

ATAL-Degrémont-China State Joint Venture

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

January 2011

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MONTHLY EM&A REPORT

ATAL-Degrémont-China State Joint Venture

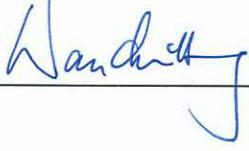
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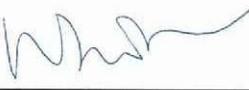
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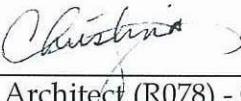
For and on behalf of
ERM-Hong Kong, Limited

Approved by: _____ Frank Wan

Signed: _____ 

Position: _____ Partner

Certified by: _____ 
(Environmental Team Leader - Winnie Ko)

Certified by: _____ 
(Registered Landscape Architect (R078) - Christina Ip)

Date: _____ 15 February 2011

Your Ref:
Our Ref: 60017423/C/enfl/1102141

By Hand & By Fax (2833 9162)

Drainage Services Department
Sewage Services Branch
Harbour Area Treatment Scheme Division
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Attn: Mr. Eddie S.K. LEUNG (T:2159 3413)

14 February 2011

Dear Sir,

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

Monthly EM&A Report for January 2011

Reference is made to Environmental Team (ET)'s revised draft of the Monthly EM&A Report for January 2011 provided by email dated 11 February 2011. We have no further comment.

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

Should you have any queries, please feel free to contact the undersigned at 3105 8537.

For and on behalf of
AECOM Asia Co. Ltd.



Y T Tang
Independent Environmental Checker

c.c.	AECOM – Mr. Tim Lee ERM – Ms. Winnie Ko ATAL– Degremont–China State JV – Mr. C.Y. Fong	(Fax No. 2317 7609) (Fax No. 2723 5660) (Fax No. 2811 3321)
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EXECUTIVE SUMMARY

The construction works of *DC/2008/03 of Design, Build and Operate Pillar Point Sewage Treatment Works (the Project)* commenced on 13 November 2010. This is the third monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 to 31 January 2011 in accordance with the EM&A Manual.

Summary of Construction Works undertaken during the Reporting Month

Works undertaken in the reporting month include:

- Site formation in P2;
- Tree transplanting preparation work in P1 and P2;
- Sheet piling in P2;
- Grouting of pipe pile wall in P2;
- Soil nailing in P2; and
- Ground investigation in P2.

Environmental Monitoring and Audit Progress

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

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

Air Quality

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

Waste Management

Waste generated from this Project includes inert construction and demolition (C&D) materials (public fill) and non-inert C&D materials (construction wastes). A total of 35,395 tonnes of public fill were delivered to the fill bank and 590 kg of metals, paper/cardboard and plastics were sent to recyclers in the reporting period. No general refuse and chemical waste was disposed of in the reporting period.

Environmental Site Inspection

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

Landscape & Visual

Review on landscape and visual mitigation measures was performed on 14 January 2011. Details of the audit findings and implementation status of the mitigation measures are presented in *Sections 3.2 and 7.2*.

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

No exceedance was recorded during the reporting period.

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

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

Future Key Issues

Works to be undertaken in the next reporting month include:

- Site formation in P2;
- Pipe piling in P2;
- Tree transplant from P1 and P2 to nursery;
- Sheet piling works in P2;
- Erection of tower crane in P2; and
- Interim operation of PPSTW in P1.

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

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

1.1 PURPOSE OF THE REPORT

This is the third EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from **1 to 31 January 2011**.

1.2 STRUCTURE OF THE REPORT

The structure of the report is as follows:

Section 1 : Introduction

details the scope and structure of the report.

Section 2 : Project Information

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

Section 3 : Environmental Monitoring Requirements

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

Section 4 : Implementation Status on Environmental Mitigation Measures

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

Section 5 : Monitoring Results

summarises the monitoring results obtained in the reporting period.

Section 6 : Waste Management

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

- Section 7 : Environmental Site Inspection**
summarises the audit findings of the weekly site inspections undertaken within the reporting period.
- Section 8 : Environmental Non-conformance**
summarises any exceedance of environmental performance standard, and environmental complaints and environmental summons received within the reporting period.
- Section 9 : Further Key Issues**
summarises the impact forecast and monitoring schedule for the next reporting month.
- Section 10 : Review of the EM&A Data and Predictions**
compares the monitoring data and waste quantity against predictions in the approved Project EIA report.
- Section 11 : Conclusions**

2.1

BACKGROUND

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

The upgrading of the PPSTW comprises the following works:

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

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

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

2.2

GENERAL SITE DESCRIPTION

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

2.3

CONSTRUCTION ACTIVITIES

A summary of the major construction activities undertaken in this reporting period is shown in *Table 2.1*. The locations of the construction activities are shown in *Annex B*. The construction programme of the Project in the reporting month and the upcoming 3 months is presented in *Annex L*.

Table 2.1

Summary of Construction Activities Undertaken in Reporting Period

Construction Activities Undertaken
<ul style="list-style-type: none">• Site formation in P2• Sheet piling in P2• Tree transplanting preparation work in P1 & P2• Grouting of pipe pile wall in P2• Soil nailing in P2• Ground investigation in P2

2.4

PROJECT ORGANISATION AND MANAGEMENT STRUCTURE

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

2.5

STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

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

Table 2.2

Summary of Environmental Licensing, Notification and Permit Status

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Environmental Permit	EP-321/2008	Throughout the Contract	Permit granted on 17 November 2008.
Notification of Construction Works under Air Pollution Control (Construction Dust) Regulation	Ref No. 308136	Throughout the Contract	-
Water Discharge License	WT00008027- 2010	Till 31 December 2015	Wastewater discharge licence was issued by EPD on 7 December 2010.
Construction Noise Permit	GW-RW0588-10	1 December 2010 – 30 May 2011	-
	GW-RW0074-11	28 January 2011 – 27 July 2011	-
Chemical Waste Producer Registration	5213-421-A2620- 01	Throughout the Contract	Licence approved on 28 October 2010

3.1 AIR QUALITY MONITORING

3.1.1 Monitoring Location

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

Table 3.1 *Construction Phase Air Monitoring Locations*

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

3.1.2 Monitoring Parameter and Frequency

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

Table 3.2 *Construction Phase Air Quality Monitoring Parameters and Frequency*

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

3.1.3 Action and Limit Levels

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

Table 3.3 *Action and Limit Levels for Air Quality*

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

3.1.4 Monitoring Equipment

Continuous 24-hour and 1-hour TSP monitoring were performed using High Volume Samplers (HVS) with appropriate sampling inlets installed, located at the designated monitoring stations. The performance specification of HVS complied with the standard method “*Determination of Suspended Particulate*

Matter in the Atmosphere (High Volume Method)" as stipulated in US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B). Table 3.4 summarises the equipment that were deployed for the 24-hour and 1-hour TSP monitoring respectively.

Table 3.4 TSP Monitoring Equipment

Monitoring Station	Monitoring Equipment (HVS and Calibrator)
<i>24-hr and 1-hr TSP</i>	
AM1	GMW GS-2310 (S/N 7580), CM-AIR-43 (S/N 9833620)
AM2	GMW GS-2310 (S/N 1247), CM-AIR-43 (S/N 9833620)

3.1.5 Monitoring Methodology

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

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

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

Preparation of Filter Papers

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

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;
- the filter holder and the area surrounding the filter were cleaned;

- the filter holder was removed by loosening the foul bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;
- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;
- the swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;
- then the shelter lid was closed and secured with the aluminium strip;
- the HVSs were warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flowrate record sheet was set into the flow recorder;
- the flow rates of the HVSs were checked and adjusted to between 1.22 - 1.37 $\text{m}^3\text{min}^{-1}$ which were within the range specified in the EM&A Manual (ie $0.6 - 1.7 \text{ m}^3\text{min}^{-1}$);
- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and the filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact;
- it was then placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

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

Wind Data Monitoring

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

3.1.6 Event and Action Plan

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

3.2 LANDSCAPE AND VISUAL MONITORING

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

3.3 ENVIRONMENTAL MITIGATION MEASURES AND ENVIRONMENTAL REQUIREMENTS IN CONTRACT

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

IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

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

5.1**AIR QUALITY**

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

Wastes generated from this Project include inert construction and demolition (C&D) materials (public fill) and non-inert C&D materials (construction waste). Construction waste comprises of general refuse, metals and paper/cardboard packaging materials. Metals generated from the Project are also grouped into construction waste as the materials were not disposed of with others at public fill. Reference has been made to the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*). With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 5.1*. The public fill and construction waste generated from the Project were disposed of at the Tuen Mun Area 38 Fill Bank and WENT Landfill, respectively. 250 kg of metals, 280 kg of paper/cardboard packaging and 60kg of plastics were sent to recyclers for recycling during the reporting period.

Table 6.1

Quantities of Waste Generated from the Project

Month / Year	Quantity		
	C&D Materials Disposed of at Public Fill (inert) ^(a)	C&D Materials Disposed at Landfill (Non-inert) (Construction waste) ^{(b)(c)}	Chemical Waste
January 2011	35,395 tonnes	0 kg	0 kg

Notes:

- (a) Inert C&D materials (public fill) include bricks, concrete, building debris, rubble and excavated soil. No public fill was reused in this Project during the reporting period. The public fill were disposed of at the Tuen Mun Area 38 Fill Bank.
- (b) Non-inert C&D materials (construction wastes) include metals, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Metals generated from the Project are grouped into construction wastes as the materials were not disposed of with others at the public fill. Construction wastes other than metals and paper/cardboard packaging were disposed of at WENT Landfill. 250 kg of metals, 280 kg of paper/cardboard packaging and 60kg of plastics were recovered and sent to recyclers for recycling during the reporting period.
- (c) General refuse was disposed of at WENT by subcontractors. No record of general refuse disposal in the reporting period is available for waste quantity estimation.

7.1**WEEKLY SITE AUDITS**

Joint site inspections were conducted by the representatives of the Contractor, SOR and the ET on 7, 14, 21 and 28 January 2011. The IEC was also present during the joint inspection on 28 January 2011. There was no non-compliance recorded during the site inspections.

Major findings observed during the reporting period were summarised as follows:

7 January 2011

- While transplanting of trees in P1 were observed to be in progress, a few to-be-transplanted trees were still observed to be uprooted. The Contractor was recommended to complete transplantation of up-rooted trees as soon as possible to avoid further deterioration of health of the to-be-transplanted trees.
- Mills barriers were observed to be placed in between the retained trees and the access road along the southern boundary of site. The Contractor was recommended to relocate the barriers to between the retained trees and works area to avoid trespassing by works as well as the stockpiling of construction materials near tree roots in order to maintain health of trees within 3 working days.
- Stagnant water was observed behind sedimentation tanks near gate no.2. Some of the water overflowed the sandbag barriers and washed off soil and mud into nearby drainages. The Contractor was recommended to improve the sandbag barriers to avoid further runoff of site water into nearby drains. The Contractor was also recommended to clear soil and mud near the sedimentation tanks to minimize runoff into drains during rainy weather within 3 working days.

14 January 2011

- Some mills barriers were still observed to be placed in between the retained trees and the access road along the southern boundary of site. Some mill barriers were also placed directly above the roots of the retained trees. The Contractor was recommended to relocate the barriers to between the retained trees and works area to avoid trespassing by works as well as the stockpiling of construction materials near tree roots in order to maintain health of trees within 3 working days. The Contractor was also reminded to avoid positioning mills barriers on top of tree roots to avoid compaction of soil above tree roots.
- Turbid water was still observed to be overflowing into the stormwater drainage near the sedimentation tanks. It was observed that water from wheel washing activities accumulated near gate no.2 was not directed to

sedimentation facilities, and subsequently the water overflowed into storm drains and nearby landscaping areas. The outlet hose of one sedimentation tank was also observed to be leaking water, adding to the volume of accumulated water behind the sedimentation tanks. The Contractor was recommended to construct a drainage channel near the wheel washing facility so that all cleaning water is directed back to sedimentation tanks for proper treatment prior to discharge as soon as possible, ideally before the next joint site inspection. The Contractor was also recommended to repair all faulty hoses and bunds on site to ensure site runoffs are minimized and contained within works areas.

- Chemical drums were observed to be placed on the ground without drip trays near the north-eastern corner of site. The Contractor was recommended to provide drip trays for the temporary storage of chemicals on site to avoid potential spillages within 3 working days. Waste chemical drums should also be stored in the chemical waste storage on site and disposed of properly via licensed collectors.

21 January 2011

- Turbid water was still observed to be overflowing into the stormwater drainage near the sedimentation tanks. It was observed that water was overflowing from the sedimentation tanks. The outlet hose of one sedimentation tank was also still observed to be leaking water, adding to the volume of accumulated water behind the sedimentation tanks. The Contractor was recommended to review quantity of site water requiring discharge and to arrange more sedimentation tanks for treatment of site discharge. The Contractor was also recommended to repair all faulty hoses and bunds on site to ensure site runoffs are minimized and contained within works areas.
- Chemical drums were observed to be placed on the ground without drip trays adjacent to the temporary office near the chemical waste storage. The Contractor was recommended to provide drip trays for the temporary storage of chemicals on site to avoid potential spillages within 2 working days. Waste chemical drums should also be stored in the chemical waste storage on site and disposed of properly via licensed collectors.

28 January 2011

- Roots of some transplanted trees in the nursery were observed exposed. The Contractor was recommended to fill soil on top of the explored roots within 3 working days so that the root can be totally covered. It was also observed that there were two trees roped together, which one was inside the nursery and the other located on the slope outside. The tree outside the nursery was used as an anchor to support the newly transplanted tree inside the nursery. The Contractor was recommended to untie the rope within 3 working days to avoid further damages to trees outside the nursery. The Contractor was also recommended to erect proper support for the transplanted tree in order to maintain the health of trees in area within 3 working days.

- Rock breaking activities along the western boundary of the excavated area were observed to be generating dust. No dust suppressive measures were implemented. The Contractor was recommended to arrange and to implement dust suppressive measures (ie. Water spraying) for all dusty works on site at all times within 3 working days.

Follow-up actions were undertaken as reported by the Contractor and observed in the next weekly site inspections conducted in the reporting period.

7.2

LANDSCAPE AND VISUAL MONITORING

In accordance with the EM&A Manual, monthly landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures recommended in the EIA Report are fully achieved. Review on landscape and visual mitigation measures was performed by RLA. It was confirmed that most of the necessary landscape and visual mitigation measures as summarised in *Annex I* were implemented by the Contractor. The major findings were summarised as follow:

14 January 2011

- Some mills barriers were still observed to be placed in between the retained trees and the access road along the southern boundary of site and with some placed directly above the roots of the retained trees. The Contractor was reminded to relocate the barriers to between the retained trees and works area to avoid trespassing by works as well as the stockpiling of construction materials near tree roots in order to maintain health of trees within 3 working days. The Contractor was also reminded to avoid positioning mills barriers on top of tree roots to avoid compaction of soil above tree roots.

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

Key landscape and visual mitigation measures implemented in the reporting period include:

- Set up of a temporary tree nursery;
- Control dust and erosion of exposed soil;
- Stockpiling of topsoil for future reuse;
- Maintain existing tree record inventory; and
- Re-use existing top soil for new planting areas.

8.1.1 *Summary of Monitoring Exceedance*

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

8.1.2 *Summary of Environmental Non-Compliance*

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

8.1.3 *Summary of Environmental Complaint*

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

8.1.4 *Summary of Environmental Summon and Successful Prosecution*

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

9.1.1 *Key Issues for the Coming Month*

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

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

Work to be taken
<ul style="list-style-type: none"> • Site formation in P2 • Pipe piling in P2 • Tree transplant P1 and P2 to nursery • Sheet piling works in P2 • Erection of tower crane in P2 • Interim operation of the PPSTW in P1

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

9.1.2 *Monitoring Schedule for the Next Reporting Period*

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

9.1.3 *Construction Programme for the Next Three Months*

The most updated construction programme for the Project is presented in *Annex L*.

10.1**AIR QUALITY**

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

Table 10.1 Comparison of the HKAQO and Air Quality Monitoring Results

Monitoring Station	HKAQO, ugm^{-3}	Measured 24-hour TSP Monitoring Results, ugm^{-3} (a) (b)	
		24 hour (t)	Average
AM1	260	79	70 – 100
AM2	260	88	78 – 102

Notes:

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

(b) Average and range of data were calculated between the commencement of construction works and this reporting month.

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

10.2**WASTE MANAGEMENT**

The estimated amount of waste generated in this Project and the accumulated quantities of waste generated up to this reporting month are presented in *Table 10.2*. Recommended mitigation measures in *Sections 7.5.1.1* to *7.5.1.9* of the EIA will continue to be implemented during the construction stage.

Table 10.2 Quantity of Actual Amount of C&D Materials, General Wastes and Chemical Wastes Generated and EIA Estimation

Type of Material	Estimated Amount of Public Fill and Construction Waste in EIA (inert & non-inert)	Accumulated Actual Amount of Public Fill and Construction Waste Recorded (a) (b) (inert & non-inert)
Amount of C&D Materials Arising	61,489 m ³	44,301 m ³
Amount of C&D Materials Reused on site	14,926m ³	0 m ³
Amount of C&D Materials Sent to Public Fills	46,563m ³	44,301 m ³
General Refuse	Small	0 kg
Chemical Waste	Small	0 kg

Notes:

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

(b) Density conversion factor of 1.06 for soil and stones (Ref No. 17 05 04) from Scotland Business Waste Survey 2006 by the Scotland Environmental Protection Agency

10.3 CONCLUSION OF REVIEW

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

This EM&A Report presents the EM&A works undertaken during the reporting period from 1 to 31 January 2011 in accordance with EM&A Manual and requirements of EP (EP-321/2008).

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

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

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

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

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

Annex A

Location of Project

PROPOSED FACILITIES AND BUILDINGS

SECTION 1 INLET PUMPING STATION AND PRELIMINARY TREATMENT WORKS

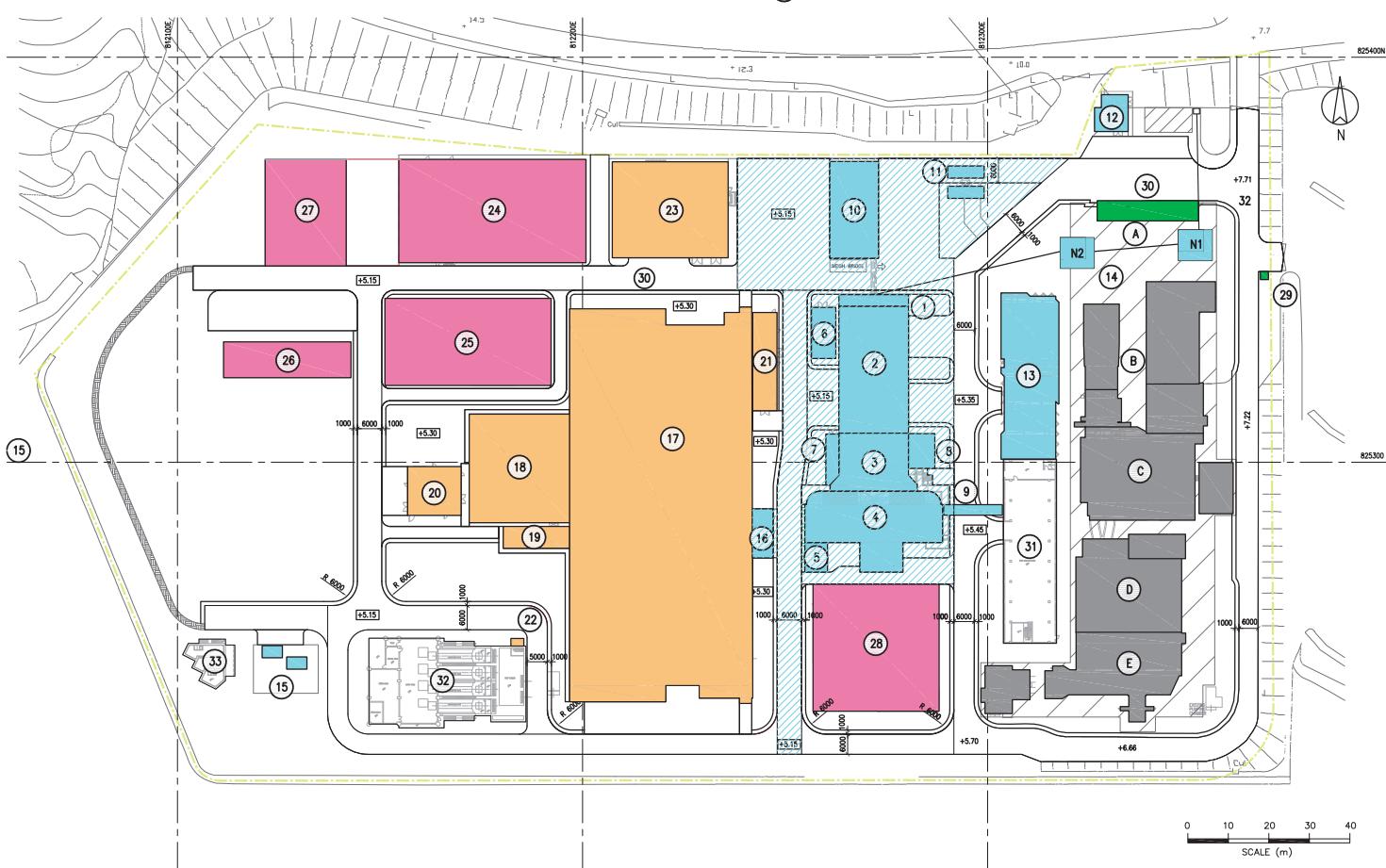
- (1) INLET CHAMBER
- (2) COARSE SCREENS AND INLET PUMPING STATION
- (3) FINE SCREEN CHANNELS
- (4) GRT CHAMBERS
- (5) INLET FLOWMETER CHAMBER
- (6) PTW MCC ROOM
- (7) BLOWER ROOM
- (8) SCREENING SKIP HOUSE
- (9) ODOR DUCT SUPPORTING BRIDGE
- (10) SEPTIC WASTE RECEPTION STATION
- (11) WEIGHBRIDGE
- (12) ELECTRICAL BUILDING 1

SECTION 2 CEPT TANKS UV DISINFECTION

- (13) ADMINISTRATION BUILDING
- (14) INLET CHAMBERS
- (15) PAYMENT FLOWMETER CHAMBER
- (16) CEPT INLET CHAMBER
- (17) CEPT TANKS
- (18) UV DISINFECTION CHANNELS
- (19) REUSE WATER PUMP ROOM
- (20) ELECTRICAL BUILDING 3
- (21) ELECTRICAL BUILDING 2
- (22) OUTFALL PUMPING STATION CONNECTION CHAMBER
- (23) CHEMICAL BUILDING

SECTION 3 SLUDGE TREATMENT & HANDLING AND ODOUR CONTROL

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



Key Plan



SECTION 4 EXISTING BUILDINGS TO BE DEMOLISHED

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

SECTION 5 EXTERNAL WORKS

- (29) GATE HOUSE
- (30) CAR PARK

EXISTING BUILDING TO BE RETAINED

- (31) EXISTING SOLID HANDLING BUILDING
- (32) EXISTING OUTFALL PUMPING STATION
- (33) EXISTING TERMINAL MANHOLE

Annex A

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

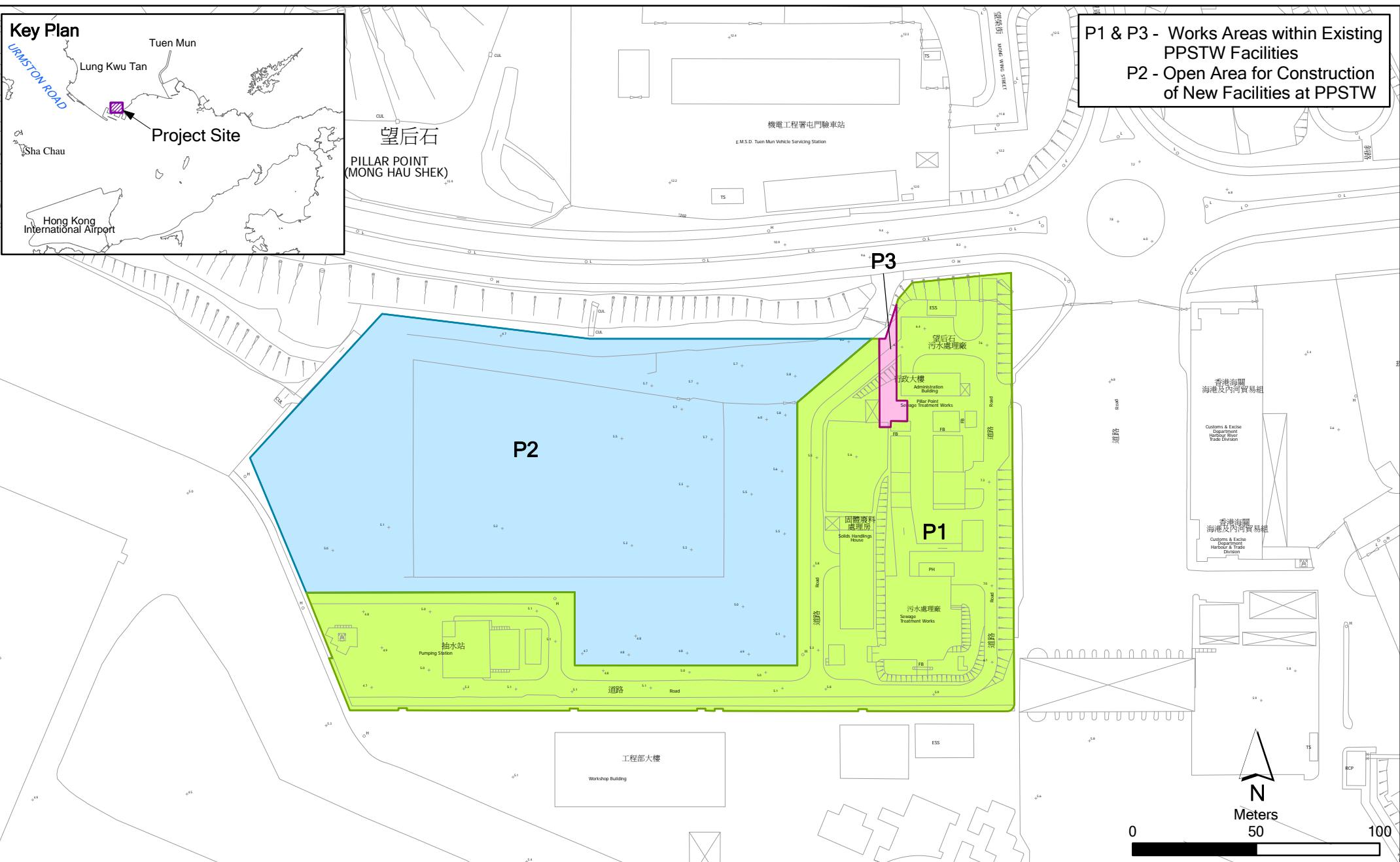
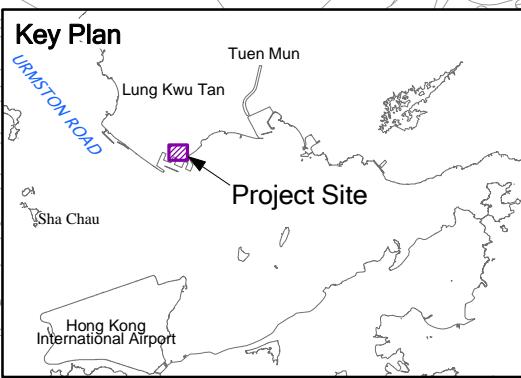
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DATE: 20/12/2010

Environmental
Resources
Management



Annex B

Works Location



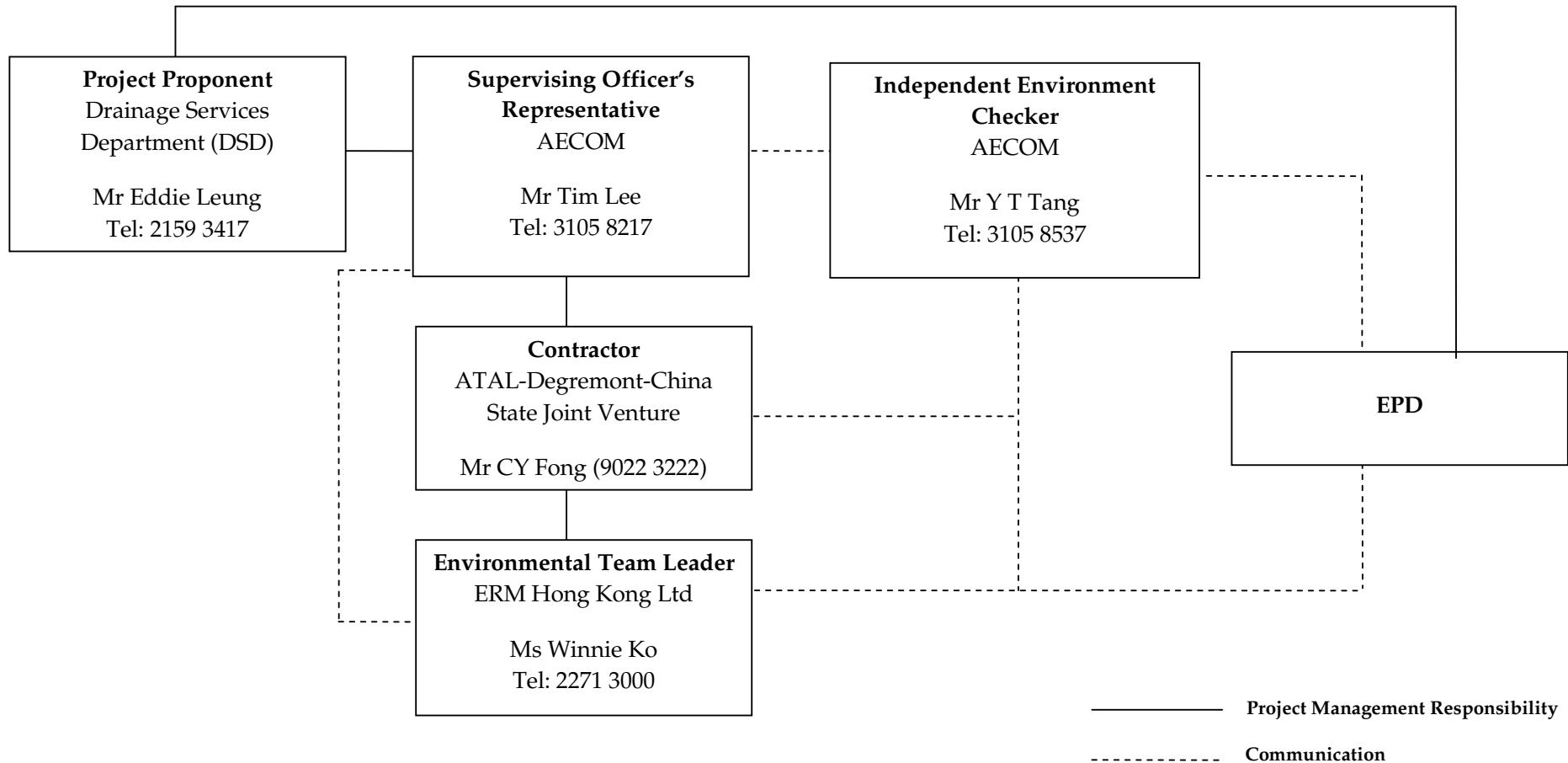
Annex B

Location of Works Areas

Annex C

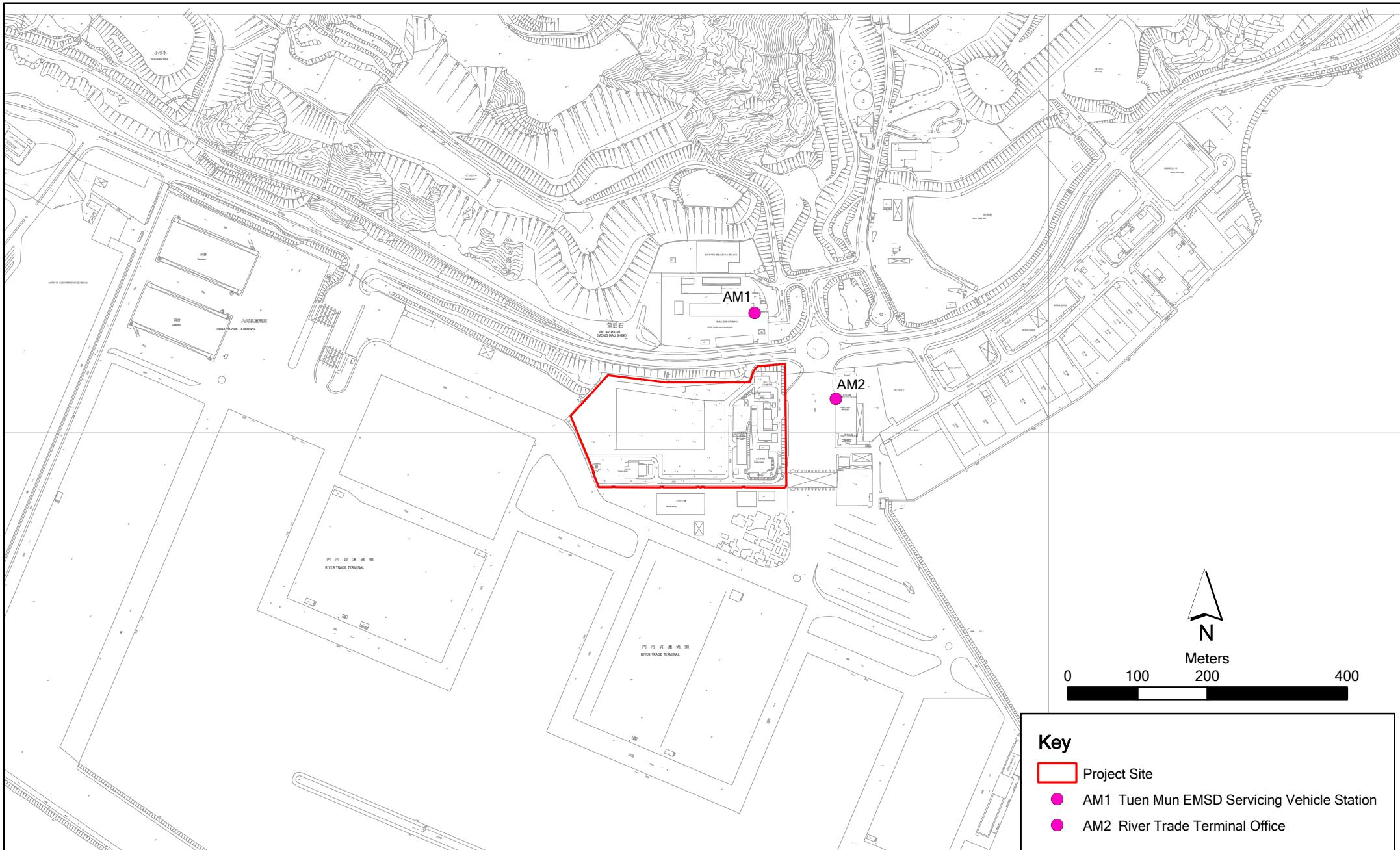
**Project Organization Chart
with Contact Details**

Project Organization During Construction Phase (with contact details)



Annex D

Locations of Air Quality Monitoring Stations



Annex D

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

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

Environmental
Resources
Management





AM1 – Tuen Mun EMSD Servicing Vehicle Station



AM2 - River Trade Terminal Office

Annex E

**Monitoring Schedule of
Reporting Month and Next
Month**

Contract No. DC/2008/03 - Design, Build and Operate Pillar Point Sewage Treatment Works
(Tuen Mun EMSD Servicing Vehicle Station - AM1 & River Trade Terminal Office - AM2)
January 2011

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

Contract No. DC/2008/03 - Design, Build and Operate Pillar Point Sewage Treatment Works
(Tuen Mun EMSD Servicing Vehicle Station - AM1 & River Trade Terminal Office - AM2)
February 2011

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

Annex F

**24-hour and 1-hour TSP
Monitoring Results**

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

1-hour TSP Monitoring Results

Station AM1

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Site Conditions / Observations / Remarks	Temperature (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
5-Jan-11	13:10	14:10	Cloudy	209	343	500	Construction work in progress	15	*	7580	7917
	14:10	15:10	Cloudy	164	343	500	Construction work in progress	16	*	7580	7918
	15:10	16:10	Cloudy	144	343	500	Construction work in progress	17	*	7580	7919
11-Jan-11	13:10	14:10	Fine	102	343	500	Construction work in progress	11	*	7580	7934
	14:10	15:10	Fine	146	343	500	Construction work in progress	11	*	7580	7935
	15:10	16:10	Fine	174	343	500	Construction work in progress	12	*	7580	7936
17-Jan-11	13:10	14:10	Sunny	150	343	500	Construction work in progress	12	*	7580	7951
	14:10	15:10	Sunny	159	343	500	Construction work in progress	13	*	7580	7952
	15:10	16:10	Sunny	147	343	500	Construction work in progress	14	*	7580	7953
22-Jan-11	13:10	14:10	Cloudy	146	343	500	Construction work in progress	14	*	7580	8023
	14:10	15:10	Cloudy	146	343	500	Construction work in progress	14	*	7580	8024
	15:10	16:10	Cloudy	158	343	500	Construction work in progress	14	*	7580	8025
28-Jan-11	13:10	14:10	Cloudy	147	343	500	Construction work in progress	16	*	7580	8040
	14:10	15:10	Cloudy	137	343	500	Construction work in progress	16	*	7580	8041
	15:10	16:10	Cloudy	135	343	500	Construction work in progress	16	*	7580	8042
				Min.	102						
				Max.	209						
				Average	151						

* Wind Speed data is presented in the Meteorological Data table

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

1-hour TSP Monitoring Results

Station AM2

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Site Conditions / Observations / Remarks	Temperature (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
5-Jan-11	13:00	14:00	Cloudy	217	383	500	Construction work in progress	15	*	1247	7913
	14:00	15:00	Cloudy	174	383	500	Construction work in progress	16	*	1247	7914
	15:00	16:00	Cloudy	189	383	500	Construction work in progress	17	*	1247	7915
11-Jan-11	13:00	14:00	Fine	193	343	500	Construction work in progress	11	*	1247	7930
	14:00	15:00	Fine	192	343	500	Construction work in progress	11	*	1247	7931
	15:00	16:00	Fine	206	343	500	Construction work in progress	12	*	1247	7932
17-Jan-11	13:00	14:00	Sunny	213	383	500	Construction work in progress	12	*	1247	7947
	14:00	15:00	Sunny	199	383	500	Construction work in progress	13	*	1247	7948
	15:00	16:00	Sunny	227	383	500	Construction work in progress	14	*	1247	7949
22-Jan-11	13:00	14:00	Cloudy	204	383	500	Construction work in progress	14	*	1247	7964
	14:00	15:00	Cloudy	190	383	500	Construction work in progress	14	*	1247	7965
	15:00	16:00	Cloudy	202	383	500	Construction work in progress	14	*	1247	7966
28-Jan-11	13:00	14:00	Cloudy	195	383	500	Construction work in progress	16	*	1247	8036
	14:00	15:00	Cloudy	197	383	500	Construction work in progress	16	*	1247	8037
	15:00	16:00	Cloudy	164	383	500	Construction work in progress	17	*	1247	8038
				Min.	164						
				Max.	227						
				Average	197						

* Wind Speed data is presented in the Meteorological Data table

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

24-hour TSP Monitoring Results

Station AM1

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m³/min)			TSP Conc. (µg/m³)	Action Level (µg/m³)	Limit Level (µg/m³)	Observations / Remarks	Sampler ID	Filter ID	
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average							
5-Jan-11	16:10	6-Jan-11	16:10	Cloudy	2.8506	3.0021	10466.18	10490.18	24.00	1.19	1.19	1.19	88	183	260	Construction work in progress	7580	7920	
11-Jan-11	16:10	12-Jan-11	16:10	Sunny	2.8774	3.0021	10493.18	10517.18	24.00	1.19	1.19	1.19	73	183	260	Construction work in progress	7580	7937	
17-Jan-11	16:10	18-Jan-11	16:10	Sunny	2.8801	3.0099	10520.18	10544.18	24.00	1.28	1.28	1.28	70	183	260	Construction work in progress	7580	7954	
22-Jan-11	16:10	23-Jan-11	16:10	Fine	2.8717	3.0125	10547.18	10571.18	24.00	1.28	1.28	1.28	76	183	260	Construction work in progress	7580	8026	
28-Jan-11	16:10	29-Jan-11	16:10	Cloudy	2.8557	2.9975	10574.18	10598.18	24.00	1.28	1.28	1.28	77	183	260	Construction work in progress	7580	8043	
												Min.	70						
												Max.	88						
												Average	77						

24-hour TSP Monitoring Results

Station AM2

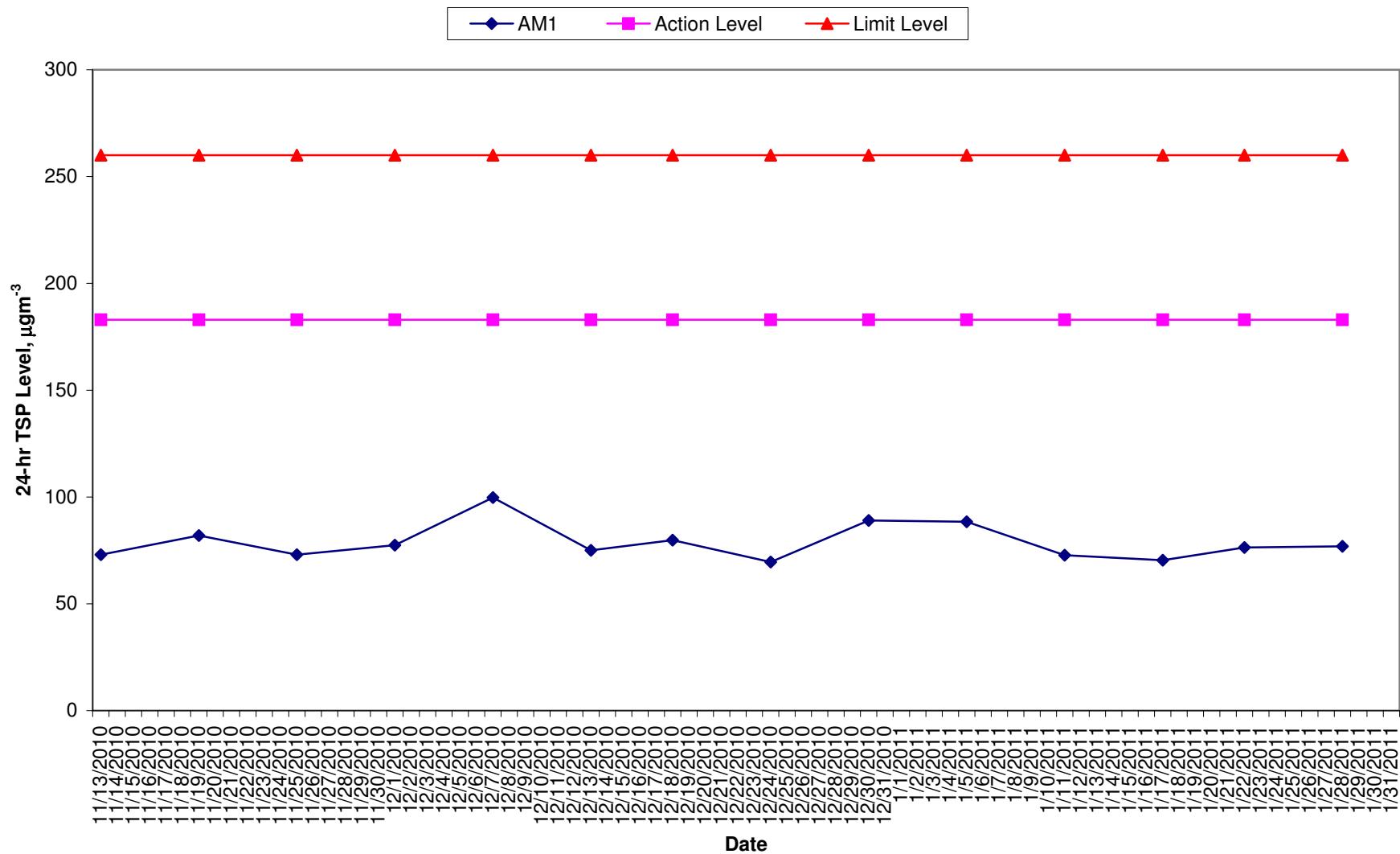
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m³/min)			TSP Conc. (µg/m³)	Action Level (µg/m³)	Limit Level (µg/m³)	Observations / Remarks	Sampler ID	Filter ID	
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average							
5-Jan-11	16:00	6-Jan-11	16:00	Cloudy	2.8374	2.9927	18459.20	18483.20	24.00	1.19	1.19	1.19	91	192	260	Construction work in progress	1247	7916	
11-Jan-11	16:00	12-Jan-11	16:00	Sunny	2.8824	3.0227	18486.20	18510.20	24.00	1.19	1.19	1.19	82	192	260	Construction work in progress	1247	7933	
17-Jan-11	16:00	18-Jan-11	16:00	Sunny	2.8737	3.0210	18513.20	18537.20	24.00	1.19	1.19	1.19	86	192	260	Construction work in progress	1247	7950	
22-Jan-11	16:00	23-Jan-11	16:00	Fine	2.8345	3.0021	18540.20	18564.20	24.00	1.19	1.19	1.19	98	192	260	Construction work in progress	1247	8022	
28-Jan-11	16:00	29-Jan-11	16:00	Cloudy	2.8933	3.0359	18567.20	18591.20	24.00	1.19	1.19	1.19	83	192	260	Construction work in progress	1247	8039	
												Min.	82						
												Max.	98						
												Average	88						

Meteorological Data Extracted from the Hong Kong Observatory

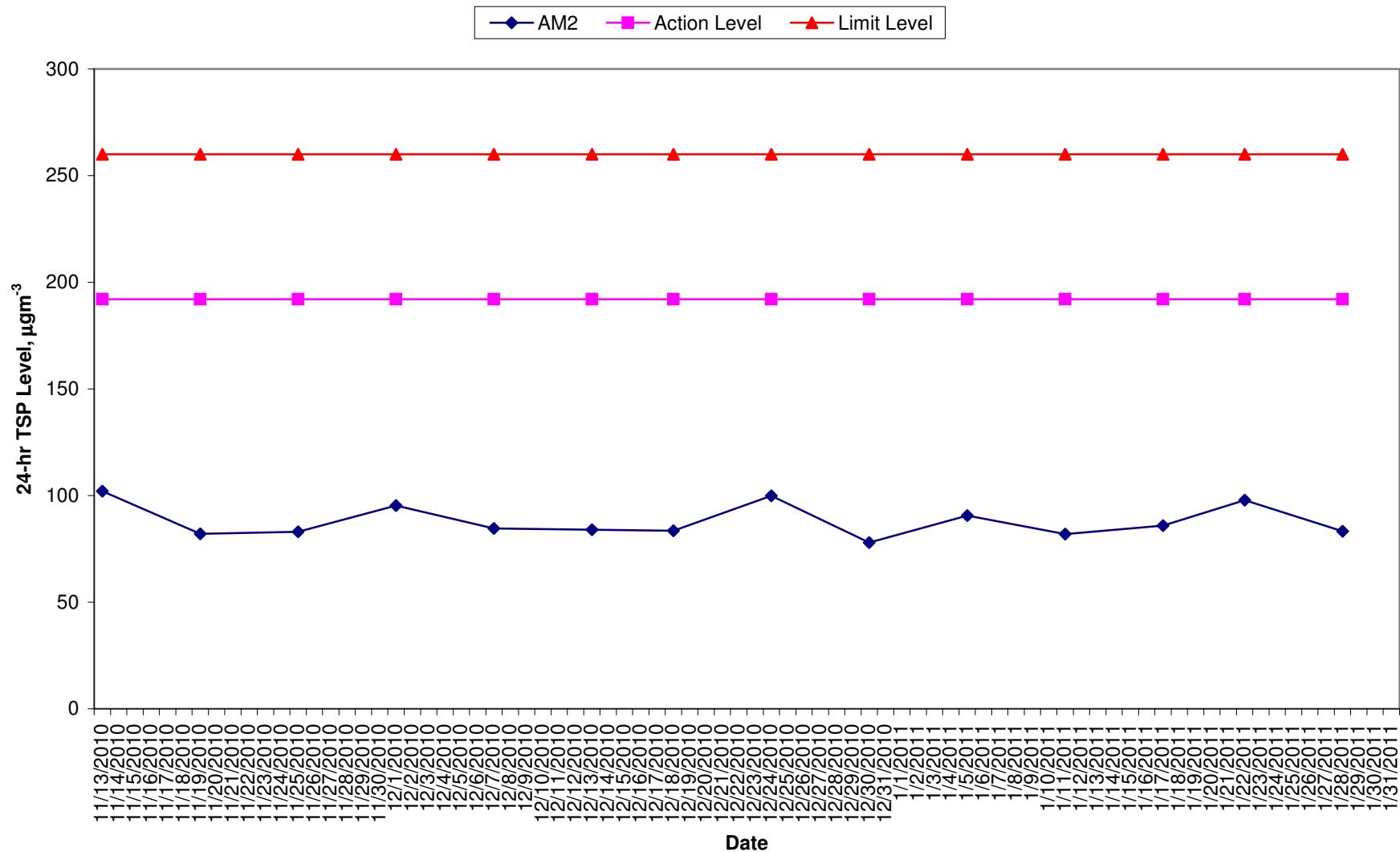
Date	Weather	Tuen Mun Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
1/5/2011	Sunny	15.7	77	Nil	0.6 - 3.6	N
1/6/2011	Sunny	14.2	69	Trace	0.5 - 5.3	N
1/11/2011	Sunny	11.2	61	Trace	1.1 - 5.3	N
1/12/2011	Sunny	8.8	88	4.2	0.7 - 4.7	NE
1/17/2011	Sunny	11.8	63	Nil	0.0 - 4.2	SE
1/18/2011	Sunny	14.3	72	Nil	0.0 - 3.5	NW
1/22/2011	Sunny	13.2	70	Nil	0.0 - 2.2	N
1/23/2011	Sunny	15.0	69	Nil	0.6 - 4.7	N
1/28/2011	Sunny	15.1	68	Nil	1.1 - 6.9	N
1/29/2011	Sunny	12.9	51	Nil	1.4 - 6.9	N

* - Daily data is retrieved from the Hong Kong Observatory as automatic data from Tuen Mun is not available by the due time of this report

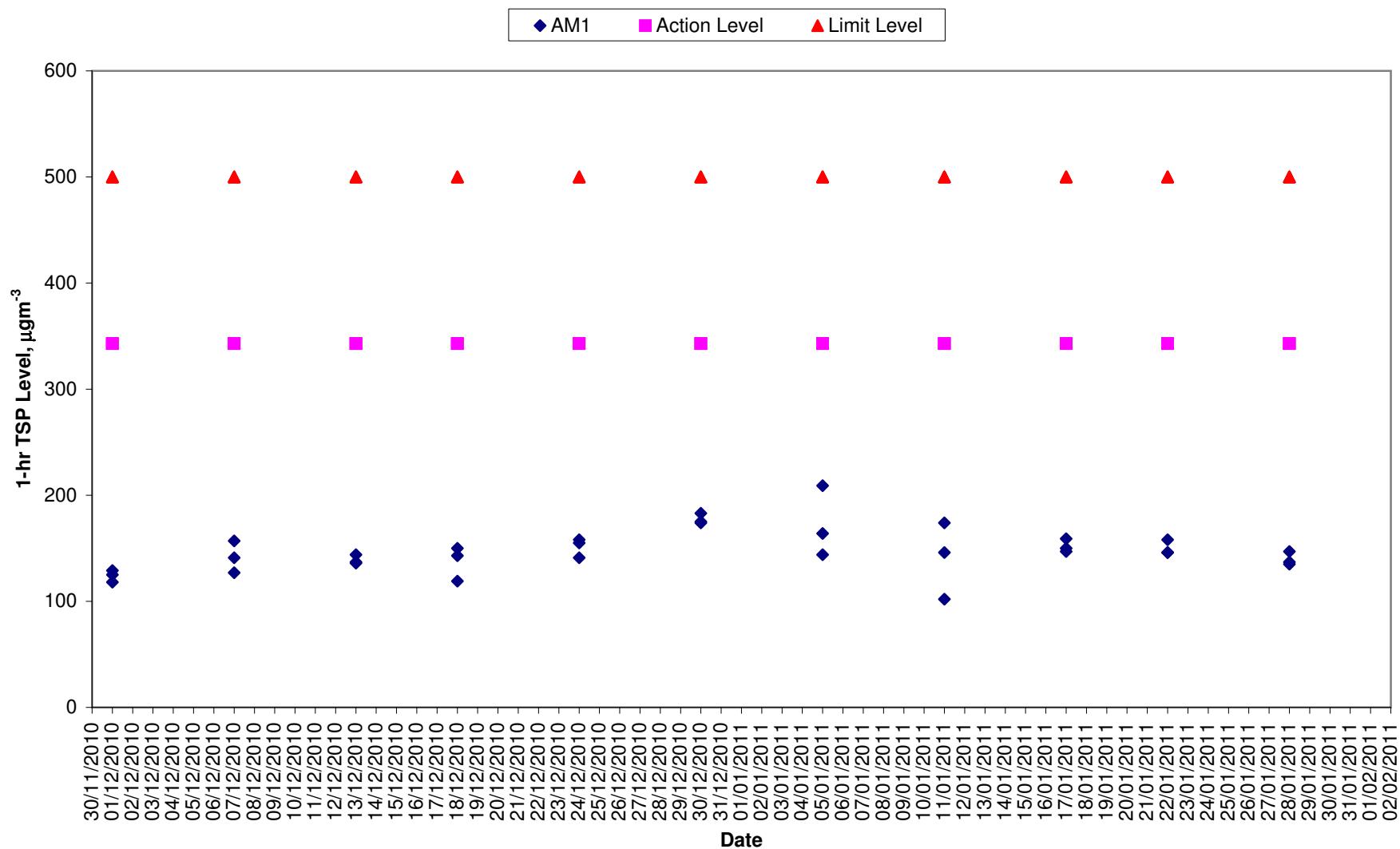
24-hr TSP Levels
AM1 (Tuen Mun EMSD Vehicle Servicing Station)



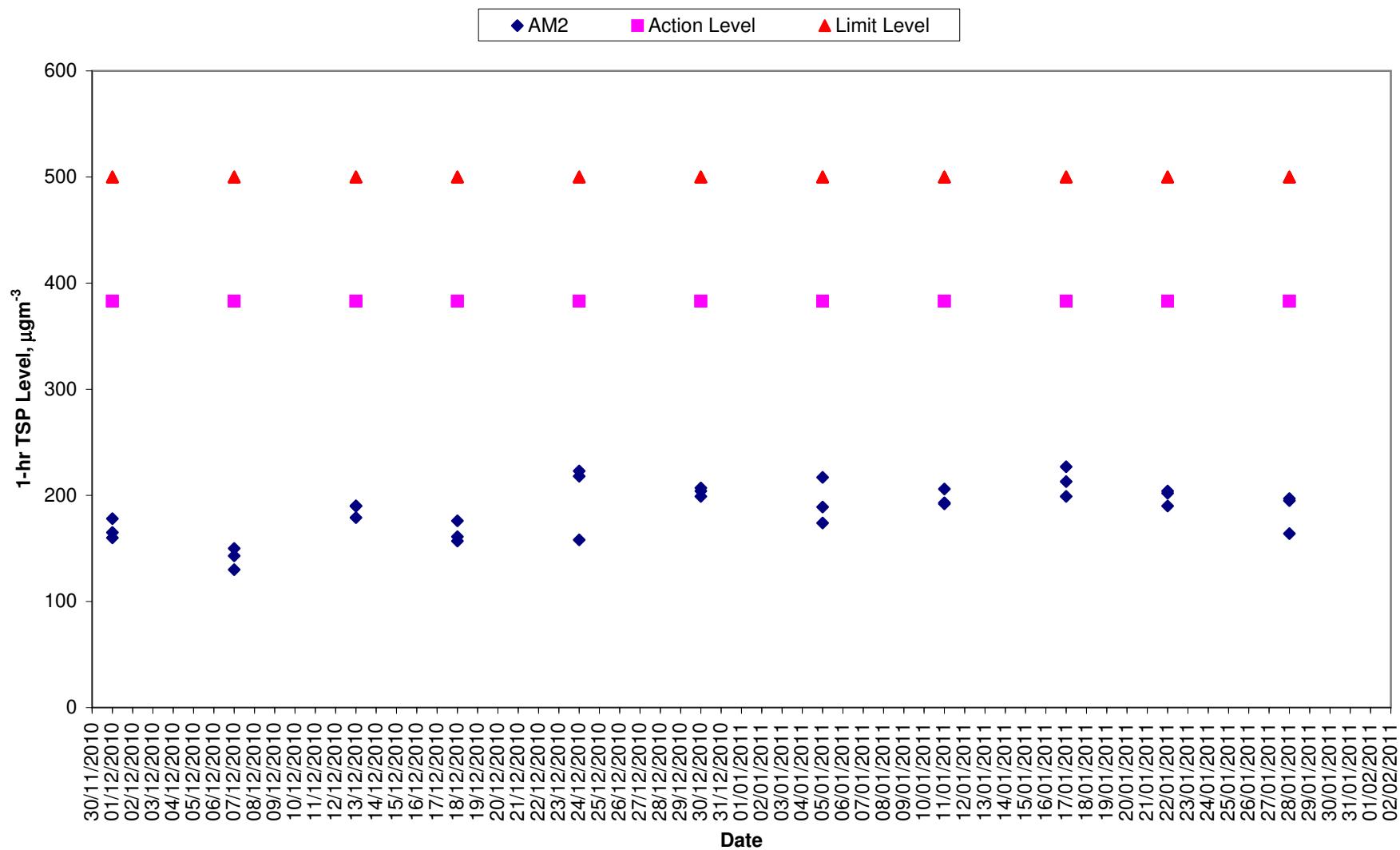
**24-hr TSP Levels
AM2 (River Trade Terminal Office)**



1-hr TSP Levels
AM1 (Tuen Mun EMSD Vehicle Servicing Station)



**1-hr TSP Levels
AM2 (River Trade Terminal Office)**



Annex G

Calibration Reports for
HVSs

TSP Monitoring Equipment

Monitoring Station ID	Location	Monitoring Equipment		Last Calibration Date	Next Calibration Date
<i>24-hr and 1-hr TSP</i>					
AM1	Tuen Mun EMSD Vehicle Servicing Station	HVS	Calibrator	GMW GS-2310 (S/N 7580)	CM-AIR-43 (S/N 9833620) 14 January 2011
AM2	River Trade Terminal Office			GMW GS-2310 (S/N 1247)	CM-AIR-43 (S/N 9833620) 14 January 2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : EMSD(24 hr TSP)
Calibrated by : P.F.Yeung
Date : 29/11/2010

Sampler

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

Calibration Office and Standard Calibration Relationship

Serial Number : 1785
Service Date : 10 May 2010
Slope (m) : 2.01637
Intercept (b) : -0.02316
Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1011
Ta(K) : 298

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.2	3.355	1.675	63
2	13 holes	9.8	3.138	1.568	58
3	10 holes	7.4	2.727	1.364	48
4	7 holes	5.2	2.286	1.145	38
5	5 holes	3.5	1.875	0.942	28

Sampler Calibration Relationship

Slope(m):47.735 Intercept(b): -16.789 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan

Date: 03/12/2010

High-Volume TSP Sampler
5-Point Calibration Record

Location : River Trade
Calibrated by : K.T.Ho
Date : 29/11/2010

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1247

Calibration Office and Standard Calibration Relationship

Serial Number : 1785
Service Date : 10 May 2010
Slope (m) : 2.01637
Intercept (b) : -0.02316
Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1011
Ta(K) : 298

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.4	3.384	1.690	61	61.1
2	13 holes	9.6	3.106	1.552	55	55.1
3	10 holes	7.6	2.764	1.382	48	48.1
4	7 holes	5.0	2.241	1.123	37	37.1
5	5 holes	3.2	1.793	0.901	28	28.1

Sampler Calibration Relationship

Slope(m):41.928 Intercept(b):9.835 Correlation Coefficient(r):0.9999

Checked by:Magnum Fan

Date:03/12/2010

High-Volume TSP Sampler
5-Point Calibration Record

Location : EMSD
Calibrated by : P.F.Yeung
Date : 14/01/2011

Sampler

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

Calibration Office and Standard Calibration Relationship

Serial Number : 1785
Service Date : 10 May 2010
Slope (m) : 2.01637
Intercept (b) : -0.02316
Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1020
Ta(K) : 289

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	10.8	3.349	1.672	52
2	13 holes	8.6	2.988	1.493	46
3	10 holes	6.5	2.598	1.300	40
4	7 holes	4.1	2.063	1.035	31
5	5 holes	2.5	1.611	0.811	24

Sampler Calibration Relationship

Slope(m):33.162 Intercept(b): -2.523 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan

Date: 23/01/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : River Trade
Calibrated by : K.T.Ho
Date : 14/01/2011

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1247

Calibration Office and Standard Calibration Relationship

Serial Number : 1785
Service Date : 10 May 2010
Slope (m) : 2.01637
Intercept (b) : -0.02316
Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1020
Ta(K) : 289

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.4	3.440	1.718	66	67.3
2	13 holes	9.4	3.124	1.561	58	59.1
3	10 holes	7.6	2.809	1.405	50	50.9
4	7 holes	4.7	2.209	1.107	35	35.7
5	5 holes	2.7	1.674	0.842	22	22.4

Sampler Calibration Relationship

Slope(m):51.232 Intercept(b):20.879 Correlation Coefficient(r):0.9999

Checked by:Magnum Fan

Date:23/01/2011

Annex H

**Event/Action Plan for Air
Quality Monitoring**

Table H1 Event Action Plan for Air Quality Monitoring

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

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

Annex I

Implementation Schedule of Mitigation Measures

Annex I Summary of Mitigation Measures Implementation Schedule

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

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

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

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

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

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

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

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

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

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

Remark:

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

Annex J

Waste Flow Table

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

Monthly Summary Waste Flow Table

Month	Actual Quantities of Inert C&D Materials (Public Fill) Generated					Actual Quantities of Non-inert C&D Materials (Construction Waste) Generated				
	Total Quantity Generated	Rocks & Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals (see Note 1)	Paper / cardboard packaging (see Note 1)	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	tonne	tonne	tonne	tonne	tonne	kilogram	kilogram	kilogram	kilogram	kilogram
Nov 2010	2,248	0	0	0	2,248	60	100	0	0	0
Dec 2010	9,316	0	0	0	9316	100	120	20	0	0
Jan 2011	35,395	0	0	0	35,395	250	280	60	0	0 (see Note 3)
Total	46,959	0	0	0	46,959	410	500	80	0	0

Notes:

- (1) Metal and paper/cardboard packaging were collected by recycler for recycling.
- (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material collected by recycler for recycling.
- (3) General refuse was disposed of at WENT by subcontractors. No record of general refuse disposal in the reporting period is available for waste quantity estimation.

Annex K

**Environmental Complaint,
Environmental Summons
and Persecution Log**

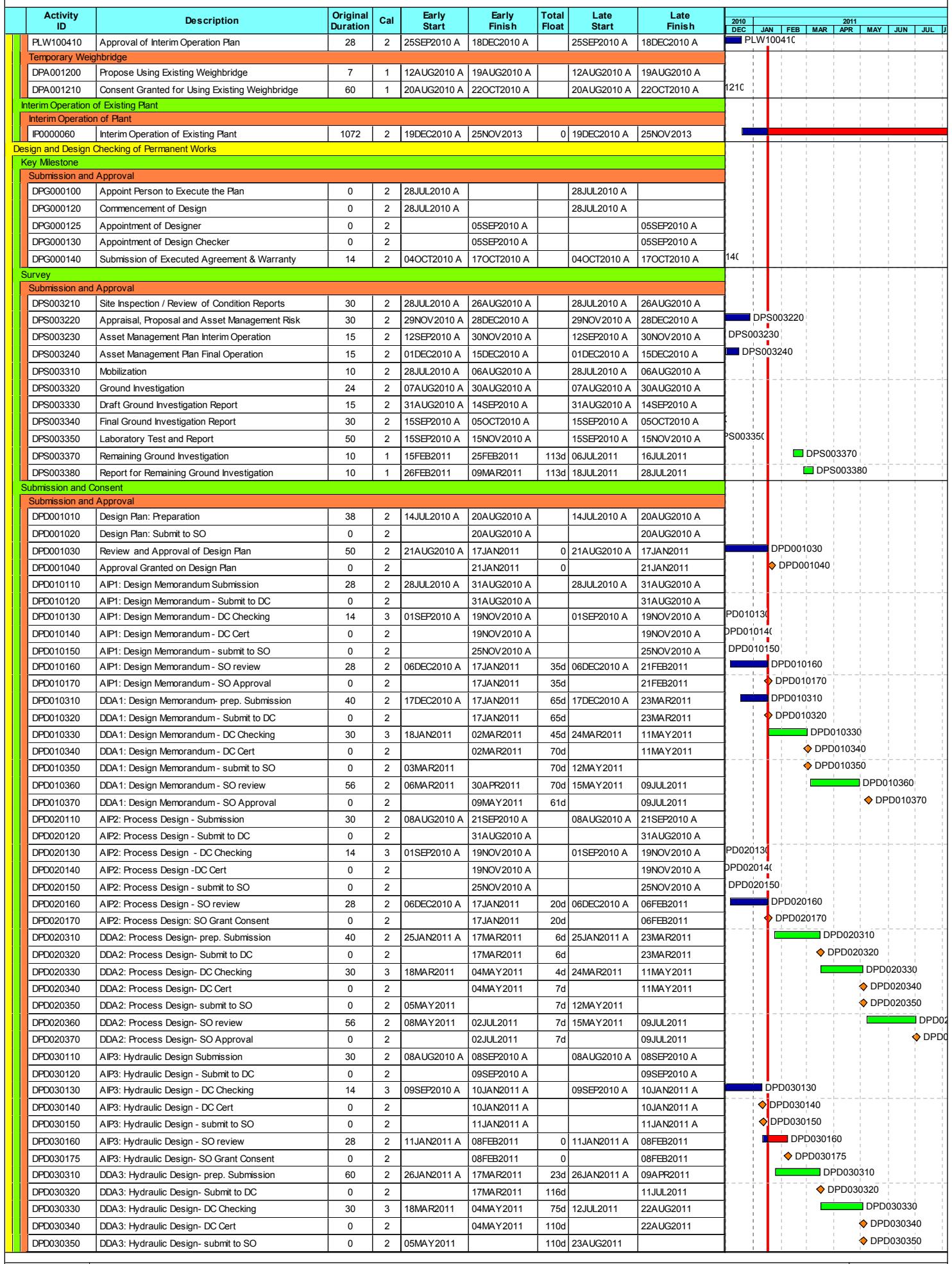
Annex K Cumulative Complaint and Summons/Prosecutions Log

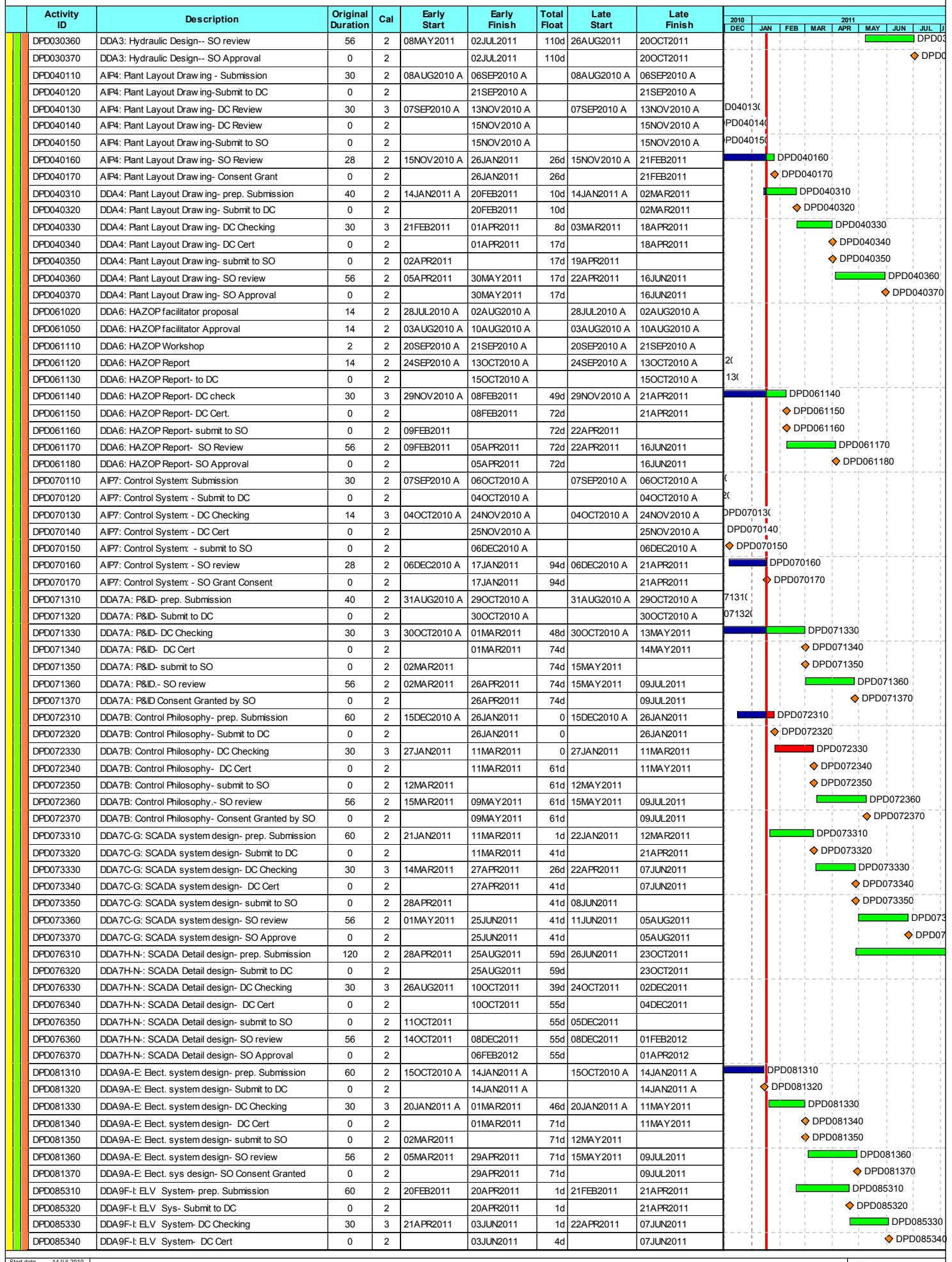
Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
November 2010	0	0
December 2010	0	0
January 2011	0	0
Overall Total	0	0

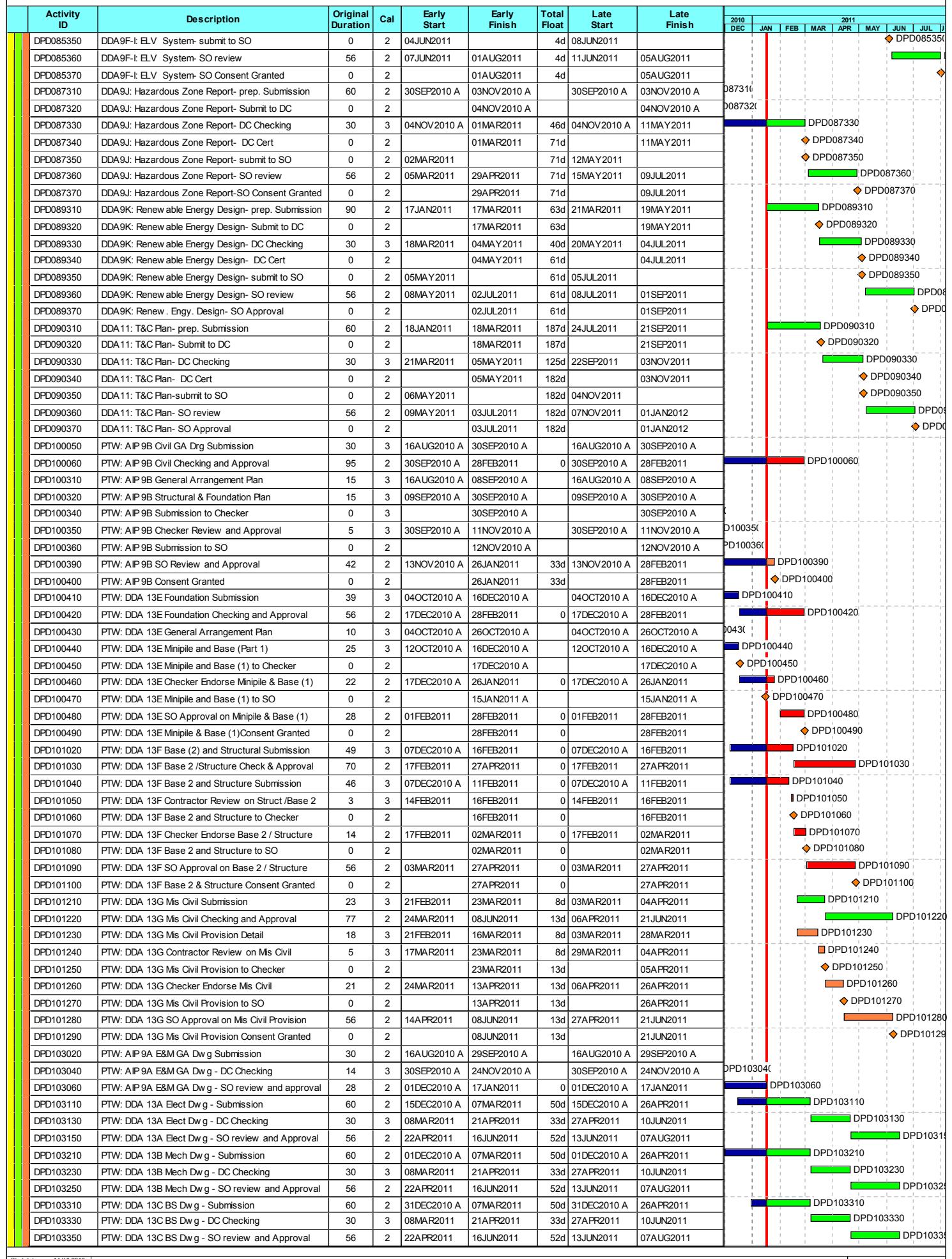
Annex L

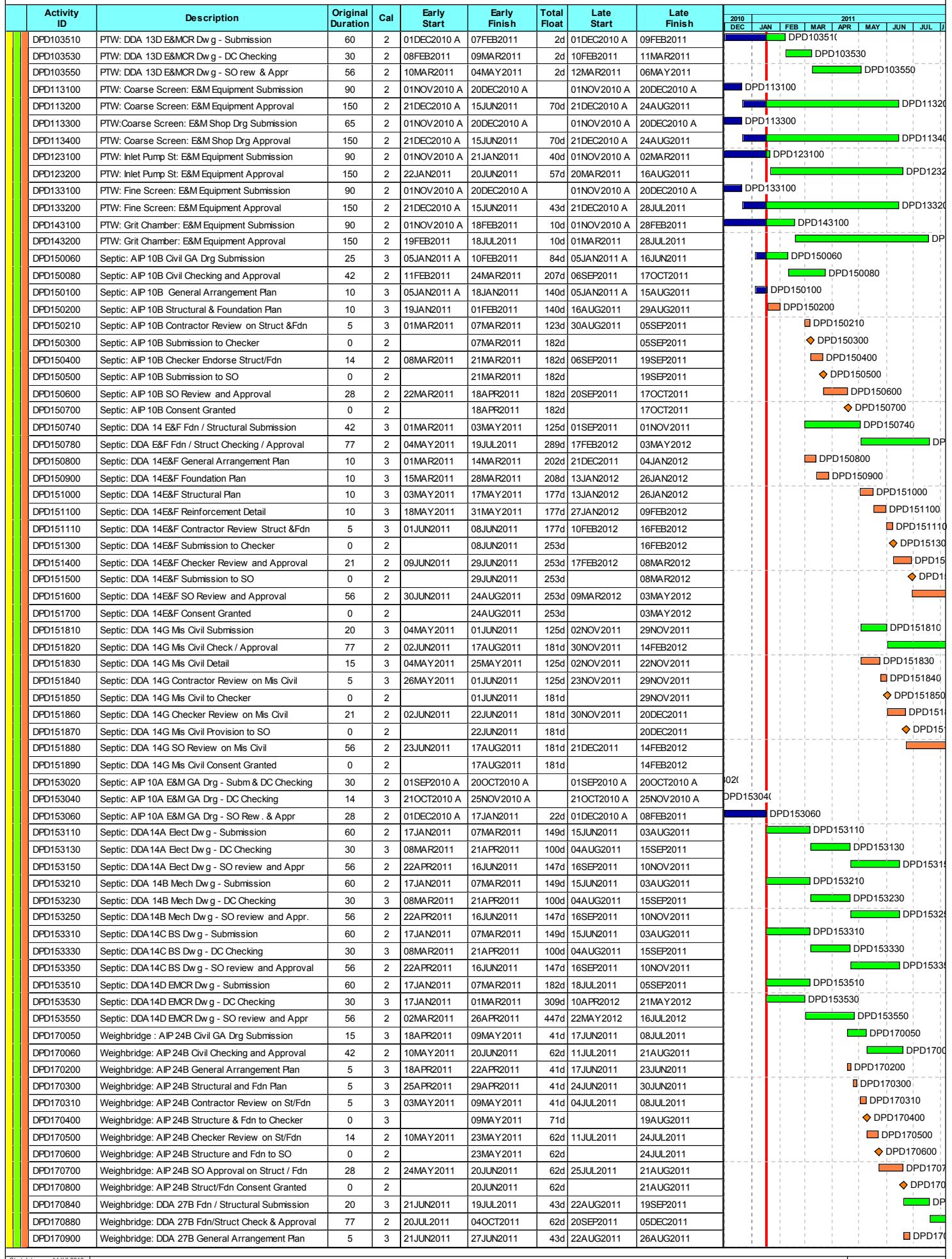
**Construction Programme of
the Project**

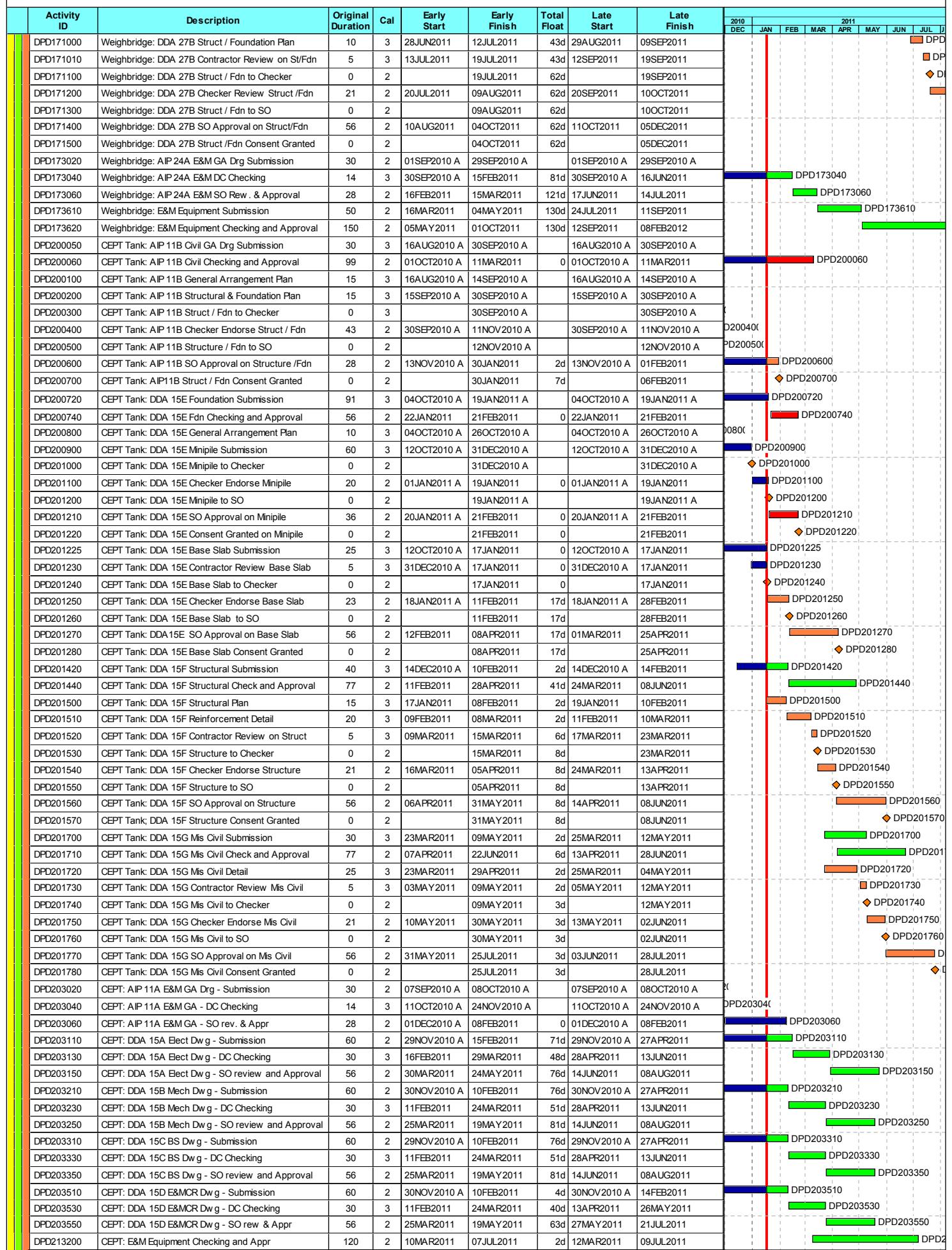
Activity ID	Description	Original Duration	Cal	Early Start	Early Finish	Total Float	Late Start	Late Finish	2010							2011															
									DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	SEP	OCT	NOV	DEC	JAN	FEB	MAR								
Key Date																															
Commencement and Completion of Works																															
Contract Dates																															
KMD000100	Letter of Acceptance	0	2	14JUL2010 A				14JUL2010 A																							
KMD000110	Commencement of the Design & Construction Works	0	2	28JUL2010 A					28JUL2010 A																						
KMD000120	Completion of Design and Construction Works	0	2		25NOV2013	0				25NOV2013 *																					
KMD000130	Commence Interim Operation of Extg Facilities	0	2	20DEC2010 A						20DEC2010 A																					
KMD000140	Completion of Interim Operation	0	2		25NOV2013 *	0				25NOV2013																					
KMD000150	Commencement of Operation of Facilities	0	2	26NOV2013 *						26NOV2013																					
Possession of Site																															
Contract Dates																															
POS001000	Portion T1 and T2 (Latest 30 days)	0	2	28JUL2010 A					28JUL2010 A																						
POS002000	Portion P1 (145 days Latest 152 days)	0	2	20DEC2010 A						20DEC2010 A																					
POS003000	Portion P2 (Latest 30 days)	0	2	28JUL2010 A						28JUL2010 A																					
POS004000	Portion P3 (Latest 455 days)	0	2	26OCT2011						26OCT2011 *																					
Preliminaries																															
General Requirements																															
Contract Preliminaries																															
PLW001000	Initial Site Survey / Identify Extg Utilities	35	2	28JUL2010 A	31AUG2010 A			28JUL2010 A	31AUG2010 A																						
PLW001100	Project Sign Board at Portion T1 & T2	30	2	12SEP2010 A	01NOV2010 A			12SEP2010 A	01NOV2010 A																						
PLW001200	Project Sign Board at Portion P2	30	2	12SEP2010 A	01NOV2010 A			12SEP2010 A	01NOV2010 A																						
PLW001300	Site Establishment	30	2	13AUG2010 A	11SEP2010 A			13AUG2010 A	11SEP2010 A																						
PLW001400	Fencing , Gate & Lighting	30	2	27AUG2010 A	25SEP2010 A			27AUG2010 A	25SEP2010 A																						
PLW001510	Condition Survey Plan - Submission	30	2	02OCT2010 A	11OCT2010 A			02OCT2010 A	11OCT2010 A																						
PLW001520	Conditional Survey Plan - Approval	40	2	12OCT2010 A	24OCT2010 A			12OCT2010 A	24OCT2010 A																						
PLW001530	Conditional Survey - Civil and Struct	20	1	25OCT2010 A	21NOV2010 A			25OCT2010 A	21NOV2010 A																						
PLW001540	Conditional Survey - E&M	20	1	25OCT2010 A	12NOV2010 A			25OCT2010 A	12NOV2010 A																						
PLW001550	Conditional Survey - Civil	14	2	22NOV2010 A	21JAN2011	88d		22NOV2010 A	19APR2011																						
PLW001600	Gen Condition & Tree Survey	50	2	28JUL2010 A	15SEP2010 A			28JUL2010 A	15SEP2010 A																						
PLW001700	Tree Transplant According to Ref Drg	95	2	05NOV2010 A	28FEB2011	46d		05NOV2010 A	15APR2011																						
PLW001710	Other Tree Transplant (not Included in Ref Drg)	60	1	23MAR2011	08JUN2011	107d		04AUG2011	15OCT2011																						
PLW001800	Supervising Officer's Site Office	60	2	21AUG2010 A	26NOV2010 A			21AUG2010 A	26NOV2010 A																						
PLW001900	Contractor's Works Area at T1 & Accommodation	60	2	02AUG2010 A	30OCT2010 A			02AUG2010 A	30OCT2010 A																						
PLW002000	Provide Survey Equipment & Computer Facilities	0	2		26NOV2010 A					26NOV2010 A																					
PLW002100	Employee Compensation / Third Party Insurance	30	2	14JUL2010 A	26NOV2010 A			14JUL2010 A	26NOV2010 A																						
PLW002200	Works Insurance	30	2	14JUL2010 A	05NOV2010 A			14JUL2010 A	05NOV2010 A																						
PLW002300	Performance Security	30	2	14JUL2010 A	12AUG2010 A			14JUL2010 A	12AUG2010 A																						
PLW002400	Professional Indemnity Insurance	60	2	14JUL2010 A	01DEC2010 A			14JUL2010 A	01DEC2010 A																						
PLW002500	List of Staff of Management Team	14	2	14JUL2010 A	27JUL2010 A			14JUL2010 A	27JUL2010 A																						
PLW002600	Draft Safety Plan	28	2	14JUL2010 A	10AUG2010 A			14JUL2010 A	10AUG2010 A																						
PLW002630	Draft Safety Plan Approval	40	2	11AUG2010 A	14OCT2010 A			11AUG2010 A	14OCT2010 A																						
PLW002650	Finalize Safety Plan	35	2	20SEP2010 A	20OCT2010 A			20SEP2010 A	20OCT2010 A																						
PLW002700	Draft Environmental Management Plan	30	2	14JUL2010 A	12AUG2010 A			14JUL2010 A	12AUG2010 A																						
PLW002720	Draft Environmental Management Plan Approval	40	2	13AUG2010 A	21OCT2010 A			13AUG2010 A	21OCT2010 A																						
PLW002740	Finalize Environmental Management Plan	35	2	22SEP2010 A	26OCT2010 A			22SEP2010 A	26OCT2010 A																						
PLW002760	Establish Environmental Team	30	2	28JUL2010 A	26AUG2010 A			28JUL2010 A	26AUG2010 A																						
PLW002800	Initial Works Programme	55	2	14JUL2010 A	06SEP2010 A			14JUL2010 A	06SEP2010 A																						
PLW002840	Detail Programme	14	2	07SEP2010 A	20SEP2010 A			07SEP2010 A	20SEP2010 A																						
PLW002860	First Three Month Programme	14	2	31JUL2010 A	13AUG2010 A			31JUL2010 A	13AUG2010 A																						
PLW002900	Subcontractor Management Plan	36	2	14JUL2010 A	18AUG2010 A			14JUL2010 A	18AUG2010 A																						
PLW004050	Appoint Competent Person for Tree Works	100	2	28JUL2010 A	01JAN2011 A			28JUL2010 A	01JAN2011 A																						
PLW004400	Submit Proposed Professional Photographer	21	2	30JUL2010 A	19AUG2010 A			30JUL2010 A	19AUG2010 A																						
PLW004600	Nominate Contractor Labour Officer	7	2	28JUL2010 A	03AUG2010 A			28JUL2010 A	03AUG2010 A																						
PLW004650	Submission of Works Area Layout at T1	14	2	05AUG2010 A	20AUG2010 A			05AUG2010 A	20AUG2010 A																						
PLW004700	Submit Method to Measure Incoming Raw Sewage	42	2	15SEP2010 A	15OCT2010 A			15SEP2010 A	15OCT2010 A																						
PLW004800	Nomination of AP / Registered Struct Engineer	28	2	28JUL2010 A	24AUG2010 A			28JUL2010 A	24AUG2010 A																						
PLW004900	Baseline monitoring	36	2	21SEP2010 A	29OCT2010 A			21SEP2010 A	29OCT2010 A																						
PLW004910	XP Application for Temp Access to P2	75	1	29NOV2010 A	14FEB2011	20d		29NOV2010 A	09MAR2011																						
PLW004920	Apply Roadwork Advice	6	1	15FEB2011	21FEB2011	20d		10MAR2011	16MAR2011																						
PLW004930	Construct Site Access to P2	36	1	22FEB2011	04APR2011	20d		17MAR2011	03MAY2011																						
PLW005210	Commissioning Plan - AIP 21 Submission	60	2	01SEP2010 A	29SEP2010 A			01SEP2010 A	29SEP20																						







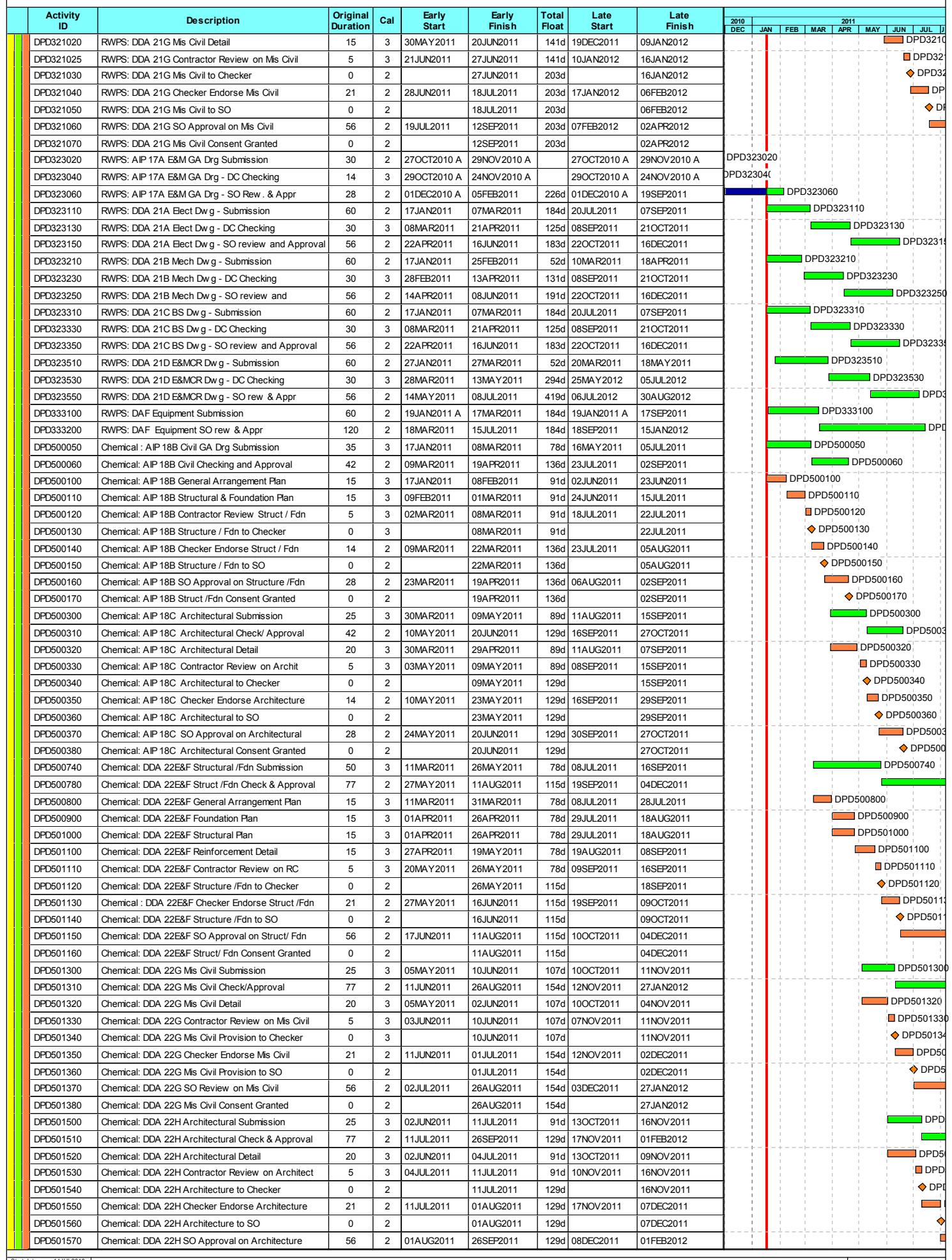


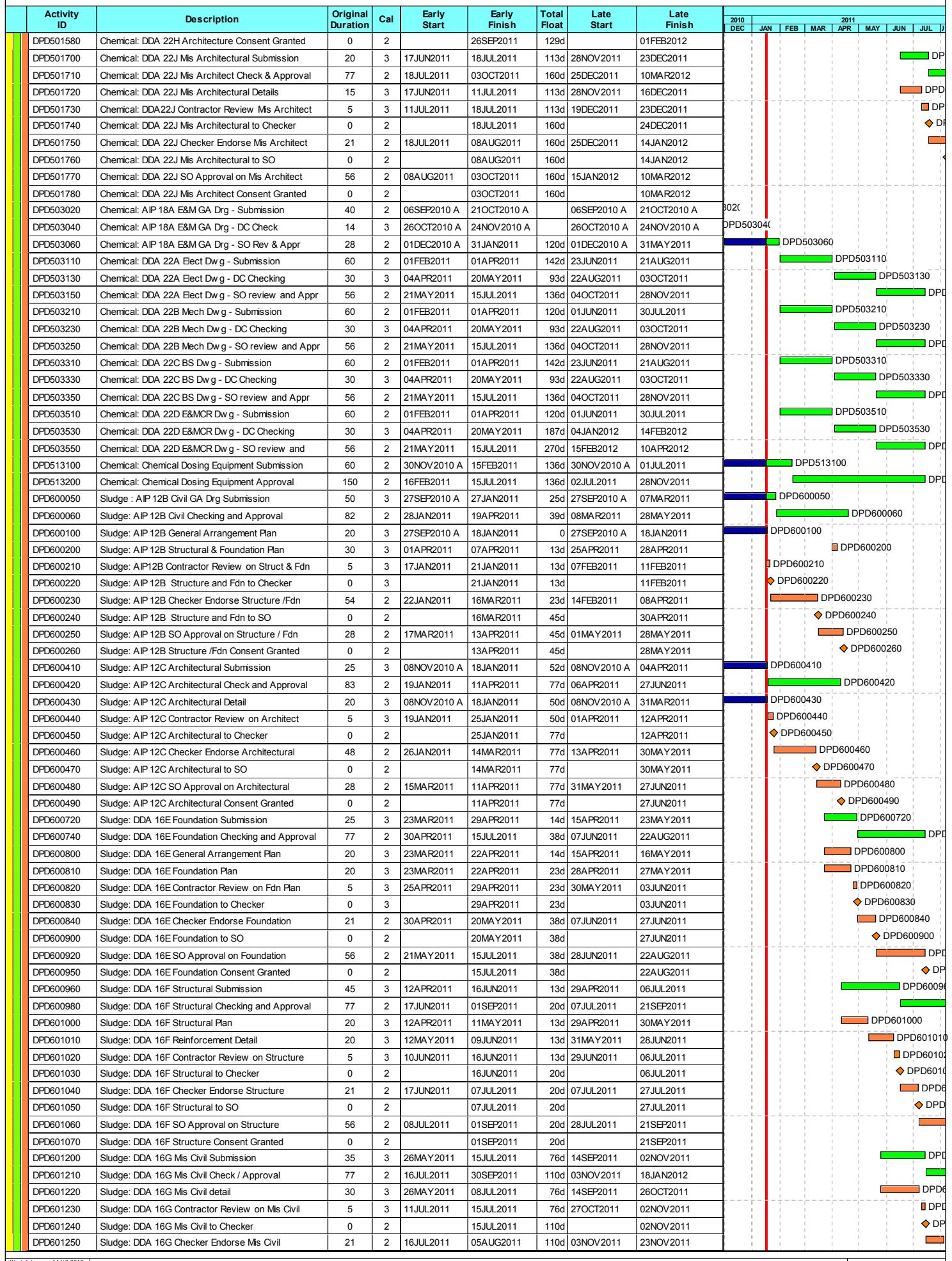


Activity ID	Description	Original Duration	Cal	Early Start	Early Finish	Total Float	Late Start	Late Finish	2010							2011													
									DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	Aug	Sep	OCT	NOV	Dec	JAN	FEB	MAR	APR	MAY	JUN	JUL	Aug
DPD300050	UV : AIP 13B Civil GA Drg Submission	43	3	25NOV2010 A	16MAR2011	36d	25NOV2010 A	12MAY2011																					
DPD300060	UV : AIP 13B Civil Checking and Approval	42	2	17MAR2011	27APR2011	57d	13MAY2011	23JUN2011																					
DPD300100	UV : AIP 13B General Arrangement Plan	20	3	25NOV2010 A	09FEB2011	8d	25NOV2010 A	21FEB2011																					
DPD300200	UV : AIP 13B Structural & Foundation Plan	20	3	10FEB2011	09MAR2011	8d	22FEB2011	21MARCH2011																					
DPD300210	UV : AIP 13B Contractor Review on Struct & Fdn	5	3	10MAR2011	16MAR2011	8d	22MAR2011	28MARCH2011																					
DPD300300	UV : AIP 13B Submission to Checker	0	2		16MAR2011	12d		28MARCH2011																					
DPD300400	UV : AIP 13B Checker Endorse Struct / Fdn	14	2	17MAR2011	30MAR2011	12d	29MARCH2011	11APR2011																					
DPD300500	UV : AIP 13B Submission to SO	0	2		30MAR2011	12d		11APR2011																					
DPD300600	UV : AIP 13B SO Review and Approval	28	2	31MAR2011	27APR2011	57d	27MAY2011	23JUN2011																					
DPD300700	UV : AIP 13B Consent Granted	0	2		27APR2011	57d		23JUN2011																					
DPD300740	UV : DDA 17E&F Fdn / Structural Submission	60	3	31MAR2011	30JUN2011	5d	12APR2011	08JUL2011																					
DPD300780	UV : DDA 17E&F Structural & Fdn Check / Approval	77	2	01JUL2011	15SEP2011	8d	09JUL2011	23SEP2011																					
DPD300800	UV : DDA 17E&F General Arrangement Plan	10	3	31MAR2011	18APR2011	5d	12APR2011	25APR2011																					
DPD300900	UV : DDA 17E&F Foundation Plan	10	3	19APR2011	03MAY2011	5d	26APR2011	11MAY2011																					
DPD301000	UV : DDA 17E&F Structural Plan	15	3	04MAY2011	25MAY2011	5d	12MAY2011	01JUN2011																					
DPD301100	UV : DDA 17E&F Reinforcement Detail	20	3	26MAY2011	23JUN2011	5d	02JUN2011	30JUN2011																					
DPD301110	UV : DDA 17E&F Contractor Review on Struct / Fdn	5	3	24JUN2011	30JUN2011	5d	04JUL2011	08JUL2011																					
DPD301300	UV : DDA 17E&F Structure and Fdn to Checker	0	2		30JUN2011	8d		08JUL2011																					
DPD301400	UV : DDA 17E&F Checker Endorse Struct / Fdn	21	2	01JUL2011	21JUL2011	8d	09JUL2011	29JUL2011																					
DPD301500	UV : DDA 17E&F Structure and Fdn to SO	0	2		21JUL2011	8d		29JUL2011																					
DPD301600	UV : DDA 17E&F SO Approval on Structure / Fdn	56	2	22JUL2011	15SEP2011	8d	30JUL2011	23SEP2011																					
DPD301700	UV : DDA17E&F Structure and Fdn Consent Granted	0	2		15SEP2011	8d		23SEP2011																					
DPD301810	UV : DDA 17G Mis Civil Submission	25	3	10JUN2011	15JUL2011	47d	17AUG2011	21SEP2011																					
DPD301820	UV : DDA 17G Mis Civil Checking and Approval	77	2	16JUL2011	30SEP2011	68d	22SEP2011	07DEC2011																					
DPD301830	UV : DDA 17G Mis Civil Detail	20	3	10JUN2011	08JUL2011	47d	17AUG2011	14SEP2011																					
DPD301835	UV : DDA 17G Contractor Review on Mis Civil	5	3	11JUL2011	15JUL2011	47d	15SEP2011	21SEP2011																					
DPD301840	UV : DDA 17G Mis Civil to Checker	0	2		15JUL2011	68d		21SEP2011																					
DPD301850	UV : DDA 17G Checker Endorse Mis Civil	21	2	16JUL2011	05AUG2011	68d	22SEP2011	12OCT2011																					
DPD301860	UV : DDA 17G Mis Civil to SO	0	2		05AUG2011	68d		12OCT2011																					
DPD301870	UV : DDA 17G SO Approval on Mis Civil	56	2	06AUG2011	30SEP2011	68d	13OCT2011	07DEC2011																					
DPD301880	UV : AIP 13G Mis Civil Consent Granted	0	2		30SEP2011	68d		07DEC2011																					
DPD303020	UV : AIP 13A E&M GA Drg Submission	30	2	07SEP2010 A	27OCT2010 A		07SEP2010 A	27OCT2010 A																					
DPD303040	UV : AIP 13A E&M GA - DC Checking	14	3	28OCT2010 A	24NOV2010 A		28OCT2010 A	24NOV2010 A																					
DPD303060	UV : AIP 13A E&M GA - SO rev. & appr	28	2	01NOV2010 A	17JAN2011	84d	01NOV2010 A	11APR2011																					
DPD303110	UV : DDA 17A Elect Dwg - Submission	60	2	30DEC2010 A	05FEB2011	159d	30DEC2010 A	14JUL2011																					
DPD303130	UV : DDA 17A Elect Dwg - DC Checking	30	3	07FEB2011	18MAR2011	107d	15JUL2011	25AUG2011																					
DPD303150	UV : DDA 17A Elect Dwg - SO review and Approval	56	2	19MAR2011	13MAY2011	160d	26AUG2011	20OCT2011																					
DPD303210	UV : DDA 17B Mech Dwg - Submission	60	2	31DEC2010 A	05FEB2011	45d	31DEC2010 A	22MAR2011																					
DPD303230	UV : DDA 17B Mech Dwg - DC Checking	30	3	07FEB2011	18MAR2011	107d	15JUL2011	25AUG2011																					
DPD303250	UV : DDA 17B Mech Dwg - SO review and Approval	56	2	08MAY2011	02JUL2011	110d	26AUG2011	20OCT2011																					
DPD303310	UV : DDA 17C BS Dwg - Submission	60	2	30DEC2010 A	15FEB2011	177d	30DEC2010 A	11AUG2011																					
DPD303330	UV : DDA 17C BS Dwg - DC Checking	30	3	16FEB2011	29MAR2011	120d	12AUG2011	23SEP2011																					
DPD303350	UV : DDA 17C BS Dwg - SO review and Approval	56	2	30MAR2011	24MAY2011	179d	25SEP2011	19NOV2011																					
DPD303510	UV : DDA 17D E&MCR Dwg - Submission	60	3	17JAN2011	15APR2011	31d	03MAY2011	01JUN2011																					
DPD303530	UV : DDA 17D E&MCR Dwg - DC Checking	30	3	18APR2011	31MAY2011	152d	24NOV2011	05JAN2012																					
DPD303550	UV : DDA 17D E&MCR Dwg - SO review and Approval	56	2	01JUN2011	26JUL2011	219d	06JAN2012	01MAR2012																					
DPD313100	UV : UV Sys Submission	70	2	01NOV2010 A	14JAN2011 A		01NOV2010 A	14JAN2011 A																					
DPD313200	UV : UV Sys Equipment Approval	150	2	15JAN2011 A	15JUN2011	127d	15JAN2011 A	20OCT2011																					
DPD320060	RWPS: AIP 17B Civil GA Drg Submission	23	3	23FEB2011	25MAR2011	123d	24AUG2011	26SEP2011																					
DPD320080	RWPS: AIP 17B Civil Checking and Approval	42	2	26MAR2011	06MAY2011	193d	05OCT2011	15NOV2011																					
DPD320100	RWPS: AIP 17B General Arrangement Plan	8	3	23FEB2011	04MAY2011	138d	15SEP2011	26SEP2011																					
DPD320200	RWPS: AIP 17B Structural & Foundation Plan	10	3	07MAR2011	18MAR2011	138d	27SEP2011	11OCT2011																					
DPD320210	RWPS: AIP 17B Contractor Review on Struct & Fdn	5	3	21MAR2011	25MAR2011	138d	12OCT2011	18OCT2011																					
DPD320300	RWPS: AIP 17B Structure and Fdn to Checker	0	3		25MAR2011	138d		18OCT2011																					
DPD320400	RWPS: AIP 17B Checker Endorse Structure / Fdn	14	2	26MAR2011	08APR2011	207d	19OCT2011	01NOV2011																					
DPD320500	RWPS: AIP 17B Structure and Fdn to SO	0	2		08APR2011	207d		01NOV2011																					
DPD320600	RWPS: AIP 17B SO Approval on Structure and Fdn	28	2	09APR2011	06MAY2011	207d	02NOV2011	29NOV2011																					
DPD320700	RWPS: AIP 17B Structure / Fdn Consent Granted	0	2		06MAY2011	207d		29NOV2011																					
DPD320740	RWPS: DDA 21E&F Fdn / Structural Submission	50	3	21MAR2011	03JUN2011	123d	20SEP2011	29NOV2011																					
DPD320780	RWPS: DDA 21E&F Fdn/Struct Checking and Approval	77	2	04JUN2011	19AUG2011	200d	21DEC2011	06MAR2012																					
DPD320800	RWPS: DDA 21E&F General Arrangement Plan	10	3	21MAR2011	01APR2011	138d	12OCT2011	25OCT2011																					

Start date	14JUL2010
Finish date	25NOV2013
Data date	17JAN2011
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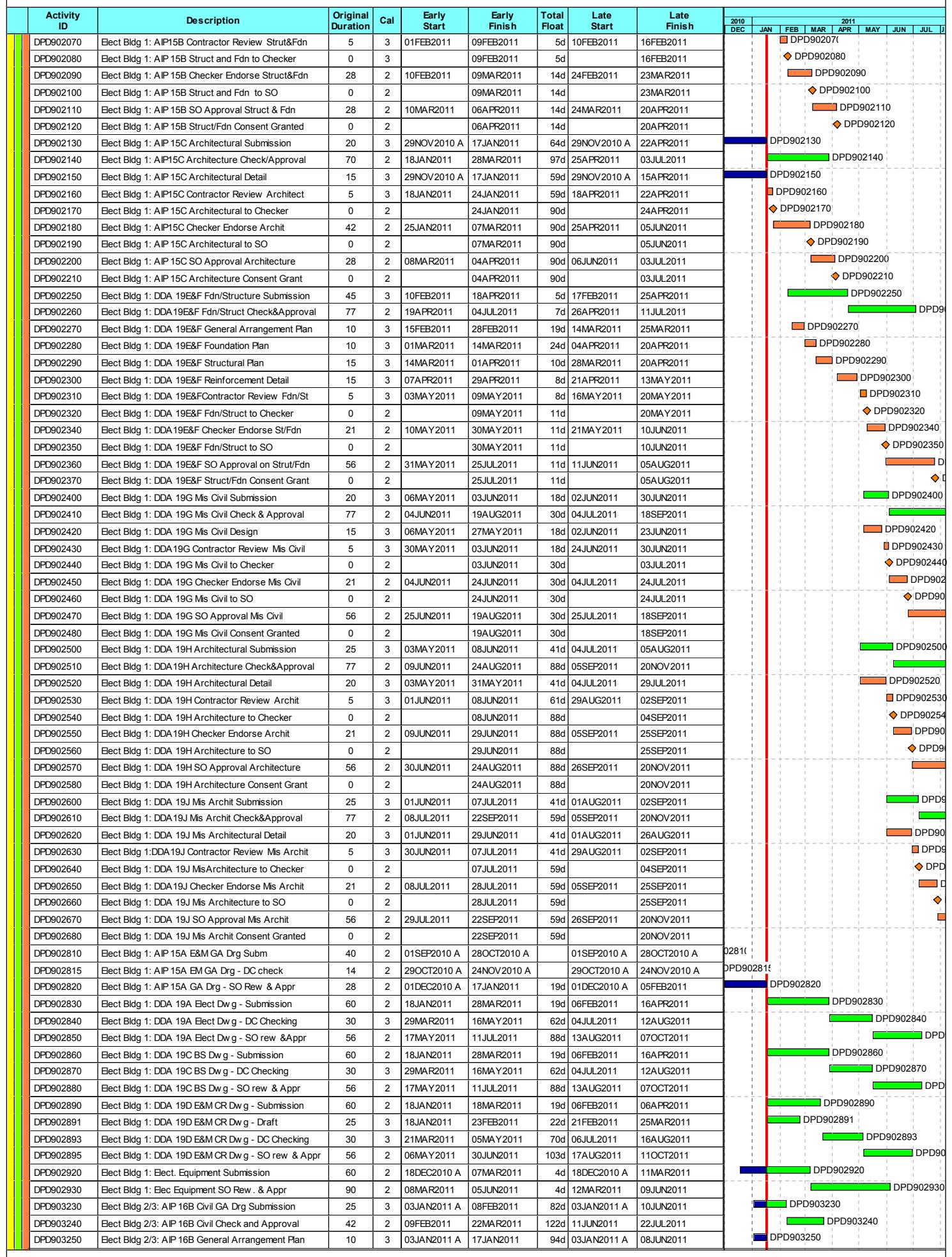
PPSTW Works Programme Rev.02 (Draft 2011.1.17)

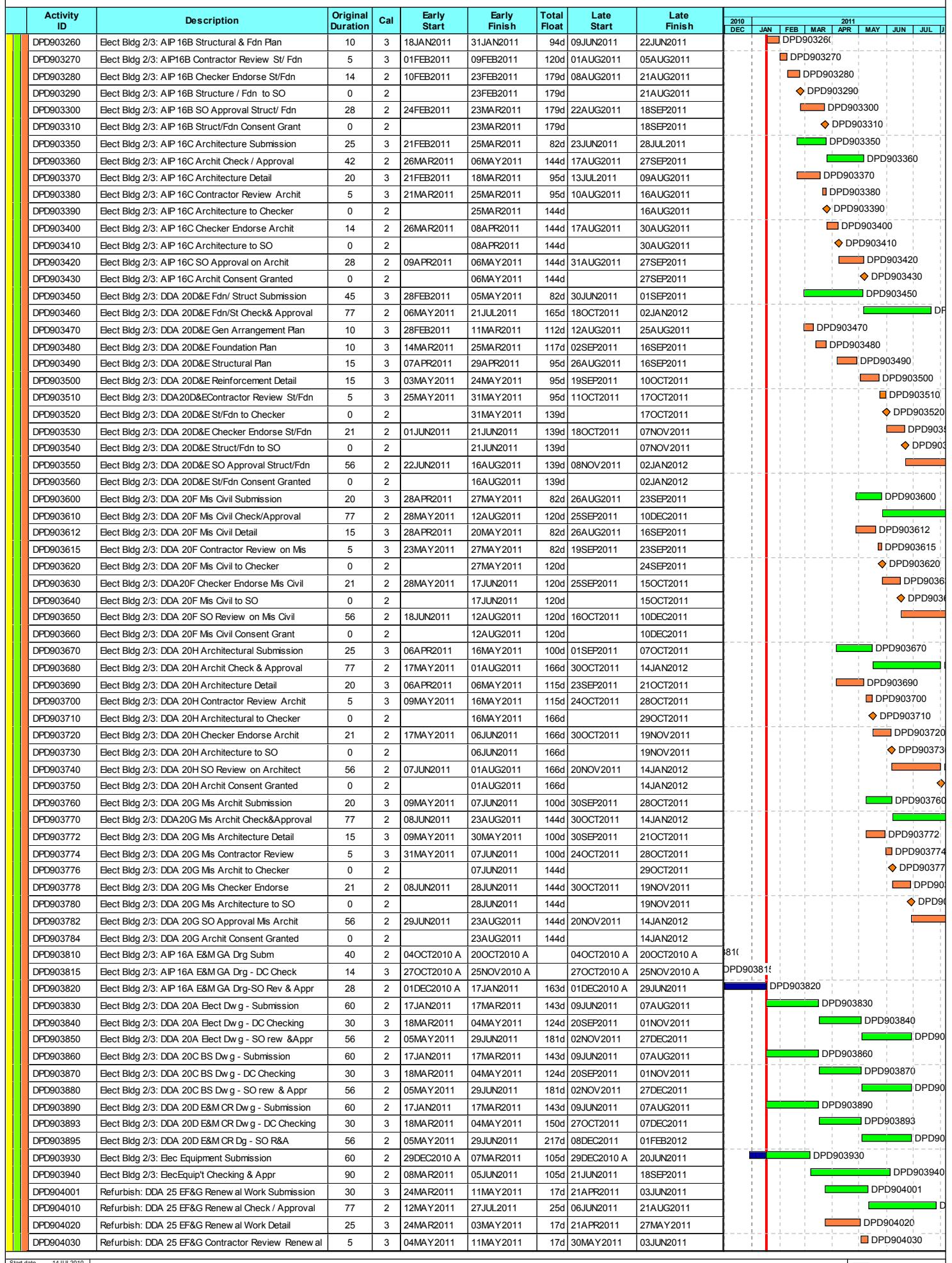


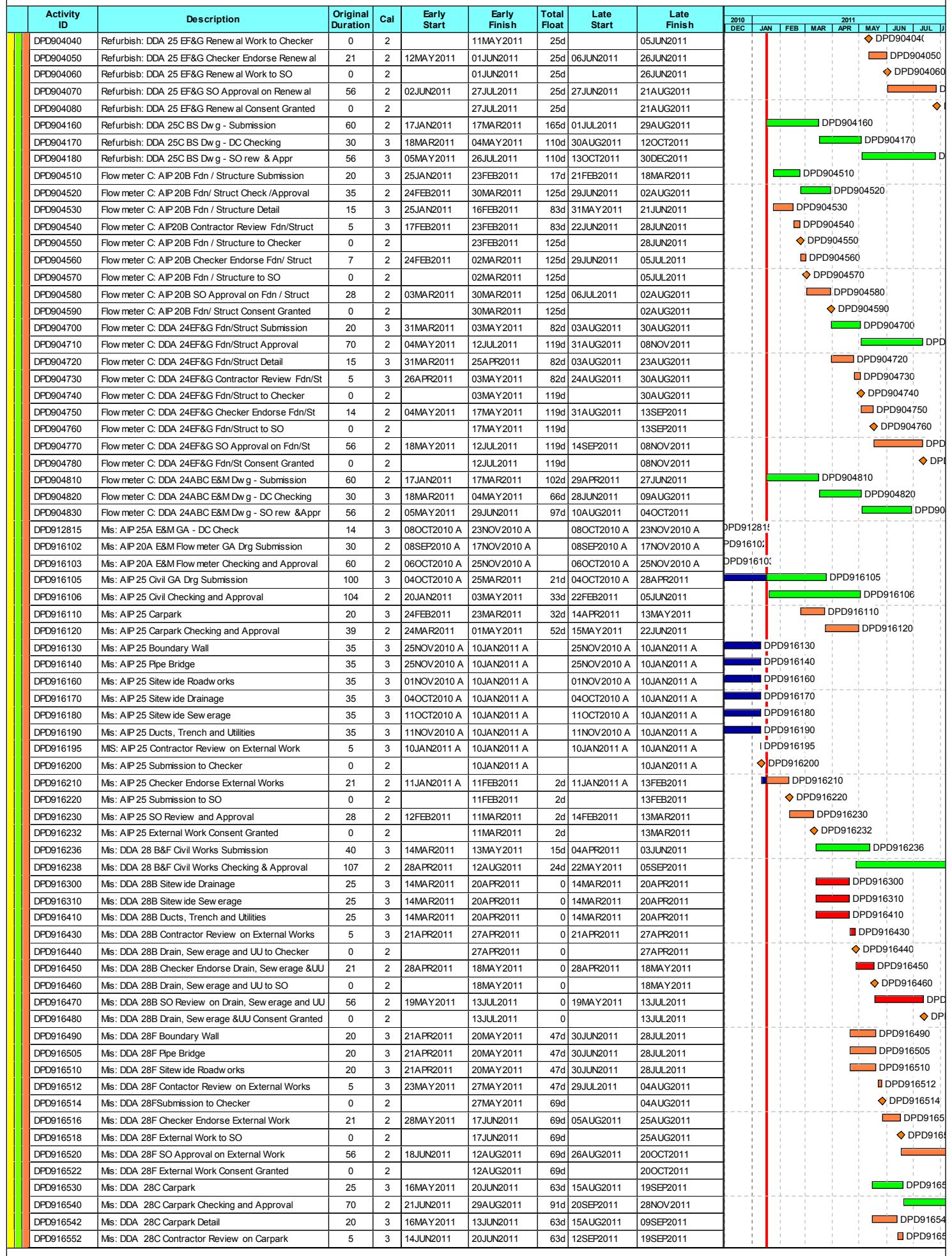


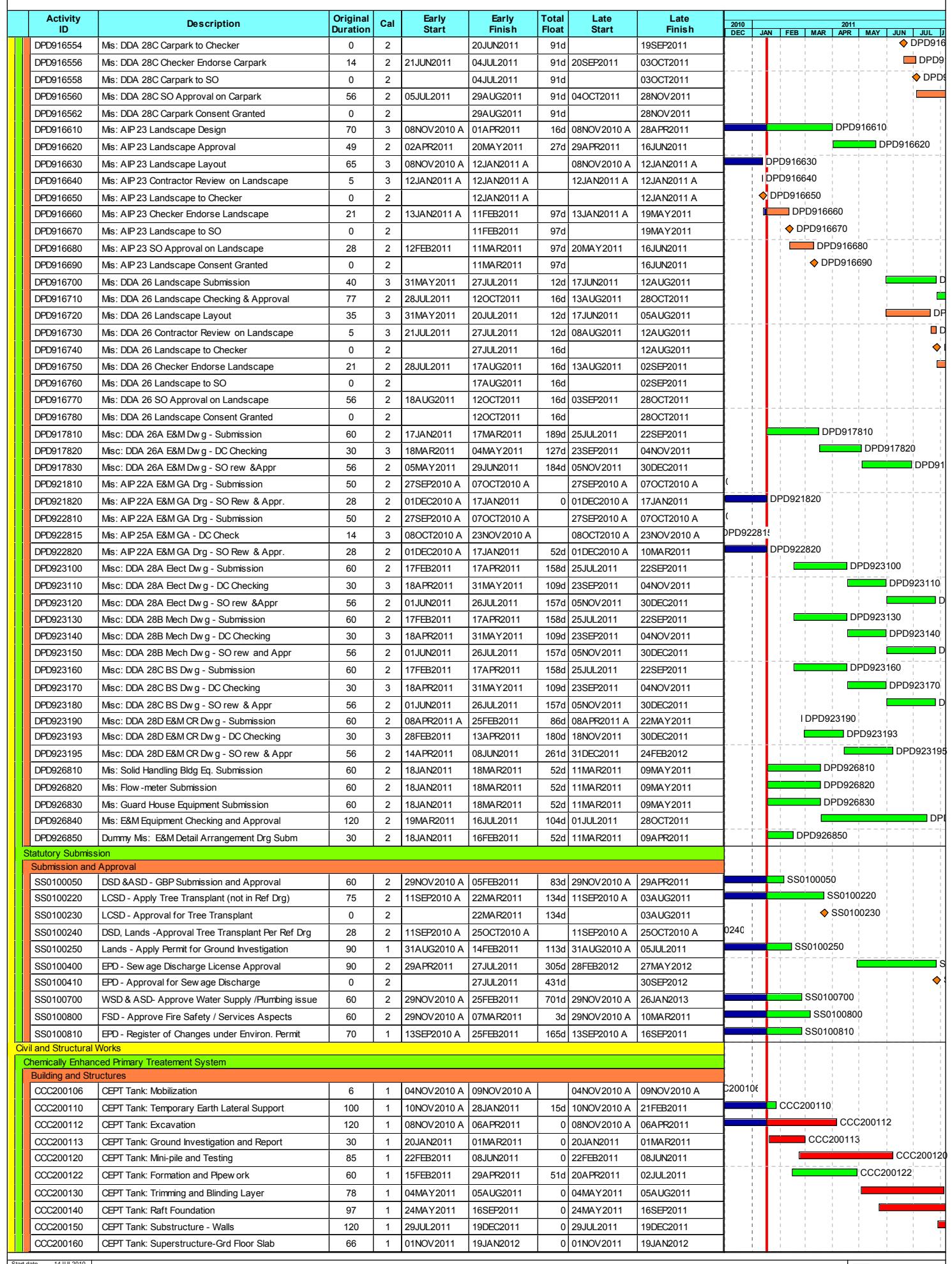
PPSTW Works Programme Rev.02 (Draft 2011.1.17)

	Activity ID	Description	Original Duration	Cal	Early Start	Early Finish	Total Float	Late Start	Late Finish	2010	2011						
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DPD800110	Admin Bldg: AIP 19B Structural & Foundation Plan	10	3	02NOV2010 A	02DEC2010 A		02NOV2010 A	02DEC2010 A		DPD800110							
DPD800120	Admin Bldg: AIP 19B Contractor Review Struct&Fdn	5	3	02DEC2010 A	02DEC2010 A		02DEC2010 A	02DEC2010 A		DPD800120							
DPD800130	Admin Bldg: AIP 19B Submission to Checker	0	2		02DEC2010 A				02DEC2010 A		DPD800130						
DPD800140	Admin Bldg: AIP 19B Checker Endorse Struct/Fdn	42	2	03DEC2010 A	11FEB2011	2d	03DEC2010 A	13FEB2011		DPD800140							
DPD800150	Admin Bldg: AIP 19B Submission to SO	0	2		11FEB2011	2d			13FEB2011		DPD800150						
DPD800160	Admin Bldg: AIP 19B SO Review and Approval	28	2	12FEB2011	11MAR2011	2d	14FEB2011	13MAR2011		DPD800160							
DPD800170	Admin Bldg: AIP 19B Consent Granted	0	2		11MAR2011	2d			13MAR2011		DPD800170						
DPD800300	Admin Bldg: AIP 19C Architecture Plan	35	3	26OCT2010 A	24DEC2010 A		26OCT2010 A	24DEC2010 A		DPD800300							
DPD800310	Admin Bldg: AIP 19C Architecture Check /Approval	82	2	24DEC2010 A	27FEB2011	74d	24DEC2010 A	12MAY2011		DPD800310							
DPD800320	Admin Bldg: AIP 19C Architecture Plan	30	3	26OCT2010 A	24DEC2010 A		26OCT2010 A	24DEC2010 A		DPD800320							
DPD800330	Admin Bldg: AIP 19C Contractor Review Architect	5	3	01DEC2010 A	21JAN2011	18d	01DEC2010 A	18FEB2011		DPD800330							
DPD800340	Admin Bldg: AIP 19C Architecture to Checker	0	2		21JAN2011	29d			19FEB2011		DPD800340						
DPD800350	Admin Bldg: AIP 19C Checker Endorse Architecture	54	2	22JAN2011	16MAR2011	29d	20FEB2011	14APR2011		DPD800350							
DPD800360	Admin Bldg: AIP 19C SO Review on Architecture	0	2		16MAR2011	29d			14APR2011		DPD800360						
DPD800370	Admin Bldg: AIP 19C SO Approval on Architecture	28	2	17MAR2011	13APR2011	29d	15APR2011	12MAY2011		DPD800370							
DPD800380	Admin Bldg: AIP 19C Architecture Consent Granted	0	2		13APR2011	29d			12MAY2011		DPD800380						
DPD800740	Admin Bldg: DDA 23D&E Fdn/ Structural Submission	32	3	21DEC2010 A	01FEB2011	11d	21DEC2010 A	18FEB2011		DPD800740							
DPD800750	Admin Bldg: DDA 23D&E Fdn/Struct Check/ Approval	77	2	02FEB2011	19APR2011	19d	21FEB2011	08MAY2011		DPD800750							
DPD800800	Admin Bldg: DDA 23D&E General Arrangement Plan	10	3	21DEC2010 A	15JAN2011 A		21DEC2010 A	15JAN2011 A		DPD800800							
DPD801500	Admin Bldg: DDA 23D&E Structural Plan	15	3	15JAN2011 A	01MAR2011	0	15JAN2011 A	01MAR2011		DPD801500							
DPD801510	Admin Bldg: DDA 23D&E Reinforcement Detail	15	3	15JAN2011 A	01FEB2011	4d	15JAN2011 A	09FEB2011		DPD801510							
DPD801515	Admin Bldg: DDA 23D&E Contractor Review Struct	7	3	02FEB2011	14FEB2011	4d	10FEB2011	18FEB2011		DPD801515							
DPD801520	Admin Bldg: DDA 23D&E Structure to Checker	0	2		14FEB2011	6d			20FEB2011		DPD801520						
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DPD801550	Admin Bldg: DDA 23D&E SO Approval on Structure	56	2	12MAR2011	06MAY2011	2d	14MAY2011	08MAY2011		DPD801550							
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DPD801720	Admin Bldg: DDA 23F Mis Civil Detail	20	3	14MAY2011	13APR2011	9d	25MAR2011	26APR2011		DPD801720							
DPD801725	Admin Bldg: DDA 23F Contractor Review Mis Civil	5	3	14APR2011	20APR2011	9d	27APR2011	04MAY2011		DPD801725							
DPD801730	Admin Bldg: DDA 23F Mis Civil to Checker	0	2		20APR2011	14d			04MAY2011		DPD801730						
DPD801740	Admin Bldg: DDA 23F Checker Endorse Civil	21	2	21APR2011	11MAY2011	14d	05MAY2011	25MAY2011		DPD801740							
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DPD801760	Admin Bldg: DDA 23F SO Approval on Mis Civil	56	2	12MAY2011	06JUL2011	14d	26MAY2011	20JUL2011		DPD801760							
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DPD801920	Admin Bldg: DDA 23G Architectural Detail	25	3	04MAY2011	09JUN2011	45d	11JUL2011	12AUG2011		DPD801920							
DPD801930	Admin Bldg: DDA 23G Contractor Review Architect	5	3	10JUN2011	16JUN2011	45d	15AUG2011	19AUG2011		DPD801930							
DPD801940	Admin Bldg: DDA 23G Architectural to Checker	0	2		16JUN2011	64d			19AUG2011		DPD801940						
DPD801950	Admin Bldg: DDA 23G Checker Endorse Architecture	21	2	17JUN2011	07JUL2011	64d	20AUG2011	09SEP2011		DPD801950							
DPD801960	Admin Bldg: DDA 23G Architectural to SO	0	2		07JUL2011	64d			09SEP2011		DPD801960						
DPD801970	Admin Bldg: DDA 23G SO Approval on Architectural	56	2	08JUL2011	01SEP2011	64d	10SEP2011	04NOV2011		DPD801970							
DPD801980	Admin Bldg: DDA 23G Architecture Consent Granted	0	2		01SEP2011	64d			04NOV2011		DPD801980						
DPD802100	Admin Bldg: DDA 23H Mis Architectural Submission	25	3	17JUN2011	22JUL2011	20d	18JUL2011	19AUG2011		DPD802100							
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DPD802120	Admin Bldg: DDA 23H Mis Architectural Detail	20	3	17JUN2011	15JUL2011	20d	18JUL2011	12AUG2011		DPD802120							
DPD802130	Admin Bldg: DDA 23H Contractor Review Mis Archit	5	3	18JUL2011	22JUL2011	20d	15AUG2011	19AUG2011		DPD802130							
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DPD802150	Admin Bldg: DDA 23H Checker Endorse Mis Archit	21	2	23JUL2011	12AUG2011	28d	20AUG2011	09SEP2011		DPD802150							
DPD802160	Admin Bldg: DDA 23H Mis Architectural to SO	0	2		12AUG2011	28d			09SEP2011		DPD802160						
DPD802170	Admin Bldg: DDA 23H SO Approval on Mis Archit	56	2	13AUG2011	07OCT2011	28d	10SEP2011	04NOV2011		DPD802170							
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DPD803040	Admin Bldg: AIP 19A E&M GA Drg - DC Check	14	3	29OCT2010 A	27NOV2010 A		29OCT2010 A	27NOV2010 A		DPD803040							
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DPD803330	Admin Bldg: DDA 23C BS Dwg - DC Checking	30	3	08MAR2011	21APR2011	81d	08JUL2011	18AUG2011		DPD803330							
DPD803350	Admin Bldg: DDA 23C BS Dwg - SO review and Appr	56	2	22APR2011	16JUN2011	119d	19AUG2011	13OCT2011		DPD803350							
DPD803510	Admin Bldg: DDA 23D E&MCR Dwg - Submission	60	2	15DEC2010 A	15FEB2011	0	15DEC2010 A	15FEB2011		DPD803510							
DPD803511	Admin Bldg: DDA 23D E&MCR Dwg - Submission	25	3	15DEC2010 A	01MAR2011	0	15DEC2010 A	01MAR2011		DPD803511							
DPD803530	Admin Bldg: DDA 23C BS Dwg - DC Checking	30	3	16FEB2011	29MAR2011	3d	21FEB2011	01APR2011		DPD803530							
DPD803550	Admin Bldg: DDA 23C BS Dwg - SO review and Appr	56	2	30MAR2011	24MAY2011	3d	02APR2011	27MAY2011		DPD803550							
DPD814100	Admin Bldg: Building Services Submission	63	2	18JAN2011 A	11MAR2011	4d	18JAN2011 A	15MAR2011		DPD814100							
DPD814200	Admin Bldg: Building Services Check&Approval	120	2	12MAR2011	09JUL2011	29d	10APR2011	07AUG2011		DPD814200							
DPD814300	Admin Bldg: Building Services Drg Submission	65	2	31JAN2011	05APR2011	4d	04FEB2011	09APR2011		DPD814300							
DPD814400	Admin Bldg: Building Services Drg Check App	120	2	06APR2011	03AUG2011	4d	10APR2011	07AUG2011		DPD814400							
DPD802030	Elect Bldg 1: AIP 15B Civil GA Drg Submission	20	3	25NOV2010 A	17JAN2011	9d	25NOV2010 A	28JAN2011		DPD802030							
DPD802040	Elect Bldg 1: AIP 15B Civil Checking & Approval	56	2	18JAN2011	14MAR2011	11d	29JAN2011	25MAR2011		DPD802040							
DPD802050	Elect Bldg 1: AIP 15B General Arrangement Plan	10	3	25NOV2010 A	17JAN2011	5d	25NOV2010 A	24JAN2011		DPD802050							
DPD802060	Elect Bldg 1: AIP 15B Structural & Fdn Plan	10	3	18JAN2011	31JAN2011	5d	25JAN2011	09FEB2011		DPD802060							









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Activity ID	Description	Original Duration	Cal	Early Start	Early Finish	Total Float	Late Start	Late Finish	2011						
									DEC	JAN	FEB	MAR	APR	MAY	JUN
CCC320150	RWPS: Substructure - Columns & Walls	24	1	01SEP2012	28SEP2012	5d	07SEP2012	06OCT2012							
CCC320160	RWPS: Roof Slab & Beams	20	1	02OCT2012	24OCT2012	5d	08OCT2012	30OCT2012							
CCC320170	RWPS: ABWF Works	20	1	25OCT2012	16NOV2012	5d	31OCT2012	22NOV2012							
CCC500110	Chemical Bldg: Excavation	12	1	10MAR2012	23MAR2012	3d	14MAR2012	27MAR2012							
CCC500120	Chemical Bldg: Raft Fdn - 750 thk, On-Grade Slab	14	1	24MAR2012	10APR2012	3d	28MAR2012	17APR2012							
CCC500130	Chemical Bldg: Walls & Columns	20	1	11APR2012	08MAY2012	3d	18APR2012	11MAY2012							
CCC500140	Chemical Bldg: Roof Slab & Beam	30	1	09MAY2012	14JUN2012	3d	12MAY2012	18JUN2012							
CCC500150	Chemical Bldg: ABWF Works	35	1	15JUN2012	26JUL2012	3d	19JUN2012	30JUL2012							
CCC800110	Admin Bldg: Excavation	10	1	07MAY2011	19MAY2011	1d	09MAY2011	20MAY2011							
CCC800120	Admin Bldg: Raft Foundation - 800mm thk	12	1	20MAY2011	02JUN2011	1d	21MAY2011	03JUN2011							
CCC800130	Admin Bldg: Substructure - Walls & Columns	12	1	03JUN2011	17JUN2011	1d	04JUN2011	18JUN2011							
CCC800140	Admin Bldg: Underground Drainage Work	18	1	18JUN2011	09JUL2011	1d	20JUN2011	11JUL2011							
CCC800150	Admin Bldg: Backfilling Works	8	1	11JUL2011	19JUL2011	1d	12JUL2011	20JUL2011							
CCC800160	Admin Bldg: Beams & Slab at G/F	18	1	20JUL2011	09AUG2011	1d	21JUL2011	10AUG2011							
CCC800180	Admin Bldg: Water Tank - Base Slab	8	1	10AUG2011	18AUG2011	1d	11AUG2011	19AUG2011							
CCC800190	Admin Bldg: Water Tank - Walls	8	1	19AUG2011	27AUG2011	1d	20AUG2011	29AUG2011							
CCC800200	Admin Bldg: Water Tank - Roof Slab & Beams	12	1	29AUG2011	10SEP2011	1d	30AUG2011	12SEP2011							
CCC800210	Admin Bldg: Water Tank - Watertightness Test	12	1	12SEP2011	26SEP2011	1d	14SEP2011	27SEP2011							
CCC800220	Admin Bldg: Walls & Columns - G/F to 1/F	20	1	27SEP2011	21OCT2011	1d	28SEP2011	22OCT2011							
CCC800230	Admin Bldg: Beams & Slab at 1/F	20	1	22OCT2011	14NOV2011	1d	24OCT2011	15NOV2011							
CCC800240	Admin Bldg: Walls & Columns - 1/F to R/F	20	1	15NOV2011	07DEC2011	1d	16NOV2011	08DEC2011							
CCC800250	Admin Bldg: Beams & Slab at R/F	20	1	08DEC2011	03JAN2012	1d	09DEC2011	04JAN2012							
CCC800260	Admin Bldg: Walls & Columns - R/F to TRF	14	1	04JAN2012	19JAN2012	1d	05JAN2012	20JAN2012							
CCC800270	Admin Bldg: Beams & Slab at TR/F	14	1	20JAN2012	10FEB2012	1d	27JAN2012	11FEB2012							
CCC800280	Admin Bldg: ABWF Works	49	1	11FEB2012	09APR2012	1d	13FEB2012	10APR2012							
CCC910110	Elect Bldg 1: Excavation	60	1	30JUL2011	11OCT2011	6d	06AUG2011	18OCT2011							
CCC910120	Elect Bldg 1: Fdn-Cable Trench &On-Grade Slab	60	1	12OCT2011	20DEC2011	6d	19OCT2011	29DEC2011							
CCC910130	Elect Bldg 1: Walls - G/F to R/F	26	1	21DEC2011	28JAN2012	6d	30DEC2011	04FEB2012							
CCC910140	Elect Bldg 1: Roof Slab	40	1	30JAN2012	15MAR2012	6d	06FEB2012	22MAR2012							
CCC910150	Elect Bldg 1: ABWF Work	60	1	22FEB2012	07MAY2012	6d	29FEB2012	14MAY2012							
CCC920110	Elect Bldg 2: Excavation	6	1	01MAR2012	07MAR2012	12d	15MAR2012	21MAR2012							
CCC920120	Elect Bldg 2: Fdn-Cable Trench &On-Grade Slab	18	1	08MAR2012	28MAR2012	12d	22MAR2012	12APR2012							
CCC920130	Elect Bldg 2: Walls - G/F to R/F	18	1	29MAR2012	23APR2012	12d	17APR2012	08MAY2012							
CCC920140	Elect Bldg 2: Roof Slab	24	1	24APR2012	22MAY2012	12d	09MAY2012	07JUN2012							
CCC920150	Elect Bldg 2: ABWF Work	48	1	24MAY2012	20JUL2012	12d	08JUN2012	03AUG2012							
CCC930110	Elect Bldg 3: Excavation	6	1	07JAN2012	13JAN2012	17d	02FEB2012	08FEB2012							
CCC930120	Elect Bldg 3: Fdn-Cable Trench &On-Grade Slab	18	1	14JAN2012	09FEB2012	17d	09FEB2012	29FEB2012							
CCC930130	Elect Bldg 3: Walls - G/F to R/F	12	1	10FEB2012	23FEB2012	17d	01MAR2012	14MAR2012							
CCC930140	Elect Bldg 3: Roof Slab	30	1	24FEB2012	29MAR2012	17d	15MAR2012	23APR2012							
CCC930150	Elect Bldg 3: ABWF Work	48	1	30MAR2012	01JUN2012	17d	24APR2012	21JUN2012							
CCC970110	Gate House: Excavation	6	1	11FEB2012	17FEB2012	28d	21JAN2013	26JAN2013							
CCC970120	Gate House: Foundation	10	1	18FEB2012	29FEB2012	28d	28JAN2013	07FEB2013							
CCC970130	Gate House: Backfilling Work	5	1	01MAR2012	06MAR2012	28d	08FEB2013	19FEB2013							
CCC970140	Gate House: Superstructure	36	1	07MAR2012	21APR2012	28d	20FEB2013	02APR2013							
CCC970150	Gate House: ABWF Works	30	2	22APR2012	21MAY2012	34d	03APR2013	02MAY2013							

Odour Control Facilities

Building and Structures

Landscaping Wroks

Miscellaneous Works

Refurbishment and Renewal Works

Miscellaneous Works

CCM000110	Refurbishment of Existing Buildings / Structures	320	1	26SEP2011	25OCT2012	20d	21OCT2011	17NOV2012					
CCM000500	Replacement of Existing E&M Equipment	320	1	13AUG2011	11SEP2012	56d	21OCT2011	17NOV2012					

Miscellaneous	
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	Activity ID	Description	Original Duration	Cal	Early Start	Early Finish	Total Float	Late Start	Late Finish	Timeline							
										2010	2011	2012	2013	2014	2015	2016	
										DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
										AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
CCM101010	Payment FM Chamber: Temp Earth Lateral Support	20	1	01SEP2011	24SEP2011	86d	14DEC2011	09JAN2012									
CCM101020	Payment FM Chamber: Excavation	21	1	26SEP2011	21OCT2011	86d	10JAN2012	08FEB2012									
CCM101030	Payment FM Chamber: Base Slab	20	1	22OCT2011	14NOV2011	86d	09FEB2012	02MAR2012									
CCM101040	Payment FM Chamber: Walls	21	1	15NOV2011	08DEC2011	86d	03MAR2012	27MAR2012									
CCM101050	Payment FM Chamber: Roof Slab	21	1	09DEC2011	05JAN2012	86d	28MAR2012	25APR2012									
CCM101060	Payment FM Chamber: Installation of Flow meter	60	1	06JAN2012	21MAR2012	255d	16NOV2012	28JAN2013									
CCM101210	Boundary Wall: Removal of Extg U-channel	90	1	13AUG2011	29NOV2011	275d	21JUL2012	05NOV2012									
CCM101220	Boundary Wall: Excavation	90	1	06SEP2011	22DEC2011	275d	14AUG2012	28NOV2012									
CCM101300	Boundary Wall: Footing	90	1	30SEP2011	18JAN2012	275d	06SEP2012	21DEC2012									
CCM101350	Boundary Wall: Wall Stem	90	1	26OCT2011	16FEB2012	275d	02OCT2012	17JAN2013									
CCM101400	Boundary Wall: Backfilling	45	1	13JAN2012	10MAR2012	275d	17DEC2012	15FEB2013									
CCM101500	Boundary Wall: Provision of New U-channel	60	1	12MAR2012	26MAY2012	275d	16FEB2013	02MAY2013									
CCM101600	Construction of Sitew ide Roadw orks	150	1	08APR2013	09OCT2013	18d	03MAY2013	31OCT2013									
CCM101700	Construction of EVA Roadw ork	50	1	02MAR2013	04MAY2013	18d	23MAR2013	27MAY2013									
CCM101790	Construction of Weighbridge	90	1	15OCT2012	30JAN2013	39d	29NOV2012	22MAR2013									
CCM101800	Installation of Sitew ide Drainage	510	1	18JUL2011	06APR2013	18d	08AUG2011	02MAY2013									
CCM102000	Installation of Sitew ide Sew erage	510	1	18JUL2011	06APR2013	18d	08AUG2011	02MAY2013									
CCM102010	Sew erage N1 and N2	140	1	18MAY2012	02NOV2012	14d	06JUN2012	19NOV2012									
CCM102030	Sew erage from PTW to CEPT	54	1	30APR2012	05JUL2012	19d	24MAY2012	27JUL2012									
CCM102040	Sew erage Overflow from CEPT to Extg manhole	85	1	06JUL2012	15OCT2012	19d	28JUL2012	06NOV2012									
CCM102060	Sew erage bet UV Channel to extg Pump Station	90	1	21AUG2012	05DEC2012	67d	09NOV2012	02MAR2013									
CCM102100	Laying Pipe Ducts, Trenches and Utilities	500	2	14JUL2011	24NOV2012	0	14JUL2011	24NOV2012									
CCM102110	Divert existing LV Cable at Fdn of Admin Bldg	32	1	09FEB2011	17MAR2011	39d	26MAR2011	07MAY2011									CCM102110
CCM102120	Laying cable duct Elect. Bldg.1 for CLP and LV	60	1	21DEC2011	08MAR2012	152d	04JUL2012	11SEP2012									
CCM102130	Laying cable duct Elect. Bldg.2 for CLP and LV	60	1	29MAR2012	14JUN2012	102d	04AUG2012	15OCT2012									
CCM102140	Laying cable duct Elect. Bldg.3 for CLP and LV	60	1	10FEB2012	24APR2012	171d	06SEP2012	16NOV2012									
CCM102300	Demolition of Existing Admin Building	48	1	29MAY2012	24JUL2012	14d	14JUN2012	09AUG2012									
CCM102410	Demolish E&M Work at Extg PTW	30	2	31MAY2013	29JUN2013	0	31MAY2013	29JUN2013									
CCM102510	Demolish Extg Structures of PTW	90	2	30JUN2013	27SEP2013	0	30JUN2013	27SEP2013									
CCM102520	Backfill and Remove Sheet Pile	30	2	29AUG2013	27SEP2013	0	29AUG2013	27SEP2013									
CCM102530	Construction of Car Park	28	2	28SEP2013	25OCT2013	31d	29OCT2013	25NOV2013									
Statutory Works																	
Submission and Consent																	
Submission and Approval																	
DPD050110	AIP5: General Building Plan Submission	30	2	07SEP2010 A	04OCT2010 A		07SEP2010 A	04OCT2010 A									
DPD050120	AIP5: General Building Plan- Submit to DC	0	2		04OCT2010 A			04OCT2010 A									
DPD050130	AIP5: General Building Plan- DC Checking	14	2	04OCT2010 A	25FEB2011	24d	04OCT2010 A	21MAR2011									DPD050130
DPD050135	AIP5: General Building Plan- DC Cert	0	2		25FEB2011	24d		21MAR2011									DPD050135
DPD050140	AIP5: General Building Plan- FSD review	150	2	04OCT2010 A	25FEB2011	24d	04OCT2010 A	21MAR2011									DPD050140
DPD050145	AIP5: General Building Plan- FSD endorse	0	2		25FEB2011	24d		21MAR2011									DPD050145
DPD050150	AIP5: General Building Plan - submit to SO	0	2		25FEB2011	24d		21MAR2011									DPD050150
DPD050160	AIP5: General Building Plan - SO review	28	2	01MAR2011	29APR2011	24d	25MAR2011	23MAY2011									DPD050160
DPD050170	AIP5: General Building Plan- SO Grant Consent	0	2		29APR2011	24d		23MAY2011									DPD050170
DPD050310	DDA5: General Building Plan- prep. Submission	60	2	31MAR2011	29MAY2011	126d	04AUG2011	02OCT2011									DPD050310
DPD050320	DDA5: General Building Plan- Submit to DC	0	2		29MAY2011	126d		02OCT2011									DPD050320
DPD050330	DDA5: General Building Plan- DC Checking	30	2	30MAY2011	28JUN2011	126d	03OCT2011	01NOV2011									DPD050330
DPD050340	DDA5: General Building Plan- DC Cert	0	2		28JUN2011	126d		01NOV2011									DPD050340
DPD050350	DDA5: General Building Plan-submit to SO	0	2	29JUN2011		126d	02NOV2011										DPD050350
DPD050360	DDA5: General Building Plan- SO review	56	2	02JUL2011	26AUG2011	126d	05NOV2011	30DEC2011									DPD050360
DPD050370	DDA5: General Building Plan- SO Approval	0	2		26AUG2011	126d		30DEC2011									DPD050370
Electrical Supply and Energization - CLP																	
Building and Structures																	
SSE200115	Application of Electricity to CLP	14	2	28JUL2010 A	10AUG2010 A		28JUL2010 A	10AUG2010 A									
SSE200120	Handover of Elec Bldg 1 / Trans Rm to CLP - Civil	30	2	08MAY2012	06JUN2012	84d	31JUL2012	29AUG2012									
SSE200130	Building Services Installation in Transformer Rm	40	2	07JUN2012	16JUL2012	84d	30AUG2012	08OCT2012									
SSE200140	Handover Building Services Installation to CLP	30	2	17JUL2012	15AUG2012	84d	09OCT2012	07NOV2012									
SSE200150	CLP to Install Transformer	60	2	16AUG2012	14OCT2012	84d	08NOV2012	06JAN2013									
SSE200160	Handover Associated Cable Duct to CLP	30	2	26SEP2012	25OCT2012	43d	08NOV2012	07DEC2012									
SSE200170	CLP to Install HV Cables	30	2	26OCT2012	24NOV2012	43d	08DEC2012	06JAN2013									
SSE200180	Submit WRI to CLP and CLP Inspection	7	2	25DEC2012	31DEC2012	6d	31DEC2012	06JAN2013									
SSE200190	CLP Install Energy Meter / Energize Pow er	3	2	01JAN2013	03JAN2013	6d	07JAN2013	09JAN2013									
SSE200210	Handover of Elec Bldg 2 Tx Rm to CLP - Civil	30	2	21JUL2012	19AUG2012	21d	11AUG2012	09SEP2012									
SSE200220	Building Services Installation in Transformer Rm	40	2	20AUG2012	28SEP2012	21d	10SEP2012	19OCT2012									
SSE200230	Handover Building Services Installation to CLP	30	2	29SEP2012	28OCT2012	21d	20OCT2012	18NOV2012									
SSE200240	CLP to Install Transformer	60	2	29OCT2012	27DEC2012	21d	19NOV2012	17JAN2013									
SSE200250	Handover Associated Cable Duct to CLP	30	2	21JUL2012	19AUG2012	114d	12NOV2012	11DEC2012									
SSE200260	CLP to Install HV Cables	30	2	20AUG2012	18SEP2012	114d	12DEC2012	10JAN2013									
SSE200270	Submit WRI to CLP and CLP Inspection	7	2	22DEC2012	28DEC2012	20d	11JAN2013	17JAN2013									
SSE200280	CLP Install Energy Meter / Energize Pow er	3	2	29DEC2012	31DEC2012	20d	18JAN2013	20JAN2013									
SSE200310	Handover of Elec Bldg 3 Tx Rm to CLP - Civil	30	2	02JUN2012	01JUL2012	20d	22JUN2012	21JUL2012									
SSE200320	Building Services Installation in Transformer Rm	40	2	02JUL2012	10AUG2012	20d	22JUL2012	30AUG2012									

	Activity ID	Description	Original Duration	Cal	Early Start	Early Finish	Total Float	Late Start	Late Finish	Timeline								
										2010	2011	2012	2013	2014	2015	2016		
DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR			
SSE200350	Handover Associated Cable Duct to CLP	30	2	09NOV2012	08DEC2012	20d	29NOV2012	28DEC2012										
SSE200360	CLP to Install HV Cables	30	2	09DEC2012	07JAN2013	20d	29DEC2012	27JAN2013										
SSE200370	Submit WRI to CLP and CLP Inspection	7	2	08JAN2013	14JAN2013	20d	28JAN2013	03FEB2013										
SSE200380	CLP Install Energy Meter / Energize Power	1	2	15JAN2013	15JAN2013	20d	04FEB2013	04FEB2013										
Fire Services - FSD																		
Building and Structures																		
SSF200410	Submit Form FS314 & FS501	1	2	05MAY2013	05MAY2013	23d	28MAY2013	28MAY2013										
SSF200420	FS Inspection and re-inspection	30	2	06MAY2013	04JUN2013	23d	29MAY2013	27JUN2013										
SSF200430	FS Approval Certificate	30	2	05JUN2013	04JUL2013	23d	28JUN2013	27JUL2013										
Plumbing - WSD																		
Building and Structures																		
SSP200510	Submit WW046 Part 4 Request for Inspection	1	2	30DEC2012	30DEC2012	28d	27JAN2013	27JAN2013										
SSP200520	WSD Inspection and Re-inspection	30	2	31DEC2012	29JAN2013	28d	28JAN2013	26FEB2013										
SSP200530	WW046 Part 5	30	2	30JAN2013	28FEB2013	28d	27FEB2013	28MAR2013										
Telecommunication																		
Building and Structures																		
SST200610	Handover Plant Room and Cable Duct to Telecom Co	7	2	25NOV2012	01DEC2012	33d	28DEC2012	03JAN2013										
SST200620	Telecom Co to Instal Cable and Equipment	60	2	02DEC2012	30JAN2013	33d	04JAN2013	04MAR2013										
E&M Works																		
Procurement and Installation																		
Building and Structures																		
EMW001100	Penstocks to sewerage N1	26	1	04OCT2012	02NOV2012	14d	20OCT2012	19NOV2012										
EMW001200	Penstock at connection to outfall PS	22	1	06DEC2012	03JAN2013	67d	04MAR2013	28MAR2013										
EMW111010	Coarse Screen: Equipment Manufacturing and Test	210	2	09AUG2011	05MAR2012	16d	25AUG2011	21MAR2012										
EMW111012	Coarse Screen: Delivery of E&M Equipment On Site	45	2	05APR2012	19MAY2012	16d	21APR2012	04JUN2012										
EMW1110130	Coarse Screen: Coarse Screen Installation	100	1	04JUN2012	28SEP2012	1d	05JUN2012	02OCT2012										
EMW1110140	Coarse Screen: Penstock installation	100	1	04JUN2012	28SEP2012	1d	05JUN2012	02OCT2012										
EMW1110150	Coarse Screen: Conveyer System installation	80	1	21JUL2012	24OCT2012	102d	20NOV2012	01MAR2013										
EMW1110160	Coarse Screen: Lifting Appliance installation	55	1	04JUN2012	07AUG2012	66d	21AUG2012	25OCT2012										
EMW1110170	Coarse Screen: Power Supply System Installation	75	1	12SEP2012	10DEC2012	1d	13SEP2012	11DEC2012										
EMW1110180	Coarse Screen: Control System Installation	60	1	15NOV2012	26JAN2013	1d	16NOV2012	28JAN2013										
EMW120210	Inlet Pump St: E&M Equipment Procurement	240	2	09AUG2011	04APR2012	8d	17AUG2011	12APR2012										
EMW120220	Inlet Pump St: Delivery of E&M Equipment On Site	42	2	15APR2012	26MAY2012	8d	23APR2012	03JUN2012										
EMW120230	Inlet Pump St: Pump Installation	100	1	04JUN2012	28SEP2012	0	04JUN2012	28SEP2012										
EMW120240	Inlet Pump St: Penstock Installation	100	1	04JUN2012	28SEP2012	1d	05JUN2012	02OCT2012										
EMW120250	Inlet Pump St: Pipe and Valve Installation	90	1	03AUG2012	17NOV2012	0	03AUG2012	17NOV2012										
EMW120260	Inlet Pump St: Lifting Appliance Installation	60	1	07OCT2011	15DEC2011	251d	14AUG2012	24OCT2012										
EMW120270	Inlet Pump St: Power Supply System Installation	75	1	12SEP2012	10DEC2012	1d	13SEP2012	11DEC2012										
EMW120280	Inlet Pump St: Control System Installation	60	1	15NOV2012	26JAN2013	1d	16NOV2012	28JAN2013										
EMW130310	Fine Screen: E&M Equipment Procurement	210	2	16JUL2011	10FEB2012	43d	28AUG2011	24MAR2012										
EMW130320	Fine Screen: Delivery of E&M Equipment On Site	42	2	12MAR2012	22APR2012	43d	24APR2012	04JUN2012										
EMW130330	Fine Screen: Fine Screen Installation	100	1	05JUN2012	02OCT2012	0	05JUN2012	02OCT2012										
EMW130340	Fine Screen: Penstock Installation	100	1	05JUN2012	02OCT2012	0	05JUN2012	02OCT2012										
EMW130350	Fine Screen: Conveyer Installation	90	1	04AUG2012	19NOV2012	0	04AUG2012	19NOV2012										
EMW130360	Fine Screen: Lifting Appliance Installation	60	1	09JUN2012	18AUG2012	56d	15AUG2012	25OCT2012										
EMW130370	Fine Screen: Power Supply System Installation	75	1	11SEP2012	08DEC2012	0	11SEP2012	08DEC2012										
EMW130380	Fine Screen: Control System Installation	60	1	16NOV2012	28JAN2013	0	16NOV2012	28JAN2013										
EMW140410	Grit: E&M Equipment Procurement	210	2	18AUG2011	14MAR2012	10d	28AUG2011	24MAR2012										
EMW140420	Grit: Delivery of E&M Equipment On Site	42	2	14APR2012	25MAY2012	10d	24APR2012	04JUN2012										
EMW140430	Grit: Grit System Installation	100	1	05JUN2012	02OCT2012	0	05JUN2012	02OCT2012										
EMW140440	Grit: Penstock Installation	100	1	05JUN2012	02OCT2012	0	05JUN2012	02OCT2012										
EMW140470	Grit: Power Supply System Installation	75	1	04SEP2012	01DEC2012	0	04SEP2012	01DEC2012										
EMW140480	Grit: Control System Installation	60	1	16NOV2012	28JAN2013	0	16NOV2012	28JAN2013										
EMW151100	Septic Station: E&M Equipment Procurement	180	2	15OCT2011	11APR2012	117d	09FEB2012	06AUG2012										
EMW152100	Septic Station: Delivery of E&M Equipment	60	2	12APR2012	10JUN2012	117d	07AUG2012	05OCT2012										
EMW153100	Septic Station: E&M Equipment Installation	60	1	20SEP2012	30NOV2012	12d	06OCT2012	14DEC2012										
EMW155100	Septic Station: Control System Installation	60	1	01DEC2012	18FEB2013	12d	15DEC2012	04MAR2013										
EMW171500	PTW: SCADA System Installation	80	2	01DEC2012	18FEB2013	14d	15DEC2012	04MAR2013										
EMW181100	PTW: BS System Installation	80	2	12AUG2012	30OCT2012	168d	27JAN2013	16APR2013										
EMW200100	CEPT: E&M Equipment Procurement	210	2	09AUG2011	05MAR2012	0	09AUG2011	05MAR2012										
EMW200200	CEPT: Delivery of E&M Equipment On Site	60	2	26MAR2012	24MAY2012	0	26MAR2012	24MAY2012										
EMW201000	CEPT: Scrapper Installation	120	1	25MAY2012	16OCT2012	0	25MAY2012	16OCT2012										
EMW201100	CEPT: Larmellar System Installation	110	1	17OCT2012	02MAR2013	10d	29OCT2012	14MAR2013										
EMW201300	CEPT: Sludge Pumping System Installation	150	1	19JUN2012	13DEC2012	5d	25JUN2012	19DEC2012										
EMW201500	CEPT: Sludge Pipeworks Installation	150	1	14JUL2012	10JAN2013	5d	20JUL2012	16JAN2013										
EMW201600	CEPT: Reactor System Installation	120	1	21AUG2012	12JAN2013	4d	25AUG2012	17JAN2013										
EMW202100	CEPT: Lifting Appliance Installation	70	1	16OCT2012	08JAN2013	4d	20OCT2012	12JAN2013										
EMW204100	CEPT: Power Supply System Installation	80	1	12NOV2012	21FEB2013	4d	16NOV2012	26FEB2013										
EMW205100	CEPT: Control System Installation	70	1	19DEC2012	19MAR2013	6d	28DEC2012	26MAR2013										
EMW206100	CEPT: FRP DO covers Installation	60	1	06MAR2013	21MAY2013	10d	18MAR2013	01JUN2013										
EMW207500	CEPT: SCADA System Installation	70	1	04FEB2013	07MAY2013	6d	16FEB2013	14MAY2013										
EMW301100	UV: E&M Equipment Procurement	210	2	13DEC2011	09JUL2012	7d	20DEC2011	16JUL2012										

Testing and Commissioning

PTW Testing and Commissioning

Building and Structures

EMT101210	PTW T&C Phase 1: Site Test -Coarse Screen System	40	2	03NOV2012	12DEC2012	17d	20NOV2012	29DEC2012
EMT101220	PTW T&C Phase 1: Site Test - Inlet Pump System	40	2	20NOV2012	29DEC2012	0	20NOV2012	29DEC2012
EMT101230	PTW T&C Phase 1: Site Test - Fine Screen System	40	2	20NOV2012	29DEC2012	0	20NOV2012	29DEC2012
EMT101240	PTW T&C Phase 1: Site Test - Grit System	40	2	20NOV2012	29DEC2012	0	20NOV2012	29DEC2012
EMT102310	PTW Phase 2: Dry Test of Coarse Screen System	30	2	20DEC2012	18JAN2013	10d	30DEC2012	28JAN2013
EMT102320	PTW Phase 2: Dry Testing of Inlet Pump System	30	2	30DEC2012	28JAN2013	0	30DEC2012	28JAN2013
EMT102330	PTW Phase 2: Dry Testing of Fine Screen System	30	2	30DEC2012	28JAN2013	0	30DEC2012	28JAN2013
EMT102340	PTW Phase 2: Dry Testing of Grit System	30	2	30DEC2012	28JAN2013	0	30DEC2012	28JAN2013
EMT103410	PTW Phase 3: Wet Testing of Individual Equipment	30	2	29JAN2013	27FEB2013	0	29JAN2013	27FEB2013
EMT103420	PTW Phase 3: Manual Testing of Sub-system	30	2	13FEB2013	14MAR2013	0	13FEB2013	14MAR2013
EMT103430	PTW Phase 3: Automatic Testing of Sub-system	30	2	05MAR2013	03APR2013	0	05MAR2013	03APR2013
EMT104100	PTW Phase 4: Introduce Process Fluid (Sew age)	7	2	04APR2013	10APR2013	0	04APR2013	10APR2013
EMT104200	PTW Phase 4: Auto and Process Commissioning	30	2	11APR2013	10MAY2013	0	11APR2013	10MAY2013
EMT104300	PTW Phase 4: Verification	30	2	01MAY2013	30MAY2013	0	01MAY2013	30MAY2013

CEPT Testing and Commissioning

Building and Structures

UV Disinfection Facilities

Building and Structures

Reuse Water Pumping Station

Building and Structures

Chemical Building

Building and Structures

Sludge Dewatering and Skip Storage

Building and Structures

EMT601100	Sludge: Phase 1 - Installation Inspection	40	2	06JAN2013	14FEB2013	15d	21JAN2013	01MAR2013				
EMT602100	Sludge: Phase 2 - Dry Test of Individual Eq't	30	2	16FEB2013	17MAR2013	14d	02MAR2013	31MAR2013				
EMT603100	Sludge: Phase 3 - Wet Test of Individual Eq't	30	2	18MAR2013	16APR2013	14d	01APR2013	30APR2013				
EMT603200	Sludge: Phase 3 - Manual Testing of Sub-system	30	2	02APR2013	01MAY2013	14d	16APR2013	15MAY2013				
EMT603300	Sludge: Phase 3 - Auto Testing of Sub-system	30	2	03MAY2013	01JUN2013	3d	06MAY2013	04JUN2013				

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	Activity ID	Description	Original Duration	Cal	Early Start	Early Finish	Total Float	Late Start	Late Finish	2011							
										DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
	EMT604100	Sludge: Phase 4 - Introduce Process Sewage	3	2	02JUN2013	04JUN2013	3d	05JUN2013	07JUN2013								
	EMT604200	Sludge: Final Auto Test/Process Commissioning	20	2	05JUN2013	24JUN2013	3d	08JUN2013	27JUN2013								
	EMT604300	Sludge: Phase 4 - Verification	30	2	25JUN2013	24JUL2013	3d	28JUN2013	27JUL2013								
Septic Waste Collection facilities																	
Building and Structures																	
	EMT151100	Septic Station: Phase 1- Installation Inspection	30	2	01DEC2012	30DEC2012	47d	17JAN2013	15FEB2013								
	EMT152100	Septic Station: Phase 2 - Dry Test Indiv Eq't	30	2	31DEC2012	29JAN2013	47d	16FEB2013	17MAR2013								
	EMT153100	Septic Station: Phase 3 - Wet Test of Indiv Eq't	30	2	30JAN2013	28FEB2013	47d	18MAR2013	16APR2013								
	EMT153200	Septic Station: Phase 3 - Manual Test Sub-system	30	2	14FEB2013	15MAR2013	47d	02APR2013	01MAY2013								
	EMT153300	Septic Station: Phase 3 - Auto Test Sub-system	30	2	06MAR2013	04APR2013	47d	22APR2013	21MAY2013								
	EMT154100	Septic Station: Phase 4-Introduce Process Sewage	7	2	05APR2013	11APR2013	47d	22MAY2013	28MAY2013								
	EMT154200	Septic St: Final Auto Test/Process Commissioning	30	2	12APR2013	11MAY2013	47d	29MAY2013	27JUN2013								
	EMT154300	Septic Station: Phase 4 - Verification	30	2	12MAY2013	10JUN2013	47d	28JUN2013	27JUL2013								
DOU A																	
Building and Structures																	
	EMT711100	DOU A: Phase 1 - Installation Inspection	40	2	15SEP2012	24OCT2012	99d	23DEC2012	31JAN2013								
	EMT712100	DOU A: Phase 2 - Dry Test of Individual Eq't	30	2	18JAN2013	16FEB2013	14d	01FEB2013	02MAR2013								
	EMT713100	DOU A: Phase 3 - Wet Test of Individual Eq't	30	2	17FEB2013	18MAR2013	14d	03MAR2013	01APR2013								
	EMT713200	DOU A: Phase 3 -Manual Testing of Sub-system	30	2	04MAR2013	02APR2013	14d	18MAR2013	16APR2013								
	EMT713300	DOU A: Phase 3 - Auto Testing of Sub-system	30	2	31MAR2013	29APR2013	7d	07APR2013	06MAY2013								
	EMT714100	DOU A: Phase 4 - Introduce Foul Air	7	2	30APR2013	06MAY2013	7d	07MAY2013	13MAY2013								
	EMT714200	DOU A: Final Auto Test/Process Commissioning	30	2	07MAY2013	05JUN2013	7d	14MAY2013	12JUN2013								
	EMT714300	DOU A: Phase 4 - Verification	45	2	06JUN2013	20JUL2013	7d	13JUN2013	27JUL2013								
DOU B																	
Building and Structures																	
	EMT720220	DOU B: Phase 1 - Installation Inspection	40	2	15JAN2013	23FEB2013	7d	22JAN2013	02MAR2013								
	EMT722100	DOU B: Phase 2 - Dry Test of Individual Eq't	20	2	24FEB2013	15MAR2013	7d	03MAR2013	22MAR2013								
	EMT723100	DOU B: Phase 3 - Wet Test of Individual Eq't	30	2	16MAR2013	14APR2013	7d	23MAR2013	21APR2013								
	EMT723200	DOU B: Phase 3 - Manual Testing of Sub-system	30	2	31MAR2013	29APR2013	7d	07APR2013	06MAY2013								
	EMT723300	DOU B: Phase 3 - Auto Testing of Sub-system	30	2	15APR2013	14MAY2013	7d	22APR2013	21MAY2013								
	EMT724100	DOU B: Phase 4 - Introduce Foul Air	7	2	15MAY2013	21MAY2013	7d	22MAY2013	28MAY2013								
	EMT724200	DOU B: Final Auto Test/Process Commissioning	30	2	22MAY2013	20JUN2013	7d	29MAY2013	27JUN2013								
	EMT724300	DOU B: Phase 4 - Verification	30	2	21JUN2013	20JUL2013	7d	28JUN2013	27JUL2013								
Control System																	
Building and Structures																	
	EMT810000	Control/SCADA: Testing and Commissioning	337 *	2	25AUG2012	27JUL2013	0	29AUG2012	27JUL2013								
	EMT811100	Control/SCADA: Phase 1 - Installation Insp.	90	2	25AUG2012	22NOV2012	4d	29AUG2012	26NOV2012								
	EMT812100	Control/SCADA: Phase 2 - Dry Test of Indi. Eq't	90	2	23NOV2012	20FEB2013	4d	27NOV2012	24FEB2013								
	EMT813100	Control/SCADA: Phase 3 - Auto Testing Sub-sys	90	2	21FEB2013	21MAY2013	4d	25FEB2013	25MAY2013								
	EMT814200	Control/SCADA: Final Auto Test/Process Comm.	60	2	25APR2013	23JUN2013	4d	29APR2013	27JUN2013								
	EMT814300	Control: Phase 4 - Verification	30	2	28JUN2013	27JUL2013	0	28JUN2013	27JUL2013								
Building Services																	
Building and Structures																	
	EMT830620	BS: Phase 1 - Installation Inspection	30	2	09DEC2012	07JAN2013	14d	23DEC2012	21JAN2013								
	EMT830650	BS: Phase 2 - Dry Test of Individual Eq't	60	2	16JAN2013	16MAR2013	6d	22JAN2013	22MAR2013								
	EMT830670	BS: Phase 3 - Wet Test of Individual Eq't	30	2	22MAR2013	20APR2013	1d	23MAR2013	21APR2013								
	EMT830680	BS: Phase 3 -Manual Testing of Sub-system	30	2	06APR2013	05MAY2013	1d	07APR2013	06MAY2013								
	EMT830690	BS: Phase 3 - Auto Testing of Sub-system	30	2	26APR2013	25MAY2013	1d	27APR2013	26MAY2013								
	EMT830710	BS: Government Inspection	18	2	26MAY2013	12JUN2013	1d	27MAY2013	13JUN2013								
	EMT830720	BS: Government Re-inspection	30	2	13JUN2013	12JUL2013	1d	14JUN2013	13JUL2013								
	EMT830730	BS: Government Issue Certificate	14	2	13JUL2013	26JUL2013	1d	14JUL2013	27JUL2013								
Optimisation and Proving Test for All E&M Works																	
Building and Structures																	
	EMT995000	CEPT Phase 5 Optimisation period	30	2	28JUL2013	26AUG2013	0	28JUL2013	26AUG2013								
	EMT995300	CEPT Phase 5 Proving Period	90	2	28AUG2013	25NOV2013	0	28AUG2013	25NOV2013								

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