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 February 2015

(Version 2.0)

Certified By

(Environmental Team Leader)

REMARKS:

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

CINOTECH accepts no responsibility for changes made to this report by third parties.

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EXECUTIVE SUMMARY

Introduction

1. This is the 44th 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 February 2015.
2. The major site activities undertaken in the reporting month included:

- T&C of E&M equipment for FC No.7B to 10B
- T&C of E&M equipment for Aeration Tank No.5, 6 & 7
- T&C of Screw Pump No.4 and 8 at Stage IV Inlet Works
- T&C of filtrate treatment plant (SBR)
- Installation of hot water pipework for Stage IV sludge digestion tanks
- BS & FS installation for various areas

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**.

Table I Summary Table for Events Recorded in the Reporting Month

Parameter	No. of Exceedance		No. of Events Due to this Project	Action Taken
	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

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	Status	Remark
	Number	Nature			
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 (January 2015)	Submitted to EPD on 17th February 2015 (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:

- T&C of E&M equipment for FC No.7B to 10B
- T&C of E&M equipment for Aeration Tank No. 5, 6 & 7
- T&C of new Air Blower No.1 and No.2
- T&C of Screw Pump No.4 and 8 at Stage IV Inlet Works
- T&C of new Membrane Filter Press No.5 and ancillary equipment
- T&C of temporary hot water supply system for Stage IV sludge digestion tanks
- T&C of E&M equipment for new Sludge Digestion Tank No.3
- BS & FS installation for various areas

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^3/day to 130,000 m^3/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^3/d and 130,000 m^3/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^3/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 44th monthly EM&A report summarizing the EM&A works for the Project in February 2015.

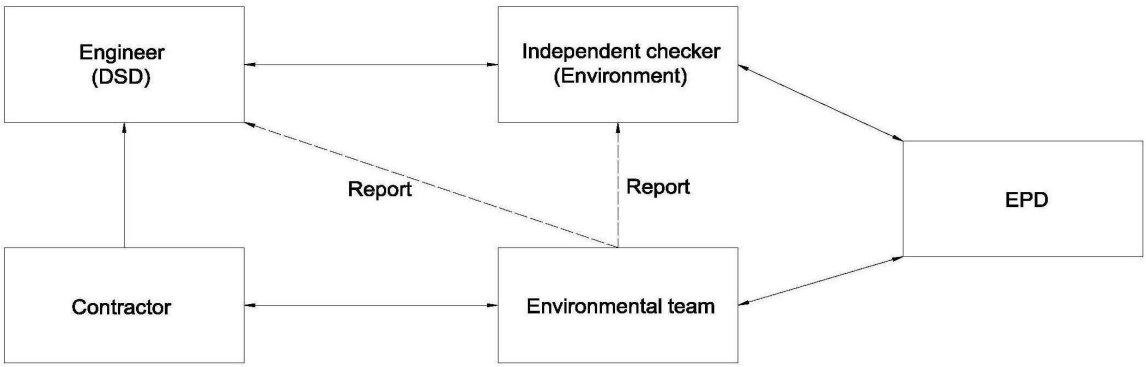
Project Organizations

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
		Mr. TSE Ho	Engineer	2660 7638	
Cinotech	Environmental Team	Dr. Priscilla CHOY	ET Leader	2151 2089	3107 1388
		Mr. Harris WONG	Project Coordinator and Audit Team Leader	2151 2098	
		Mr. Henry LEUNG	Monitoring Team Leader	2151 2087	
Arup	Independent Environmental Checker	Mr. Coleman NG	Independent Environmental Checker	2268 3097	2865 6493
		Mr. Edmond PUT	Assistant to Independent Environmental Checker	2528 3031	
JEC	E&M Contractor	Mr. Alex LAW	Project Manager	9312 8659	2887 9090
		Mr. Kim Hung LAU	Site Agent	6393 7548	
		Mr. Brendan CHAN	Environmental Officer	6892 0956	

Construction Programme

1.9 The site activities undertaken in the reporting month were:

- T&C of E&M equipment for FC No.7B to 10B
- T&C of E&M equipment for Aeration Tank No.5, 6 & 7
- T&C of Screw Pump No.4 and 8 at Stage IV Inlet Works
- T&C of filtrate treatment plant (SBR)
- Installation of hot water pipework for Stage IV sludge digestion tanks
- BS & FS installation for various areas

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 2.1 Locations 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 2.2 Air Quality Monitoring Equipment

Equipment	Model and Make	Qty.
HVS	Graseby GMW 2310 HVS, Model GS-2310105-1, Serial no. 10239 and 0810	2
	Tisch Environmental, Inc.; Model no. TE-5170, Serial no. 1704	1
Calibrator	TISCH.; Model no. TE-5025A Serial no. 0993	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.

Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration

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

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 μm 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 ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±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^3/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 ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±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 11 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.

Table 2.4 Summary Table of Air Quality Monitoring Results during the reporting month

Parameter	Minimum $\mu g/m^3$	Maximum $\mu g/m^3$	Average $\mu g/m^3$	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
1-hr TSP (CAM1)	144	294	224	315	500
24-hr TSP (CAM1)	65	136	105	171	260
1-hr TSP (CAM2)	49	136	96	336	500
24-hr TSP (CAM2)	33	111	70	177	260
1-hr TSP (CAM3)	115	314	192	344	500
24-hr TSP (CAM3)	45	138	91	192	260

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 3.1 Location of Noise Monitoring Station

Monitoring Station	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 3.2 Noise Monitoring Equipment

Equipment	Model and Make	Quantity
Integrating Sound Level Meter	SVANTEK - SVAN 955, 957	4
Calibrator	SVANTEK – SV30A	4
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 3.3 Noise Monitoring Parameters, Frequency and Duration

Station	Parameter	Period	Frequency
NM1	L_{eq}(30 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	60.2	65.8	63.8	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 5th, 12th, 16th and 27th February 2015 by ET. A joint site audit with the representative with ER, IEC, the Contractor and the ET was carried out on 12th February 2015. 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**.

Table 4.1 Summary of Environmental Licensing and Permit Status

Permit / License No.	Valid Period		Details	Status
	From	To		
Environmental Permit (EP)				
EP-265/2007	22/3/2007	N/A	Expansion and upgrading of existing Tai Po Sewage Treatment Works from 100,000 m^3/day to 130,000 m^3/day: (a) additional secondary treatment process units(1 primary clarified; 3 bioreactors and 2 final clarifiers); (b) reconstruction of 4 existing final clarified; (c) provision of ultraviolet disinfection facilities; (d) additional sludge treatment facilities; and (e) ancillary works to existing treatment facilities.	Valid
Registration of Chemical Waste Producer				
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

Status of Waste Management

4.5 The Construction and Demolition (C&D) materials generated in the reporting month were general refuse. 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, no non-conformance was identified. In addition, there was no major environmental deficiency being identified on the site audit session on 5th, 12th, 16th and 27th February 2015. The observations and recommendations made during the audit sessions are summarized in **Table 4.2**.

Table 4.2 Observations and Recommendations of Site Audit

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/ Chemical Management	26 January 2015	Reminder: Regularly clear the accumulated general refuse. (Near JEC site office)	The item was observed improved/rectified by the Contractor during the audit session on 5 February 2015.

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; 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:

- T&C of E&M equipment for FC No.7B to 10B
- T&C of E&M equipment for Aeration Tank No. 5, 6 & 7
- T&C of new Air Blower No.1 and No.2
- T&C of Screw Pump No.4 and 8 at Stage IV Inlet Works
- T&C of new Membrane Filter Press No.5 and ancillary equipment
- T&C of temporary hot water supply system for Stage IV sludge digestion tanks
- T&C of E&M equipment for new Sludge Digestion Tank No.3
- BS & FS installation for various areas

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.

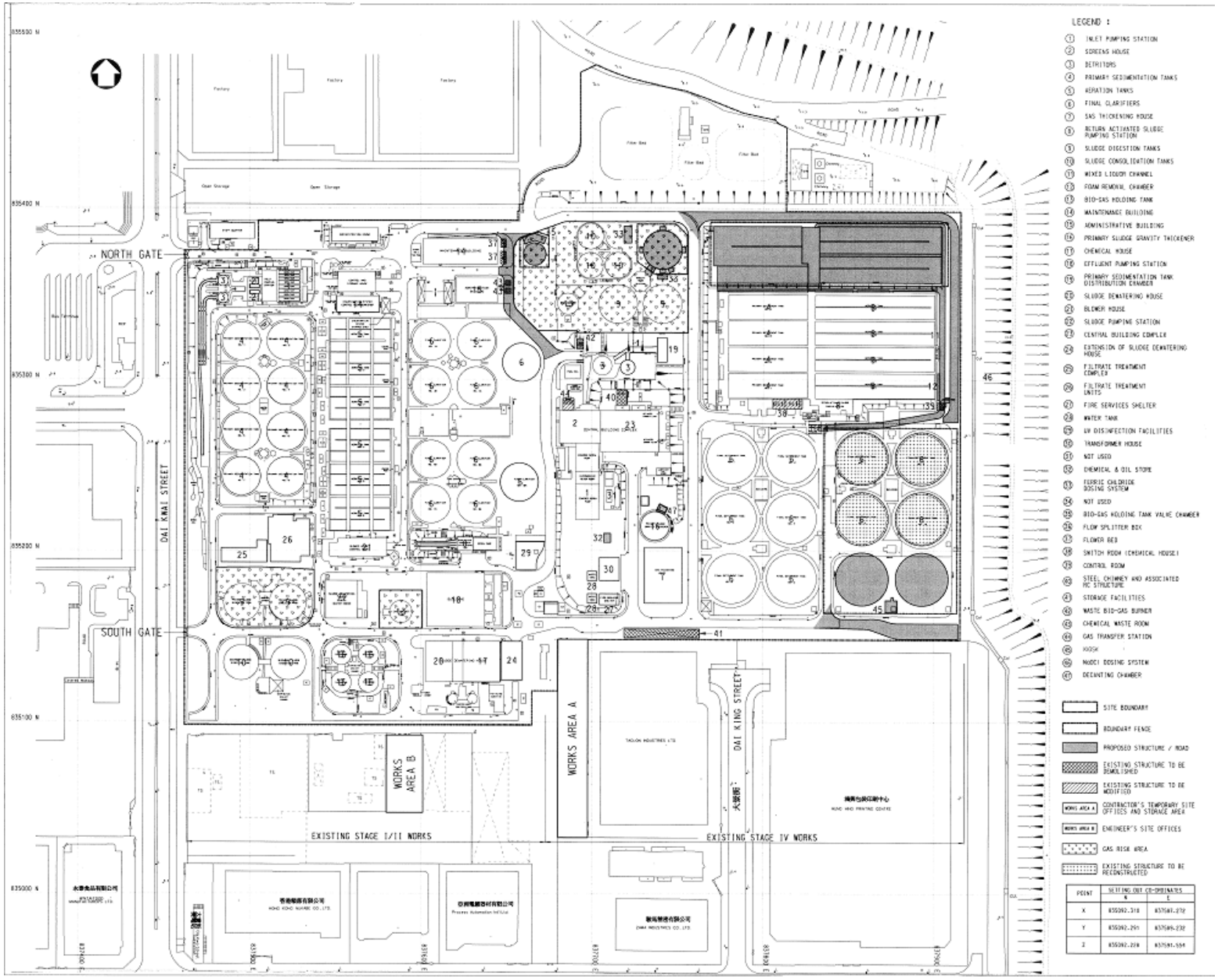
Recommendations

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

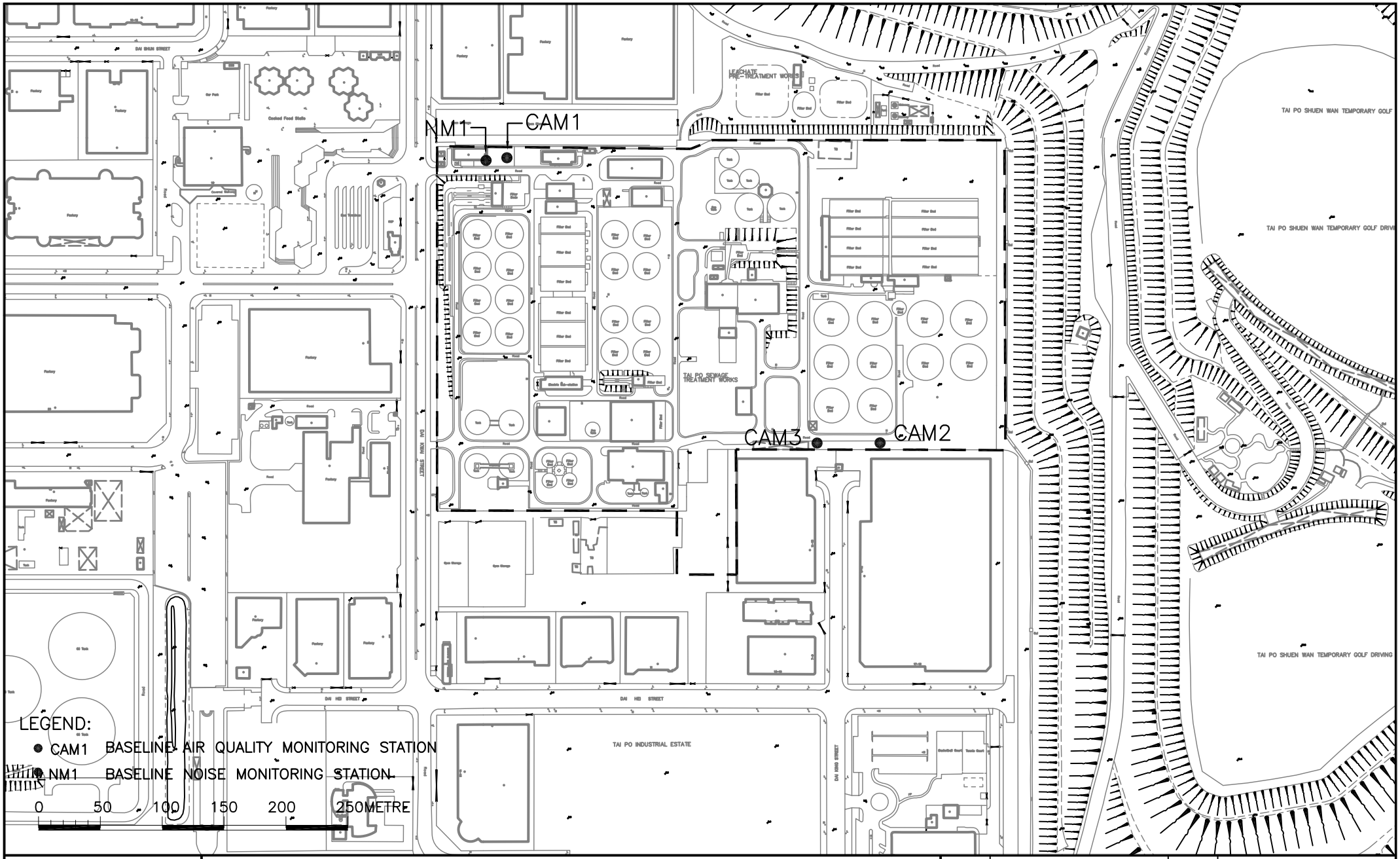
Waste / Chemical Management

- 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



TAI PO SEWAGE TREATMENT WORKS, STAGE V, PHASE IIB	Scale N.T.S	Proposa No. MA10069	CINOTECH
PROJECT SITE LAYOUT PLAN	Date Mar-11	Figure 1.1	



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Tai Po Sewage Treatment Work, Stage V, Phase IIB

LOCATIONS OF AIR QUALITY AND NOISE MONITORING STATIONS

SCALE	A4 1:4000	DATE	2011
CHECK	IT	DRAWN	TY
JOB No.	MA10069	DRAWING No. 1.2	REV —

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^3	Limit Level, µg/m^3
CAM1	315	500
CAM2	336	
CAM3	344	

24-Hour TSP

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

Construction Noise

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

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0010/37/0060

Station: CAM1 - Government Staff Quarter
Operator: WK
Date: 8-Dec-14
Next Due Date: 7-Feb-15
Equipment No.: A-01-37
Serial No. 1704

Ambient Condition			
Temperature, Ta (K)	288.2	Pressure, Pa (mmHg)	769.5

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0582	Intercept, bc	-0.0249
Last Calibration Date:	27-Sep-14	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	26-Sep-15	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.8	3.51	60.82	7.9	2.88
2	9.7	3.19	55.18	6.4	2.59
3	7.6	2.82	48.89	5.0	2.29
4	5.4	2.38	41.28	3.3	1.86
5	3.3	1.86	32.36	2.1	1.48

By Linear Regression of Y on X

Slope , mw = 0.0496 **Intercept, bw =** -0.1453

Correlation coefficient* = 0.9990

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.77**

Remarks:

Conducted by: WK. Tang Signature: Kwan Date: 8/12/14

Checked by: Signature: Date: 8 December 2014

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0069/37/0001

Station: CAM1 - Government Staff Quarter
Operator: WK
Date: 4-Feb-15
Next Due Date: 3-Apr-15
Equipment No.: A-01-37
Serial No. 1704

Ambient Condition			
Temperature, Ta (K)	290.4	Pressure, Pa (mmHg)	769.2

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0582	Intercept, bc	-0.0249
Last Calibration Date:	27-Sep-14	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	26-Sep-15	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.6	3.47	60.07	7.9	2.86
2	9.8	3.19	55.24	6.5	2.60
3	7.5	2.79	48.38	5.2	2.32
4	5.1	2.30	39.97	3.3	1.85
5	3.4	1.88	32.72	2.1	1.48

By Linear Regression of Y on X

Slope , mw = 0.0504 **Intercept, bw =** -0.1602

Correlation coefficient* = 0.9988

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.88**

Remarks:

Conducted by: Wk. Tang Signature: Kwan Date: 4/2/15

Checked by: [illegible] Signature: [illegible] Date: 4 February 2015

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0010/A40/0060

Station: CAM2 - Hung Hing Printing Centre Operator: WK

Date: 8-Dec-14 Next Due Date: 7-Feb-15

Equipment No.: A-01-40 Serial No. 10239

Ambient Condition			
Temperature, Ta (K)	288.1	Pressure, Pa (mmHg)	769.4

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0582	Intercept, bc	-0.0249
Last Calibration Date:	27-Sep-14	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	26-Sep-15	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.6	3.49	60.31	8.1	2.91
2	9.8	3.20	55.47	6.5	2.61
3	7.5	2.80	48.58	5.0	2.29
4	5.1	2.31	40.13	3.3	1.86
5	3.2	1.83	31.88	2.0	1.45

By Linear Regression of Y on X

Slope , mw = 0.0508 **Intercept, bw =** -0.1800

Correlation coefficient* = 0.9994

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.84**

Remarks:

Conducted by: WK Tang Signature: Date: 8/12/14

Checked by: Signature: Date: 8 December 2014

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0069/A40/0001

Station: CAM2 - Hung Hing Printing Centre Operator: WK

Date: 4-Feb-15 Next Due Date: 3-Apr-15

Equipment No.: A-01-40 Serial No. 10239

Ambient Condition			
Temperature, Ta (K)	290.8	Pressure, Pa (mmHg)	769

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0582	Intercept, bc	-0.0249
Last Calibration Date:	27-Sep-14	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	26-Sep-15	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.8	3.50	60.53	7.9	2.86
2	9.6	3.16	54.64	6.4	2.58
3	7.2	2.73	47.38	5.0	2.28
4	5.2	2.32	40.33	3.5	1.91
5	3.3	1.85	32.21	2.1	1.48

By Linear Regression of Y on X

Slope , mw = 0.0486 **Intercept, bw :** -0.0664

Correlation coefficient* = 0.9989

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.95**

Remarks:

Conducted by: WK, Tang Signature: Kwan Date: 4/2/15

Checked by: [illegible] Signature: Date: 4 February 2015

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0010/35/0060

Station: CAM3 - Talcon Industrial Ltd
Operator: WK
Date: 8-Dec-14
Next Due Date: 7-Feb-15
Equipment No.: A-01-35
Serial No. 0810

Ambient Condition			
Temperature, Ta (K)	288	Pressure, Pa (mmHg)	769.6

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0582	Intercept, bc	-0.0249
Last Calibration Date:	27-Sep-14	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	26-Sep-15	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.9	3.53	61.10	7.5	2.80
2	9.6	3.17	54.92	6.0	2.51
3	7.8	2.86	49.55	4.8	2.24
4	5.4	2.38	41.30	3.3	1.86
5	3.3	1.86	32.38	2.0	1.45

By Linear Regression of Y on X

Slope , mw = 0.0472 **Intercept, bw =** -0.0867

Correlation coefficient* = 0.9999

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.60**

Remarks:

Conducted by: WK, Tang Signature: Kwon Date: 8/12/14

Checked by: TA Signature: Date: 8 December 2014

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0069/35/0001

Station: CAM3 - Talcon Industrial Ltd
Operator: WK
Date: 4-Feb-15
Next Due Date: 3-Apr-15
Equipment No.: A-01-35
Serial No. 0810

Ambient Condition			
Temperature, Ta (K)	290.6	Pressure, Pa (mmHg)	769.5

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0582	Intercept, bc	-0.0249
Last Calibration Date:	27-Sep-14	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	26-Sep-15	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.8	3.50	60.57	7.4	2.77
2	9.7	3.17	54.96	6.1	2.52
3	7.5	2.79	48.38	4.9	2.26
4	5.3	2.35	40.73	3.2	1.82
5	3.2	1.82	31.75	2.0	1.44

By Linear Regression of Y on X

Slope , mw = 0.0467 **Intercept, bw =** -0.0485

Correlation coefficient* = 0.9987

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.71**

Remarks:

Conducted by: Wk. Tang Signature: Kwai Date: 4/2/15

Checked by: [illegible] Signature: [illegible] Date: 4 February 2015

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TEST REPORT

Description	Calibration Orifice	**Manufacturer**	TISCH
Serial No.	0993	**Temperature,Ta (K)**	299
Model No.	TE-5025A	**Pressure, Pa (mmHg)**	761.8
Date	27 September 2014	**Equipment No.:**	A-04-04

Plate	Diff.Vol (m^3)	Diff.Time (min)	Diff.Hg (mm)	Diff.H_2O (in.)
1	1.00	1.4230	3.3	2.00
2	1.00	1.0050	6.5	4.00
3	1.00	0.8950	8.2	5.00
4	1.00	0.8570	9.0	5.50
5	1.00	0.7080	13.0	8.00

DATA TABULATION

Vstd	(X axis) Qstd	(Y axis)
0.9947	0.6990	1.4135
0.9905	0.9856	1.9990
0.9883	1.1042	2.2350
0.9872	1.1519	2.3441
0.9820	1.3870	2.8270

Y axis= SQRT[H_2O(Pa/760)(298/Ta)]

Qstd Slope (m) = 2.05398
Intercept (b) = -0.02487
Coefficient (r) = 0.99996

Va	(X axis) Qa	(Y axis)
0.9957	0.6997	0.8860
0.9915	0.9865	1.2530
0.9892	1.1053	1.4009
0.9882	1.1531	1.4693
0.9829	1.3883	1.7720

Y axis= SQRT[H_2O(Ta/Pa)]

Qa Slope (m) = 1.28617
Intercept (b) = -0.01559
Coefficient (r) = 0.99996

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=I/m{[SQRT(H_2O(Pa/760)(298/Ta))]-b}
Qa=I/m{[SQRT H_2O(Ta/Pa)]-b}

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

PATRICK TSE
Laboratory Manager

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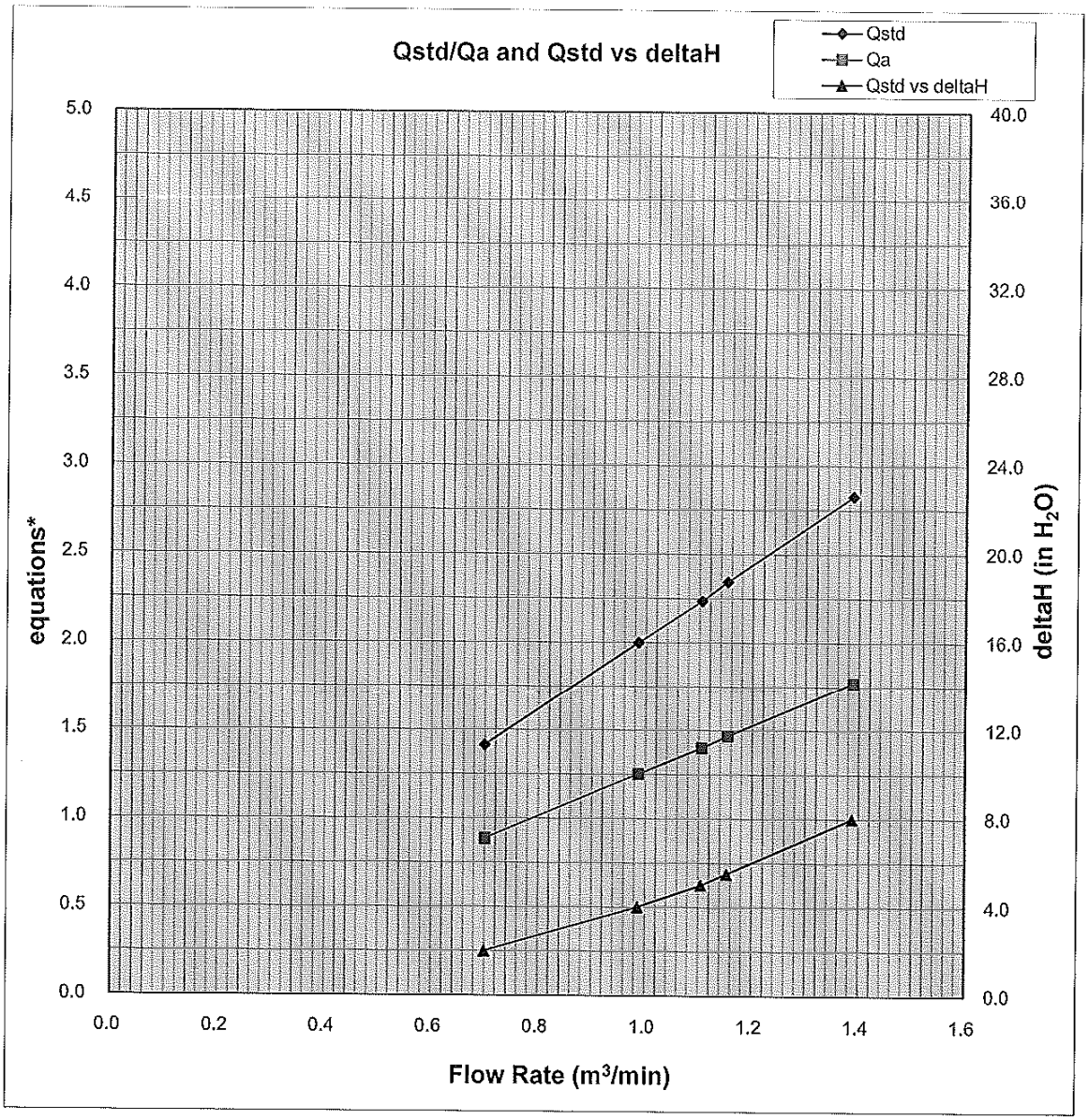
TEST REPORT



Y-axis equations:

Qstd series: SQRT[ΔH(Pa/Pstd)(Tstd/Ta)]

Qa series: SQRT[ΔH(Ta/Pa)]

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Website: www.wellab.com.hk

TEST REPORT

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

ATTN: **Mr. W.K Tang**

Test Report No.:	CA/140426
Date of Issue:	2014-04-27
Date Received:	2014-04-26
Date Tested:	2014-04-26
Date Completed:	2014-04-27
Next Due Date:	2015-04-26
Page:	1 of 1

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	: 19 degree Celsius
Relative Humidity	: 60%
Pressure	: 101.4 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.**

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/140919/1
Date of Issue:	2014-09-21
Date Received:	2014-09-19
Date Tested:	2014-09-21
Date Completed:	2014-09-21
Next Due Date:	2015-09-20
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 12553
Microphone No.	: 35222
Equipment No.	: N-08-02

Test conditions:

Room Temperatre	: 23 degree Celsius
Relative Humidity	: 55%

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

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

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TEST REPORT

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

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/140919/3
Date of Issue:	2014-09-21
Date Received:	2014-09-19
Date Tested:	2014-09-21
Date Completed:	2014-09-21
Next Due Date:	2015-09-20
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 12563
Microphone No.	: 34377
Equipment No.	: N-08-03

Test conditions:

Room Temperatre	: 23 degree Celsius
Relative Humidity	: 55%

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

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

PATRICK TSE
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TEST REPORT

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

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/140829/1
Date of Issue:	2014-09-01
Date Received:	2014-08-29
Date Tested:	2014-08-29
Date Completed:	2014-09-01
Next Due Date:	2015-08-31
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21455
Microphone No.	: 43730
Equipment No.	: N-08-07

Test conditions:

Room Temperatre	: 24 degree Celsius
Relative Humidity	: 60%

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

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

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Laboratory Manager

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Website: www.wellab.com.hk

TEST REPORT

APPLICANT:	**Cinotech Consultants Limited** **Room 1710, Technology Park,** **18 On Lai Street,** **Shatin, NT, Hong Kong**	Test Report No.: Date of Issue: Date Received: Date Tested: Date Completed: Next Due Date:	C/N/140822/1 2014-08-25 2014-08-22 2014-08-22 2014-08-25 2015-08-24
ATTN:	**Mr. W.K. Tang**	Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21460
Microphone No.	: 43679
Equipment No.	: N-08-09

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 55%

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

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

Patrick Tse
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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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Shatin, NT, Hong Kong

Test Report No.:	C/N/140919/4
Date of Issue:	2014-09-21
Date Received:	2014-09-19
Date Tested:	2014-09-21
Date Completed:	2014-09-21
Next Due Date:	2015-09-20
Page:	1 of 1

ATTN: **Mr. W.K. Tang**

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 10929
Equipment No.	: N-09-01

Test conditions:

Room Temperatre	: 23 degree Celsius
Relative Humidity	: 55%

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

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

PATRICK TSE
Laboratory Manager

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18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/141003/1
Date of Issue:	2014-10-04
Date Received:	2014-10-03
Date Tested:	2014-10-03
Date Completed:	2014-10-04
Next Due Date:	2015-10-03
Page:	1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24803
Equipment No.	: N-09-03

Test conditions:

Room Temperatre	: 22 degree Celsius
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

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

PATRICK TSE
Laboratory Manager

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Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/N/141003/2
Date of Issue:	2014-10-04
Date Received:	2014-10-03
Date Tested:	2014-10-03
Date Completed:	2014-10-04
Next Due Date:	2015-10-03
Page:	1 of 1

ATTN: **Mr. W.K. Tang**

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24791
Equipment No.	: N-09-04

Test conditions:

Room Temperatre	: 22 degree Celsius
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

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

PATRICK TSE
Laboratory Manager

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

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

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/141003/3
Date of Issue:	2014-10-04
Date Received:	2014-10-03
Date Tested:	2014-10-03
Date Completed:	2014-10-04
Next Due Date:	2015-10-03
Page:	1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24780
Equipment No.	: N-09-05

Test conditions:

Room Temperatre	: 22 degree Celsius
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

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

PATRICK TSE
Laboratory Manager

APPENDIX C
ENVIRONMENTAL MONITORING SCHEDULE

Contract No. DE/2009/09 - Construction of Tai Po Sewage Treatment Works - Stage 5 Phase 2B
Impact Air Quality and Noise Monitoring Schedule for February 2015

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

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 March 2015

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

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

Station CAM1 **Government Staff Quarters**

Date	Sampling Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure (Pa)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
					Initial	Final		Initial	Final		Initial	Final			
2-Feb-15	09:00	Sunny	289.0	773.0	3.1814	3.1991	0.0177	24185.1	24186.1	1.0	1.22	1.22	1.22	73.3	241
3-Feb-15	09:00	Sunny	289.3	772.7	3.1760	3.1923	0.0163	24186.1	24187.1	1.0	1.22	1.22	1.22	73.3	222
4-Feb-15	11:00	Cloudy	288.4	771.5	3.1882	3.2061	0.0179	24211.1	24212.1	1.0	1.22	1.22	1.22	73.3	244
9-Feb-15	13:10	Cloudy	289.5	771.9	3.1835	3.2004	0.0169	24237.1	24238.1	1.0	1.22	1.22	1.22	73.4	230
10-Feb-15	15:20	Sunny	288.8	768.5	3.2830	3.2936	0.0106	24262.1	24263.1	1.0	1.22	1.22	1.22	73.4	144
13-Feb-15	13:30	Sunny	289.5	767.3	3.2949	3.3093	0.0144	24265.1	24266.1	1.0	1.22	1.22	1.22	73.2	197
16-Feb-15	09:00	Sunny	290.4	766.7	3.2380	3.2531	0.0151	24290.1	24291.1	1.0	1.22	1.22	1.22	73.1	207
17-Feb-15	09:00	Sunny	290.9	766.1	3.1918	3.2089	0.0171	24291.1	24292.1	1.0	1.22	1.22	1.22	73.0	234
25-Feb-15	10:00	Cloudy	292.6	764.0	3.1791	3.2005	0.0214	24316.1	24317.1	1.0	1.21	1.21	1.21	72.7	294
26-Feb-15	10:40	Cloudy	292.9	765.2	3.2424	3.2570	0.0146	24341.1	24342.1	1.0	1.21	1.21	1.21	72.7	201
27-Feb-15	09:00	Cloudy	291.6	765.5	3.2332	3.2510	0.0178	24342.1	24343.1	1.0	1.22	1.21	1.21	72.9	244
														Min	144
														Max	294
														Average	224

Station CAM2 **Heng Hing Printing Centre**

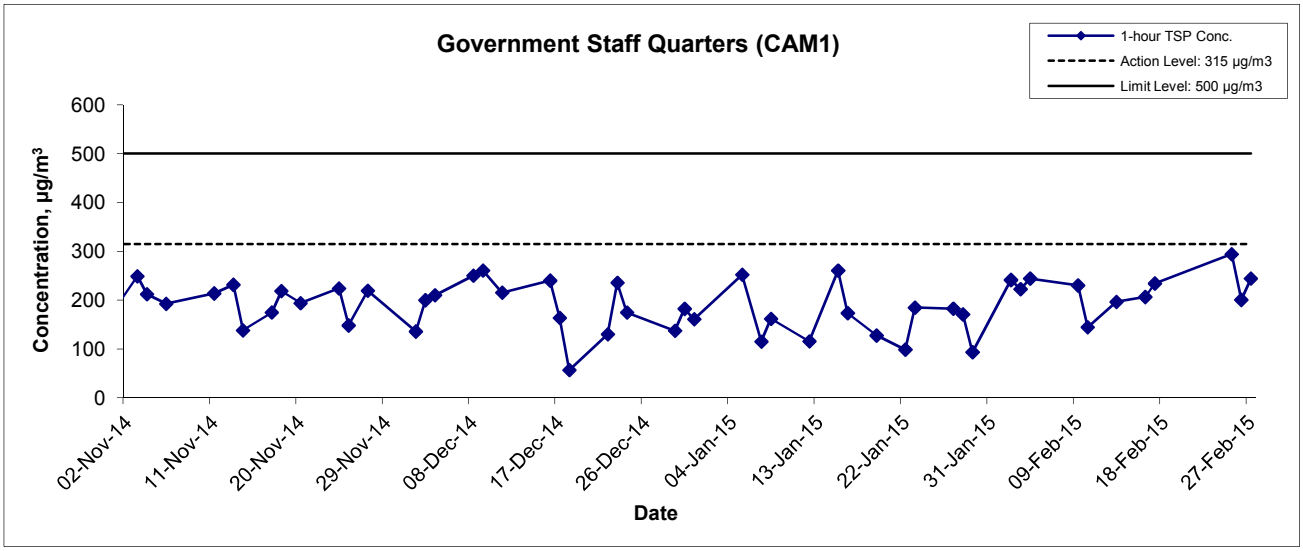
Date	Sampling Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure (Pa)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
					Initial	Final		Initial	Final		Initial	Final			
2-Feb-15	09:00	Sunny	289.0	773.0	3.1847	3.1926	0.0079	30460.3	30461.3	1.0	1.21	1.21	1.21	72.7	109
3-Feb-15	09:00	Sunny	289.3	772.7	3.1838	3.1937	0.0099	30461.3	30462.3	1.0	1.21	1.21	1.21	72.7	136
4-Feb-15	11:00	Cloudy	288.4	771.5	3.1274	3.1344	0.0070	30486.3	30487.3	1.0	1.21	1.21	1.21	72.7	96
9-Feb-15	13:15	Cloudy	289.5	771.9	3.1932	3.2023	0.0091	30512.3	30513.3	1.0	1.23	1.23	1.23	73.8	123
10-Feb-15	15:30	Sunny	288.8	768.5	3.2147	3.2183	0.0036	30537.3	30538.3	1.0	1.23	1.23	1.23	73.7	49
13-Feb-15	13:30	Sunny	289.5	767.3	3.1618	3.1703	0.0085	30540.3	30541.3	1.0	1.23	1.23	1.23	73.6	116
16-Feb-15	09:00	Sunny	290.4	766.7	3.2100	3.2169	0.0069	30565.3	30566.3	1.0	1.22	1.22	1.22	73.4	94
17-Feb-15	09:00	Sunny	290.9	766.1	3.1464	3.1537	0.0073	30566.3	30567.3	1.0	1.22	1.22	1.22	73.3	100
25-Feb-15	10:10	Cloudy	292.6	764.0	3.2433	3.2471	0.0038	30591.3	30592.3	1.0	1.22	1.22	1.22	73.0	52
26-Feb-15	10:55	Cloudy	292.9	765.2	3.1558	3.1605	0.0047	30616.3	30617.3	1.0	1.22	1.22	1.22	73.0	64
27-Feb-15	09:00	Cloudy	291.6	765.5	3.2093	3.2180	0.0087	30617.3	30618.3	1.0	1.22	1.22	1.22	73.2	119
														Min	49
														Max	136
														Average	96

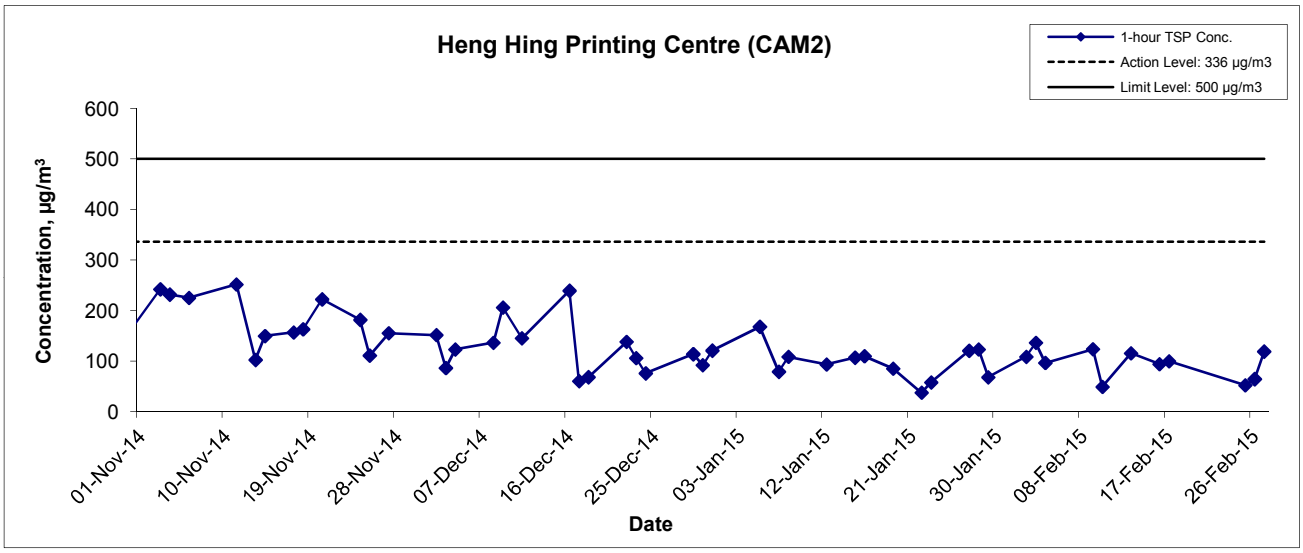
Appendix D - 1-hour TSP Monitoring Results

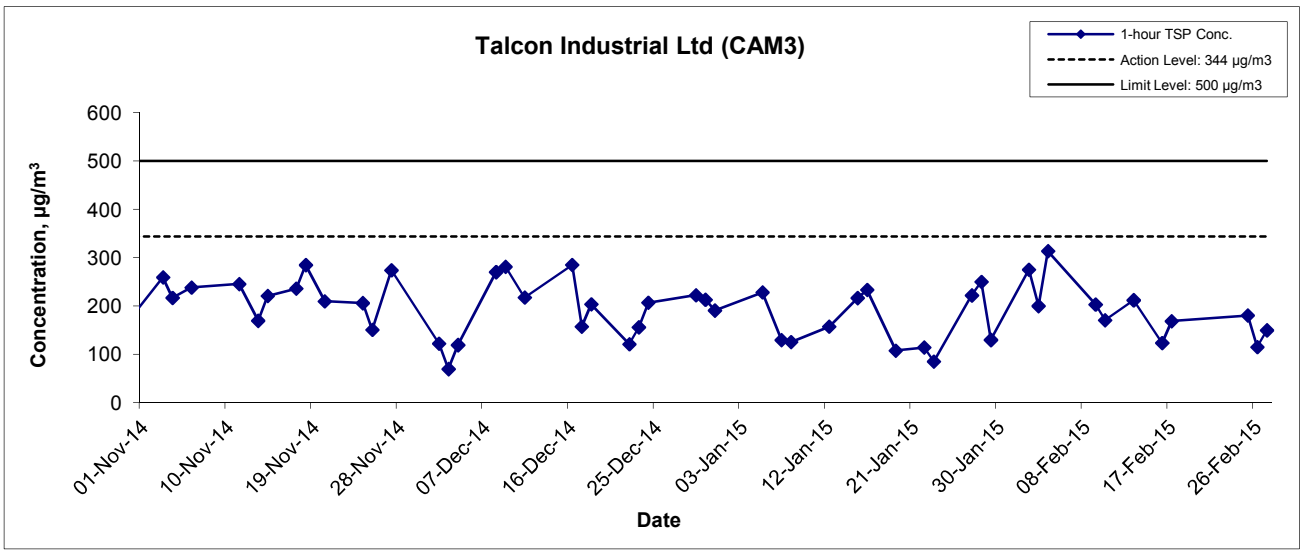
Station CAM3 **Talcon Industrial Ltd**

Date	Sampling Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure (Pa)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
					Initial	Final		Initial	Final		Initial	Final			
2-Feb-15	09:00	Sunny	289.0	773.0	3.1886	3.2087	0.0201	24594.9	24595.9	1.0	1.22	1.22	1.22	73.0	275
3-Feb-15	09:00	Sunny	289.3	772.7	3.1741	3.1887	0.0146	24595.9	24596.9	1.0	1.22	1.22	1.22	73.0	200
4-Feb-15	11:00	Cloudy	288.4	771.5	3.1664	3.1893	0.0229	24620.9	24621.9	1.0	1.22	1.22	1.22	73.0	314
9-Feb-15	13:15	Cloudy	289.5	771.9	3.2142	3.2291	0.0149	24646.9	24647.9	1.0	1.22	1.22	1.22	73.3	203
10-Feb-15	13:35	Sunny	288.8	768.5	3.2339	3.2464	0.0125	24671.9	24672.9	1.0	1.22	1.22	1.22	73.2	171
13-Feb-15	13:30	Sunny	289.5	767.3	3.2090	3.2245	0.0155	24674.9	24675.9	1.0	1.22	1.22	1.22	73.1	212
16-Feb-15	09:00	Sunny	290.4	766.7	3.2297	3.2387	0.0090	24699.9	24700.9	1.0	1.22	1.22	1.22	72.9	123
17-Feb-15	09:00	Sunny	290.9	766.1	3.1375	3.1498	0.0123	24700.9	24701.9	1.0	1.21	1.21	1.21	72.8	169
25-Feb-15	10:15	Cloudy	292.6	764.0	3.2367	3.2498	0.0131	24725.9	24726.9	1.0	1.21	1.21	1.21	72.5	181
26-Feb-15	13:05	Cloudy	296.2	762.6	3.2034	3.2117	0.0083	24751.9	24752.9	1.0	1.20	1.20	1.20	72.0	115
27-Feb-15	09:00	Cloudy	291.6	765.5	3.1997	3.2106	0.0109	24752.9	24753.9	1.0	1.21	1.21	1.21	72.7	150
														Min	115
														Max	314
														Average	192

1-hr TSP Concentration Levels







Title	Scale	Project No.
Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 1-hour TSP Impact Monitoring Results	N.T.S	MA0010
	Date: Feb 15	Appendix: D

CINOTECH

APPENDIX E
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix E - 24-hour TSP Monitoring Results

Station CAM1 **Government Staff Quarters**

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure (Pa)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. (μg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
3-Feb-15	Sunny	289.8	772.3	3.1339	3.3462	0.2123	24187.1	24211.1	24.0	1.22	1.22	1.22	1756.7	121
9-Feb-15	Sunny	289.9	771.5	3.1498	3.3893	0.2395	24238.1	24262.1	24.0	1.22	1.22	1.22	1760.8	136
14-Feb-15	Sunny	292.0	766.4	3.2170	3.3647	0.1477	24266.1	24290.1	24.0	1.22	1.21	1.21	1749.4	84
17-Feb-15	Cloudy	291.4	765.9	3.2016	3.4077	0.2061	24292.1	24316.1	24.0	1.22	1.22	1.22	1750.6	118
25-Feb-15	Cloudy	292.9	763.4	3.2287	3.3416	0.1129	24317.1	24341.1	24.0	1.21	1.21	1.21	1743.8	65
													Min	65
													Max	136
													Average	105

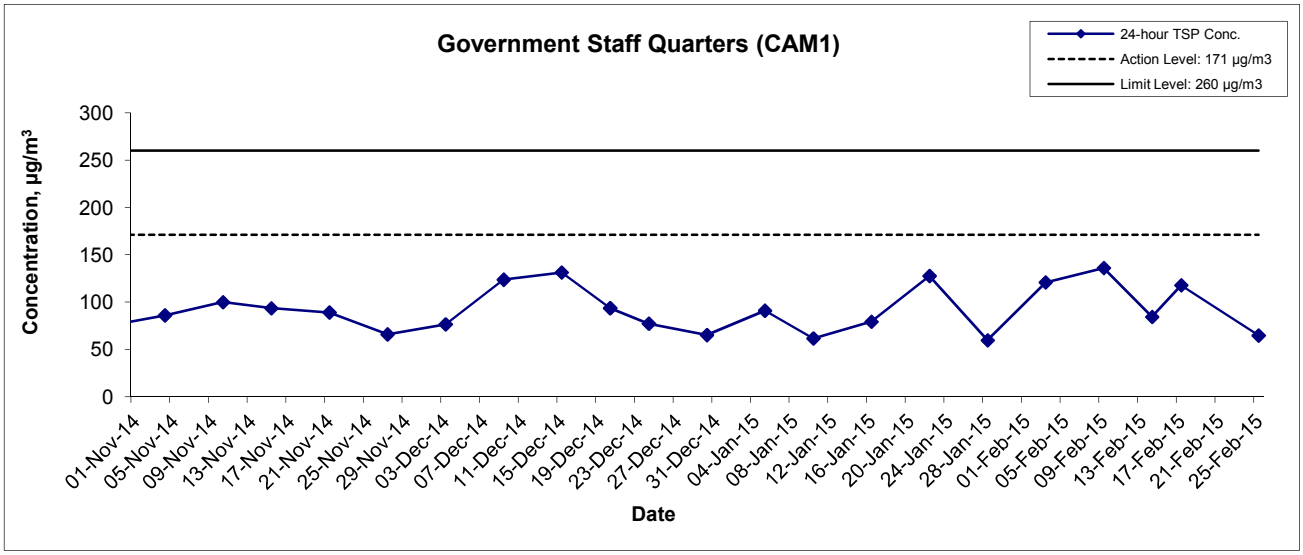
Station CAM2 **Heng Hing Printing Centre**

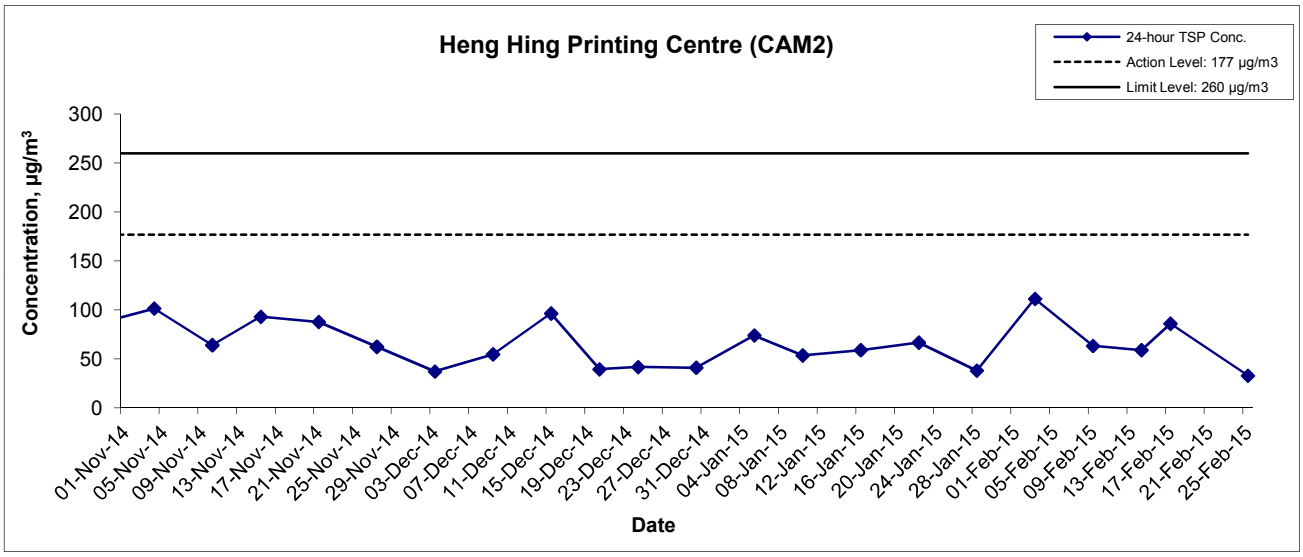
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure (Pa)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. (μg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
3-Feb-15	Sunny	289.8	772.3	3.1581	3.3521	0.1940	30462.3	30486.3	24.0	1.21	1.21	1.21	1743.1	111
9-Feb-15	Sunny	289.9	771.5	3.3357	3.4476	0.1119	30513.3	30537.3	24.0	1.23	1.23	1.23	1768.9	63
14-Feb-15	Sunny	292.0	766.4	3.1789	3.2824	0.1035	30541.3	30565.3	24.0	1.22	1.22	1.22	1757.0	59
17-Feb-15	Cloudy	291.4	765.9	3.2093	3.3604	0.1511	30567.3	30591.3	24.0	1.22	1.22	1.22	1758.2	86
25-Feb-15	Cloudy	292.9	763.4	3.1574	3.2149	0.0575	30592.3	30616.3	24.0	1.22	1.22	1.22	1751.0	33
													Min	33
													Max	111
													Average	70

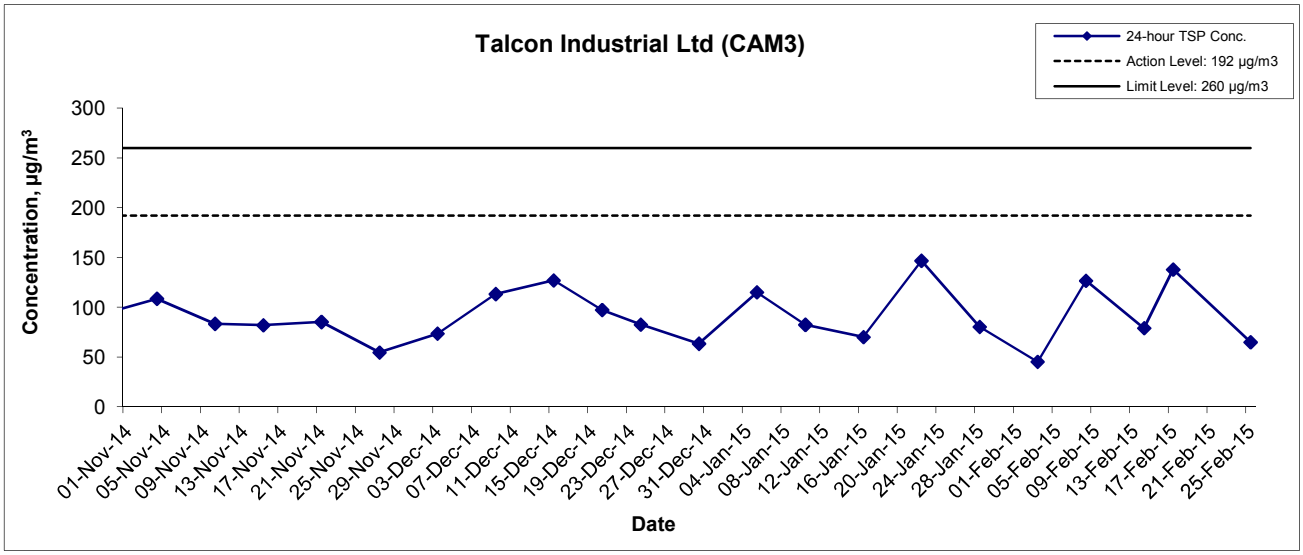
Station CAM3 **Talcon Industrial Ltd**

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure (Pa)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. (μg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
3-Feb-15	Sunny	289.8	772.3	3.1600	3.2391	0.0791	24596.9	24620.9	24.0	1.22	1.21	1.21	1749.6	45
8-Feb-15	Sunny	289.9	771.5	3.3210	3.5435	0.2225	24647.9	24671.9	24.0	1.22	1.22	1.22	1757.1	127
14-Feb-15	Sunny	292.0	766.4	3.1980	3.3358	0.1378	24675.9	24699.9	24.0	1.21	1.21	1.21	1745.1	79
17-Feb-15	Cloudy	291.4	765.9	3.2278	3.4686	0.2408	24701.9	24725.9	24.0	1.21	1.21	1.21	1746.3	138
25-Feb-15	Cloudy	292.9	763.4	3.2358	3.3488	0.1130	24726.9	24750.9	24.0	1.21	1.21	1.21	1739.2	65
													Min	45
													Max	138
													Average	91

24-hr TSP Concentration Levels







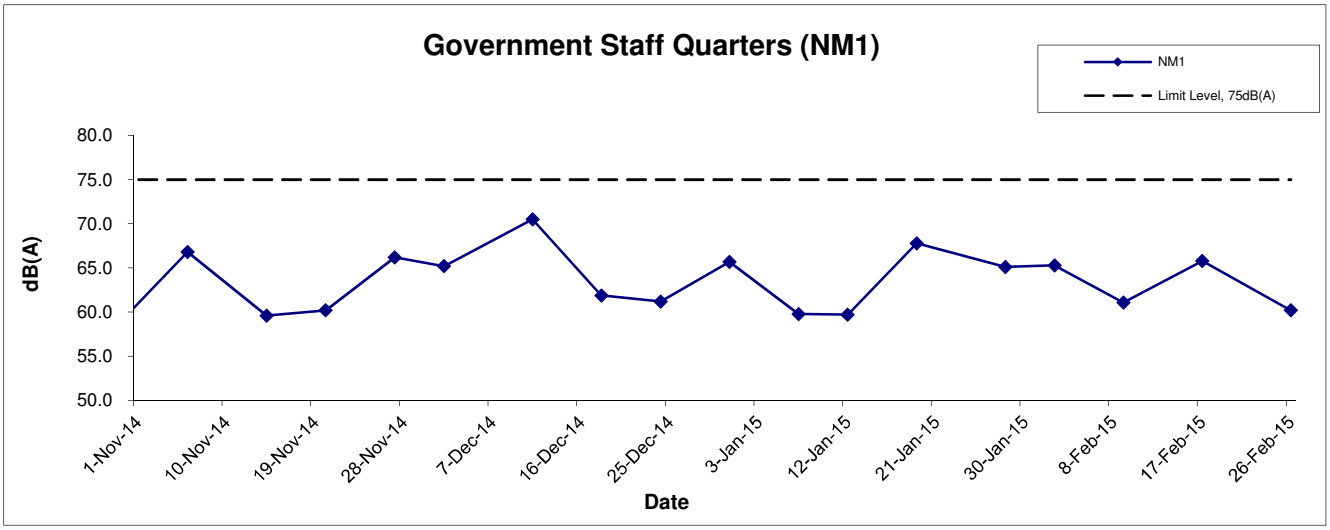
Title: Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 24-hour TSP Impact Monitoring Results	Scale: N.T.S Date: Feb 15	Project No.: MA0010 Appendix: E	CINOTECH

APPENDIX F
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix F - Noise Monitoring Results

Location NM1 - Government Staff Quarters					
Date	Time	Weather	dB (A) (30-min)		
			L_{eq}	L_{10}	L_{90}
2-Feb-15	11:00	Sunny	65.3	68.1	59.9
9-Feb-15	13:05	Cloudy	61.1	61.8	59.3
17-Feb-15	9:10	Cloudy	65.8	67.3	60.3
26-Feb-15	9:30	Cloudy	60.2	62.7	57.1
		Average	63.8	65.0	59.2
		Minimum	60.2	61.8	57.1
		Maximum	65.8	68.1	60.3

Noise Levels



Title: Contract No. DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works - Stage V Phase 2B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Feb 15	Project No.: MA0069 Appendix: F	CINOTECH

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENIDX G – SUMMARY OF EXCEEDANCE

Reporting Month: February 2015

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

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	150205
Date	5 February 2015 (Thursday)
Time	09:30 – 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. *Part F - Waste / Chemical Management* • No environmental deficiency was identified during the site inspection. *Part G - Permit / Licenses* • No environmental deficiency was identified during the site inspection. *Part H – Remark* • No environmental deficiency was identified during the site inspection. *Others* • Follow-up on the previous audit session (Ref. No.150126), all environmental deficiencies were improved/rectified by Contractor during the site inspection.	

	Name	Signature	Date
Recorded by	Harris Wong		5 February 2015
Checked by	Dr. Priscilla Choy		5 February 2015

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	150212
Date	12 February 2015 (Thursday)
Time	09:30 – 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. ***Part F - Waste / Chemical Management*** • No environmental deficiency was identified during the site inspection. ***Part G - Permit / Licenses*** • No environmental deficiency was identified during the site inspection. ***Part H – Remark*** • No environmental deficiency was identified during the site inspection. ***Others*** • Follow-up on the previous audit session (Ref. No.150205), no environmental deficiency was observed during the site inspection.	

	Name	Signature	Date
Recorded by	Harris Wong		12 February 2015
Checked by	Dr. Priscilla Choy		12 February 2015

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	150216
Date	16 February 2015 (Monday)
Time	09:00 – 10:00

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. ***Part F - Waste / Chemical Management*** • No environmental deficiency was identified during the site inspection. ***Part G - Permit / Licenses*** • No environmental deficiency was identified during the site inspection. ***Part H – Remark*** • No environmental deficiency was identified during the site inspection. ***Others*** • Follow-up on the previous audit session (Ref. No.150212), no environmental deficiency was observed during the site inspection.	

	Name	Signature	Date
Recorded by	Harris Wong		16 February 2015
Checked by	Dr. Priscilla Choy		16 February 2015

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	150227
Date	27 February 2015 (Friday)
Time	09:00 – 10:00

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. ***Part F - Waste / Chemical Management*** • No environmental deficiency was identified during the site inspection. ***Part G - Permit / Licenses*** • No environmental deficiency was identified during the site inspection. ***Part H – Remark*** • No environmental deficiency was identified during the site inspection. ***Others*** • Follow-up on the previous audit session (Ref. No.150216), no environmental deficiency was observed during the site inspection.	

	Name	Signature	Date
Recorded by	Harris Wong		27 February 2015
Checked by	Dr. Priscilla Choy		27 February 2015

APPENDIX I
EVENT ACTION PLANS

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

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IC(E) and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Ensure remedial measures properly implemented.	1. Submit proposals for remedial actions to IEC within three working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Contractor, IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. 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.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

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

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL	1. Notify IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analyzed results submitted by the ET; 2. Review the propose d remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analyzed noise problem; 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.
LIMIT LEVEL	1. Identify source; 2. Inform IEC, ER, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures properly implemented; 5. 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.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

APPENDIX J
UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

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

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	√
Noise	Use of quiet PME	N/A
	Good Site Practice • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program; • Mobile plant, if any, should be sited as far from NSRs as possible; • Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.	√
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.	√
	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.	√
	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.	√

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.	√
	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.	√
	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.	√
	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.	√
	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: • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport • Chemical waste containers should be suitably labelled to notify and warn the personnel who are handling the wastes to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	√
	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
Waste Management	Good site practices during the construction activities include: □ • 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. • Training of site personnel in proper waste management and chemical waste handling procedures. • Provision of sufficient waste disposal points and regular collection for disposal. • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. • Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility. • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. • 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. • In order to monitor the disposal of C&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. • A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) shall be proposed.	√
	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: • 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. • 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. • Any unused chemicals or those with remaining functional capacity shall be recycled. • Maximize the use of reusable steel formwork to reduce the amount of C&D material. • Prior to disposal of C&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. • Proper storage and site practices to minimize the potential for damage or contamination of construction materials. • Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste. • Minimize over ordering of concrete, mortars and cement grout by doing careful check before ordering	√
	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.	√
	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:
√ – Compliance of mitigation measures
X – Non-compliance of mitigation measures
N/A – Not applicable

APPENDIX K
WASTE GENERATION IN THE REPORTING MONTH

Jardine Engineering Corporation, Limited

Name of Department: Drainage Services Department Contract No. : DE/2009/09

Monthly Summary - Waste Flow Table for 2015

Month	Annual Quantities of Inert C&D Materials Generated Monthly						Annual Quantities of C&D Materials Generated Monthly				
	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
	(in m^3)	(in m^3)	(in m^3)	(in m^3)	(in m^3)	(in 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	3.3
Feb	0	0	0	0	0	0	0	0	0	0	1.7
Mar											
Apr											
May											
June											
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	0	0	0	0	0	0	0	0	0	0	5.0

Forecast of Total Quantities of C&D Materials to be Generated from the Contractor										
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
(in m^3)	(in m^3)	(in m^3)	(in m^3)	(in m^3)	(in m^3)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in tonne)
0	20	0	0	20	0	100	100	50	10	500

Notes:
(1) The performance targets are given in PS Clause 1.40.8(14).
(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
(4) 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^3. (PS Clause 1.40.7(4)(b) refers.

APPENDIX L
COMPLAINT LOG

APPENDIX L – COMPLAINT LOG

Reporting Month: February 2015

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

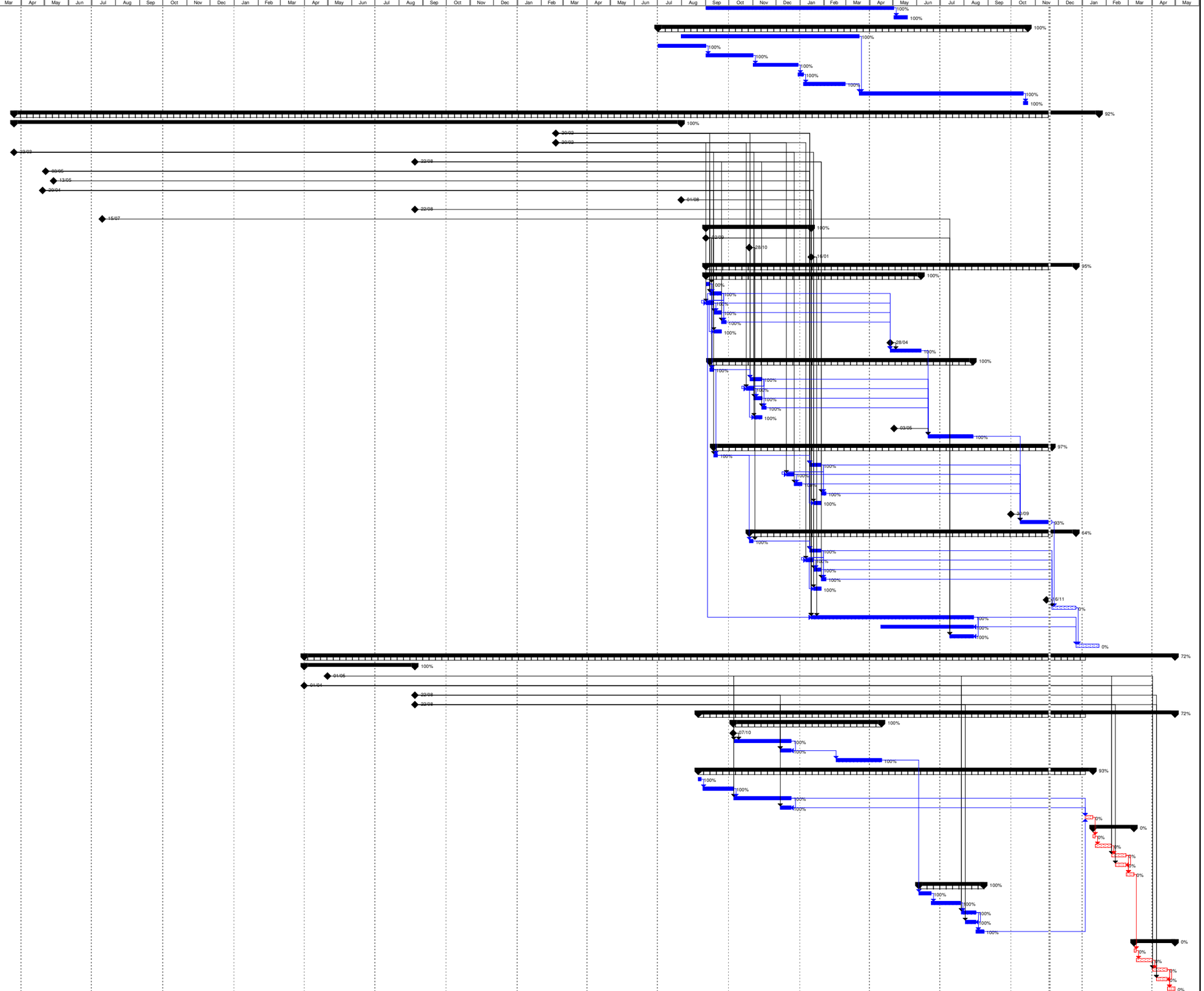
Remarks: No environmental complaint was received in the reporting month.

APPENDIX M
CONSTRUCTION PROGRAMME

DSD Contract : DE/2009/09
Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B

Section II Works Programme

ID	Task Name	Duration	Start	Finish
1	**Section II of the Works**	243 days	Mon 02/09/13	Fri 02/05/14
2	**EOT Granted**	17.5 days	Sat 03/05/14	Tue 20/05/14
3	**Modification / Replacement of Existing L.V. Switchboard (RAS MCC3)**	**478 days**	**Tue 02/07/13**	**Wed 22/10/14**
4	MCC3 Manufacture & Delivery to Site	230 days	Thu 01/08/13	Tue 18/03/14
5	Temporary Works Preparation	62 days	Tue 02/07/13	Sun 01/09/13
6	Temporary Works Installation	61 days	Mon 02/09/13	Fri 01/11/13
7	Migration of Power/Control for Existing E&M Equipment to Temporary Panels	58 days	Sat 02/11/13	Sun 29/12/13
8	Removal of Existing MCC1, MCC3 & MCC4	7 days	Mon 30/12/13	Sun 05/01/14
9	Civil Modification Works (By Civil Contractor)	54 days	Mon 06/01/14	Fri 28/02/14
10	MCC3 Installation, SAT, Cable Installation & Migration	212 days	Wed 19/03/14	Thu 16/10/14
11	Removal of Temporary Panels	6 days	Fri 17/10/14	Wed 22/10/14
12	**Final Clarifier No. 7B to 10B**	**1402 days**	**Wed 23/03/11**	**Thu 22/01/15**
13	**Equipment and Material Delivery to Site**	**862 days**	**Wed 23/03/11**	**Thu 01/08/13**
14	Tripods, Bridges & Scrapers for FC7B - 10B	0 days	Wed 20/02/13	Wed 20/02/13
15	Weir Plates	0 days	Wed 20/02/13	Wed 20/02/13
16	Density Current Baffle	0 days	Wed 23/03/11	Wed 23/03/11
17	FCW & FEDB	0 days	Wed 22/08/12	Wed 22/08/12
18	DI Pipes, Fittings & Accessories	0 days	Tue 03/05/11	Tue 03/05/11
19	Water Spray Pumps & Associated Pipework	0 days	Fri 13/05/11	Fri 13/05/11
20	Instrumentation (Ultrasonic Level Sensors & Sludge Blanket Sensors)	0 days	Fri 29/04/11	Fri 29/04/11
21	LCP for Scraper Bridges	0 days	Thu 01/08/13	Thu 01/08/13
22	Cable, Cable Trays and Accessories	0 days	Wed 22/08/12	Wed 22/08/12
23	B.S. Equipment & Accessories	0 days	Fri 15/07/11	Fri 15/07/11
24	**Site Possession / Available**	**136 days**	**Mon 02/09/13**	**Thu 16/01/14**
25	FC8B, 9B & 10B	0 days	Mon 02/09/13	Mon 02/09/13
26	FC7B	0 days	Mon 28/10/13	Mon 28/10/13
27	Cable drawpit and duct	0 days	Thu 16/01/14	Thu 16/01/14
28	**Installation**	**478 days**	**Mon 02/09/13**	**Tue 23/12/14**
29	**FC8B**	**278 days**	**Mon 02/09/13**	**Fri 06/06/14**
30	Site Preparation Works	5 days	Mon 02/09/13	Fri 06/09/13
31	Tripods, Bridges & Scrapers	15 days	Sat 07/09/13	Sat 21/09/13
32	Weir Plates	10 days	Mon 02/09/13	Wed 11/09/13
33	Density Current Baffles	10 days	Thu 12/09/13	Sat 21/09/13
34	FCW & FEDB	6 days	Sun 22/09/13	Fri 27/09/13
35	Instrumentation	10 days	Thu 12/09/13	Sat 21/09/13
36	Completion of Civil's Rectification Work (By Civil Contractor)	0 days	Mon 28/04/14	Mon 28/04/14
37	Final screeding	40 days	Mon 28/04/14	Fri 06/06/14
38	**FC10B**	**340 days**	**Sat 07/09/13**	**Tue 12/08/14**
39	Site Preparation Works	5 days	Sat 07/09/13	Wed 11/09/13
40	Tripods, Bridges & Scrapers	15 days	Tue 29/10/13	Tue 12/11/13
41	Weir Plates	10 days	Thu 24/10/13	Sat 02/11/13
42	Density Current Baffles	10 days	Sun 03/11/13	Tue 12/11/13
43	FCW & FEDB	6 days	Wed 13/11/13	Mon 18/11/13
44	Instrumentation	10 days	Sun 03/11/13	Tue 12/11/13
45	Completion of Civil's Rectification Work (By Civil Contractor)	0 days	Sat 03/05/14	Sat 03/05/14
46	Final screeding	58 days	Mon 16/06/14	Tue 12/08/14
47	**FC9B**	**437 days**	**Thu 12/09/13**	**Sat 22/11/14**
48	Site Preparation Works	5 days	Thu 12/09/13	Mon 16/09/13
49	Tripods, Bridges & Scrapers	15 days	Tue 14/01/14	Tue 28/01/14
50	Weir Plates	10 days	Sun 15/12/13	Tue 24/12/13
51	Density Current Baffles	10 days	Wed 25/12/13	Fri 03/01/14
52	FCW & FEDB	6 days	Wed 29/01/14	Mon 03/02/14
53	Instrumentation	10 days	Sun 19/01/14	Tue 28/01/14
54	Completion of Civil's Rectification Work (By Civil Contractor)	0 days	Tue 30/09/14	Tue 30/09/14
55	Final screeding	41 days	Mon 13/10/14	Sat 22/11/14
56	**FC7B**	**422 days**	**Mon 28/10/13**	**Tue 23/12/14**
57	Site Preparation Works	5 days	Mon 28/10/13	Fri 01/11/13
58	Tripods, Bridges & Scrapers	15 days	Tue 14/01/14	Tue 28/01/14
59	Weir Plates	10 days	Thu 09/01/14	Sat 18/01/14
60	Density Current Baffles	10 days	Sun 19/01/14	Tue 28/01/14
61	FCW & FEDB	6 days	Wed 29/01/14	Mon 03/02/14
62	Instrumentation	10 days	Sun 19/01/14	Tue 28/01/14
63	Completion of Civil's Rectification Work (By Civil Contractor)	0 days	Sun 16/11/14	Sun 16/11/14
64	Final screeding	31 days	Sun 23/11/14	Tue 23/12/14
65	Electrical Installation	210 days	Thu 16/01/14	Wed 13/08/14
66	Modification of existing PLC system E	120 days	Wed 16/04/14	Wed 13/08/14
67	B.S. Installation	31 days	Mon 14/07/14	Wed 13/08/14
68	**Testing and Commissioning**	30 days	Wed 24/12/14	Thu 22/01/15
69	**Stage IV RAS Pumping Station**	**1125 days**	**Sun 01/04/12**	**Thu 30/04/15**
70	**Equipment and Material Delivey to Site**	**143 days**	**Sun 01/04/12**	**Wed 22/08/12**
71	RAS Pumps	0 days	Tue 01/05/12	Tue 01/05/12
72	Pipework & Valves	0 days	Sun 01/04/12	Sun 01/04/12
73	VSD Panel for RAS Pumps No.1 & 5	0 days	Wed 22/08/12	Wed 22/08/12
74	PLC System H Panel	0 days	Wed 22/08/12	Wed 22/08/12
75	**Installation**	**616 days**	**Fri 23/08/13**	**Thu 30/04/15**
76	**RAS Pump No.5**	**192 days**	**Mon 07/10/13**	**Wed 16/04/14**
77	Available of Pump Concrete Plinth (Modified by Civil Contractor)	0 days	Mon 07/10/13	Mon 07/10/13
78	Installation of Pump, Gate Valve, Swing Check Valve & DI Pipework	74 days	Tue 08/10/13	Fri 20/12/13
79	Electrical Works & SCADA/PLC Works	14 days	Sat 07/12/13	Fri 20/12/13
80	Testing & Commissioning	59 days	Mon 17/02/14	Wed 16/04/14
81	**RAS Pump No.4**	**510 days**	**Fri 23/08/13**	**Wed 14/01/15**
82	Decommissioning & Removal of Pump	4 days	Fri 23/08/13	Mon 26/08/13
83	Pump Concrete Plinth Modification Works (By Civil Contractor)	40 days	Thu 29/08/13	Mon 07/10/13
84	Installation of Pump & DI Pipework	74 days	Tue 08/10/13	Fri 20/12/13
85	Electrical Works & SCADA/PLC Works	14 days	Sat 07/12/13	Fri 20/12/13
86	Testing & Commissioning (Suspended due to malfunction of existing valves)	10 days	Mon 05/01/15	Wed 14/01/15
87	**RAS Pump No.3**	**53 days**	**Thu 15/01/15**	**Sun 08/03/15**
88	Decommissioning & Removal of Pump	3 days	Thu 15/01/15	Sat 17/01/15
89	Pump Concrete Plinth Modification Works (VO)	21 days	Sun 18/01/15	Sat 07/02/15
90	Installation of Pump & DI Pipework	19 days	Sun 08/02/15	Thu 26/02/15
91	Electrical Works & SCADA/PLC Works	14 days	Fri 13/02/15	Thu 26/02/15
92	Testing & Commissioning	10 days	Fri 27/02/15	Sun 08/03/15
93	**RAS Pump No.2**	**84 days**	**Wed 04/06/14**	**Tue 26/08/14**
94	Decommissioning & Removal of Pump (Delayed due to malfunction of existing valves)	16 days	Wed 04/06/14	Thu 19/06/14
95	Pump Concrete Plinth Modification Works (VO)	38 days	Fri 20/06/14	Sun 27/07/14
96	Installation of Pump & DI Pipework	19 days	Tue 29/07/14	Sat 16/08/14
97	Electrical Works & SCADA/PLC Works	14 days	Sun 03/08/14	Sat 16/08/14
98	Testing & Commissioning	10 days	Sun 17/08/14	Tue 26/08/14
99	**RAS Pump No.1**	**53 days**	**Mon 09/03/15**	**Thu 30/04/15**
100	Decommissioning & Removal of Pump (Delayed due to malfunction of existing valves)	3 days	Mon 09/03/15	Wed 11/03/15
101	Pump Concrete Plinth Modification Works (VO)	21 days	Thu 12/03/15	Wed 01/04/15
102	Installation of Pump & DI Pipework	19 days	Thu 02/04/15	Mon 20/04/15
103	Electrical Works & SCADA/PLC Works	14 days	Tue 07/04/15	Mon 20/04/15
104	Testing & Commissioning	10 days	Tue 21/04/15	Thu 30/04/15



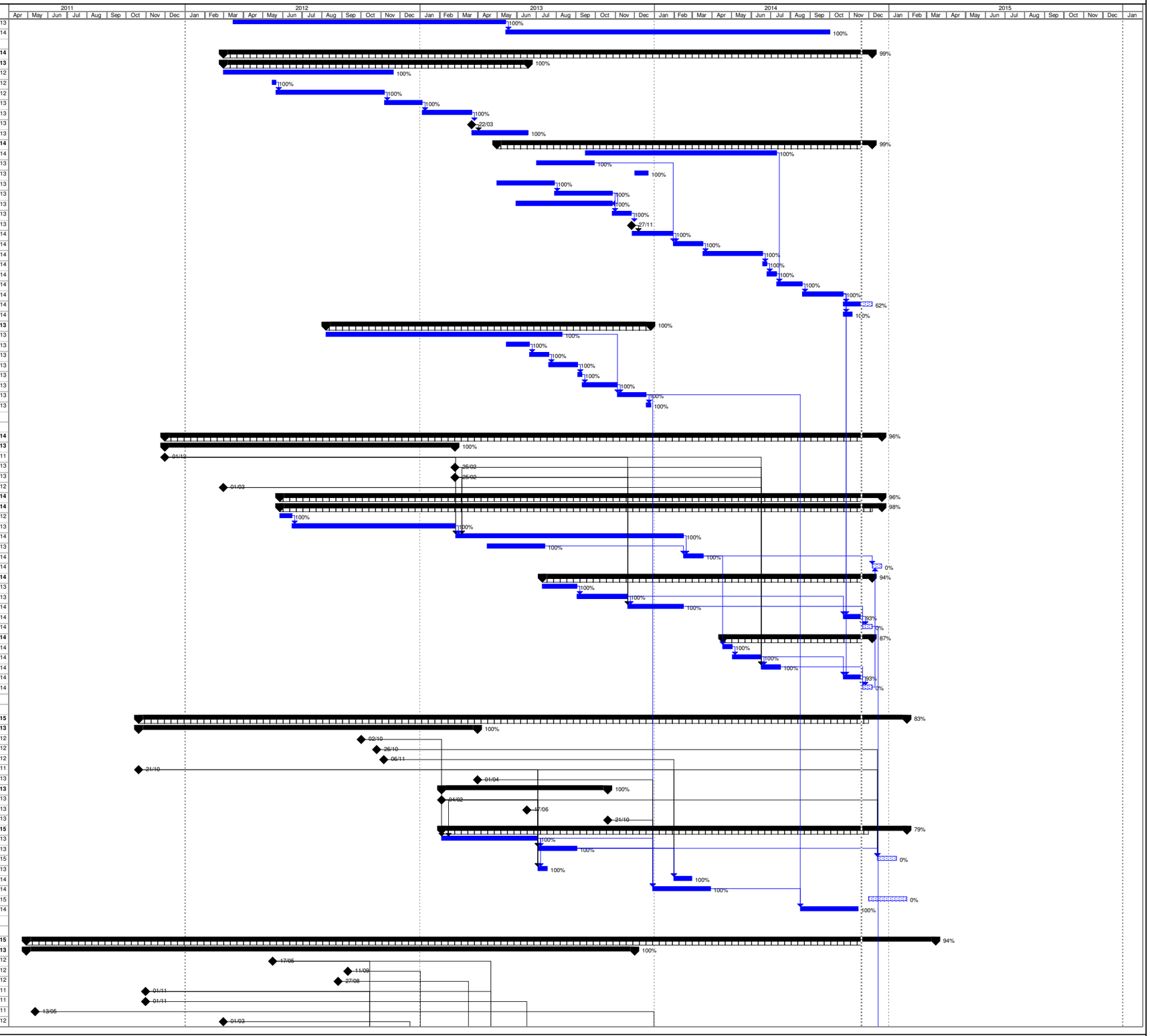
Rev.6
Date: 19 November 2014

Critical · Critical Progress · Split · Baseline · Baseline Milestone · Summary Progress · Project Summary · External Milestone
Critical Split · Task · Task Progress · Baseline Split · Milestone · Summary · External Tasks · Deadline

DSD Contract : DE/2009/09
Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B

Section III Works Programme

ID	Task Name	Duration	Start	Finish
1	**Section III of the Works**	425 days	Fri 16/03/12	Tue 14/05/13
2	**EOT Granted**	505 days	Wed 15/05/13	Wed 01/10/14
3				
4	**Modification / Replacement of Existing L.V. Switchboard**	**1011 days**	**Thu 01/03/12**	**Sat 06/12/14**
5	**CBC 1/F MCC2A**	**475 days**	**Thu 01/03/12**	**Tue 18/06/13**
6	MCC2A Manufacture & Delivery to Site	265 days	Thu 01/03/12	Tue 20/11/12
7	Relocate Existing Workstation	6 days	Wed 16/05/12	Mon 21/05/12
8	Civil Modification Works (By Civil Contractor)	169 days	Tue 22/05/12	Tue 06/11/12
9	MCC2A Installation & SAT	59 days	Wed 07/11/12	Fri 04/01/13
10	New Power Cable Installation from New CBC G/F Switchboard to MCC2A	77 days	Sat 05/01/13	Fri 22/03/13
11	Energization of MCC2A	0 days	Fri 22/03/13	Fri 22/03/13
12	Migration of Power/Control for Existing E&M Equipment to MCC2A	88 days	Sat 23/03/13	Tue 18/06/13
13	**CBC 1/F MCC2**	**585 days**	**Wed 01/05/13**	**Sat 06/12/14**
14	MCC2 Manufacture & Delivery to Site	298 days	Mon 16/09/13	Thu 10/07/14
15	MCC2 Extension Manufacture & Delivery to Site	90 days	Tue 02/07/13	Sun 29/09/13
16	Demolition of MCC8 at CBC 1/F	21 days	Mon 02/12/13	Sun 22/12/13
17	Temporary Works Preparation	90 days	Wed 01/05/13	Mon 29/07/13
18	Temporary Works Installation	90 days	Tue 30/07/13	Sun 27/10/13
19	Installation of Permanent Marshalling Boxes & Cable Trays	150 days	Fri 31/05/13	Sun 27/10/13
20	Migration of Power/Control for Existing E&M Equipment from existing MCC2 Extension to Temp. MCC	30 days	Mon 28/10/13	Tue 26/11/13
21	Removal of Existing MCC2 Extension	1 day	Wed 27/11/13	Wed 27/11/13
22	Civil Modification Works for New MCC2 Extension (By Civil Contractor)	64 days	Thu 28/11/13	Thu 30/01/14
23	MCC2 Extension Installation & SAT	46 days	Fri 31/01/14	Mon 17/03/14
24	Migration of Power/Control for Existing E&M Equipment to New MCC2 Extension & Temp. MCC	93 days	Tue 18/03/14	Wed 18/06/14
25	Removal of Existing Switchboard MCC2	7 days	Thu 19/06/14	Wed 25/06/14
26	Civil Modification Works for MCC2 (VO)	15 days	Thu 26/06/14	Thu 10/07/14
27	MCC2 Installation & SAT	40 days	Fri 11/07/14	Tue 19/08/14
28	Migration of Power/Control for Existing E&M Equipment to New MCC2	64 days	Wed 20/08/14	Wed 22/10/14
29	Installation of New Cables	45 days	Thu 23/10/14	Sat 06/12/14
30	Removal of Temporary Panels	14 days	Thu 23/10/14	Wed 05/11/14
31	**PST MCC5 & MCC5A**	**506 days**	**Wed 08/08/12**	**Thu 26/12/13**
32	MCC5 Manufacture & Delivery to Site	368 days	Wed 08/08/12	Sat 10/08/13
33	Temporary Works Preparation	36 days	Thu 16/05/13	Thu 20/06/13
34	Temporary Works Installation	30 days	Fri 21/06/13	Sat 20/07/13
35	Migration of Power/Control for Existing E&M Equipment to Temporary Panels	45 days	Sun 21/07/13	Tue 03/09/13
36	Removal of Existing MCC5 & MCC5B	7 days	Wed 04/09/13	Tue 10/09/13
37	Civil Modification Works (By Civil Contractor)	55 days	Wed 11/09/13	Mon 04/11/13
38	MCC5 Installation, MCC5A Modification, SAT, Cable Installation & Migration	45 days	Tue 05/11/13	Thu 19/12/13
39	Removal of Temporary Panels	7 days	Fri 20/12/13	Thu 26/12/13
40				
41				
42	**Air Blowers in CBC**	**1117 days**	**Thu 01/12/11**	**Sun 21/12/14**
43	**Equipment and Material Delivery to Site**	**452 days**	**Thu 01/12/11**	**Mon 25/02/13**
44	Air Blowers	0 days	Thu 01/12/11	Thu 01/12/11
45	Pipework & Valves	0 days	Mon 25/02/13	Mon 25/02/13
46	Air Ductwork	0 days	Mon 25/02/13	Mon 25/02/13
47	Vibration Monitoring System	0 days	Thu 01/03/12	Thu 01/03/12
48	**Modification Works**	**938 days**	**Mon 28/05/12**	**Sun 21/12/14**
49	**Air Blower No.5**	**938 days**	**Mon 28/05/12**	**Sun 21/12/14**
50	Decommissioning & Dismantle of Existing Air Blower & Accessories	19 days	Mon 28/05/12	Fri 15/06/12
51	Civil Modification & GMS Puddle Flange Pipe Installation (By Civil Contractor)	255 days	Sat 16/06/12	Mon 25/02/13
52	Installation of New Air Blower & Accessories	355 days	Tue 26/02/13	Sat 15/02/14
53	Electrical Installation (with Temporary MCC/Starter Panel)	90 days	Tue 16/04/13	Sun 14/07/13
54	Testing and Commissioning	31 days	Sun 16/02/14	Tue 18/03/14
55	Migration from Temporary MCC/Starter to MCC2	15 days	Sun 07/12/14	Sun 21/12/14
56	**Air Blower No.2**	**514 days**	**Thu 11/07/13**	**Sat 06/12/14**
57	Decommissioning & Dismantle of Existing Air Blower & Accessories	54 days	Thu 11/07/13	Mon 02/09/13
58	Civil Modification & GMS Puddle Flange Pipe Installation (By Civil Contractor)	79 days	Tue 03/09/13	Wed 20/11/13
59	Installation of New Air Blower & Accessories	87 days	Thu 21/11/13	Sat 15/02/14
60	Electrical Installation (with New MCC2)	30 days	Thu 23/10/14	Fri 21/11/14
61	Testing and Commissioning	15 days	Sat 22/11/14	Sat 06/12/14
62	**Air Blower No.1**	**233 days**	**Fri 18/04/14**	**Sat 06/12/14**
63	Decommissioning & Dismantle of Existing Air Blower & Accessories	15 days	Fri 18/04/14	Fri 02/05/14
64	Civil Modification & GMS Puddle Flange Pipe Installation (By Civil Contractor)	45 days	Sat 03/05/14	Mon 16/06/14
65	Installation of New Air Blower & Accessories	30 days	Tue 17/06/14	Wed 16/07/14
66	Electrical Installation (with New MCC2)	30 days	Thu 23/10/14	Fri 21/11/14
67	Testing and Commissioning	15 days	Sat 22/11/14	Sat 06/12/14
68				
69				
70	**Primary Sedimentation Tank No.5**	**1197 days**	**Fri 21/10/11**	**Thu 29/01/15**
71	**Equipment and Material Delivery to Site**	**528 days**	**Fri 21/10/11**	**Mon 01/04/13**
72	Sludge & Scum Collection System	0 days	Tue 02/10/12	Tue 02/10/12
73	PST Drain-off Pump	0 days	Fri 26/10/12	Fri 26/10/12
74	Scum Pump	0 days	Tue 06/11/12	Tue 06/11/12
75	Pipework & Valves	0 days	Fri 21/10/11	Fri 21/10/11
76	Local Control Panel for Sludge & Scum Collection System	0 days	Mon 01/04/13	Mon 01/04/13
77	**Site Possession / Available**	**259 days**	**Mon 04/02/13**	**Mon 21/10/13**
78	PST No.5	0 days	Mon 04/02/13	Mon 04/02/13
79	Pipe Gallery for PST No.5	0 days	Mon 17/06/13	Mon 17/06/13
80	Cable Drawpit & Duct	0 days	Mon 21/10/13	Mon 21/10/13
81	**Installation**	**725 days**	**Mon 04/02/13**	**Thu 29/01/15**
82	Sludge & Scum Scrapers	150 days	Mon 04/02/13	Wed 03/07/13
83	Influent Pipework in Pipe Gallery	61 days	Thu 04/07/13	Mon 02/09/13
84	PST Drain-off Pump & Associated Pipework	30 days	Mon 15/12/14	Tue 13/01/15
85	Water Spray Pipework for Scum Trough	15 days	Thu 04/07/13	Thu 18/07/13
86	Scum Pump & Associated Pipework	28 days	Sat 01/02/14	Fri 28/02/14
87	Local Control Panel & Electrical Installation	90 days	Mon 30/12/13	Sat 29/03/14
88	H2S Detection System Installation	60 days	Mon 01/12/14	Thu 29/01/15
89	**Testing and Commissioning**	90 days	Sun 17/08/14	Fri 14/11/14
90				
91				
92	**New Aeration Tanks No.5 to 7**	**1417 days**	**Fri 29/04/11**	**Sun 15/03/15**
93	**Equipment and Material Delivery to Site**	**948 days**	**Fri 29/04/11**	**Mon 02/12/13**
94	Air Diffusers	0 days	Thu 17/05/12	Thu 17/05/12
95	GRP Mixer Bridges	0 days	Tue 11/09/12	Tue 11/09/12
96	Bridge Mounted Vertical Mixers	0 days	Mon 27/08/12	Mon 27/08/12
97	MLR Pumps	0 days	Tue 01/11/11	Tue 01/11/11
98	Submersible Mixers	0 days	Tue 01/11/11	Tue 01/11/11
99	Water Spray Pumps	0 days	Fri 13/05/11	Fri 13/05/11
100	Penstock & Actuators	0 days	Thu 01/03/12	Thu 01/03/12



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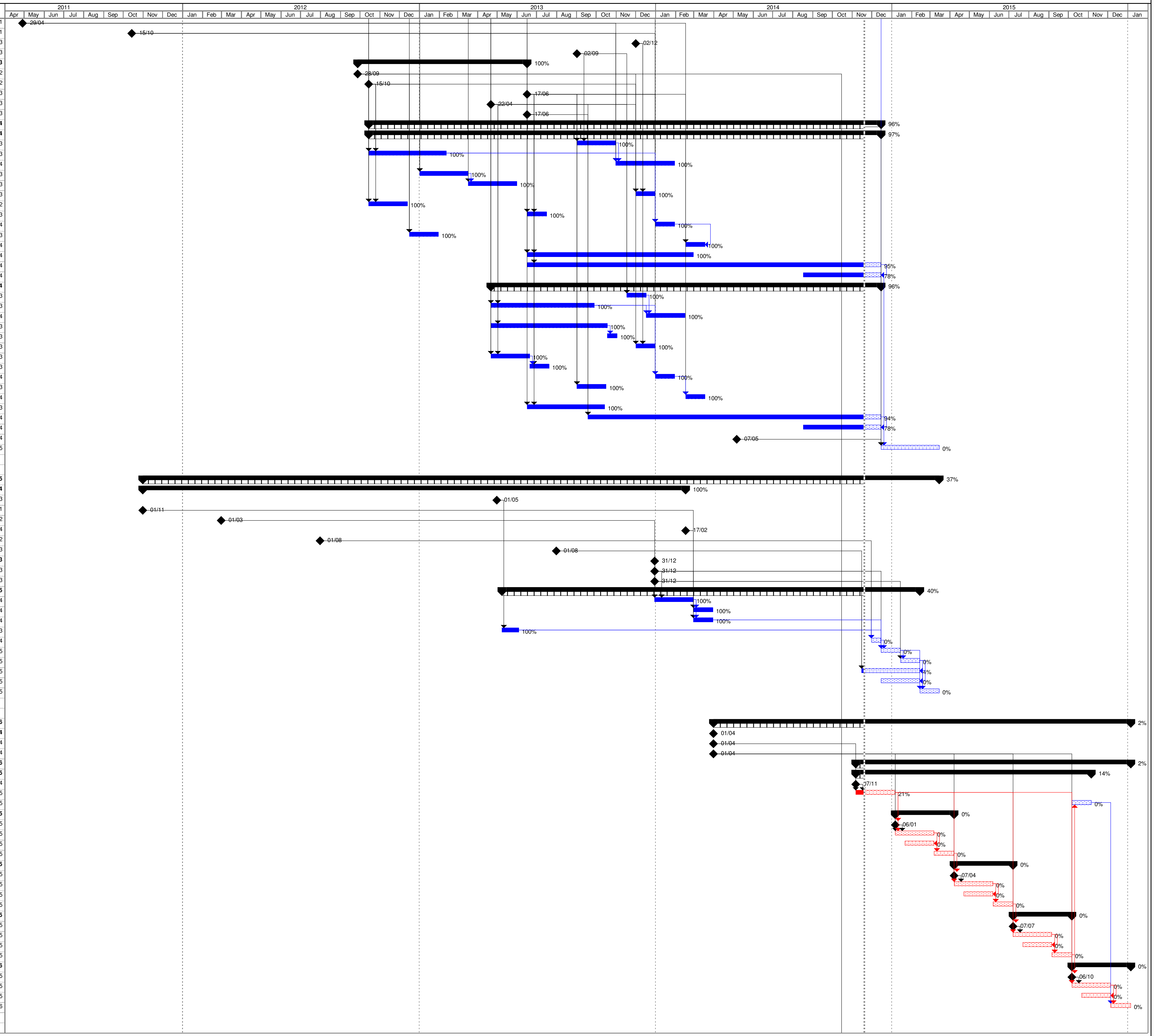
Critical Split | Task | Task Progress | Baseline Split | Milestone | Summary | External Tasks | Deadline

DSD Contract : DE/2009/09

Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B

Section III Works Programme

ID	Task Name	Duration	Start	Finish
101	Instruments (EM Flowmeters, Air Flowmeters & Online Sensors)	0 days	Fri 29/04/11	Fri 29/04/11
102	Pipework & Valves	0 days	Sat 15/10/11	Sat 15/10/11
103	Lifting Appliance	0 days	Mon 02/12/13	Mon 02/12/13
104	GMS Air Mains	0 days	Mon 02/09/13	Mon 02/09/13
105	**Site Possession / Available**	**262 days**	**Fri 28/09/12**	**Mon 17/06/13**
106	Interior Part of New Aeration Tank No.5	0 days	Fri 28/09/12	Fri 28/09/12
107	Interior Part of New Aeration Tank No.6	0 days	Mon 15/10/12	Mon 15/10/12
108	Steel Air Main Platforms, Walkway and Cable Trenches for New Aeration Tanks No.5, 6 & 7	0 days	Mon 17/06/13	Mon 17/06/13
109	Interior Part of New Aeration Tank No.7	0 days	Mon 22/04/13	Mon 22/04/13
110	Pipe Gallery Extension	0 days	Mon 17/06/13	Mon 17/06/13
111	**Installation**	**792 days**	**Mon 15/10/12**	**Mon 15/12/14**
112	**New Aeration Tanks No.5 & 6**	**792 days**	**Mon 15/10/12**	**Mon 15/12/14**
113	GMS Air Mains & FRP Staircase	60 days	Mon 02/09/13	Thu 31/10/13
114	Air Diffusers	120 days	Mon 15/10/12	Mon 11/02/13
115	Air Pipework, Butterfly Valves & Air Flowmeters	91 days	Fri 01/11/13	Thu 30/01/14
116	GRP Mixer Bridges	75 days	Wed 02/01/13	Sun 17/03/13
117	Bridge Mounted Vertical Mixers	75 days	Mon 18/03/13	Fri 31/05/13
118	Lifting Appliance	30 days	Mon 02/12/13	Tue 31/12/13
119	MLR Pumps & Associated Pipework	60 days	Mon 15/10/12	Thu 13/12/12
120	Submersible Mixers	30 days	Mon 17/06/13	Tue 16/07/13
121	Water Spray Pumps & Associated Pipework	30 days	Wed 01/01/14	Thu 30/01/14
122	Penstock & Actuators	45 days	Mon 17/12/12	Wed 30/01/13
123	Instruments	30 days	Mon 17/02/14	Tue 18/03/14
124	RAS Pipework in Pipe Gallery Extension	257 days	Mon 17/06/13	Fri 28/02/14
125	Electrical Works	547 days	Mon 17/06/13	Mon 15/12/14
126	SCADA/PLC System	120 days	Mon 18/08/14	Mon 15/12/14
127	**New Aeration Tanks No.7**	**603 days**	**Mon 22/04/13**	**Mon 15/12/14**
128	GMS Air Mains & FRP Staircase	30 days	Mon 18/11/13	Tue 17/12/13
129	Air Diffusers	160 days	Mon 22/04/13	Sat 28/09/13
130	Air Pipework, Butterfly Valves & Air Flowmeters	60 days	Wed 18/12/13	Sat 15/02/14
131	GRP Mixer Bridges	180 days	Mon 22/04/13	Fri 18/10/13
132	Bridge Mounted Vertical Mixers	15 days	Sat 19/10/13	Sat 02/11/13
133	Lifting Appliance	30 days	Mon 02/12/13	Tue 31/12/13
134	MLR Pumps & Associated Pipework	60 days	Mon 22/04/13	Thu 20/06/13
135	Submersible Mixers	30 days	Fri 21/06/13	Sat 20/07/13
136	Water Spray Pumps & Associated Pipework	30 days	Wed 01/01/14	Thu 30/01/14
137	Penstock & Actuators	45 days	Mon 02/09/13	Wed 16/10/13
138	Instruments	30 days	Mon 17/02/14	Tue 18/03/14
139	RAS Pipework in Pipe Gallery Extension	120 days	Mon 17/06/13	Mon 14/10/13
140	Electrical Works	453 days	Thu 19/09/13	Mon 15/12/14
141	SCADA/PLC System	120 days	Mon 18/08/14	Mon 15/12/14
142	**MCC3 Ready**	1 day	Wed 07/05/14	Wed 07/05/14
143	**Testing and Commissioning**	90 days	Tue 16/12/14	Sun 15/03/15
144				
145				
146	**New Mixed Liquor Channels**	**1231 days**	**Tue 01/11/11**	**Sun 15/03/15**
147	**Equipment and Material Delivery to Site**	**839 days**	**Tue 01/11/11**	**Mon 17/02/14**
148	Foam Removal Collector	0 days	Wed 01/05/13	Wed 01/05/13
149	Submersible Mixers	0 days	Tue 01/11/11	Tue 01/11/11
150	Penstock & Actuator	0 days	Thu 01/03/12	Thu 01/03/12
151	Lifting Appliance	0 days	Mon 17/02/14	Mon 17/02/14
152	Pipework & Valves	0 days	Wed 01/08/12	Wed 01/08/12
153	Local Control Panel	0 days	Thu 01/08/13	Thu 01/08/13
154	**Site Possession / Available**	**0 days**	**Tue 31/12/13**	**Tue 31/12/13**
155	Mixed Liquor Channel, Foam Channel & Pillar Box	0 days	Tue 31/12/13	Tue 31/12/13
156	Bunded Area & Shelter for NaOCl Dosing System	0 days	Tue 31/12/13	Tue 31/12/13
157	**Installation**	**646 days**	**Thu 09/05/13**	**Fri 13/02/15**
158	Penstock & Actuactor in Flow Splitter Box (Not Required)	60 days	Tue 31/12/13	Fri 28/02/14
159	Lifting Appliance	30 days	Sat 01/03/14	Sun 30/03/14
160	Submersible Mixers	30 days	Sat 01/03/14	Sun 30/03/14
161	Foam Removal Collector	26 days	Thu 09/05/13	Mon 03/06/13
162	Water Spray System	15 days	Mon 01/12/14	Mon 15/12/14
163	Relocation of Foam Transfer Pumps	30 days	Tue 16/12/14	Wed 14/01/15
164	Relocation of NaOCl Dosing System	30 days	Thu 15/01/15	Fri 13/02/15
165	Local Control Panel & Electrical Installation	90 days	Sun 16/11/14	Fri 13/02/15
166	SCADA/PLC System	60 days	Tue 16/12/14	Fri 13/02/15
167	**Testing and Commissioning**	30 days	Sat 14/02/15	Sun 15/03/15
168				
169				
170	**Existing Aeration Tanks No.1 to 4**	**645 days**	**Tue 01/04/14**	**Tue 05/01/16**
171	**Equipment and Material Delivery to Site**	**0 days**	**Tue 01/04/14**	**Tue 01/04/14**
172	GMS Air Mains	0 days	Tue 01/04/14	Tue 01/04/14
173	Pipework & Valves	0 days	Tue 01/04/14	Tue 01/04/14
174	**Modification Works**	**425 days**	**Fri 07/11/14**	**Tue 05/01/16**
175	**New Air Mains**	**364 days**	**Fri 07/11/14**	**Thu 05/11/15**
176	Steel Bridges (By Civil Contractor) Available for Air Mains	0 days	Fri 07/11/14	Fri 07/11/14
177	GMS Air Mains Installation	61 days	Fri 07/11/14	Tue 06/01/15
178	Connection Existing Air Mains beside RAS Pumping Station (By Civil Contractor)	30 days	Wed 07/10/15	Thu 05/11/15
179	**Aeration Tank No.4**	**91 days**	**Tue 06/01/15**	**Tue 07/04/15**
180	Tank Available for Modification (Drained Down by DSD/ST1)	0 days	Tue 06/01/15	Tue 06/01/15
181	Air Pipework, Butterfly Valves & Air Flowmeters	60 days	Wed 07/01/15	Sat 07/03/15
182	Electrical Installation	45 days	Thu 22/01/15	Sat 07/03/15
183	Testing and Commissioning	31 days	Sun 08/03/15	Tue 07/04/15
184	**Aeration Tank No.3**	**91 days**	**Tue 07/04/15**	**Tue 07/07/15**
185	Tank Available for Modification (Drained Down by DSD/ST1)	0 days	Tue 07/04/15	Tue 07/04/15
186	Air Pipework, Butterfly Valves & Air Flowmeters	60 days	Wed 08/04/15	Sat 06/06/15
187	Electrical Installation	45 days	Thu 23/04/15	Sat 06/06/15
188	Testing and Commissioning	31 days	Sun 07/06/15	Tue 07/07/15
189	**Aeration Tank No.2**	**91 days**	**Tue 07/07/15**	**Tue 06/10/15**
190	Tank Available for Modification (Drained Down by DSD/ST1)	0 days	Tue 07/07/15	Tue 07/07/15
191	Air Pipework, Butterfly Valves, & Air Flowmeters	60 days	Wed 08/07/15	Sat 05/09/15
192	Electrical Installation	45 days	Thu 23/07/15	Sat 05/09/15
193	Testing and Commissioning	31 days	Sun 06/09/15	Tue 06/10/15
194	**Aeration Tank No.1**	**91 days**	**Tue 06/10/15**	**Tue 05/01/16**
195	Tank Available for Modification (Drained Down by DSD/ST1)	0 days	Tue 06/10/15	Tue 06/10/15
196	Air Pipework, Butterfly Valves & Air Flowmeters	60 days	Wed 07/10/15	Sat 05/12/15
197	Electrical Installation	45 days	Thu 22/10/15	Sat 05/12/15
198	Testing and Commissioning	31 days	Sun 06/12/15	Tue 05/01/16
199				
200				



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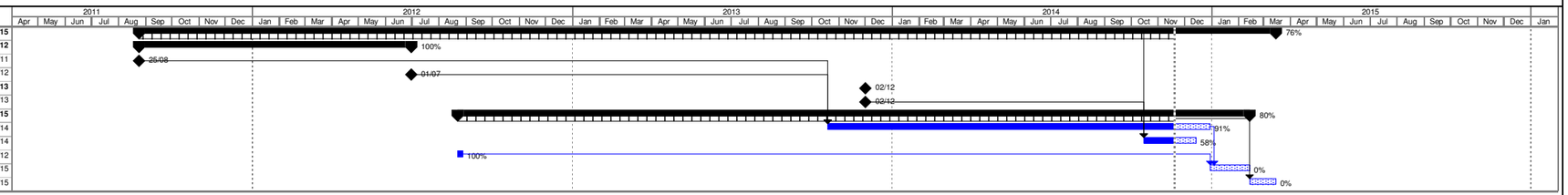
Critical | Critical Split | Critical Progress | Task | Split | Task Progress | Baseline | Baseline Split | Baseline Milestone | Milestone | Summary Progress | Summary | Project Summary | External Tasks | External Milestone | Deadline

DSD Contract : DE/2009/09
Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B

Section III Works Programme

ID	Task Name	Duration	Start	Finish
201	**Filtrate Pumping System (Stage I/II Modification)**	**1299 days**	**Thu 25/08/11**	**Sun 15/03/15**
202	**Equipment and Material Delivery to Site**	**311 days**	**Thu 25/08/11**	**Sun 01/07/12**
203	Submersible Pump	0 days	Thu 25/08/11	Thu 25/08/11
204	Pipework & Valves	0 days	Sun 01/07/12	Sun 01/07/12
205	**Site Possession / Available**	**0 days**	**Mon 02/12/13**	**Mon 02/12/13**
206	Underground Pipework to Stage IV Aeration Tanks (By Civil Contractor)	0 days	Mon 02/12/13	Mon 02/12/13
207	**Installation**	**905 days**	**Thu 23/08/12**	**Fri 13/02/15**
208	Pump Replacement & Pipework Modification at Existing Pump Chamber	437 days	Sun 20/10/13	Tue 30/12/14
209	Filtrate Pipework Installation at Aeration Tanks	60 days	Thu 16/10/14	Sun 14/12/14
210	Existing L.V. Switchboard Modification	6 days	Thu 23/08/12	Tue 28/08/12
211	Electrical Installation	45 days	Wed 31/12/14	Fri 13/02/15
212	**Testing and Commissioning**	30 days	Sat 14/02/15	Sun 15/03/15



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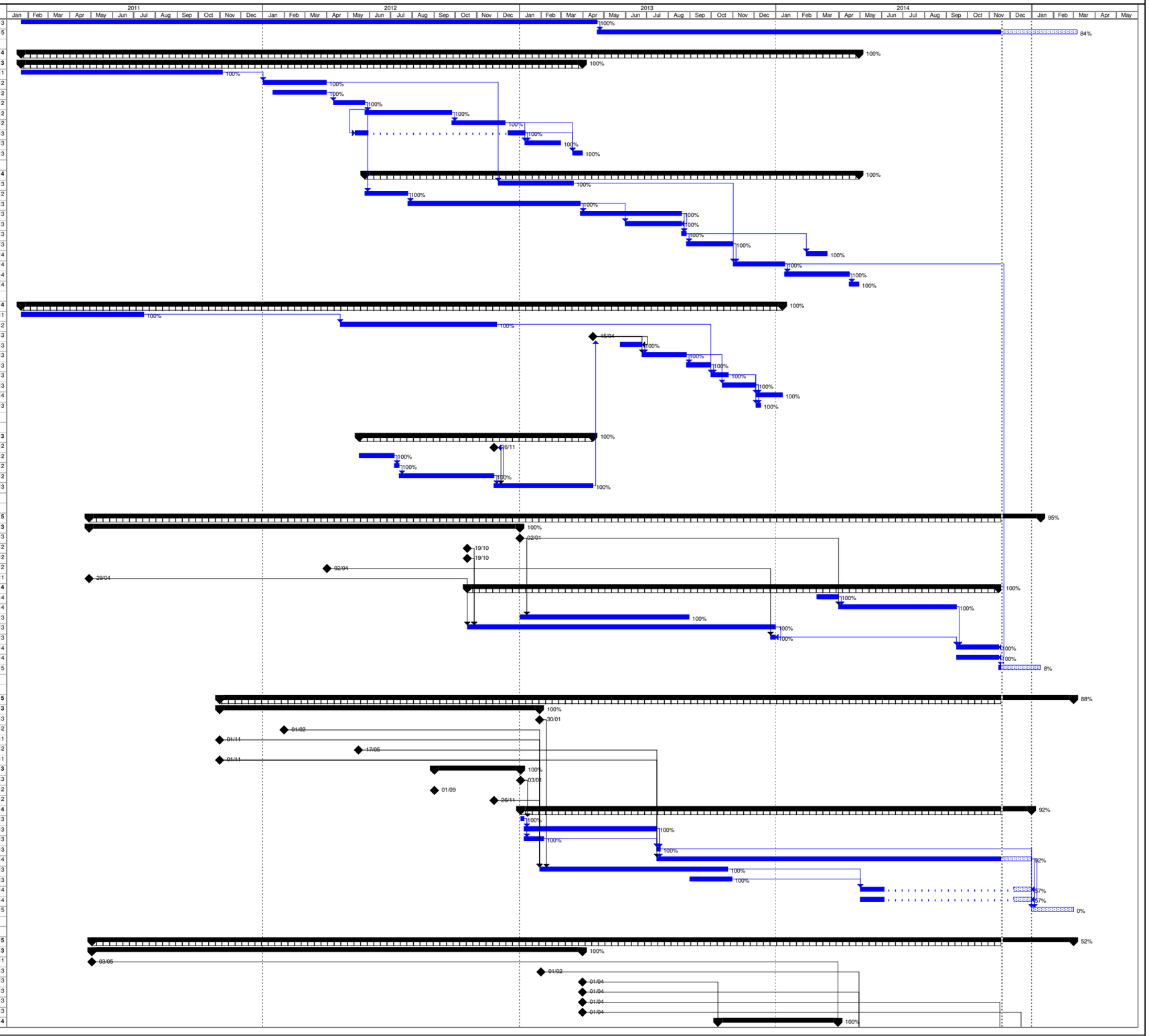
DSD Contract : DE/2009/09
Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B

Section V Works Programme

ID	Task Name	Duration	Start	Finish
1	**Section V of the Works**	821 days	Sat 22/01/11	Sun 21/04/13
2	**EOT Granted**	684 days	Mon 22/04/13	Fri 06/03/15
3				
4	**Modification / Replacement of Existing L.V. Switchboard**	**1194 days**	**Sat 22/01/11**	**Tue 29/04/14**
5	**CBC G/F MCC**	**800 days**	**Sat 22/01/11**	**Sun 31/03/13**
6	Drawing Submission for CLP & DSD Approval	287 days	Sat 22/01/11	Fri 04/11/11
7	Switchboard Manufacture & Delivery to Site	90 days	Mon 02/01/12	Sat 31/03/12
8	Temporary Works Preparation	76 days	Mon 16/01/12	Sat 31/03/12
9	Site Setup of Temporary Backup Facilities & Removal of Existing Switchboard	45 days	Wed 11/04/12	Fri 25/05/12
10	Civil Modification Works (By Civil Contractor)	124 days	Sat 26/05/12	Wed 26/09/12
11	New Switchboard Installation & SAT	76 days	Thu 27/09/12	Tue 11/12/12
12	CLP's Tx Upgrading Works & Cable Connection to New Switchboard	43 days	Sat 12/05/12	Tue 08/01/13
13	Removal of Existing Cables & Installation of New Cables	51 days	Wed 09/01/13	Thu 28/02/13
14	Connect Permanent Power Supply for Existing Small Power D/B	14 days	Mon 18/03/13	Sun 31/03/13
15				
16	**IW 1/F MCC1**	**704 days**	**Sat 26/05/12**	**Tue 29/04/14**
17	Switchboard Manufacture & Delivery to Site	107 days	Sun 02/12/12	Mon 18/03/13
18	Temporary Works Preparation	61 days	Sat 26/05/12	Wed 25/07/12
19	Temporary Works Installation	246 days	Thu 26/07/12	Thu 28/03/13
20	Migration of Power/Control for Existing E&M Equipment to Temporary Panels	144 days	Fri 29/03/13	Mon 19/08/13
21	Relocation of Existing Remote I/O Panel	80 days	Sat 01/06/13	Mon 19/08/13
22	Removal of Existing Switchboard	7 days	Tue 20/08/13	Mon 26/08/13
23	Civil Modification Works (By Civil Contractor)	67 days	Tue 27/08/13	Fri 01/11/13
24	Modification of Exisiting Switchroom Partition	30 days	Fri 14/02/14	Sat 15/03/14
25	New Switchboard Installation & SAT	73 days	Sat 02/11/13	Mon 13/01/14
26	Migration of Power/Control of Existing E&M Equipment to New Switchboard	92 days	Tue 14/01/14	Tue 15/04/14
27	Removal of Existing Cables & Installation of New Cables	14 days	Wed 16/04/14	Tue 29/04/14
28				
29	**IW G/F MCC**	**1085 days**	**Sat 22/01/11**	**Fri 10/01/14**
30	Drawing Submission for CLP & DSD Approval	175 days	Sat 22/01/11	Fri 15/07/11
31	Switchboard Manufacture & Delivery to Site	223 days	Sat 21/04/12	Thu 29/11/12
32	Completion of Genset Replacement	0 days	Mon 15/04/13	Mon 15/04/13
33	Temporary Works Preparation	31 days	Sat 25/05/13	Mon 24/06/13
34	Site Setup of Temporary Backup Facilities & Removal of Existing Switchboard	63 days	Tue 25/06/13	Mon 26/08/13
35	Civil Modification Works (By Civil Contractor)	35 days	Tue 27/08/13	Mon 30/09/13
36	New Switchboard Installation & SAT	25 days	Tue 01/10/13	Fri 25/10/13
37	CLP's Tx Upgrading Works & Cable Connection to New Switchboard	48 days	Thu 17/10/13	Tue 03/12/13
38	Removal of Existing Cables & Installation of New Cables	38 days	Wed 04/12/13	Fri 10/01/14
39	Connect Power Supply for Existing Lighting & Small Power D/B	7 days	Wed 04/12/13	Tue 10/12/13
40				
41				
42	**Replacement of Emergency Genset for IW G/F MCC**	**333 days**	**Fri 18/05/12**	**Mon 15/04/13**
43	New 1500kVA Genset & Accessories Delivery to Site	0 days	Mon 26/11/12	Mon 26/11/12
44	Site Setup of Power Backup Facilities by Tempoary Genset	50 days	Fri 18/05/12	Fri 06/07/12
45	Removal of Existing 750kVA Genset	7 days	Sat 07/07/12	Fri 13/07/12
46	Civil Modification Works (By Civil Contractor)	135 days	Sat 14/07/12	Sun 25/11/12
47	Installation of New Genset & SAT	141 days	Mon 26/11/12	Mon 15/04/13
48				
49				
50	**Inlet Works**	**1356 days**	**Fri 29/04/11**	**Tue 13/01/15**
51	**Equipment and Material Deliver to Site**	**614 days**	**Fri 29/04/11**	**Wed 02/01/13**
52	Screw Pumps	0 days	Wed 02/01/13	Wed 02/01/13
53	Mechanical Bar Screen	0 days	Fri 19/10/12	Fri 19/10/12
54	Screw Conveyor	0 days	Fri 19/10/12	Fri 19/10/12
55	Actuator for Existing Penstocks	0 days	Mon 02/04/12	Mon 02/04/12
56	Ultrasonic Level Sensors	0 days	Fri 29/04/11	Fri 29/04/11
57	**Installation**	**757 days**	**Fri 19/10/12**	**Fri 14/11/14**
58	Temporary Flow Diversion for Lower Wet Well	31 days	Sat 01/03/14	Mon 31/03/14
59	Screw Pump Installation & Screeding Works at Lower Wet Well	168 days	Tue 01/04/14	Mon 15/09/14
60	Screw Pump Installation & Screeding Works at Upper Wet Well	241 days	Wed 02/01/13	Fri 30/08/13
61	Installation of Mechanical Bar Screen, Screw Conveyor & Ultrasonic Level Sensors	439 days	Fri 19/10/12	Tue 31/12/13
62	Installation of Actuators for Existing Penstocks	7 days	Wed 25/12/13	Tue 31/12/13
63	Electrical Installation	60 days	Tue 16/09/14	Fri 14/11/14
64	SCADA/PLC System	60 days	Tue 16/09/14	Fri 14/11/14
65	**Testing and Commissioning**	60 days	Sat 15/11/14	Tue 13/01/15
66				
67				
68	**Filtrate Treatment Plant (SBR)**	**1217 days**	**Tue 01/11/11**	**Sun 01/03/15**
69	**Equipment and Material Delivery to Site**	**456 days**	**Tue 01/11/11**	**Wed 30/01/13**
70	Air Blower	0 days	Wed 30/01/13	Wed 30/01/13
71	Filtrate Transfer Pump	0 days	Wed 01/02/12	Wed 01/02/12
72	Filtrate Inlet Sump Pump	0 days	Tue 01/11/11	Tue 01/11/11
73	Air Diffusers	0 days	Thu 17/05/12	Thu 17/05/12
74	Pipework & Valves	0 days	Tue 01/11/11	Tue 01/11/11
75	**Site Possession / Available**	**123 days**	**Sat 01/09/12**	**Thu 03/01/13**
76	SBR Tank	0 days	Thu 03/01/13	Thu 03/01/13
77	Civil Works Provision (By Civil Contractor)	0 days	Sat 01/09/12	Sat 01/09/12
78	Existing Plant Rooms	0 days	Mon 26/11/12	Mon 26/11/12
79	**Installation**	**728 days**	**Thu 03/01/13**	**Wed 31/12/14**
80	Take Down of Existing Decanter	5 days	Thu 03/01/13	Mon 07/01/13
81	Modification of Concrete Corbels & Cast-in Puddle Flanged Pipe (By Civil Contractor)	189 days	Tue 08/01/13	Mon 15/07/13
82	Off-site Modification of Existing Decanter	28 days	Tue 08/01/13	Mon 04/02/13
83	Installation of Modified Decanter	5 days	Tue 16/07/13	Sat 20/07/13
84	Modification of Air Diffusers	534 days	Tue 16/07/13	Wed 31/12/14
85	Installation of Air Blower, Filtrate Transfer Pump, Filtrate Inlet Sump Pump & Associated Pipework	268 days	Wed 30/01/13	Thu 24/10/13
86	Existing L.V. Switchboard Modification	60 days	Sun 01/09/13	Wed 30/10/13
87	Electrical Installation	60 days	Fri 02/05/14	Wed 31/12/14
88	SCADA/PLC System	60 days	Fri 02/05/14	Wed 31/12/14
89	**Testing and Commissioning**	60 days	Thu 01/01/15	Sun 01/03/15
90				
91				
92	**Primary Sludge Gravity Thickener**	**1399 days**	**Tue 03/05/11**	**Sun 01/03/15**
93	**Equipment and Material Delivery to Site**	**699 days**	**Tue 03/05/11**	**Mon 01/04/13**
94	Knife Gate Valves & Actuators	0 days	Tue 03/05/11	Tue 03/05/11
95	Deodorizing Unit, Extraction Fan & Accessories	0 days	Fri 01/02/13	Fri 01/02/13
96	Pipework & Valves	0 days	Mon 01/04/13	Mon 01/04/13
97	Air Ductwork & Accessories	0 days	Mon 01/04/13	Mon 01/04/13
98	Local Control Panel for DO Unit	0 days	Mon 01/04/13	Mon 01/04/13
99	CCTV System	0 days	Mon 01/04/13	Mon 01/04/13
100	**Site Possession / Available**	**171 days**	**Fri 11/10/13**	**Mon 31/03/14**



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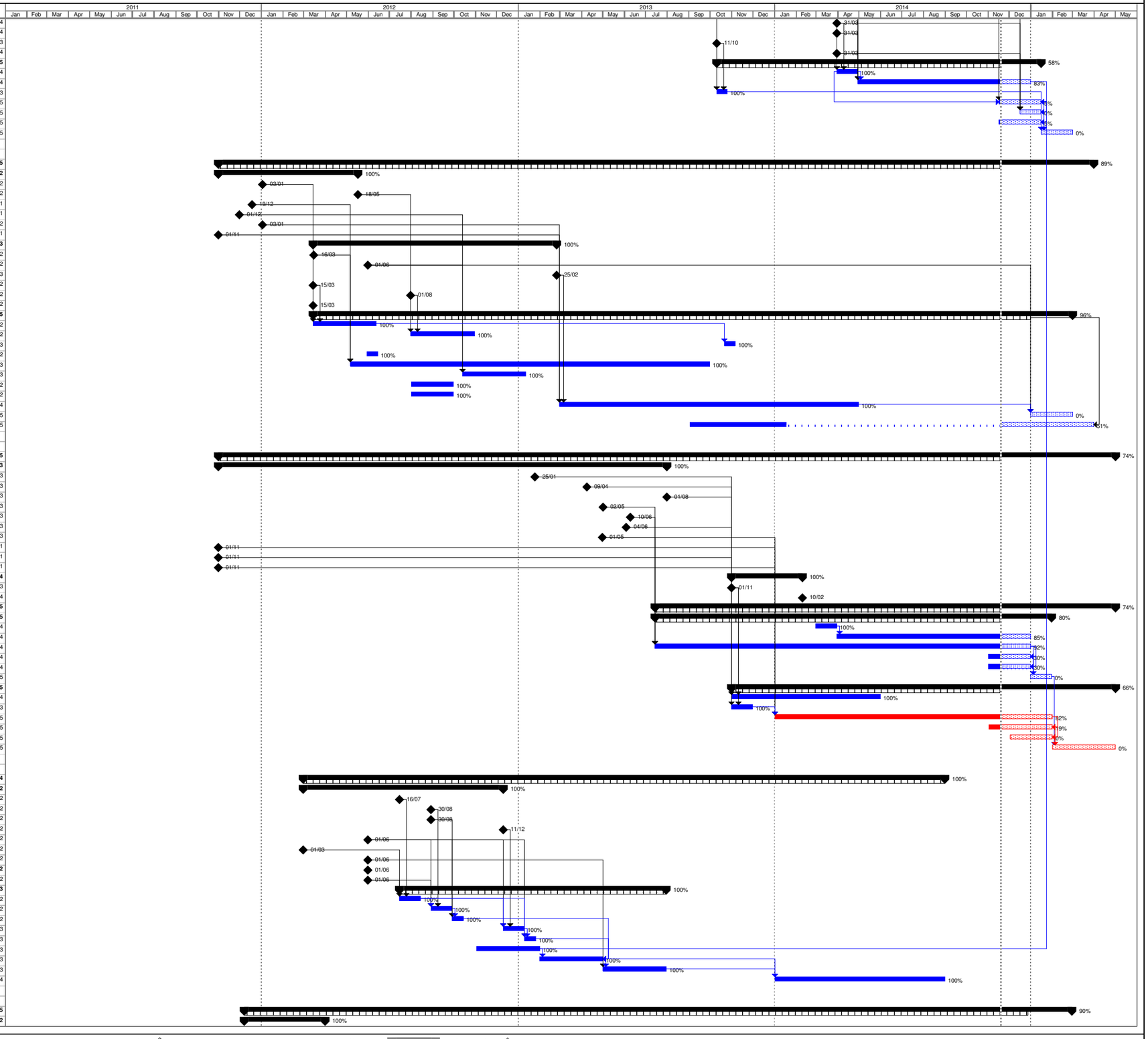
DSD Contract : DE/2009/09
Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B

Section V Works Programme

ID	Task Name	Duration	Start	Finish
101	Decanting Chamber	0 days	Mon 31/03/14	Mon 31/03/14
102	Concrete Plinth for DO System	0 days	Mon 31/03/14	Mon 31/03/14
103	Civil Works Provision at Existing Valve Chamber (By Civil Contractor)	0 days	Fri 11/10/13	Fri 11/10/13
104	Cable Drawpit & Ducts	0 days	Mon 31/03/14	Mon 31/03/14
105	**Installation**	**462 days**	**Fri 11/10/13**	**Thu 15/01/15**
106	Knife Gate Valves & Actuators	30 days	Mon 31/03/14	Tue 29/04/14
107	Deodorizing Unit, Air Ductwork & Associated Accessories	246 days	Wed 30/04/14	Wed 31/12/14
108	Pipework Installation at Existing Valve Chamber	15 days	Fri 11/10/13	Fri 25/10/13
109	Electrical Installation	60 days	Mon 17/11/14	Thu 15/01/15
110	CCTV Installation	30 days	Wed 17/12/14	Thu 15/01/15
111	SCADA/PLC System	60 days	Mon 17/11/14	Thu 15/01/15
112	**Testing and Commissioning**	45 days	Fri 16/01/15	Sun 01/03/15
113				
114				
115	**Biogas System**	**1247 days**	**Tue 01/11/11**	**Tue 31/03/15**
116	**Equipment and Material Delivery to Site**	**199 days**	**Tue 01/11/11**	**Fri 18/05/12**
117	Waste Gas Burner for Stage I/II	0 days	Tue 03/01/12	Tue 03/01/12
118	Waste Gas Burner for Stage IV	0 days	Fri 18/05/12	Fri 18/05/12
119	Biogas Holding Tank Materials	0 days	Mon 19/12/11	Mon 19/12/11
120	Flame Arrestor and Condensation Pot	0 days	Thu 01/12/11	Thu 01/12/11
121	Biogas Booster	0 days	Tue 03/01/12	Tue 03/01/12
122	Pipework & Valves	0 days	Tue 01/11/11	Tue 01/11/11
123	**Site Possession / Available**	**347 days**	**Thu 15/03/12**	**Mon 25/02/13**
124	Biogas Holding Tank Concrete Slab	0 days	Fri 16/03/12	Fri 16/03/12
125	Biogas Holding Tank Valve Chamber	0 days	Fri 01/06/12	Fri 01/06/12
126	Gas Transfer Station	0 days	Mon 25/02/13	Mon 25/02/13
127	Concrete Plinth for Waste Gas Burner in Stage I/II	0 days	Thu 15/03/12	Thu 15/03/12
128	Concrete Plinth for Waste Gas Burner in Stage IV	0 days	Wed 01/08/12	Wed 01/08/12
129	Concrete Plinth for Relocated DO in Stage I/II	0 days	Thu 15/03/12	Thu 15/03/12
130	**Installation**	**1082 days**	**Thu 15/03/12**	**Sun 01/03/15**
131	Waste Gas Burner Installation in Stage I/II	90 days	Thu 15/03/12	Tue 12/06/12
132	Waste Gas Burner Installation in Stage IV	91 days	Wed 01/08/12	Tue 30/10/12
133	Dismantle of Existing Waste Gas Burner in Stage I/II	15 days	Tue 22/10/13	Tue 05/11/13
134	Dismantle of Existing Waste Gas Burner in Stage IV	15 days	Thu 31/05/12	Thu 14/06/12
135	Biogas Holding Tank Installation	512 days	Mon 07/05/12	Mon 30/09/13
136	Installation in New Valve Chamber for New Biogas Holding Tank	90 days	Sun 14/10/12	Fri 11/01/13
137	Installation in Existing Valve Chamber No.1 & 2 for Existing Biogas Holding Tank	60 days	Thu 02/08/12	Sun 30/09/12
138	Installation in Pipe Gallery	60 days	Thu 02/08/12	Sun 30/09/12
139	Installation in Gas Transfer Station	426 days	Fri 01/03/13	Wed 30/04/14
140	Methane Gas Detection System Installation	60 days	Thu 01/01/15	Sun 01/03/15
141	**Testing and Commissioning**	270 days	Tue 03/09/13	Tue 31/03/15
142				
143				
144	**Sludge Digestion Tank No.3 and Hot Water Circulation System**	**1278 days**	**Tue 01/11/11**	**Fri 01/05/15**
145	**Equipment and Material Delivery to Site**	**639 days**	**Tue 01/11/11**	**Thu 01/08/13**
146	Sludge Mixers	0 days	Fri 25/01/13	Fri 25/01/13
147	Draft Tube & Cast-in Items	0 days	Tue 09/04/13	Tue 09/04/13
148	GRP Platform for Sludge Mixers	0 days	Thu 01/08/13	Thu 01/08/13
149	Hot Water Boiler	0 days	Thu 02/05/13	Thu 02/05/13
150	Hot Water Recirculation Pump	0 days	Mon 10/06/13	Mon 10/06/13
151	Heat Exchanger	0 days	Tue 04/06/13	Tue 04/06/13
152	Pipework & Valves	0 days	Wed 01/05/13	Wed 01/05/13
153	Flame Arrestor & Condensation Pot	0 days	Tue 01/11/11	Tue 01/11/11
154	Inspection Window	0 days	Tue 01/11/11	Tue 01/11/11
155	Pressure Vacuum Relief Valve c/w Flame Arrestor	0 days	Tue 01/11/11	Tue 01/11/11
156	**Site Possession / Available**	**101 days**	**Fri 01/11/13**	**Mon 10/02/14**
157	Sludge Digestion Tank No.3 (Tank Top)	0 days	Fri 01/11/13	Fri 01/11/13
158	Sludge Digestion Tank No.3 (Remaining Portions of Site)	0 days	Mon 10/02/14	Mon 10/02/14
159	**Site Works**	**656 days**	**Mon 15/07/13**	**Fri 01/05/15**
160	**Hot Water Circulation System**	**565 days**	**Mon 15/07/13**	**Fri 30/01/15**
161	Temporary Works to Facilitate Civil Modification Works	30 days	Sat 01/03/14	Sun 30/03/14
162	Civil Modification Works (VO)	276 days	Mon 31/03/14	Wed 31/12/14
163	Installation of Hot Water Boiler, Recirculation Pump & Associated Pipework	535 days	Mon 15/07/13	Wed 31/12/14
164	Electrical Installation	60 days	Sun 02/11/14	Wed 31/12/14
165	SCADA/PLC System	60 days	Sun 02/11/14	Wed 31/12/14
166	Testing and Commissioning	30 days	Thu 01/01/15	Fri 30/01/15
167	**Sludge Digestion Tank No.3**	**547 days**	**Fri 01/11/13**	**Fri 01/05/15**
168	Installation of Draft Tubes, Sludge Mixers, Heat Exchangers & Inspection Window	212 days	Fri 01/11/13	Sat 31/05/14
169	Installation of GRP Platform	30 days	Fri 01/11/13	Sat 30/11/13
170	Installation of Sludge, Biogas, Hot Water Recirculation, FeCl3 Dosing Pipework & Instruments	395 days	Thu 02/01/14	Sat 31/01/15
171	Electrical Installation	90 days	Mon 03/11/14	Sat 31/01/15
172	SCADA/PLC System	60 days	Wed 03/12/14	Sat 31/01/15
173	Testing and Commissioning	90 days	Sun 01/02/15	Fri 01/05/15
174				
175				
176	**SAS Thickening System**	**914 days**	**Thu 01/03/12**	**Sun 31/08/14**
177	**Equipment & Material Delivery to Site**	**285 days**	**Thu 01/03/12**	**Tue 11/12/12**
178	Centrifuge	0 days	Mon 16/07/12	Mon 16/07/12
179	SAS Feed Pump	0 days	Thu 30/08/12	Thu 30/08/12
180	Polyelectrolyte Feed Pump	0 days	Thu 30/08/12	Thu 30/08/12
181	Thickened Sludge Storage Tank	0 days	Tue 11/12/12	Tue 11/12/12
182	Pipework & Valves	0 days	Fri 01/06/12	Fri 01/06/12
183	Vibration Monitoring System	0 days	Thu 01/03/12	Thu 01/03/12
184	PLC System M Panel	0 days	Fri 01/06/12	Fri 01/06/12
185	**Site Possession / Available**	**0 days**	**Fri 01/06/12**	**Fri 01/06/12**
186	Civil Works Provision (By Civil Contractor)	0 days	Fri 01/06/12	Fri 01/06/12
187	**Installation**	**380 days**	**Mon 16/07/12**	**Tue 30/07/13**
188	Centrifuge, Vibration Monitoring System & Associated Accessories	30 days	Mon 16/07/12	Tue 14/08/12
189	SAS Feed Pump & Associated Pipework	30 days	Thu 30/08/12	Fri 28/09/12
190	Polyelectrolyte Feed Pump & Associated Pipework	16 days	Sat 29/09/12	Sun 14/10/12
191	Thickened Sludge Storage Tank & Associated Accessories	30 days	Tue 11/12/12	Wed 09/01/13
192	Centrate Pipework	16 days	Thu 10/01/13	Fri 25/01/13
193	Existing L.V. Switchboard Modification	90 days	Sat 03/11/12	Thu 31/01/13
194	Electrical Installation	90 days	Fri 01/02/13	Wed 01/05/13
195	SCADA/PLC System	90 days	Thu 02/05/13	Tue 30/07/13
196	**Testing & Commissioning**	242 days	Thu 02/01/14	Sun 31/08/14
197				
198				
199	**Sludge Dewatering System**	**1179 days**	**Thu 08/12/11**	**Sat 28/02/15**
200	**Equipment & Material Delivery to Site**	**115 days**	**Thu 08/12/11**	**Sun 01/04/12**



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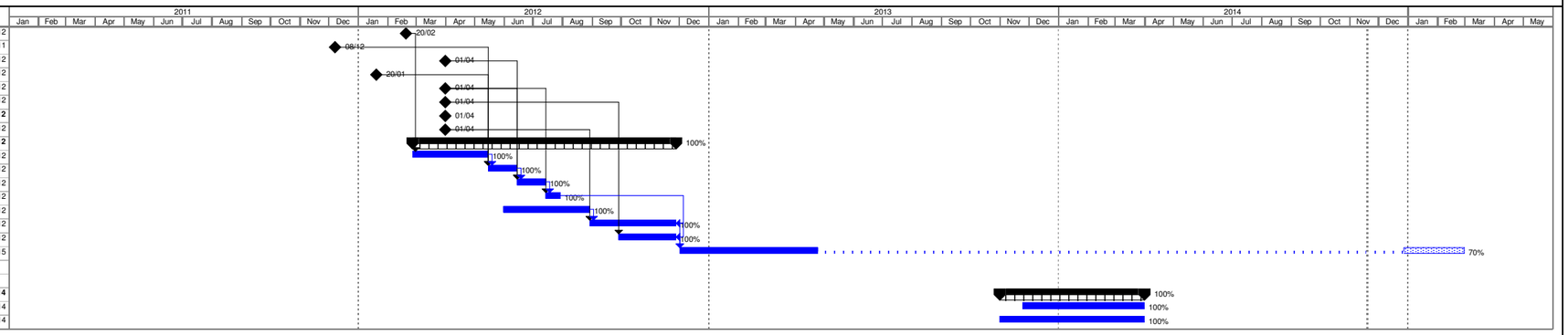
DSD Contract : DE/2009/09
Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B

Section V Works Programme

ID	Task Name	Duration	Start	Finish
201	Membrane Filter Press	0 days	Mon 20/02/12	Mon 20/02/12
202	Sludge Feed Pump	0 days	Thu 08/12/11	Thu 08/12/11
203	Polyelectrolyte Dosing Pump	0 days	Sun 01/04/12	Sun 01/04/12
204	Flocctronic Sensor c/w Inline Mixer	0 days	Fri 20/01/12	Fri 20/01/12
205	Pipework & Valves	0 days	Sun 01/04/12	Sun 01/04/12
206	PLC System K Panel	0 days	Sun 01/04/12	Sun 01/04/12
207	**Site Possession / Available**	**0 days**	**Sun 01/04/12**	**Sun 01/04/12**
208	Civil Works Provision (By Civil Contractor)	0 days	Sun 01/04/12	Sun 01/04/12
209	**Installation**	**275 days**	**Mon 27/02/12**	**Tue 27/11/12**
210	Membrane Filter Press	79 days	Mon 27/02/12	Tue 15/05/12
211	Sludge Feed Pump & Associated Pipework	30 days	Wed 16/05/12	Thu 14/06/12
212	Polyelectrolyte Dosing Pump & Associated Pipework	30 days	Fri 15/06/12	Sat 14/07/12
213	Filtrate Pipework	15 days	Sun 15/07/12	Sun 29/07/12
214	Existing L.V. Switchboard Modification & Electrical Installation	90 days	Fri 01/06/12	Wed 29/08/12
215	Electrical Installation	90 days	Thu 30/08/12	Tue 27/11/12
216	SCADA/PLC System	60 days	Sat 29/09/12	Tue 27/11/12
217	**Testing and Commissioning**	207 days	Sun 02/12/12	Sat 28/02/15
218				
219				
220	**Miscellaneous**	**151 days**	**Fri 01/11/13**	**Mon 31/03/14**
221	Hybrid Street Light Installation, Testing & Commissioning	127 days	Mon 25/11/13	Mon 31/03/14
222	Automatic Weather Station Installation, Testing & Commissioning	151 days	Fri 01/11/13	Mon 31/03/14



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