yellow	Clear	29.9	7.94	7.79	7.1	DP4 (Future, temporary) (Duplicate)
9 Oct 19	14:54	Sunny	Colourless	Clear	29.5	6.99	7.68	9.5	· r/

Date	Time	Weather	Water	Water	Water	Dissolved	pН	Suspended	Remarks
		Condition	Appearance	Condition	Temperature	Oxygen (DO)		Solids (SS)	
					(°C)	(mg/L)		(mg/L)	
17 Oct 19	14:48	Sunny	Colourless	Clear	27.2	7.74	7.92	6.4	-
24 Oct 19	14:25	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
31 Oct 19	14:26	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
7 Nov 19	14:12	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
15 Nov 19	14:10	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
21 Nov 19	14:23	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
28 Nov 19	14:26	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
5 Dec 19	14:23	Rainy		Unable to	collect water samp	ole due to insuffici	ent flow		-
12 Dec 19	14:22	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
18 Dec 19	14:33	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
27 Dec 19	14:27	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
					Average	e 8.07	8.69	38.3	-
					Miı	ı 5.12	6.90	1.2	-
					Max	x 13.59	10.92	191.0	-

Notes: DP4 was temporary relocated to DP4 (Future, temporary) (i.e. DP4T) as an interim discharge point from the monitoring event on 16 May 2019.

Table F1.2 Surface Water Quality Monitoring Results at DP6

Date	Time	Weather	Water	Water	Water	Dissolved	pН	Suspended	Remarks
		Condition	Appearance	Condition	Temperature	Oxygen (DO)		Solids (SS)	
					(°C)	(mg/L)		(mg/L)	
3 Jan 2019	15:51	Cloudy		Unable to	collect water samp	ole due to insuffici	ient flow		-
10 Jan <b>2</b> 019	11:19	Cloudy			collect water samp				-
17 Jan 2019	11:47	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
24 Jan 2019	11:05	Sunny		Unable to	collect water samp	ole due to insuffici	ient flow		-
31 Jan 2019	11:01	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
8 Feb 2019	10:03	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
13 Feb 2019	14:19	Sunny		Unable to	collect water samp	ole due to insuffici	ient flow		-
20 Feb 2019	14:26	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
27 Feb 2019	14:21	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
8 Mar 2019	11:18	Fine		Unable to	collect water samp	ole due to insuffici	ient flow		-
13 Mar 2019	15:27	Overcast		Unable to	collect water samp	ole due to insuffici	ent flow		-
22 Mar 2019	14:32	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
28 Mar 2019	14:11	Sunny		Unable to	collect water samp	ole due to insuffici	ient flow		-
4 Apr 19	14:19	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
10 Apr 19	14:12	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
18 Apr 19	14:22	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
24 Apr 19	14:39	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
2 May 19	14:16	Cloudy		Unable to	collect water samp	ole due to insuffici	ent flow		-
8 May 19	15:20	Rainy	Light yellow	Semi-clear	20.4	8.90	9.24	70.8	-
8 May 19	15:20	Rainy	Light yellow	Semi-clear	20.4	8.80	9.29	-	DP6 (Remeasurement)
16 May 19	14:23	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
23 May 19	15:33	Rainy	Brown	Turbid	24.7	8.21	9.65	696.0	-
23 May 19	15:33	Rainy	Brown	Turbid	24.7	8.18	9.60	-	DP6 (Remeasurement)
30 May 19	15:19	Overcast	Light yellow	Semi-clear	25.4	7.89	8.68	244.0	-
30 May 19	15:19	Overcast	Light yellow	Semi-clear	25.3	7.85	8.71	-	DP6 (Remeasurement)
6 Jun 19	15:19	Sunny	Light yellow	Turbid	32.5	6.09	6.90	473.0	-
14 Jun 19	15:07	Sunny		Water sa	mple was not colle	cted due to negati	ve flow		-
20 Jun 19	15:03	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
27 Jun 19	14:55	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
4 Jul 19	14:53	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
12 Jul 19	14:55	Sunny			collect water samp				-
18 Jul 19	14:34	Sunny	Pale yellow	Semi-clear	34.3	8.48	7.08	5.7	-
18 Jul 19	14:42	Sunny	Pale yellow	Semi-clear	34.4	8.63	7.21	6.1	DP6 (Duplicate)
25 Jul 19	14:38	Sunny	Pale yellow	Semi-clear	34.1	6.39	7.48	10.8	-
25 Jul 19	14:46	Sunny	Pale yellow	Semi-clear	34.2	6.6	7.54	11.2	DP6 (Duplicate)

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Date	Time	Weather Condition	Water	Water Condition	Water Temperature	Dissolved	pН	Suspended Solids (SS)	Remarks
		Condition	Appearance	Condition	(°C)	Oxygen (DO) (mg/L)		(mg/L)	
1 Aug 19	14:11	Pouring		Monito	ring was cancelled		eather.	( 8 /	-
8 Aug 19	14:37	Sunny	Light yellow	Semi-clear	32.7	6.91	7.80	25.1	-
8 Aug 19	14:46	Sunny	Light yellow	Semi-clear	32.7	6.95	7.87	24.8	DP6 (Duplicate)
15 Aug 19	14:25	Sunny	Light yellow	Semi-clear	33.4	6.71	7.43	3.2	-
15 Aug 19	14:39	Sunny	Light yellow	Semi-clear	33.4	6.85	7.42	4.2	DP6 (Duplicate)
22 Aug 19	14:27	Sunny	Light yellow	Semi-clear	32.4	6.69	7.31	10.0	-
22 Aug 19	14:35	Sunny	Light yellow	Semi-clear	32.3	6.94	7.36	9.9	DP6 (Duplicate)
29 Aug 19	NA	Pouring	0 )		ring was cancelled		eather.		-
5 Sep 19	14:35	Cloudy			collect water samp				-
12 Sep 19	14:26	Sunny	Light yellow	Semi-clear	31.5	6.93	6.44	8.2	-
12 Sep 19	14:28	Sunny	Light yellow	Semi-clear	31.9	6.93	6.53	8.1	DP6 (Duplicate)
19 Sep 19	14:35	Sunny	0 )		collect water samp				-
26 Sep 19	14:39	Sunny			collect water samp				-
3 Oct 19	14:20	Sunny			collect water samp				-
9 Oct 19	14:27	Sunny	Colourless	Clear	30.0	7.64	7.70	4.2	-
9 Oct 19	14:37	Sunny	Colourless	Clear	29.9	7.59	7.64	4.0	DP6 (Duplicate)
17 Oct 19	14:23	Sunny	Colourless	Clear	27.8	7.72	7.99	6.0	-
17 Oct 19	14:31	Sunny	Colourless	Clear	27.5	7.78	7.84	6.5	DP6 (Duplicate)
24 Oct 19	14:18	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
31 Oct 19	14:18	Sunny			collect water samp				-
7 Nov 19	14:20	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
15 Nov 19	14:21	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
21 Nov 19	14:08	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
28 Nov 19	14:12	Sunny		Unable to	collect water samp	ole due to insuffici	ent flow		-
5 Dec 19	14:08	Rainy			collect water samp				-
12 Dec 19	14:10	Sunny			collect water samp				-
18 Dec 19	14:45	Sunny			collect water samp				-
27 Dec 19	14:18	Sunny			collect water samp				-
		-			Averag	e 7.46	7.86	81.6	-
					•	n 6.09	6.44	3.2	-
					Ma	x 8.90	9.65	696.0	-

Figure F1.1 Graphical Presentation for Surface Water Quality Monitoring (DO)

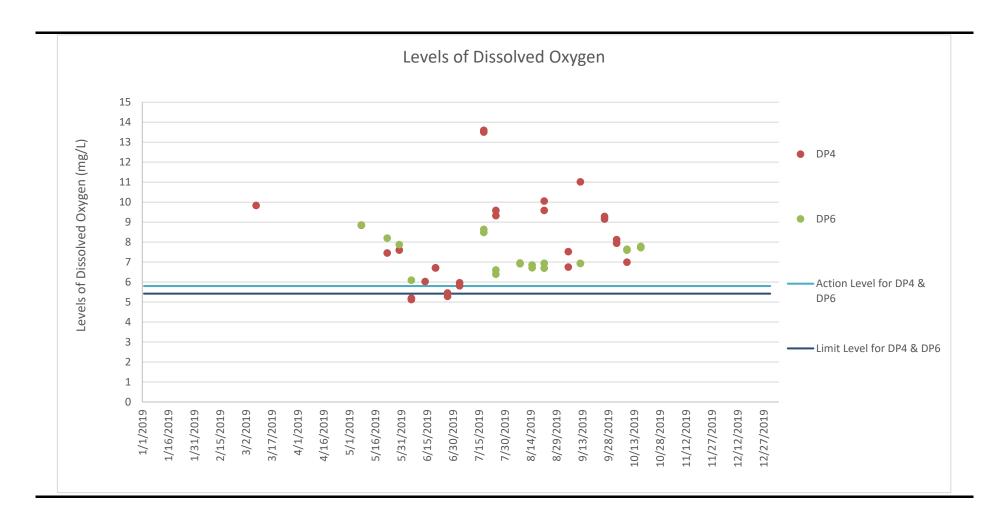


Figure F1.2 Graphical Presentation for Surface Water Quality Monitoring (pH)

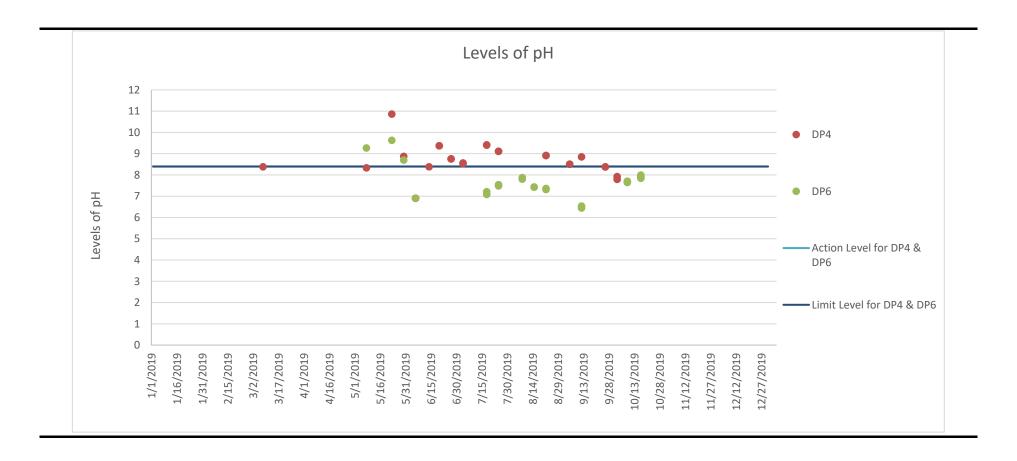
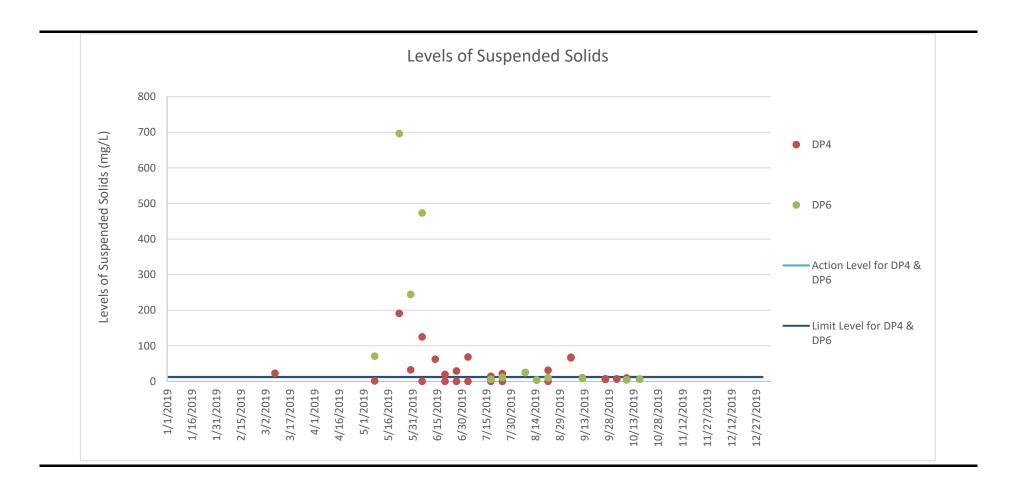


Figure F1.3 Graphical Presentation for Surface Water Quality Monitoring (SS)



### Annex F2

Event and Action Plan for Surface Water Quality Monitoring

Annex F2 Event and Action Plan for Surface Water Quality During Construction Phase

Event	Action									
	ET	IEC	Contractor							
Action Level being exceeded by one sampling day	<ul> <li>Repeat <i>in situ</i> measurement to confirm findings</li> <li>Identify the source(s) and investigate the cause(s) of exceedance</li> <li>Prepare Notification of Exceedance within 24 hours</li> <li>Inform Contractor, IEC and Project Proponent whether the cause of exceedance is due to the Project</li> <li>Repeat measurement on the next day of exceedance if exceedance is due to the Project</li> </ul>	<ul> <li>Verify the Notification of Exceedance</li> <li>Check monitoring data submitted by ET</li> <li>Check Contractor's working methods</li> </ul>	<ul> <li>Rectify any unacceptable practice</li> <li>Amend working methods if appropriate</li> </ul>							
Action Level being exceeded by two consecutive sampling days	<ul> <li>Repeat <i>in situ</i> measurement to confirm findings</li> <li>Identify the source(s) and investigate the cause(s) of exceedance</li> <li>Prepare Notification of Exceedance within 24 hours</li> <li>Inform Contractor, IEC and Project Proponent whether the cause of exceedance is due to the Project</li> <li>Discuss with Contractor and IEC for remedial measures required</li> <li>Ensure remedial measures are properly implemented</li> <li>Increase the monitoring frequency to daily if exceedance is due to the Project and continue until no exceedance of Action Level</li> </ul>	<ul> <li>Verify the Notification of Exceedance</li> <li>Check monitoring data submitted by ET</li> <li>Check Contractor's working methods</li> <li>Discuss with ET Leader and Contractor on proposed remedial measures</li> <li>Review proposals on remedial measures</li> <li>Audit the implementation of the remedial measures</li> <li>Audit the effectiveness of the implemented remedial measures</li> </ul>	<ul> <li>Submit proposals for remedial measures to IEC</li> <li>Implement the agreed proposals</li> <li>Amend proposal if appropriate</li> </ul>							

Event	Action									
	ET	IEC	Contractor							
Limit Level being exceeded by two consecutive sampling days	<ul> <li>Repeat <i>in situ</i> measurement to confirm findings</li> <li>Identify source(s) of impact and cause(s) of exceedance</li> <li>Prepare the Notification of Exceedance within 24 hours</li> <li>Inform Contractor, IEC, Project Proponent and EPD whether the cause of exceedance is due to the Project</li> <li>Discuss with Contractor and IEC for remedial measures required</li> <li>Ensure remedial measures are properly implemented</li> <li>Increase the monitoring frequency to daily if exceedance is due to the Project until no exceedance of Limit Level</li> </ul>	<ul> <li>Verify the Notification of Exceedance</li> <li>Check monitoring data submitted by ET</li> <li>Check Contractor's working methods</li> <li>Discuss with ET and Contractor on proposed remedial measures</li> <li>Review proposals on remedial measures</li> <li>Audit the implementation of the remedial measures</li> <li>Audit the effectiveness of the implemented remedial measures</li> </ul>	<ul> <li>Critically review the working methods</li> <li>Rectify unacceptable practice</li> <li>Check all plant and equipment</li> <li>Consider changes of working methods</li> <li>Discuss with the ET and IEC and propose mitigation measures to the IEC</li> <li>Implement the agreed mitigation measures</li> </ul>							
Limit Level being exceeded by more than two consecutive sampling days	<ul> <li>Repeat <i>in situ</i> measurement to confirm findings</li> <li>Identify source(s) of impact and cause(s) of exceedance</li> <li>Prepare the Notification of Exceedance within 24 hours</li> <li>Inform Contractor, IEC, Project Proponent and EPD whether the cause of exceedance is due to the Project</li> <li>Check monitoring data, all plant, equipment and Contractor's working methods</li> <li>Discuss with Contractor and IEC for remedial measures required</li> <li>Ensure mitigation measures are implemented</li> <li>Increase the monitoring frequency to daily if exceedance is due to the Project until no exceedance of Limit Level for two consecutive days</li> </ul>	<ul> <li>Verify the Notification of Exceedance</li> <li>Check monitoring data submitted by ET</li> <li>Check Contractor's working methods</li> <li>Discuss with ET and Contractor on proposed remedial measures</li> <li>Review proposals on remedial measures</li> <li>Audit the implementation of the remedial measures</li> <li>Audit the effectiveness of the implemented remedial measures</li> </ul>	<ul> <li>Critically review the working methods</li> <li>Rectify unacceptable practice</li> <li>Check all plant and equipment</li> <li>Consider changes of working methods</li> <li>Discuss with the ET and IEC and propose mitigation measures</li> <li>Implement the agreed mitigation measure</li> <li>As directed by the Project Proponent, slow down or stop all or part of the constructio activities</li> </ul>							

ENVIRONMENTAL RESOURCES MANAGEMENT

GREEN VALLEY LANDFILL LTD.

### Annex F3

Investigation Reports of Environmental Quality Limit Exceedance

Project	South East New Territories (SENT) Landfill Extension
Date	8 March 2019
Time	11:00
Monitoring Location	DP4
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	Action level: >11.7 mg/L
	Limit level: >12.7 mg/L
Measured Level	22.9 mg/L
Possible reason	No construction works were carried out at the SENT Landfill restored area and infrastructure area which are within the SENTX site boundary and upstream of the sampling points during the surface water sampling (i.e. catchment of DP4 within the Project boundary) and in the vicinity of DP4 with reference to the site record on 8 March 2019. The absence of works might suggest that the SS exceedance at DP4 is deemed to activities that are not related to the Project. The exceedance might be caused by other influencing factors from the upstream areas (e.g. existing SENT Landfill and Clearwater Bay Country Park).
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
Remarks	-

Prepared by: Abbey Lau

Designation: Environmental Team

Date: 28 April 2020

Project	South East New Territories (SENT) Landfill Extension
Date	8 May 2019
Time	15:20
Monitoring Location	DP6
Parameter	Surface Water (pH)
Action / Limit Levels	Action level: >8.39
	Limit level: >9.40
Measured Level	DP6: 9.24 & 9.29
Possible reason	According to the site record on 8 May 2019 provided by the Contractor, concrete for bar bending yield, which might be a potential source of pH increase, and excavation for temporary drainage channel near DP6 channel were carried out in the vicinity of DP6. However, during the sampling event, no construction works in the vicinity of DP6 and no potential surface water discharge or overflow to DP6 channel were observed. A temporary trench and berm were constructed along the DP6 channel to collect the surface runoff which was further treated by the Wetsep prior to discharge. Wetsep near DP6 was functioning properly with reference to the Wetsep operation record on 8 May 2019. The Contractor has complied with the recommendations and conditions outlined in the updated EM&A Manual.  In addition, part of the DP6 channel was relocated to hill side and the construction of this part of DP6 channel was completed on 15 April 2019. The concrete of the relocated DP6 channel should have been well settled on the sampling day which shall not be the potential source leading to the increase of pH of the surface water.  Based on the above, there is no adequate evidence showing that the pH exceedance at DP6 was deemed to Project-related activities. The exceedance might be caused by other influencing factors from the upstream areas.
	The nearest weekly site inspection was carried out on 9 May 2019 to audit the site practices and mitigation measures, where applicable mitigation measures on surface water quality were found implemented yet with deficiencies. The Contractor was reminded to review the drainage system near DP6 to avoid accumulation of stagnant water and ensure the Wetsep is functioning at all times.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.

	In addition, the Contractor shall review (i) the efficiency, treatment capacity and the number of the Wetsep at DP6, and (ii) the drainage system of the whole site to avoid potential direct discharge or overflow of site water to DP6 channel.
Remarks	-

Prepared by: Abbey Lau
Designation: Environmental Team
Date: 5 June 2019

Project	South East New Territories (SENT) Landfill Extension
Date	8 May 2019
Time	15:20
Monitoring Location	DP6
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	Action level: >11.7 mg/L
	Limit level: >12.7 mg/L
Measured Level	DP6: 70.8 mg/L
Possible reason  Action Taken / Action to	According to the site record on 8 May 2019 provided by the Contractor, concrete for bar bending yield and excavation for temporary drainage channel near DP6 channel, which might be a potential source of SS increase, were carried out in the vicinity of DP6. However, during the sampling event, no construction works in the vicinity of DP6 and no potential surface water discharge or overflow to DP6 channel were observed. A temporary trench and berm were constructed along the DP6 channel to collect the surface runoff which was further treated by the Wetsep prior to discharge. Wetsep near DP6 was functioning properly with reference to the Wetsep operation record on 8 May 2019. The Contractor has complied with the recommendations and conditions outlined in the updated EM&A Manual.  Based on the above, there is no adequate evidence showing that the SS exceedance at DP6 was deemed to Project-related activities. The exceedance might be caused by other influencing factors from the upstream areas (e.g. Clearwater Bay Country Park).  The nearest weekly site inspection was carried out on 9 May 2019 to audit the site practices and mitigation measures, where applicable mitigation measures on surface water quality were found implemented yet with deficiencies. The Contractor was reminded to review the drainage system near DP6 to avoid accumulation of stagnant water and ensure the silt removal facility is functioning at all times.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation
	measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
	In addition, the Contractor shall review (i) the efficiency, treatment capacity and the number of the Wetsep at DP6, and (ii) the drainage system of the whole site to avoid potential direct discharge or overflow of site water to DP6 channel. The

	Contractor shall also review the design of the DP6 channel near the hillside (e.g. maintain sufficient set back from the site boundary and proper trapezoidal channel structure) to minimize the potential surface runoff to DP6 channel from the Country Park.
Remarks	-

Prepared by: Abbey Lau
Designation: Environmental Team
Date: 5 June 2019

Project	South East New Territories (SENT) Landfill Extension
Date	23 May 2019
Time	DP4T: 15:55
	DP6: 15:35
Monitoring Location	DP4T and DP6
Parameter	Surface Water (pH)
Action / Limit Levels	DP4T and DP6: Action level: >8.39
	Limit level: >8.40
Measured Level	DP4T: 10.92 & 10.80
	DP6: 9.65 & 9.60
Possible reason	DP4T: Concreting work was observed being carried out at the sediment trap area, which might be a potential source of pH increase. The concrete at the sediment trap area may not be well settled and washed off on the sampling day due to the rainy weather which might be a potential source leading to the increase of pH of the surface water. The surface water at the sediment trap area was observed to be further pumped to a temporary holding area at Cell 2 and discharged to the DP4T channel. The water was not treated by the Wetsep prior to discharge to the DP4T.  Based on the above, the pH exceedance at DP4T was deemed to
	Project-related activities.  DP6: According to the site record on 23 May 2019 provided by the Contractor, the works in the vicinity of DP6 channel included filling up at western perimeter bund and stockpile at Cell 1X, erection of formwork and repair of footing at GVL building & leachate treatment plant areas, which were not potential sources of pH increase. During the sampling event, no construction works in the vicinity of DP6 was observed.  Besides, weekly site inspection was carried out in the morning of the same day of sampling event to audit the site practices and mitigation measures, where applicable mitigation measures on surface water quality were found implemented. Yet during the sampling event (occurred after the rainfall), it was observed that not all surface runoff discharged to the channel leading to DP6 was treated by the Wetsep due to insufficient capacity of the Wetsep near DP6. The Contractor was reminded to review the treatment capacity and the number of the Wetsep at DP6.  Since there was no potential source leading to pH increase from the
	Project-related activities and with applicable mitigation measures

	implemented, there is no adequate evidence showing that the pH exceedance at DP6 was deemed to Project-related activities. The exceedance might be caused by other influencing factors.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.  In addition, the Contractor shall review (i) the drainage system of the whole site to avoid potential direct discharge or overflow of contaminated surface water runoff to DP4T channel, and (ii) the treatment capacity and the number of the Wetsep at DP6.
Remarks	-

Prepared by: Abbey Lau

Designation: Environmental Team

Date: 28 April 2020

Project	South East New Territories (SENT) Landfill Extension
Date	23 May 2019
Time	DP4T: 15:55
	DP6: 15:35
Monitoring Location	DP4T and DP6
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	DP4T and DP6: Action level: >11.7 mg/L
	Limit level: >12.7 mg/L
Measured Level	DP4T: 191 mg/L
	DP6: 696 mg/L
Possible reason	DP4T:
	During the weekly site inspection in the morning, muddy water was observed at the sediment trap area which was pumped to a temporary holding area for retention at Cell 2 and further discharged to the DP4T channel. The water was not treated by the Wetsep prior to discharge. This is a potential source of SS to the surface water at DP4T.
	Based on the above, the SS exceedance at DP4T was deemed to Project-related activities.
	DP6: During the sampling event, no construction works in the vicinity of DP6 was observed.
	However, two stockpiles of dusty materials was observed to be placed at the hill side of the DP6 channel and exposed soil was observed next to the DP6 channel (not being covered by impermeable sheet or the runoff in the area will pass through any silt trap). These are the potential sources of SS increase in the surface water.
	Besides, during the sampling event (occurred after the rainfall), it was observed that not all muddy surface runoff discharged to the channel leading to DP6 was treated by the Wetsep due to insufficient capacity of the Wetsep near DP6.
	Based on the above, the SS exceedance at DP6 was deemed to Project-related activities.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.

	In addition, the Contractor shall (i) remove/cover the stockpiles of dusty materials and exposed soil areas near DP6, (ii) review the treatment capacity and the number of the Wetsep at DP6, and (iii) review the drainage system of the whole site to avoid potential direct discharge or overflow of muddy surface runoff to DP4T and DP6 channels.
Remarks	-

Prepared by: Abbey Lau

Designation: Environmental Team

Date: 28 April 2020

Project	South East New Territories (SENT) Landfill Extension
Date	30 May 2019
Time	DP4T: 15:48
	DP6: 15:19
Monitoring Location	DP4T and DP6
Parameter	Surface Water (pH)
Action / Limit Levels	DP4T and DP6: Action level: >8.39
	Limit level: >8.40
Measured Level	DP4T: 8.84 & 8.90
	DP6: 8.68 & 8.71
Possible reason	DP4T:
	During the sampling event, the water level was observed to be above the weir plate for sampling. As there was flow of water from upstream to downstream, it was agreed on-site with IEC and GVL representatives that water monitoring and sampling should be carried out.
	From the on-site rainfall record of May 2019, consecutive days (25 – 29 May 2019) of rainfall were recorded before the sampling event on 30 May 2019. Heavy rainfall events were recorded on 23 & 28 May 2019 and site staff of the Contractor reported that during these events, backflow of muddy water from downstream well passed DP4T along the channel. The site rainfall record showed that there was little rainfall on 30 May 2019. It is therefore a high possibility that the high level of water observed at DP4T was due to backflow water from the TKO Fill Bank. The sample taken at DP4T on the day might not represent the surface water runoff from SENTX and further upstream.
	In addition, after checking the site record of 30 May 2019 provided by the Contractor, the works in the vicinity of surface water channel leading to DP4T included erecting formwork and kicker and ratification to the scaffolding system at sediment trap, which are not potential sources of pH increase.
	Due to presence of the influencing factor from the downstream and no potential source leading to pH increase from the Project-related activities, there is no adequate evidence showing that the pH exceedance at DP4T was deemed to Project-related activities.
	DP6: During the sampling event, the water level was observed to be above the weir plate for sampling. As there was flow of water from upstream to downstream, it was agreed on-site with IEC and GVL representatives that water monitoring and sampling should

	be carried out.
	From the on-site rainfall record of May 2019, consecutive days (25 – 29 May 2019) of rainfall were recorded before the sampling event on 30 May 2019. Heavy rainfall events were recorded on 23 & 28 May 2019 and site staff of the Contractor reported that during these events, backflow of muddy water from downstream well passed DP6 along the channel. The site rainfall record showed that there was little rainfall on 30 May 2019. It is therefore a high possibility that the high level of water observed at DP6 was due to backflow water from the TKO Fill Bank. The sample taken at DP6 on the day might not represent the surface water runoff from SENTX and Clearwater Bay Country Park.
	In addition, after checking the site record of 30 May 2019 provided by the Contractor, the works in the vicinity of the channel leading to DP6 included stockpiling at Cell 1X (which was also observed during the sampling event) and lifting operation and cleaning to fixed steel at leachate treatment plant areas, which are not potential sources of pH increase.
	Due to presence of the influencing factor from the downstream and no potential source leading to pH increase from the Project-related activities, there is no adequate evidence showing that the pH exceedance at DP6 was deemed to Project-related activities.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
	In addition, the Contractor shall review (i) review the drainage system of the site and discuss the drainage issues of the TKO Fill Bank with CEDD so that there will be no backflow of surface water runoff from TKO Fill Bank to the SENTX boundary.
Remarks	-

Prepared by: Abbey Lau

Designation: Environmental Team

Date: 19 June 2019

Project	South East New Territories (SENT) Landfill Extension
Date	30 May 2019
Time	DP4T: 15:48
	DP6: 15:19
Monitoring Location	DP4T and DP6
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	DP4T and DP6: Action level: >11.7 mg/L
	Limit level: >12.7 mg/L
Measured Level	DP4T: 32.2 mg/L
	DP6: 244 mg/L
Possible reason	DP4T: During the sampling event, the water level was observed to be above the weir plate for sampling. As there was flow of water from upstream to downstream, it was agreed on-site with IEC and GVL representatives that water monitoring and sampling should be carried out.
	From the on-site rainfall record of May 2019, consecutive days (25 – 29 May 2019) of rainfall were recorded before the sampling event on 30 May 2019. Heavy rainfall events were recorded on 23 & 28 May 2019 and site staff of the Contractor reported that during these events, backflow of muddy water from downstream well passed DP4T along the channel. The site rainfall record showed that there was little rainfall on 30 May 2019. It is therefore a high possibility that the high level of water observed at DP4T was due to backflow water from the TKO Fill Bank. The sample taken at DP4T on the day might not represent the surface water runoff from SENTX and further upstream.
	In addition, after checking the site record of 30 May 2019 provided by the Contractor, the works in the vicinity of surface water channel leading to DP4T included erecting formwork and kicker and ratification to the scaffolding system at sediment trap, which are not potential sources of SS increase.
	During the weekly site inspection in the morning of the same day of sampling event, muddy water was observed at the sediment trap area which was pumped to a temporary holding area for retention at Cell 2 before further discharged to the DP4T channel.
	Due to presence of the influencing factor from the downstream and no potential source leading to SS increase from the Project-related activities, there is no adequate evidence showing that the SS exceedance at DP4T was deemed to Project-related activities.

DP6:

During the sampling event, the water level was observed to be above the weir plate for sampling. As there was flow of water from upstream to downstream, it was agreed on-site with IEC and GVL representatives that water monitoring and sampling should be carried out.

From the on-site rainfall record of May 2019, consecutive days (25 – 29 May 2019) of rainfall were recorded before the sampling event on 30 May 2019. Heavy rainfall events were recorded on 23 & 28 May 2019 and site staff of the Contractor reported that during these events, backflow of muddy water from downstream well passed DP6 along the channel. The site rainfall record showed that there was little rainfall on 30 May 2019. It is therefore a high possibility that the high level of water observed at DP6 was due to backflow water from the TKO Fill Bank. The sample taken at DP6 on the day might not represent the surface water runoff from SENTX and Clearwater Bay Country Park.

In addition, after checking the site record of 30 May 2019 provided by the Contractor, the works in the vicinity of the channel leading to DP6 included stockpiling at Cell 1X (which was also observed during the sampling event) and lifting operation and cleaning to fixed steel at leachate treatment plant areas, which are not potential sources of SS increase.

However, environmental deficiencies were observed. During the sampling event, a stockpile of dusty materials was observed placing at the hill side of the channel leading to DP6 and exposed soil was observed next to the channel (not being covered by tarpaulin sheet or the muddy runoff in the area did pass through any silt trap). Besides, during the sampling event, it was observed that not all muddy surface runoff discharged to the channel leading to DP6 was treated by the Wetsep due to insufficient capacity of the Wetsep near DP6. The Contractor was reminded to review the channel design and drainage system, remove/cover and minimize the stockpiles and exposed soil, and review the treatment capacity and the number of the Wetsep at DP6.

Due to presence of the influencing factor from the downstream, there is no adequate evidence showing that the SS exceedance at DP6 was only deemed to Project-related activities.

## Action Taken / Action to be Taken

Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.

	In addition, the Contractor shall (i) review the channel design and drainage system, (ii) remove/cover and minimize the stockpiles and exposed soil, (iii) review the treatment capacity and the number of the Wetsep at DP6, and (iv) discuss the drainage issues of the TKO Fill Bank with CEDD so that there will be no blackflow of surface water runoff from TKO Fill Bank to the SENTX boundary.
Remarks	-

Prepared by: Abbey Lau
Designation: Environmental Team
Date: 19 June 2019

Project	South East New Territories (SENT) Landfill Extension
Date	6 June 2019
Time	DP4T: 15:39
Monitoring Location	DP4T
Parameter	Surface Water (Dissolved Oxygen (DO))
Action / Limit Levels	DP4T: Action level: <5.80 mg/L
	Limit level: <5.42 mg/L
Measured Level	DP4T: 5.19 mg/L & 5.12 mg/L
Possible reason	During the sampling event, the water level was observed to be above the weir plate for sampling. As there was flow of water from upstream to downstream, it was agreed on-site with IEC and GVL representatives that water monitoring and sampling should be carried out.  From the on-site rainfall record of June 2019, heavy rainfall event was recorded on 4 June 2019. Amber rainstorm warning signal was also issued by the Hong Kong Observatory on 4 June 2019 before the sampling event on 6 June 2019. Site staff of the Contractor reported that during the event, backflow of muddy water from downstream well passed DP4T along the channel. The site rainfall record showed that there was little rainfall on 6 June 2019. It is therefore a high possibility that the high level of water observed at DP4T was due to backflow water from the TKO Fill Bank. The sample taken at DP4T on the day might not represent the surface water runoff from SENTX and further upstream.  In addition, after checking the site record of 6 June 2019 provided by the Contractor, the works in the vicinity of surface water channel leading to DP4T included erecting formwork, concreting works for Culvert X9 and rebar fixing at sediment trap, which are not potential sources of DO decrease.  Due to presence of the influencing factor from the downstream and no potential source leading to DO decrease from the Project-related activities, there is no adequate evidence showing that the DO exceedance at DP4T was deemed to Project-related activities.
A di TE 1 / A di d	
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
	In addition, the Contractor shall review (i) review the drainage system of the site and discuss the drainage issues of the TKO Fill

	Bank with CEDD so that there will be no backflow of surface water runoff from TKO Fill Bank to the SENTX boundary.
Remarks	-

Prepared by: Abbey Lau
Designation: Environmental Team
Date: 26 June 2019

Project	South East New Territories (SENT) Landfill Extension
Date	6 June 2019
Time	DP4T: 15:39
	DP6: 15:19
Monitoring Location	DP4T and DP6
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	DP4T and DP6: Action level: >11.7 mg/L
	Limit level: >12.7 mg/L
Measured Level	DP4T: 125 mg/L
	DP6: 473 mg/L
Possible reason	DP4T: During the sampling event, the water level was observed to be above the weir plate for sampling. As there was flow of water from upstream to downstream, it was agreed on-site with IEC and GVL representatives that water monitoring and sampling should be carried out.
	From the on-site rainfall record of June 2019, heavy rainfall event was recorded on 4 June 2019. Amber rainstorm warning signal was also issued by the Hong Kong Observatory on 4 June 2019 before the sampling event on 6 June 2019. Site staff of the Contractor reported that during the event, backflow of muddy water from downstream well passed DP4T along the channel. The site rainfall record showed that there was little rainfall on 6 June 2019. It is therefore a high possibility that the high level of water observed at DP4T was due to backflow water from the TKO Fill Bank. The sample taken at DP4T on the day might not represent the surface water runoff from SENTX and further upstream.
	In addition, after checking the site record of 6 June 2019 provided by the Contractor, the works in the vicinity of surface water channel leading to DP4T included erecting formwork, rebar fixing and concreting works for Culvert X9 at sediment trap, which are not potential sources of SS increase.
	During the weekly site inspection in the morning of the same day of sampling event, the concrete berm along the DP4T channel was observed to be damaged and exposed soil was accumulated along the berm of the DP4T channel, which might be a potential source of SS to the surface water at DP4T.
	Due to presence of the influencing factor from the downstream, there is no adequate evidence showing that the SS exceedance at DP4T was only deemed to Project-related activities.

DP6:

During the sampling event, the water level was observed to be above the weir plate for sampling. As there was flow of water from upstream to downstream, it was agreed on-site with IEC and GVL representatives that water monitoring and sampling should be carried out.

From the on-site rainfall record of June 2019, heavy rainfall event was recorded on 4 June 2019. Amber rainstorm warning signal was also issued by the Hong Kong Observatory on 4 June 2019 before the sampling event on 6 June 2019. Site staff of the Contractor reported that during the event, backflow of muddy water from downstream well passed DP6 along the channel. The site rainfall record showed that there was little rainfall on 6 June 2019. It is therefore a high possibility that the high level of water observed at DP6 was due to backflow water from the TKO Fill Bank. The sample taken at DP6 on the day might not represent the surface water runoff from SENTX and Clearwater Bay Country Park.

Soil compaction work was observed next to the DP6 channel during the sampling event. In addition, after checking the site record of 6 June 2019 provided by the Contractor, the works in the vicinity of the channel leading to DP6 included filling up at Western Perimeter Bund at Cell 1X which is a potential source of SS increase; and lifting operation, erection of formwork and rebar fixing at leachate treatment plant areas, which are not potential sources of SS increase. The water discharged to the DP6 channel was treated by the Wetsep.

However, environmental deficiencies were observed. During the sampling event, a stockpile of dusty materials was observed placing at the hill side of the channel leading to DP6 and exposed soil was observed next to the channel (not being covered by tarpaulin sheet or the muddy runoff in the area did pass through any silt trap). Besides, during the sampling event, it was observed that not all muddy water in the channel was treated by the Wetsep due to insufficient capacity of the Wetsep near DP6. The Contractor was reminded to remove/cover and minimize the stockpiles and exposed soil, and review the treatment capacity and the number of the Wetsep at DP6.

Due to presence of the influencing factor from the downstream, there is no adequate evidence showing that the SS exceedance at DP6 was only deemed to Project-related activities.

Action Taken / Action to be Taken

Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is

	reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
	In addition, the Contractor shall (i) remove/cover and minimize the stockpiles and exposed soil, (ii) review the treatment capacity and the number of the Wetsep at DP6, and (iii) discuss the drainage issues of the TKO Fill Bank with CEDD so that there will be no blackflow of surface water runoff from TKO Fill Bank to the SENTX boundary.
Remarks	-

Prepared by: Abbey Lau
Designation: Environmental Team
Date: 28 June 2019

Project	South East New Territories (SENT) Landfill Extension
Date	14 June 2019
Time	DP4T: 15:26
Monitoring Location	DP4T
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	DP4T: Action level: >11.7 mg/L
	Limit level: >12.7 mg/L
Measured Level	DP4T: 62.2 mg/L
Possible reason	During the sampling event, the water level was observed to be above the weir plate for sampling. As there was flow of water from upstream to downstream, it was agreed on-site with IEC and GVL representatives that water monitoring and sampling should be carried out.  From the on-site rainfall record of June 2019, heavy rainfall events were recorded on 10, 11 and 13 June 2019. Amber rainstorm warning signal was also issued by the Hong Kong Observatory on 13 June 2019 before the sampling event on 14 June 2019. Site staff of the Contractor reported that during the event, backflow of muddy water from downstream well passed DP4T along the channel. The site rainfall record showed that there was little rainfall on 14 June 2019. It is therefore a high possibility that the high level of water observed at DP4T was due to backflow water from the TKO Fill Bank. The sample taken at DP4T on the day
	might not represent the surface water runoff from SENTX and further upstream.  However, environmental deficiencies were observed. During the sampling event, excavation work was observed next to the DP4T channel and exposed soil was observed next to the channel (not being covered by tarpaulin sheet or the muddy runoff in the area didn't pass through any silt trap), which are potential source of SS increases. During the weekly site inspection carried on 13 June 2019 morning before the sampling event, the concrete berm along the DP4T channel was observed to be damaged and exposed soil was accumulated along the berm of the DP4T channel which might be a potential source of SS to the surface water at DP4T.  Due to presence of the influencing factor from the downstream, there is no adequate evidence showing that the SS exceedance at DP4T was only deemed to Project-related activities.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation

	measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
	In addition, the Contractor shall (i) remove/cover and minimize the stockpiles and exposed soil, and (ii) discuss the drainage issues of the TKO Fill Bank with CEDD so that there will be no backflow of surface water runoff from TKO Fill Bank to the SENTX boundary.
Remarks	-

Prepared by: Abbey Lau
Designation: Environmental Team Date: 28 June 2019

Project	South East New Territories (SENT) Landfill Extension
Date	20 June 2019
Time	DP4T: 15:15
Monitoring Location	DP4T
Parameter	Surface Water (pH)
Action / Limit Levels	DP4T: Action level: <8.39
	Limit level: <8.40
Measured Level	DP4T: 9.37 & 9.37
Possible reason	During the sampling event, the water level was observed to be above the weir plate for sampling. As there was flow of water from upstream to downstream, it was agreed on-site with IEC and GVL representatives that water monitoring and sampling should be carried out.
	From the on-site rainfall record of June 2019, heavy rainfall events were recorded on 10, 11 and 13 June 2019. Amber rainstorm warning signal was also issued by the Hong Kong Observatory on 13 June 2019 before the sampling event on 20 June 2019. Site staff of the Contractor reported that during the event, backflow of muddy water from downstream well passed DP4T along the channel. The site rainfall record showed that there was little rainfall on 14 June to 20 June 2019. It is therefore a high possibility that the high level of water observed at DP4T during the sampling event was due to the accumulated ponding water with the previous backflow water from the TKO Fill Bank. The sample taken at DP4T on the day might not represent the surface water runoff from SENTX and further upstream.
	In addition, after checking the site record of 20 June 2019 provided by the Contractor, the works in the vicinity of surface water channel leading to DP4T included erect formwork, rebar fixing and curing and CJ cleaning at sediment trap, which are not potential sources of pH increase.
	Due to presence of the influencing factor from the downstream and no potential source leading to pH increase from the Project-related activities, there is no adequate evidence showing that the pH exceedance at DP4T was deemed to Project-related activities.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.

	In addition, the Contractor shall review the drainage system of the
	site and discuss the drainage issues of the TKO Fill Bank with
	CEDD so that there will be no backflow of surface water runoff
	from TKO Fill Bank to the SENTX boundary.
Remarks	-

Prepared by: Abbey Lau
Designation: Environmental Team
Date: 10 July 2019

Project	South East New Territories (SENT) Landfill Extension
Date	20 June 2019
Time	DP4T: 15:15
Monitoring Location	DP4T
Parameter	
	Surface Water (Suspended Solids (SS))
Action / Limit Levels	DP4T: Action level: >11.7 mg/L
	Limit level: >12.7 mg/L
Measured Level	DP4T: 19.6 mg/L
Possible reason	During the sampling event, the water level was observed to be above the weir plate for sampling. As there was flow of water from upstream to downstream, it was agreed on-site with IEC and GVL representatives that water monitoring and sampling should be carried out.
	From the on-site rainfall record of June 2019, heavy rainfall events were recorded on 10, 11 and 13 June 2019. Amber rainstorm warning signal was also issued by the Hong Kong Observatory on 13 June 2019 before the sampling event on 20 June 2019. Site staff of the Contractor reported that during the event, backflow of muddy water from downstream well passed DP4T along the channel. The site rainfall record showed that there was little rainfall on 14 June to 20 June 2019. It is therefore a high possibility that the high level of water observed at DP4T during the sampling event was due to the accumulated ponding water with the previous backflow water from the TKO Fill Bank. The sample taken at DP4T on the day might not represent the surface water runoff from SENTX and further upstream.
	In addition, after checking the site record of 20 June 2019 provided by the Contractor, the works in the vicinity of surface water channel leading to DP4T included erect formwork, rebar fixing and curing and CJ cleaning at sediment trap, which are not potential sources of SS increase.
	During the weekly site inspection in the morning of the same day of sampling event, site water was observed at the sediment trap area which was pumped to a temporary holding area for retention at Cell 2 before further discharged to the DP4T channel.
	Due to presence of the influencing factor from the downstream, there is no adequate evidence showing that the SS exceedance at DP4T was only deemed to Project-related activities.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is

	reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
	In addition, the Contractor shall discuss the drainage issues of the TKO Fill Bank with CEDD so that there will be no backflow of surface water runoff from TKO Fill Bank to the SENTX boundary.
Remarks	-

Prepared by: Abbey Lau
Designation: Environmental Team
Date: 10 July 2019

Project	South East New Territories (SENT) Landfill Extension
Date	27 June 2019
Time	DP4T: 15:14
Monitoring Location	DP4T
Parameter	Surface Water (Dissolved Oxygen (DO))
Action / Limit Levels	DP4T: Action level: <5.80 mg/L
	Limit level: <5.42 mg/L
Measured Level	DP4T: 5.28 mg/L & 5.45 mg/L
Possible reason	During the sampling event, the water level was observed to be above the weir plate for sampling. As there was flow of water from upstream to downstream, it was agreed on-site with IEC and GVL representatives that water monitoring and sampling should be carried out.
	From the on-site rainfall record of June 2019, heavy rainfall event was recorded on 25 June 2019. Amber rainstorm warning signal was also issued by the Hong Kong Observatory on 25 June 2019 before the sampling event on 27 June 2019. During the event, backflow of muddy water from downstream might well passed DP4T along the channel. The site rainfall record showed that there was little rainfall on 27 June 2019. It is therefore a high possibility that the high level of water observed at DP4T was due to backflow water from the TKO Fill Bank. The sample taken at DP4T on the day might not represent the surface water runoff from SENTX and further upstream.
	In addition, no works which may lead to potential DO decrease was conducted in the vicinity of surface water channel leading to DP4T on and before the sampling day based on on-site observations and construction activities described by the Contractor. During the sampling event, no potential surface water discharge or overflow to the DP4T channel was observed.  Due to presence of the influencing factor from the downstream and no potential source leading to DO decrease from the Project-related activities, there is no adequate evidence showing that the DO
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.  In addition, the Contractor shall review the drainage system of the

	site and discuss the drainage issues of the TKO Fill Bank with
	CEDD so that there will be no backflow of surface water runoff
	from TKO Fill Bank to the SENTX boundary.
Remarks	-

Prepared by: Abbey Lau

Designation: Environmental Team

Date: 28 June 2019

Project	South East New Territories (SENT) Landfill Extension
Date	27 June 2019
Time	DP4T: 15:14
Monitoring Location	DP4T
Parameter	Surface Water (pH)
Action / Limit Levels	DP4T: Action level: >8.39
	Limit level: >8.40
Measured Level	DP4T: 8.75 & 8.75
Possible reason	During the sampling event, the water level was observed to be above the weir plate for sampling. As there was flow of water from upstream to downstream, it was agreed on-site with IEC and GVL representatives that water monitoring and sampling should be carried out.
	From the on-site rainfall record of June 2019, heavy rainfall event was recorded on 25 June 2019. Amber rainstorm warning signal was also issued by the Hong Kong Observatory on 25 June 2019 before the sampling event on 27 June 2019. During the event, backflow of muddy water from downstream might well passed DP4T along the channel. The site rainfall record showed that there was little rainfall on 27 June 2019. It is therefore a high possibility that the high level of water observed at DP4T was due to backflow water from the TKO Fill Bank. The sample taken at DP4T on the day might not represent the surface water runoff from SENTX and further upstream.
	In addition, no works which may lead to potential pH increase (e.g. concreting works) was conducted in the vicinity of surface water channel leading to DP4T on and before the sampling day based on on-site observations and construction activities described by the Contractor. During the sampling event, no potential surface water discharge or overflow to the DP4T channel was observed.  Due to presence of the influencing factor from the downstream and no potential source leading to pH increase from the Project-related
Action Taken / Action to	activities, there is no adequate evidence showing that the pH exceedance at DP4T was deemed to Project-related activities.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
	In addition, the Contractor shall review the drainage system of the

	site and discuss the drainage issues of the TKO Fill Bank with
	CEDD so that there will be no backflow of surface water runoff
	from TKO Fill Bank to the SENTX boundary.
Remarks	-

Prepared by: Abbey Lau

Designation: Environmental Team

Date: 28 June 2019

Project	South East New Territories (SENT) Landfill Extension
Date	27 June 2019
Time	DP4T: 15:14
Monitoring Location	DP4T
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	DP4T: Action level: >11.7 mg/L
	Limit level: >12.7 mg/L
Measured Level	DP4T: 29.2 mg/L
Possible reason	During the sampling event, the water level was observed to be above the weir plate for sampling. As there was flow of water from upstream to downstream, it was agreed on-site with IEC and GVL representatives that water monitoring and sampling should be carried out.  From the on-site rainfall record of June 2019, heavy rainfall event was recorded on 25 June 2019. Amber rainstorm warning signal was also issued by the Hong Kong Observatory on 25 June 2019 before the sampling event on 27 June 2019. During the event, backflow of muddy water from downstream might well passed DP4T along the channel. The site rainfall record showed that there was little rainfall on 27 June 2019. It is therefore a high possibility that the high level of water observed at DP4T was due to backflow water from the TKO Fill Bank. The sample taken at DP4T on the day might not represent the surface water runoff from SENTX and further upstream.  In addition, no works which may lead to potential SS increase was conducted in the vicinity of surface water channel leading to DP4T on the sampling day based on on-site observations and construction activities described by the Contractor. During the sampling event, no potential surface water discharge or overflow
	to the DP4T channel was observed.  Due to presence of the influencing factor from the downstream and no potential source leading to SS increase from the Project-related activities, there is no adequate evidence showing that the SS exceedance at DP4T was deemed to Project-related activities.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.  In addition, the Contractor shall review the drainage system of the
	in addition, the Contractor shall review the dramage system of the

	site and discuss the drainage issues of the TKO Fill Bank with CEDD so that there will be no backflow of surface water runoff from TKO Fill Bank to the SENTX boundary.
Remarks	-

Prepared by: Abbey Lau

Designation: Environmental Team

By July 2019

Project	South East New Territories (SENT) Landfill Extension
Date	4 July 2019
Time	DP4T: 15:09
Monitoring Location	DP4T
Parameter	Surface Water (pH)
Action / Limit Levels	DP4T: Action level: >8.39
	Limit level: >8.40
Measured Level	DP4T: 8.53 & 8.56
Possible reason	During the sampling event, the water level was observed to be above the weir plate for sampling. As there was flow of water from upstream to downstream, it was agreed on-site with IEC and GVL representatives that water monitoring and sampling should be carried out.  From the on-site rainfall record of July 2019, heavy rainfall event was recorded on 2 July 2019. Amber rainstorm warning signal was also issued by the Hong Kong Observatory on 3 July 2019 before the sampling event on 4 July 2019. During the heavy rainfall events, backflow of muddy water from downstream might well passed DP4T along the channel. The site rainfall record showed that there was little rainfall on 4 July 2019. It is therefore a high possibility that the high level of water observed at DP4T was due to backflow water from the downstream area. The sample taken at DP4T on the day might not represent the surface water runoff from SENTX and further upstream.  In addition, no works which may lead to potential pH increase (e.g. concreting works) was conducted in the vicinity of surface water channel leading to DP4T on and before the sampling day based on on-site observations and construction activities described by the Contractor. During the sampling event, no potential surface water discharge or overflow to the DP4T channel was observed.  Water from wheel-washing area discharged to the DP4T channel was treated by the Wetsep prior to discharge. Wetsep near DP4T was functioning properly with reference to the Wetsep operation record on 4 July 2019 and the on-site checking of the treated water at the outlet of the Wetsep during the sampling event. The Contractor has complied with the recommendations and conditions outlined in the updated EM&A Manual.
	Due to presence of the influencing factor from the downstream and no potential source leading to pH increase from the Project-related activities, with the implementation of relevant mitigation measures, there is no adequate evidence showing that the pH

	exceedance at DP4T was deemed to Project-related activities.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
	In addition, the Contractor shall review the drainage system of the site and discuss the drainage issues of the TKO Fill Bank with CEDD so that there will be no backflow of surface water runoff from TKO Fill Bank to the SENTX boundary.
Remarks	-

Prepared by: Tina Siu
Designation: Environmental Team

18 July 2019 Date:

Project	South East New Territories (SENT) Landfill Extension
Date	4 July 2019
Time	DP4T: 15:09
Monitoring Location	DP4T
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	DP4T: Action level: >11.7 mg/L
	Limit level: >12.7 mg/L
Measured Level	DP4T: 68.5 mg/L
Possible reason	During the sampling event, the water level was observed to be above the weir plate for sampling. As there was flow of water from upstream to downstream, it was agreed on-site with IEC and GVL representatives that water monitoring and sampling should be carried out.  From the on-site rainfall record of July 2019, heavy rainfall event was recorded on 2 July 2019. Amber rainstorm warning signal was also issued by the Hong Kong Observatory on 3 July 2019 before the sampling event on 4 July 2019. During the heavy rainfall events, backflow of muddy water from downstream might well passed DP4T along the channel. The site rainfall record showed that there was little rainfall on 4 July 2019. It is therefore a high possibility that the high level of water observed at DP4T was due to backflow water from the downstream area. The sample taken at DP4T on the day might not represent the surface water runoff from SENTX and further upstream.  In addition, no works which may lead to potential SS increase was conducted in the vicinity of surface water channel leading to DP4T on the sampling day based on on-site observations and construction activities described by the Contractor. During the sampling event, no potential surface water discharge or overflow to the DP4T channel was observed.  Water from wheel-washing area discharged to the DP4T channel was treated by the Wetsep prior to discharge. Wetsep near DP4T was functioning properly with reference to the Wetsep operation record on 4 July 2019 and the on-site checking of the treated water at the outlet of the Wetsep during the sampling event. The Contractor has complied with the recommendations and conditions outlined in the updated EM&A Manual.
	Due to presence of the influencing factor from the downstream and no potential source leading to SS increase from the Project-related activities, with the implementation of relevant mitigation measures, there is no adequate evidence showing that the SS

	exceedance at DP4T was deemed to Project-related activities.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.  In addition, the Contractor shall review the drainage system of the site and discuss the drainage issues of the TKO Fill Bank with CEDD so that there will be no backflow of surface water runoff from TKO Fill Bank to the SENTX boundary.
Remarks	

Prepared by:

Tina Siu
Environmental Team
18 July 2019 Designation:
Date:

Project	South East New Territories (SENT) Landfill Extension
Date	18 July 2019
Time	DP4T: 15:04
Monitoring Location	DP4T
Parameter	Surface Water (pH)
Action / Limit Levels	DP4T: Action level: >8.39
	Limit level: >8.40
Measured Level	DP4T: 9.40 & 9.41
Possible reason	No works which may lead to potential pH increase (e.g. concreting works) was conducted in the vicinity of surface water channel leading to DP4T on and before the sampling day based on on-site observations and construction activities described by the Contractor. During the sampling event, no potential surface water discharge or overflow to the DP4T channel was observed.  Water from wheel-washing area discharged to the DP4T channel was treated by the Wetsep prior to discharge. Wetsep near DP4T was functioning properly with reference to the Wetsep operation record on 18 July 2019 and the on-site checking of the treated water at the outlet of the Wetsep during the sampling event. The Contractor has complied with the recommendations and conditions outlined in the updated EM&A Manual.  As no potential source from the Project-related activities which may lead to pH increase was identified, and the Contractor has implemented the relevant mitigation measures recommended in the updated EM&A Manual, there is no adequate evidence showing that the pH exceedance at DP4T was deemed to Project-related activities.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
Remarks	-

Prepared by:	Abbey Lau
Designation:	Environmental Team
Date:	19 July 2019

Project	South East New Territories (SENT) Landfill Extension
Date	18 July 2019
Time	DP4T: 15:04
Monitoring Location	DP4T
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	DP4T: Action level: >11.7 mg/L
	Limit level: >12.7 mg/L
Measured Level	DP4T: 14.2 mg/L
Possible reason	No works which may lead to potential SS increase was conducted in the vicinity of surface water channel leading to DP4T on the sampling day based on on-site observations and construction activities described by the Contractor. During the sampling event, no potential surface water discharge or overflow to the DP4T channel was observed.  Water from wheel-washing area discharged to the DP4T channel was treated by the Wetsep prior to discharge. Wetsep near DP4T was functioning properly with reference to the Wetsep operation record on 18 July 2019 and the on-site checking of the treated water at the outlet of the Wetsep during the sampling event. The Contractor has complied with the recommendations and conditions outlined in the updated EM&A Manual.  As no potential source from the Project-related activities which
	may lead to SS increase was identified, and the Contractor has implemented relevant mitigation measures recommended in the updated EM&A Manual, there is no adequate evidence showing that the SS exceedance at DP4T was deemed to Project-related activities.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
Remarks	-

Prepared by: Abbey Lau

Designation: Environmental Team

Date: 24 July 2019

Project	South East New Territories (SENT) Landfill Extension
Date	25 July 2019
Time	DP4T: 15:08
Monitoring Location	DP4T
Parameter	Surface Water (pH)
Action / Limit Levels	DP4T: Action level: >8.39
	Limit level: >8.40
Measured Level	DP4T: 9.11 & 9.11
Action Taken / Action to be Taken	No works which may lead to potential pH increase (e.g. concreting works) was conducted in the vicinity of surface water channel leading to DP4T on and before the sampling day based on on-site observations and construction activities described by the Contractor. During the sampling event, no potential surface water discharge or overflow to the DP4T channel was observed.  Water from wheel-washing area discharged to the DP4T channel was treated by the Wetsep prior to discharge. Wetsep near DP4T was functioning properly with reference to the on-site checking of the treated water at the outlet of the Wetsep during the sampling event. The Contractor has complied with the recommendations and conditions outlined in the updated EM&A Manual.  As no potential source from the Project-related activities which may lead to pH increase was identified, and the Contractor has implemented the relevant mitigation measures recommended in the updated EM&A Manual, there is no adequate evidence showing that the pH exceedance at DP4T was deemed to Project-related activities.  Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is
be Taken	continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
Remarks	-

Prepared by: Angela Yung
Designation: Environmental Team
Date: 31 July 2019

Project	South East New Territories (SENT) Landfill Extension
Date	25 July 2019
Time	DP4T: 15:08
Monitoring Location	DP4T
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	DP4T: Action level: >11.7 mg/L
	Limit level: >12.7 mg/L
Measured Level	DP4T: 21.8 mg/L
Possible reason	During the weekly site inspection in the morning and the sampling event, it was observed that soil along the bank of DP4T channel next to the surface water sampling point was exposed. Topsoil was observed to have leaked into the water and muddy water was observed around the DP4 sampling point. Based on the above observation, the SS exceedance at DP4T was deemed to Project-related activities.  It should be noted that the Water Pollution Control Ordinance (WPCO) water discharge licence has been obtained by the Contractor for the operation of the Wetsep near DP4T and the allowable discharge limit for SS to DP4T channel is 30 mg/L. The treated water with the allowable discharge limit from the Wetsep might also be a source leading to SS exceedance.
Action Taken / Action to be Taken	The Contractor shall maintain the DP4T channel by covering the exposed soil with concrete in order to avoid SS run-off to DP4T channel. Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
Remarks	-

Prepared by: Angela Yung
Designation: Environmental Team
31 July 2019

Project	South East New Territories (SENT) Landfill Extension
Date	8 August 2019
Time	DP6: 14:37 & 14:46 (Duplicate)
Monitoring Location	DP6
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	DP6: Action level: >11.7 mg/L
,	Limit level: >12.7 mg/L
Measured Level	DP6: 25.1 mg/L
	DP6 (Duplicate): 24.8 mg/L
Possible reason	No works which may lead to potential SS increase was conducted in the vicinity of surface water channel leading to DP6 on the sampling day based on on-site observations and construction activities described by the Contractor. During the sampling event, no potential surface water discharge or overflow to the DP6 channel was observed.  Site water discharged to the DP6 channel was treated by the
	Wetsep prior to discharge. Wetsep near DP6 was functioning properly during the sampling event. The Contractor has complied with the recommendations and conditions outlined in the updated EM&A Manual.
	Environmental deficiency was observed during the weekly site inspection in the morning. Site water was observed overflowing the concrete partition at DP6 channel, without passing through the geotextile at the pipes along the DP6 channel, which might be a potential source of SS increase to the surface water at DP6. However, the deficiency was rectified before the sampling event and no overflow of site water was observed during the sampling event.
	As no potential source from the Project-related activities which may lead to SS increase was identified, and the Contractor has implemented relevant mitigation measures recommended in the updated EM&A Manual, there is no adequate evidence showing that the SS exceedance at DP6 was deemed to Project-related activities.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
Remarks	-

Prepared by: Abbey Lau

Designation: Environmental Team

Date: 19 August 2019

Project	South East New Territories (SENT) Landfill Extension
Date	22 August 2019
Time	DP4T: 14:54
Monitoring Location	DP4T
Parameter	Surface Water (pH)
Action / Limit Levels	DP4T: Action level: >8.39
	Limit level: >8.40
Measured Level	DP4T: 8.91 & 8.91
Action Taken / Action to be Taken	No works which may lead to potential pH increase (e.g. concreting works) was conducted in the vicinity of surface water channel leading to DP4T on and before the sampling day based on on-site observations and construction activities described by the Contractor. During the sampling event, no potential surface water discharge or overflow to the DP4T channel was observed.  Water from wheel-washing area discharged to the DP4T channel was treated by the Wetsep prior to discharge. Wetsep near DP4T was functioning properly with reference to the on-site checking of the treated water at the outlet of the Wetsep during the sampling event. The Contractor has complied with the recommendations and conditions outlined in the updated EM&A Manual.  As no potential source from the Project-related activities which may lead to pH increase was identified, and the Contractor has implemented the relevant mitigation measures recommended in the updated EM&A Manual, there is no adequate evidence showing that the pH exceedance at DP4T was deemed to Project-related activities.  Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation
	reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
Remarks	-

Prepared by: Abbey Lau

Designation: Environmental Team

Date: 27 August 2019

Project	South East New Territories (SENT) Landfill Extension
Date	22 August 2019
Time	DP4T: 14:54
Monitoring Location	DP4T
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	DP4T: Action level: >11.7 mg/L
	Limit level: >12.7 mg/L
Measured Level	DP4T: 31.2 mg/L
Possible reason	No works which may lead to potential SS increase was conducted in the vicinity of surface water channel leading to DP4T on the sampling day based on on-site observations and construction activities described by the Contractor. During the sampling event, no potential surface water discharge or overflow to the DP4T channel was observed.  Water from wheel-washing area discharged to the DP4T channel was treated by the Wetsep prior to discharge. Wetsep near DP4T was functioning properly with reference to the on-site checking of the treated water at the outlet of the Wetsep during the sampling event. The Contractor has complied with the recommendations and conditions outlined in the updated EM&A Manual.  As no potential source from the Project-related activities which may lead to SS increase was identified, and the Contractor has implemented relevant mitigation measures recommended in the updated EM&A Manual, there is no adequate evidence showing that the SS exceedance at DP4T was deemed to Project-related activities.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
Remarks	-
Prepared by: Abbey Lau	

Prepared by: Abbey Lau
Designation: Environmental Team
Date: 30 August 2019

Project	South East New Territories (SENT) Landfill Extension
Date	5 September 2019
Time	DP4T: 14:50 and 15:00 (Duplicate)
Monitoring Location	DP4T
Parameter	Surface Water (pH)
Action / Limit Levels	DP4T: Action level: >8.39
	Limit level: >8.40
Measured Level	DP4T: 8.49 & 8.51
	DP4T (Duplicate): 8.49 & 8.52
Possible reason	No works which may lead to potential pH increase (e.g. concreting works) was conducted in the vicinity of surface water channel leading to DP4T on and before the sampling day based on on-site observations and construction activities described by the Contractor. During the sampling event, no potential surface water discharge or overflow to the DP4T channel was observed.  Water from wheel-washing area discharged to the DP4T channel was treated by the Wetsep prior to discharge. Wetsep near DP4T was functioning properly with reference to the on-site checking of the treated water at the outlet of the Wetsep during the sampling event. The Contractor has complied with the recommendations and conditions outlined in the updated EM&A Manual.  As no potential source from the Project-related activities which may lead to pH increase was identified, and the Contractor has implemented the relevant mitigation measures recommended in the updated EM&A Manual, there is no adequate evidence showing that the pH exceedance at DP4T was deemed to Project-related activities.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
Remarks	-

Prepared by: Abbey Lau

Designation: Environmental Team

Date: 9 September 2019

Project	South East New Territories (SENT) Landfill Extension
Date	5 September 2019
Time	DP4T: 14:50 and 15:00 (Duplicate)
Monitoring Location	DP4T
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	DP4T: Action level: >11.7 mg/L
	Limit level: >12.7 mg/L
Measured Level	DP4T: 67.8 mg/L
	DP4T (Duplicate): 66.1 mg/L
Possible reason	During the sampling event, the water level was observed to be above the weir plate for sampling. As there was flow of water from upstream to downstream, it was agreed on-site with IEC and GVL representatives that water monitoring and sampling should be carried out.
	From the on-site rainfall record of September 2019, heavy rainfall event was recorded on 1, 2 and 4 September 2019. Amber rainstorm warning signal was also issued by the Hong Kong Observatory on 2 September 2019 before the sampling event on 5 September 2019. During the event, backflow of muddy water from downstream might well passed DP4T along the channel. The site rainfall record showed that there was little rainfall on 5 September 2019. It is therefore a high possibility that the high level of water observed at DP4T was due to backflow water from the TKO Fill Bank. The sample taken at DP4T on the day might not represent the surface water runoff from SENTX and further upstream.
	In addition, no works which may lead to potential SS increase was conducted in the vicinity of surface water channel leading to DP4T on the sampling day based on on-site observations and construction activities described by the Contractor. During the sampling event, no potential surface water discharge or overflow to the DP4T channel was observed.
	Water from wheel-washing area discharged to the DP4T channel was treated by the Wetsep prior to discharge. Wetsep near DP4T was functioning properly with reference to the on-site checking of the treated water at the outlet of the Wetsep during the sampling event. The Contractor has complied with the recommendations and conditions outlined in the updated EM&A Manual.
	Due to presence of the influencing factor from the downstream and no potential source from the Project-related activities which may lead to SS increase was identified, there is no adequate evidence showing that the SS exceedance at DP4T was deemed to Project-

	related activities.
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
Remarks	-

Prepared by: Abbey Lau

Designation: Environmental Team

Date: 16 September 2019

Project	South East New Territories (SENT) Landfill Extension	
Date	12 September 2019	
Time	DP4T: 14:59	
Monitoring Location	DP4T	
Parameter	Surface Water (pH)	
Action / Limit Levels	DP4T: Action level: >8.39	
	Limit level: >8.40	
Measured Level	DP4T: 8.82 & 8.87	
Possible reason  Action Taken / Action to	No works which may lead to potential pH increase (e.g. concreting works) was conducted in the vicinity of surface water channel leading to DP4T on and before the sampling day based on on-site observations and construction activities described by the Contractor. During the sampling event, no potential surface water discharge or overflow to the DP4T channel was observed.  Water from wheel-washing area discharged to the DP4T channel was treated by the Wetsep prior to discharge. Wetsep near DP4T was functioning properly with reference to the on-site checking of the treated water at the outlet of the Wetsep during the sampling event. The Contractor has complied with the recommendations and conditions outlined in the updated EM&A Manual.  As no potential source from the Project-related activities which may lead to pH increase was identified, and the Contractor has implemented the relevant mitigation measures recommended in the updated EM&A Manual, there is no adequate evidence showing that the pH exceedance at DP4T was deemed to Project-related activities.	
Action Taken / Action to be Taken	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.	
Remarks	-	

Prepared by: Abbey Lau

Designation: Environmental Team

Date: 16 September 2019

#### Annex G1

Cumulative Statistics on Exceedances, Environmental Complaints, Notification of Summons and Status of Prosecutions

 Table G1
 Cumulative Statistics on Exceedances

		Total No. recorded in this reporting period	Total No. recorded since project commencement
Air Quality (24-hr TSP)	Action	0	0
	Limit	0	0
Noise	Action	0	0
	Limit	0	0
Surface Water Quality	Action	0	0
	Limit	32	32

Table G2 Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Prosecutions
This Reporting Period	1	0	0
(2 January - 31			
December 2019)			
Total no. received since project	1	0	0
commencement			

#### Annex G2

# Investigation Report of Environmental Complaint

## **Investigation Report of Environmental Complaint**

Project	South East New Territories (SENT) Landfill Extension
Date	15 July 2019
Time	-
EPD Reference No	N08/RE/00019726-19
Date of Notification	23 July 2019
Description of the Enquiry/Complaint	A complaint was referred by Employer's Representative through above letter reference regarding dust nuisance in the vicinity of SENT landfill and TKO Area 137. The Complainant observed dust around the SENT landfill and TKO Area 137 areas including the roads without watering under sunny weather.
Site Activity	Based on the site record on 15 July 2019, the following dust-related work
Summary	in SENTX were conducted:
	1. Import soil material
	2. Fill up soil at Perimeter Bund
	3. Backfilling at Culvert Bay D
	4. Excavation for Outlet Culvert Bay E
	5. Site clearance (at GVL's Building and LTP Area)
Action Taken / Action to be Taken	<ol> <li>The following mitigation measures and monitoring were taken:</li> <li>Relevant mitigation measures, including regular dust suppression by water truck, wheel washing for outgoing vehicles at the vehicle exit and the compaction of fill material, were implemented to minimise dust generation within site area.</li> <li>The impact dust monitoring data on 15 July 2019 at the two dust monitoring locations DM1 (112 μg m<sup>-3</sup>) and DM2 (111 μg m<sup>-3</sup>) were reviewed and the dust levels are both well below the corresponding action/limit level (i.e. 204 μg m<sup>-3</sup>/260 μg m<sup>-3</sup> for DM1 and 193 μg m<sup>-3</sup>/260 μg m<sup>-3</sup> for DM2).</li> <li>Weekly site inspections were jointly conducted by the Environmental Team, Independent Environmental Checker and Contractor on 11 and 18 July 2019, and no significant dust generation from the SENTX site were observed.</li> <li>As the Contractor has implemented the relevant mitigation measures recommended in the updated EM&amp;A Manual, there is no adequate evidence showing that the dust nuisance was caused by SENTX activities. Besides, the Contractor has installed new sprinkler system along the main haul road which has started operation since 17 July 2019. The Contractor is reminded to review the number and effectiveness of the sprinkler system throughout the site.</li> </ol>
	Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to

	implement relevant and appropriate mitigation measures according to the updated EM&A Manual to avoid any exceedance of the Action and Limit Level.
Remarks	-

Prepared by: Angela Yung
Designation: Environmental Team
Date: 6 Aug 2019