

ATAL-Degrémont-China State Joint Venture

Contract No. DC/2008/03
Design, Build and Operate Pillar
Point Sewage Treatment Works:
*Twenty-fourth Monthly EM&A
Report*

November 2012

Environmental Resources Management

16/F, DCH Commercial Centre,
25 Westlands Road,
Quarry Bay, Hong Kong
Telephone: (852) 2271 3000
Facsimile: (852) 2723 5660
E-mail: post.hk@erm.com
<http://www.erm.com>

ATAL-Degrémont-China State Joint Venture

Contract No. DC/2008/03
Design, Build and Operate Pillar
Point Sewage Treatment Works:
*Twenty-fourth Monthly EM&A
Report*

November 2012

Reference 0119806

For and on behalf of ERM-Hong Kong, Limited	
Approved by:	Frank Wan
Signed:	
Position:	Partner
Certified by:	 (Environmental Team Leader – Winnie Ko)
Certified by:	 (Registered Landscape Architect (R078) - Christina Ip)
Date:	9 November 2012

Your Ref:
Our Ref: 60017423/C/iysy12110901

By Hand & By Fax (2833 9162)

Drainage Services Department
Sewage Services Branch
Harbour Area Treatment Scheme Division
5/F., Western Magistracy,
2A Pok Fu Lam Road,
Hong Kong.

Attn: Mr. Kenley C.K. KWOK (T: 2159 3409)

9 November 2012

Dear Sir,

**Contract No. DC/2008/03
Design, Build and Operate
Pillar Point Sewage Treatment Works**

Monthly EM&A Report for October 2012

Reference is made to Environmental Team (ET)'s draft of the Monthly EM&A Report for October 2012 provided by email dated 7 and 8 November 2012. We have no further comment.

We hereby verify the said Monthly EM&A Report as having complied with the requirement as set out in the EM&A Manual in accordance with the condition 3.6 of Environmental Permit No. EP-321/2008.

Should you have any queries, please feel free to contact the undersigned at 3922 9393.

Yours faithfully,

For and on behalf of
AECOM Asia Co. Ltd.



Y T Tang
Independent Environmental Checker

c.c. AECOM – Mr. Tim Lee
ERM – Ms. Winnie Ko
ATAL–Degremont–China State JV – Mr. C.Y. Fong

(Fax No. 2317 7609)
(Fax No. 2723 5660)
(Fax No. 2811 3321)

CONTENTS

1	INRODUCTION	1
1.1	<i>PURPOSE OF THE REPORT</i>	1
1.2	<i>STRUCTURE OF THE REPORT</i>	1
2	PROJECT INFORMATION	3
2.1	<i>BACKGROUND</i>	3
2.2	<i>GENERAL SITE DESCRIPTION</i>	3
2.3	<i>CONSTRUCTION ACTIVITIES</i>	4
2.4	<i>PROJECT ORGANISATION AND MANAGEMENT STRUCTURE</i>	4
2.5	<i>STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS</i>	4
3	ENVIRONMENTAL MONITORING REQUIREMENTS	6
3.1	<i>AIR QUALITY MONITORING</i>	6
3.1.1	<i>Monitoring Location</i>	6
3.1.2	<i>Monitoring Parameter and Frequency</i>	6
3.1.3	<i>Action and Limit Levels</i>	6
3.1.4	<i>Monitoring Equipment</i>	7
3.1.5	<i>Monitoring Methodology</i>	7
3.1.6	<i>Event and Action Plan</i>	9
3.2	<i>LANDSCAPE AND VISUAL MONITORING</i>	9
3.3	<i>ENVIRONMENTAL MITIGATION MEASURES AND ENVIRONMENTAL REQUIREMENTS IN CONTRACT</i>	9
4	IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS	10
5	MONITORING RESULTS	11
5.1	<i>AIR QUALITY</i>	11
6	WASTE MANAGEMENT	12
7	ENVIRONMENTAL INSPECTIONS	13
7.1	<i>WEEKLY SITE AUDITS</i>	13
7.2	<i>LANDSCAPE AND VISUAL MONITORING</i>	13
8	ENVIRONMENTAL NON-CONFORMANCE	15
8.1.1	<i>Summary of Monitoring Exceedance</i>	15
8.1.2	<i>Summary of Environmental Non-Compliance</i>	15
8.1.3	<i>Summary of Environmental Complaint</i>	15
8.1.4	<i>Summary of Environmental Summon and Successful Prosecution</i>	15
9	FUTURE KEY ISSUES	16

9.1.1	<i>Key Issues for the Coming Month</i>	16
9.1.2	<i>Monitoring Schedule for the Next Reporting Period</i>	16
9.1.3	<i>Construction Programme for the Next Three Months</i>	16
10	REVIEW OF THE EM&A DATA AND EIA PREDICTIONS	17
10.1	<i>AIR QUALITY</i>	17
10.2	<i>WASTE MANAGEMENT</i>	17
10.3	<i>CONCLUSION OF REVIEW</i>	18
11	CONCLUSIONS	19

LIST OF TABLES

Table 2.1	Summary of Construction Activities Undertaken in Reporting Period
Table 2.2	Summary of Environmental Licensing, Notification and Permit Status
Table 3.1	Construction Phase Air Monitoring Locations
Table 3.2	Construction Phase Air Quality Monitoring Parameters and Frequency
Table 3.3	Action and Limit Levels for Air Quality
Table 3.4	TSP Monitoring Equipment
Table 6.1	Quantities of Waste Generated from the Project
Table 9.1	Construction Works to be Undertaken in the Next Reporting Period
Table 10.1	Comparison of the HKAQO and Air Quality Monitoring Results
Table 10.2	Quantity of Actual Amount of C&D Materials, General Wastes and Chemical Wastes Generated and EIA Estimation

LIST OF ANNEXES

Annex A	Location of Project
Annex B	Works Location
Annex C	Project Organization Chart and Contact Detail
Annex D	Locations of Air Quality Monitoring Stations
Annex E	Monitoring Schedule of the Reporting Month and Next Month
Annex F	Calibration Reports for HVSs
Annex G	24-hour and 1-hour TSP Monitoring Results
Annex H	Event / Action Plan for Air Quality Monitoring
Annex I	Implementation Schedule of Mitigation Measures
Annex J	Waste Flow Table
Annex K	Environmental complaint, Environmental Summons and Prosecution Log
Annex L	Construction Programme for the Project

EXECUTIVE SUMMARY

The construction works of *DC/2008/03 of Design, Build and Operate Pillar Point Sewage Treatment Works (the Project)* commenced on 13 November 2010. This is the 24th monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 to 31 October 2012 in accordance with the EM&A Manual.

Summary of Construction Works undertaken during the Reporting Month

Works undertaken in the reporting month included:

- Constructing the root slab, wall, columns and beams at the Administration Building;
- Constructing the structure, water tank and backfilling at the Sludge Dewatering Building;
- Constructing walls and floor slabs in the PTW area of P2;
- Conducting water tests, constructing a wall and floor slabs at the CEPT area of P2
- Finishing work at the Electrical Building No.1;
- Constructing a manhole and trench walls at the UV building;
- Constructing floor slabs, conducting water test and backfilling at the Septic Waste Reception Station;
- Constructing a wall and roof at the Reuse Water Pump Room;
- Backfilling and constructing raft slabs at the DOUA and the Chemical Building;
- Constructing floor slabs and trenches at the Electrical building No.3 and No.4; and
- Backfilling and drainage works for the whole site.

Environmental Monitoring and Audit Progress

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

- | | |
|---|---------|
| • 24-hour TSP Monitoring at each monitoring station (AM1 and AM2) | 5 sets |
| • 1-hour TSP Monitoring at each monitoring station (AM1 and AM2) | 15 sets |
| • Joint Environmental Site Inspection | 4 times |
| • Landscape & Visual Monitoring | Once |

Air Quality

5 sets of 24-hour TSP and 15 sets of 1-hr TSP measurements were carried out at each of the designated monitoring stations during the reporting period. No exceedance was recorded during the reporting period.

Waste Management

Waste generated from this Project includes inert construction and demolition (C&D) materials (public fill) and non-inert C&D materials (construction wastes). A total 2,457 tonnes of inert C&D waste were generated and all were disposed of at the Tuen Mun Area 38 Fill Bank. No inert C&D materials was reused on site. 200 tonnes of rocks & broken concrete were generated in October. 30 kg of metals and 30 kg of papers/ cardboard packing were sent

to recyclers for recycling during the reporting period. No plastics was generated during the reporting month.

Environmental Site Inspection

Four weekly joint environmental site inspections were carried out by the representatives of the Contractor, SOR and the Environmental Team (ET). Details of the audit findings and implementation status of the mitigation measures are presented in *Section 7.1*.

Landscape & Visual

Review on landscape and visual mitigation measures was performed on 26 October 2012. Details of the audit findings and implementation status of the mitigation measures are presented in *Sections 3.2 and 7.2*.

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

No exceedance was recorded during the reporting period.

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

No environmental complaint and summon/prosecution was received in this reporting period.

Future Key Issues

Works to be undertaken in the next reporting month include:

- Constructing the finishing works at the Administration Building;
- Constructing the structure and water tank at the Sludge Dewatering Building;
- Constructing the wall, floor slab and conducting water test at the PTW area of P2;
- Conducting water test, constructing the wall and floor slab at the CEPT area of P2;
- Finishing work at the Electrical Building No.1;
- Constructing the manhole, trench walls, column and roof at the UV building;
- Constructing the column and roof at the Septic Waste Reception Station;
- Constructing the wall and roof at the Reuse Water Pump Room;
- Constructing control room at the DOUA;
- Constructing wall and roof at the Chemical Building;
- Finishing work at the Electrical building No.3 and No.4;
- Constructing drainage, cable ducs and a boundary wall at P2; and
- Backfilling and drainage works for the whole site.

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

1 INTRODUCTION

ERM-Hong Kong, Limited (ERM) was appointed by ATAL – Degrémont – China State Joint Venture (ADC-JV) (the Contractor) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme for the *Contract No. DC/2008/03 of Design, Build and Operate Pillar Point Sewage Treatment Works (the Project)*.

1.1 PURPOSE OF THE REPORT

This is the 24th EM&A report which summarises the monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 31 October 2012.

1.2 STRUCTURE OF THE REPORT

The structure of the report is as follows:

Section 1 : **Introduction**

It details the scope and structure of the report.

Section 2 : **Project Information**

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

Section 3 : **Environmental Monitoring Requirements**

It summarises the environmental monitoring requirements including monitoring parameters, programmes, methodologies, frequency, locations, Action and Limit Levels, Event/Action Plans, environmental mitigation measures as recommended in the approved EIA report, EP and relevant environmental requirements stated in the Contract Specification.

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

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

Section 5 : **Monitoring Results**

It summarises the monitoring results obtained in the reporting period.

Section 6 : **Waste Management**

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

Section 7 : Environmental Site Inspection

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

Section 8 : Environmental Non-conformance

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

Section 9 : Further Key Issues

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

Section 10 : Review of the EM&A Data and Predictions

It compares the monitoring data and waste quantity against the predictions in the approved Project EIA report.

Section 11 : Conclusions

2.1 BACKGROUND

The existing Pillar Point Sewage Treatment Works (PPSTW) is located to the north of the Tuen Mun River Trade Terminal and is abutting the Lung Mun Road in the north. It is a preliminary treatment works with screening and grit removal processes and the treated effluent is discharged to the sea (North Western Water Control Zone) via a twin submarine outfall. The *Review of the Tuen Mun and Tsing Yi Sewerage Master Plan (RTMTYSMP)*, commissioned in February 1999, recommended that the sewage treatment capacity be expanded and the plant be upgraded to chemically enhanced primary treatment (CEPT) with disinfection. This is to cater for the projected ultimate population and planned developments in the Tuen Mun area, and improve the effluent quality reducing pollution loadings to the receiving waters.

The upgrading of the PPSTW comprises the following works:

- expanding the treatment capacity of the existing PPSTW to cope with the increased peak wet-weather sewage flow in Tuen Mun area;
- upgrading the sewage treatment level of the existing PPSTW to incorporate chemical treatment with disinfection at minimum removal rates of 70%, 55% and 99.9% of suspended solids (SS), biochemical oxygen demand (BOD) and *E.coli*, respectively;
- upgrading the existing septic waste reception facilities at PPSTW; and
- providing and upgrading ancillary facilities including the administration building, workshop, laboratory, odour control facilities, sludge handling and dewatering facilities, access roads and minor landscaping works within the STW for the operation and maintenance of the upgraded STW.

The potential environmental impacts of the Project have been studied in the “*Upgrading of Pillar Point Sewage Treatment Works*” (EIAO Register No: AEIAR-145/2008). The EIA was approved on 10 June 2008 under the *Environmental Impact Assessment Ordinance (EIAO)* and an Environmental Permit (EP-321/2008) for the works was granted on 17 November 2008. Under the requirements of Condition 3.1 of EP-322/2008, an EM&A programme as set out in the EM&A Manual is required to be implemented.

The construction works commenced on 13 November 2010 and are scheduled for completion by 2014.

2.2 GENERAL SITE DESCRIPTION

The open area adjacent to the existing PPSTW has been designated for the upgrading works. The layout of the upgrading works is illustrated in *Annex*

A.

2.3 CONSTRUCTION ACTIVITIES

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

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

Construction Activities Undertaken
<ul style="list-style-type: none">• Constructing the root slab, wall, columns and beams at the Administration Building;• Constructing the structure, water tank and backfilling at the Sludge Dewatering Building;• Constructing walls and floor slabs in the PTW area of P2;• Conducting water tests, constructing a wall and floor slabs at the CEPT area of P2;• Finishing work at the Electrical Building No.1;• Constructing a manhole and trench walls at the UV building;• Constructing floor slabs, conducting water test and backfilling at the Septic Waste Reception Station;• Constructing a wall and roof at the Reuse Water Pump Room;• Backfilling and constructing raft slabs at the DOUA and the Chemical Building;• Constructing floor slabs and trenches at the Electrical building No.3 and No.4; and• Backfilling and drainage works for the whole site.

2.4 PROJECT ORGANISATION AND MANAGEMENT STRUCTURE

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

2.5 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

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

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

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Environmental Permit	EP-321/2008	Throughout the Contract	Permit granted on 17 November 2008.
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation	Ref No. 308136	Throughout the Contract	-

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Water Discharge License	WT00008027-2010	Till 31 December 2015	Wastewater discharge licence was issued by EPD on 7 December 2010.
Construction Noise Permit	GW-RW0535-12	28 July 2012 – 27 January 2013	
Chemical Waste Producer Registration	5213-421-A2620-01	Throughout the Contract	Licence approved on 28 October 2010

3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 AIR QUALITY MONITORING

3.1.1 Monitoring Location

The proposed air quality monitoring stations for the construction phase of the Project, as recommended in the approved EM&A Manual, are given in *Table 3.1* and shown in *Annex D*. The proposed locations (AM1 and AM2) have been agreed with the Drainage Services Department (DSD), Environmental Protection Department (EPD) and the Independent Environmental Checker (IEC).

Table 3.1 Construction Phase Air Monitoring Locations

Monitoring ID	Air Quality Monitoring Station
AM1	Tuen Mun EMSD Servicing Vehicle Station
AM2	River Trade Terminal Office

3.1.2 Monitoring Parameter and Frequency

The construction phase air quality monitoring has been conducted at the designated monitoring stations in accordance with the requirements stipulated in the EM&A Manual. 1-hour and 24-hour TSP levels have been monitored at the frequency and duration stated in *Table 3.2*. The construction phase TSP monitoring has been conducted as per the schedule presented in *Annex E*.

Table 3.2 Construction Phase Air Quality Monitoring Parameters and Frequency

Parameter	Frequency
24-hour TSP	Once every 6 days
1-hour TSP	3 times every 6 days

3.1.3 Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 3.3*.

Table 3.3 Action and Limit Levels for Air Quality

Parameter	Air Monitoring Station	Action Level, μgm^{-3}	Limit Level, μgm^{-3}
24-hour TSP	AM1	183	260
	AM2	192	260
1-hour TSP	AM1	343	500
	AM2	383	500

3.1.4 Monitoring Equipment

Continuous 24-hour and 1-hour TSP monitoring was performed using High Volume Samplers (HVS) with appropriate sampling inlets located at the designated monitoring stations.

The performance specification of HVS complied with the standard method “*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*” as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. Table 3.4 summarises the equipment that were deployed for the 24-hour and 1-hour TSP monitoring respectively.

Table 3.4 TSP Monitoring Equipment

Monitoring Station	Monitoring Equipment (HVS and Calibrator)
<i>24-hr and 1-hr TSP</i>	
AM1	GMW GS-2310 (S/N 7580), CM-AIR-43 (S/N 0438320)
AM2	GMW GS-2310 (S/N 1252), CM-AIR-43 (S/N 0438320)

3.1.5 Monitoring Methodology

The setup locations of the HVSs were listed in Table 3.1. All HVSs were free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- appropriate support to secure the samplers against gusty wind were provided at AM1 and AM2;
- a minimum of 2m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues was nearby;
- airflow around the sampler was unrestricted; and
- permission was obtained to set up the samplers and gain access to the monitoring stations.

Preparation of Filter Papers

- glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25°C and not variable by more than $\pm 3^\circ\text{C}$; the relative humidity (RH) was 40%; and
- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implemented comprehensive quality assurance and quality control programmes.

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;

- the filter holder and area surrounding the filter were cleaned;
- the filter holder was removed by loosening the foul bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;
- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;
- swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;
- the shelter lid was closed and secured with an aluminium strip;
- the HVSs were warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flowrate record sheet was inserted into the flow recorder;
- the flow rates of the HVSs were checked and adjusted to between 1.22 and 1.37 m³ min⁻¹ which were within the range specified in the EM&A Manual (ie 0.6 to 1.7 m³ min⁻¹);
- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and the filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folded in half l so that only surfaces with collected particulate matter were in contact;
- the filter was placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

- the HVSs and their accessories were maintained in good working condition, eg. motor brushes were replaced routinely and electrical wiring was checked to ensure a continuous power supply; and
- the flow rate of each HVS with mass flow controller was calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipment were conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using CM-AIR-43 Calibration Kit. HVSs are calibrated on a bi-monthly basis. The calibration records for the HVSs are given in *Annex F*.

Wind Data Monitoring

Average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological station at Tuen Mun of the Hong Kong Observatory (HKO) and were presented in *Annex G*.

3.1.6 *Event and Action Plan*

The Event/Action Plan (EAP) for air quality monitoring is presented in *Annex H*.

3.2 *LANDSCAPE AND VISUAL MONITORING*

In accordance with the EM&A Manual, monthly landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures recommended in the approved EIA Report are fully achieved. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

3.3 *ENVIRONMENTAL MITIGATION MEASURES AND ENVIRONMENTAL REQUIREMENTS IN CONTRACT*

All the relevant environmental mitigation measures listed in the EIA Report and EM&A Manual as well as the specific environmental requirements stated in the Contract Specification are summarised in *Annex I*. A summary of the key environmental mitigation measures implemented as per the Contract Requirements is also presented in *Annex I*.

IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

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

5 *MONITORING RESULTS*

5.1 *AIR QUALITY*

A total of 5 sets of 24-hour and 15 sets of 1-hour TSP measurements were taken at each of the monitoring stations (AM1 and AM2) during the reporting period. The monitoring data for 24-hour and 1-hour TSP together with the wind data and graphical presentations for the past 4 months are presented in *Annex G*. The weather conditions during the monitoring period ranged from sunny to cloudy. The local impacts near the monitoring stations of AM1 and AM2 were mainly associated with vehicular emissions. No exceedance of Action and Limit Level of the 1-hr and 24-hr TSP was recorded during the reporting period.

Wastes generated from this Project include inert construction and demolition (C&D) materials (public fill) and non-inert C&D materials (construction waste). Construction waste comprises general refuse, metals and paper/cardboard packaging materials. Metals generated from the Project are also grouped into construction waste as the materials were not disposed of with others at public fill. Reference has been made to the Monthly Summary Waste Flow Table prepared by the Contractor (see *Annex J*). With reference to the relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 6.1*. The public fill and construction waste generated from the Project have been disposed of at the Tuen Mun Area 38 Fill Bank and WENT Landfill, respectively. 200 tonnes of rocks & broken concrete were generated in October. 30 kg of metals and 30 kg of papers/ cardboard packing were sent to recyclers for recycling during the reporting period. No plastics was generated during the reporting month.

Table 6.1 *Quantities of Waste Generated from the Project*

Month / Year	Quantity		
	C&D Materials Disposed of at Fill Banks (inert) ^(a)	C&D Materials Disposed of at Landfill (Non-inert) (Construction waste) ^{(b) (c)}	Chemical Waste
October 2012	2,457 tonnes	124 tonnes	0 L

Notes:

- (a) Inert C&D materials (public fill) include bricks, concrete, building debris, rubble and excavated soil. A total 2,457 tonnes of inert C&D waste were generated and all were disposed of at the Tuen Mun Area 38 Fill Bank and no inert C&D materials reused on site. 200 tonnes of rocks & broken concrete were generated in October. The detailed waste flow is presented in *Annex J*.
- (b) Non-inert C&D materials (construction wastes) include metals, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Metals generated from the Project are grouped into construction wastes as the materials were not disposed of with others at the public fill. 124 tonnes of general refuse is recorded in the reporting month. Construction wastes other than metals and paper/cardboard packaging were disposed of at WENT Landfill. 30 kg of metals and 30 kg of papers/ cardboard packing were sent to recyclers for recycling during the reporting period. No plastics was generated during the reporting month.
- (c) General refuse was disposed of at WENT Landfill by subcontractors.

7 ENVIRONMENTAL INSPECTIONS

7.1 WEEKLY SITE AUDITS

Joint site inspections were conducted by representatives of the Contractor, the SOR and the ET on 5, 12, 18 and 26 October 2012. The IEC was also present at the joint inspection on 26 October 2012.

Major observations during the reporting period are summarised as follows:

5 October 2012

- Chemical drums without drip trays were observed near Gate 1 at P2. The Contractor was reminded to put the chemical drums on drip trays or remove them if empty.

12 October 2012

- Fugitive dust was generated from the haul road near Gate 1. The Contractor was reminded to spray water on the haul road regularly to reduce the generation of fugitive dust.

18 October 2012

- The muddy water was observed inside the wheel washing bay near Gate 2. The Contractor was reminded to replace the water regularly in order to maintain the effectiveness of the wheel washing.
- Oil stains were observed on the ground near PTW, CEPT and Sludge Dewatering Building. The Contractor was reminded to remove the oil stains and provide drip trays for chemical drums to avoid spillage.
- The exposed site surfaces near the Sludge Dewatering Building were dry and dusty. The Contractor was reminded to spray water regularly, particularly in dry weather.

26 October 2012

- Nil

Follow-up actions resulting from the last site inspections were taken as reported by the Contractor and their results were observed in the site inspections conducted in the reporting period.

7.2 LANDSCAPE AND VISUAL MONITORING

In accordance with the EM&A Manual, monthly landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures recommended in the EIA Report are fully achieved. A review of the landscape and visual

mitigation measures was performed on 26 October 2012. The IEC was present at the joint inspection on 26 October 2012. It was confirmed that most of the necessary landscape and visual mitigation measures as summarised in *Annex I* were implemented by the Contractor. The major findings are summarised as follow:

26 October 2012

- Trees T145 and N75 were found to be in poor health. A hole was found in the trunk of the tree T145. Detached bark was found at the trunk of N75. The Contractor was advised to monitor the condition of these trees closely and take the necessary actions.
- Tree tags for R35 and R37 were missing. The Contractor was reminded to re-tag the trees.
- Garbage and construction materials were found inside the tree protection zone near T134. The Contractor was reminded to remove all the garbage and construction materials inside the tree protection zone.

The Contractor was reminded to implement the follow-up actions. The status of the follow-up actions will be reviewed in the first weekly site inspections in the next reporting period.

8 *ENVIRONMENTAL NON-CONFORMANCE*

8.1.1 *Summary of Monitoring Exceedance*

No exceedances of the Action and Limit Levels of 1-hr and 24-hr TSP was recorded during the reporting period.

8.1.2 *Summary of Environmental Non-Compliance*

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

8.1.3 *Summary of Environmental Complaint*

No complaint was received during the reporting period. The cumulative environmental complaint log is shown in *Annex K*.

8.1.4 *Summary of Environmental Summon and Successful Prosecution*

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

9.1.1 Key Issues for the Coming Month

Works to be undertaken for the coming monitoring period are summarised in *Table 9.1*.

Table 9.1 Construction Works to be Undertaken in the Next Reporting Period

Work to be undertaken
<ul style="list-style-type: none"> • Constructing the finishing works at the Administration Building; • Constructing the structure and water tank at the Sludge Dewatering Building; • Constructing the wall, floor slab and conducting water test at the PTW area of P2; • Conducting water test, constructing the wall and floor slab at the CEPT area of P2; • Finishing work at the Electrical Building No.1; • Constructing the manhole, trench walls, column and roof at the UV building; • Constructing the column and roof at the Septic Waste Reception Station; • Constructing the wall and roof at the Reuse Water Pump Room; • Constructing a control room at the DOUA; • Constructing a wall and roof at the Chemical Building; • Finishing work at the Electrical building No.3 and No.4; • Constructing drainage, cable ducts and a boundary wall at P2; and • Backfilling and drainage works for the whole site.

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

9.1.2 Monitoring Schedule for the Next Reporting Period

The tentative schedule of TSP monitoring for the next reporting period was presented in *Annex E*. Environmental monitoring will be conducted at the same monitoring locations in the next reporting period. The monitoring programme has been reviewed and was considered adequate for the nature of works in progress.

9.1.3 Construction Programme for the Next Three Months

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

10.1 AIR QUALITY

Since the EIA has only included a qualitative assessment of dust impact during the construction phase, a comparison was made between the monitoring results from the start of the Project and the Hong Kong Air Quality Objectives (HKAQO) (see *Table 10.1*).

Table 10.1 Comparison of the HKAQO and Air Quality Monitoring Results

Monitoring Station	Corresponding ASR in EIA	HKAQO, $\mu\text{g m}^{-3}$	Measured 24-hour TSP Monitoring Results, $\mu\text{g m}^{-3}$ (a) (b)	
		24 hour (a)	Average	Range
AM1	A1	260	72	53 - 100
AM2	A7	260	78	51 - 102

Notes:

(a) Only 24-hour TSP monitoring results were compared as there is no 1 hour TSP criterion in HKAQO.

(b) The average and range of data were calculated from the period between the commencement of the construction works and this reporting month.

The monitoring results show that the average and range of the 24-hour TSP levels recorded since the commencement of the construction works have been well below the 24-hour TSP criterion in the HKAQO. Recommended mitigation measures in *Section 3.7.1.1* of EIA have been implemented throughout the construction period and were considered effective.

10.2 WASTE MANAGEMENT

The estimated amount of waste generated from the Project and the cumulative quantities of waste generated up to this reporting month are presented in *Table 10.2*. The amount of inert C&D material sent to public fills is higher than the estimated amount in the EIA. With reference to the C&D Material Assessment (Contractor's General Submission (CSF) No.: DC200803/CSF/SAF/060026/A), the difference in quantities is mainly due to the differences in excavation depths and the excavation methods in the Contract Works and that assumed in the Reference Design. Recommended mitigation measures in *Sections 7.5.1.1* to *7.5.1.9* of the EIA will continue to be implemented during the construction stage.

Table 10.2 *Quantity of Amount of C&D Materials, General Wastes and Chemical Wastes Actually Generated and Estimated in the EIA and C&D Material Assessment*

Type of Material	Estimated Amount of Public Fill and Construction Waste in the EIA (inert & non-inert)	Estimated Amount of Public Fill and Construction Waste in C&D Material Assessment (CSF No.: DC200803/CSF/SAF/060026/A) ^(c)	Accumulated Actual Amount of Public Fill and Construction Waste Recorded ^(a) ^(b) ^(d) (inert & non-inert)
Amount of C&D Materials Arising	61,489 m ³	77,600 m ³	99,138.9 m ³
Amount of C&D Materials Reused on other site	-	-	3,163.9 m ³
Amount of C&D Materials Reused on site	14,926 m ³	18,000 m ³	6,218.9 m ³
Amount of C&D Materials Sent to Fill Banks	46,563m ³	59,600 m ³	89,756.1 m ³
General Refuse Small	-	-	917.5 tonnes
Chemical Waste Small	-	-	810.0 L

Notes:

(a) The actual amount of C&D Materials has been recorded since the commencement of construction works.

(b) The density of soil and rock (bulked) is 1.8 tonnes/m³.

(c) The estimated amount of C&D material generated from the Contract Works was revised in the C&D Material Assessment and submitted to the SO on 9 September 2010 (CSF No.: DC200803/CSF/SAF/060026/A) because of the new plant & facility layout.

10.3 CONCLUSION OF THE REVIEW

The EIA predictions and monitoring results since the commencement of the construction works have been reviewed. The EIA concluded that the Project would not cause adverse impacts to the environment, and monitoring results have also confirmed that so far. Mitigation measures recommended in the EP, EIA and EM&A Manual will continue to be implemented throughout the construction phase of the Project.

This EM&A Report presents the EM&A programme undertaken during the reporting period from 1 to 31 October 2012 in accordance with EM&A Manual and requirements of EP (EP-321/2008).

No exceedance of Action and Limit Levels of 24-hour TSP and 1-hour TSP was recorded at the monitoring stations during the reporting period.

Monthly landscape and visual monitoring was conducted in the reporting period. Most of the necessary landscape and visual mitigation measures recommended in the EIA Report were implemented by the Contractor. Follow-up actions are required by the Contractor to improve protection of the retained or to-be transplanted trees.

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

No complaint and summons/prosecution was received during the reporting period.

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

Annex A

Location of Project

PROPOSED FACILITIES AND BUILDINGS

SECTION 1 INLET PUMPING STATION AND PRELIMINARY TREATMENT WORKS

- ① INLET CHAMBER
- ② COARSE SCREENS AND INLET PUMPING STATION
- ③ FINE SCREEN CHANNELS
- ④ GRIT CHAMBERS
- ⑤ INLET FLOWMETER CHAMBER
- ⑥ PTW MCC ROOM

- ⑦ BLOWER ROOM
- ⑧ SCREENING SKIP HOUSE
- ⑨ ODOR DUCT SUPPORTING BRIDGE
- ⑩ SEPTIC WASTE RECEPTION STATION
- ⑪ WEIGHBRIDGE
- ⑫ ELECTRICAL BUILDING 1

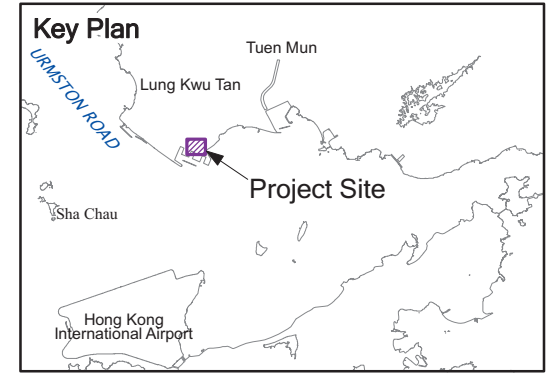
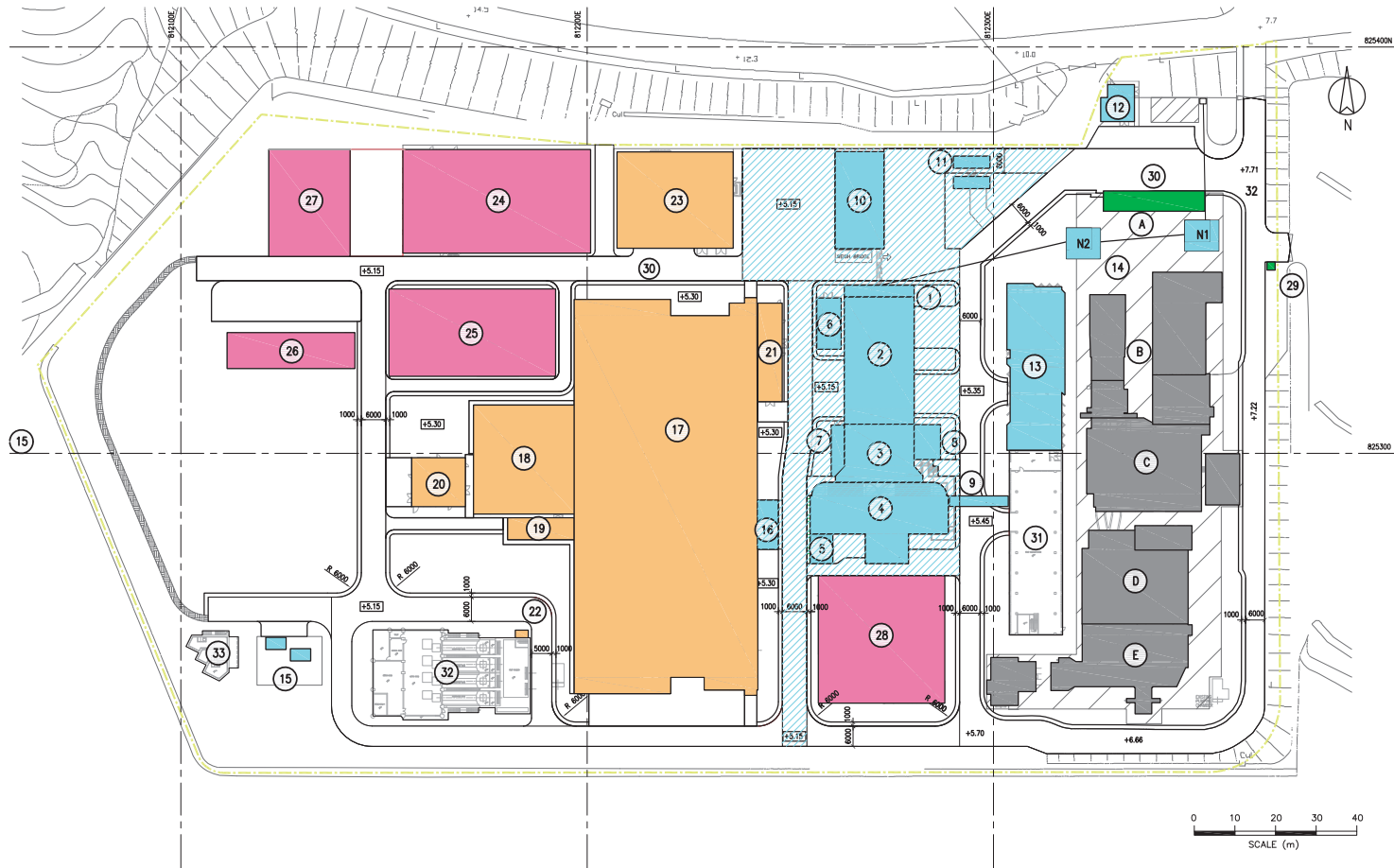
- ⑬ ADMINISTRATION BUILDING
- ⑭ INLET CHAMBERS
- ⑮ PAYMENT FLOWMETER CHAMBER
- ⑯ CEPT INLET CHAMBER

SECTION 2 CEPT TANKS UV DISINFECTION

- ⑰ CEPT TANKS
- ⑱ UV DISINFECTION CHANNELS
- ⑲ REUSE WATER PUMP ROOM
- ⑳ ELECTRICAL BUILDING 3
- ㉑ ELECTRICAL BUILDING 2
- ㉒ OUTFALL PUMPING STATION CONNECTION CHAMBER
- ㉓ CHEMICAL BUILDING

SECTION 3 SLUDGE TREATMENT & HANDLING AND ODOUR CONTROL

- ㉔ SLUDGE DEMATERING BUILDING
- ㉕ DEODORISATION UNITS (B)
- ㉖ SLUDGE SKIP STORAGE BUILDING
- ㉗ SLUDGE SKIP LOADING AREA
- ㉘ DEODORISATION UNITS (A)



SECTION 4 EXISTING BUILDINGS TO BE DEMOLISHED

- Ⓐ ADMINISTRATION BUILDING
- Ⓑ INLET SCREW PUMPING STATION AND MOTOR HOUSE
- Ⓒ COARSE SCREENS
- Ⓓ BLOWER HOUSE AND GRIT CHANNELS
- Ⓔ FINE SCREEN CHANNELS AND FLOWMETER CHAMBER

SECTION 5 EXTERNAL WORKS

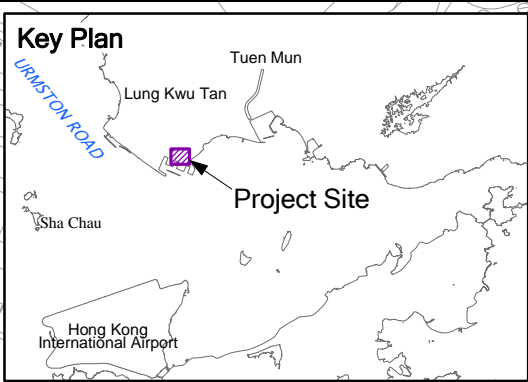
- ⑳ GATE HOUSE
- ㉑ CAR PARK

EXISTING BUILDING TO BE RETAINED

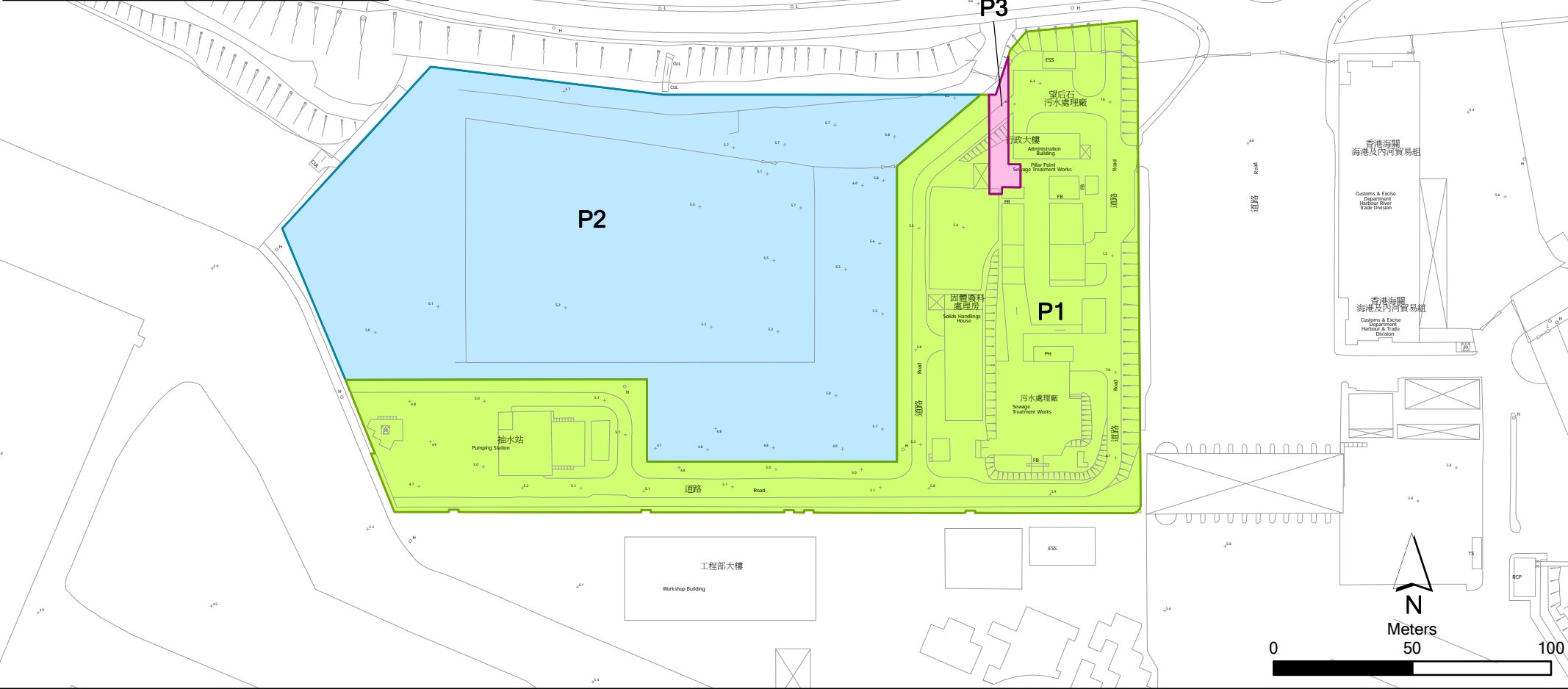
- ㉒ EXISTING SOLID HANDLING BUILDING
- ㉓ EXISTING OUTFALL PUMPING STATION
- ㉔ EXISTING TERMINAL MANHOLE

Annex B

Works Location



P1 & P3 - Works Areas within Existing PPSTW Facilities
P2 - Open Area for Construction of New Facilities at PPSTW



Annex B

Location of Works Areas

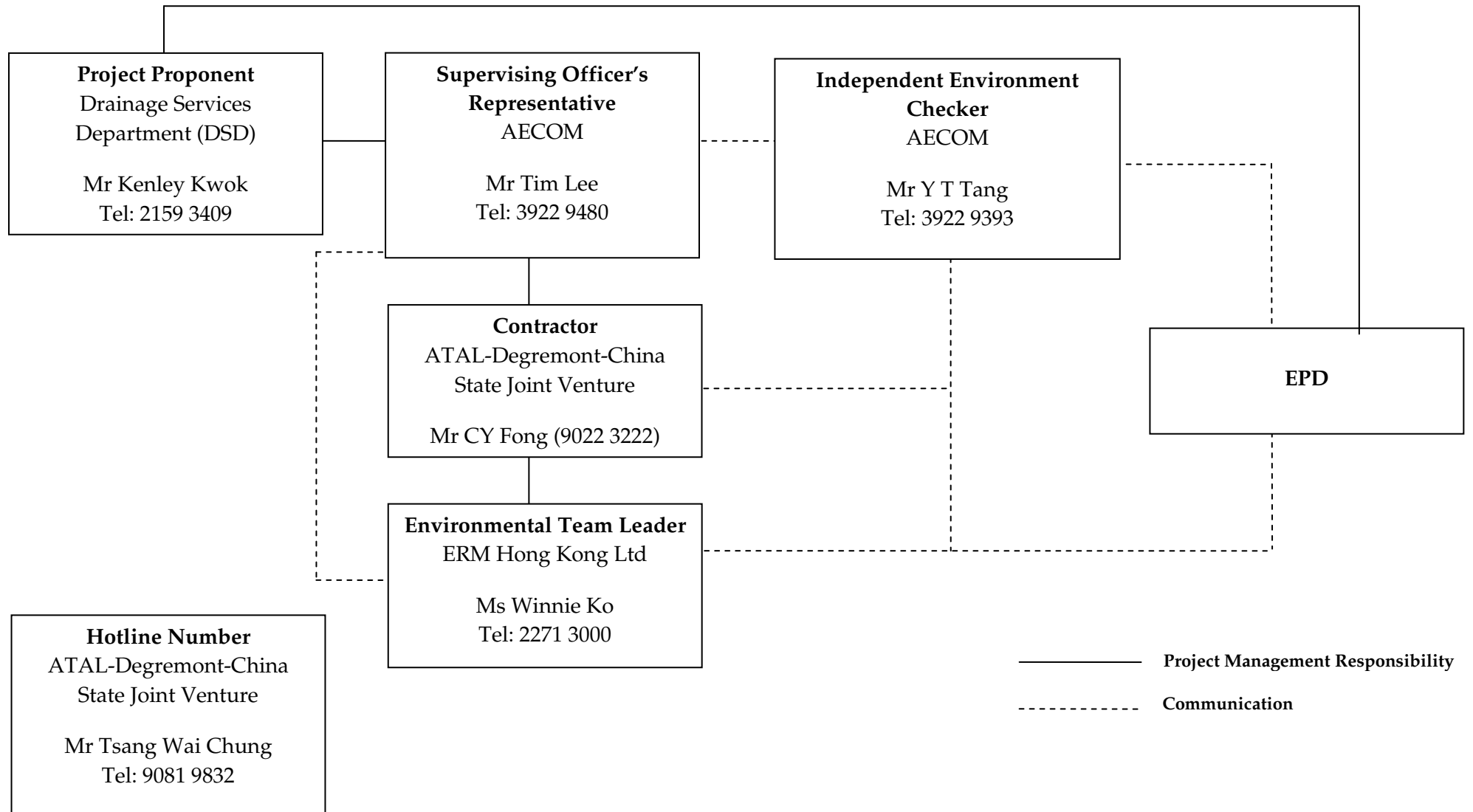
File: 0119806_location of works.mxd
Date: 15/12/2010

Environmental Resources Management

Annex C

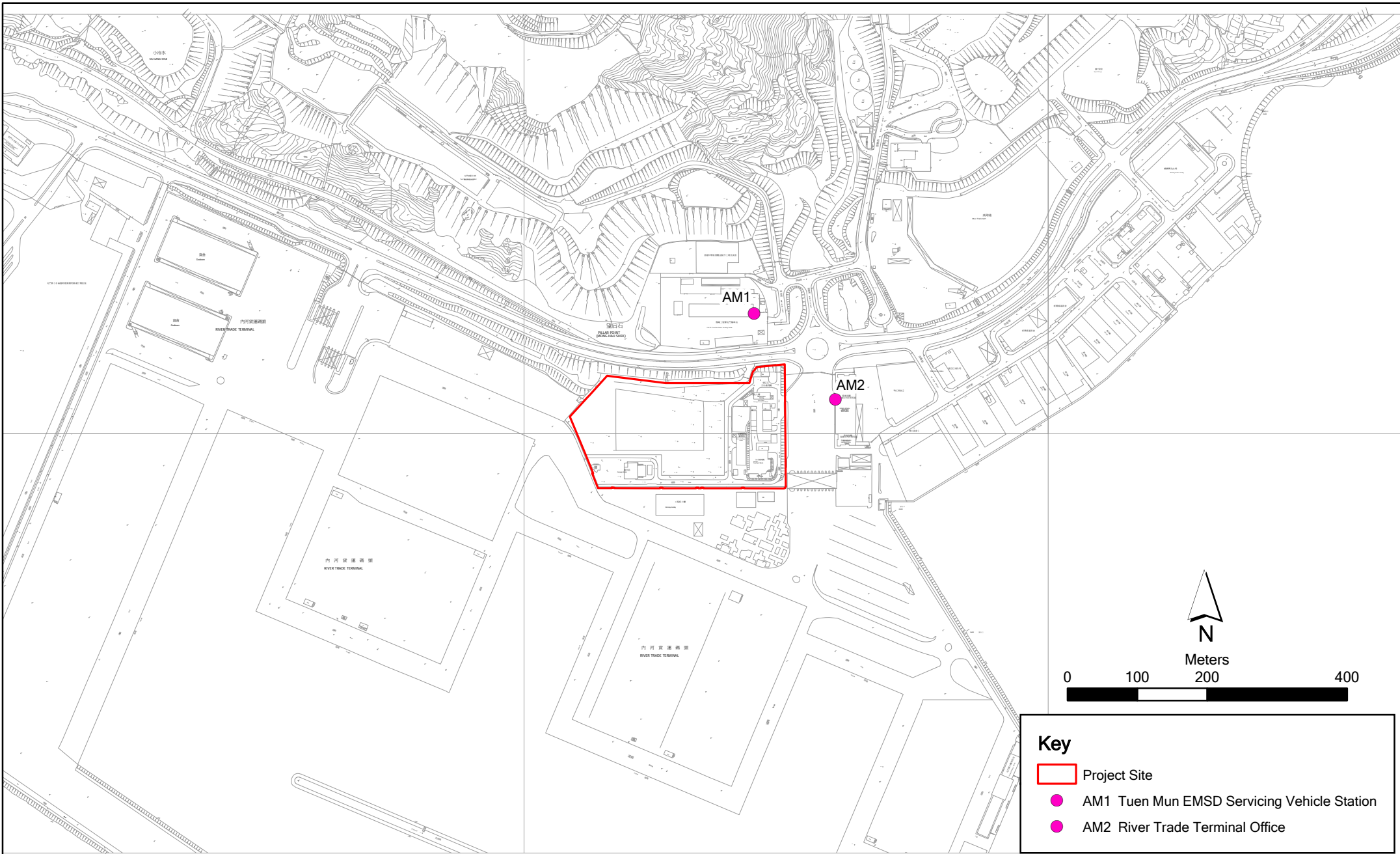
Project Organization Chart with Contact Details

Project Organization During Construction Phase (with contact details)



Annex D

Locations of Air Quality Monitoring Stations



Key

- Project Site
- AM1 Tuen Mun EMSD Servicing Vehicle Station
- AM2 River Trade Terminal Office

Annex D

Contract No. DC/2008/03 Design, Build and Operate of Pillar Point Sewage Treatment Works

File: 0119806_Site Boundary.mxd
Date: 15/12/2010

**Environmental
Resources
Management**





AM1 – Tuen Mun EMSD Servicing Vehicle Station



AM2 - River Trade Terminal Office

Annex E

Monitoring Schedule of Reporting Month and Next Month

**Contract No. DC/2008/03 - Design, Build and Operate Pillar Point Sewage Treatment Works
(Tuen Mun EMSD Servicing Vehicle Station - AM1 & River Trade Terminal Office - AM2)
October 2012**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Oct	2-Oct	3-Oct	4-Oct	5-Oct	6-Oct
			3X1-hr & 1X 24-hr TSP			
7-Oct	8-Oct	9-Oct	10-Oct	11-Oct	12-Oct	13-Oct
		3X1-hr & 1X 24-hr TSP				
14-Oct	15-Oct	16-Oct	17-Oct	18-Oct	19-Oct	20-Oct
	3X1-hr & 1X 24-hr TSP					3X1-hr & 1X 24-hr TSP
21-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct	27-Oct
				3X1-hr & 1X 24-hr TSP		
28-Oct	29-Oct	30-Oct	31-Oct			

**Contract No. DC/2008/03 - Design, Build and Operate Pillar Point Sewage Treatment Works
(Tuen Mun EMSD Servicing Vehicle Station - AM1 & River Trade Terminal Office - AM2)
November 2012**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Nov	2-Nov	3-Nov
				3X1-hr & 1X 24-hr TSP		
4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov	10-Nov
			3X1-hr & 1X 24-hr TSP			
11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov	17-Nov
		3X1-hr & 1X 24-hr TSP				
18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov	24-Nov
	3X1-hr & 1X 24-hr TSP					3X1-hr & 1X 24-hr TSP
25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov	
					3X1-hr & 1X 24-hr TSP	

Annex F

Calibration Reports for HVSs

TSP Monitoring Equipment

Monitoring Station ID	Location	Monitoring Equipment		Last Calibration Date	Next Calibration Date
<i>24-hr and 1-hr TSP</i>		HVS	Calibrator		
AM1	Tuen Mun EMSD Vehicle Servicing Station	GMW GS-2310 (S/N 7580)	CM-AIR-43 (S/N 0438320)	04 September 2012	04 November 2012
AM2	River Trade Terminal Office	GMW GS-2310 (S/N 1252)	CM-AIR-43 (S/N 0438320)	04 September 2012	04 November 2012

High-Volume TSP Sampler
5-Point Calibration Record

Location : EMSD
 Calibrated by : P.F.Yeung
 Date : 04/09/2012

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 7580

Calibration Office and Standard Calibration Relationship

Serial Number : 1378
 Service Date : 22 Feb 2012
 Slope (m) : 1.99405
 Intercept (b) : -0.00397
 Correlation Coefficient(r) : 0.99999

Standard Condition

Pstd (hpa) : 1013
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1012
 Ta(K) : 303

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	11.2	3.323	1.668	54	53.6
2 13 holes	9.4	3.044	1.529	48	47.7
3 10 holes	7.2	2.664	1.338	41	40.7
4 7 holes	4.4	2.083	1.046	30	29.8
5 5 holes	2.6	1.601	0.805	20	19.6

Sampler Calibration Relationship

Slope(m):38.620 Intercept(b): -11.003 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan

Date: 10/09/2012

High-Volume TSP Sampler
5-Point Calibration Record

Location : River Trade
 Calibrated by : P.F.Yeung
 Date : 04/09/2012

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 1252

Calibration Office and Standard Calibration Relationship

Serial Number : 1378
 Service Date : 22 Feb 2012
 Slope (m) : 1.99405
 Intercept (b) : -0.00397
 Correlation Coefficient(r) : 0.99999

Standard Condition

Pstd (hpa) : 1013
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1012
 Ta(K) : 303

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	11.2	3.323	1.668	64	63.5
2 13 holes	9.2	3.012	1.512	56	55.6
3 10 holes	7.4	2.701	1.356	49	48.7
4 7 holes	4.6	2.129	1.070	36	35.7
5 5 holes	2.6	1.601	0.805	23	22.8

Sampler Calibration Relationship

Slope(m):46.653 Intercept(b): -14.551 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan

Date: 10/09/2012

Annex G

24-hour and 1-hour TSP Monitoring Results

Annex G - 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM1

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Site Conditions / Observations / Remarks	Temperature ($^{\circ}\text{C}$)	Wind Speed * (m/s)	Sampler ID	Filter ID
03/10/2012	13:10	14:10	Sunny	100	343	500	Construction work in progress	26.9	*	7580	5437
	14:10	15:10	Sunny	96	343	500	Construction work in progress	26.9	*	7580	5438
	15:10	16:10	Sunny	109	343	500	Construction work in progress	26.9	*	7580	5439
09/10/2012	13:10	14:10	Sunny	109	343	500	Construction work in progress	26.7	*	7580	5458
	14:10	15:10	Sunny	111	343	500	Construction work in progress	26.7	*	7580	5459
	15:10	16:10	Sunny	101	343	500	Construction work in progress	26.7	*	7580	5460
15/10/2012	13:10	14:10	Fine	94	343	500	Construction work in progress	27.0	*	7580	5479
	14:10	15:10	Fine	82	343	500	Construction work in progress	27.0	*	7580	5480
	15:10	16:10	Fine	92	343	500	Construction work in progress	27.0	*	7580	5481
20/10/2012	13:10	14:10	Sunny	108	343	500	Construction work in progress	25.5	*	7580	5498
	14:10	15:10	Sunny	112	343	500	Construction work in progress	25.5	*	7580	5499
	15:10	16:10	Sunny	91	343	500	Construction work in progress	25.5	*	7580	5601
26/10/2012	13:10	14:10	Cloudy	103	343	500	Construction work in progress	25.3	*	7580	5626
	14:10	15:10	Cloudy	103	343	500	Construction work in progress	25.3	*	7580	5627
	15:10	16:10	Cloudy	116	343	500	Construction work in progress	25.3	*	7580	5628
				Min.	82						
				Max.	116						
				Average	102						

* Wind Speed data is presented in the Meteorological Data table

Annex G - 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM2

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Site Conditions / Observations / Remarks	Temperature ($^{\circ}\text{C}$)	Wind Speed * (m/s)	Sampler ID	Filter ID
03/10/2012	13:00	14:00	Sunny	106	383	500	Construction work in progress	26.9	*	1252	5433
	14:00	15:00	Sunny	134	383	500	Construction work in progress	26.9	*	1252	5434
	15:00	16:00	Sunny	123	383	500	Construction work in progress	26.9	*	1252	5435
09/10/2012	13:00	14:00	Sunny	112	383	500	Construction work in progress	26.7	*	1252	5454
	14:00	15:00	Sunny	112	383	500	Construction work in progress	26.7	*	1252	5455
	15:00	16:00	Sunny	129	383	500	Construction work in progress	26.7	*	1252	5456
15/10/2012	13:00	14:00	Sunny	106	343	500	Construction work in progress	27.0	*	1252	5475
	14:00	15:00	Sunny	113	343	500	Construction work in progress	27.0	*	1252	5476
	15:00	16:00	Sunny	95	343	500	Construction work in progress	27.0	*	1252	5477
20/10/2012	13:00	14:00	Sunny	118	383	500	Construction work in progress	25.5	*	1252	5494
	14:00	15:00	Sunny	135	383	500	Construction work in progress	25.5	*	1252	5495
	15:00	16:00	Sunny	116	383	500	Construction work in progress	25.5	*	1252	5496
26/10/2012	15:00	16:00	Cloudy	99	383	500	Construction work in progress	25.3	*	1252	5624
	16:00	17:00	Cloudy	105	383	500	Construction work in progress	25.3	*	1252	5623
	17:00	18:00	Cloudy	99	383	500	Construction work in progress	25.3	*	1252	5622
				Min.	95						
				Max.	135						
				Average	113						

* Wind Speed data is presented in the Meteorological Data table

Annex G - 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM1

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID		
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average								
3/10/2012	16:10	4-Oct-12	16:10	Sunny	2.7684	2.9044	13412.18	13436.18	24	1.37	1.37	1.37	69	183	260	Construction work in progress	7580	5440		
09/10/2012	16:10	10-Oct-12	16:10	Sunny	2.7486	2.8971	13439.18	13463.18	24	1.37	1.37	1.37	75	183	260	Construction work in progress	7580	5451		
15/10/2012	16:10	16-Oct-12	16:10	Fine	2.7748	2.9010	13466.18	13490.18	24	1.37	1.37	1.37	64	183	260	Construction work in progress	7580	5482		
20/10/2012	16:10	21-Oct-12	16:10	Sunny	2.8518	2.9821	13493.18	13517.18	24	1.37	1.37	1.37	66	183	260	Construction work in progress	7580	5602		
26/10/2012	16:10	27-Oct-12	16:10	Cloudy	2.7934	2.9314	13520.18	13544.18	24	1.37	1.37	1.37	70	183	260	Construction work in progress	7580	5629		
												Min.	64							
												Max.	75							
												Average	69							

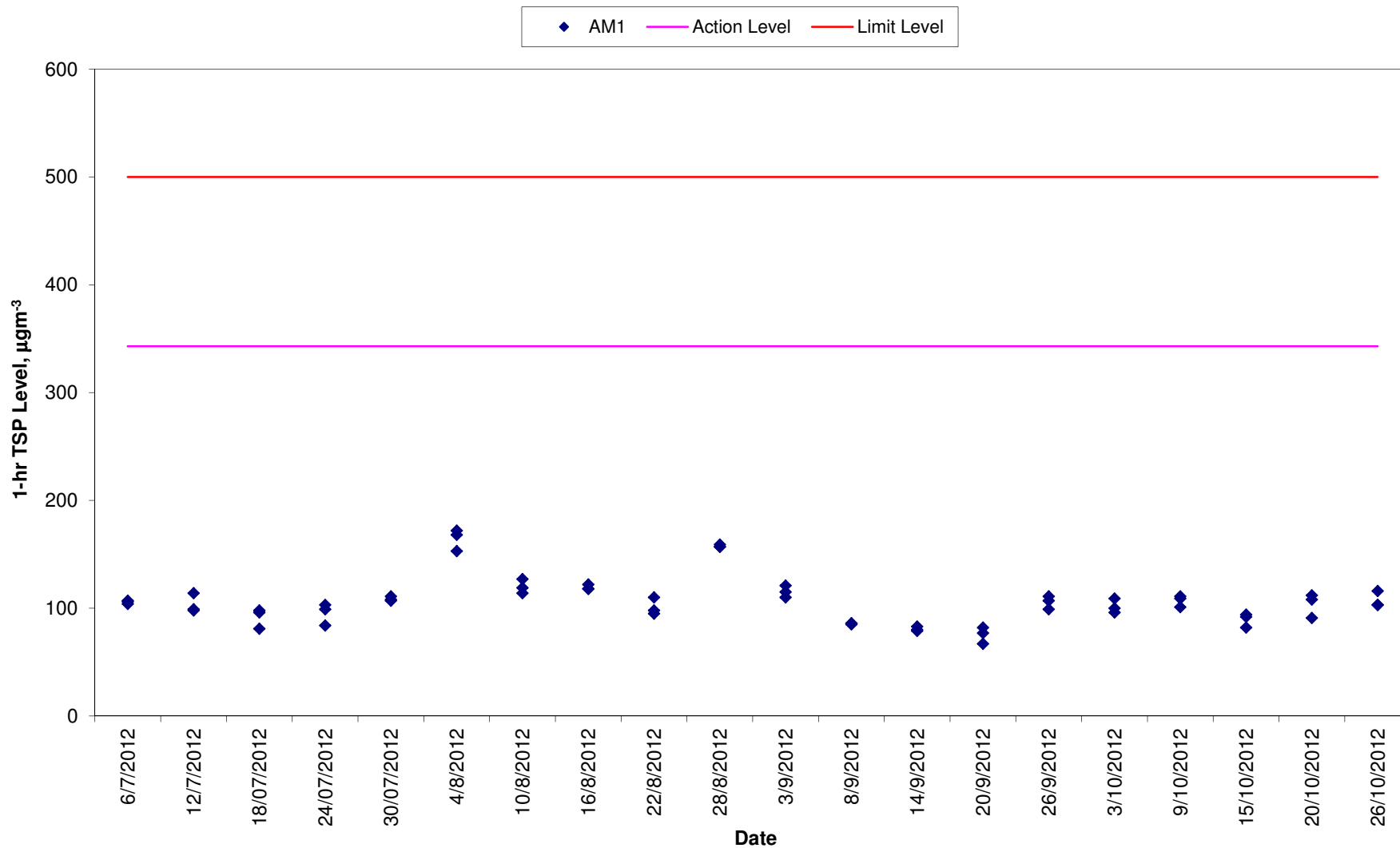
24-hour TSP Monitoring Results

Station AM2

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID		
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average								
3/10/2012	16:00	4-Oct-12	16:00	Sunny	2.776	2.9009	21429.2	21453.2	24	1.21	1.21	1.21	72	192	260	Construction work in progress	1252	5436		
09/10/2012	16:00	10-Oct-12	16:00	Sunny	2.7566	2.8899	21456.20	21480.20	24	1.21	1.21	1.21	77	192	260	Construction work in progress	1252	5457		
15/10/2012	16:00	16-Oct-12	16:00	Fine	2.7428	2.8750	21483.20	21507.20	24	1.21	1.21	1.21	76	192	260	Construction work in progress	1252	5478		
20/10/2012	16:00	21-Oct-12	16:00	Sunny	2.7854	2.9114	21510.20	21534.20	24	1.21	1.21	1.21	72	192	260	Construction work in progress	1252	5497		
26/10/2012	16:00	27-Oct-12	16:00	Cloudy	2.8068	2.9191	21537.20	21561.20	24	1.21	1.21	1.21	64	192	260	Construction work in progress	1252	5625		
												Min.	64							
												Max.	77							
												Average	72							

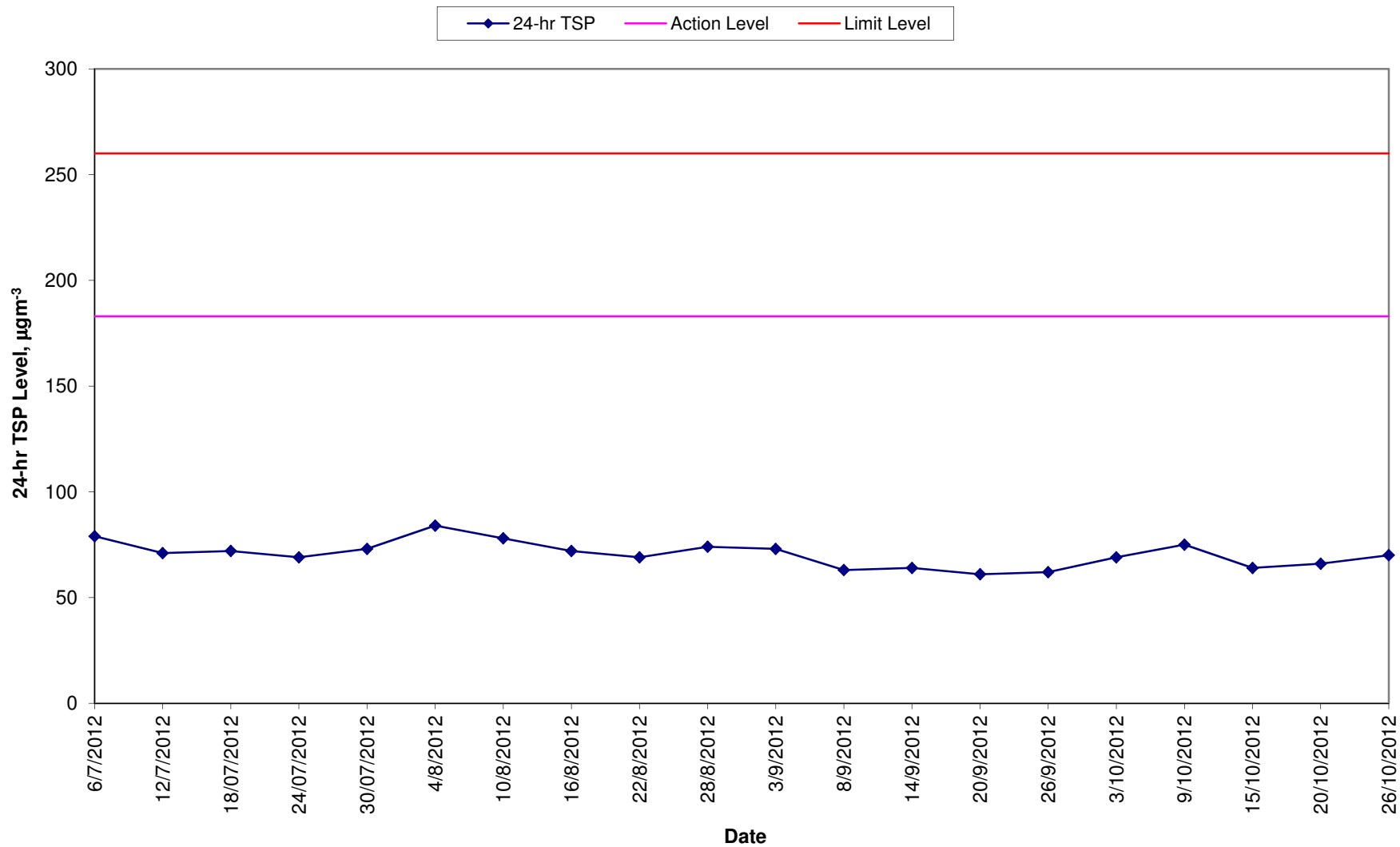
AbbVI ; TSP Monitoring Results

1-hr TSP Levels for the Past 4 Months AM1 (Tuen Mun EMSD Vehicle Servicing Station)



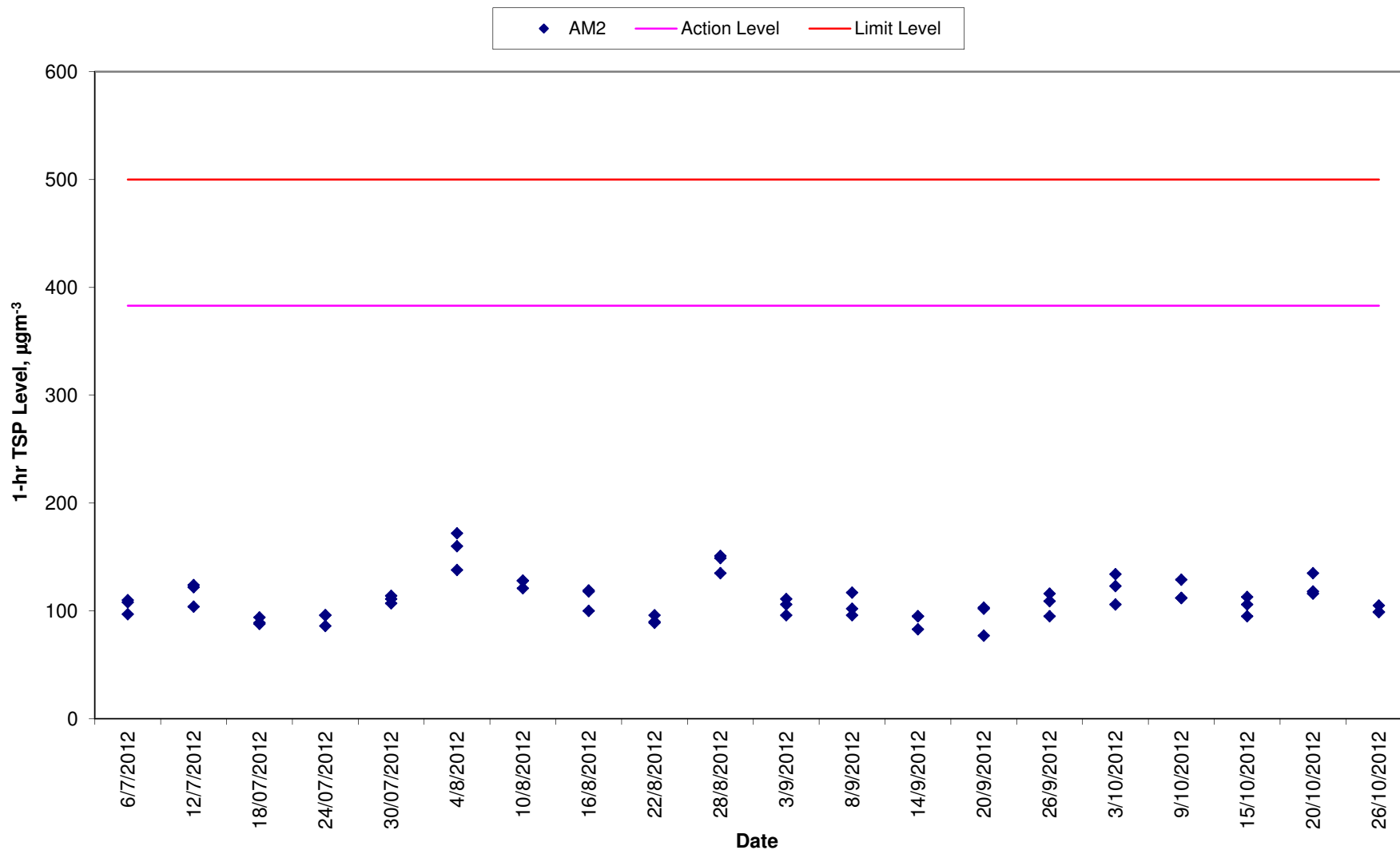
Annex ; TSP Monitoring Results

24-hr TSP Levels for the Past 4 Months AM1 (Tuen Mun EMSD Vehicle Servicing Station)



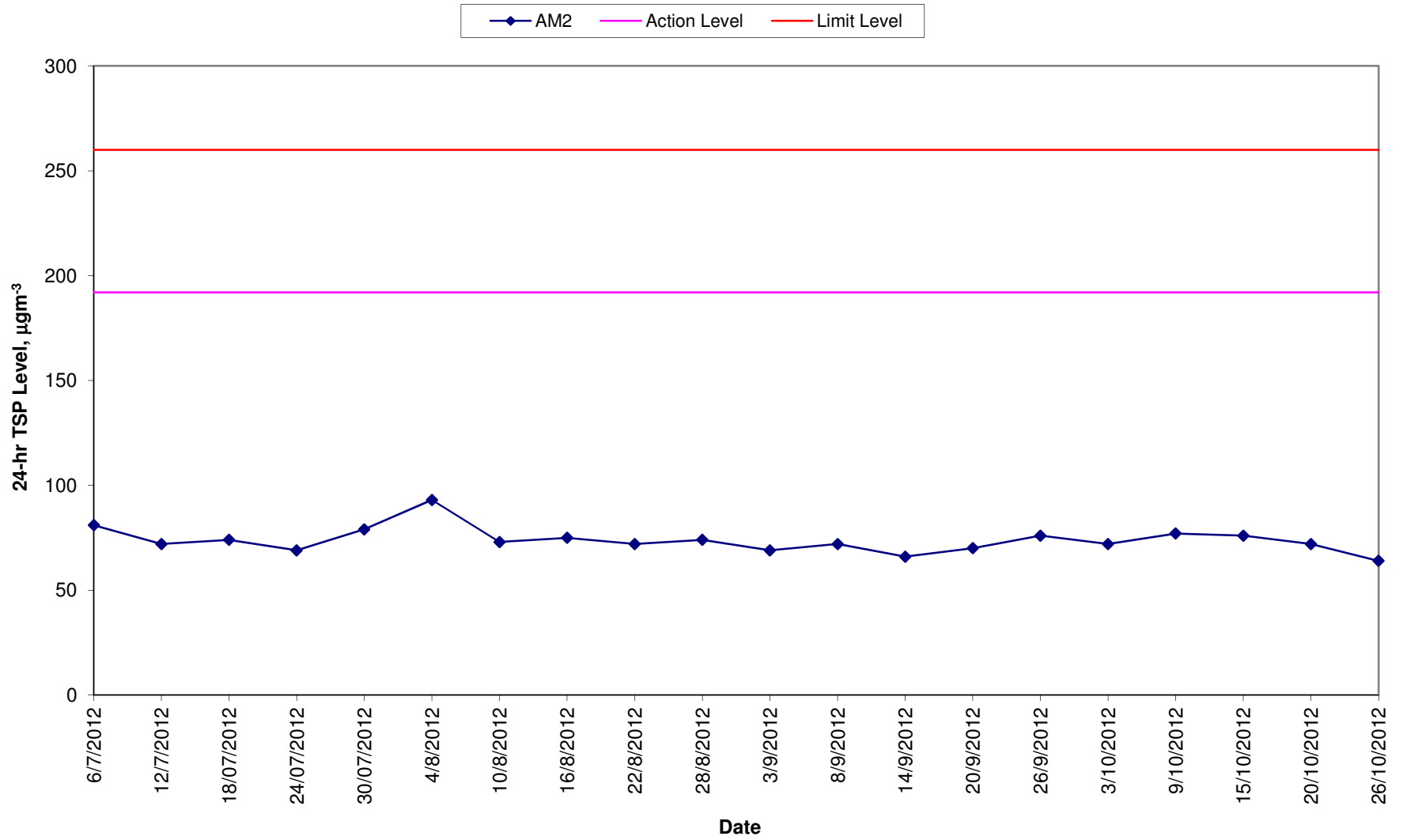
Annex ; TSP Monitoring Results

1-hr TSP Levels for the Past 4 Months AM2 (River Trade Terminal Office)



Annex ; HSP Monitoring Results

24-hr TSP Levels for the Past 4 Months AM2 (River Trade Terminal Office)



Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	Tuen Mun Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
3/10/2012	Sunny	26.9	62-81	0.0	6.0	SE
4/10/2012	Sunny	26.7	65-84	0.0	6.0	N
9/10/2012	Sunny	26.7	62-81	0.0	5.0	N
10/10/2012	Sunny	26.8	49-78	0.0	9.0	N
15/10/2012	Fine	27.0	59-82	0.0	6.0	S
16/10/2012	Fine	26.9	64-82	Trace	6.0	SE
20/10/2012	Sunny	25.5	67-81	Trace	12.0	SE
21/10/2012	Sunny	25.6	56-83	0.0	7.0	N
26/10/2012	Cloudy	25.3	66-89	0.7	6.0	NE
27/10/2012	Cloudy	25.9	70-92	0.8	9.0	N

Annex H

Event/Action Plan for Air Quality Monitoring

Table H1 *Event Action Plan for Air Quality Monitoring*

Action Level/Limit Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Supervising Officer Representative (SOR)	Contractor
<i>Action Level</i>				
Exceedance for one sample	<ul style="list-style-type: none"> Identify source, investigate the causes of complaint and propose remedial measures; Inform IEC and SOR; Repeat measurement to confirm findings; Increase monitoring frequency to daily. 	<ul style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor’s working method. 	<ul style="list-style-type: none"> Notify Contractor and DSD. 	<ul style="list-style-type: none"> Rectify any unacceptable practice; Amend working methods if appropriate.
Exceedance for two or more consecutive samples	<ul style="list-style-type: none"> Identify source; Inform IEC and SOR; Advise the SOR on the effectiveness of the proposed remedial measures; Repeat measurements to confirm findings; Increase monitoring frequency to daily; Discuss with IEC and Contractor on remedial actions required; If exceedance continues, arrange meeting with IEC and SOR; If exceedance stops, cease additional monitoring. 	<ul style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor’s working method; Discuss with ET and Contractor on possible remedial measures; Advise the ET on the effectiveness of the proposed remedial measures; Supervise Implementation of remedial measures. 	<ul style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Notify Contractor and DSD; Ensure remedial measures properly implemented. 	<ul style="list-style-type: none"> Submit proposals for remedial actions to IEC within three working days of notification; Implement the agreed proposals; Amend proposal if appropriate.

Action Level/Limit Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Supervising Officer Representative (SOR)	Contractor
<i>Limit Level</i>				
Exceedance for one sample	<ul style="list-style-type: none"> Identify source, investigate the causes of exceedance and propose remedial measures; Inform IEC, SOR, DSD and EPD; Repeat measurement to confirm finding; Increase monitoring frequency to daily; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD, DSD and SOR informed of the results. 	<ul style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the SOR on the effectiveness of the proposed remedial measures; Supervise implementation of remedial measures. 	<ul style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Notify Contractor; Ensure remedial measures properly implemented. 	<ul style="list-style-type: none"> Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within three working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
Exceedance for two or more consecutive samples	<ul style="list-style-type: none"> Notify IEC, SOR, DSD and EPD; Identify source; Repeat measurement to confirm findings; Increase monitoring frequency to daily; Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; Arrange meeting with IEC and SOR to discuss the remedial actions to be taken; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD, DSD and SOR informed of the results; If exceedance stops, cease additional monitoring. 	<ul style="list-style-type: none"> Discuss amongst SOR, ET, and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the SOR accordingly; Supervise the implementation of remedial measures. 	<ul style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Notify Contractor; In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; Ensure remedial measures properly implemented; If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ul style="list-style-type: none"> Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within three working days of notification; Implement the agreed proposals; Resubmit proposals if problem still not under control; Stop the relevant portion of works as determined by the SOR until the exceedance is abated.

Annex I

Implementation Schedule of Mitigation Measures

Annex I Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Summary of Environmental Mitigation Measures in the EIA and EM&A Manual</i>			
<i>Construction Phase</i>			
Air Quality	Dust mitigation measures stipulated in <i>the Air Pollution Control (Construction Dust) Regulation</i> shall be incorporated to control Post emission. Notice shall be given to authority prior to commencing of work.	Work sites / during construction period	Notice of works commencement was submitted to EPD on 3 August 2010.
Water Quality	The practices outlined in ProPECC PN 1/94 Construction Site Drainage should be adopted. It is recommended to install perimeter channels in the works areas to intercept runoff as site boundary prior to the commencement of any earthwork. To prevent storm runoff from washing across exposed soil surfaces, intercepting channels should be provided. Drainage channels are also required to convey site runoff to sand/silt traps and oil interceptors. Provision of regular cleaning and maintenance can ensure the normal operation of these facilities throughout the construction period. Any practical options for the diversion and re-alignment of drainage should comply with both engineering and environmental requirements in order to ensure adequate hydraulic capacity of all drains.	Work site/During the construction period	√
Water Quality	There is a need to apply to EPD for a discharge license under the WPCO for discharging effluent from the construction site. The discharge quality is required to meet the requirements specified in the discharge license. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. Reuse and recycling of the treated effluent can minimize water consumption and reduce the effluent discharge volume. The beneficial uses of the treated effluent may include dust suppression, wheel washing and general cleaning. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD.	Work site/During the construction period	√ Discharge licence was awarded by EPD on 7 December 2010.
Water Quality	The construction programme should be properly planned to minimize soil excavation, if any, in rainy seasons. This prevents soil erosion from	Work site/During the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	<p>exposed soil surfaces. Any exposed soil surfaces should also be properly protected to minimize dust emission. In areas where a large amount of exposed soil exists, earth bunds or sand bags should be provided. Exposed stockpiles should be covered with tarpaulin or impervious sheets at all times. The stockpiles of materials should be placed at locations away from any stream course so as to avoid releasing materials into the water bodies. Final surfaces of earthworks should be compacted and protected by permanent work. It is suggested that haul roads should be paved with concrete and the temporary access roads protected using crushed stone or gravel, wherever practicable. Wheel washing facilities should be provided at all site exists to ensure that earth, mud and debris would not be carried out of the works areas by vehicles.</p>		
Water Quality	<p>Good sites practices should be adopted to clean the rubbish and litter on the construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis.</p>	Work site/ During the construction period	√
Water Quality	<p>The presence of construction workers generates sewage. It is recommended to provide sufficient chemical toilets in the works areas. The toilet facilities should be more than 30m from any watercourse. A licensed water collector should be deployed to clean the chemical toilets on a regular basis. The construction workers can also make use of the existing toilet facilities within the PPSTW as necessary.</p>	Work site/ During the construction period	√
Water Quality	<p>Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the project. Regular environmental audit on the construction phase of the project. Regular environmental audit on the construction site can provide an effective control of any malpractices and can achieve continual improvement of environmental performance on site.</p>	Work site/ During the construction period	√
Waste Management	<p>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation</p>	Work site/ During the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	should be observed and complied with for control of chemical wastes.		
Waste Management	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and stumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	Work site/ During the construction period	√
Waste Management	<p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with the chemical wastes. General requirements are given as follows:</p> <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 	Work site/ During the construction period	√
Waste Management	<p><i>Good Site Practices</i> Recommendations for good site practices during the construction activities include:</p> <ul style="list-style-type: none"> • Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site • Training of site personnel in proper waste management and chemical handling procedures • Provision of sufficient waste disposal points and regular collection of waste • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers 	Work site/ During the construction period	<>

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	<ul style="list-style-type: none"> • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. • Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility. 		
Waste Management	<p><i>Waste Reduction Measures</i></p> <p>Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. • Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the work force • Proper storage and site practices to minimise the potential for damage or contamination of construction materials. • Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. 	Work site/ During planning & design stage, and construction stage	√
Waste Management	<p><i>General Refuse</i></p> <p>General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.</p>	Work site / During the construction period	√
Waste Management	<p><i>Construction and Demolition Material</i></p> <p>In order to minimise the impact resulting from collection and transportation of C&D material for off-site disposal, the excavated material generated from site formation works for the proposed new</p>	Work site / During design stage & construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	facilities and units at the STW should be reused on-site as far as practicable. The surplus excavated material should be disposed of at the designated public fill reception facility, as agreed with the Secretary of the Public Fill Committee, for other beneficial uses.		
Waste Management	<p>Mitigation measures and good site practices should be followed to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include:</p> <ul style="list-style-type: none"> • Where it is unavoidable to have transient stockpiles of C&D material pending collection for disposal, the transient stockpiles shall be located away from waterfront or storm drains as far as possible. • Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric. • Skip hoist for material transport should be totally enclosed by impervious sheeting. • Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site • The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores. • The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle. • All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet. • The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading. 	Work site / During design stage & construction period	√
Waste Management	When disposing C&D material at a public filling facility, it shall be noted that the material shall only consist of earth, building debris and broken rock and concrete. The material shall be free from marine mud, household refuse, plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered to be unsuitable by	Work site/ During design stage & construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	<p>the Filling Supervisor. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work with reference to the ETWB TCW No. 31/2004 "Trip Ticket System for Disposal of Construction and Demolition Materials" as attached in Appendix 7-1. An Independent Environmental Checker should be responsible for auditing the results of the system.</p>		
Waste Management	<p><i>Chemical Waste</i></p> <p>If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</p>	Work site / During the construction period	√
Landscape & Visual	<p><u>Temporary Tree Nurseries</u></p> <p>Temporary tree nurseries may be set up for the transplanted tree and proposed trees at an early stage to allow small trees to grow during the construction periods. By the time when planting area becomes available, trees mature and increase in trunk & spread size. They will require minimal pruning and suffer much less damage during transplanting when comparing the travel distance from an on-site nursery to an off-site nursery.</p> <p>Besides, these trees may also be positioned as visual mitigation during the construction period.</p>	Work site/ During design stage & construction period	√. A tree nursery has been set up off-site near the site office.

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Landscape & Visual	<p><u>No-intrusion Zone</u></p> <p>To maximize protection to existing trees and ground vegetation, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should close monitor and restrict the site working staff not to enter the "no-intrusion zone", even for non-direct construction activities and storage of equipment.</p>	Work site/ During design stage & construction period	<>
Landscape & Visual	<p><u>Hoarding</u></p> <p>Hoarding or boundary fencing for construction shall be considered. It should be sensitively designed, subtle, camouflaged and more 'permeable' so that they fit into the existing environment when looking from outside.</p>	Work site/ During design stage & construction period	√
Landscape & Visual	<p><u>Dust and Erosion Control for Exposed Soil</u></p> <p>Excavation works and demolition of existing building blocks and which will be highly visible form surrounding areas should be well planned and with precautions to suppress dust. Exposed soil shall be covered or 'camouflaged' and watered often. Areas that are expected to be left with bare soil for a long period of time after excavation shall be properly covered with suitable protective fabric. Silt and erosion shall be controlled by ground barriers around the slope cutting area..</p>	Work site/ During design stage & construction period	<>
Landscape & Visual	<p><u>Existing Tree Record Inventory</u></p> <p>All retained trees should be record photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system.</p>	Work site/ During design stage & construction period	√
Landscape &	<u>Construction Light</u>	Work site / During design stage & construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Visual	All security floodlights for construction sites shall be equipped with adjustable shield, frosted diffusers and reflective covers, and be carefully controlled to minimize light pollution and night-time glare to nearby residences and GIC users. The Contractor shall consider other security measures which shall minimize the visual impacts.	period	
Landscape & Visual	<p><u>Tree Transplanting</u></p> <p>Apart from the 18 numbers of “<i>Leucaena leucocephala</i>”, which are proposed to be felled in accordance with ETWB TCW No. 3/2006, all the affected trees shall be transplanted. Where practicable, trees shall be directly transplanted to permanent on-site locations. The location of the transplanted tree is shown in Figure 8.9.1.</p>	Work site / During design stage & construction period	√. Tree transplantation in progress.
Landscape & Visual	<p><u>Tree Compensation Ratio</u></p> <p>The total number of compensatory trees planted in the project area shall not be less than 1:1 ratios by new trees. Required numbers and locations of compensatory trees shall be determined and agreed with Government during the tree felling application process under ETWCTC 3/2006. Compensatory trees shall be at least heavy standard size to create “immediate” greening effect. 81 numbers of “<i>Cassia surattensis</i>” will be provided as the additional compensatory planting for loss of greenery in the area due to removal of the affected trees. The location of the additional compensatory planting is shown in Figure 8.9.1.</p>	Work site / During design stage & construction period	N/A
Landscape & Visual	<p><u>Re-use of Existing Soil and Advance formation of Planting Area</u></p> <p>Existing topsoil shall be re-used where possible for new planting areas within the project. Advance formation of planting area and early implementation of the plating works can minimize adverse impact on trees. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary.</p>	Work site / During design stage & construction period	√
Landscape &	<u>Establishment Period</u>	Work site/ During operation period	N/A. To be implemented during

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Visual	12 month establishment period for the soft landscape works will be allowed in the main contract. Most construction contracts in Hong Kong require the Contractor to carry out routine horticultural operations, including watering, pruning, weeding, pest control, replacement of dead plants etc. to ensure healthy establishment of new planting during a 12 month establishment period. This period also serves as a kind of warranty / guarantee on the quality of the plants supplied and installed by the Contractor. Monthly monitoring during the first year of establishment period is recommended.		operation phase of Project.
Landscape & Visual	<u>Re-instatement of excavated Area</u> All excavated area and disturbed area for utilities diversion, temporary road diversion, and pipeline works will be reinstated to former conditions, subject to applicable Government Standards.	Work site / During design stage & operation period	N/A. To be implemented during operation phase of Project.
Landscape & Visual	<u>Appearance and Greening for the proposed structures</u> Compatible design, construction materials and surface finishes of the proposed structure should match with the nearby existing external appearance of PPSTW buildings for achieving visual uniformity. Finishing materials shall have due consideration to form, basic color, color/tone variation, micro-and macro-texture, and reflectivity/light absorbance to avoid glare. Planting, such as turf, low groundcovers and climbers, may also be planted on top of these elements to provide greening and aesthetic effect.	Work site / During design stage & operation period	N/A. To be implemented during operation phase of Project.
<i>Summary of Key Environmental Mitigation Measures in Contract Requirements</i>			
Air Quality	Only Ultra-low-sulphur diesel (ULSD) should be used for all diesel-operated plants and equipments on site	Work sites / during construction period	√
Air Quality and Noise	Plants and equipments of good operation conditions should be used on site.	Work sites / during construction period	√
Noise	No diesel hammers should be used for piling works	Work sites / during construction period	√
Noise	Construction Noise Permits (CNP) should be applied for works conducted outside non-restricted hours.	Work sites / during construction period	√
Noise	Quiet construction equipments and the quietest practicable working methodologies should be adopted for works whenever feasible. Noise	Work sites / during construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	labels should be provided for air compressors. Hoods and cover panels of generators and air compressors should be closed during operation. Noise labels should be provided for air compressors and hand-held percussive breakers.		
Waste Management	Temporary works construction on site should minimize the use of timber to reduce the quantity of C&D waste generated during works period.	Work sites / during construction period	√
Landscape and Visual	Retained or to-be-transplanted trees on site should be properly protected from physical damages and soil compacts with temporary fencing or hessian armouring whenever feasible.	Work sites / during construction period	<>

Remark:

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

Annex J

Waste Flow Table

Contract No. : DC/2008/03 - Design, Build and Operate Pillar Point Sewage Treatment Works

Monthly Summary Waste Flow Table

Month	Actual Quantities of Inert C&D Materials (Public Fill) Generated					Actual Quantities of Non-inert C&D Materials (Construction Waste) Generated					Imported Fill
	Total Quantity Generated	Reused in the Contract	Reused in other Projects	Disposed as Public Fill		Metals (see Note 1)	Paper/ cardboard packaging (see Note 1)	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse (see Note 3)	Inert C&D material
				Rocks & Broken Concrete	Total						
Nov 2010	2,248	0	0	0	2,248	60	100	0	0	18.05 (see Note 4)	0
Dec 2010	11,314 (see Note 4)	0	0	0	11,314	100	120	20	0	28.4 (see Note 4)	0
Jan 2011	58,383 (see Note 4)	0	0	0	58,383	250	280	60	0	4.59 (see Note 4)	0
Sub-total	71,945	0	0		71,945	410	500	80	0	51.04	0
Feb 2011	12,855	0	0	0	12,855	100	150	50	0	2.43 (see Note 4)	0
Mar 2011	22,859	0	0	0	22,859	150	180	55	0	9.02	0
Apr 2011	8,547 (see Note 7)	0	5,684(see Note 5, 7)	0	2,863 (see Note 7)	50	30	15	0	5.78	0
Sub-total	44,261	0	5,684		38,577	300	360	120	0	17.23	0
May 2011	6,293 (see Note 7)	0	11 (see Note 5, 7)	0	6,282 (see Note 7)	45	25	10	360 (see Note 7)	8.83	0
Jun 2011	4,587 (see Note 7)	0	0 (see Note 7)	0	4,587 (see Note 7)	40	30	15	0	7.10	0
Jul 2011	523	0	0	0	523	15	5	10	0	7.20	0
Sub-total	11,403	0	11		11,392	100	60	35	360	23.13	0
Aug 2011	571 (see Note 11)	0	0	0	571 (see Note 11)	0	0	15	450 (see Note 8)	6.12	0
Sept 2011	235	0	0	0	235	20	0	0	0	12.15 (see Note 9)	0
Oct 2011	5,705 (see Note 10)	0	0	0	5,705 (see Note 10)	100	0	0	0	2.98	0
Sub-total	6,511	0	0		6,511	120	0	15	450	21.25	0
Nov 2011	6,294	0	0	0	6,294	50	0	0	0	44.84	0
Dec 2011	3,011	0	0	0	3,011	20	0	0	0	17.14	0
Jan 2012	349	64	0	0	285	20	150	0	0	49.01	0

Month	Actual Quantities of Inert C&D Materials (Public Fill) Generated					Actual Quantities of Non-inert C&D Materials (Construction Waste) Generated					Imported Fill
	Total Quantity Generated	Reused in the Contract	Inert C&D material	Disposed as Public Fill		Metals (see Note 1)	Paper/ cardboard packaging (see Note 1)	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse (see Note 3)	Inert C&D material
				Rocks & Broken Concrete	Total						
	tonne	tonne	tonne	tonne	tonne	kilogram	kilogram	kilogram	Litre	tonne	tonne
Sub-total	9,654	64	0	9,590		90	150	0	0	110.99	0
Feb 2012	3,371	30	0	0	3,341	150	0	0	0	48.72	0
Mar 2012	6,460	3,000	0	0	3,460	30	0	0	0	41.1	0
April 2012	3,774	3,000	0	0	774	40	0	0	0	40.01	0
Sub-total	13,605	6,030	0	7,575		220	0	0	0	129.83	0
May 2012	4,336	2,000	0	100	2,336	40	0	0	0	75.19	0
June 2012	6,591	1,000	0	50	5,591	40	20	20	0	66.74	0
July 2012	3,972	600	0	50	3,372	40 (see Note 12)	20 (see Note 12)	20	0	100.5	0
Sub-total	14,899	3,600	0	11,299		120	40	40	0	242	0
Aug 2012	1,660	1,000	0	100	660	30	10	0	0	78.77	0
Sept 2012	2,055	500	0	300	1,555	30	40	3	0	118.8	4,011(see Note 13)
Oct 2012	2,457	0	0	200	2,457	30	30	0	0	124	0
Sub-total	6,172	1,500	0	4,672		90	80	3	0	322	4,011
Total	178,450	11,194	5,695	161,561		1,450	1,190	253	810	917	4,011

- Notes:
- (1) Metal and paper/cardboard packaging were collected by recycler for recycling.
 - (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material collected by recycler for recycling.
 - (3) General refuse was disposed of at WENT by subcontractors.
 - (4) The waste flow data for November and December 2010, January and February 2011 was updated in March 2011 based on SOR's comments and has been confirmed by the Contractor.
 - (5) The inert C&D materials were reused in the Contract No. EP/SP/58/08 at Tuen Mun Tsang Tsui.
 - (6) Chemical waste was collected through the licensed chemical waste collector, Dunwell Ind. (Holdings) Ltd, with the waste collection licence number 7111-757-W0015-WC.
 - (7) The waste flow data for April, May and June 2011 was updated in August 2011 based on SOR's comments and has been confirmed by the Contractor.
 - (8) The waste flow data of chemical waste for August 2011 was updated in October 2011 based on Contractor's revised waste flow summary.
 - (9) The waste flow data of general refuse for September 2011 was updated in November 2011 based on Contractor's revised waste flow summary.
 - (10) The waste flow data of C&D material for October 2011 was updated in December 2011 based on Contractor's revised waste flow summary.
 - (11) The waste flow data of C&D material for August 2011 was updated in January 2011 based on SOR's comments and has been confirmed by the Contractor.

- (12) The waste flow data of metal and paper/cardboard packaging for June 2011 was revised in August 2012.
- (13) The waste flow data of imported inert C&D material for September 2012 was updated in October 2012 based on the Contractor's revised waste flow summary.

Annex K

Environmental Complaint,
Environmental Summons
and Persecution Log

Annex K Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
November 2010	0	0
December 2010	0	0
January 2011	0	0
February 2011	0	0
March 2011	0	0
April 2011	0	0
May 2011	0	0
June 2011	0	0
July 2011	0	0
August 2011	0	0
September 2011	0	0
October 2011	0	0
November 2011	0	0
December 2011	0	0
January 2012	0	0
February 2012	0	0
March 2012	0	0

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
April 2012	0	0
May 2012	0	0
June 2012	0	0
July 2012	0	0
August 2012	0	0
September 2012	0	0
October 2012	0	0
Overall Total	0	0

Annex L

Construction Programme of the Project

Activity ID	Description	Orig. Duration	Early Start	Early Finish	2012												2013					
					OCT		NOV			DEC			JAN		FEB		JAN		FEB			
					22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04	11	
CCC300150	UV: Substructure - Wall/ Column / Isolation Work	36	10SEP2012 A	20NOV2012	UV: Substructure - Wall/ Column / Isolation Work																	
CCC300160	UV: Superstructure - Roof & Beam	15	15NOV2012	01DEC2012	UV: Superstructure - Roof & Beam																	
CCC300165	UV: Remove Temporary Support	12	01DEC2012	14DEC2012	UV: Remove Temporary Support																	
CCC300170	UV: ABWF Work	8	15DEC2012	24DEC2012	UV: ABWF Work																	
CCC300180	UV: Backfilling	10	27DEC2012	08JAN2013	UV: Backfilling																	
CCC300190	UV: Water Tightness Test	18	15NOV2012	02DEC2012	UV: Water Tightness Test																	
CCC300200	UV: Handover for E&M installation	0		24DEC2012	UV: Handover for E&M installation																	
Sludge Treatment Facilities																						
Building and Structures																						
CCC600410	SDB: Beams & Slab at G/F	26	26SEP2012 A	08NOV2012	SDB: Beams & Slab at G/F																	
CCC600430	SDB: Walls & Columns - G/F to 1/F	18	09NOV2012	29NOV2012	SDB: Walls & Columns - G/F to 1/F																	
CCC600440	SDB: Beams & Slabs at 1/F	18	09NOV2012	29NOV2012	SDB: Beams & Slabs at 1/F																	
CCC600450	SDB: Walls & Columns - 1/F to R/F	18	30NOV2012	20DEC2012	SDB: Walls & Columns - 1/F to R/F																	
CCC600460	SDB: Beams & Slab at R/F	15	21DEC2012	10JAN2013	SDB: Beams & Slab at R/F																	
CCC600470	SDB: Water Tightness Test	36	28OCT2012	02DEC2012	SDB: Water Tightness Test																	
CCC600480	SDB: ABWF Work	39	04DEC2012	21JAN2013	SDB: ABWF Work																	
CCC600490	SDB: Handover Centrifuge Area to E&M	0		21JAN2013	SDB: Handover Centrifuge Area to E&M																	
CCC600500	SDB: Handover Sludge Holding Tanks to E&M	0		20DEC2012	SDB: Handover Sludge Holding Tanks to E&M																	
CCC600510	SDB: Remaining ABWF Work	60	22JAN2013	08APR2013	SDB: Remaining ABWF Work																	
Septic Waste Collection Facilities																						
Building and Structures																						
CCC150160	Septic: Wall & Column - Footing to Roof	15	29OCT2012	14NOV2012	Septic: Wall & Column - Footing to Roof																	
CCC150170	Septic: Roof Slab & Beams	12	01NOV2012	14NOV2012	Septic: Roof Slab & Beams																	
CCC150175	Septic: Remove Temp Support	12	15NOV2012	28NOV2012	Septic: Remove Temp Support																	
CCC150180	Septic: ABWF Work	10	29NOV2012	10DEC2012	Septic: ABWF Work																	
CCC150185	Septic: Handover to E&M	0		10DEC2012	Septic: Handover to E&M																	
CCC150220	Septic: Remaining ABWF Works	40	11DEC2012	29JAN2013	Septic: Remaining ABWF Works																	
Auxiliary Building																						
Building and Structures																						
CCC320130	RWPS: Foundation Grid 2 to 3	12	21NOV2012	04DEC2012	RWPS: Foundation Grid 2 to 3																	
CCC320140	RWPS: Backfilling Work	12	05DEC2012	18DEC2012	RWPS: Backfilling Work																	
CCC320145	RWPS: Foundation Grid 1 to 2	12	19DEC2012	04JAN2013	RWPS: Foundation Grid 1 to 2																	
CCC320150	RWPS: Substructure - Columns & Walls	12	05JAN2013	18JAN2013	RWPS: Substructure - Columns & Walls																	
CCC320160	RWPS: Roof Slab & Beams	12	19JAN2013	01FEB2013	RWPS: Roof Slab & Beams																	
CCC320170	RWPS: Remove Temp Support	12	02FEB2013	21FEB2013	RWPS: Remove Temp Support																	
CCC500130	Chemical Bldg: Walls & Columns	18	03NOV2012	23NOV2012	Chemical Bldg: Walls & Columns																	
CCC500140	Chemical Bldg: Roof Slab & Beam	18	03NOV2012	23NOV2012	Chemical Bldg: Roof Slab & Beam																	
CCC500150	Chemical Bldg: Remove Temp Support	12	24NOV2012	07DEC2012	Chemical Bldg: Remove Temp Support																	
CCC500160	Chemical Bldg: ABWF Works	10	08DEC2012	19DEC2012	Chemical Bldg: ABWF Works																	
CCC500170	Chemical Bldg: Handover to E&M	0		19DEC2012	Chemical Bldg: Handover to E&M																	
CCC500180	Chemical Bldg: MCC and EB2	60	28AUG2012 A	19NOV2012	Chemical Bldg: MCC and EB2																	
CCC500190	Chemical Bldg: AWBF at MCC and EB2	26	20NOV2012	19DEC2012	Chemical Bldg: AWBF at MCC and EB2																	
CCC500200	Chemical Bldg: Handover MCC and EB2 to E&M	0		19DEC2012	Chemical Bldg: Handover MCC and EB2 to E&M																	
CCC500210	Chemical Bldg: Column at Tank Compound	12	08NOV2012	21NOV2012	Chemical Bldg: Column at Tank Compound																	
CCC500215	Chemical Bldg: ABWF at Tank Compound	10	22NOV2012	03DEC2012	Chemical Bldg: ABWF at Tank Compound																	
CCC500220	Chemical Bldg: Handover Tank Compound to E&M	0		03DEC2012	Chemical Bldg: Handover Tank Compound to E&M																	
CCC500230	Chemical Bldg: ABWF at Tank Compound	60	20DEC2012	08MAR2013	Chemical Bldg: ABWF at Tank Compound																	
CCC800280	Admin Bldg: ABWF Works	80	03SEP2012 A	26NOV2012	Admin Bldg: ABWF Works																	
CCC800290	Admin Bldg: Hand over G/F for E&M Works	0		26NOV2012	Admin Bldg: Hand over G/F for E&M Works																	
CCC800300	Admin Bldg: Hand over 1/F for E&M Works	0		26NOV2012	Admin Bldg: Hand over 1/F for E&M Works																	
CCC800310	Admin Bldg: Remaining ABWF Works	75	27NOV2012	02MAR2013	Admin Bldg: Remaining ABWF Works																	
CCC910160	Elect Bldg 1: ABWF Work	40	20SEP2012 A	12NOV2012	Elect Bldg 1: ABWF Work																	
CCC910170	Elect Bldg 1: Handover to E&M	0		12NOV2012	Elect Bldg 1: Handover to E&M																	
CCC910180	Elect Bldg 1: Remaining ABWF Work	60	13NOV2012	24JAN2013	Elect Bldg 1: Remaining ABWF Work																	
CCC930160	Elect Bldg 3: ABWF Work	28	29OCT2012	29NOV2012	Elect Bldg 3: ABWF Work																	
CCC930170	Elect Bldg 3: Handover to E&M	0		29NOV2012	Elect Bldg 3: Handover to E&M																	
CCC930180	Elect Bldg 3: Remaining ABWF Work	50	30NOV2012	30JAN2013	Elect Bldg 3: Remaining ABWF Work																	
Odour Control Facilities																						
Building and Structures																						
CCC710154	DOU A: Pipe Trench and Raft Grid 1 to 2	26	12NOV2012	11DEC2012	DOU A: Pipe Trench and Raft Grid 1 to 2																	
CCC710158	DOU A: Control House	42	29OCT2012	15DEC2012	DOU A: Control House																	
CCC710160	DOU A: ABWF Work	16	17DEC2012	07JAN2013	DOU A: ABWF Work																	
CCC710170	DOU A: Handover control room to E&M	0		07JAN2013	DOU A: Handover control room to E&M																	
CCC710190	DOU A: Handover raft Grid 1 to 2 to E&M	0		07JAN2013	DOU A: Handover raft Grid 1 to 2 to E&M																	
CCC720110	DOU B: Excavation of Rock	25	03OCT2012 A	06NOV2012	DOU B: Excavation of Rock																	
CCC720120	DOU B: 3000(W) x 3000(D) PipeTrench	15	07NOV2012	23NOV2012	DOU B: 3000(W) x 3000(D) PipeTrench																	
CCC720130	DOU B: Backfilling Work	6	24NOV2012	30NOV2012	DOU B: Backfilling Work																	
CCC720140	DOU B: On-Grade Slab	13	01DEC2012	15DEC2012	DOU B: On-Grade Slab																	
CCC720150	DOU B: Control House	30	01DEC2012	08JAN2013	DOU B: Control House																	
CCC720160	DOU B: ABWF Work	7	09JAN2013	16JAN2013	DOU B: ABWF Work																	
CCC720170	DOU B: Handover to E&M	0		16JAN2013	DOU B: Handover to E&M																	
Refurbishment and Renewal Works																						
Miscellaneous Works																						

Start date	14JUL2010
Finish date	25APR2014
Data date	28OCT2012
Run date	06NOV2012
Page number	2A
Project name	PR26
© Primavera Systems, Inc.	

PPSTW Three Month Rolling Programme - November 2012 to January 2013

█	Early bar
█	Progress bar
█	Critical bar
█	Summary bar
◆	Start milestone point
◇	Finish milestone point

