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

Quarterly Environmental Monitoring and Audit Report (January to March 2014)

(Version 1.0)

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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TABLE OF CONTENTS

LIST OF TABLE

LIST OF FIGURES

LIST OF APPENDICES

EXECUTIVE SUMMARY

Introduction

1. This is the 11th Quarterly Environmental Monitoring and Audit (EM&A) Summary Report prepared by Cinotech Consultants Limited (the Environmental Team, ET) 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 summary report presents EM&A works performed in the period between January and March 2014.

2. The construction activities undertaken in the reporting quarter include:

- E&M installation of FC No.7B to 10B;
- E&M installation for RAS Pump No.4 and 5 at Stage IV RAS Pumping Station;
- E&M installation of Aeration Tank No. 5, 6 & 7;
- BS & FS installation at Pipe Gallery for new Aeration Tanks No.5 to 7;
- E&M installation of Primary Sedimentation Tank No. 5;
- E&M installation at Pipe Gallery for new PST No.5;
- BS & FS installation at Pipe Gallery for new PST No.5;
- E&M installation of new Air Blower No.2;
- T&C of new Air Blower No.5;
- T&C of new Centrifuge No.4 for Sludge Thickening System;
- E&M installation for new Sludge Digestion Tank No.3;
- Installation of mechanical screen and shaftless conveyor at Stage IV Screening House;
- Installation of Screw Pump No.4 at Stage IV Inlet Works;
- Dismantle work for existing Air Blower No.1; and
- E&M installation of filtrate treatment plant (SBR).

Environmental Monitoring and Audit Works

3. Environmental monitoring and audit works for the Project was performed regularly as stipulated in the 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 quarter is tabulated in **Table I**.

Table I Summary Table for Events Recorded in the Reporting Quarter

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

Construction Noise

5. All construction noise monitoring was conducted as scheduled in the reporting quarter. No Action Level (public complaint) / Limit Level exceedance was recorded in the reporting quarter.

Air Quality

6. The air quality monitoring was conducted as scheduled in this reporting period. No Action/Limit Level exceedance was recorded in the reporting period.

Environmental Complaint and Prosecution

7. No environmental complaint, prosecution or notification of summons was received in this reporting quarter.

Environmental Licensing and Permitting

8. Environmental related licenses/permits granted to the Project include the Environmental Permit (EP) for the Project and Registration of Chemical Waste Producer.

Future Key Issues

9. The anticipated environmental impacts will be mainly on ponding water and surface runoff after rain and the noise nuisance from the major construction activities will be undertaken in the coming quarter, including:

- E&M installation of FC No.7B to 10B;
- E&M installation for RAS Pump No.4 and 5 at Stage IV RAS Pumping Station;
- E&M installation of Aeration Tank No. 5, 6 & 7;
- BS & FS installation at Pipe Gallery for new Aeration Tanks No.5 to 7;
- E&M installation of Primary Sedimentation Tank No. 5;
- E&M installation at Pipe Gallery for new PST No.5;
- BS & FS installation at Pipe Gallery for new PST No.5;
- E&M installation of new Air Blower No.2;
- Dismantle work for existing Air Blower No.1;
- T&C of new Centrifuge No.4 for Sludge Thickening System;
- Installation of mechanical screen and shaftless conveyor at Stage IV Screening House;
- Installation of Screw Pump No.4 at Stage IV Inlet Works; and
- E&M installation for new Sludge Digestion Tank No.3.

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/day and 130,000 m^3/day 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 11th quarterly EM&A summary report summarizing the EM&A works for the Project between January and March 2014.

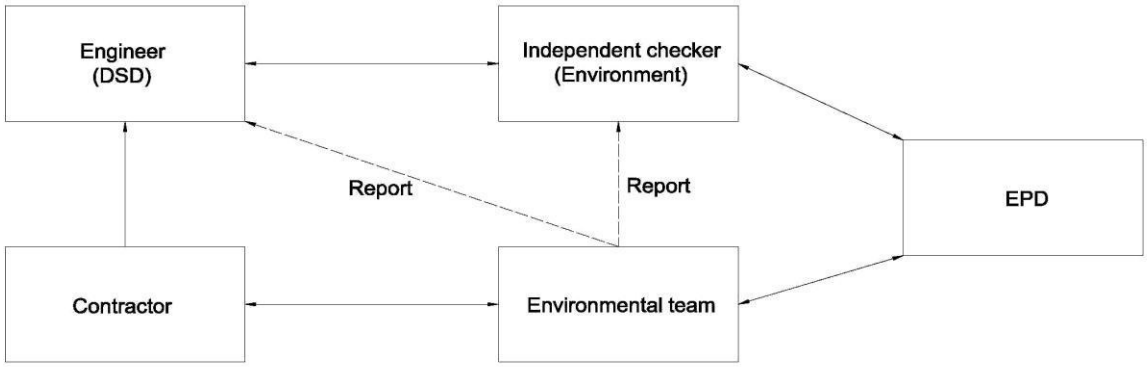
Project Organizations

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. Edmond PUT	Project Coordinator and Audit Team Leader	2151 2035	
		Mr. Henry LEUNG	Monitoring Team Leader	2151 2087	
Arup	Independent Environmental Checker	Mr. Coleman NG	Independent Environmental Checker	2268 3097	2865 6493
		Mr. Ken LEE	Assistant to Independent Environmental Checker	2268 3573	
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	6393 2904	

Construction Programme and Synopsis of Work

1.9 The construction programme is presented in **Appendix A**. The site activities undertaken during the reporting quarter included:

- E&M installation of FC No.7B to 10B;
- E&M installation for RAS Pump No.4 and 5 at Stage IV RAS Pumping Station;
- Installation of E&M equipment in Aeration Tank No. 5, 6 & 7;
- BS & FS installation at Pipe Gallery for new Aeration Tanks No.5 to 7;
- RAS pipework installation at Pipe Gallery for new Aeration Tanks No.5 to 7;
- E&M installation of Primary Sedimentation Tank No. 5;
- BS & FS installation at Pipe Gallery for new PST No.5;
- Pipework installation at Pipe Gallery for new PST No.5;
- E&M installation at Pipe Gallery for new PST No.5;
- E&M installation of new Air Blower No.2 and 5;
- Installation of MCC5 at Stage IV PST Pipe Gallery;
- BS & FS installation at Pipe Gallery for new PST No.5;
- Electrical load diversion work for replacement of existing MCC2 Extension at CBC

1/F Switchroom;
- Electrical load diversion work for replacement of existing MCC3 at RAS Pumping Station;
- Installation of MCC at Stage IV Inlet Works G/F Switchroom;
- Installation of MCC1 at Stage IV Inlet Works 1/F Switchroom;
- Cabling work from CBC to Chemical House;
- Replacement of power cable from Effluent Pumping Station Main Switchroom to Effluent Pumping Station;
- Installation of new E&M equipment at Filtrate Treatment Plant (SBR);
- Fabrication of bio-gas holder on site;
- E&M installation for new Sludge Digestion Tank No.3;
- BS & FS installation in new Gas Transfer Station;
- BS & FS installation in new Chemical and Oil Store; and
- Hybrid street light installation beside existing Sludge Thickening House.

Summary of EM&A Requirements

1.10 The EM&A programme requires construction phase air quality, noise monitoring and landfill gas 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 4 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 period.

2. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

Monitoring Parameters and Monitoring Locations

2.1 The EM&A Manual designate locations for the ET to monitor environmental impacts in terms of noise and air quality due to the Project. The Project area and monitoring locations are depicted in **Figure 1.2**. **Appendix B** gives details of monitoring requirements.

2.2 In accordance with clause 8.8 of the EM&A Manual, the number and location of the monitoring stations and parameters can be referred to Monthly EM&A reports in order to cater for any changes in the surrounding environmental and the nature of works in progress. In this reporting period, there is no alteration made on changing the location of the monitoring stations.

Monitoring Methodology and Calibration Details

2.3 Monitoring works/equipments were conducted/calibrated regularly in compliance with the EM&A Manual's requirements. Monitoring methodologies and calibration details can be referred to Monthly EM&A reports. Valid calibration certificates were attached in the appendices of the relevant Monthly EM&A reports.

Environmental Quality Performance Limits (Action and Limit Levels)

2.4 The environmental quality performance limits, i.e. Action and Limit Levels were derived from the baseline monitoring results. Should the measured environmental quality parameters exceed the Action/Limit Levels, the respective action plans would be implemented. The Action/Limit Levels for each environmental parameter are given in **Appendix C**.

Environmental Mitigation Measures

2.5 Relevant mitigation measures as recommended in the project EIA report have been stipulated in the EM&A Manual for the Contractor to implement. A summary of the Updated Environmental Mitigation Implementation Schedule (EMIS) is given in **Appendix H**.

3. MONITORING RESULTS

Weather Conditions

3.1 The weather during monitoring sessions was mainly sunny or cloudy. The weather conditions for each individual monitoring session were presented in corresponding of Monthly EM&A Reports.

Air Quality

3.2 Air quality monitoring was conducted as scheduled in the reporting period.

3.3 Graphical presentations of 1-hour TSP and 24-hour TSP monitoring results are shown in **Appendices D** and **E**, respectively.

3.4 All measured 1-hour and 24-hour TSP levels were below the Action/Limit Levels. No exceedance was recorded in the reporting quarter.

Construction Noise

3.5 All construction noise monitoring was conducted as scheduled in the reporting period.

3.6 Graphical representations of the monitoring results are shown in **Appendix F**. No Action Level (public complaint) / Limit Level exceedance was recorded in the reporting period.

4. AUDIT RESULTS

Implementation Status of Environmental Mitigation Measures

4.1 The implementation status of environmental mitigation measures (EMIS) is given in **Appendix G**.

Site Audit Summary

4.2 During site inspections in the reporting period, no non-conformance was identified. The observations and recommendations made in each site audit session in the reporting period are summarized in **Table 4.1**.

Table 4.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	29 January 2014	Reminder: General refuse near JEC site office should be cleared.	Follow up action is needed in the next reporting month.
	14 February 2014	Reminder: Pond water near JEC site office should be cleared.	The observation was observed improved/rectified by the Contractor during the audit session on 18 February 2014.
	18 February 2014	Reminder: Pond water should be cleared. (SAS Thickening House)	The observation was observed improved/rectified by the Contractor during the audit session on 25 February 2014.
	13 March 2014	Reminder: General reuse should be collected and sorted for recycling. (Near JEC site office)	The observation was observed improved/rectified by the Contractor during the audit session on 20 March 2014.
Air Quality	N/A	N/A	N/A
Noise	N/A	N/A	N/A
Waste / Chemical Management	31 December 2013	Reminder: Construction wastes should be cleared. (Aeration Tanks)	The observation was observed improved/rectified by the Contractor during the audit session on 3 January 2014.
	23 January 2014	Reminder: Drip tray should be provided to chemical containers near JEC site office.	The observation was observed improved/rectified by the Contractor during the audit session on 29 January 2014.
	23 January 2014	Reminder: Drip tray should be provided to chemical containers near JEC site office.	The observation was observed improved/rectified by the Contractor during the audit session on 29 January 2014.
	13 March 2014	Reminder: General reuse should be collected and sorted for recycling. (Near JEC site office)	The observation was observed improved/rectified by the Contractor during the audit session on 20 March 2014.
Permit/Licenses	N/A	N/A	N/A

Status of Environmental Licensing and Permitting

4.3 Environmental licenses and permits including the Environmental Permit (EP) and Registration of Chemical Waste Producer were in place and valid during the reporting quarter. A summary of environmental licensing and permit status is given in **Appendix H**.

Advice on Waste Management Status

4.4 No inert C&D waste was disposed in the reporting period. 3.5 tonnes of general refuse was disposed in the reporting period. No chemical waste was generated in the reporting period. The amount of wastes generated by the activities of the Project in the reporting period fulfills the requirement of estimated volume of excavated material in EIA Report. The amount of wastes generated by the activities of the Project in the reporting period was attached in the appendices of the Monthly Reports for January to March 2014. Waste flow table please refer to **Appendix I**.

5. NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS (ACTION AND LIMIT LEVELS)

Summary of Exceedances

5.1 Environmental monitoring works were performed in the reporting period and all monitoring results were checked and reviewed. A summary of exceedance is attached in **Appendix J**.

5.2 All measured 1-hour and 24-hour TSP levels were below the Action/Limit Levels. No exceedance was recorded in the reporting period.

5.3 No Action/Limit Level exceedance for the construction noise was recorded in the reporting period.

Review of the Reasons for and the Implications of Non-compliance

5.4 There was no non-compliance from the site audits in the reporting quarter. The observations and recommendations made in each audit session were attached in the Monthly Reports.

6. ENVIRONMENTAL COMPLAINTS AND PROSECUTIONS

6.1 No environmental related complaint, prosecution or notification of summons was received in the reporting quarter.

7. COMMENTS, CONCLUSIONS AND RECOMMENDATIONS

7.1 Environmental monitoring and audit works were performed in the reporting quarter. The EM&A program was strictly following the requirement of methodology in EM&A manual. The monitoring work was considered as effective. In addition, site inspections were conducted on a weekly basis. The results were reviewed and checked.

Effectiveness of Mitigation Measures

7.2 The mitigation measures recommended in the EIA report and required by the EP are considered effective in minimizing environmental impacts. The Contractor has implemented the recommended mitigation measures except those mitigation measures not applicable at this stage.

Conclusion

7.3 All measured 1-hour and 24-hour TSP levels were below the Action/Limit Levels. No exceedance was recorded in the reporting quarter.

7.4 All measured noise levels were below the Action/Limit Levels. No exceedance was recorded in the reporting quarter.

7.5 There was no environmental complaint, prosecution or notification of summons received.

7.6 The anticipated environmental impacts will be mainly on dust emission and accumulation of waste construction materials. The major construction activities will be undertaken in the coming quarter, including:

- E&M installation of FC No.7B to 10B;
- E&M installation for RAS Pump No.4 and 5 at Stage IV RAS Pumping Station;
- E&M installation of Aeration Tank No. 5, 6 & 7;
- BS & FS installation at Pipe Gallery for new Aeration Tanks No.5 to 7;
- E&M installation of Primary Sedimentation Tank No. 5;
- E&M installation at Pipe Gallery for new PST No.5;
- BS & FS installation at Pipe Gallery for new PST No.5;
- E&M installation of new Air Blower No.2;
- Dismantle work for existing Air Blower No.1;
- T&C of new Centrifuge No.4 for Sludge Thickening System;
- Installation of mechanical screen and shaftless conveyor at Stage IV Screening House;
- Installation of Screw Pump No.4 at Stage IV Inlet Works; and
- E&M installation for new Sludge Digestion Tank No.3.

Recommendations

7.7 According to the environmental audit sessions performed in the reporting period, the following recommendations were made:

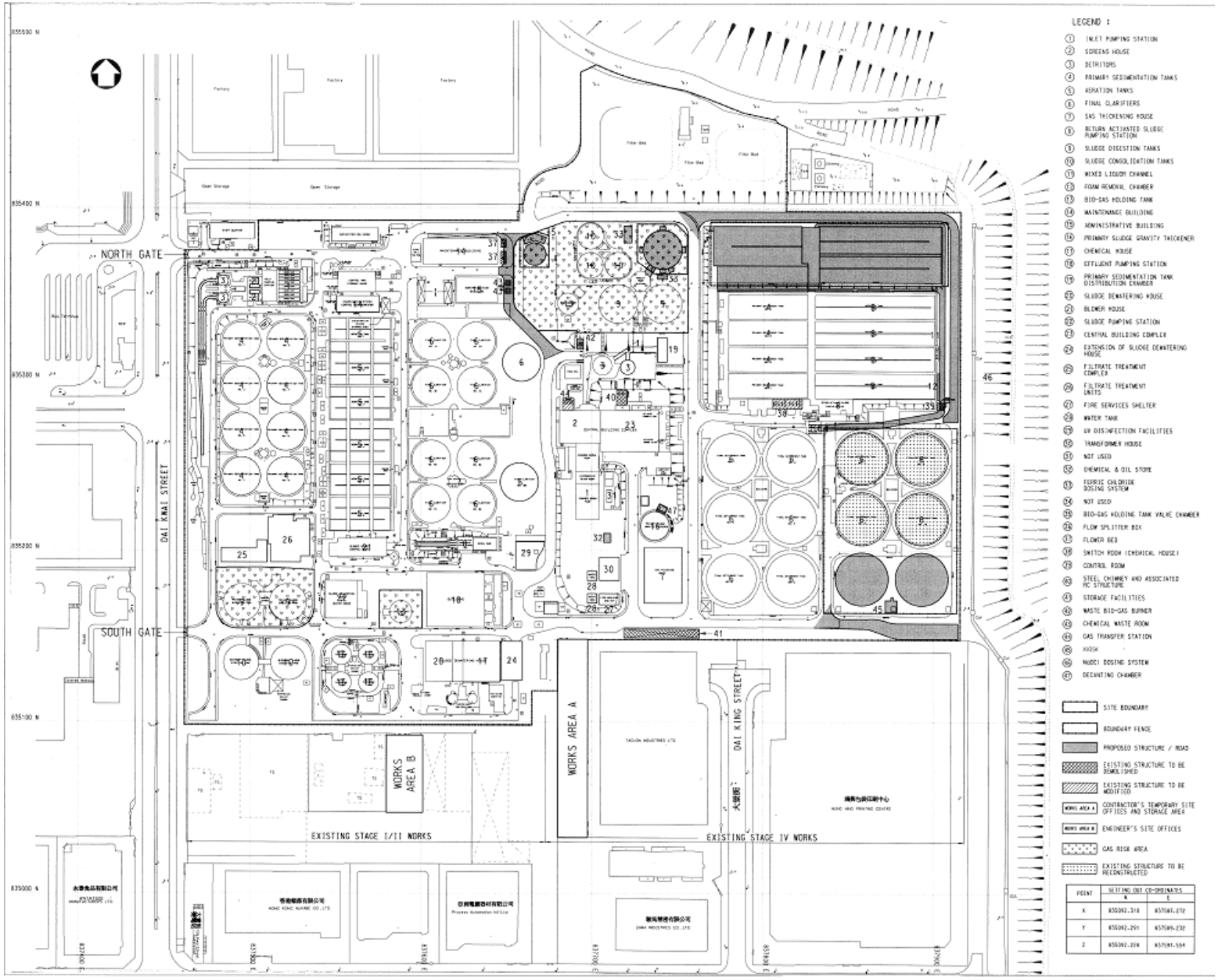
Water Impact

- Clean the rubbish and litter on the construction sites so as to prevent the rubbish and litter from dropping into the nearby environment.
- Apply good site practice to prevent accumulation of stagnant water after rainstorm.

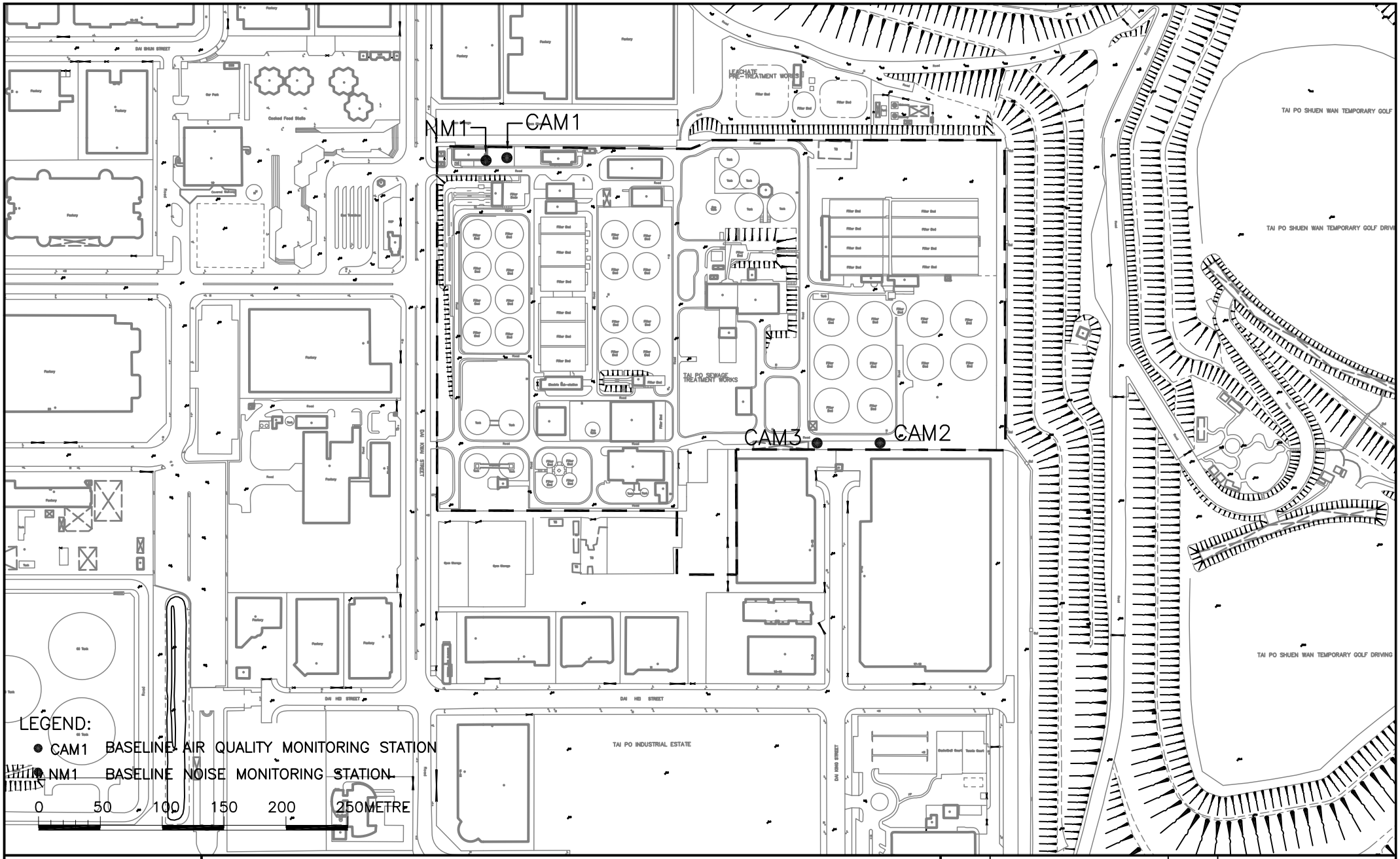
Waste / Chemical Management

- 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 —

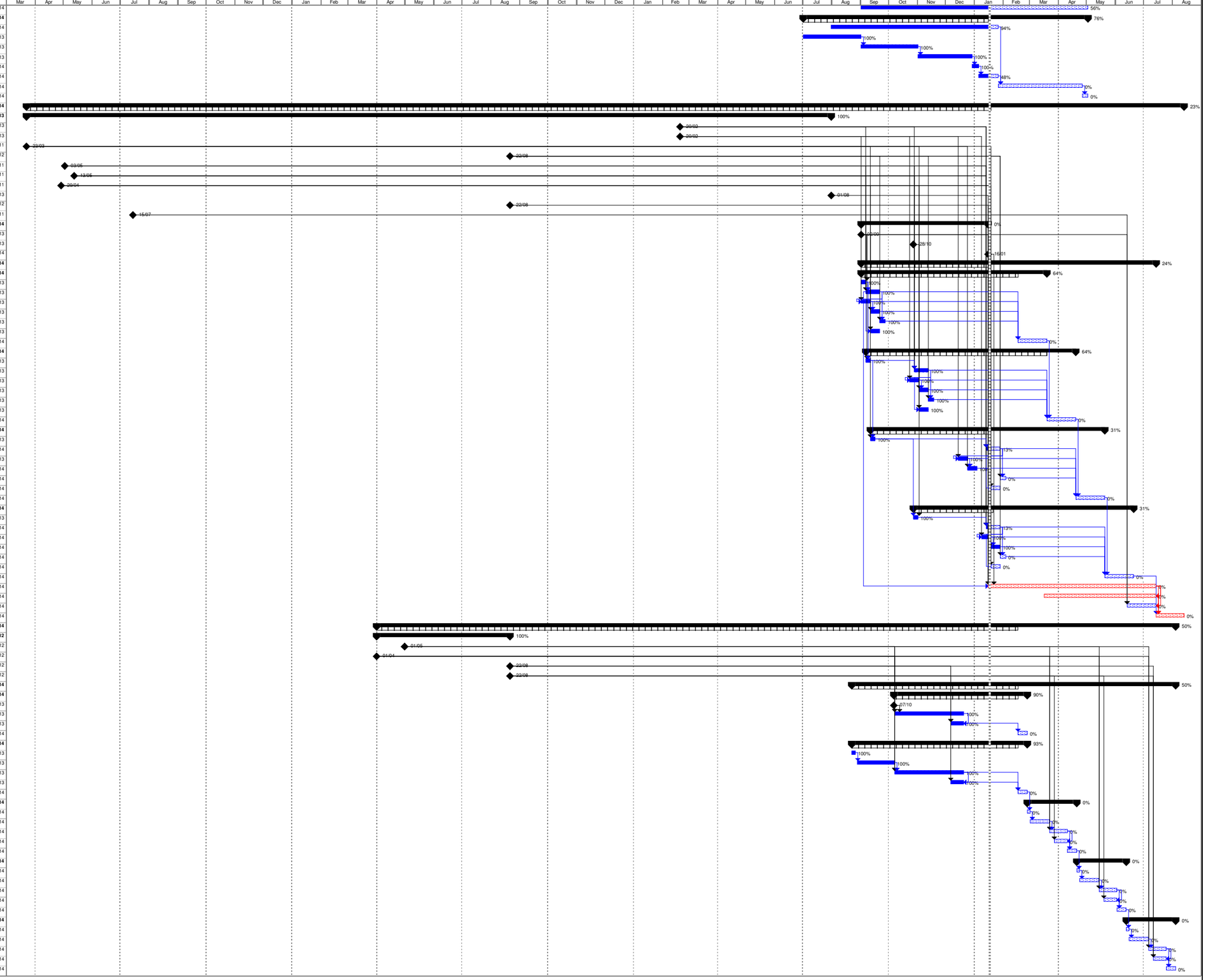
F:\MA10069\DRAWING\BASELINE\FIGURE 1.2.DWG

APPENDIX A
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	**Modification / Replacement of Existing L.V. Switchboard (RAS MCC3)**	**305 days**	**Tue 02/07/13**	**Fri 02/05/14**
3	MCC3 Manufacture & Delivery to Site	179 days	Thu 01/08/13	Sun 26/01/14
4	Temporary Works Preparation	62 days	Tue 02/07/13	Sun 01/09/13
5	Temporary Works Installation	61 days	Mon 02/09/13	Fri 01/11/13
6	Migration of Power/Control for Existing E&M Equipment to Temporary Panels	58 days	Sat 02/11/13	Sun 29/12/13
7	Removal of Existing MCC1, MCC3 & MCC4	7 days	Mon 30/12/13	Sun 05/01/14
8	Civil Modification Works (By Civil Contractor)	21 days	Mon 06/01/14	Sun 26/01/14
9	MCC3 Installation, SAT, Cable Installation & Migration	90 days	Mon 27/01/14	Sat 26/04/14
10	Removal of Temporary Panels	6 days	Sun 27/04/14	Fri 02/05/14
11	**Final Clarifier No. 7B to 10B**	**1240 days**	**Wed 23/03/11**	**Wed 13/08/14**
12	**Equipment and Material Delivery to Site**	**862 days**	**Wed 23/03/11**	**Thu 01/08/13**
13	Tripods, Bridges & Scrapers for FC7B - 10B	0 days	Wed 20/02/13	Wed 20/02/13
14	Weir Plates	0 days	Wed 20/02/13	Wed 20/02/13
15	Density Current Baffle	0 days	Wed 23/03/11	Wed 23/03/11
16	FCW & FEDB	0 days	Wed 22/08/12	Wed 22/08/12
17	DI Pipes, Fittings & Accessories	0 days	Tue 03/05/11	Tue 03/05/11
18	Water Spray Pumps & Associated Pipework	0 days	Fri 13/05/11	Fri 13/05/11
19	Instrumentation (Ultrasonic Level Sensors & Sludge Blanket Sensors)	0 days	Fri 29/04/11	Fri 29/04/11
20	LCP for Scraper Bridges	0 days	Thu 01/08/13	Thu 01/08/13
21	Cable, Cable Trays and Accessories	0 days	Wed 22/08/12	Wed 22/08/12
22	B.S. Equipment & Accessories	0 days	Fri 15/07/11	Fri 15/07/11
23	**Site Possession / Available**	**136 days**	**Mon 02/09/13**	**Thu 16/01/14**
24	FC8B, 9B & 10B	0 days	Mon 02/09/13	Mon 02/09/13
25	FC7B	0 days	Mon 28/10/13	Mon 28/10/13
26	Cable drawpit and duct	0 days	Thu 16/01/14	Thu 16/01/14
27	**Installation**	**316 days**	**Mon 02/09/13**	**Mon 14/07/14**
28	**FC8B**	**199 days**	**Mon 02/09/13**	**Wed 19/03/14**
29	Site Preparation Works	5 days	Mon 02/09/13	Fri 06/09/13
30	Tripods, Bridges & Scrapers	15 days	Sat 07/09/13	Sat 21/09/13
31	Weir Plates	10 days	Mon 02/09/13	Wed 11/09/13
32	Density Current Baffles	10 days	Thu 12/09/13	Sat 21/09/13
33	FCW & FEDB	6 days	Sun 22/09/13	Fri 27/09/13
34	Instrumentation	10 days	Thu 12/09/13	Sat 21/09/13
35	Final screeding	31 days	Mon 17/02/14	Wed 19/03/14
36	**FC10B**	**225 days**	**Sat 07/09/13**	**Sat 19/04/14**
37	Site Preparation Works	5 days	Sat 07/09/13	Wed 11/09/13
38	Tripods, Bridges & Scrapers	15 days	Tue 29/10/13	Tue 12/11/13
39	Weir Plates	10 days	Thu 24/10/13	Sat 02/11/13
40	Density Current Baffles	10 days	Sun 03/11/13	Tue 12/11/13
41	FCW & FEDB	6 days	Wed 13/11/13	Mon 18/11/13
42	Instrumentation	10 days	Sun 03/11/13	Tue 12/11/13
43	Final screeding	31 days	Thu 20/03/14	Sat 19/04/14
44	**FC9B**	**251 days**	**Thu 12/09/13**	**Tue 20/05/14**
45	Site Preparation Works	5 days	Thu 12/09/13	Mon 16/09/13
46	Tripods, Bridges & Scrapers	15 days	Tue 14/01/14	Tue 28/01/14
47	Weir Plates	10 days	Sun 15/12/13	Tue 24/12/13
48	Density Current Baffles	10 days	Wed 25/12/13	Fri 03/01/14
49	FCW & FEDB	6 days	Wed 29/01/14	Mon 03/02/14
50	Instrumentation	10 days	Sun 19/01/14	Tue 28/01/14
51	Final screeding	31 days	Sun 20/04/14	Tue 20/05/14
52	**FC7B**	**236 days**	**Mon 28/10/13**	**Fri 20/06/14**
53	Site Preparation Works	5 days	Mon 28/10/13	Fri 01/11/13
54	Tripods, Bridges & Scrapers	15 days	Tue 14/01/14	Tue 28/01/14
55	Weir Plates	10 days	Thu 09/01/14	Sat 18/01/14
56	Density Current Baffles	10 days	Sun 19/01/14	Tue 28/01/14
57	FCW & FEDB	6 days	Wed 29/01/14	Mon 03/02/14
58	Instrumentation	10 days	Sun 19/01/14	Tue 28/01/14
59	Final screeding	31 days	Wed 21/05/14	Fri 20/06/14
60	Electrical Installation	180 days	Thu 16/01/14	Mon 14/07/14
61	Modification of existing PLC system E	120 days	Mon 17/03/14	Mon 14/07/14
62	B.S. Installation	31 days	Sat 14/06/14	Mon 14/07/14
63	**Testing and Commissioning**	30 days	Tue 15/07/14	Wed 13/08/14
64	**Stage IV RAS Pumping Station**	**856 days**	**Sun 01/04/12**	**Mon 04/08/14**
65	**Equipment and Material Delivey to Site**	**143 days**	**Sun 01/04/12**	**Wed 22/08/12**
66	RAS Pumps	0 days	Tue 01/05/12	Tue 01/05/12
67	Pipework & Valves	0 days	Sun 01/04/12	Sun 01/04/12
68	VSD Panel for RAS Pumps No.1 & 5	0 days	Wed 22/08/12	Wed 22/08/12
69	PLC System H Panel	0 days	Wed 22/08/12	Wed 22/08/12
70	**Installation**	**347 days**	**Fri 23/08/13**	**Mon 04/08/14**
71	**RAS Pump No.5**	**143 days**	**Mon 07/10/13**	**Wed 26/02/14**
72	Available of Pump Concrete Plinth (Modified by Civil Contractor)	0 days	Mon 07/10/13	Mon 07/10/13
73	Installation of Pump, Gate Valve, Swing Check Valve & DI Pipework	74 days	Tue 08/10/13	Fri 20/12/13
74	Electrical Works & SCADA/PLC Works	14 days	Sat 07/12/13	Fri 20/12/13
75	Testing & Commissioning	10 days	Mon 17/02/14	Wed 26/02/14
76	**RAS Pump No.4**	**188 days**	**Fri 23/08/13**	**Wed 26/02/14**
77	Decommissioning & Removal of Pump	4 days	Fri 23/08/13	Mon 26/08/13
78	Pump Concrete Plinth Modification Works (By Civil Contractor)	40 days	Thu 29/08/13	Mon 07/10/13
79	Installation of Pump & DI Pipework	74 days	Tue 08/10/13	Fri 20/12/13
80	Electrical Works & SCADA/PLC Works	14 days	Sat 07/12/13	Fri 20/12/13
81	Testing & Commissioning	10 days	Mon 17/02/14	Wed 26/02/14
82	**RAS Pump No.3**	**53 days**	**Thu 27/02/14**	**Sun 20/04/14**
83	Decommissioning & Removal of Pump	3 days	Thu 27/02/14	Sat 01/03/14
84	Pump Concrete Plinth Modification Works (By Civil Contractor)	21 days	Sun 02/03/14	Sat 22/03/14
85	Installation of Pump & DI Pipework	19 days	Sun 23/03/14	Thu 10/04/14
86	Electrical Works & SCADA/PLC Works	14 days	Fri 28/03/14	Thu 10/04/14
87	Testing & Commissioning	10 days	Fri 11/04/14	Sun 20/04/14
88	**RAS Pump No.2**	**53 days**	**Mon 21/04/14**	**Thu 12/06/14**
89	Decommissioning & Removal of Pump	3 days	Mon 21/04/14	Wed 23/04/14
90	Pump Concrete Plinth Modification Works (By Civil Contractor)	21 days	Thu 24/04/14	Wed 14/05/14
91	Installation of Pump & DI Pipework	19 days	Thu 15/05/14	Mon 02/06/14
92	Electrical Works & SCADA/PLC Works	14 days	Tue 20/05/14	Mon 02/06/14
93	Testing & Commissioning	10 days	Tue 03/06/14	Thu 12/06/14
94	**RAS Pump No.1**	**53 days**	**Fri 13/06/14**	**Mon 04/08/14**
95	Decommissioning & Removal of Pump	3 days	Fri 13/06/14	Sun 15/06/14
96	Pump Concrete Plinth Modification Works (By Civil Contractor)	21 days	Mon 16/06/14	Sun 06/07/14
97	Installation of Pump & DI Pipework	19 days	Mon 07/07/14	Fri 25/07/14
98	Electrical Works & SCADA/PLC Works	14 days	Sat 12/07/14	Fri 25/07/14
99	Testing & Commissioning	10 days	Sat 26/07/14	Mon 04/08/14



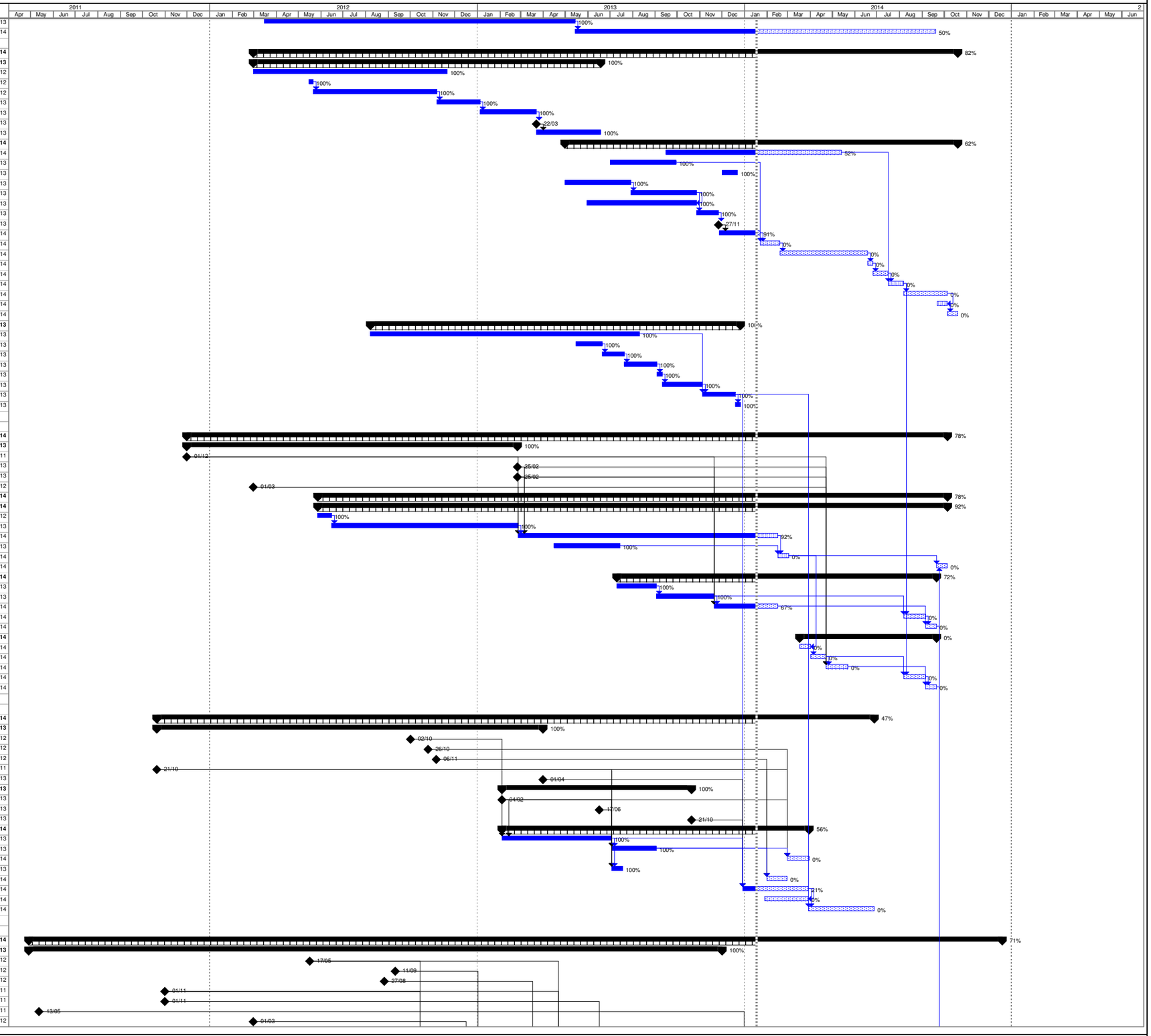
Rev.4
Date: 17 Jan 2014

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**	493 days	Wed 15/05/13	Fri 19/09/14
3				
4	**Modification / Replacement of Existing L.V. Switchboard**	**963 days**	**Thu 01/03/12**	**Sun 19/10/14**
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**	**537 days**	**Wed 01/05/13**	**Sun 19/10/14**
14	MCC2 Manufacture & Delivery to Site	240 days	Mon 16/09/13	Tue 13/05/14
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)	56 days	Thu 28/11/13	Wed 22/01/14
23	MCC2 Extension Installation & SAT	27 days	Thu 23/01/14	Tue 18/02/14
24	Migration of Power/Control for Existing E&M Equipment to New MCC2 Extension & Temp. MCC	120 days	Wed 19/02/14	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 (By Civil Contractor)	21 days	Thu 26/06/14	Wed 16/07/14
27	MCC2 Installation & SAT	21 days	Thu 17/07/14	Wed 06/08/14
28	Migration of Power/Control for Existing E&M Equipment to New MCC2	60 days	Thu 07/08/14	Sun 05/10/14
29	Installation of New Cables	14 days	Mon 22/09/14	Sun 05/10/14
30	Removal of Temporary Panels	14 days	Mon 06/10/14	Sun 19/10/14
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**	**1040 days**	**Thu 01/12/11**	**Sun 05/10/14**
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**	**861 days**	**Mon 28/05/12**	**Sun 05/10/14**
49	**Air Blower No.5**	**861 days**	**Mon 28/05/12**	**Sun 05/10/14**
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	15 days	Sun 16/02/14	Sun 02/03/14
55	Migration from Temporary MCC/Starter to MCC2	15 days	Sun 21/09/14	Sun 05/10/14
56	**Air Blower No.2**	**437 days**	**Thu 11/07/13**	**Sat 20/09/14**
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 07/08/14	Fri 05/09/14
61	Testing and Commissioning	15 days	Sat 06/09/14	Sat 20/09/14
62	**Air Blower No.1**	**187 days**	**Tue 18/03/14**	**Sat 20/09/14**
63	Decommissioning & Dismantle of Existing Air Blower & Accessories	15 days	Tue 18/03/14	Tue 01/04/14
64	Civil Modification & GMS Puddle Flange Pipe Installation (By Civil Contractor)	21 days	Wed 02/04/14	Tue 22/04/14
65	Installation of New Air Blower & Accessories	30 days	Wed 23/04/14	Thu 22/05/14
66	Electrical Installation (with New MCC2)	30 days	Thu 07/08/14	Fri 05/09/14
67	Testing and Commissioning	15 days	Sat 06/09/14	Sat 20/09/14
68				
69				
70	**Primary Sedimentation Tank No.5**	**981 days**	**Fri 21/10/11**	**Fri 27/06/14**
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**	**420 days**	**Mon 04/02/13**	**Sun 30/03/14**
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	Sat 01/03/14	Sun 30/03/14
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	Wed 29/01/14	Sat 29/03/14
89	**Testing and Commissioning**	90 days	Sun 30/03/14	Fri 27/06/14
90				
91				
92	**New Aeration Tanks No.5 to 7**	**1331 days**	**Fri 29/04/11**	**Fri 19/12/14**
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



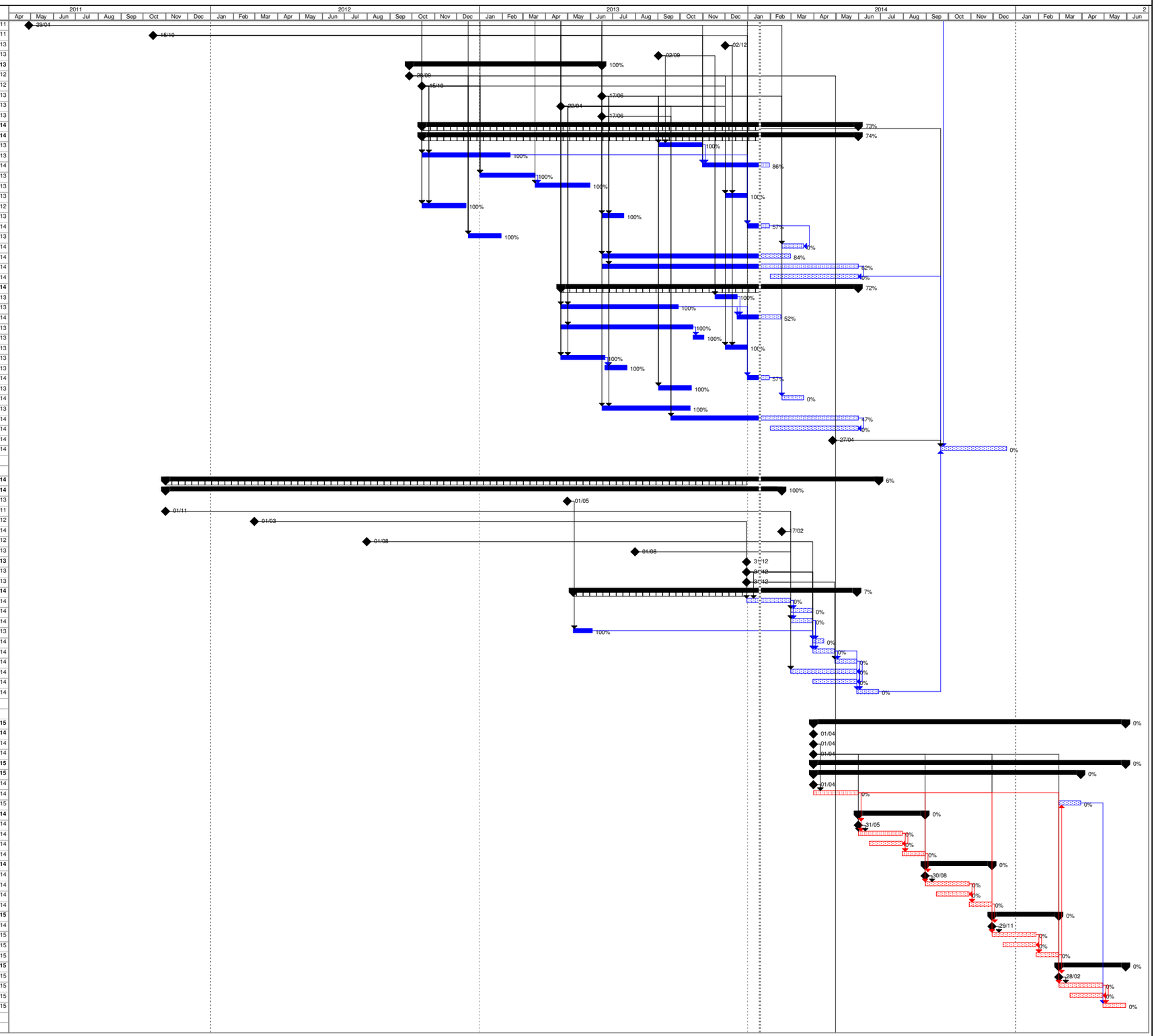
Rev. 6
Date: 17 Jan 2014

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
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**	**594 days**	**Mon 15/10/12**	**Sat 31/05/14**
112	**New Aeration Tanks No.5 & 6**	**594 days**	**Mon 15/10/12**	**Sat 31/05/14**
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	349 days	Mon 17/06/13	Sat 31/05/14
126	SCADA/PLC System	120 days	Sat 01/02/14	Sat 31/05/14
127	**New Aeration Tanks No.7**	**405 days**	**Mon 22/04/13**	**Sat 31/05/14**
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	255 days	Thu 19/09/13	Sat 31/05/14
141	SCADA/PLC System	120 days	Sat 01/02/14	Sat 31/05/14
142	**MCC3 Ready**	1 day	Sun 27/04/14	Sun 27/04/14
143	**Testing and Commissioning**	90 days	Sun 21/09/14	Fri 19/12/14
144				
145				
146	**New Mixed Liquor Channels**	**971 days**	**Tue 01/11/11**	**Sat 28/06/14**
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**	**386 days**	**Thu 09/05/13**	**Thu 29/05/14**
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 31/03/14	Mon 14/04/14
163	Relocation of Foam Transfer Pumps	30 days	Mon 31/03/14	Tue 29/04/14
164	Relocation of NaOCl Dosing System	30 days	Wed 30/04/14	Thu 29/05/14
165	Local Control Panel & Electrical Installation	90 days	Sat 01/03/14	Thu 29/05/14
166	SCADA/PLC System	60 days	Mon 31/03/14	Thu 29/05/14
167	**Testing and Commissioning**	30 days	Fri 30/05/14	Sat 28/06/14
168				
169				
170	**Existing Aeration Tanks No.1 to 4**	**425 days**	**Tue 01/04/14**	**Sat 30/05/15**
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**	**Tue 01/04/14**	**Sat 30/05/15**
175	**New Air Mains**	**364 days**	**Tue 01/04/14**	**Mon 30/03/15**
176	Steel Bridges (By Civil Contractor) Available for Air Mains	0 days	Tue 01/04/14	Tue 01/04/14
177	GMS Air Mains Installation	61 days	Tue 01/04/14	Sat 31/05/14
178	Connection Existing Air Mains beside RAS Pumping Station (By Civil Contractor)	30 days	Sun 01/03/15	Mon 30/03/15
179	**Aeration Tank No.4**	**91 days**	**Sat 31/05/14**	**Sat 30/08/14**
180	Tank Available for Modification (Drained Down by DSD/ST1)	0 days	Sat 31/05/14	Sat 31/05/14
181	Air Pipework, Butterfly Valves & Air Flowmeters	60 days	Sun 01/06/14	Wed 30/07/14
182	Electrical Installation	45 days	Mon 16/06/14	Wed 30/07/14
183	Testing and Commissioning	31 days	Thu 31/07/14	Sat 30/08/14
184	**Aeration Tank No.3**	**91 days**	**Sat 30/08/14**	**Sat 29/11/14**
185	Tank Available for Modification (Drained Down by DSD/ST1)	0 days	Sat 30/08/14	Sat 30/08/14
186	Air Pipework, Butterfly Valves & Air Flowmeters	60 days	Sun 31/08/14	Wed 29/10/14
187	Electrical Installation	45 days	Mon 15/09/14	Wed 29/10/14
188	Testing and Commissioning	31 days	Thu 30/10/14	Sat 29/11/14
189	**Aeration Tank No.2**	**91 days**	**Sat 29/11/14**	**Sat 28/02/15**
190	Tank Available for Modification (Drained Down by DSD/ST1)	0 days	Sat 29/11/14	Sat 29/11/14
191	Air Pipework, Butterfly Valves, & Air Flowmeters	60 days	Sun 30/11/14	Wed 28/01/15
192	Electrical Installation	45 days	Mon 15/12/14	Wed 28/01/15
193	Testing and Commissioning	31 days	Thu 29/01/15	Sat 28/02/15
194	**Aeration Tank No.1**	**91 days**	**Sat 28/02/15**	**Sat 30/05/15**
195	Tank Available for Modification (Drained Down by DSD/ST1)	0 days	Sat 28/02/15	Sat 28/02/15
196	Air Pipework, Butterfly Valves & Air Flowmeters	60 days	Sun 01/03/15	Wed 29/04/15
197	Electrical Installation	45 days	Mon 16/03/15	Wed 29/04/15
198	Testing and Commissioning	31 days	Thu 30/04/15	Sat 30/05/15
199				
200				



Rev. 6
Date: 17 Jan 2014

Critical | Critical Progress | Split | Baseline | Baseline Milestone | Summary Progress | Project Summary | External Milestone
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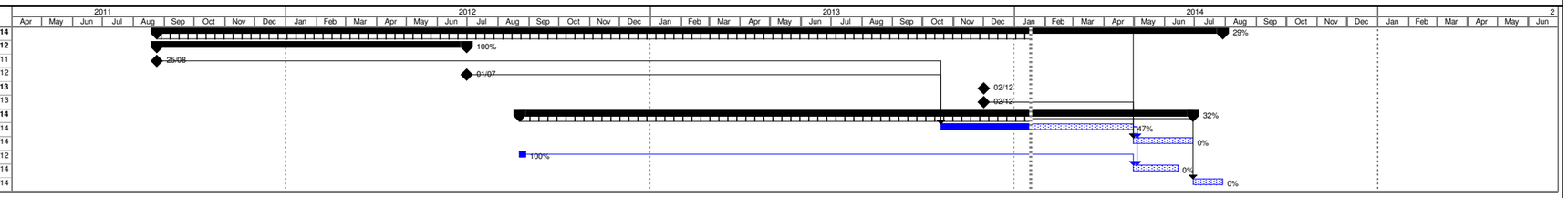
DSD Contract : DE/2009/09
Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B

Section III Works Programme

ID	Task Name	Duration	Start	Finish
201	**Filtrate Pumping System (Stage I/II Modification)**	**1070 days**	**Thu 25/08/11**	**Tue 29/07/14**
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**	**676 days**	**Thu 23/08/12**	**Sun 29/06/14**
208	Pump Replacement & Pipework Modification at Existing Pump Chamber	193 days	Sun 20/10/13	Wed 30/04/14
209	Filtrate Pipework Installation at Aeration Tanks	60 days	Thu 01/05/14	Sun 29/06/14
210	Existing L.V. Switchboard Modification	6 days	Thu 23/08/12	Tue 28/08/12
211	Electrical Installation	45 days	Thu 01/05/14	Sat 14/06/14
212	**Testing and Commissioning**	30 days	Mon 30/06/14	Tue 29/07/14



Rev. 6
Date: 17 Jan 2014

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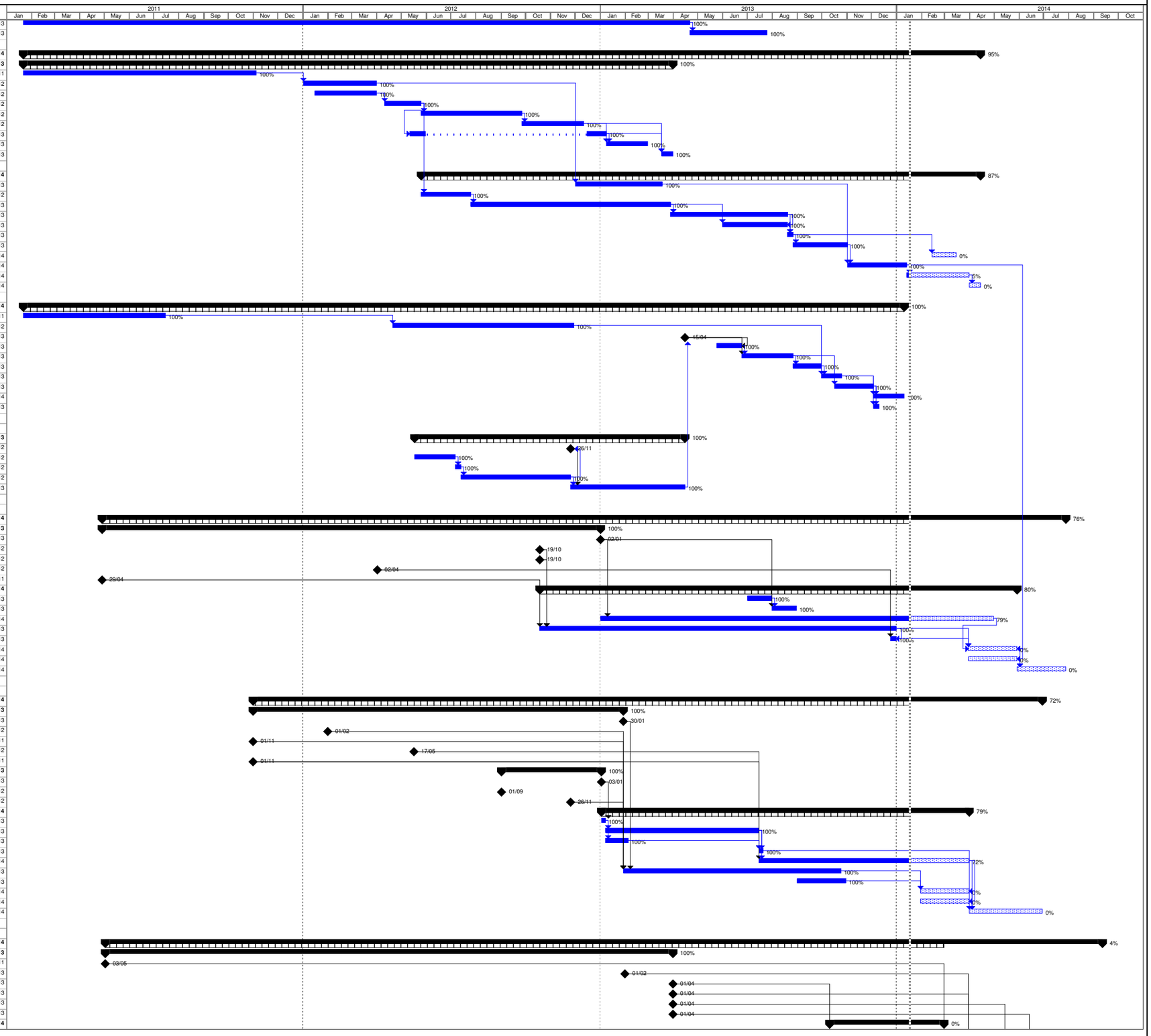
Baseline Split
Baseline Milestone
Milestone
Summary Progress
Summary
Project Summary
External Tasks
External Milestone
Deadline

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

Section 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**	95 days	Mon 22/04/13	Thu 25/07/13
3				
4	**Modification / Replacement of Existing L.V. Switchboard**	**1179 days**	**Sat 22/01/11**	**Mon 14/04/14**
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**	**689 days**	**Sat 26/05/12**	**Mon 14/04/14**
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	77 days	Tue 14/01/14	Mon 31/03/14
27	Removal of Existing Cables & Installation of New Cables	14 days	Tue 01/04/14	Mon 14/04/14
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**	**1187 days**	**Fri 29/04/11**	**Mon 28/07/14**
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**	**588 days**	**Fri 19/10/12**	**Thu 29/05/14**
58	Temporary Flow Diversion for Lower Wet Well	30 days	Tue 02/07/13	Wed 31/07/13
59	Screw Pump Installation & Screeding Works at Lower Wet Well	30 days	Thu 01/08/13	Fri 30/08/13
60	Screw Pump Installation & Screeding Works at Upper Wet Well	484 days	Wed 02/01/13	Wed 30/04/14
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	Mon 31/03/14	Thu 29/05/14
64	SCADA/PLC System	60 days	Mon 31/03/14	Thu 29/05/14
65	**Testing and Commissioning**	60 days	Fri 30/05/14	Mon 28/07/14
66				
67				
68	**Filtrate Treatment Plant (SBR)**	**972 days**	**Tue 01/11/11**	**Sun 29/06/14**
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**	**453 days**	**Thu 03/01/13**	**Mon 31/03/14**
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	259 days	Tue 16/07/13	Mon 31/03/14
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 31/01/14	Mon 31/03/14
88	SCADA/PLC System	60 days	Fri 31/01/14	Mon 31/03/14
89	**Testing and Commissioning**	90 days	Tue 01/04/14	Sun 29/06/14
90				
91				
92	**Primary Sludge Gravity Thickener**	**1228 days**	**Tue 03/05/11**	**Thu 11/09/14**
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**	**141 days**	**Fri 11/10/13**	**Sat 01/03/14**



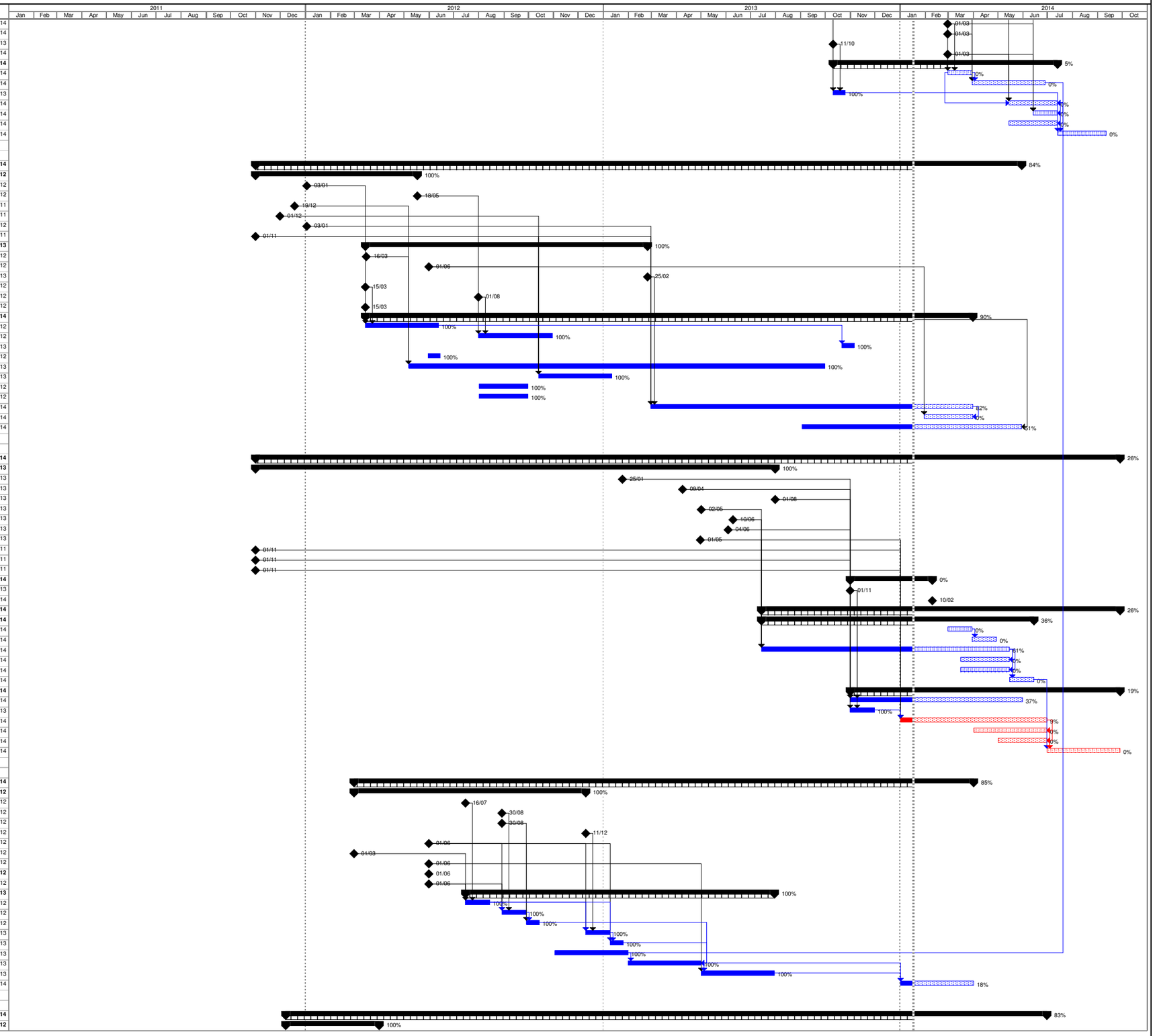
Rev. 7
Date: 17 Jan 2014

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 V Works Programme

ID	Task Name	Duration	Start	Finish
101	Decanting Chamber	0 days	Sat 01/03/14	Sat 01/03/14
102	Concrete Plinth for DO System	0 days	Sat 01/03/14	Sat 01/03/14
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	Sat 01/03/14	Sat 01/03/14
105	**Installation**	**276 days**	**Fri 11/10/13**	**Sun 13/07/14**
106	Knife Gate Valves & Actuators	30 days	Sat 01/03/14	Sun 30/03/14
107	Deodorizing Unit, Air Ductwork & Associated Accessories	90 days	Mon 31/03/14	Sat 28/06/14
108	Pipework Installation at Existing Valve Chamber	15 days	Fri 11/10/13	Fri 25/10/13
109	Electrical Installation	60 days	Thu 15/05/14	Sun 13/07/14
110	CCTV Installation	30 days	Sat 14/06/14	Sun 13/07/14
111	SCADA/PLC System	60 days	Thu 15/05/14	Sun 13/07/14
112	**Testing and Commissioning**	60 days	Mon 14/07/14	Thu 11/09/14
113				
114				
115	**Biogas System**	**942 days**	**Tue 01/11/11**	**Fri 30/05/14**
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**	**747 days**	**Thu 15/03/12**	**Mon 31/03/14**
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	396 days	Fri 01/03/13	Mon 31/03/14
140	Methane Gas Detection System Installation	60 days	Fri 31/01/14	Mon 31/03/14
141	**Testing and Commissioning**	270 days	Tue 03/09/13	Fri 30/05/14
142				
143				
144	**Sludge Digestion Tank No.3 and Hot Water Circulation System**	**1063 days**	**Tue 01/11/11**	**Sun 28/09/14**
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**	**441 days**	**Mon 15/07/13**	**Sun 28/09/14**
160	**Hot Water Circulation System**	**335 days**	**Mon 15/07/13**	**Sat 14/06/14**
161	Temporary Works to Facilitate Civil Modification Works	30 days	Sat 01/03/14	Sun 30/03/14
162	Civil Modification Works (By Civil Contractor)	30 days	Mon 31/03/14	Tue 29/04/14
163	Installation of Hot Water Boiler, Recirculation Pump & Associated Pipework	305 days	Mon 15/07/13	Thu 15/05/14
164	Electrical Installation (with Temporary MCC)	60 days	Mon 17/03/14	Thu 15/05/14
165	SCADA/PLC System	60 days	Mon 17/03/14	Thu 15/05/14
166	Testing and Commissioning	30 days	Fri 16/05/14	Sat 14/06/14
167	**Sludge Digestion Tank No.3**	**332 days**	**Fri 01/11/13**	**Sun 28/09/14**
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	180 days	Thu 02/01/14	Mon 30/06/14
171	Electrical Installation	90 days	Wed 02/04/14	Mon 30/06/14
172	SCADA/PLC System	60 days	Fri 02/05/14	Mon 30/06/14
173	Testing and Commissioning	90 days	Tue 01/07/14	Sun 28/09/14
174				
175				
176	**SAS Thickening System**	**762 days**	**Thu 01/03/12**	**Tue 01/04/14**
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**	90 days	Thu 02/01/14	Tue 01/04/14
197				
198				
199	**Sludge Dewatering System**	**936 days**	**Thu 08/12/11**	**Mon 30/06/14**
200	**Equipment & Material Delivery to Site**	**115 days**	**Thu 08/12/11**	**Sun 01/04/12**



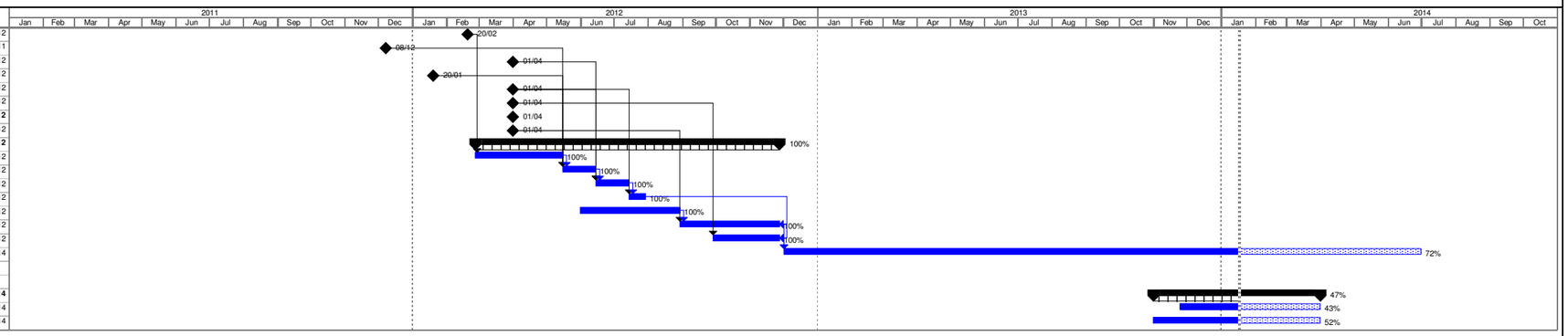
Rev. 7
Date: 17 Jan 2014

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 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	Floctronic 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**	576 days	Sun 02/12/12	Mon 30/06/14
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



Rev. 7
Date: 17 Jan 2014

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

APPENDIX B
MONITORING REQUIREMENTS

APPENDIX B – MONITORING REQUIREMENTS

Type of Monitoring	Parameter	Frequency	Duration	Location of Measurement
Noise(1)	L_{eq}(30 min.) (0700-1900 hrs. on normal weekdays)	Once per week	30 mins	• NM1 (Outside the corridor of 1/F of Government Staff Quarter)
Air	1-hour TSP	3 times every six days	1 hour	• CAM1 (on flat roof of Government Staff Quarters) • CAM2 (on ground within TPSTW and just next to the Printing Centre of Hung Hing Printing Centre) • CAM3 (on ground within TPSTW and just next to Talcon Industrial Ltd.)
	24-hour TSP	Once every six days	24 hours	

(1) If construction works are extended to include works during the hours of 1900 – 0700, additional weekly impact monitoring shall be carried out during evening and night-time works.

APPENDIX C
ACTION AND LIMIT LEVELS

APPENDIX C – 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	

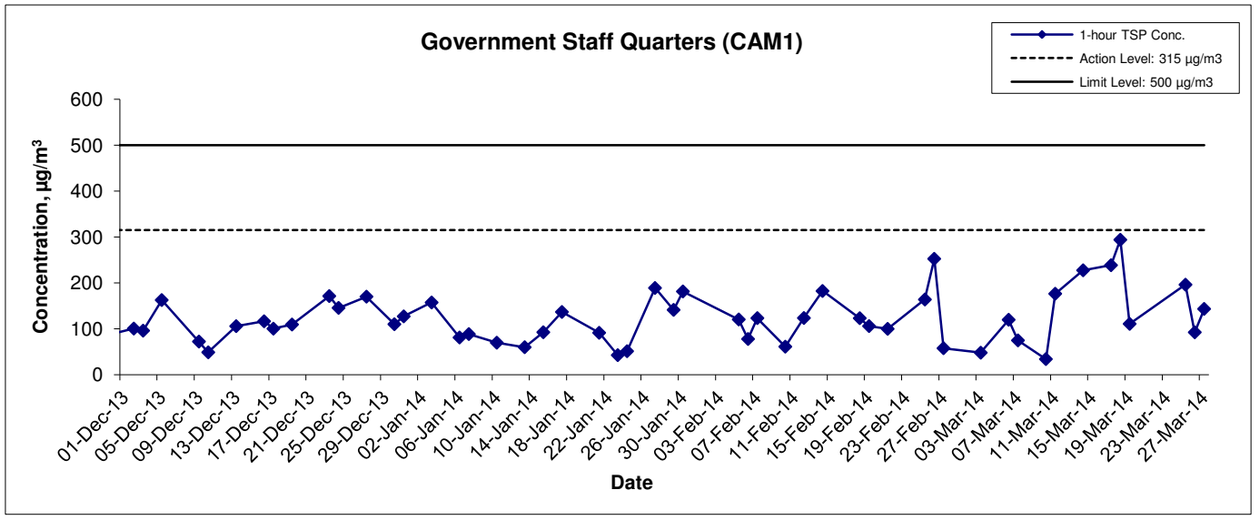
Construction Noise

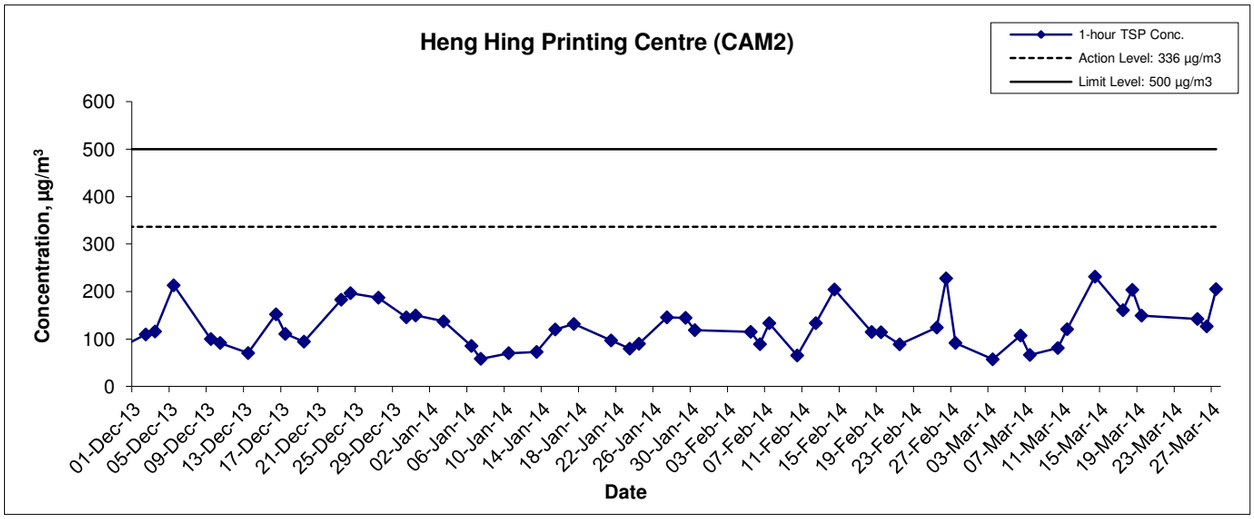
Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)
0700-2300 hrs on holidays; and 1900-2300 hrs on all other days		70* dB(A)
2300-0700 hrs of next day		55* dB(A)

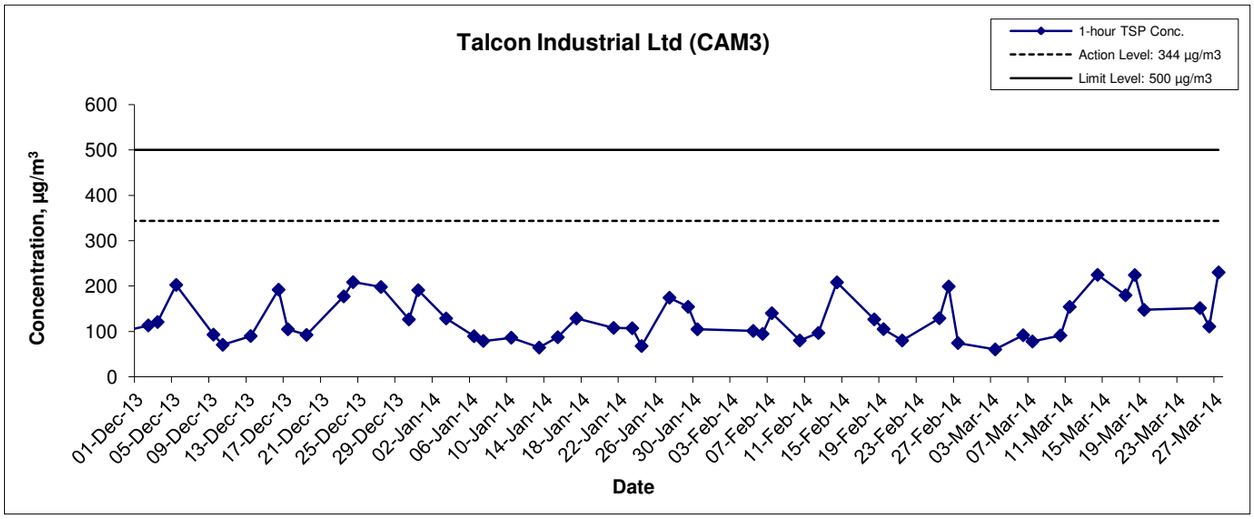
Notes:
* The Area Sensitivity Rating for Station NM1 is taken as C, due to the nearby industrial area, according to Table 1 of EPD's Technical Memorandum on Noise from Construction Work other than Percussive Piling.

APPENDIX D
GRAPHICAL PRESENTATION OF 1-HOUR TSP MONITORING RESULTS

1-hr TSP Concentration Levels



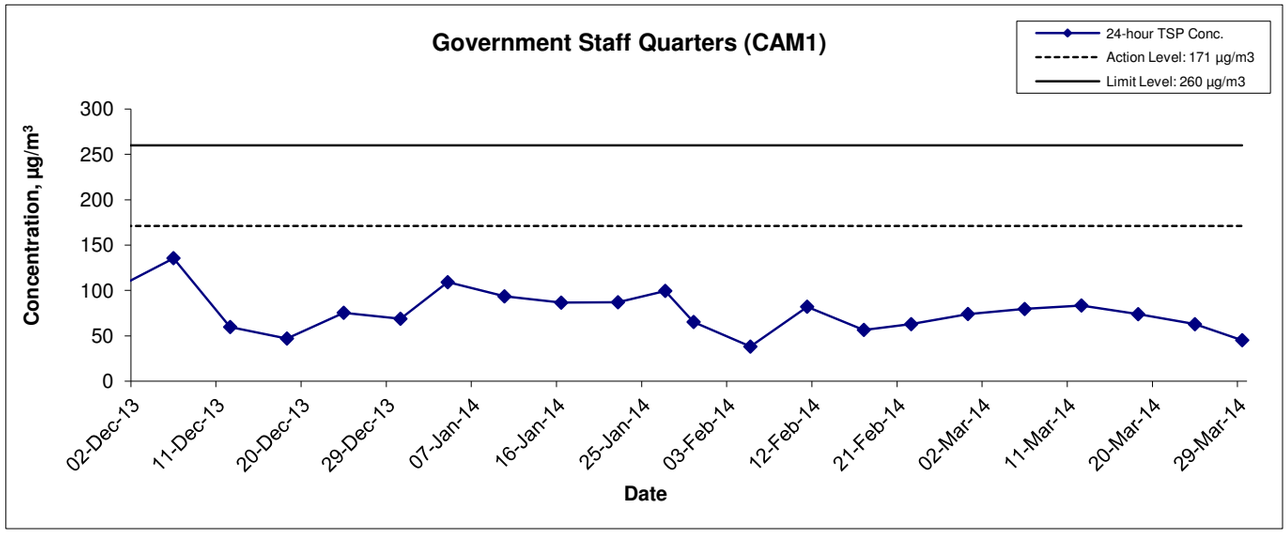


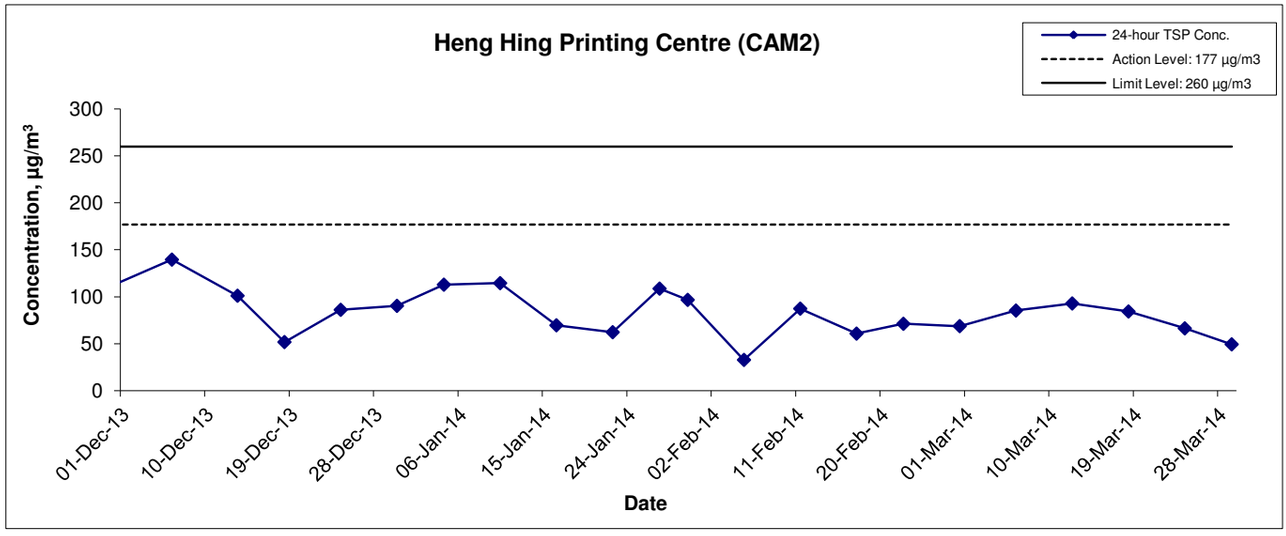


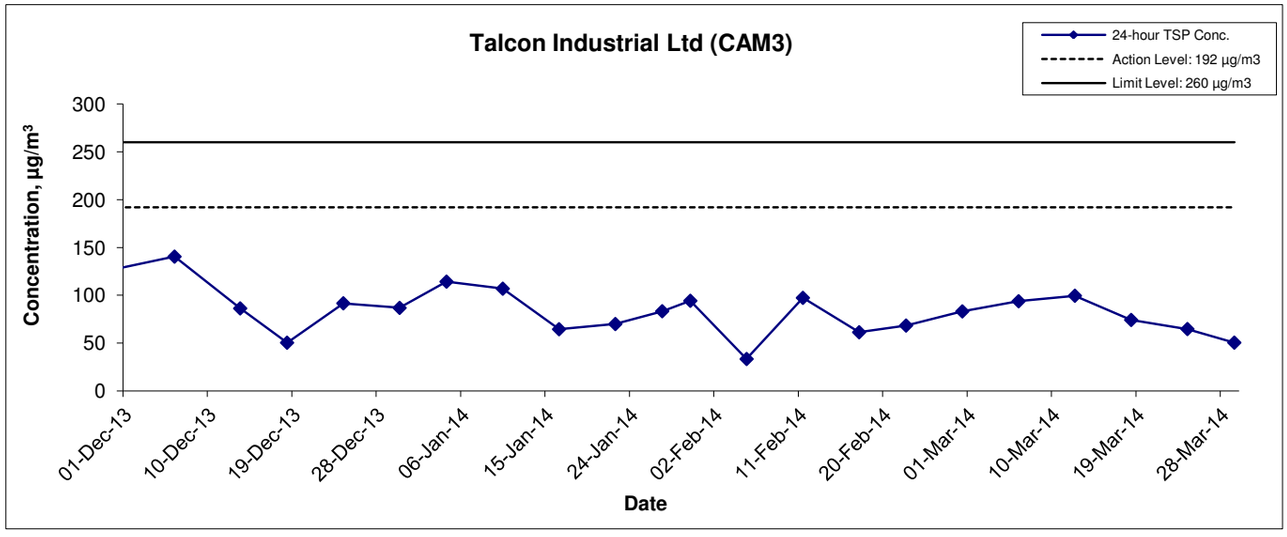
Title: Contract No. DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B Graphical Presentation of 1-hour TSP Impact Monitoring Results	Scale: N.T.S	Project No.: MA10069	CINOTECH
	Date: Mar 14	Appendix: D	

APPENDIX E
GRAPHICAL PRESENTATION OF 24-HOUR TSP MONITORING RESULTS

24-hr TSP Concentration Levels



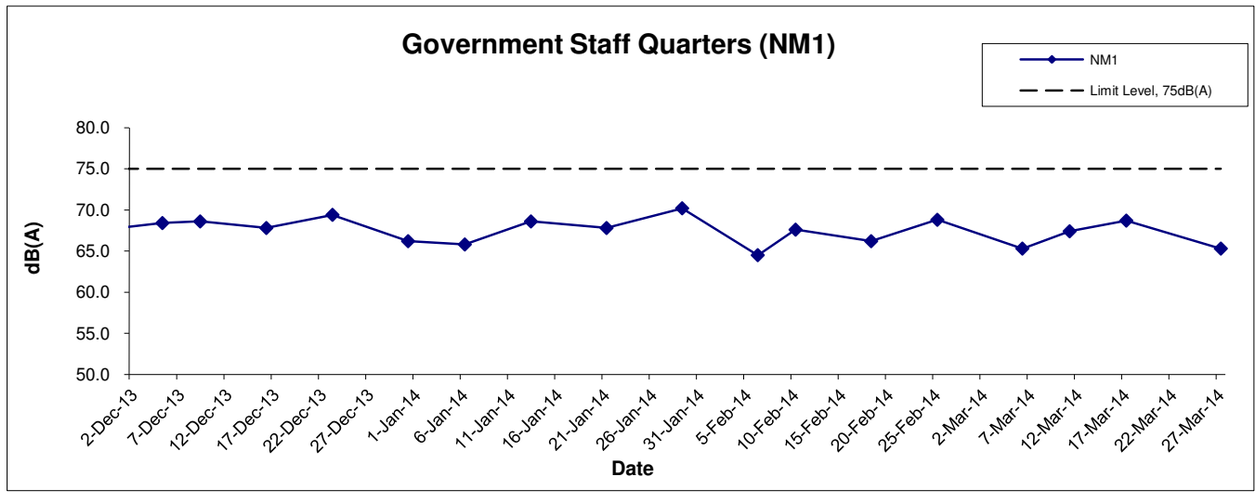




Title: Contract No. DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B Graphical Presentation of 24-hour TSP Impact Monitoring Results	Scale: N.T.S Date: Mar 14	Project No.: MA10069 Appendix: E	CINOTECH

APPENDIX F
GRAPHICAL PRESENTATION OF
NOISE MONITORING RESULTS

Noise Levels



Title: Contract No. DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S	Project No.: MA10069	CINOTECH
	Date: Mar 14	Appendix: F	

APPENDIX G
UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

APPENDIX G – 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 H
SUMMARY OF ENVIRONMENTAL LICENSING AND PERMIT STATUS

APPENDIX H – 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

APPENDIX I
WASTE GENERATION IN THE REPORTING QUARTER

Jardine Engineering Corporation, Limited

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

Monthly Summary - Waste Flow Table for 2014

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	0.13	0.05	0	1.6
Feb	0	0	0	0	0	0	0	0.14	0.05	0	0
Mar	0	0	0	0	0	0	0	0	0	0	1.9
Apr											
May											
June											
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	0	0	0	0	0	0	0	0.27	0.1	0	3.5

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	Nil	0	0	0	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 J
SUMMARY OF EXCEEDANCE

APPENIDX J – SUMMARY OF EXCEEDANCE

Reporting Period: January to March 2014

a) Exceedance Report for 1-hr TSP (NIL)

b) Exceedance Report for 24-hr TSP (NIL)

c) Exceedance Report for Construction Noise (NIL)

APPENDIX K
COMPLAINT LOG

APPENDIX K – COMPLAINT LOG

Reporting Period: January to March 2014

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.