## Jardine Engineering Corporation Limited

Contract No. DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B

## Monthly Environmental Monitoring and Audit Report for August 2013

(Version 2.0)

Certified By	Chupht
	(Environmental Team Leader)
DITMADIZO.	

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

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#### **EXECUTIVE SUMMARY**

#### Introduction

- 1. This is the 26<sup>th</sup> monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for DSD Contract no. DE/2009/09 "Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B". This report documents the findings of EM&A Works conducted in August 2013.
- 2. The major site activities undertaken in the reporting month included:
  - Removal of existing RAS Pump No.4 and associated pipework at Stage IV RAS Pumping Station;
  - Installation of E&M equipment in Aeration Tank No. 5, 6 & 7;
  - RAS pipework installation at Pipe Gallery for new Aeration Tanks No.5 to 7;
  - E&M installation of Primary Sedimentation Tank No. 5;
  - Pipework installation at Pipe Gallery for new PST No.5;
  - E&M installation of new Air Blower No.5;
  - Demolition of existing Air Blower No.2;
  - Relocation of remaining 2 nos. existing MLR Pump Control Panels & 3 nos. Foam Pump Panels from Aeration Tank Control Kiosk to Chemical House;
  - Electrical load diversion work for replacement of existing MCC5 at Stage IV PST Pipe Gallery;
  - Installation of new E&M equipment at Filtrate Treatment Plant (SBR);
  - Removal of existing MCCs from G/F and 1/F Switchroom of Stage IV Inlet Works after load diversion work;
  - Fabrication of bio-gas holder on site;
  - BS & FS installation in new Gas Transfer Station; and
  - BS & FS installation in new Chemical and Oil Store

#### **Environmental Monitoring and Audit Works**

- 3. Environmental monitoring and audit works for the Project were performed regularly as stipulated in the Final EM&A Manual and the results were checked and reviewed. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.
- 4. Summary of the events and action taken in the reporting month is tabulated in Table I.

No. of Exceedance No. of Events **Parameter** Action Taken Due to this Project **Action Level** Limit Level 1-hr TSP 0 0 0 N/A 24-hr TSP 0 0 0 N/A Noise 0 0 0 N/A

 Table I
 Summary Table for Events Recorded in the Reporting Month

1

#### **Environmental Licenses and Permits**

5. Environmental related licenses/permits granted to the Project include the Environmental Permit (EP) for the Project.

## Key Information in the Reporting Month

6. Summary of key information in this reporting month is tabulated in **Table II**.

## Table II Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Statura	Derrerele
Event	Number	Nature	Action Taken	Status	Remark
Complaint received	0		N/A	N/A	
Changes to the assumptions and key construction / operation activities recorded	0		N/A	N/A	
Status of submissions under EP	1	Monthly EM&A Report (July 2013)	Submitted to EPD on 21 <sup>st</sup> August 2013 (EP condition 6.6)	N/A	
Notifications of any summons & prosecutions	0		N/A	N/A	

## Future Key Issues

- 7. Major site activities for the coming two months will include:
  - E&M installation of FC No.8B and 10B;
  - Installation of E&M equipment in Aeration Tank No. 5, 6 & 7;
  - RAS pipework installation at Pipe Gallery for new Aeration Tanks No.5 to 7;
  - E&M installation of Primary Sedimentation Tank No. 5;
  - Pipework installation at Pipe Gallery for new PST No.5;
  - E&M installation of new Air Blower No.5;
  - Electrical load diversion work for replacement of existing MCC5 at Stage IV PST Pipe Gallery;
  - Demolition of existing cooling water system at CBC;
  - Installation of mechanical screen and shaftless conveyor at Stage IV Screening House;
  - Fabrication of bio-gas holder on site;
  - Installation of new E&M equipment at Filtrate Treatment Plant (SBR);
  - Installation of new screw pumps (for Stage IV Inlet Works);
  - Installation and T&C of lightning protection pole L4, L5 & L6;
  - BS & FS installation in new Gas Transfer Station; and
  - BS & FS installation in new Chemical and Oil Store
- 8. The future environmental concerns are air quality, noise impacts and waste management from construction works.

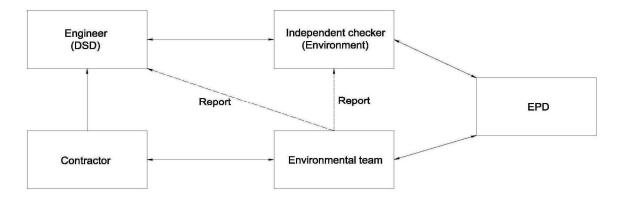
#### 1 INTRODUCTION

#### Background

- 1.1 Tai Po Sewage Treatment Works (TPSTW) is located within the Tai Po Industrial Estate. It currently comprises four Stages: I, II, IVA and IVB works. The TPSTW Stage V aims to upgrade the existing STW to provide additional sewage treatment capacity from the present design flow of 88,000 m<sup>3</sup>/day to 130,000 m<sup>3</sup>/day to meet the demands of both the existing and future developments, and to meet the revised discharge license requirements.
- 1.2 The TPSTW Stage V, Phase I and Phase II are Designated Projects under the Environmental Impact Assessment Ordinance (Cap. 449) with the same EIAO Register No. AEIAR 081/2004. A study of environmental impact assessment (EIA) was undertaken to evaluate various environmental impacts associated with the works within these two Designed Projects. An EIA Report as well as an Environmental Monitoring and Audit (EM&A) Manual were approved by the Environmental Protection Department (EPD) on 28 October 2004.
- 1.3 The Stage V works will be implemented in 2 phases. The design capacities of Phase I and Phase II works are 100,000 m<sup>3</sup>/d and 130,000 m<sup>3</sup>/d respectively. An Environmental Permit (EP) No. EP-265/2007 was issued on 22 March 2007 for the TPSTW Stage V Phase II to the Drainage Services Department (DSD) as the Permit Holder. The project "Tai Po Sewage Treatment Works Stage V Phase IIB" formed part of the Phase II works, includes additional secondary treatment process units (1 primary clarifier; 3 bioreactors and 2 final clarifiers) in TPSTW for its future extended plant design capacity of 120,000 m<sup>3</sup>/day. A master construction programme of the Project is provided in Appendix M. A site layout plan is provided in Figure 1.1. The construction activities of the Project commenced on 16 May 2011.
- 1.4 Cinotech Consultants Ltd. was commissioned by the Contractor as the Environmental Team (ET) to undertake the EM&A works for the Project. Dr. Priscilla CHOY of Cinotech Consultants Ltd. was appointed as the ET Leader as per the Condition 2.1 of the EP. Ove Arup and Partners Hong Kong Limited was appointed as the IEC under Condition 2.2 of the EP. This is the 26<sup>th</sup> monthly EM&A report summarizing the EM&A works for the Project in August 2013.

## **Project Organizations**

- 1.5 Different parties with different levels of involvement in the project organization include:
  - Project Proponent / Engineer's Representative (ER) Drainage Services Department
  - Environmental Team (ET) Cinotech Consultants Ltd.
  - Independent Environmental Checker (IEC) Ove Arup and Partners Hong Kong Limited
  - Contractor Jardine Engineering Corporation Ltd.
- 1.6 The responsibilities of respective parties are detailed in Section 1.10 of the Final EM&A Manual of the Project.
- 1.7 The Project Organization during Construction Phase



1.8 The key contacts of the Project are shown in **Table 1.1**.

Table 1.1	Key Project Contacts
-----------	----------------------

Party	Role	Name	Position	Phone No.	Fax No.
DSD	E&M Branch	Mr. TONG Sau Kit	Senior Engineer	2594 7304	2827 8532
DSD	EXIVI DIAIICII	Mr. TSE Ho	Engineer	2660 7638	2827 8332
		Dr. Priscilla CHOY	ET Leader	2151 2089	
Cinotech	Environmental Team	Mr. Kevin LAM	Project Coordinator and Audit Team Leader	2151 2099	3107 1388
		Mr. Henry LEUNG	Monitoring Team Leader	2151 2087	
A	Independent Environmental	dependent Mr. Coleman NG Independent Environmental Checker		2268 3097	2865 6402
Arup	Checker	Mr. Lawrence KAN	Assistant to Independent Environmental Checker	2268 3212	2865 6493
	<b>D</b> 0 <b>M</b>	Mr. Alex LAW	Project Manager	9312 8659	
JEC	E&M Contractor	Mr. Kent MAK	Site Agent	6391 2499	2887 9090
	Contractor	Mr. Brendan CHAN	Environmental Officer	6892 0956	

#### **Construction Programme**

- 1.9 The site activities undertaken in the reporting month were:
  - Removal of existing RAS Pump No.4 and associated pipework at Stage IV RAS Pumping Station;
  - Installation of E&M equipment in Aeration Tank No. 5, 6 & 7;
  - RAS pipework installation at Pipe Gallery for new Aeration Tanks No.5 to 7;
  - E&M installation of Primary Sedimentation Tank No. 5;
  - Pipework installation at Pipe Gallery for new PST No.5;
  - E&M installation of new Air Blower No.5;
  - Demolition of existing Air Blower No.2;
  - Relocation of remaining 2 nos. existing MLR Pump Control Panels & 3 nos. Foam Pump Panels from Aeration Tank Control Kiosk to Chemical House;
  - Electrical load diversion work for replacement of existing MCC5 at Stage IV PST Pipe Gallery;
  - Installation of new E&M equipment at Filtrate Treatment Plant (SBR);
  - Removal of existing MCCs from G/F and 1/F Switchroom of Stage IV Inlet Works after load diversion work;
  - Fabrication of bio-gas holder on site;
  - BS & FS installation in new Gas Transfer Station; and
  - BS & FS installation in new Chemical and Oil Store

#### Summary of EM&A Requirements

- 1.10 The EM&A programme requires construction phase air quality and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
  - All monitoring parameters;
  - Action and Limit levels for all environmental parameters;
  - Event / Action Plans;
  - Environmental mitigation measures, as recommended in the project EIA study final report; and
  - Environmental requirements in contract documents.
- 1.11 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.
- 1.12 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely air quality and noise as well as audit works for the Project in the reporting month.

## 2 AIR QUALITY MONITORING

## Monitoring Requirements

- 2.1 Monitoring of 1-hour and 24-hour Total Suspended Particulates (TSP) was conducted to monitor the air quality during construction phase. Appendix A shows the established Action/Limit Levels for the environmental monitoring works.
- 2.2 In accordance with Section 2.30 of the EM&A Manual, a baseline checking of ambient TSP levels shall be carried out every six months at each monitoring station, when no dusty works activities are in operation. The number and location of monitoring stations and parameters shall be reviewed by ET Leader every three months according to section 8.8 of EM&A Manual.

#### **Monitoring Locations**

2.3 Impact air quality monitoring was conducted at the 3 monitoring stations, as shown in **Figure 1.2**. **Table 2.1** describes the locations of the air quality monitoring stations.

Table 2.1Locations for Air Quality Monitoring

Monitoring Stations	Description	Location of Measurement
CAM1	Government Staff Quarters	Rooftop
CAM2	Hung Hing Printing Centre	On the site boundary just next to the Hung Hing Printing Centre
CAM3	Talcon Industrial Ltd.	On the site boundary just next to Talcon Industrial Ltd.

## **Monitoring Equipment**

2.4 **Table 2.2** summarizes the equipment used for the air quality monitoring.

Table 2.2Air Quality Monitoring Equipment

Equipment	Model and Make	Qty.
	Graseby GMW 2310 HVS, Model GS-2310105-1, Serial no. 10239 and 0810	2
HVS	Tisch Environmental, Inc.; Model no. TE-5170, Serial no. 1704	1
Calibrator	Thermo Andersen.; Model no. G25A Serial no. 1536	1

## **Monitoring Parameters, Frequency and Duration**

2.5 **Table 2.3** summarizes the monitoring parameters and frequencies of impact dust monitoring for the whole construction period.

<b>Monitoring Stations</b>	Parameter	Duration	Period	Frequency
CAM1, CAM2 and	1-hour TSP	1 hour	During daytime period	3 times / 6-day
CAM3	24-hour TSP	24 hours	24 hours	Once / 6-day

Table 2.3Impact Dust Monitoring Parameters, Frequency and Duration

## Monitoring Methodology and QA/QC Procedure

## Instrumentation

2.6 High Volume Samplers (HVS) connected with appropriate sampling inlets were employed for air quality monitoring. Each sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

## **HVS Installation**

- 2.7 The following guidelines were adopted during the installation of HVS:
  - Sufficient support was provided to secure the samplers against gusty wind.
  - No two samplers were placed less than 2 meters apart.
  - The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
  - A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
  - A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
  - No furnaces or incineration flues were nearby.
  - Airflow around the sampler was unrestricted.
  - The samplers were more than 20 meters from the drip line.
  - Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

## **Filters Preparation**

- 2.8 Fiberglass filters were used which have a collection efficiency of larger than 99% for particles of 0.3  $\mu$ m diameter. A HOKLAS accredited laboratory, Wellab Ltd., was responsible for the preparation of pre-weighed filter papers for Cinotech's monitoring team.
- 2.9 All filters, which were prepared by Wellab Ltd., 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  $\pm 3$  °C; the relative humidity (RH) was < 50% and not variable by more than  $\pm 5\%$ . A convenient working RH was 40%.
- 2.10 Wellab Ltd. has a comprehensive quality assurance and quality control programmes.

## **Operating/Analytical Procedures**

- 2.11 Operating/analytical procedures for the TSP monitoring were highlighted as follows:
  - Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 and 1.4 m<sup>3</sup>/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard.
  - The power supply was checked to ensure the sampler worked properly.
  - On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the air quality monitoring station.
  - The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
  - The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts to avoid air leakage at the edges.
  - The shelter lid was closed and secured with the aluminum strip.
  - The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
  - The flow rate of the HVS sampler would be verified to be constant and recorded on the data sheet after sampling.
  - After sampling, the filter was removed and sent to the Wellab Ltd. for weighing. The elapsed time was also recorded.
  - Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment should be between 25°C and 30°C and not vary by more than  $\pm 3$ °C; the relative humidity (RH) should be < 50% and not vary by more than  $\pm 5\%$ . A convenient working RH is 40%. Weighing results were returned to Cinotech for further analysis of TSP concentrations collected by each filter.

## Maintenance/Calibration

- 2.12 The following maintenance/calibration was required for the HVS:
  - The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
  - Calibration of the HVS (five point calibration) using Calibration Kit was carried out every two months. Copies of calibration certificates are attached in **Appendix B**.
  - The HVS calibration orifice will be calibrated annually.

#### **Results and Observations**

2.13 In the reporting month, 1-hr TSP monitoring was carried out as schedule at each designated monitoring station on 13 occasions. 24-hr TSP monitoring was carried out as scheduled at each designated monitoring station on 5 occasions. The monitoring schedule was updated and is shown in **Appendix C**. The weather during the monitoring sessions was mainly sunny and fine.

- 2.14 All measured 1-hr and 24-hr TSP levels were below the Action/Limit Levels. No exceedance was recorded in the reporting month.
- 2.15 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendices D** and **E**, respectively.

Paramete r	Minimum µg/m³	Maximum µg/m <sup>3</sup>	Average µg/m³	Action Level, µg/m <sup>3</sup>	Limit Level, µg/m <sup>3</sup>		
1-hr TSP (CAM1)	38	217	91	315	500		
24-hr TSP (CAM1)	21	80	44	171	260		
1-hr TSP (CAM2)	50	228	110	336	500		
24-hr TSP (CAM2)	51	89	66	177	260		
1-hr TSP (CAM3)	55	249	121	344	500		
24-hr TSP (CAM3)	52	90	68	192	260		

## Table 2.4Summary Table of Air Quality Monitoring Results during the<br/>reporting month

2.16 According to our field observations, the major dust source identified at the designated air quality monitoring stations are as follows:

Station	Major Pollution Source
CAM1 – Government Staff Quarters	Road Traffic Dust
CAM2 – Hung Hing Printing Centre	Road Traffic Dust and Excavation
CAM3 – Talcon Industrial Ltd.	Road Traffic Dust and Excavation

## **3** NOISE MONITORING

#### **Monitoring Requirements**

- 3.1 Noise monitoring was conducted in accordance with the EM&A Manual. Appendix A shows the established Action and Limit Levels for the environmental monitoring works.
- 3.2 The number and location of monitoring stations and parameters shall be reviewed by ET Leader every three months according to section 8.8 of EM&A Manual.

#### **Monitoring Locations**

3.3 Noise monitoring was conducted at one designated monitoring station as presented in **Table 3.1**. Figure 1.2 shows the locations of the monitoring station.

Table 3.1Location of Noise Monitoring Station

Monitoring Station	n Description Location of Measurement	
NM1	Government Staff Quarters	The corridor at the first floor.

#### **Monitoring Equipment**

3.4 **Table 3.2** summarizes the noise monitoring equipment model being used.

Table 3.2Noise Monitoring Equipment

Equipment	Model and Make	Quantity
Integrating Sound Level Meter	SVANTEK - SVAN 955, 957	2
Calibrator	SVANTEK – SV30A	2
Wind Speed Anemometer	Vane Anemometer, Model AZ8904 (Serial no. 974835)	1

## **Monitoring Parameters, Frequency and Duration**

3.5 **Table 3.3** summarizes the monitoring parameters, frequency and total duration of monitoring.

Table 3.3Noise Monitoring Parameters, Frequency and Duration

Station	Parameter	Period	Frequency
NM1	$L_{eq}(30 \text{ min.})$ ( $L_{10}$ and $L_{90}$ were also recorded as supplementary information)	0700-1900 hrs. on normal weekdays	Once a week

3.6 If construction works are extended to include works during the hours of 1900 - 0700, additional weekly impact monitoring would be carried out during evening and night-time works. Applicable permits under NCO have been obtained by the Contractor. The details of the Construction Noise Permit can be referred to **Table 5.1**.

## Monitoring Methodology and QA/QC Procedures

## Field Monitoring

- 3.7 The monitoring procedures are as follows:
  - The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
  - The battery condition was checked to ensure good functioning of the meter.
  - Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
    - frequency weighting : A
    - time weighting : Fast
    - measurement time : 30 minutes
  - Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
  - The wind speed at the monitoring station was checked with the portable wind meter. Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
  - Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
  - At the end of the monitoring period, the  $L_{eq}$ ,  $L_{10}$  and  $L_{90}$  were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.

## Maintenance and Calibration

- 3.8 Maintenance and Calibration procedures were as follows:
  - The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
  - The sound level meter and calibrator were checked and calibrated at yearly intervals. Copies of calibration certificates are attached in **Appendix B**.

#### **Results and Observations**

- 3.9 In the reporting month, noise monitoring during non-restricted hours was conducted as scheduled at the designated location on 4 occasions. As advised by the Contractor, no construction activities will be undertaken during restricted hours as such noise monitoring during restricted hours was omitted. The noise monitoring schedule is provided in **Appendix C**.
- 3.10 The details of the monitoring results and graphical presentations are shown in **Appendix F**. The weather during the monitoring sessions was mainly sunny and fine.
- 3.11 No Action/Limit Level exceedance for construction noise monitoring was recorded in the reporting month.

 Table 3.4
 Summary Table of Noise Monitoring Results during the Reporting Month

Parameter	Minimum Leq(30min) dB(A)	Maximum Leq(30min) dB(A)	Average Leq(30min) dB (A)	Action Level	Limit Level
NM1	60.3	67.3	63.4	When one documented complaint is received	75dB(A)

3.12 According to our field observations, the major noise source identified at the designated air quality monitoring stations are as follows:

Station	Major Noise Source
NM1 – Government Staff Quarters	Road Traffic
	Construction of Main Site

## 4 ENVIRONMENTAL AUDIT

#### Site Audits

- 4.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix H**.
- 4.2 Site audits were conducted on 9<sup>th</sup>, 16<sup>th</sup>, 23<sup>rd</sup> and 27<sup>th</sup> August 2013 by ET. A joint site audit with the representative with ER, IEC, the Contractor and the ET was carried out on 9<sup>th</sup> August 2013. No site inspection was conducted by EPD during the reporting month. The details of observations during site audit can refer to **Table 4.2**.

#### **Review of Environmental Monitoring Procedures**

4.3 The monitoring works conducted by the monitoring team were inspected regularly. The following observations have been recorded for the monitoring works:

#### Air Quality Monitoring

- The monitoring team recorded all observations around the monitoring stations within and outside the construction site.
- The monitoring team recorded the temperature and weather conditions on the monitoring days.

#### Noise Monitoring

- The monitoring team recorded all observations around the monitoring stations, which might affect the monitoring result.
- Major noise sources were identified and recorded. Other intrusive noise attributing to the result was trimmed off by pausing the monitoring temporarily.

#### **Status of Environmental Licensing and Permitting**

4.4 All permits/licenses obtained for the Project are summarized in **Table 4.1**.

	Valid	Period			
Permit / License No.	From To		Details	Status	
<b>Environmental Permi</b>		10			
EP-265/2007	22/3/2007	N/A	<ul> <li>Expansion and upgrading of existing Tai Po Sewage Treatment Works from 100,000 m³/day to 130,000 m³/day:</li> <li>(a) additional secondary treatment process units(1 primary clarified; 3 bioreactors and 2 final clarifiers);</li> <li>(b) reconstruction of 4 existing final clarified;</li> <li>(c) provision of ultraviolet disinfection facilities;</li> <li>(d) additional sludge treatment facilities; and</li> <li>(e) ancillary works to existing treatment facilities.</li> </ul>	Valid	
<b>Registration of Chemi</b>	ical Waste Pr	oducer			
5517-727-T3270-01		N/A	Major chemical waste types: Spent lubricating oil, spend hydraulic oil, spend cooling oil, surplus paint, spent alkaline electrolyte, spent battery and battery parts containing heavy metals, scrap battery cell containing heavy metals, Nickel and its compounds, spent flammable liquid, spent copper etchant (Ferric chloride), Sodium hypochlorite, polymer, electric and torch bulbs and tubes, alkaline cleaner (spent alkaline solution)	Valid	

Table 4.1Summary of Environmental Licensing and Permit Status

## **Status of Waste Management**

4.5 The Construction and Demolition (C&D) materials generated in the reporting month were mainly chemical waste. The quantities of waste generated in this reporting month are summarized in **Appendix K**.

#### **Implementation Status of Environmental Mitigation Measures**

- 4.6 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the EMIS is provided in **Appendix J**.
- 4.7 During site inspections in the reporting month, non-conformance was identified. In addition, there was no major environmental deficiency being identified on the site audit session on 16<sup>th</sup> & 27<sup>th</sup> August 2013. The observations and recommendations made during the audit sessions are summarized in **Table 4.2**.

Parameters	Date	Observations and Recommendations	Follow-up	
Water Quality	N/A	N/A	N/A	
Air Quality	N/A	N/A	N/A	
Noise	N/A	N/A	N/A	
Waste/	9 August 2013	<u>Reminder:</u> Clear the general refuse outside the JEC site office to avoid accumulation.	The observation was observed improved/rectified by the Contractor during the audit session on 16 August 2013.	
Chemical Management	23 August 2013	Reminder: Properly clear the general refuse outside JEC site office.	The observation was observed improved/rectified by the Contractor during the audit session on 27 August 2013.	

#### Table 4.2Observations and Recommendations of Site Audit

#### **Summary of Exceedances**

4.8 No exceedance of monitoring results was recorded in the reporting month. Summary of exceedance is provided in **Appendix G**.

## **Implementation Status of Event Action Plans**

4.9 The Event Action Plans for air quality and construction noise monitoring are presented in **Appendix I**. No exceedance was recorded and thus no action was required to be implemented.

#### **Summary of Complaint and Prosecution**

- 4.10 No environmental related complaint, prosecution or notification of summons was received in the reporting month.
- 4.11 There was no environmental complaint, prosecution or notification of summons received since the Project commencement. The Complaint Log is attached in **Appendix** L.

## 5 FUTURE KEY ISSUES

- 5.1 Key issues to be considered in the coming month include:
  - C&D wastes generated from installation of E&M equipment;
  - Apply good site practice during rainy season; and
  - Accumulation of C&D waste and general waste on site.

#### Monitoring Schedule for the Next Month

5.2 The tentative environmental monitoring schedule for the next month is shown in **Appendix C**.

#### **Construction Program for the Next Month**

- 5.3 A tentative construction programme is provided in **Appendix M**. The major construction activities in the coming month will include:
  - E&M installation of FC No.8B and 10B;
  - Installation of E&M equipment in Aeration Tank No. 5, 6 & 7;
  - RAS pipework installation at Pipe Gallery for new Aeration Tanks No.5 to 7;
  - E&M installation of Primary Sedimentation Tank No. 5;
  - Pipework installation at Pipe Gallery for new PST No.5;
  - E&M installation of new Air Blower No.5;
  - Electrical load diversion work for replacement of existing MCC5 at Stage IV PST Pipe Gallery;
  - Demolition of existing cooling water system at CBC;
  - Installation of mechanical screen and shaftless conveyor at Stage IV Screening House;
  - Fabrication of bio-gas holder on site;
  - Installation of new E&M equipment at Filtrate Treatment Plant (SBR);
  - Installation of new screw pumps (for Stage IV Inlet Works);
  - Installation and T&C of lightning protection pole L4, L5 & L6;
  - BS & FS installation in new Gas Transfer Station; and
  - BS & FS installation in new Chemical and Oil Store

## 6 CONCLUSIONS AND RECOMMENDATIONS

#### Conclusions

- 6.1 Environmental monitoring and audit works were conducted in the reporting month. Site inspections were conducted on a weekly basis. The results were reviewed and checked.
- 6.2 No exceedance of monitoring results was recorded in the reporting month.
- 6.3 There was no environmental complaint, prosecution or notification of summons received.

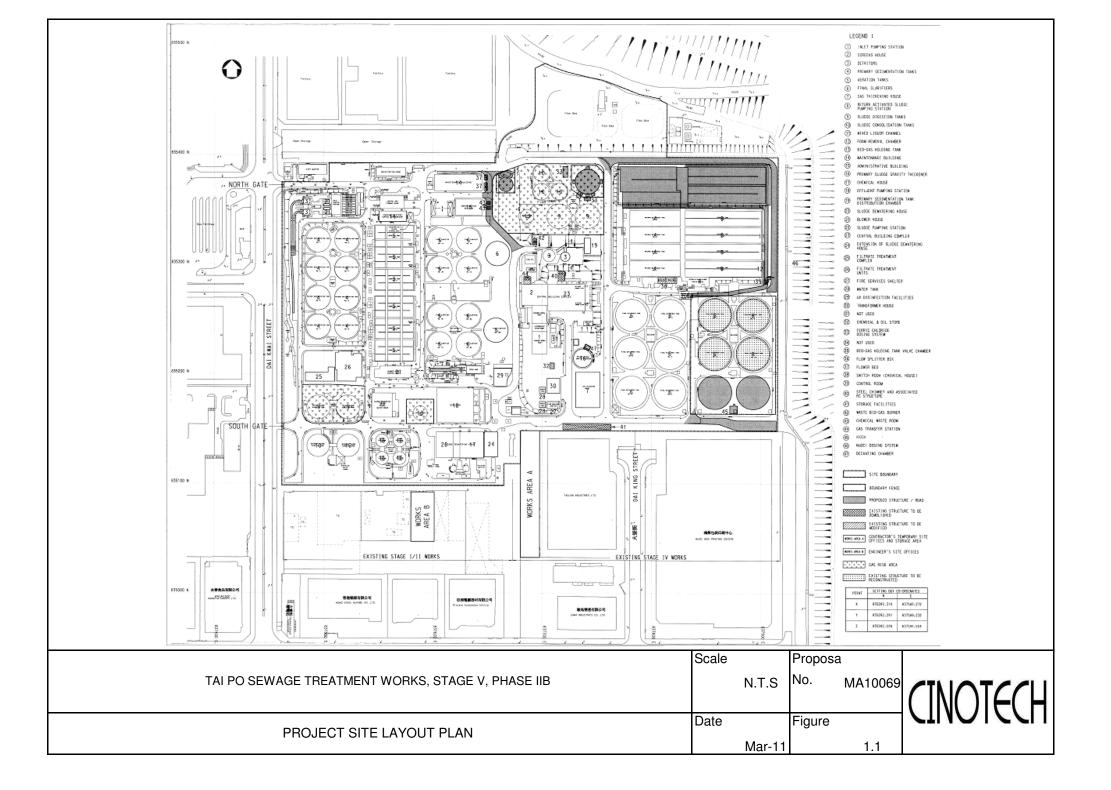
#### Recommendations

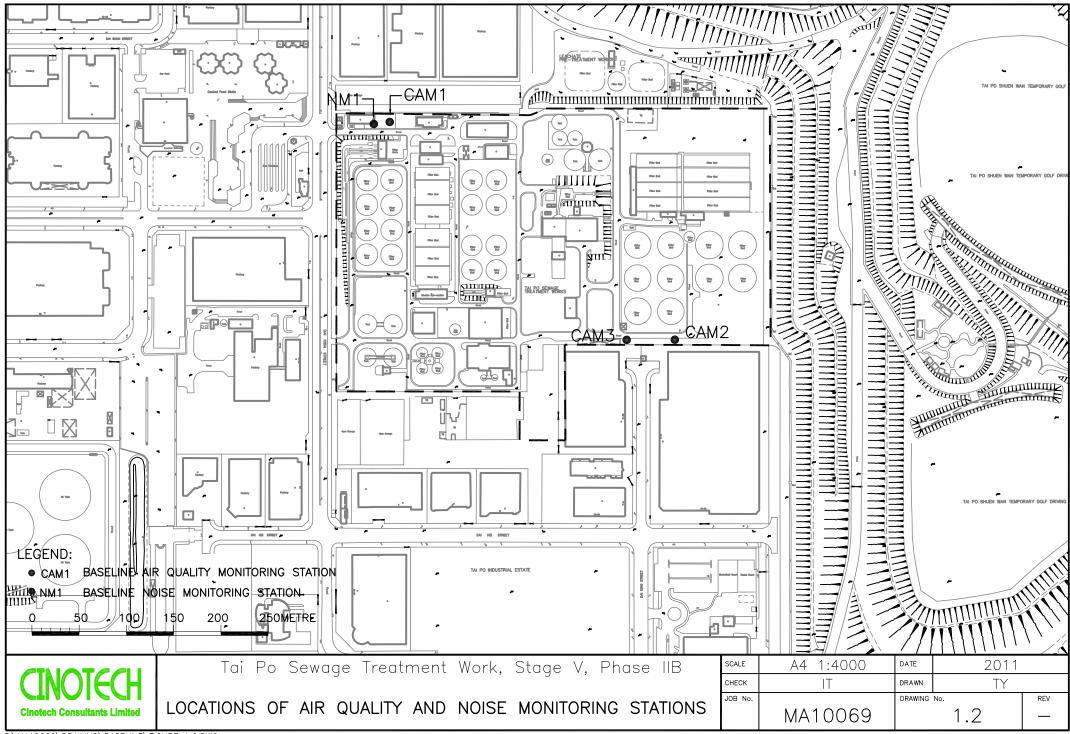
6.4 According to the environmental audit performed in the reporting month, the following recommendations were made:

#### Waste / Chemical Management

- Good site practices should be adopted to check for any accumulation of waste materials on site and dispose waste materials at designated areas.
- Segregate and store different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.

FIGURES





F:\MA10069\DRAWING\BASELINE\FIGURE 1.2.DWG

APPENDIX A ACTION AND LIMIT LEVELS

## **APPENDIX A – Action and Limit Levels**

#### **1-Hour TSP**

Location	Action Level, μg/m <sup>3</sup>	Limit Level, µg/m <sup>3</sup>
CAM1	315	
CAM2	336	500
CAM3	344	

#### 24-Hour TSP

Location Action Level, µg/m <sup>3</sup>		Limit Level, µg/m <sup>3</sup>
CAM1	171	
CAM2	177	260
CAM3	192	

#### **Construction Noise**

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays		75 dB(A)
0700-2300 hrs on holidays; and 1900- 2300 hrs on all other days	When one documented complaint is received	70* dB(A)
2300-0700 hrs of next day		55* dB(A)

Notes:

\* The Area Sensitivity Rating for Station NM1 is taken as C, due to the nearby industrial area, according to Table 1 of EPD's Technical Memorandum on Noise from Construction Work other than Percussive Piling.

APPENDIX B COPIES OF CALIBRATION CERTIFCATES



File No. MA0010/37/0051

Station	CAM1 - Government Staff Quarter	Operator:	WK	
Date:	27-Jun-13	Next Due Date:	26-Aug-13	
Equipment No.:	A-01-37	Serial No.	1704	

		Ambient Condition		
Temperature, Ta (K)	302.5	Pressure, Pa (mmHg)	756.9	

Orifice Transfer Standard Information							
Equipment No.:	A-04-04	Slope, mc	0.0574	Intercept, bc	-0.0478		
Last Calibration Date:	3-Oct-12	mc x Qstd + bc = $[\Delta H x (Pa/760) x (298/Ta)]^{1/2}$					
Next Calibration Date:	2-Oct-13	Qstd = { $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc					

		Calibration of	TSP Sampler					
Calibration		Orfice			HVS			
Point	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	$[\Delta W \ge (Pa/760) \ge (298/Ta)]^{1/2}$ Y-axis			
1	11.9	3.42	60.36	8.1	2.82			
2	9.4	3.04	53.74	6.2	2.47			
3	7.5	2.71	48.09	4.9	2.19			
4	5.1	2.24	39.80	3.4	1.83			
5	3.2	1.77	31.70	2.0	1.40			
	coefficient* =	0.9995	Intercept, bw 	-0.137				
TI CONCIATION V		o, cheek and recanorate.						
		Set Point (	Calculation					
From the TSP F	ield Calibration C	urve, take Qstd = 43 CFM						
		e "Y" value according to						
		-		1/2				
		$\mathbf{m}\mathbf{w} \mathbf{x} \mathbf{Q}\mathbf{s}\mathbf{t}\mathbf{d} + \mathbf{b}\mathbf{w} = [\Delta \mathbf{W}$	x (Pa/760) x (2	298/Ta)] <sup>112</sup>				
Therefore S	Set Point: $W = (m)$	$(w \times Qstd + bw)^2 \times (760 / Pa) \times ($	$T_a / 298) =$	3.91				
1110101010, 0		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,					
Remarks:								
	1.1.	Signature: Kwo			D: >>1/1/2			
Conducted by:	WK lang		<u>n  </u>	-	Date: $27[61(3)$			
Checked by	: <u> </u>	Signature:	-	-	Date: Nf line 2013			



	26-Aug-13 A-01-37	nent Staff Quarter 301.4 A-04-04		Next Due Date: Serial No. Condition	WK 25-Oct- 1704	13	MA0010/37/0052
Date: Equipment No.: Temperature, Equipment Last Calibrati	26-Aug-13 A-01-37	301.4 Ori	Ambient (	Next Due Date: Serial No. Condition	25-Oct-	13	
Equipment No.:	A-01-37 , Ta (K)	Ori	Ambient	Serial No.			
Equipment Last Calibratio	No.:	Ori			: : :		
Equipment Last Calibratio	No.:	Ori			: :		
Equipment Last Calibratio	No.:	Ori	Pressure, Pa	ı (mmHg)			
Equipment Last Calibration	t No.:					757.6	
Last Calibration			fice Transfer Sta	andard Inform	ation	NE STR	
Last Calibration			Slope, mc	0.0574	Intercept	, bc	-0.0478
		3-Oct-12	<b>r</b> -)		)c = [ΔH x (Pa/76		)] <sup>1/2</sup>
	on Date:	2-Oct-13			x (Pa/760) x (298)		
		•					
and the contract of the second se			Calibration of	<b>TSP Sampler</b>			
Calibration		Orfi	ce	1		HVS	T /A
Point	ΔH (orifice), in. of water	[ΔH x (Pa/760]	) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	[ΔW x (Pa/7	(60) x (298/Ta)] <sup>1/2</sup> Y axis
1	11.8	3.	41	60.25	8.1		2.83
2	9.7	3.	09	54.70	6.5		2.53
3	7.3	2.68		47.56	4.9		2.20
4	5.2	2.26		40.27	3,3		1.80
5	3.2	1.	78	31.77	2.1		1.44
By Linear Regres Slope , mw = Correlation coe *If Correlation Cod	0.0490 efficient* =	0.99	93	Intercept, bw -	-0.137	6	
			Set Point C	<b>Palculation</b>			
From the TSP Fiel	· · · · · · · · · · · · · · · · · · ·			Januarion			
From the Regression							
	·		std + bw = $[\Delta W]$	ч (Да/760) ч ( <sup>с</sup>	100/Tra)31/2		
		mw x Q	$sta + bw = [\Delta w]$	x (Fa/700) x (A	(90/18)]		
Therefore, Set	Point; $W = (mv)$	w x Qstd + bw $)^2$ :	x ( 760 / Pa ) x ( '	Ta / 298 ) =	3.93		
Remarks:							
Conducted by: _	wk. Jang	Signature:	K	Wan	-	Date: Date:	26/8/2013



File No MA0010/A40/0051

							. MAUU	10/A40/0031
Station		Hing Printing Cer				<u></u>		
Date:	27-Jun-13				26-Aug-13			
Equipment No.:	: <u>A-01-40</u>		Serial No.		10239		-	
			Ambient	Condition				Na pera tente
Temperature, Ta (K) 302.2			Pressure, Pa			757.1	[	
		302,2	11035010,11	a (minig)		757.1		I
		0	ifice Transfer St	andard Inform	ation		i presente i se	
Equipment No.: A-04-04		Slope, mc	0.0574	Intercep	t, bc		0.0478	
	ration Date:	3-Oct-12		me x Qstd + J	be $\approx [\Delta H \times (Pa/76)]$		a)] <sup>1/2</sup>	
	ration Date:	2-Oct-13			x (Pa/760) x (298			
		•						I
			Calibration o	f TSP Sampler				
Calibration		Or	fice	-		HVS	,	
Point	∆H (orifice), in. of water	[ΔH x (Pa/76	0) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	[ΔW x (Pa/	/760) x (29 axis	98/Ta)] <sup>1/2</sup> Y-
1	11.9		3.42	60.40	8.2		2.84	
2	9.8		3.10	54.89	6.5	2.53		
3	7.6		2.73		4.9	2.19		
4	5.2		2.26	40.21	3.2		1.77	
5	3.2		1.77	31.72	2.0		1.40	
By Linear Reg Slope , mw ≔	ression of Y on 2 0.0502	X		Intercept, bw	-0.217	78		
	coefficient* =		990				-	
	Coefficient < 0.99			_				
			Set Point	Calculation				
From the TSP F	Field Calibration	Curve, take Qstd	= 43 CFM					
From the Regre	ssion Equation, th	he "Y" value acco	rding to					
			~	(D. 15(0) (d	1/2			
		mw x (	$Qstd + bw = [\Delta W]$	x (Pa//60) x (2	(98/1a)] <sup></sup>			
Therefore, S	Set Point: W = ( n	nw x Ostd + bw)	<sup>2</sup> x ( 760 / Pa ) x (	Ta / 298) =	3.83			
				,			-	
Demostra								
Remarks:	• · ·							
			,	1	anno 8-1			
Conducted by:	Lik Jane	Signature:	Kwa	×		Date:	271	6113
Checked by		Signature:		7	-	Date:	271	line dols
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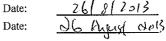


File No. MA0010/A40/0052

Station	CAM2 - Hung H	ing Printing Con	tre	Operator:	WK	File No. WA0010/A40/0052
Date:	26-Aug-13	Next Due I				
Equipment No.:			. 1		. 10239	
Equipition no	A-01-40			bertai 140.	. 10237	
			Ambient	Condition	e esta factoria en como Secultoria	
Temperatu	re, Ta (K)	301.2	Pressure, Pa	ı (mmHg)		757.9
		· · · · · · · · · · · · ·				
		01	fice Transfer Sta	andard Inform	ation	
Equipme	ent No.:	A-04-04	Slope, mc	0.0574	Intercept	
Last Calibra	ation Date:	3-Oct-12			$bc = [\Delta H x (Pa/76)]$	
Next Calibr	ation Date:	2-Oct-13		Qstd = $\{[\Delta H]$	x (Pa/760) x (298	/Ta)] <sup>1/2</sup> -bc} / mc
in contractor		• • • • • • • • • • • • • • • • • • • •	ana an	n in straightige		
			Calibration of	TSP Sampler	landa anna an 114. F	
Calibration		Or	fice			HVS
Point	∆H (orifice), in. of water	[ΔH x (Pa/76	0) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	[ΔW x (Pa/760) x (298/Ta)] <sup>1/2</sup> Y axis
1			2.40			2.81
1	11.7		3.40	60.02	8.0	
2	9.7		3.09	54.73	6.5	2.53
3	7.4		2.70	47.91	4.8	2.18
4	5.2		2.27	40.29	3.3	1.80
5	3.1		1.75	31.30	2.0	1.40
Ry Linger Rom	ression of Y on X					
Slope , mw ==				Intercept, bw	-0,152	28
Correlation of			1994	Intercopt, sn		
	Coefficient < 0.99			-		
II Contenation v	soonnenene ( 0.99)	o, encon and ree				
			Set Point (	Calculation		
From the TSP F	ield Calibration C	urve, take Ostd =				
	ssion Equation, the					
		mw x (	$Qstd + bw = [\Delta W]$	x (Pa/760) x (2	298/Ta)] <sup>1/2</sup>	
		0.1.1	2 (5(0)) ) (	m (000)		
Therefore, S	set Point; W = ( m	w x Qstd + bw )	<sup>2</sup> x ( 760 / Pa ) x (	1a/298) =	3.88	
		<u> </u>				
Remarks:						
ivinains.						
	••••••			1		
Conducted by	Wk Jana	Constant		son' 1		Date: 26/8/2013

Conducted by: <u>Lvk. Jaw</u> Signature: Checked by: <u>(++ 0</u> Signature:

nwa





						File No.	MA0010/35/0051
Station	CAM3 - Talcon	Industrial Ltd		Operator:	WK		
Date:	27-Jun-13		Next Due Date: Serial No.		26-Aug	-13	
Equipment No.:	A-01-35				0810		
			Ambient (	Condition			
Temperatu	re. Ta (K)	302.2	Pressure, Pa			757.1	
		Or	ifice Transfer Sta	undard Inform	ation		
Equipme	ent No.:	A-04-04	Slope, mc	0.0574	Intercept		-0.0478
Last Calibra	ation Date:	3-Oct-12		me x Qstd + b	e = [ΔH x (Pa/76	0) x (298/Ta)	)] <sup>1/2</sup>
Next Calibra	ation Date:	2-Oct-13		Qstd = $\{[\Delta H]$	x (Pa/760) x (298/	/Ta)] <sup>1/2</sup> -bc} /	mc
		•					
			Calibration of	<b>TSP Sampler</b>			
Calibustian		Ori	fice			HVS	
Calibration Point	∆H (orifice), in. of water	[ΔH x (Pa/76	0) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	∆W (HVS), in. of oil	[∆W x (Pa/7	60) x (298/Ta)] <sup>1/2</sup> Y- axis
1	12.4	3	.49	61.64	7.4		2.70
2	9.8	3	.10	54.89	6.1		2.45
3	8.3	2	2.86	50.58	5.0		2.22
4	5.3	2	2.28	40.58	3.3		1.80
5	3.1	1	.75	31.23	1.9		1.37
Slope , mw = Correlation c	0.0440           coefficient* =           Coefficient < 0.99	0.9	993	Intercept, bw - -	0.001	5	
			Set Point C	Calculation	ang palakan kalana di s		an a
	ssion Equation, th						
		e "Y" value acco		x (Pa/760) x (2	98/Ta)] <sup>1/2</sup>		
From the Regres	ssion Equation, th	e "Y" value acco mw x (	rding to Qstd + bw = [ΔW		298/Ta)] <sup>1/2</sup>		
from the Regres	ssion Equation, th	e "Y" value acco mw x (	rding to		98/Ta)] <sup>1/2</sup> 3.65	,	
From the Regres	ssion Equation, th	e "Y" value acco mw x (	rding to Qstd + bw = [ΔW				
From the Regres	ssion Equation, th	e "Y" value acco mw x (	rding to Qstd + bw = [ΔW			,	
From the Regres	ssion Equation, th	e "Y" value acco mw x (	rding to Qstd + bw = [ΔW				
From the Regres	ssion Equation, th	e "Y" value acco mw x (	rding to Qstd + bw = [ΔW				
0	ssion Equation, th	e "Y" value acco mw x (	rding to Qstd + bw = [ΔW			, 	
From the Regres Therefore, S Remarks:	ssion Equation, th let Point; W = ( m	e "Y" value acco mw x ( w x Qstd + bw ) <sup>2</sup>	rding to $Qstd + bw = [\Delta W]^2 \times (760 / Pa) \times (760 / Pa)$	Ta / 298 ) =			7216112
From the Regres	ssion Equation, the et Point; $W = (m + 1)$	e "Y" value acco mw x (	rding to Qstd + bw = [ΔW	Ta / 298 ) =		Date: Date:	27/6/13



		5-POI	VI CALIBRA	HON DATA	ASHEET	File No.	MA0010/35/0052
Station	CAM3 - Talcon	Industrial Ltd		Operator:	WK		···· · · · · · · · · · · · · · · · · ·
Date:	26-Aug-13	Next Due Date:					
Equipment No.:					0810		•
			Ambient (	Condition	1		
Temperatu	re, Ta (K)	301.3	Pressure, Pa	ı (mmHg)		757.8	
		Or	ifice Transfer St	andard Inform	ation		
Equipme	ent No.:	A-04-04	Slope, mc	0.0574	Intercept		-0.0478
Last Calibra		3-Oct-12			oc = [ΔH x (Pa/76	,	i)] <sup>1/2</sup>
Next Calibra		2-Oct-13			x (Pa/760) x (298		
	h	•	F				
			Calibration of	TSP Sampler			
Calibration		Or	fice			HVS	
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	0) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	[ΔW x (Pa/)	760) x (298/Ta)] <sup>1/2</sup> Y- axis
1	12.5	3	3,51	62.00	7.6		2.74
2	9.7	3	3.09	54.72	6.1		2.45
3	8.4	, A	2.88	50.98	5.2		2.26
4	5.4	2	2.31	41.04	3.3		1.80
5	3.0	1	1.72	30.80	1.9		1.37
Slope , mw = Correlation c		. 0.9	995	Intercept, bw <sup>;</sup> -	-0.005	i4	
			Cat Daint (	Calculation			
	ield Calibration C				in i construction de productions	<u></u>	
From the Regres	sion Equation, the	e "Y" value acco	rding to				
		mw x (	Qstd + bw ≕ [ΔW	x (Pa/760) x (2	298/Ta)] <sup>1/2</sup>		
Therefore, S	et Point; W = ( m	w x Qstd + bw ) <sup>2</sup>	² x ( 760 / Pa ) x ( '	Ta / 298 ) =	3.69		
L		,					
Remarks:							
Conducted by: Checked by:	wk. Jang L	Signature: Signature:	Kw	m	-	Date: Date:	26/ 8/ 2013 26 Rugust do
				Ũ			



WELLAB LIMITED Rms 816, 1516 & 1701, Technology Park, 18 On Lai Street, Shatin, N.T, Hong Kong. Tel: 2898 7388 Fax: 2898 7076 Website: www.wellab.com.hk

## **TEST REPORT**

Description	Calibration Orifice
Serial No.	0993
Model No.	TE-5025A
Date	3 October 2012

Manufacturer 1 Temperature,Ta (K) 2 Pressure, Pa (mmHg) 7

TISCH 298 759.2

Plate	Diff.Vol (m <sup>3</sup> )	Diff.Time (min)	Diff.Hg (mm)	Diff.H₂O (in.)
1	1.00	1.3820	3.2	2.00
2	1.00	0.9800	6.2	4.00
3	1.00	0.8770	7.8	5,00
4	1.00	0.8380	8.7	5.50
5	1.00	0.6930	12.7	8.00

#### DATA TABULATION

(X axis) Qstd	(Y axis)
0.7197	1.4134
1.0109	1.9989
1.1273	2.2348
1.1783	2.3439
1.4173	2.8268
	Qstd 0.7197 1.0109 1.1273 1.1783

Y axis= SQRT[H<sub>2</sub>O(Pa/760)(298/Ta)] Qstd Slope ( m ) = <u>2.02751</u> Intercept ( b ) = <u>-0.04785</u> Coefficient ( r ) = <u>0.99999</u>

Va	(X axis) Qa	(Y axis)
0.9958	0.7205	0.8861
0.9918	1.0121	1.2531
0.9897	1.1285	1.4010
0.9885	1.1796	1.4694
0.9833	1.4189	1.7721

Y axis= SQRT[H<sub>2</sub>O(Ta/Pa)]

Qa Slope ( m )	= <u>1.26959</u>
Intercept(b)	= <u>-0.03000</u>

Coefficient (r) = 0.99999

#### CALCULATIONS

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

For subsequent flow rate calculations: Qstd=l/m{[SQRT(H<sub>2</sub>O(Pa/760)(298/Ta))]-b} Qa=l/m{[SQRT H<sub>2</sub>O(Ta/Pa)]-b}

> PREPARED AND CHECKED BY: For and On Behalf of **WELLAB Ltd.**

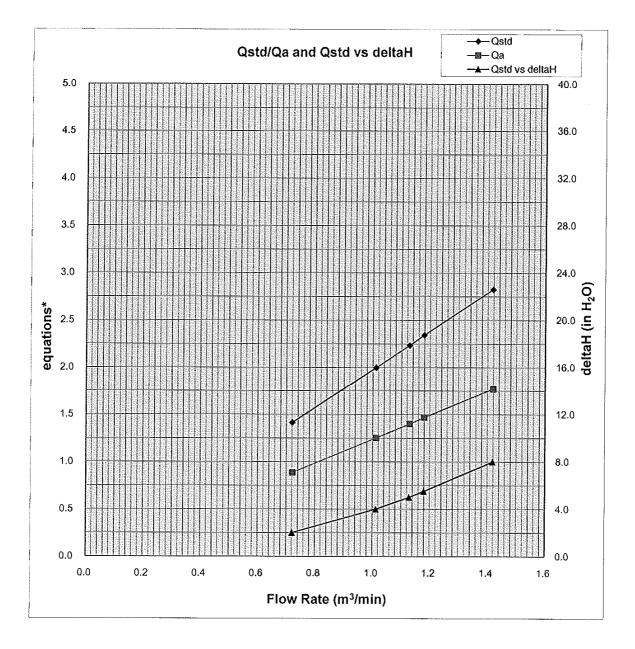
**PATRICK TSE** Laboratory Manager

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#### **TEST REPORT**



Y-axis equations:

Qstd series: SQRT[ $\Delta$ H(Pa/Pstd)(Tstd/Ta)]

Qa series: SQRT[ $\Delta$ H(Ta/Pa)]

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# **TEST REPORT**

# APPLICANT: Cinotech Consultants Limited Room 1710, Technology Park, 18 On Lai Street, Shatin, NT, Hong Kong

Test Report No.:	CA/13/130430
Date of Issue:	2013-05-01
Date Received:	2013-04-30
Date Tested:	2013-04-30
Date Completed:	2013-05-01
Next Due Date:	2014-04-30
Page:	1 of 1

ATTN:

Mr. W.K Tang

# **Certificate of Calibration**

# Item for calibration:

Description	: RS232 Integral Vane Digital Anemometer
Manufacturer	: AZ Instrument
Model No.	: AZ8904
Serial No.	: 974835
Equipment No.	: A-03-03

#### **Test conditions:**

Room Temperature: 21 dRelative Humidity: 66%Pressure: 101.

: 21 degree Celsius : 66% : 101.1 kPa

# Methodology:

The anemometer has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

#### **Results:**

	Reference Set Point	Instrument Readings
Measuring Air Velocity, m/s	2.00	2.00
Temperature, °C	21.0	21.0

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

PATRICK TSE Laboratory Manager

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1 of 1

# TEST REPORT

#### **Cinotech Consultants Limited** Test Report No .: C/N/130104 APPLICANT: Date of Issue: 2013-01-05 Room 1710, Technology Park, Date Received: 2013-01-04 18 On Lai Street, Date Tested: 2013-01-04 Shatin, NT, Hong Kong Date Completed: 2013-01-05 Next Due Date: 2014-01-04

ATTN: Mr. W. K. Tang

# **Certificate of Calibration**

# Item for calibration:

Description Manufacturer Model No. Serial No. Microphone No. Equipment No.

Test conditions:

Room Temperatre Relative Humidity : 'SVANTEK' Integrating Sound Level Meter : SVANTEK : SVAN 955 : 14303 : 35222 : N-08-05

: 22 degree Celsius : 59%

Page:

#### **Test Specifications:**

Performance checking at 94 and 114 dB

#### Methodology:

In-house method, according to manufacturer instruction manual

### **Results:**

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

Remark: 1)This report supersedes the one dated 2012/01/21 with certificate number C/N/120120/1.

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2013-09-01

1 of 1

# TEST REPORT

APPLICANT:	<b>Cinotech Consultants Limited</b>	Test Report No .:	C/N/120901/2
	Room 1710, Technology Park,	Date of Issue:	2012-09-02
	18 On Lai Street,	Date Received:	2012-09-01
	Shatin, NT, Hong Kong	Date Tested:	2012-09-01
		Date Completed:	2012-09-02

ATTN:

# Mr. W.K. Tang

# **Certificate of Calibration**

# Item for calibration:

Description Manufacturer Model No. Serial No. Microphone No. Equipment No.

# : 'SVANTEK' Integrating Sound Level Meter : SVANTEK : SVAN 957 : 21459 : 43676 : N-08-08

Next Due Date:

Page:

# Test conditions:

Room Temperatre Relative Humidity : 22 degree Celsius : 67%

#### **Test Specifications:**

Performance checking at 94 and 114 dB

# Methodology:

In-house method, according to manufacturer instruction manual

### **Results:**

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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PATRICK TSE Laboratory Manager



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#### TEST REPORT APPLICANT: **Cinotech Consultants Limited** Test Report No .: C/N/120921/1 Date of Issue: 2012-09-22 Room 1710, Technology Park, Date Received: 2012-09-21 18 On Lai Street, Shatin, NT, Hong Kong Date Tested: 2012-09-21 Date Completed: 2012-09-22 Next Due Date: 2013-09-21 ATTN: Mr. W.K. Tang Page: 1 of 1 Item for calibration: : Acoustical Calibrator Description Manufacturer : SVANTEK Model No. : SV30A Serial No. : 10929 : N-09-01 Equipment No. Test conditions: Room Temperatre : 24 degree Celsius

Room Temperatre Relative Humidity : 56%

# Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

# **Results:**

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

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	TEST	r repoi	RT		
APPLICANT:	Cinotech Consultants Room 1710, Technolog		Test Report No.: Date of Issue:	C/N/121005/1 2012-10-07	
	18 On Lai Street,		Date Received:	2012-10-05	
	Shatin, NT, Hong Kon	g	Date Tested:	2012-10-05	
			Date Completed: Next Due Date:	2012-10-07 2013-10-06	
ATTN:	Mr. W.K. Tang		Page:	1 of 1	
Item for calibra	ation:				
1	Description	: Acoustie	cal Calibrator		
1	Manufacturer	: SVANT			
]	Model No.	: SV30A			
	Serial No.	: 24803			
	Equipment No.	: N-09-03			

THOM DEDODM

## **Test conditions:**

Room Temperatre Relative Humidity : 23 degree Celsius : 64%

# Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

# **Results:**

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

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PATRICK TSE Laboratory Manager

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APPENDIX C ENVIRONMENTAL MONITORING SCHEDULE

# Contract No. DE/2009/09 - Construction of Tai Po Sewage Treatment Works - Stage 5 Phase 2B Tentative Impact Air Quality and Noise Monitoring Schedule for August 2013

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

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

# Contract No. DE/2009/09 - Construction of Tai Po Sewage Treatment Works - Stage 5 Phase 2B Tentative Impact Air Quality and Noise Monitoring Schedule for September 2013

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

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

APPENDIX D 1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

#### Appendix D - 1-hour TSP Monitoring Results

Date	Sampling	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Flow Rate	e (m <sup>3</sup> /min.)	Av. flow	Total vol.	Conc.
Dale	Time	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m <sup>3</sup> /min)	(m <sup>3</sup> )	$(\mu g/m^3)$
1-Aug-13	10:00	Cloudy	303.5	755.6	3.6715	3.6758	0.0043	19590.1	19591.1	1.0	1.21	1.21	1.21	72.7	59
5-Aug-13	9:00	Sunny	301.3	760.3	3.6803	3.6856	0.0053	19591.1	19592.1	1.0	1.22	1.22	1.22	73.1	72
6-Aug-13	9:00	Sunny	301.9	759.2	3.5801	3.5834	0.0033	19592.1	19593.1	1.0	1.22	1.22	1.22	73.0	45
9-Aug-13	13:00	Sunny	307.1	758.3	3.6780	3.6834	0.0054	19617.1	19618.1	1.0	1.21	1.21	1.21	72.4	75
12-Aug-13	9:00	Cloudy	302.9	757.7	3.6425	3.6453	0.0028	19618.1	19619.1	1.0	1.21	1.21	1.21	72.8	38
13-Aug-13	13:15	Rainy	298.9	754.2	3.6559	3.6642	0.0083	19643.1	19644.1	1.0	1.22	1.22	1.22	73.1	113
14-Aug-13	9:00	Cloudy	299.2	751.2	3.6442	3.6506	0.0064	19644.1	19645.1	1.0	1.22	1.22	1.22	73.0	88
19-Aug-13	13:15	Cloudy	301.9	753.7	3.6381	3.6420	0.0039	19670.1	19671.1	1.0	1.21	1.21	1.21	72.8	54
22-Aug-13	9:00	Sunny	302.6	748.9	3.6485	3.6642	0.0157	19671.1	19672.1	1.0	1.21	1.21	1.21	72.5	217
23-Aug-13	13:30	Sunny	300.4	751.2	3.7964	3.8096	0.0132	19674.1	19675.1	1.0	1.21	1.21	1.21	72.8	181
26-Aug-13	13:00	Sunny	304.6	755.8	3.6871	3.6923	0.0052	19723.1	19724.1	1.0	1.20	1.20	1.20	72.3	72
29-Aug-13	13:00	Sunny	301.7	755.6	3.6841	3.6923	0.0082	19724.1	19725.1	1.0	1.21	1.21	1.21	72.6	113
30-Aug-13	11:00	Cloudy	297.9	756.6	3.7661	3.7702	0.0041	19749.1	19750.1	1.0	1.22	1.22	1.22	73.1	56
														Min	38
														Max	217

#### Station CAM1 Government Staff Quarters

#### Station CAM2 Heng Hing Printing Centre

#### Sampling Weather Air Atmospheric Filter Weight (g) Particulate Elapse Time Sampling Flow Rate (m<sup>3</sup>/min.) Av. flow Total vol Conc. Date Time Condition Pressure (Pa) Initial Final weight (g) Initial Final Time(hrs.) Initial Final (m<sup>3</sup>/min) $(m^{3})$ (µg/m<sup>3</sup>) Temp. (K) 1-Aug-13 9:00 Cloudy 303.3 755.8 3.6183 3.6232 0.0049 28764.3 28765.3 1.0 1.21 1.21 1.21 72.5 68 1.22 5-Aug-13 3.6027 3.6102 28766.3 1.22 1.22 73.0 9:00 Sunny 301.3 760.3 0.0075 28765.3 1.0 103 6-Aug-13 9:00 Sunny 301.9 759.2 3.5711 3.5752 0.0041 28766.3 28767.3 1.0 1.21 1.21 1.21 72.8 56 9-Aug-13 13:00 758.3 0.0073 1.20 Sunny 307.1 3.5873 3.5946 28791.3 28792.3 1.0 1.20 1.20 72.2 101 12-Aug-13 9:00 302.9 757.7 3.6115 3.6167 0.0052 28793.3 1.21 72.7 72 Cloudy 28792.3 1.0 1.21 1.21 13-Aug-13 13:30 Rainy 298.9 754.5 3.5878 3.5979 0.0101 28817.3 28818.3 1.0 1.22 1.22 1.22 73.0 138 14-Aug-13 9:00 Cloudy 299.2 751.2 3.6569 3.6650 0.0081 28818.3 28819.3 1.0 1.21 1.21 1.21 72.8 111 19-Aug-13 13:30 Cloudy 301.9 753.7 3.6360 3.6396 0.0036 28844.3 28845.3 1.0 1.21 1.21 1.21 72.6 50 1.21 72.3 22-Aug-13 9:00 Sunny 302.6 748.9 3.1521 3.1686 0.0165 28845.3 28846.3 1.0 1.21 1.21 228 23-Aug-13 13:30 300.4 751.2 3.8080 3.8231 0.0151 28848.3 28849.3 1.21 1.21 1.21 72.7 208 Sunny 1.0 26-Aug-13 13:00 304.6 755.8 3.6157 3.6228 0.0071 28897.3 28898.3 1.0 1.21 1.21 1.21 72.7 98 Sunny 29-Aug-13 9:00 Sunny 301.7 755.6 3.6427 3.6521 0.0094 28898.3 28899.3 1.0 1.22 1.22 1.22 73.0 129 30-Aug-13 13:00 Cloudy 300.4 756.3 3.7392 3.7444 0.0052 28923.3 28924.3 1.0 1.22 1.22 1.22 73.1 71 Min 50 Max 228

Average 110

Average

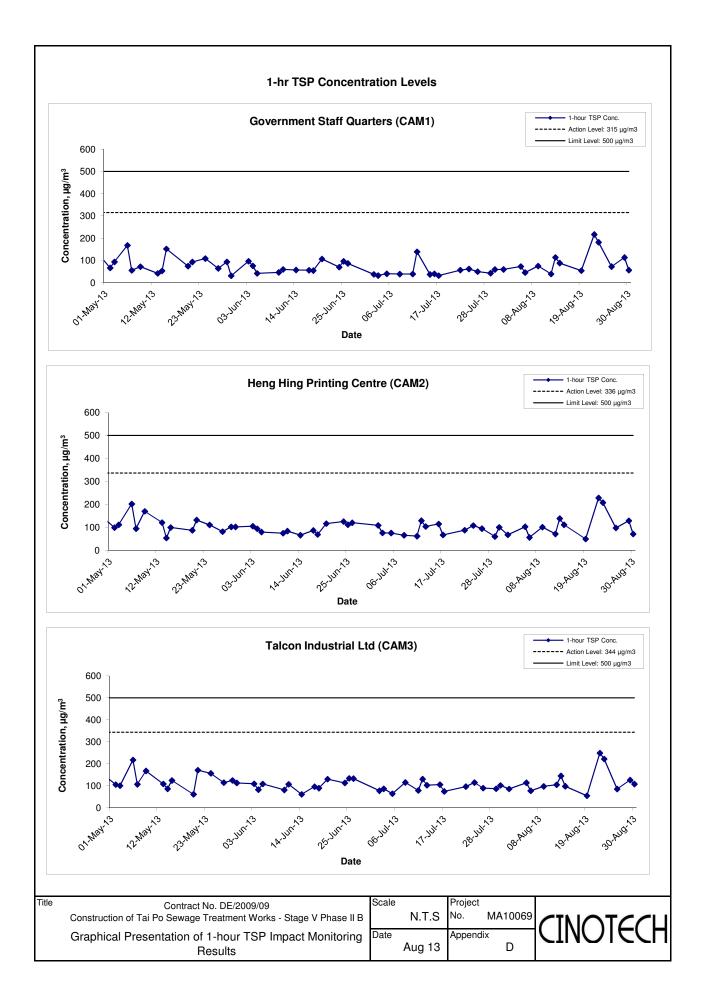
91

# Appendix D - 1-hour TSP Monitoring Results

#### Station CAM3 Talcon Industrial Ltd

Date	Sampling	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elaps	e Time	Sampling	Flow Rate	e (m <sup>3</sup> /min.)	Av. flow	Total vol.	Conc.
Dale	Time	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m <sup>3</sup> /min)	(m <sup>3</sup> )	(µg/m <sup>3</sup> )
1-Aug-13	9:00	Cloudy	303.3	755.8	3.6148	3.6211	0.0063	21999.9	22000.9	1.0	1.22	1.22	1.22	73.3	86
5-Aug-13	9:00	Sunny	301.3	760.3	3.5564	3.5648	0.0084	22000.9	22001.9	1.0	1.23	1.23	1.23	73.8	114
6-Aug-13	9:00	Sunny	301.9	759.2	3.6029	3.6086	0.0057	22001.9	22002.9	1.0	1.23	1.23	1.23	73.7	77
9-Aug-13	13:00	Sunny	307.1	758.3	3.5968	3.6039	0.0071	22026.9	22027.9	1.0	1.22	1.22	1.22	73.0	97
12-Aug-13	9:00	Cloudy	302.9	757.7	3.6007	3.6084	0.0077	22027.9	22028.9	1.0	1.22	1.22	1.22	73.5	105
13-Aug-13	13:30	Rainy	298.9	754.2	3.6245	3.6352	0.0107	22052.9	22053.9	1.0	1.23	1.23	1.23	73.8	145
14-Aug-13	9:00	Cloudy	299.2	751.2	3.6750	3.6822	0.0072	22053.9	22054.9	1.0	1.23	1.23	1.23	73.6	98
19-Aug-13	13:30	Cloudy	301.9	753.7	3.6416	3.6456	0.0040	22079.9	22080.9	1.0	1.22	1.22	1.22	73.4	55
22-Aug-13	9:00	Sunny	302.6	748.9	3.7698	3.7880	0.0182	22080.9	22081.9	1.0	1.22	1.22	1.22	73.1	249
23-Aug-13	13:30	Sunny	300.4	751.2	3.7749	3.7912	0.0163	22083.9	22084.9	1.0	1.22	1.22	1.22	73.4	222
26-Aug-13	13:00	Sunny	304.6	755.8	3.6174	3.6236	0.0062	22132.9	22133.9	1.0	1.21	1.21	1.21	72.6	85
29-Aug-13	9:00	Sunny	301.7	755.6	3.6477	3.6569	0.0092	22133.9	22134.9	1.0	1.22	1.22	1.22	72.9	126
30-Aug-13	13:00	Cloudy	300.4	756.3	3.7075	3.7154	0.0079	22158.9	22159.9	1.0	1.22	1.22	1.22	73.1	108
														Min	55
															0.40

Max 249 Average 121



APPENDIX E 24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

# Appendix E - 24-hour TSP Monitoring Results

Start Date	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Flow Rate	e (m <sup>3</sup> /min.)	Av. flow	Total vol.
Start Date	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m <sup>3</sup> /min)	(m <sup>3</sup> )
6-Aug-13	Sunny	302.2	759.0	3.8792	3.9166	0.0374	19593.1	19617.1	24.0	1.22	1.22	1.22	1751.8
12-Aug-13	Sunny	304.9	756.5	3.6764	3.8155	0.1391	19619.1	19643.1	24.0	1.21	1.21	1.21	1741.7
17-Aug-13	Cloudy	299.3	751.7	3.6464	3.7160	0.0696	19645.1	19669.1	24.0	1.22	1.22	1.22	1751.6
23-Aug-13	Sunny	300.6	750.9	3.6544	3.7054	0.0510	19675.1	19699.1	24.0	1.21	1.21	1.21	1747.4
29-Aug-13	Cloudy	302.3	755.2	3.7642	3.8487	0.0845	19725.1	19749.1	24.0	1.21	1.21	1.21	1740.0
													Min
													Max
													Average

#### Station CAM1 Government Staff Quarters

#### Station CAM2 Heng Hing Printing Centre

Start Date	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elaps	e Time	Sampling	Flow Rate	e (m <sup>3</sup> /min.)	Av. flow	Total vol.	Conc.
Start Date	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m <sup>3</sup> /min)	(m <sup>3</sup> )	(µg/m <sup>3</sup> )
6-Aug-13	Sunny	302.4	758.8	3.5788	3.6759	0.0971	28767.3	28791.3	24.0	1.21	1.21	1.21	1746.6	56
12-Aug-13	Sunny	304.9	756.5	3.5975	3.7392	0.1417	28793.3	28817.3	24.0	1.21	1.21	1.21	1737.7	82
17-Aug-13	Cloudy	299.3	751.7	3.6453	3.8005	0.1552	28819.3	28843.3	24.0	1.21	1.21	1.21	1747.1	89
23-Aug-13	Sunny	300.6	750.9	3.6000	3.6894	0.0894	28849.3	28873.3	24.0	1.21	1.21	1.21	1743.1	51
29-Aug-13	Cloudy	302.3	755.2	3.6392	3.7337	0.0945	28899.3	28923.3	24.0	1.21	1.21	1.21	1749.1	54
													Min	51
													Max	89
													Average	66

#### Station CAM3

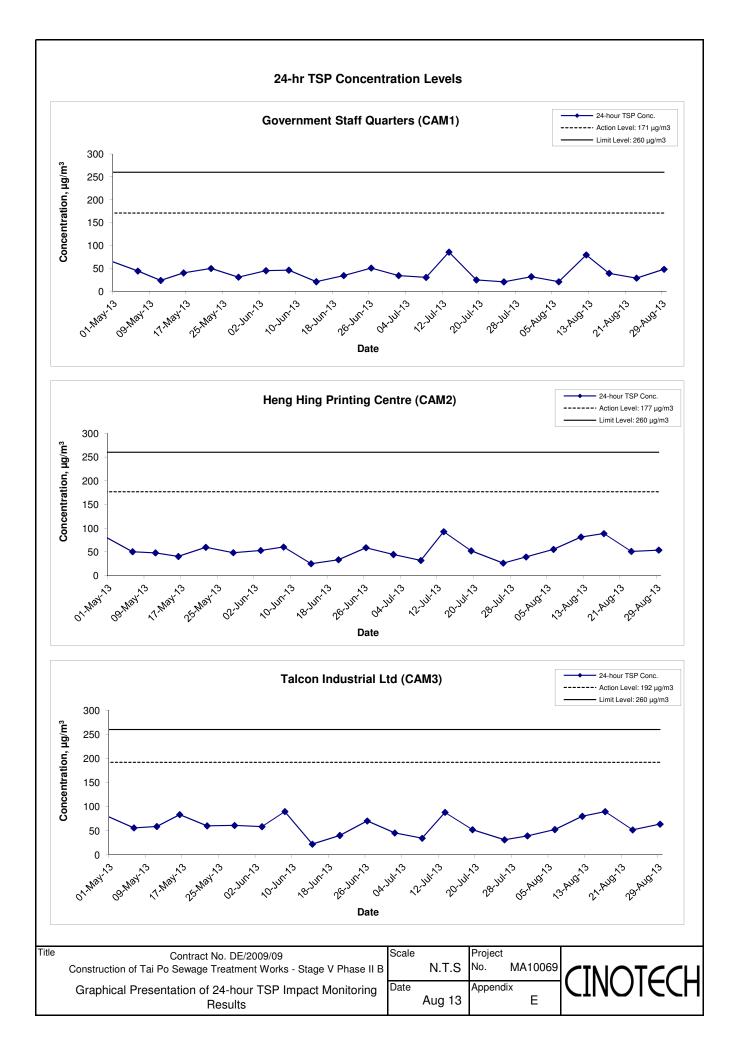
Talcon Industrial Ltd

Start Date	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Flow Rate	e (m <sup>3</sup> /min.)	Av. flow	Total vol.	Conc.
Start Date	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m <sup>3</sup> /min)	(m <sup>3</sup> )	(µg/m <sup>3</sup> )
6-Aug-13	Sunny	302.4	758.8	3.5825	3.6756	0.0931	22002.9	22026.9	24.0	1.23	1.23	1.23	1765.9	53
12-Aug-13	Sunny	304.9	756.5	3.5841	3.7250	0.1409	22028.9	22052.9	24.0	1.22	1.22	1.22	1755.8	80
17-Aug-13	Cloudy	299.3	751.7	3.6080	3.7667	0.1587	22054.9	22078.9	24.0	1.23	1.23	1.23	1766.5	90
23-Aug-13	Sunny	300.6	750.9	3.6177	3.7093	0.0916	22084.9	22108.9	24.0	1.22	1.22	1.22	1761.9	52
29-Aug-13	Cloudy	302.3	755.2	3.7232	3.8350	0.1118	22134.9	22158.9	24.0	1.21	1.21	1.21	1748.4	64
													Min	52
													Max	90

Average 68

Conc.

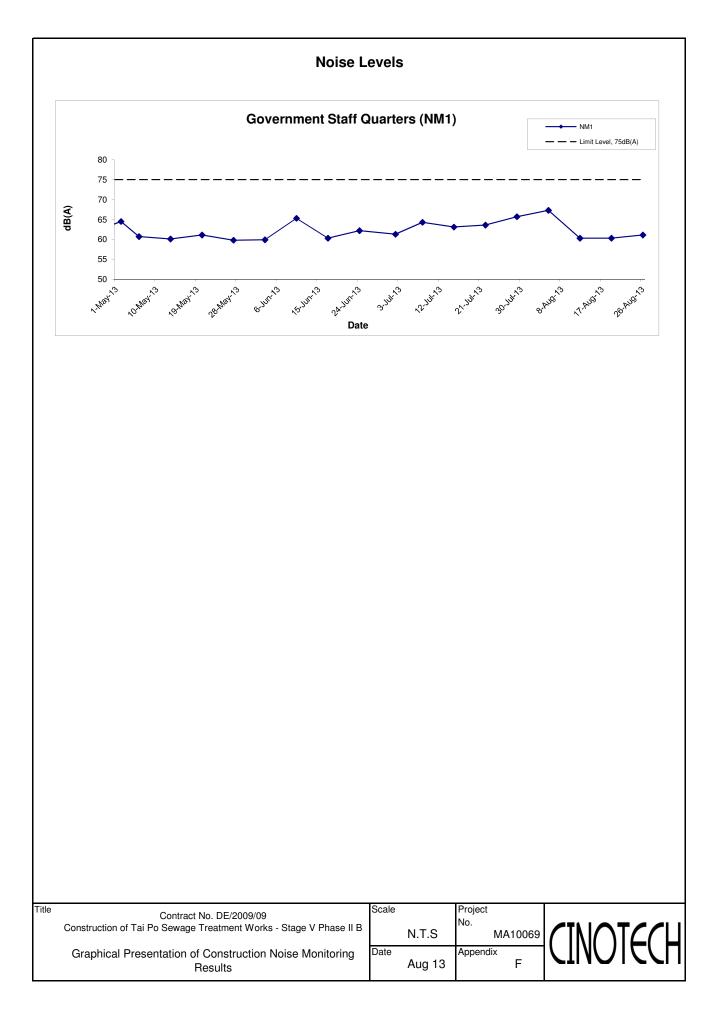
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APPENDIX F NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

# Appendix F - Noise Monitoring Results

		ent Staff Quarte		B (A) (30-min)	)
Date	Time	Weather	L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>
5-Aug-13	9:00	Cloudy	67.3	69.4	63.0
12-Aug-13	13:00	Sunny	60.3	61.1	57.8
19-Aug-13	13:30	Cloudy	60.3	62.0	55.6
26-Aug-13	13:30	Sunny	61.1	63.4	57.2
		Average	63.4	64.0	58.4
		Minimum	60.3	61.1	55.6
		Maximum	67.3	69.4	63.0



APPENDIX G SUMMARY OF EXCEEDANCE

# **APPENIDX G – SUMMARY OF EXCEEDANCE**

**Reporting Month:** August 2013

- a) Exceedance Report for 1-hr TSP (NIL)
- b) Exceedance Report for 24-hr TSP (NIL)
- c) Exceedance Report for Construction Noise (NIL)

APPENDIX H SITE AUDIT SUMMARY

Checklist Reference Number	130809
Date	9 August 2013 (Friday)
Time	9:30 - 10:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	

Ref. No.	Remarks/Observations	Related Item No.
	Part C - Water Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part D - Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Noise	
	• No environmental deficiency was identified during the site inspection.	
130809-R01	<ul> <li><i>Part F - Waste / Chemical Management</i></li> <li>Clear the general refuse outside the JEC site office to avoid accumulation.</li> </ul>	F 1i
	<ul> <li><i>Part G - Permit / Licenses</i></li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	Part H – Remark	
	• No environmental deficiency was identified during the site inspection.	
	Others	
	• Follow-up on the previous audit session (Ref. No.130730), all environmental deficiencies was observed to be improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kevin Lam	Kewigh	9 August 2013
Checked by	Dr. Priscilla Choy	NA	9 August 2013

Checklist Reference Number	130816	
Date	16 August 2013 (Friday)	
Time	9:30 - 10:30	

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	Part C - Water Quality	
	No environmental deficiency was identified during the site inspection.	
	Part D - Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Noise	
	• No environmental deficiency was identified during the site inspection.	
	<ul> <li>Part F - Waste / Chemical Management</li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	<ul><li><i>Part G - Permit / Licenses</i></li><li>No environmental deficiency was identified during the site inspection.</li></ul>	
	<ul> <li><i>Part H – Remark</i></li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	<ul> <li>Others</li> <li>Follow-up on the previous audit session (Ref. No.130809), all environmental deficiencies was observed to be improved/rectified by the Contractor.</li> </ul>	

	Name	Signature	Date
Recorded by	Kevin Lam	Kevin	16 August 2013
Checked by	Dr. Priscilla Choy	NTI	16 August 2013

Checklist Reference Number	130823
Date	23 August 2013 (Friday)
Time	9:30 - 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
	· · · · · · · · · · · · · · · · · · ·	

Ref. No.	Remarks/Observations	Related Item No.
	Part C - Water Quality	
	• No environmental deficiency was identified during the site inspection.	
	<ul><li><i>Part D - Air Quality</i></li><li>No environmental deficiency was identified during the site inspection.</li></ul>	
	Part E – Noise	
	• No environmental deficiency was identified during the site inspection.	
130823-R01	<ul> <li><i>Part F - Waste / Chemical Management</i></li> <li>Properly clear the general refuse outside JEC site office.</li> </ul>	F 1i, 1iii
	<ul> <li><i>Part G - Permit / Licenses</i></li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	<ul> <li><i>Part H – Remark</i></li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	<ul> <li>Others</li> <li>Follow-up on the previous audit session (Ref. No.130816), all environmental deficiencies was observed to be improved/rectified by the Contractor.</li> </ul>	

Name	Signature	Date
Kevin Lam	Kinen	23 August 2013
Priscilla Choy	NI	23 August 2013
	Kevin Lam Priscilla Choy	

Checklist Reference Number	130827
Date	27 August 2013 (Tuesday)
Time	9:30 - 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	Part C - Water Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part D - Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Noise	
	• No environmental deficiency was identified during the site inspection.	
	<ul> <li>Part F - Waste / Chemical Management</li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	<ul><li><i>Part G - Permit / Licenses</i></li><li>No environmental deficiency was identified during the site inspection.</li></ul>	
	Part H Remark	
	• No environmental deficiency was identified during the site inspection.	
	Others	
	• Follow-up on the previous audit session (Ref. No.130823), all environmental deficiencies was observed to be improved/rectified by the Contractor.	

	Name	Signature,	Date
Recorded by	Kevin Lam	Kevil	27 August 2013
Checked by	Dr. Priscilla Choy	NIA	27 August 2013

APPENDIX I EVENT ACTION PLANS

# **APPENDIX I** (1) – Event Action Plan for Air Quality Monitoring (Construction Phase)

EVENT		ACTIO	N	
EVENI	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	<ol> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform IEC and ER;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily.</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method.</li> </ol>	1. Notify Contractor.	<ol> <li>Rectify any unacceptable practice;</li> <li>Amend working methods if appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol> <li>Identify source;</li> <li>Inform IC(E) and ER;</li> <li>Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Discuss with IEC and Contractor on remedial actions required;</li> <li>If exceedance continues, arrange meeting with IEC and ER;</li> <li>If exceedance stops, cease additional monitoring.</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise the ET on the effectiveness of the proposed remedial measures;</li> <li>Supervise Implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Ensure remedial measures properly implemented.</li> </ol>	<ol> <li>Submit proposals for remedial actions to IEC within three working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ol>
1. Exceedance for one sample	<ol> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform Contractor, IEC, ER, and EPD;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>Supervise implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ol>	<ol> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within three working days of notification;</li> <li>Implement the agreed proposals; 4. Amend proposal if appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol> <li>Notify IEC, ER, Contractor and EPD;</li> <li>Identify source;</li> <li>Repeat measurement to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results;</li> <li>If exceedance stops, cease additional monitoring.</li> </ol>	<ol> <li>Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>Supervise the implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>Ensure remedial measures properly implemented;</li> <li>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.</li> </ol>	<ol> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within three 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 portion of works as determined by the ER until the exceedance is abated.</li> </ol>

# **APPENDIX I (2) – Event Action Plan for Construction Noise Monitoring (Construction Phase)**

EXTENT		ACTION		
EVENT	ET	IEC	ER	CONTRACTOR
ACTION LEVEL	<ol> <li>Notify IEC and Contractor;</li> <li>Carry out investigation;</li> <li>Report the results of investigation to the IEC, ER and Contractor;</li> <li>Discuss with the Contractor and formulate remedial measures;</li> <li>Increase monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol> <li>Review the analyzed results submitted by the ET;</li> <li>Review the propose d remedial measures by the Contractor and advise the ER accordingly;</li> <li>Supervise the implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Require Contractor to propose remedial measures for the analyzed noise problem;</li> <li>Ensure remedial measures are properly implemented.</li> </ol>	<ol> <li>Submit noise mitigation proposals to IEC;</li> <li>Implement noise mitigation proposals.</li> </ol>
LIMIT LEVEL	<ol> <li>Identify source;</li> <li>Inform IEC, ER, EPD and Contractor;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency;</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>Inform IEC, ER and EPD the causes and actions taken for the exceedances;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>If exceedance stops, cease additional monitoring.</li> </ol>	<ol> <li>Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>Supervise the implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>Ensure remedial measures properly implemented;</li> <li>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.</li> </ol>	<ol> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions 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 portion of works as determined by the ER until the exceedance is abated.</li> </ol>

APPENDIX J UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

Type of Impact	Recommended Mitigation Measures	Status
Air Quality	Dust mitigation measures stipulated in the Air Pollution Control (Construction Dust) Regulation shall be incorporated to control dust emission. Notice shall be given to authority prior to commencing of work	V
Noise	Use of quiet PME	N/A
	<ul> <li>Good Site Practice</li> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program;</li> <li>Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program;</li> <li>Mobile plant, if any, should be sited as far from NSRs as possible;</li> <li>Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and</li> <li>Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.</li> </ul>	V
Water Quality	The practices outlined in ProPECC PN 1/94 Construction Site Drainage should be adopted to minimize the potential water quality impacts from construction site runoff and various construction activities. The recommendation to install perimeter drains to collect site runoff and to properly treat the runoff by settlement tank/treatment system shall apply to all sites including those for mainlaying works. Minimum distances of 100 m should be maintained between the discharge points of construction site runoff and the existing WSD saltwater intake at Tai Po.	V
	A discharge licence needs to be applied from EPD for discharging effluent from the construction site. The discharge quality is required to meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas should be treated so that it satisfies with all the standards listed in the TM. 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. Monitoring of the discharge quality of treated effluent should be part of the Environmental Monitoring and Audit (EM&A) programme. Detailed effluent sampling programme for water quality control during construction phase should be submitted to EPD, AFCD and WSD for approval prior to commencement of the construction works.	N/A
	The construction programme should be properly planned to minimize soil excavation, if any, in rainy seasons. This prevents soil erosion from exposed soil surfaces. Any exposed soil surfaces should also be properly protected to minimize dust emission. In areas where a large amount of exposed soils exist, earth bunds or sand bags should be provided. Exposed stockpiles should be covered with tarpaulin or impervious sheets at all time. The stockpiles of materials should be placed in the locations away from any stream courses so as to avoid releasing materials into the water bodies. Final surfaces of earthworks should be compacted and protected by permanent work. It is suggested that haul roads should be paved with concrete and the temporary access roads are protected using crushed stone or gravel, wherever practicable. Wheel washing facilities should be provided at all site exits to ensure that earth, mud and debris would not be carried out of the works areas by vehicles.	V
	Good site practices should be adopted to clean the rubbish and litter on the construction sites so as to prevent the rubbish and litter from dropping into the nearby environment. It is recommended to clean the construction sites on a regular basis.	V

# APPENDIX J – Updated Environmental Mitigation Implementation Schedule (During Construction Phase)

Type of Impact	Recommended Mitigation Measures	Status
	It is recommended to provide sufficient chemical toilets in the works areas. The toilet facilities should not be less than 30 m from any watercourse. A licensed waste 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 TPSTW as necessary.	V
	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. Implementation of environmental audit on the construction site can provide an effective control of any malpractices and can achieve continual improvement of environmental performance on site.	V
	It is required to register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	V
	Any service shop and minor maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken with the areas appropriately equipped to control these discharges.	V
	<ul> <li>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows:</li> <li>Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport</li> <li>Chemical waste containers should be suitably labelled to notify and warn the personnel who are handling the wastes to avoid accidents.</li> <li>Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.</li> </ul>	V
	Marine water quality monitoring should be carried out under emergency condition or during maintenance of the THEES tunnel to verify the findings of the water quality modelling. It is recommended that the maintenance of the THEES tunnel, if unavoidable, should be conducted during winter season or low flow periods and to avoid the "blooming" season of algae (normally from April to June) if practicable. Details of the monitoring requirements are specified in the EM&A Manual.	N/A

Type of Impact	Recommended Mitigation Measures	Status
Type of Impact Waste Management	<ul> <li>Good site practices during the construction activities include:</li> <li>Nomination of approved personnel, 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.</li> <li>Training of site personnel in proper waste management and chemical waste handling procedures.</li> <li>Provision of sufficient waste disposal points and regular collection for disposal.</li> <li>Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.</li> <li>Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility.</li> <li>Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.</li> <li>A Waste Management Plan shall be prepared and this WMP shall be submitted to the Engineer for approval. One may make reference to ETWB TCW No. 15/2003 for details.</li> <li>In order to monitor the disposal of C&amp;D materials at landfills and public filling areas, and to control fly tipping, a trip-ticket system shall be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. One may make reference to WBTC No. 21/2002 for details.</li> <li>A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) shall be proposed.</li> </ul>	
	<ul> <li>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:</li> <li>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.</li> <li>To encourage collection of aluminum cans by individual collectors, separate labelled bins shall be provided to segregate this waste from other general refuse generated by the work force.</li> <li>Any unused chemicals or those with remaining functional capacity shall be recycled.</li> <li>Maximize the use of reusable steel formwork to reduce the amount of C&amp;D material.</li> <li>Prior to disposal of C&amp;D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimize the quantity of waste to be disposed of to landfill.</li> <li>Proper storage and site practices to minimize the potential for damage or contamination of construction materials.</li> <li>Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.</li> <li>Minimize over ordering of concrete, mortars and cement grout by doing careful check before ordering</li> </ul>	√
	General Refuse General refuse shall be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D material. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material.	1
	Construction & Demolition (C&D) Material C&D material generated from the site formation and demolition works shall be sorted on-site into inert C&D material (i.e. public fill) and C&D waste. In order to minimise the impact resulting from collection and transportation of C&D material for off-site disposal, the excavated material comprising fill material shall be reused on-site as backfilling material as far as practicable. C&D waste, such as wood, plastic, steel and other metals shall be reused or recycled and, as a last resort, disposed of to landfill. A suitable area shall be designated within the site for temporary stockpiling of C&D material and to facilitate the sorting process.	

Type of Impact	Recommended Mitigation Measures	Status
	Bentonite Slurry Bentonite slurries used in construction works should be reconditioned and reused wherever practicable. Residual used bentonite slurry should be disposed of from the site as soon as possible. The Contractor should explore alternative disposal outlets for the residual used bentonite slurry and disposal at landfill should be the last resort.	N/A

Note:  $\sqrt{-}$ 

 $\sqrt{-}$  Compliance of mitigation measures X - Non-compliance of mitigation measures

N/A – Not applicable

APPENDIX K WASTE GENERATION IN THE REPORTING MONTH Name of Department: Drainage Services Department

Contract No. : DE/2009/09

# Monthly Summary - Waste Flow Table for 2013

		Annual Quar	ntities of Inert C	C&D Materials Ge	enerated Monthly	,	An	nual Quantities of	f C&D Materials	Generated Mont	hly
Month	Total Quantity Generated	Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse
	$(\text{in } \text{m}^3)$	$(\text{in } \text{m}^3)$	$(\text{in } \text{m}^3)$	$(\text{in } \text{m}^3)$	$(in m^3)$	$(\text{in } \text{m}^3)$	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in tonne)
Jan	0	0	0	0	0	0	0	0	0	0	5.0
Feb	0	0	0	0	0	0	0	0	0	0	1.8
Mar	0	0	0	0	0	0	0	0.13	0	0	2.0
Apr	0	0	0	0	0	0	0	0	0	0	1.2
May	0	0	0	0	0	0	0	0	0	0	1.4
June	0	0	0	0	0	0	0	0.07	0	0	0
July	0	0	0	0	0	0	0	0	0	0	4.4
Aug	0	0	0	0	0	0	0	0	0	600L	3.1
Sept											
Oct											
Nov											
Dec											
Total	0	0	0	0	0	0	0	0.2	0	600L	18.9

	Forecast of Total Quantities of C&D Materials to be Generated from the Contractor														
Total Quantity Generated															
$(in m^3)$	$(in m^3)$	$(in m^3)$	$(\text{in } \text{m}^3)$	$(\text{in } \text{m}^3)$	$(in m^3)$	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in tonne)					
0	Nil	0	0	0	0	100	100	50	10	500					

Notes: (1)

(2) (3) (4)

The performance targets are given in PS Clause 1.40.8(14). The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site. Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material. The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m<sup>3</sup>. (PS Clause 1.40.7(4)(b) refers.

APPENDIX L COMPLAINT LOG

# **APPENDIX L – COMPLAINT LOG**

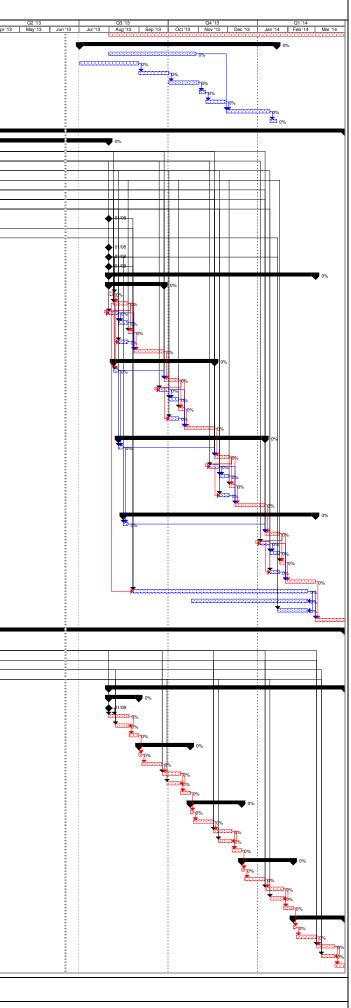
# **Reporting Month**: August 2013

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
N/A	N/A	N/A	N/A	N/A	N/A

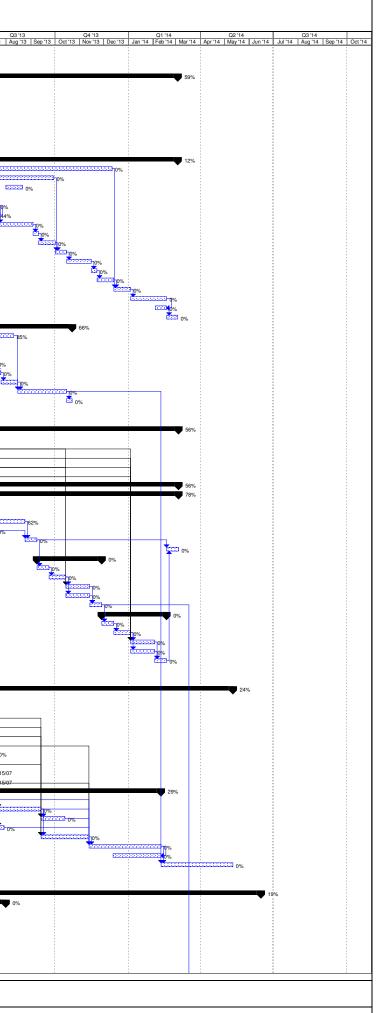
**Remarks**: No environmental complaint was received in the reporting month.

APPENDIX M CONSTRUCTION PROGRAMME

									Supply and Installation of Electri	DSD Contract : DE/2009/09 rical and Mechanical Equipment for Tai Po Section II Works Progra	Sewage Treatment Works Stage 5 Phase	28			
	ID 1	Task Name Section II of the Works				Mar '11	Q2 '11 Apr '11 May '11 Jun '11	Q3 '11 Jul '11 Aug '11 Sep '11	Q4 '11 Oct '11 Nov '11 Dec '11	Q1 '12 Jan '12 Feb '12 Mar '12	Q2 '12 Apr '12 May '12 Jun '12	Q3 '12 Jul '12 Aug '12 Sep '12	Q4 '12 Oct '12 Nov '12 Dec '12	Q1 '13 Jan '13 Feb '13 Mar '13	Apr '1
	2														
	6														
	7 8														
		MCC3 Installation, SAT, Cable Installation & Migration	45 days	Sat 30/11	/13 Mon 13/0	1/14									
															1
														¢ 20/02	
							22/02							♦ 20.02	1
												♦ 22/08			
							<b>♦</b> 08/05								
							•								
								A 15/07				♦ 22/08			1
	27		57 days	Thu 01/08	/13 Thu 26/0	9/13									
	30														
			10 days	Sun 11/08	/13 Tue 20/0										
	34	Final screeding	31 days	Tue 27/08	/13 Thu 26/0	9/13									
	41		10 days	Wed 02/10	/13 Fri 11/1	0/13									
		FCW & FEDB		Tue 03/12	/13 Sun 08/1	2/13									
Note			5 days	Fri 16/08											
Image: series of the series															
n     Normal Alam     Normal Alam </td <td></td>															
1       20 <td< td=""><td>59</td><td>Electrical Installation</td><td></td><td>Mon 26/08</td><td>/13 Fri 21/0</td><td>2/14</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	59	Electrical Installation		Mon 26/08	/13 Fri 21/0	2/14									
1     Market Alexandorm     Market Alexandorm <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>															
No       No <th< td=""><td></td><td>Stage IV RAS Pumping Station</td><td>730 days</td><td>Sun 01/04</td><td>/12 Mon 31/0</td><td>3/14</td><td></td><td></td><td></td><td></td><td>·</td><td></td><td></td><td></td><td><u>.</u></td></th<>		Stage IV RAS Pumping Station	730 days	Sun 01/04	/12 Mon 31/0	3/14					·				<u>.</u>
Name											▲ 01/05	100%			
B       Rest before       Start       Number       Rest before       Start       Number       Start       Start       Number       Start       Start <td>66</td> <td>Pipework &amp; Valves</td> <td>0 days</td> <td>Sun 01/04</td> <td>/12 Sun 01/0</td> <td>4/12</td> <td></td> <td></td> <td></td> <td></td> <td>• 01/04</td> <td></td> <td></td> <td></td> <td></td>	66	Pipework & Valves	0 days	Sun 01/04	/12 Sun 01/0	4/12					• 01/04				
0     Number												◆ <u>22/08</u>			+
N     Making is multiplication for standing is constrained in the s															
1     Instantor Angle Structure Structur	70	RAS Pump No.5	31 days	Thu 01/08	/13 Sat 31/0	3/13									
1     Handard Wash 2004/00 feed marker     16 4m     Name     Nam     Name     Name     Name<															
13       4000000000000000000000000000000000000	73		14 days	Thu 08/08	/13 Wed 21/0	8/13									
Normal Armage       3 app       Building       3 app       Building       1 app       Building       1 app       Building       1 app															
1     Prog Course Prive Nickolation Prive S (Propent)     19 rag     Prive P															
Photop       Descriptives & SADARAFC Wade       0       40       Monormal       0       14 dage       Monormal       M	77	Pump Concrete Plinth Modification Works (By Civil Contractor)	21 days	Wed 04/09	/13 Tue 24/0	9/13									
10       Testing 4 Commissioning Amerikania Walt (1) 0000 (1000 (10000) (100000) (100															
Int       PAS Pump (Course of Pump (C															
Amp Concern Nein Madinator Nein Madinator Wate (Ny Ciri Conscion)       21 ap       Am 2011113       Station 17         Maintainer Prime Auflement Nein Madinator Vange (Ny Ciri Conscion)       16 dp       Ken 1711113       Tuto 061213         Maintainer Prime Madinator Vange (Ny Ciri Conscion)       16 dp       Ken 197113       Tuto 061213         Maintainer Prime Madinator Vange (Ny Ciri Conscion)       16 dp       Ken 197113       Tuto 061213         Maintainer Prime Madinator Vange (Ny Ciri Conscion)       16 dp       Ken 19713       Tuto 061213         Maintainer Prime Madinator Vange (Ny Ciri Conscion)       16 dp       Ken 19713       Tuto 061214         Maintainer Prime Madinator Vange (Ny Ciri Conscion)       16 dp       Tuto 19713       Tuto 061214         Maintainer Prime Madinator Vange (Ny Ciri Conscion)       16 dp       Tuto 061214       Ken 200114         Maintainer Prime Mathimator Vange (Ny Ciri Conscion)       16 dp       Tuto 061214       Ken 200114         Maintainer Prime Mathimator Vange (Ny Ciri Conscion)       16 dp       Tuto 061214       Ken 200114         Maintainer Prime Mathimator Vange (Ny Ciri Conscion)       16 dp       Tuto 061214       Ken 200114         Maintainer Prime Mathimator Vange (Ny Ciri Conscion)       16 dp       Ken 200114       Ken 200114         Maintainer Prime Mathimator Vange (Ny Ciri Conscion)       <		RAS Pump No.3	53 days	Thu 24/10	/13 Sun 15/1	2/13									
Add       Installator of Pumpe & Pumpe & Pumpe & Secondary & S															
64       Yesing A Commissioning       10 days       Mon 16/1733       Sun 16/2733         77       RAG Pump Korze       36 days       Mon 16/1733       Wol 8/12/33       Mol 6/2733         87       Pump Concrese Neth Madication Vois (By Cuk Contractor)       21 days       Tu 19/173       Wol 8/12/173         88       Pump Concrese Neth Madication Vois (By Cuk Contractor)       21 days       Tu 19/173       Wol 8/12/173         98       Pump Concrese Neth Madication Vois (By Cuk Contractor)       10 days       Tu 48/20174       Mon 22/0174         91       Bischcal Work & SCADAPLC Works       11 days       Tu 19/171       Mon 20/0174         92       Testing & Commissioning       10 days       Tu 48/0174       Mon 20/0174         93       Pump Concrese Neth Madication Vois (By Cuk Contractor)       3 days       Full Wood Nois (By Cuk Contractor)       10 days         94       Decommissioning & Temoral of Pump &       3 days       Full Wood Nois (By Cuk Contractor)       20 days         95       Pump Concrese Neth Medication Vois (By Cuk Contractor)       10 days       Soc 0002/4       Fi 2/100/4         96       Installation of Pump & Di Pyeenok       10 days       Soc 0002/4       Fi 2/100/4         97       Extend & Voria & SCADAPIC Vorka       10 days       Soc 0002/4	84	Installation of Pump & DI Pipework		Sun 17/11	/13 Thu 05/1	2/13									
Bit       RAS Pump No.2       S3 days       Mon 16/12/3       Two 6002/6         88       Decominationing A monaid Pump       3 days       Mon 16/12/3       Wo 6002/6         90       Pump Concerte Pinh Mudication Works (By Colf Contractor)       21 days       Two 6002/6         90       Menaformation Pump & Di Pipewak       19 days       Two 6002/6         91       Bectical Works & SCADAP,C Work       10 days       Two 6002/6         92       Testing & Commissioning       10 days       Two 6002/6         93       RAS Pump No.1       53 days       Frio702/14       Mon 3003/4         94       Decominisoring & Ronald Pump A       3 days       Frio702/14       Mon 3003/4         94       Decominisoring A Bund of Pump & Di Pipewak       3 days       Frio702/14       Mon 3003/4         95       RAS Pump Ro.1       3 days       Frio702/14       Son 0002/4       Son 0002/4         96       Mund Concerte Pinh Modification Works (By Colf Contractor)       3 days       Frio702/4       Son 0002/4         97       Testing & Commissioning       10 days       Sei 2003/4       Fiz 103/4         97       Testing & Commissioning       10 days       Sei 2003/4       Fiz 103/4         98       Testing & Commissioning															
B       Decomissioning & Removal of Pump       3 day       Mon 16/12/13       Wed 18/21/3         B0       Pump Concrete Plinh Modification Works (B/Chill Contractor)       21 day       The 19/21/3       Wed 08/01/4         90       Installation of Pump & Di Pipework       19 day       The 40/1/4       Mon 27/01/4         91       Decomissioning & Removal of Pump       10 day       The 40/1/4       Mon 27/01/4         92       Testing & Commissioning A Removal of Pump       3 day       Fri 07/02/1 & Sun 08/01/4       Mon 27/01/4         93       RASS Pump Ho.t       10 day       Testing & Commissioning & Removal of Pump       3 day       Fri 27/01/4         94       Decomissioning & Removal of Pump       3 day       Fri 27/01/4       Sun 08/02/14       Sun 08/02/14         95       Pump Concrete Printh Modification Vorke (S/Chill Contractor)       21 day       Mon 30/01/4       Sun 08/02/14         96       Installation of Pump & Di Pipework       19 day       Sun 08/02/14       Sun 08/02/14         97       Beachinal Worke & SCADAPLC Worke       19 day       Sun 08/02/14       Fri 21/01/4         97       Beachinal Worke & SCADAPLC Worke       10 day       Su 22/00/14       Fri 21/01/4         97       Beachinal Worke & SCADAPLC Worke       10 day       Su 22/00/14 </td <td></td>															
90       Installation of Pump & DI Pipework       19 dag       Tru 0901/14       Mon 2701/14         91       Betchical Works & SCADAPLC Works       14 dags       Tue 1401/14       Mon 2701/14         92       Testing & Commissioning       10 dags       Tue 3001/14       Mon 27001/14         92       Testing & Commissioning       58 dags       Fri 0702/14       Mon 31001/14         94       Decommissioning & Flemowit of Pump       3 dags       Fri 0702/14       Sun 0800/14         94       Decommissioning & Flemowit of Pump       21 dags       Mon 31002/14       Sun 0800/14         95       Pump Concrete Pinth Molfaellant Works (SCADAPLC Works       21 dags       Mon 31002/14       Sun 0800/14         96       Installation of Pump 2b DiPipework       10 dags       Sun 0800/14       Fri 21001/4       Sun 0800/14         97       Betchical Works & SCADAPLC Works       11 dags       Sun 0800/14       Fri 21001/4       Sun 0800/14         98       Testing & Commissioning       10 dags       Sun 0800/14       Fri 21001/4       Sun 0800/14         98       Testing & Commissioning       10 dags       Sun 0800/14       Fri 21001/4       Mon 31001/4         98       Testing & Commissioning       Sun 200,114       Mon 3100,114       Mon 3100,114	88	Decommissioning & Removal of Pump	3 days	Mon 16/12	/13 Wed 18/1	2/13									
91       Bedrical Works & SCADA-PLC Works       14 days       Tue 1401/14       Mon 2701/14         92       Testing & Commissioning       10 days       Waz 80/14       Thu 06/02/14         93       RAS Pump No.1       53 days       Fr/07/02/14       Mon 03/02/14       Mon 03/02/14         94       Decommissioning & Removal d Pump       31 days       Fr/07/02/14       Sun 03/02/14       Sun 03/02/14         95       Pump Concrete Plinth Molfication Works (By Cold Contractor)       21 days       Mon 03/03/14       Fr/21/03/14         96       Installation Works & SCADA-PLC Works       19 days       Sun 03/02/14       File 12/03/14         97       Beering Works & SCADA-PLC Works       10 days       Siz 22/03/14       File 12/03/14         98       Testing & Commissioning       Critical Progress       Splt       Image Progress       Summary Progress       Project Summary       External Moleston         98       Critical Split       Image Progress       Summary Progress       Summary Progress       Project Summary       External Moleston         98/14       Image Progress       Task Progress       Task Progress       Summary Progress       Summary       External Moleston       External Moleston         98/14       Image Progress       Task Progress       Summa															
1/2       Testing & Commissioning       10 day       Tue 2801/14       Thu 060214         93       RAS Pump No.1       53 days       Fi 07021/4       Mon 310314         94       Decommissioning & Remoul Pump       3 days       Fi 07021/4       Sun 090214         95       Pump Concrescion       21 days       Mon 03031/4       Fi 21031/4       Sun 090214         95       Installation of Pump & Di Pipevork       19 days       Mon 03031/4       Fi 21031/4       Sun 090214         96       Installation of Pump & Di Pipevork       19 days       Mon 03031/4       Fi 21031/4       Sun 090214         97       Electrical Works & SCADAPLC Works       10 days       Sta 20031/4       Fi 21031/4       Sta 0800301/4       Fi 21031/4         8       Testing & Commissioning       10 days       Sta 20031/4       Fi 21031/4       Sta 0800301/4       Fi 21031/4         97       Electrical Works & SCADAPLC Works       10 days       Sta 20031/4       Fi 21031/4       Fi 21031/4       Sta 0800301/4       Fi 21031/4         8       Testing & Commissioning       Critical Progress       Split       Sta 20031/4       File 21031/4       Sta 0800021/4       Sta 0800021/4       Sta 0800021/4       Sta 0800021/4       Sta 0800021/4       Sta 0800021/4       Sta 0800021			14 days	Tue 14/01	/14 Mon 27/0	1/14									
94       Decommissioning & Removal of Pump       93 days       Fit 07/02/14       Sun 09/02/14       Sun 09/02/14         95       Pump Concrete Plinth Molfication Works (By Civil Contractor)       21 days       Mon 100/21/4       Sun 02/03/14       Fit 21/03/14         96       Installation Plump & D Pipework       19 days       Mon 100/21/4       Fit 21/03/14       Fit 21/03/14       Fit 21/03/14         97       Decorrite Vinth & SCADA PLW to ks       11 days       Sut 03/03/14       Fit 21/03/14       Mon 31/03/14       Fit 21/03/14         98       Testing & Concrecce/20       Critical Progress       Spit       10 days       Spit       Mon 31/03/14       Mon 31/03/14         Removement with the spin testing & Concrecce/20       Critical Spit       Ortical Progress       Spit       10 days       Spit       10 days       Spit       Spit       Poiper Stammary       External Miestone Poiper Stammary       External Miestone Poiper Stammary       External Miestone Poiper Stammary       External Tasis       Deadine       Deadine       Poiper Stammary       External Tasis       Deadine       Point and Poin	92	Testing & Commissioning	10 days	Tue 28/01	/14 Thu 06/0	2/14									
95       Pump Concrete Plinth Modification Works (By Chill Contractor)       21 days       Non 1002/14       Sun 0203/14       Fin 2/103/14         96       Installation of Pump & Di Pipework       19 days       Mon 0303/14       Fin 2/103/14       Fin 2/103/14         97       Electrical Works & SCADAPLC Works       14 days       Sat 08/03/14       Fin 2/103/14       Fin 2/103/14       Fin 2/103/14         98       Testing & Commissioning       10 days       Sat 2/03/14       Mon 3/103/14       Fin 2/103/14       Mon 3/103/14       Fin 2/103/14         Rev.2 Date: 17 June 2013       Critical Split															
97     Electrical Works & SCADA-PLC Works     14 days     Stal 08/03/14     Fit 21/03/14       98     Testing & Commissioning     10 days     Stal 20/03/14     Mon 31/03/14       Rev. 2 Date: 17 June 2013	95	Pump Concrete Plinth Modification Works (By Civil Contractor)	21 days	Mon 10/02	/14 Sun 02/0	3/14									
Image: Complexity of the stars     Contract Progress     Split     Image: Contract Progress     Split     Contract Progress     Contr															
Rev.2     Critical Split     Critical Split     Split     Critical Progress     Split     Split     Mestone     Baseline Milestone     Summary Progress     Project Summary     External Milestone     External Milestone       Rev.2     Critical Split     1															
Date: 17 June 2013 Critical Split															
	Rev.2 Date: 17														
					De			▼ Outlinuty	▼ ▼ Exernal lat		~				



				Q2 '11 Q3 '11	Q4'11 Q1'12	Works Programme	Q4 '12	Q1'13	Q2 '13
Task Name Section III of the Works	Duration 425 days	Start Fri 16/03/12	Finish Tue 14/05/13	Apr '11 May '11 Jun '11 Jul '11 Aug '11 S	ap '11 Oct '11 Nov '11 Dec '11 Jan '12 Feb '12 Mar '12	2 Apr '12 May '12 Jun '12 Jul '12 Aug '12	Sep '12 Oct '12 Nov '12 Dec '12	Jan '13   Feb '13   Mar '13   Apr '13   M	May '13 Jun '13 Jul '
EOT Granted	2 days	Wed 15/05/13	Thu 16/05/13	3					100%
Modification / Replacement of Existing L.V. Switchboard	733 days	Thu 01/03/12	Mon 03/03/14						
CBC 1/F MCC2A	475 days			3					
MCC2A Manufacture & Delivery to Site	265 days		Tue 20/11/12				100%		
Relocate Existing Workstation Civil Modification Works (By Civil Contractor)	6 days 169 days		Mon 21/05/12 Tue 06/11/12			100%	1100%		
MCC2A Installation & SAT	59 days		Fri 04/01/13					100%	
New Power Cable Installation from New CBC G/F Switchboard to MCC2A	77 days		Fri 22/03/13	3				100%	
Energization of MCC2A Migration of Power/Control for Existing E&M Equipment to MCC2A	0 days 88 days		Fri 22/03/13 Tue 18/06/13					¢_22/03	00%
CBC 1/F MCC2	307 days								33%
MCC2 Manufacture & Delivery to Site	150 days			3				*1	E
MCC2 Extension Manufacture & Delivery to Site Demolition of MCC8 at CBC 1/F	90 days 21 days		Sun 29/09/13 Wed 21/08/13	3					
Temporary Works Preparation	61 days			3				-	79%
Temporary Works Installation	21 days		Sun 21/07/13						
Installation of Permanent Marshalling Boxes & Cable Trays Migration of Power/Control for Existing E&M Equipment from existing MCC2 Extension to Temp. MCC	61 days		Sun 21/07/13 Tue 03/09/13	3					
Removal of Existing MCC2 Extension	44 days 7 days		Tue 03/09/13	3					
Civil Modification Works for New MCC2 Extension (By Civil Contractor)	21 days	Wed 11/09/13	Tue 01/10/13	3					
MCC2 Extension Installation & SAT	14 days			3					
Migration of Power/Control for Existing E&M Equipment to New MCC2 Extension & Temp. MCC Removal of Existing Switchboard MCC2	31 days 7 days		Fri 15/11/13 Fri 22/11/13	3					
Civil Modification Works for MCC2 (By Civil Contractor)	21 days		Fri 13/12/13						
MCC2 Installation & SAT	21 days	Sat 14/12/13	Fri 03/01/14	5					
Migration of Power/Control for Existing E&M Equipment to New MCC2	45 days		Mon 17/02/14	<u>4</u>					
Installation of New Cables Removal of Temporary Panels	14 days 14 days			*					
PST MCC5 & MCC5A	441 days		Tue 22/10/13				;	: 	
MCC5 Manufacture & Delivery to Site	368 days	Wed 08/08/12	Sat 10/08/13	3				······································	
Temporary Works Preparation	36 days			3					3 92% 2007 2007 2007
Temporary Works Installation Migration of Power/Control for Existing E&M Equipment to Temporary Panels	14 days 14 days		Thu 04/07/13 Thu 18/07/13	3					10%
Removal of Existing MCC5 & MCC5B	7 days			3					
Civil Modification Works (By Civil Contractor)	21 days								
MCC5 Installation, MCC5A Modification, SAT, Cable Installation & Migration Removal of Temporary Panels	61 days 7 days		Tue 15/10/13 Tue 22/10/13						
	/ uays	Weu 16/10/13	100 22/10/13	-					
Air Blowers in CBC	825 days		Tue 04/03/14						
Equipment and Material Delivery to Site Air Blowers	452 days 0 days		Mon 25/02/13 Thu 01/12/11	3	01/12			100%	
Pipework & Valves	0 days		Mon 25/02/13	3	<b>T</b>			25/02	
Air Ductwork	0 days	Mon 25/02/13	Mon 25/02/13	1				25/02	
Vibration Monitoring System Modification Works	0 days		Thu 01/03/12	2	◆ 01/03				
Air Blower No.5	646 days 646 days								
Decommissioning & Dismantle of Existing Air Blower & Accessories	19 days		Fri 15/06/12	2		100%			
Civil Modification & GMS Puddle Flange Pipe Installation (By Civil Contractor)	255 days			3		×		100%	
Installation of New Air Blower & Accessories Electrical Installation (with Temporary MCC/Starter Panel)	180 days		Sat 24/08/13 Sun 14/07/13						
Testing and Commissioning	90 days 15 days			3					
Migration from Temporary MCC/Starter to MCC2	15 days		Tue 04/03/14	4					
Air Blower No.2	81 days		Thu 28/11/13						
Decommissioning & Dismantle of Existing Air Blower & Accessories Civil Modification & GMS Puddle Flange Pipe Installation (By Civil Contractor)	15 days 21 days		Mon 23/09/13 Mon 14/10/13						
Installation of New Air Blower & Accessories	21 days 30 days			3					
Electrical Installation (with New MCC2)	30 days	Tue 15/10/13	Wed 13/11/13	3					
Testing and Commissioning	15 days			3					
Air Blower No.1 Decommissioning & Dismantle of Existing Air Blower & Accessories	81 days 15 days		Mon 17/02/14 Fri 13/12/13						
Civil Modification & GMS Puddle Flange Pipe Installation (By Civil Contractor)	21 days		Fri 03/01/14						
Installation of New Air Blower & Accessories	30 days	Sat 04/01/14	Sun 02/02/14						
Electrical Installation (with New MCC2) Testing and Commissioning	30 days		Sun 02/02/14 Mon 17/02/14	<u>4</u>					
	15 days	wuf1 U3/U2/14	widh i //02/14	-					
				1					
Primary Sedimentation Tank No.5	934 days		Sun 11/05/14			<u></u>			
Equipment and Material Delivery to Site Sludge & Scum Collection System	528 days 0 days		Mon 01/04/13 Tue 02/10/12	5	<b>V</b>		02/10	100%	
PST Drain-off Pump	0 days		Fri 26/10/12	2					
Scum Pump	0 days	Tue 06/11/12		2			<b>0</b> 6/11	+ +	
Pipework & Valves Local Control Panel for Sludge & Scum Collection System	0 days		Fri 21/10/11	1	◆ 21/10				
Local Control Panel for Sludge & Scum Collection System Site Possession / Available	0 days 161 days							<u>♦ 01/04</u>	
PST No.5	0 days							04/02	
Pipe Gallery for PST No.5	0 days			3					
Cable Drawpit & Duct Installation	0 days 372 days								<u> </u>
Sludge & Scum Scrapers	150 days								
Influent Pipework in Pipe Gallery	61 days	Mon 15/07/13	Fri 13/09/13	3					
PST Drain-off Pump & Associated Pipework	30 days		Sun 13/10/13						
Water Spray Pipework for Scum Trough Scum Pump & Associated Pipework	15 days 60 days								
Local Control Panel & Electrical Installation	90 days								
H2S Detection System Installation	60 days	Fri 13/12/13	Mon 10/02/14	ŧ					
Testing and Commissioning	90 days	Tue 11/02/14	Sun 11/05/14	\$					
1				-					
New Aeration Tanks No.5 to 7	1144 days	Fri 29/04/11	Sun 15/06/14	· •					<del> </del>
Equipment and Material Delivery to Site	825 days	Fri 29/04/11	Thu 01/08/13	3	· · · · · · · · · · · · · · · · · · ·		····		
Air Diffusers	0 days					17/05			
GRP Mixer Bridges Bridge Mounted Vertical Mixers	0 days 0 days						◆ 11/09 27/08	1	
MLR Pumps	0 days		Tue 01/11/11	1	♦ 01/11	<b>`</b>			
Submersible Mixers	0 days		Tue 01/11/11		<b>♦</b> 01/11			+	
Water Spray Pumps Penstock & Actuators	0 days 0 days		Fri 13/05/11	↓					
I DINIUGA & AUGUAUIS	U days	Thu 01/03/12	Thu 01/03/12	1		,	; ] 1	4	: i



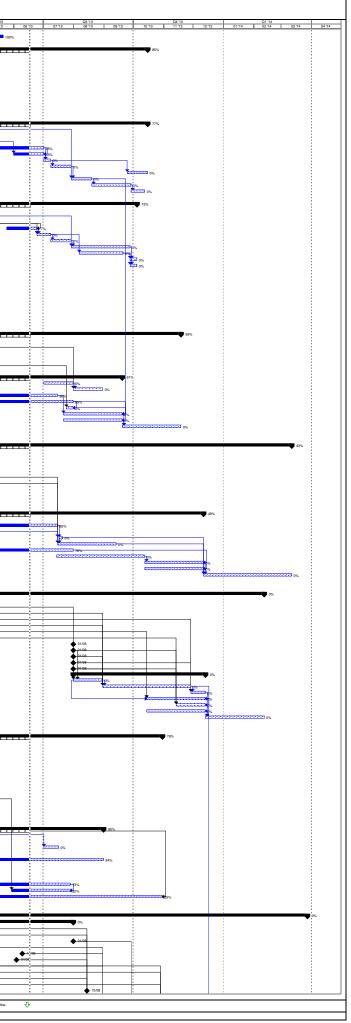
Task Name       Instruments (EM Flowmeters, Air Flowmeters & Online Sensors)       Pipework & Valves       Litting Appliance       GMS Air Mains			Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 28 Section III Works Programme										
Instruments (EM Flowmeters, Air Flowmeters & Online Sensors) Pipework & Valves Litting Appliance GMS Air Mains	Duration	Start	Finish	Q2'11 Q3'11 Q1'12 Apr'11 May'11 Jun'11 Jul'11 Aun'11 Sep'11 Oct'11 Nov'11 Dep'11 Jap'12 Eeb'9	Q2'12         Q3'12         Q4'12         Q1'13         Q2'13           I Mar'12         Apr'12         May '12         Jul'12         Apr'13         Sep'12         Oct '12         Nov '12         Dec'12         Jan'13         Feb '13         Mar'13         Apr'13         May '13         Jun'13         Jun'13								
Lifting Appliance GMS Air Mains	0 days	Fri 29/04/11	Fri 29/04/11										
GMS Air Mains	0 days 0 days		Sat 15/10/11 Thu 01/08/13	♦ 15/10									
	0 days 0 days												
Site Possession / Available	277 days		Tue 02/07/13										
Interior Part of New Aeration Tank No.5	0 days		Fri 28/09/12		28/99								
Interior Part of New Aeration Tank No.6	0 days	Mon 15/10/12	Mon 15/10/12		► <u>15/10</u>								
Steel Air Main Platforms, Walkway and Cable Trenches for New Aeration Tanks No.5, 6 & 7	0 days	Tue 02/07/13	Tue 02/07/13										
Interior Part of New Aeration Tank No.7	0 days	Mon 22/04/13	Mon 22/04/13										
Pipe Gallery Extension	0 days		Tue 02/07/13										
Installation	519 days	Mon 15/10/12	Mon 17/03/14										
New Aeration Tanks No.5 & 6	440 days		Sat 28/12/13										
GMS Air Mains & FRP Staircase	60 days		Fri 30/08/13										
Air Diffusers	120 days	Mon 15/10/12			100%								
Air Pipework, Butterfly Valves & Air Flowmeters	60 days		Tue 29/10/13										
GRP Mixer Bridges	75 days												
Bridge Mounted Vertical Mixers Lifting Appliance	75 days	Mon 18/03/13 Thu 01/08/13	Fri 31/05/13 Sun 29/09/13		10025								
MLR Pumps & Associated Pipework	60 days 60 days												
Submersible Mixers	30 days				100%								
Water Spray Pumps & Associated Pipework	30 days												
Penstock & Actuators													
Instruments	45 days 30 days				100%								
RAS Pipework in Pipe Gallery Extension	120 days		Tue 29/10/13										
Electrical Works	120 days 180 days		Sat 28/12/13										
SCADA/PLC System	120 days												
New Aeration Tanks No.7	330 days												
GMS Air Mains & FRP Staircase	60 days		Fri 30/08/13										
Air Diffusers	120 days												
Air Pipework, Butterfly Valves & Air Flowmeters	60 days		Wed 26/02/14										
GRP Mixer Bridges	120 days		Mon 19/08/13										
Bridge Mounted Vertical Mixers	45 days												
Lifting Appliance	60 days												
MLR Pumps & Associated Pipework	60 days												
Submersible Mixers	30 days												
Water Spray Pumps & Associated Pipework	30 days	Sun 29/12/13	Mon 27/01/14										
Penstock & Actuators	45 days												
Instruments	30 days												
RAS Pipework in Pipe Gallery Extension	120 days	Tue 02/07/13											
Electrical Works	180 days	Thu 19/09/13	Mon 17/03/14										
SCADA/PLC System	120 days	Mon 18/11/13	Mon 17/03/14										
MCC3 Ready	0 days	Mon 13/01/14	Mon 13/01/14										
Testing and Commissioning	90 days	Tue 18/03/14	Sun 15/06/14										
New Mixed Liquor Channels	849 days	Tue 01/11/11	Wed 26/02/14										
Equipment and Material Delivery to Site	639 days		Thu 01/08/13										
Foam Removal Collector	0 days		Wed 01/05/13										
Submersible Mixers	0 days		Tue 01/11/11	♦ 01/11									
Penstock & Actuator	0 days		Thu 01/03/12		♦ 01/03								
Lifting Appliance	0 days												
Pipework & Valves	0 days				♦ 01/08								
Local Control Panel Site Possession / Available	0 days		Thu 01/08/13										
Site Possession / Available Mixed Liquor Channel, Foam Channel & Pillar Box	0 days 0 days		Thu 01/08/13 Thu 01/08/13										
Mixed Liquor Channel, Foam Channel & Pillar Box Bunded Area & Shelter for NaOCI Dosing System	0 days 0 days		Thu 01/08/13 Thu 01/08/13										
Installation	264 days		Mon 27/01/14										
Penstock & Actuactor in Flow Splitter Box	60 days												
Lifting Appliance	30 days												
Submersible Mixers	30 days		Thu 28/11/13										
Foam Removal Collector	26 days												
Water Spray System	15 days		Fri 13/12/13										
Relocation of Foam Transfer Pumps	30 days		Sat 28/12/13										
Relocation of NaOCI Dosing System	30 days	Sun 29/12/13	Mon 27/01/14										
Local Control Panel & Electrical Installation	90 days	Wed 30/10/13	Mon 27/01/14										
SCADA/PLC System	60 days	Fri 29/11/13	Mon 27/01/14										
Testing and Commissioning	30 days	Tue 28/01/14	Wed 26/02/14										
Existing Aeration Tanks No.1 to 4	1081 days												
Equipment and Material Delivery to Site	656 days		Thu 01/08/13	<b>V</b>									
GMS Air Mains	0 days												
Pipework & Valves	0 days	Sat 15/10/11	Sat 15/10/11	◆ 15/10									
Modification Works	425 days		Mon 29/09/14										
New Air Mains	364 days												
Steel Bridges (By Civil Contractor) Available for Air Mains	0 days												
GMS Air Mains Installation Connection Existing Air Mains beside RAS Pumping Station (By Civil Contractor)	61 days												
Connection Existing Air Mains beside RAS Pumping Station (By Civil Contractor) Aeration Tank No.4	30 days		Wed 30/07/14										
Aeration Tank No.4 Tank Available for Modification (Drained Down by DSD/ST1)	91 days 0 days		Mon 30/12/13 Mon 30/09/13										
Air Pipework, Butterfly Valves & Air Flowmeters	60 days		Fri 29/11/13										
Air Pipework, Butterity Valves & Air Flowmeters Electrical Installation	45 days												
Testing and Commissioning	45 days 31 days												
Aeration Tank No.3	91 days												
Tank Available for Modification (Drained Down by DSD/ST1)	0 days												
Air Pipework, Butterfly Valves & Air Flowmeters	60 days		Fri 28/02/14										
Electrical Installation	45 days												
Testing and Commissioning	31 days												
Aeration Tank No.2	91 days		Mon 30/06/14										
Tank Available for Modification (Drained Down by DSD/ST1)	0 days												
Air Pipework, Butterfly Valves, & Air Flowmeters	60 days		Fri 30/05/14										
	45 days		Fri 30/05/14										
Electrical Installation	31 days												
Electrical Installation Testing and Commissioning	91 days												
Electrical Installation Testing and Commissioning Aeration Tank No.1	0 days												
Testing and Commissioning Aeration Tank No.1	60 days	Tue 01/07/14											
Testing and Commissioning Aeration Tank No.1	00 uavs												
Testing and Commissioning Aeration Tank No.1 Tank Available for Modification (Drained Down by DSD/ST1)	45 days	Wed 16/07/14	Fri 29/08/14										
Testing and Commissioning Aeration Tank No.1 Tank Available for Modification (Drained Down by DSD/ST1) Air Pipework, Butterfly Valves & Air Flowmeters													
Testing and Commissioning Aeration Tank No.1 Tank Available for Modification (Drained Down by DSD/ST1) Air Pipework, Butterfly Valves & Air Flowmeters Electrical Installation	45 days												
Testing and Commissioning           Aeration Tank No.1           Tank Available for Modification (Drained Down by DSD/ST1)           Air Pipework, Butterly Valves & Air Flowmeters           Electrical Installation           Testing and Commissioning	45 days												
Testing and Commissioning Aeration Tank No.1 Tank Available for Modification (Drained Down by DSD/ST1) Air Pipework, Butterfly Valves & Air Flowmeters Electrical Installation Testing and Commissioning	45 days												
Testing and Commissioning       Arration Tank No.1       Tank Available for Modification (Drained Down by DSD/ST1)       Air Pipework, Butterfly Valves & Air Flowmeters       Electrical Installation       Testing and Commissioning	45 days		Mon 29/09/14	Baseline Milestone 🔷 Summary Progress	Project Summary External Milestone								
Testing and Commissioning Aeration Tank No.1 Tank No.1 Tank Available for Modification (Drained Down by DSD/ST1) Air Pipework, Butterfly Valves & Air Flowmeters Electrical Installation Testing and Commissioning	45 days 31 days	Sat 30/08/14	Mon 29/09/14	Basilia Milatan A Suzana Prana									



	DSD Contract : DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 28																				
	Section III Works Programme																				
	Task Name         Op/10         Op/11         Op/12         Op/12         Op/12         Op/13         Op/13         Op/13         Op/13         Op/13         Op/14         Op/14															Sep '14 Oct '14					
201	Bit Principal         Bit 2 508/11         Fri 13/12/13           3%																				
202	Equipment and Material Delivery to Site																				
203	Submersible Pump 0 days Thu 25/08/11 Thu 25/08/11 0 - 26/08																				
204	204 Pipework & Valves 0 days Sun 01/07/12 Sun 01/07/12																				
205	05 Site Possession / Available 0 days Thu 01/08/13 Thu 01/08/13																				
206	Underground Pipework to Stage IV Aeration Tanks (By Civil Contractor)	0 days	Thu 01/08/13	8 Thu 01/08/13												01/08					
207	Installation	448 days	Thu 23/08/12	Wed 13/11/13								<del>.</del>					4%				
208	Pump Replacement & Pipework Modification at Existing Pump Chamber	45 days	Thu 01/08/13	8 Sat 14/09/13							*L						- 10%				
209	Filtrate Pipework Installation at Aeration Tanks	60 days	Sun 15/09/13	8 Wed 13/11/13													0%				
210	Existing L.V. Switchboard Modification	6 days	Thu 23/08/12	2 Tue 28/08/12							-	100%									
211	Electrical Installation	45 days	Sun 15/09/13	Tue 29/10/13													a				
212	Testing and Commissioning	30 days	Thu 14/11/13	B Fri 13/12/13														0%			

Rev. 4 Date: 17 Jun 2013					Baseline Milestone Milestone			External Milestone
						P	age 3	

Task Name Section V of the Works	Duration Start Finish 0 821 days Sat2201/11 Sun21/04/13
	29.5 days Mon 22/04/13 Tue 21/05/13
V. Switchboard	998 days         Sat 22/01/11         Tue 15/10/13           800 days         Sat 22/01/11         Sun 31/03/13
CLP & DSD Approval e & Delivery to Site	287 days Sat 22/01/11 Fil 04/11/11 90 days Mon 02/01/12 Sat 31/03/12 76 days Mon 16/01/12 Sat 31/03/12
imporary Works Preparation is Setup of Temporary Bacilus p Facilities & Removal of Existing Switchboard will Modification Works (Bty Chrift Contractor)	76 days Mon 16/01/12 Sat 31/03/12 45 days Wed 11/04/12 Fri 25/05/12 124 days Sat 26/05/12 Wed 26/09/12
vil Modification Worke (By Chril Contractor) ew Switchboard Instalation & SAT [Pie Tx Upgrading Worke & Cable Connection to New Switchboard	124 days         Sat 26/05/12         Wed 26/09/12           76 days         Thu 27/09/12         Tue 11/12/12           43 days         Sat 12/05/12         Tue 08/01/13
P* Tr. Upgrading Works & Cable Connection to New Switchboard moval of Existing Cables & Installation of New Cables most Permanent Power Supply for Existing Small Power D/B	43 days Sat 12/05/12 Tue 08/01/13 51 days Wed 09/01/13 Thu 28/02/13 14 days Mon 18/03/13 Sun 31/03/13
Innect Permanent Power Supply for Existing Small Power DIB	14 days Mon 1803/13 Sun 31/03/13 508 days Sat 26/05/12 Tue 15/10/13
board Manufacture & Delivery to Site	107 days Sun 02/12/12 Mon 18/03/13
Femporary Works Preparation emporary Works Installation	61 days Sat 26/05/12 Wed 25/07/12 246 days Thu 26/07/12 Thu 28/03/13
ligration of Power/Control for Existing E&M Equipment to Temporary Panels elocation of Existing Remote I/O Panel	95 days Fri 29/03/13 Mon 01/07/13 31 days Sat 01/06/13 Mon 01/07/13
moval of Existing Switchboard II Modification Works (By Civil Contractor)	7 days Tue 02/07/13 Mon 08/07/13 21 days Tue 09/07/13 Mon 29/07/13
Aodflication of Existing Switchroom Partition Jew Switchboard Installation & SAT	21 days Wed 25/09/13 Tue 15/10/13 21 days Tue 30/07/13 Mon 19/08/13
ion of Powen/Control of Existing E&M Equipment to New Switchboard val of Existing Cables & Installation of New Cables	40 days Tue 20/08/13 Sat 28/09/13 14 days Sun 29/09/13 Sat 12/10/13
MCC making Submission for CLP & DSD Approval	987 days Sat 22/01/11 Fri 04/10/13
soard Manufacture & Delivery to Site	175 days         Sat 22/01/11         Fri 15/07/11           223 days         Sat 21/04/12         Thu 29/11/12
Ietion of Genset Replacement orary Works Preparation	0 days Mon 15/04/13 Mon 15/04/13 31 days Sat 25/05/13 Mon 24/05/13
up of Temporary Backup Facilities & Removal of Existing Switchboard dification Works (By Civil Contractor)	14 days Tue 25/06/13 Mon 08/07/13 21 days Tue 09/07/13 Mon 29/07/13
Ichboard Installation & SAT Upgrading Works & Cable Connection to New Switchboard	60 days         Tue 30/07/13         Fri 27/09/13           45 days         Wed 07/08/13         Fri 20/09/13
al of Existing Cables & Installation of New Cables It Power Supply for Existing Lighting & Small Power DrB	7 days Sat 28/09/13 Fri 04/10/13 7 days Sat 28/09/13 Fri 04/10/13
nt of Emergency Genset for IW G/F MCC 00kVA Genset & Accessories Delivery to Site	333 days         Fri 18/05/12         Mon 15/04/13           0 days         Mon 26/11/12         Mon 26/11/12
up of Power Backup Facilities by Tempoary Genset al of Existing 750kVA Genset	50 days Fri 18/05/12 Fri 06/07/12 7 days Sat 07/07/12 Fri 13/07/12
dflication Works (By Civil Contractor) on of New Gerset & SAT	135 days Sat 14/07/12 Sun 25/11/12 141 days Mon 26/11/12 Mon 15/04/13
and Material Deliver to Site	935 days Fri 29/04/11 Mon 18/11/13 614 days Fri 29/04/11 Wed 02/01/13
w Prings W Prings harlical Bar Screen	0 days Wed 02/01/13 Wed 02/01/13 0 days Fri 19/10/12 Fri 19/10/12
w Conveyor ator for Existing Perstocks	0 days Fri 19/10/12 Fri 19/10/12 0 days Mon 02/04/12 Mon 02/04/12
asoric Level Sensors	0 days Fri 29/04/11 Fri 29/04/11 336 days Fri 19/10/12 Thu 19/09/13
mporary Row Diversion for Lower Wet Well rew Pump Installation & Screeding Works at Lower Wet Well	30 days Tue 02/07/13 Wed 31/07/13 30 days Thu 01/08/13 Fri 30/08/13
w Pump Installation & Screeding Works at Upper Wet Well aliation of Mechanical Bar Screen, Screek Conveyor & Utrasonic Level Sensors	195 days Wed 02/01/13 Mon 15/07/13 286 days Fri 19/10/12 Wed 31/07/13
tion of Actuators for Existing Penstocks al Installation al Installation	7 days Thu 25/07/13 Wed 31/07/13 60 days Mon 22/07/13 Thu 19/09/13
2 System	60 days Mon 22/07/13 Thu 19/09/13 60 days Mon 22/07/13 Thu 19/09/13 60 days Fri 20/09/13 Mon 18/11/13
Commissioning	
Plant (SBR) nd Material Delivery to Site	852 days Tue 01/11/11 Tue 11/03/14 456 days Tue 01/11/11 Wed 30/01/13
nd Material Delivery to Site ar rarsfer Pumo	456 days Tue 01/11/11 Wed 30/01/13 0 days Wed 30/01/13 Wed 30/01/13 0 days Wed 01/02/12 Wed 01/02/12
t Sump Pump	0 days Web 01/02/12 Web 01/02/12 0 days Tue 01/11/11 Tue 01/11/11 0 days Thu 17/05/12 Thu 17/05/12
Air Diffusers Pipework & Valves	0 days Tue 01/11/11 Tue 01/11/11
ssession / Available R Tank	123 days         Sat 01/09/12         Thu 03/01/13           0 days         Thu 03/01/13         Thu 03/01/13
2xil Works Provision (By Civil Contractor) Sxisting Flart Rooms Islion	0 days Sat 01/09/12 Sat 01/09/12 0 days Mon 26/11/12 Mon 26/11/12
Down of Existing Decanter	343 days Thu 03/01/13 Wed 11/12/13 5 days Thu 03/01/13 Mon 07/01/13
Modification of Concrete Corbels & Cast-In Puddle Flanged Pipe (By Civil Contractor) Off-site Modification of Existing Decarter	189 days Tue 08/01/13 Mon 15/07/13 28 days Tue 08/01/13 Mon 04/02/13
stallation of Modified Decanter fodflication of Air Diffusers	5 days Tue 16/07/13 Sat 20/07/13 60 days Tue 16/07/13 Fril 13/09/13
ation of Air Blower, Filtrate Transfer Pump, Filtrate Inlet Sump Pump & Associated Pipework ng L.V. Switchboard Modification	183 days Wed 30/01/13 Wed 31/07/13 90 days Mon 15/07/13 Sat 12/10/13
trical Installation IDA/PLC System	60 days Sun 13/10/13 Wed 11/12/13 60 days Sun 13/10/13 Wed 11/12/13
and Commissioning	90 days Thu 12/12/13 Tue 11/03/14
Gravity Thickener	1016 days Tue 03/05/11 Tue 11/02/14
ent and Material Delivery to Site fe Gate Valves & Actuators	699 days Tue 03/05/11 Mon 01/04/13 0 days Tue 03/05/11 Tue 03/05/11
dorizing Unit, Extraction Fan & Accessories work & Valves	0 days Fri 01/02/13 Fri 01/02/13 0 days Mon 01/04/13 Mon 01/04/13
uctwork & Accessories I Control Panel for DO Unit	0 days Mon 01/04/13 Mon 01/04/13 0 days Mon 01/04/13 Mon 01/04/13
TV System session / Available	0 days Mon 01/04/13 Mon 01/04/13 0 days Thu 01/08/13 Thu 01/08/13
arting Chamber orde Pilith for DO System	0 days Thu 01/08/13 Thu 01/08/13 0 days Thu 01/08/13 Thu 01/08/13
te Print for I/U System Jorks Provision at Existing Valve Chamber (By Civil Contractor) Drawhi & Ducts	0 days Thu 01/08/13 Thu 01/08/13 0 days Thu 01/08/13 Thu 01/08/13 0 days Thu 01/08/13 Thu 01/08/13
wpit & Ducts	0 days Thu 01/08/13 Thu 01/08/13 135 days Thu 01/08/13 Fri 13/12/13 30 days Thu 01/08/13 Fri 30/08/13
Init, Air Ductwork & Associated Accessories	90 days Sat 31/08/13 Thu 28/11/13
k Installation at Existing Valve Chamber Il Installation	15 days Fri 29/11/13 Fri 13/12/13 60 days Tue 15/10/13 Fri 13/12/13
Installation A/PLC System	30 days Thu 14/11/13 Fri 13/12/13 60 days Tue 15/10/13 Fri 13/12/13
ommissioning	60 days Sat 14/12/13 Tue 11/02/14
	730 days Tue 01/11/11 Wed 30/10/13
and Material Delivery to Site Sas Burner for Stage VII	199 days Tue 01/11/11 Fri 18/05/12 0 days Tue 03/01/12 Tue 03/01/12
Watki Gas Bumer for Stage III Waste Gas Bumer for Stage IV Biogas Holding Tank Materials	0 days Fri 18/05/12 Fri 18/05/12 0 days Fri 18/05/12 Fri 18/05/12 0 days Mon 19/12/11 Mon 19/12/11
Arrestor and Condensation Pot	0 days Thu 01/12/11 Thu 01/12/11
is Booster work & Valves	0 days Tue 03/01/12 Tue 03/01/12 0 days Tue 01/11/11 Tue 01/11/11
Possession / Available Biogas Holding Tark Concrete Slab	347 days         Thu 15/03/12         Mon 25/02/13           0 days         Fri 16/03/12         Fri 16/03/12
Biogas Holding Tank Valve Chamber Gas Transfer Station	0 days Fri 01/06/12 Fri 01/06/12 0 days Mon 25/02/13 Mon 25/02/13
Concrete Plinth for Waste Gas Burner in Stage I/II Concrete Plinth for Waste Gas Burner in Stage I/V	0 days Thu 15/03/12 Thu 15/03/12 0 days Wed 01/08/12 Wed 01/08/12
rete Plinth for Relocated DO in Stage IIII	0 days Thu 15/03/12 Thu 15/03/12 535 days Thu 15/03/12 Sat 31/08/13
an de Gas Bumer Installation in Stage I/II de Gas Bumer Installation in Stage I/V	90 days Thu 15/03/12 Tue 12/05/12 91 days Wed 01/08/12 Tue 30/10/12
Burner Installation in Stage IV If Existing Waste Gas Burner in Stage IVII If Existing Waste Gas Burner in Stage IVI	91 days Wed 01/08/12 Tue 30/10/12 15 days Tue 02/07/13 Tue 16/07/13 15 days Thu 31/05/12 Thu 14/06/12
le of Existing Waste Gas Burner in Stage IV Holding Tark Installation on In New Yaber Chamber for New Biogas Holding Tarik	15 days Thu 31/05/12 Thu 14/05/12 482 days Mon 07/05/12 Sat 31/08/13 90 days Sun 14/10/12 Fri 11/01/13
g Valve Chamber No.1 & 2 for Existing Biogas Holding Tank	90 days Sun 14/10/12 Fri 11/01/13 60 days Thu 02/08/12 Sun 30/09/12 60 days Thu 02/08/12 Sun 30/09/12
ipe Galery as Transfer Station	150 days Fri 01/03/13 Sun 28/07/13
s Detection System Installation nmissioning	60 days Thu 30/05/13 Sun 28/07/13 180 days Sat 04/05/13 Wed 30/10/13
nk No.3 and Hot Water Circulation System Material Delivery to Site	878 days Tue 01/11/11 Thu 27/03/14 639 days Tue 01/11/11 Thu 01/08/13
Sast-In hems	0 days Fri 25/01/13 Fri 25/01/13 0 days Tue 09/04/13 Tue 09/04/13
form for Sludge Mixers ir Boiler	0 days Thu 01/08/13 Thu 01/08/13 0 days Thu 02/05/13 Thu 02/05/13
aciculation Pump or or	0 days Mon 10/06/13 Mon 10/06/13 0 days Tue 04/06/13 Tue 04/06/13
res 8. Condensation Pot	0 days Tue 04/06/13 Tue 04/06/13 0 days Wed 01/05/13 Wed 01/05/13 0 days Tue 01/11/11 Tue 01/11/11
uningenour r'Ol	u uays 1 ue 01/11/11 Tue 01/11/11
	0 days Tue 01/11/11 Tue 01/11/11
Rame Arrestor	0 days Tue 01/11/11 Tue 01/11/11 0 days Tue 01/11/11 Tue 01/11/11 0 days The 15/08/13 Thu 15/08/13



						DSD Contra Supply and Installation of Electrical and Mechanical Equip	act : DE/2009/09 pment for Tai Po Sewage Treatment Works Stage 5 Ph	ise 28			
						Section V Wo	orks Programme				
		Q1'11	Q2'11	Q3 11	Q4 '11	Q1 '12	Q2'12	Q3°12	Q4 '12	Q1'13	Q2'13
ID Task Name 15/ Slubbe Didestion Tark No.3	Duration Start Finish U Gays Intri 508/13 Intri 508/13	01 '11 02 '11 03 '11 04 '11	1 05'11 06'11	07'11 08'11 09'11	10 '11 11 '11 12 '11	01 '12 02 '12 03 '12	04 12 05 12 06 12	07'12 08'12 09'12	10 12 11 12 12 12	01 13 02 13 03 13	04'13 05'13
158 Site Works	269 days Tue 02/07/13 Thu 27/03/14							1			
159 Hot Water Circulation System	175 days Tue 02/07/13 Mon 23/12/13	d i i i i i i i i i i i i i i i i i i i					:				1
160 Temporary Works to Facilitate Civil Modification Works	30 days Tue 02/07/13 Wed 31/07/13										
161 Civil Modification Works (By Civil Contractor)	30 days Thu 01/08/13 Fri 30/08/13										
162 Installation of Hot Water Boller, Recirculation Pump & Associated Pipework	85 days Sat 31/08/13 Sat 23/11/13	F									
163 Electrical Installation (with Temporary MCC)	60 days Wed 25/09/13 Sat 23/11/13										1
164 SCADA/PLC System	60 days Wed 25/09/13 Sat 23/11/13		:				:	:			:
165 Testing and Commissioning	30 days Sun 24/11/13 Mon 23/12/13					1		:			:
166 Studge Digestion Tank No.3	225 days Thu 15/08/13 Thu 27/03/14						:				1
167 Installation of Draft Tubes, Sludge Mixers, Heat Exchangers & Inspection Window	60 days Thu 15/08/13 Sun 13/10/13										1
168 Installation of GRP Platform 169 Installation of Sludge, Biogas, Hot Water Recirculation, FeCB Dosing Pipework & Instruments	30 days Sun 29/09/13 Mon 28/10/13 60 days Tue 29/10/13 Fri 27/12/13										
169 Installation of Sludge, Biogas, Hot Water Recirculation, FeCI3 Dosing Pipework & Instruments 170 Electrical Installation	60 days Tue 29/10/13 Fil 27/12/13 90 days Sun 29/09/13 Fil 27/12/13										
1/0 Electrical Installation 1/1 SCADA/PLC System	90 days Sun 29/09/13 Fri 27/12/13 60 days Tue 29/10/13 Fri 27/12/13										1
1/1 SCADA/PLC System 172 Testing and Commissioning	90 days Sat 28/12/13 Thu 27/03/14		:				:	:			:
172 Tusing and Commissioning	50 Gays - 541 28/12/13 11/1 27/03/14					1	1	:		1	1
1/3						1		:		1	1
175 SAS Thickening System	607 days Thu 01/03/12 Mon 28/10/13										1
175 SAS Inickening System 176 Equipment & Material Delivery to Site	285 days Thu 01/03/12 Tue 11/12/12										
170 Equipment & waternal Delivery to Site	0 days Mon 16/07/12 Mon 16/07/12					-		1507	100%		1
178 SAS Feed Pump	0 days Thu 30/08/12 Thu 30/08/12							▲.30/08			1
179 Polyelectrolyte Feed Pump	0 days Thu 30/08/12 Thu 30/08/12					1		anne -		1	:
180 Thickened Sludge Storage Tank	0 days Tue 11/12/12 Tue 11/12/12								11/12		1
181 Pipework & Valves	0 days Fri 01/06/12 Fri 01/06/12		:				▲ 01/05		•	<u> </u>	:
182 Vibration Monitoring System	0 days Thu 01/03/12 Thu 01/03/12					<b>01/02</b>	•				1
183 PLC System M Panel	0 days Fri 01/06/12 Fri 01/06/12					•	♦ 01/05				<u>.                                    </u>
184 Site Possession / Available	0 days Fri 01/06/12 Fri 01/06/12						01/06				
185 Civil Works Provision (By Civil Contractor)	0 days Fri 01/06/12 Fri 01/06/12						<b>01/06</b>				
186 Installation	380 days Mon 16/07/12 Tue 30/07/13										
187 Centrifuge, Vibration Monitoring System & Associated Accessories	30 days Mon 16/07/12 Tue 14/08/12					1		100%			
188 SAS Feed Pump & Associated Pipework 189 Polyelectrolyte Feed Pump & Associated Pipework	30 days Thu 30/08/12 Fri 28/09/12 16 days Sat 29/09/12 Sun 14/10/12		:				:	:	00%	( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )	:
							:	; · · · · · · · · · · · · · · · · · · ·	100%		:
190 Thickened Sludge Storage Tark & Associated Accessories 191 Centrate Pipework	30 days Tue 11/12/12 Wed 09/01/13 16 days Thu 10/01/13 Fri 25/01/13									1100%	
191 Cantrate Hpework 192 Existing L.V. Switchboard Modification	90 days Sat 03/11/12 Thu 31/01/13									100%	
192 Existing L.V. Switchboard Modification 193 Electrical Installation	90 days Sat 03/11/12 Thu 31/01/13 90 days Fri 01/02/13 Wed 01/05/13									100%	
193 Enclinear Installation 194 SCADA/PLC System	90 days Thu 02/05/13 Tue 30/07/13										100%
195 Testing & Commissioning	90 days Wed 31/07/13 Mon 28/10/13					1		:			:
196							:				1
197		-									
198 Studge Dewatering System	694 days Thu 08/12/11 Thu 31/10/13	T									
199 Equipment & Material Delivery to Site	115 days Thu 08/12/11 Sun 01/04/12				<u> </u>		100%				
200 Membrane Filter Press	0 days Mon 20/02/12 Mon 20/02/12	2			•		T	:		1	1
201 Sludge Feed Pump	0 days Thu 08/12/11 Thu 08/12/11	1			♦ 08/12	•		:		1	1
202 Polyelectrolyte Dosing Pump	0 days Sun 01/04/12 Sun 01/04/12	E			•		.01/04	:		1	1
203 Floctronic Sensor c/w Inline Mixer	0 days Fri 20/01/12 Fri 20/01/12	2				♦ 20/01		:		1	1
204 Pipework & Valves	0 days Sun 01/04/12 Sun 01/04/12						01.01				
205 PLC System K Panel	0 days Sun 01/04/12 Sun 01/04/12	2					01.01				1
206 Site Possession / Available	0 days Sun 01/04/12 Sun 01/04/12						01/04				
207 Civil Works Provision (By Civil Contractor)	0 days Sun 01/04/12 Sun 01/04/12						01/04			1	1
208 Installation	275 days Mon 27/02/12 Tue 27/11/12								100%		1
209 Membrane Filter Press	79 days Mon 27/02/12 Tue 15/05/12 30 days Wed 16/05/12 Thu 14/05/12		:			1	100%	: [ ] ]		1	1
210 Sludge Feed Pump & Associated Pipework	30 days Wed 16/05/12 Thu 14/06/12 30 days Fri 15/06/12 Sat 14/07/12					1	100%	<u> </u>		1	1
211 Polyelectrolyte Dosing Pump & Associated Pipework 212 Filtrate Pipework	30 days Fri 15/06/12 Sat 14/07/12 15 days Sun 15/07/12 Sun 29/07/12					1		100%			1
212 Filtrate Pipework 213 Existing L.V. Switchboard Modification & Electrical Installation	15 days Sun 15/07/12 Sun 29/07/12 90 days Fri 01/06/12 Wed 29/08/12					1		100%			
213 Existing LV. Switchboard Modification & Electrical Installation 214 Electrical Installation	90 days Ph 01/06/12 Wed 29/08/12 90 days Thu 30/08/12 Tue 27/11/12							100%			1
214 Electrical installation 215 SCADA/PLC System	90 days Thu 30/08/12 Tue 27/11/12 60 days Sat 29/09/12 Tue 27/11/12								10%		1
215 SOUGHEL System 216 Testing and Commissioning	334 days Sun 02/12/12 Thu 31/10/13								105		
217	004 onya 00102/12/12 110 31/10/13	-									1
218		-				1	:	:		1	1
219 Miscellaneous	90 days Thu 01/08/13 Tue 29/10/13					1	1	:		1	1
220 Hybrid Street Light Installation, Testing & Commissioning	90 days Thu 01/08/13 Tue 29/10/13	F C				1					
221 Automatic Weather Station Installation, Testing & Commissioning	90 days Thu 01/08/13 Tue 29/10/13	f				1		1			1
		1				1				1	

Critical Progress

Critical Split

Critical

Task

Second Split

Task Progress

🛚 Baselre Baselre Bott \_\_\_\_\_\_ Baselre Mitectore 🖒 Mitectore 🔶 Summary Progress \_\_\_\_\_\_\_ Burnary 🖤 🤍 Project Summary 🐙 External Tasks 💷 External Mitectore 🔶

