Civil Engineering and Development Department

EP-344/2009 – New Sewage Pumping Stations Serving KTD and
EP-337/2009 – New Distributor Roads Serving the Planned KTD

Contract No. KL/2012/03
Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area

Monthly EM&A Report

December 2013

(Version 2.0)

Approved By

(Environmental Team Leader)

REMARKS:

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

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

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EXECUTIVE SUMMARY

Introduction

1. This is the 1st Monthly Environmental Monitoring and Audit Report prepared by Cinotech Consultants Ltd. for "Contract No. KL/2012/03 - Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area" (Hereafter referred to as "the Project"). This contract comprises the construction of Schedule 2 designated projects Road D2 & Sewage Pumping Station PS2 and NPS which forms a part of the works under two Environmental Permits (EP), EP-337/2009 and EP-344/2009. The title of the designated projects under Environmental Permit No.: EP-344/2009 is "New sewage pumping stations serving Kai Tak Development" and under Environmental Permit No.: EP-337/2009 is "New distributor roads serving the planned Kai Tak Development". This report documents the findings of EM&A Works conducted from 1 – 31 December 2013.

2. With reference to the same principle of EIA report of the Project, air quality monitoring stations within 500m and noise monitoring stations within 300m from the boundary of this Project are considered as relevant monitoring locations. In such regard, the relevant air quality and noise monitoring locations are tabulated in Table I (see Figure 2 and 3 for their locations).

Table I – Air Quality and Noise Monitoring Stations for this Project

Locations	Monitoring Stations In accordance with EM&A Manual	Alternative Monitoring Stations
Air Quality Monitoring Stations		
AM2 - Lee Kau Yan Memorial School	Yes	N/A
AM3 – Sky Tower	No	AM3(A) – Holy Trinity Bradbury Centre
AM4 – Grand Waterfront	No	AM4(A) – EMSE Workshop
AM5 – CCC Kei To Secondary School	No	AM5(A) – Po Leung Kuk Ngan Po Ling College
AM6 – Site 1B4 (Planned)	N/A	
Noise Monitoring Stations		
M6 – Holy Carpenter Primary School	Yes	N/A
M7 – CCC Kei To Secondary School	Yes	N/A
M8 – Po Leung Kuk Ngan Po Ling College	Yes	N/A
M9 – Site 1B1 (Planned)	N/A	
M10 – Site 1B4 (Planned)		

3. According to the Environmental Monitoring and Audit Manual (EM&A Manual) of the Kai Tak Development (KTD) Schedule 3 Environmental Impact Assessment (EIA) Report, the impact monitoring at the designated monitoring stations as required in KTD EM&A Manual under the EP, have been conducted in Contract No. KLN/2010/04 – Environmental Monitoring Works for Kai Tak Development under Schedule 3 of KTD, which is on-going starting from December

2010. The impact monitoring data under Contract No. KLN/2010/04 will be adopted for the Project. Therefore, this report presents the air quality and noise monitoring works extracted from Contract No. KLN/2010/04.

4. The major site activities undertaken in the reporting month included:
   - Daily Clearance;
   - Hoarding Installation;
   - Erection of Site Office;
   - Excavation for twin cell and single cell box culvert; and
   - Excavation and sheet piling for PS2.

Environmental Monitoring Works

5. Environmental monitoring for the Project was performed in accordance with the EM&A Manual and the monitoring results were checked and reviewed. Site Inspections/Audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.

6. Summary of the non-compliance in the reporting month for the Project is tabulated in Table II.

Table II Non-compliance Record for the Project in the Reporting Month

Parameter	No. of Project-related Exceedance		Action Taken
	Action Level	Limit Level	
1-hr TSP	0	0	N/A
24-hr TSP	0	0	N/A
Noise	0	0	N/A

1-hour & 24-hour TSP Monitoring

7. All 1-hour & 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

8. All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Environmental Licenses and Permits

9. Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Project, Environmental Permits No. EP-344/2009 and EP-337/2009 were issued on 23 April 2009.

10. Registration of Chemical Waste Producer (N/A).

11. Water Discharge License (N/A).

12. Construction Noise Permit (License No.: PP-RE0056-13).

Key Information in the Reporting Month

13. Summary of key information in the reporting month is tabulated in Table III.

Table III Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
Reporting Changes	0	---	N/A	N/A	---
Notifications of any summons & prosecutions received	0	---	N/A	N/A	---

Future Key Issues

14. The future key environmental issues in the coming month include:

- Dust generation from stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
- Water spraying for dust generating activity and on haul road;
- Proper storage of construction materials on site;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Accumulation of general and construction waste on site;
- Noise from operation of the equipment, especially for rock-breaking activities, piling works and machinery on-site; and
- Review and implementation of temporary drainage system for the surface runoff.

Status of Compliance with Environmental Permits Conditions

15. The status of required submission related to this Project under the Environmental Permits No. EP-337/2009 and EP-344/2009 are summarized in the following tables:

Table IV Summary Table for Required Submission under EP No. EP-337/2009

EP Conditions	Submission	Submission Date	Remark
1.11	Notification of Commencement Date of Construction of Project	31 October 2013	For Road D2
2.3	Management Organization of Main Construction Companies	31 October 2013	For Contract No. KL/2012/03
2.4	Design Drawing(s) of the Project	28 October 2013	For Road D2
2.11	Landscape Mitigation Plan(s) for distributors road(s)	7 January 2014	For Road D2
2.12	As-built drawing(s) for the distributor road(s)	To be submitted at least one week before the commencement of operation of distributor road(s)	
3.2	Baseline Monitoring Report	26 November 2010 (Part I) 24 December 2010 (Part II)	
3.3	Monthly EM&A Report	N/A	Monthly EM&A Report for Contract No. KL/2012/03

Table V Summary Table for Required Submission under EP No. EP-344/2009

EP Conditions	Submission	Submission Date	Remark
1.11	Notification of Commencement Date of Construction of Project	31 October 2013	For Pumping Station PS2 and NPS
2.3	Management Organization of Main Construction Companies	31 October 2013	For Contract No. KL/2012/03
2.4	Design Drawing(s) of the Project	28 October 2013	For Pumping Station PS2 and NPS
2.11	Landscape Mitigation Plan(s) for sewage pumping station(s)	7 January 2014	For Pumping Station PS2 and NPS
2.12	As-built drawing(s) for the sewage pumping station (s)	To be submitted at least one week before the commencement of operation of distributor road(s)	
3.2	Baseline Monitoring Report	26 November 2010 (Part I) 24 December 2010 (Part II)	
3.3	Monthly EM&A Report	N/A	Monthly EM&A Report for Contract No. KL/2012/03

1. INTRODUCTION

Background

1.1 The Kai Tak Development (KTD) is located in the south-eastern part of Kowloon Peninsula, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling. It covers a land area of about 328 hectares. Stage 4 Infrastructure at Former North Apron Area is one of the construction stages of KTD. It contains various Schedule 2 DPs including new distributor roads serving the planned KTD and new sewage pumping stations serving the planned KTD. The general layout of the Project is shown in **Figure 1.**

1.2 Two Environmental Permits (EPs) No. EP-344/2009 and EP-337/2009 were also issued on 23 April 2009 for new sewage pumping stations serving the planned KTD and new distributor roads serving the planned KTD respectively to Civil Engineering and Development Department as the Permit Holder.

1.3 A study of environmental impact assessment (EIA) was undertaken to consider the key issues of air quality, noise, water quality, waste, land contamination, cultural heritage and landscape and visual impact, and identify possible mitigation measures associated with the works. An EIA Report (Register No. AEIAR-130/2009) was approved by the Environmental Protection Department (EPD) on 4 April 2009.

1.4 Cinotech Consultants Limited (Cinotech) was commissioned by Kwan On Construction Co., Ltd. (the Contractor) to undertake the role of the Environmental Team (ET) for the Contract No. KL/2012/03 - Stage 4 Infrastructure at Former North Apron Area. The construction work under KL/2012/03 comprises the construction of Road D2 & Sewage Pumping Station PS2 and PS NPS which forms a part of the works under two EPs (EP-337/2009 and EP-344/2009).

1.5 The construction commencement of this Contract was on 1st December 2013 for Road D2, Sewage Pumping Station PS2 and PS NPS. This is the 1st Monthly EM&A report summarizing the EM&A works for the Project from 1 – 31 December 2013.

Project Organizations

1.6 Different parties with different levels of involvement in the project organization include:

- Project Proponent – Civil Engineering and Development Department (CEDD).
- The Engineer and the Engineer's Representative (ER) – AECOM.
- Environmental Team (ET) – Cinotech Consultants Limited (CCL).
- Independent Environmental Checker (IEC) – Hyder Consultants Ltd. (Hyder).
- Contractor –Kwan On Construction Co., Ltd. (Kwan On).

1.7 The key contacts of the Project are shown in **Table 1.1 and Figure 5**.

Table 1.1 Key Project Contacts

Party	Role	Contact Person	Position	Phone No.	Fax No.
CEDD	Project Proponent	Mr. K Y SHIN	Engineer	2301 1461	2301 1277
AECOM	Engineer's Representative	Mr. Vincent Lee	SRE	27980771	3013 8864
		Mr. Mickey Lee	RE		
Cinotech	Environmental Team	Dr. Priscilla Choy	Environmental Team Leader	2151 2089	3107 1388
		Ms. Ivy Tam	Project Coordinator and Audit Team Leader	2151 2090	
Hyder	Independent Environmental Checker	Mr. Fan Cheong Tsang	Independent Environmental Checker	2911 2744	
Kwan On	Contractor	Mr. Terry Yu	Project Manager		

Construction Activities undertaken during the Reporting Month

1.8 The site activities undertaken in the reporting month included:

- Daily Clearance;
- Hoarding Installation;
- Erection of Site Office;
- Excavation for twin cell and single cell box culvert; and
- Excavation and sheet piling for PS2.

1.9 The construction programme showing the inter-relationship with environmental protection/mitigation measures are presented in Table 1.2.

Table 1.2 Construction Programme Showing the Inter-Relationship with Environmental Protection/Mitigation Measures

Construction Works	Major Environmental Impact	Control Measures
As mentioned in Section 1.8	Noise, dust impact, water quality and waste generation	Sufficient watering of the works site with active dust emitting activities; Properly cover the stockpiles; On-site waste sorting and implementation of trip ticket system; Appropriate desilting/sedimentation devices provided on site for treatment before discharge; Use of quiet plant and well-maintained construction plant; Provide movable noise barrier; Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall; Provide sufficient mitigation measures as recommended in Approved EIA Report/Lease requirement.

Summary of EM&A Requirements

1.10 The EM&A programme requires construction noise monitoring, air quality monitoring, landscape and visual monitoring and environmental site audit. The EM&A requirements for each parameter are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event Action Plans;
- Environmental requirements and mitigation measures, as recommended in the EM&A Manual under the EP.

1.11 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.

1.12 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely air quality and noise levels and audit works for the Project from 1 – 31 December 2013.

2. AIR QUALITY

Monitoring Requirements

2.1 According to EM&A Manual under the EPs, 1-hour and 24-hour TSP monitoring were conducted to monitor the air quality for this Project. For regular impact monitoring, a sampling frequency of at least once in every six days at all of the monitoring stations for 24-hour TSP monitoring. For 1-hour TSP monitoring, the sampling frequency of at least three times in every six days shall be undertaken when the highest dust impact occurs. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Locations

2.2 Five designated monitoring stations were selected for air quality monitoring programme. Impact dust monitoring was conducted at four of the air quality monitoring stations (AM2, AM3(A), AM4(A) and AM5(A)). Table 2.1 describes the air quality monitoring locations, which are also depicted in **Figure 2**.

Table 2.1 Locations for Air Quality Monitoring

Monitoring Stations	Locations	Location of Measurement
AM2	Lee Kau Yan Memorial School	Rooftop (about 8/F) Area
AM3(A)	Holy Trinity Bradbury Centre	Rooftop (about 8/F) Area
AM4(A)	EMSD Workshops	Rooftop (about 6/F) Area
AM5(A)	Po Leung Kuk Ngan Po Ling College	Rooftop (about 10/F) Area
#AM6	PA 15	Site 1B4 (Planned)

Remarks: # The impact monitoring at these locations will only be carried out until existence of the sensitive receiver at the building.

Monitoring Equipment

2.3 Table 2.2 summarizes the equipment used in the impact air monitoring programme. Copies of calibration certificates are attached in **Appendix B**.

Table 2.2 Air Quality Monitoring Equipment

Equipment	Model and Make	Quantity
Calibrator	G25A	1
1-hour TSP Dust Meter	Laser Dust Monitor – Model LD-3, LD-3B	7
HVS Sampler	GMWS 2310 c/w of TSP sampling inlet	4
Wind Anemometer	Davis Weather Monitor II, Model no. 7440	1

Monitoring Parameters, Frequency and Duration

2.4 Table 2.3 summarizes the monitoring parameters and frequencies of impact dust monitoring for the whole construction period. The air quality monitoring schedule for the reporting month is shown in **Appendix D**.

Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration

Parameters	Frequency
1-hr TSP	Three times / 6 days
24-hr TSP	Once / 6 days

Monitoring Methodology and QA/QC Procedure

1-hour TSP Monitoring

Measuring Procedures

2.5 The measuring procedures of the 1-hour dust meters were in accordance with the Manufacturer's Instruction Manual as follows:

- The 1-hour dust meter is placed at least 1.3 meters above ground.
- Set POWER to "ON" and make sure that the battery level was not flash or in low level.
- Allow the instrument to stand for about 3 minutes and then the cap of the air sampling inlet has been released.
- Push the knob at MEASURE position.
- Set time/mode setting to [BG] by pushing the time setting switch. Then, start the background measurement by pushing the start/stop switch once. It will take 6 sec. to complete the background measurement.
- Push the time setting switch to change the time setting display to [MANUAL] at the bottom left of the liquid crystal display. Finally, push the start/stop switch to stop the measuring after 1 hour sampling.
- Information such as sampling date, time, count value and site condition were recorded during the monitoring period.

Maintenance/Calibration

2.6 The following maintenance/calibration was required for the direct dust meters:

- Check and calibrate the meter by HVS to check the validity and accuracy of the results measured by direct reading method at 2-month intervals throughout all stages of the air quality monitoring.

24-hour TSP Monitoring

Instrumentation

2.7 High volume (HVS) samplers (Model GMWS-2310 Accu-Vol) completed with appropriate sampling inlets were employed for 24-hour TSP monitoring. The sampler was composed of

a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50). Moreover, the HVS also met all the requirements in section 2.5 of the updated EM&A Manual.

Operating/Analytical Procedures

2.8 Operating/analytical procedures for the operation of HVS were as follows:

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

2.9 Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 1.1 m^3/min. and 1.4 m^3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

2.10 For TSP sampling, fiberglass filters have a collection efficiency of > 99% for particles of 0.3μm diameter were used.

2.11 The power supply was checked to ensure the sampler worked properly. On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.

2.12 The filter holding frame was then removed by loosening the four nuts and a weighted and conditioned filter was carefully centered with the stamped number upwards, on a supporting screen.

2.13 The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.

2.14 The shelter lid was closed and secured with the aluminum strip.

2.15 The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).

2.16 After sampling, the filter was removed and sent to the HOKLAS laboratory (Wellab Ltd.) for weighing. The elapsed time was also recorded.

2.17 Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%.

Maintenance/Calibration

2.18 The following maintenance/calibration was required for the HVS:

- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
- High volume samplers were calibrated at bi-monthly intervals using G25A Calibration Kit throughout all stages of the air quality monitoring.

Results and Observations

2.19 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

2.20 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

2.21 The air temperature, precipitation and the relative humidity data was obtained from Hong Kong Observatory where the wind speed and wind direction were recorded by the installed Wind Anemometer set at rooftop (about 8/F) Lee Kau Yan Memorial School. The location is shown in **Figure 4**. This weather information for the reporting month is summarized in **Appendix C.**

2.22 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendices E and F** respectively.

2.23 The summary of exceedance record in reporting month is shown in **Appendix H**. No exceedance was recorded for the air quality monitoring.

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

Station	Major Dust Source
AM2 – Lee Kau Yan Memorial School	Road Traffic Dust Exposed site area and open stockpiles Site vehicle movement
AM3(A) – Holy Trinity Bradbury Centre	Road Traffic Dust Exposed site area Excavation works Site vehicle movement
AM4(A) – EMSD Workshops	Recycling Company Site vehicle movement
AM5(A) – Po Leung Kuk Ngan Po Ling College	Road Traffic Dust Excavation works at the site (Contract No.: 1/WSD/08(K)) facing Po Leung Kuk Ngan Po Ling College Dust generation from other building construction site nearby

3. NOISE

Monitoring Requirements

3.1 According to EM&A Manuals under the EP, construction noise monitoring was conducted to monitor the construction noise arising from the construction activities within KTD. The regular monitoring frequency for each monitoring station shall be on a weekly basis and conduct one set of measurements between 0700 and 1900 hours on normal weekdays. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Monitoring Locations

3.2 Five designated monitoring stations were selected for noise monitoring programme. Noise monitoring was conducted at three designated monitoring stations (M6, M7 and M8). **Figure 3** shows the locations of these stations.

Table 3.1 Noise Monitoring Stations

Monitoring Stations	Locations	Location of Measurement
M6	Holy Carpenter Primary School	Rooftop (about 7/F) Area
M7	CCC Kei To Secondary School	Rooftop (about 8/F) Area
M8	Po Leung Kuk Ngan Po Ling College	Staircase Area (about 9/F)
#M9	Site 1B1 (Planned)	-
#M10	Site 1B4 (Planned)	-

Remarks: # The impact monitoring at these locations will only be carried out until existence of the sensitive receiver at the building.

Monitoring Equipment

3.3 **Table 3.2** summarizes the noise monitoring equipment. Copies of calibration certificates are provided in **Appendix B**.

Table 3.2 Noise Monitoring Equipment

Equipment	Model and Make	Qty.
Integrating Sound Level Meter	SVAN 955 & 957	8
Calibrator	SVAN 30A	3
	B&K4231	2

Monitoring Parameters, Frequency and Duration

3.4 Table 3.3 summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix D**.

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency	Measurement

M6 M7 M8	L_{10}(30 min.) dB(A) L_{90}(30 min.) dB(A) L_{eq}(30 min.) dB(A)	0700-1900 hrs on normal weekdays	Once per week	Façade

Monitoring Methodology and QA/QC Procedures

- The Sound Level Meter was set on a tripod at a height of 1.2 m above the ground.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - frequency weighting : A
  - time weighting : Fast
  - time measurement : 30 minutes
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with the portable wind meter.
- At the end of the monitoring period, the L_{eq}, L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused temporarily during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.

Maintenance and Calibration

3.5 The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.

3.6 The sound level meter and calibrator were checked and calibrated at yearly intervals.

3.7 Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Results and Observations

3.8 All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. The summary of exceedance record in reporting month is shown in **Appendix H**.

3.9 The baseline noise level and the Noise Limit Level at each designated noise monitoring station are presented in **Table 3.4**.

3.10 Noise monitoring results and graphical presentations are shown in **Appendix G**.

3.11 The major noise source identified at the designated noise monitoring stations are as follows:

Monitoring Stations	Locations	Major Noise Source
M6	Holy Carpenter Primary School	Road and marine traffic Noise
M7	CCC Kei To Secondary School	Road and marine traffic Noise
M8	Po Leung Kuk Ngan Po Ling College	Excavation works at the site (Contract No.: 1/WSD/08(K)) facing Po Leung Kuk Ngan Po Ling College Noise generated from other buildings construction site nearby

Table 3.4 Baseline Noise Level and Noise Limit Level for Monitoring Stations

Station	Baseline Noise Level, dB (A)	Noise Limit Level,dB (A)
M6	63.9 (at 0700 – 1900 hrs on normal weekdays)	70* (at 0700 – 1900 hrs on normal weekdays)
M7	68.7 (at 0700 – 1900 hrs on normal weekdays)	
M8	61.9 (at 0700 – 1900 hrs on normal weekdays)	

(*) Noise Limit Level is 65 dB(A) during school examination periods.

4. COMPARISON OF EM&A RESULTS WITH EIA PREDICTIONS

4.1 The EM&A data was compared with the EIA predictions as summarized in 4.1 to 4.3.

Table 4.1 Comparison of 1-hr TSP data with EIA predictions

Station	Predicted 1-hr TSP conc.			
	Scenario1 (Mid 2009 to Mid 2013), µg/m3	Scenario2 (Mid 2013 to Late 2016), µg/m3	Reporting Month (December 13), µg/m3	
			Average	Range
AM2 – Lee Kau Yan Memorial School	290	312	194.6	55.0 – 292.1
AM3(A) - Holy Trinity Bradbury Centre (Alternative station for Sky Tower)	217	247	209.2	70.9 – 292.6
AM4(A) – EMSD Workshops (Alternative station for Grand Waterfront)	246	258	205.1	81.4 – 323.2
AM5(A) – Po Leung Kuk Ngan Po Ling College (Alternative station for CCC Kei To Secondary School)	159	221	203.6	62.9 – 327.3

Table 4.2 Comparison of 24-hr TSP data with EIA predictions

Station	Predicted 24-hr TSP conc.			
	Scenario1 (Mid 2009 to Mid 2013), µg/m3	Scenario2 (Mid 2013 to Late 2016), µg/m3	Reporting Month (December 13), µg/m3	
			Average	Range
AM2 – Lee Kau Yan Memorial School	145	169	112.4	72.3 – 141.9
AM3(A) - Holy Trinity Bradbury Centre (Alternative station for Sky Tower)	106	138	104.1	75.3 – 131.0
AM4(A) – EMSD Workshops (Alternative station for Grand Waterfront)	143	152	124.9	76.7 – 150.7
AM5(A) – Po Leung Kuk Ngan Po Ling College (Alternative station for CCC Kei To Secondary School)	103	128	78.6	50.9 – 107.6

Table 4.3 Comparison of Noise Monitoring Data with EIA predictions

Stations	Predicted Mitigated Construction Noise Levels during Normal Working Hour ($L_{eq\ (30min)}$ dB(A))	Reporting Month (Dec 13), $L_{eq\ (30min)}$ dB(A)
M6 - Holy Carpenter Primary School	47 – 86	59.7 – 63.0
M7 - CCC Kei To Secondary School	45 – 68	60.1 – 67.2
M8 - Po Leung Kuk Ngan Po Ling College	44 – 70	53.6 – 69.2

4.2 The averages of 1-hour TSP concentrations in all stations in the reporting month were below to the prediction in the approved Environmental Impact Assessment (EIA) Report.

4.3 The averages of 24-hour TSP concentrations in all stations in the reporting month were below to the prediction in the approved Environmental Impact Assessment (EIA) Report.

4.4 The noise monitoring results in the reporting month was also within the range of predicted mitigated construction noise levels in the EIA report

5. LANDSCAPE OF VISUAL

Monitoring Requirements

5.1 According to EM&A Manual of the Kai Tak Development EIA Study, ET shall monitor and audit the contractor's operation during the construction period on a weekly basis, and to report on the contractor's compliance.

Results and Observations

5.2 Site audits were carried out on a weekly basis to monitor and audit the timely implementation of landscape and visual mitigation measures within the site boundaries of this Project. The summaries of site audits are attached in **Appendix I**.

5.3 No non-compliance of the landscape and visual impact was recorded in the reporting month.

5.4 Should non-compliance of the landscape and visual impact occur, action in accordance with the action plan presented in **Appendix J** shall be performed.

6. ENVIRONMENTAL AUDIT

Site Audits

6.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix I**.

6.2 Site audits were conducted on 5th, 10th, 20th and 27th December 2013 in the reporting month. IEC site inspections were conducted on 10th December 2013. No non-compliance was observed during the site audits.

Review of Environmental Monitoring Procedures

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

Air Quality Monitoring

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

Noise Monitoring

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

Status of Environmental Licensing and Permitting

6.4 All permits/licenses obtained for the Project are summarized in Table 6.1.

Permit No.	Valid Period		Details	Status
	From	To		
Environmental Permit (EP)				
EP-337/2009	23/04/09	N/A	Construction of new distributor roads serving the planned Kai Tak development.	Valid
EP-344/2009	23/04/09	N/A	Construction of a new sewage pumping station serving the planned Kai Tak development with installed capacity of more than 2,000 m^3 per day and a boundary of which is less than 150m from an existing or planned residential area or educational institution.	Valid
Effluent Discharge License				

Permit No.	Valid Period		Details	Status
	From	To		
--	--	--	--	--
Registration of Chemical Waste Producer				
--	--	--	--	--
Construction Noise Permit (CNP)				
PP-RE0056-13	10/12/13	08/03/14	Construction Noise Permit for the carrying out of percussive piling.	Valid

Status of Waste Management

6.5 The amount of wastes generated by the major site activities of this Project during the reporting month is shown in **Appendix M**.

6.6 In respect of the dump truck cover, the Contractor is advised to take record photos and inspection to ensure that all dump trucks have fully covered the skip before leaving the site.

Implementation Status of Environmental Mitigation Measures

6.7 During site inspections in the reporting month, no non-conformance was identified. ET weekly site inspections were carried out during the reporting month and the observations and recommendations are summarized in Table 6.2.

Table 6.2 Observations and Recommendations of Site Inspections

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	--	--	
Air Quality	--	--	
Noise	--	--	
Waste/Chemical Management	--	--	
Landscape and Visual	10 Dec 13	Properly remove the chemical container within the tree protection area near the site office.	Rectification/improvement was observed during the follow-up audit session.
Permits /Licences	--	--	--

Summary of Mitigation Measures Implemented

6.8 The monthly IEC audit was carried out on 10th December 2013, the observations were recorded and they are presented as follows:

Observations:

1. A small, empty metal can of chemical or paint was found within the fenced tree near the Contractor's site office. The Contractor was reminded to keep the fenced area clear of construction materials and wastes.

Follow up of last observation:

- Not applicable.

6.9 An updated summary of the EMIS is provided in **Appendix K**.

Implementation Status of Event Action Plans

6.10 The Event Action Plans for air quality, noise and landscape and visual are presented in **Appendix J**.

1-hr TSP Monitoring

6.11 No Action/Limit Level exceedance was recorded in the reporting month.

24-hr TSP Monitoring

6.12 No Action/Limit Level exceedance was recorded in the reporting month.

Construction Noise

6.13 No Action/Limit Level exceedance was recorded in the reporting month.

Landscape and visual

6.14 No non-compliance was recorded in the reporting month.

Summary of Complaint, Warning, Notification of any Summons and Successful Prosecution

6.15 The summaries of environmental complaint, warning, summon and notification of successful prosecution for the Project is presented in **Appendix L**.

7. FUTURE KEY ISSUES

7.1 Major site activities undertaken for the coming two months include:

- Daily Clearance;
- Drainage work in L19 Road;
- Excavation and sheet piling for PS2; and
- Excavation for twin cell and single cell box culvert.

7.2 The tentative construction program for the Project is provided in **Appendix N.**

Key Issues for the Coming Month

7.3 Key environmental issues in the coming month include:

- Dust generation from stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
- Water spraying for dust generating activity and on haul road;
- Proper storage of construction materials on site;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Accumulation of general and construction waste on site;
- Noise from operation of the equipment, especially for rock-breaking activities, piling works and machinery on-site; and
- Review and implementation of temporary drainage system for the surface runoff.

7.4 The tentative program of major site activities and the impact prediction and control measures for the coming two months, i.e. January and February 2014 are summarized as follows:

Construction Works	Major Impact Prediction	Control Measures
As mentioned in Section 7.1	Air quality impact (dust)	a) Frequent watering of haul road and unpaved/exposed areas; b) Frequent watering or covering stockpiles with tarpaulin or similar means; and c) Watering of any earth moving activities.
	Water quality impact (surface run-off)	d) Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; e) Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; f) Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and g) Provision of measures to prevent discharge into the stream.
	Noise Impact	h) Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; i) Controlling the number of plants use on site; j) Regular maintenance of machines; and k) Use of acoustic barriers if necessary.

Monitoring Schedule for the Next Month

7.5 The tentative environmental monitoring schedules for the next month are shown in **Appendix D**.

8. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

8.1 Environmental monitoring works were performed in the reporting month and all monitoring results were checked and reviewed.

1-hr TSP Monitoring

8.2 All 1-hr TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hr TSP Monitoring

8.3 All 24-hr TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

8.4 All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Landscape and visual

8.5 No non-compliance was recorded in the reporting month.

Complaint and Prosecution

8.6 No environmental complaints and environmental prosecution were received in the reporting month.

Recommendations

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

Air Quality Impact
- To implement dust suppression measures on all haul roads, stockpiles, dry surfaces and excavation works.
- To mitigate the dust generation by adequate water spraying in dry days.

Noise Impact
- To inspect the noise sources inside the site.
- To space out noisy equipment and position the equipment as far away as possible from sensitive receivers.
- To provide temporary noise barriers for operations of noisy equipment near the noise sensitive receivers in an appropriate location.

Water Impact
- To prevent any surface runoff discharge into any stream course.

- To review and implement temporary drainage system.
- To identify any wastewater discharges from site.
- To ensure properly maintenance for de-silting facilities.
- To clear the silt and sediment in the sedimentation tanks.
- To review the capacity of de-silting facilities for discharge.
- To divert all the water generated from construction site to de-silting facilities with enough handling capacity before discharge.

Waste/Chemical Management

- To check for any accumulation of waste materials or rubbish on site.
- To ensure the performance of sorting of C&D materials at source (during generation);
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the site.
- To provide proper storage area or drip trays for oil containers/ equipment on site.
- To avoid improper handling or storage of oil drum on site.

Landscape and Visual

- To protect the existing trees to be retained.
- To transplant the trees unavoidably affected by the works.
- To control of night-time lighting.
- To provide decorative screen hoarding.
- To complete landscape works at site area as early as possible.

Effectiveness of Environmental Management

8.8 The above recommendations and the recommended mitigation measures in the EM&A Manual were carried out by the Contractor during construction. No non-compliance was recorded during the environmental site inspections as shown in **Appendix I**.

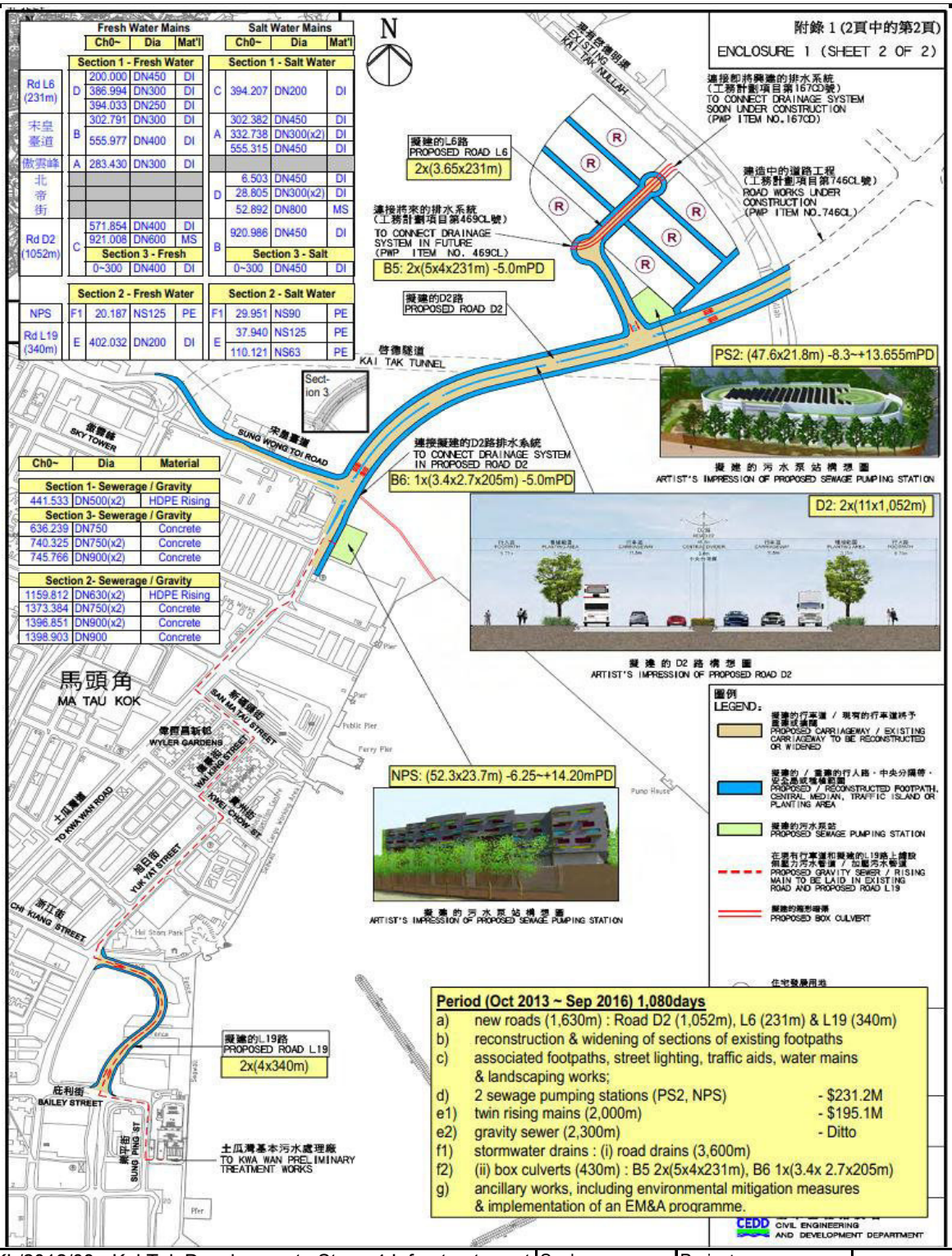
8.9 No Action/Limit Level exceedance was recorded for the environmental monitoring works performed in this reporting month.

8.10 The effectiveness of the selected above recommendations is given in **Table 8.1** below.

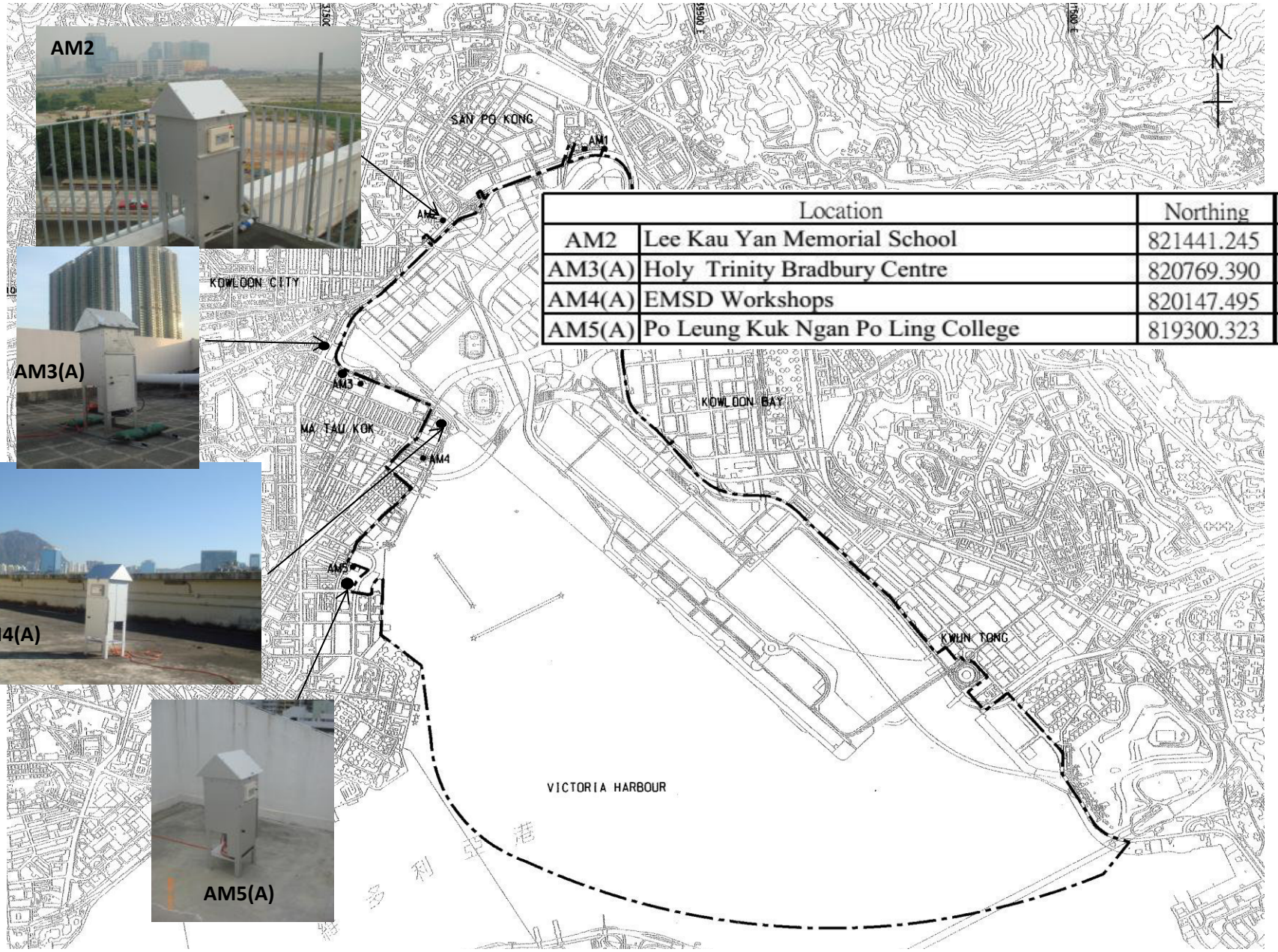
Table 8.1 Examples of Mitigation Measures for Environmental Recommendations

	
To prevent any surface runoff discharge into any stream course.	Follow-up measure(s) after identification of wastewater discharges from site;
	
To avoid any discharge or accidental spillage of chemical waste or oil directly from the site	To avoid improper handling or storage of oil drum on site
	
To protect the existing trees to be retained	To control of night-time lighting

FIGURES



Title	KL/2012/03 - Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area	Scale N.T.S	Project No. MA13056	CINOTECH
	Site Layout Plan	Date Sep-13	Figure 1	



	Location	Northing	Easting
AM2	Lee Kau Yan Memorial School	821441.245	838153.917
AM3(A)	Holy Trinity Bradbury Centre	820769.390	837522.115
AM4(A)	EMSD Workshops	820147.495	838155.791
AM5(A)	Po Leung Kuk Ngan Po Ling College	819300.323	837659.613

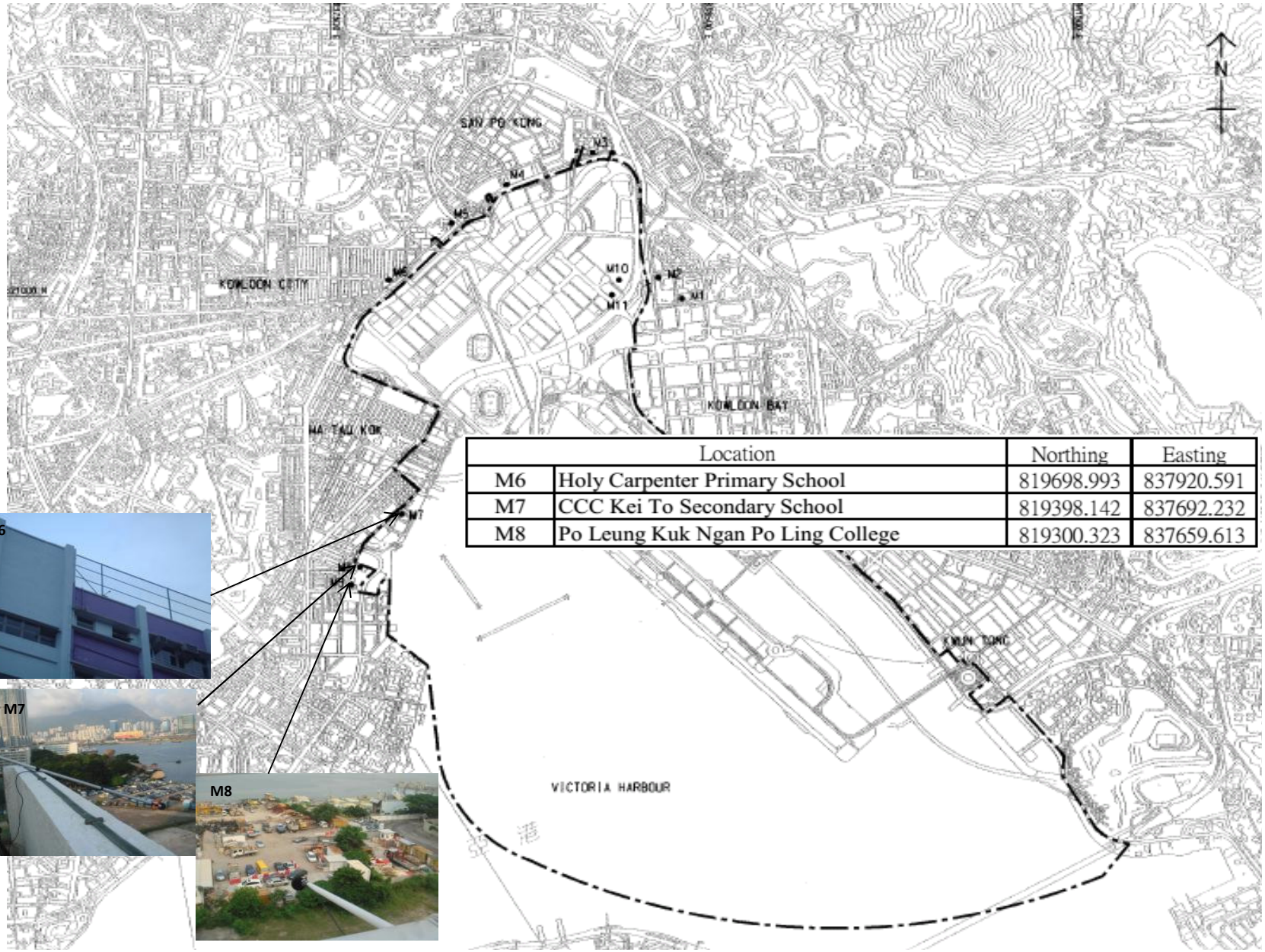
Title

Contract No. KL/2012/03
Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area

Air Quality Monitoring Stations under this Project

Scale	N.T.S	Project No.	MA13056
Date	Jan-14	Figure	2

CINOTECH



	Location	Northing	Easting
M6	Holy Carpenter Primary School	819698.993	837920.591
M7	CCC Kei To Secondary School	819398.142	837692.232
M8	Po Leung Kuk Ngan Po Ling College	819300.323	837659.613

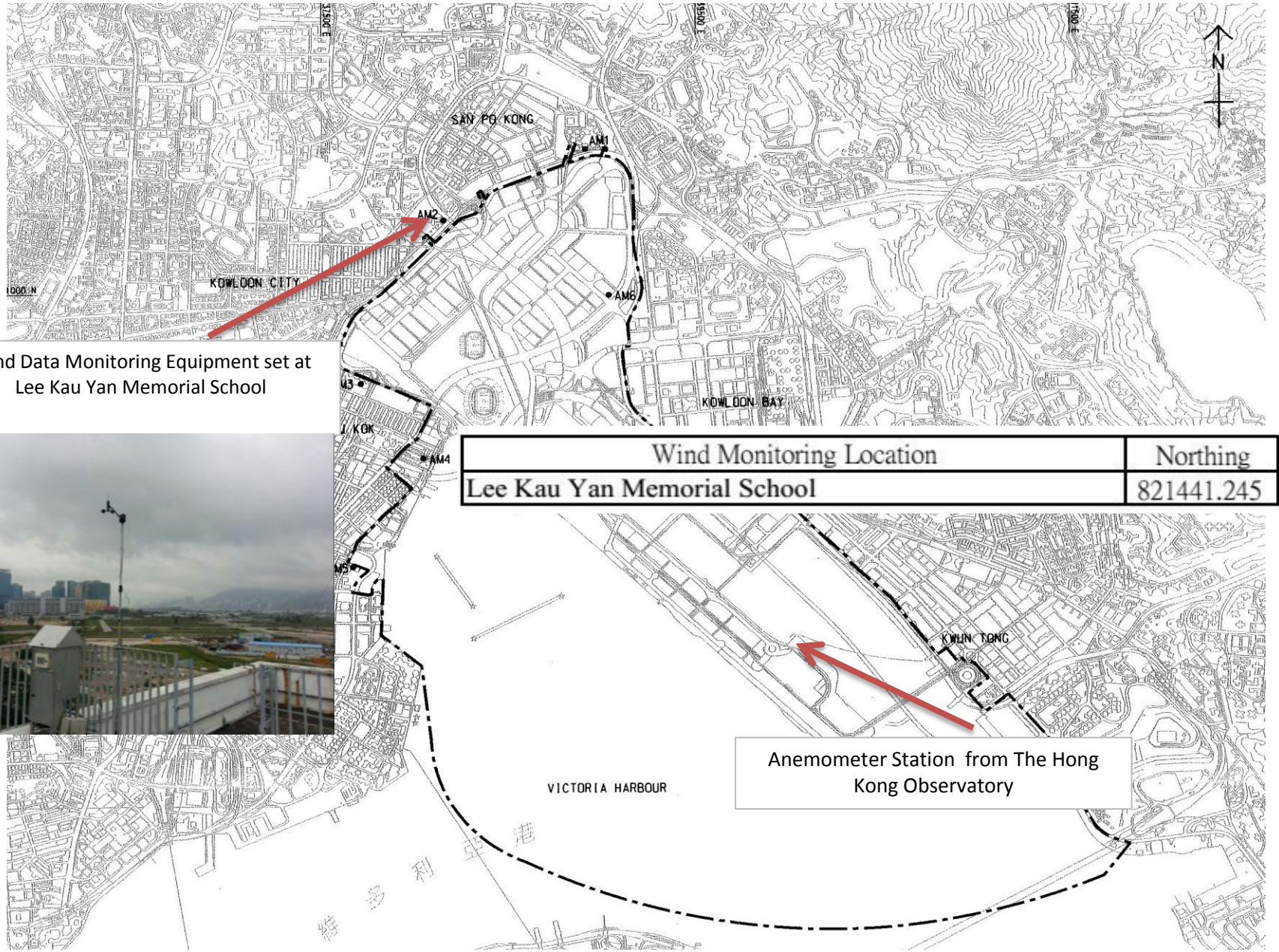
Title

Contract No. KL/2012/03
Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area

Noise Monitoring Stations under this Project

Scale	N.T.S
Project No.	MA13056
Date	Dec-13
Figure	3

CINOTECH

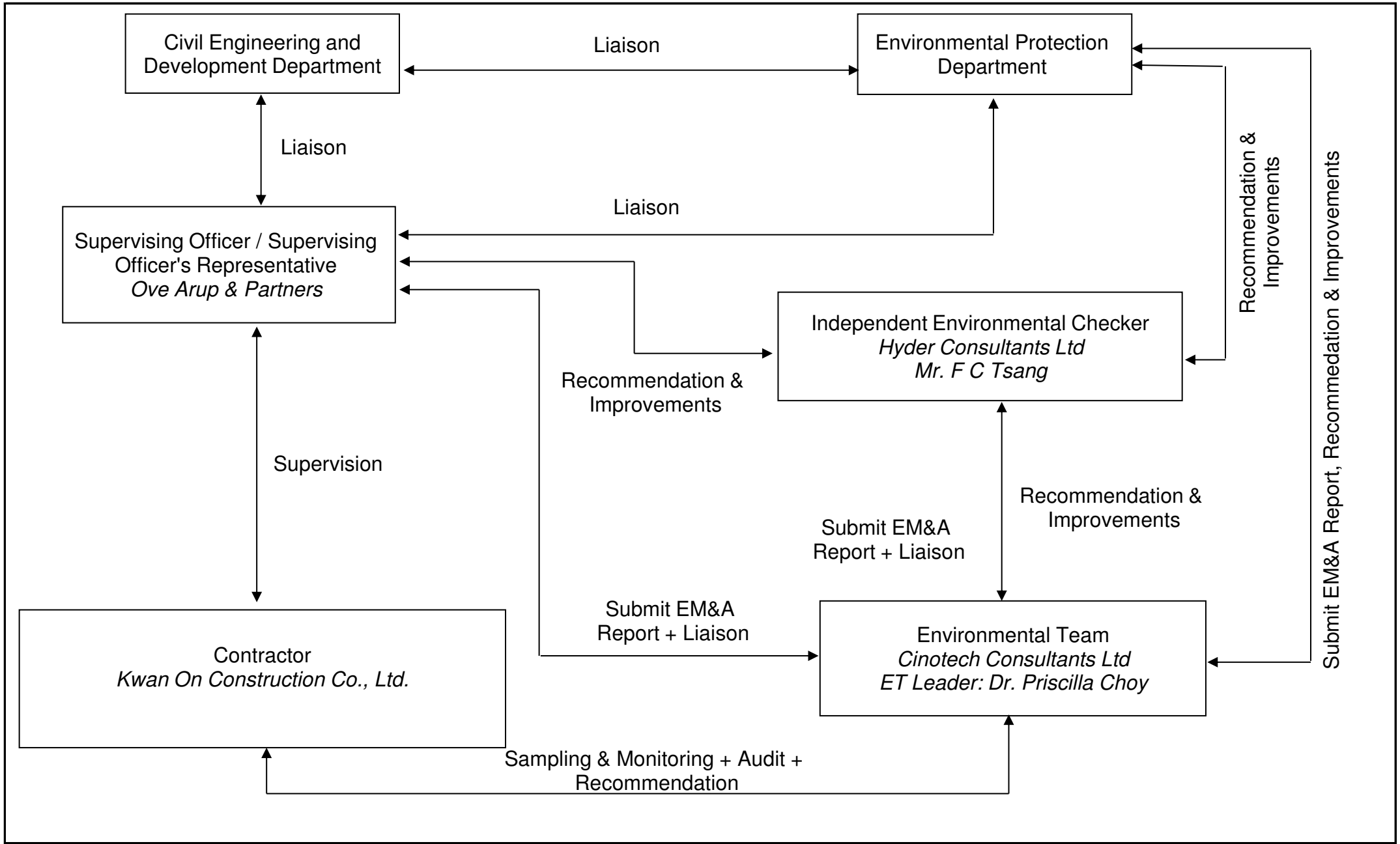


Wind Data Monitoring Equipment set at Lee Kau Yan Memorial School

Wind Monitoring Location	Northing	Easting
Lee Kau Yan Memorial School	821441.245	838153.917

Anemometer Station from The Hong Kong Observatory

Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Location of Wind Data Monitoring Equipment	Scale: N.T.S	Project No.: MA13056	CINOTECH
	Date: Dec-13	Figure: 4	



Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Management Structure	Scale: N.T.S	Project No.: MA13056	CINOTECH
	Date: Jan-14	Figure: 5	

APPENDIX A
ACTION AND LIMIT LEVELS

Appendix A - Action and Limit Levels

Table A-1 Action and Limit Levels for 1-Hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM2	346	500
AM3(A)	351	
AM4(A)	371	
AM5(A)	345	

Table A-2 Action and Limit Levels for 24-Hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM2	157	260
AM3(A)	167	
AM4(A)	187	
AM5(A)	156	

Table A-3 Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) 70dB(A)/65dB(A)*

Remarks: If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed. *70dB(A) and 65dB(A) for schools during normal teaching periods and school examination periods, respectively.

APPENDIX B
COPIES OF CALIBRATION CERTIFCATES

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0040/59/0020

Station: AM2 - Lee Kau Yan Memorial School Operator: WK

Date: 7-Nov-13 Next Due Date: 6-Jan-14

Equipment No.: A-01-59 Serial No. 2354

Ambient Condition			
Temperature, Ta (K)	296.7	Pressure, Pa (mmHg)	766

Orifice Transfer Standard Information					
Equipment No.:	A-04-05	Slope, mc	0.0592	Intercept, bc	-0.0283
Last Calibration Date:	26-Dec-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	25-Dec-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.8	3.46	58.86	7.9	2.83
2	9.7	3.13	53.41	6.7	2.60
3	7.8	2.81	47.94	5.3	2.32
4	5.4	2.34	39.97	3.4	1.86
5	3.2	1.80	30.88	2.0	1.42

By Linear Regression of Y on X

Slope , mw = 0.0514 **Intercept, bw :** -0.1697

Correlation coefficient* = 0.9989

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.11

Remarks:

Conducted by: Ivk Tang Signature: Kwai Date: 7/11/13

Checked by: [illegible] Signature: [illegible] Date: 7 November 2013

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0040/49/0019

Station: AM3(A) - Holy Trinity Bradbury Centre Operator: WK

Date: 7-Nov-13 Next Due Date: 6-Jan-14

Equipment No.: A-01-49 Serial No. 1793

Ambient Condition			
Temperature, Ta (K)	296.5	Pressure, Pa (mmHg)	766.2

Orifice Transfer Standard Information					
Equipment No.:	A-04-05	Slope, mc	0.0592	Intercept, bc	-0.0283
Last Calibration Date:	26-Dec-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	25-Dec-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	12.2	3.52	59.87	8.4	2.92
2	9.8	3.15	53.71	6.9	2.64
3	7.3	2.72	46.42	5.3	2.32
4	5.1	2.27	38.88	3.4	1.86
5	3.1	1.77	30.42	2.0	1.42

By Linear Regression of Y on X

Slope , mw = 0.0513 **Intercept, bw :** -0.1220

Correlation coefficient* = 0.9983

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.29**

Remarks:

Conducted by: WK Tang Signature: Kwai Date: 7/11/13

Checked by: ltv Signature: Date: 7 November 2013

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0040/62/0019

Station: AM4(A) - EMSD Workshops Operator: WK

Date: 7-Nov-13 Next Due Date: 6-Jan-14

Equipment No.: A-01-62 Serial No. 2351

Ambient Condition			
Temperature, Ta (K)	300	Pressure, Pa (mmHg)	763.9

Orifice Transfer Standard Information					
Equipment No.:	A-04-05	Slope, mc	0.0592	Intercept, bc	-0.0283
Last Calibration Date:	26-Dec-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	25-Dec-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	12.2	3.49	59.43	8.3	2.88
2	9.8	3.13	53.32	6.4	2.53
3	7.5	2.74	46.70	5.0	2.23
4	5.3	2.30	39.34	3.3	1.82
5	3.1	1.76	30.20	1.9	1.38

By Linear Regression of Y on X

Slope , mw = 0.0512 **Intercept, bw =** -0.1795

Correlation coefficient* = 0.9994

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.10**

Remarks:

Conducted by: Wk Tang Signature: Kwai Date: 7/11/13

Checked by: AY Signature: Date: 7 November 2013

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0040/60/0020

Station: AM5(A) - Po Leung Kuk Ngan Po Ling College Operator: WK

Date: 7-Nov-13 Next Due Date: 6-Jan-14

Equipment No.: A-01-60 Serial No. 2358

Ambient Condition			
Temperature, Ta (K)	298.8	Pressure, Pa (mmHg)	764.1

Orifice Transfer Standard Information					
Equipment No.:	A-04-05	Slope, mc	0.0592	Intercept, bc	-0.0283
Last Calibration Date:	26-Dec-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	25-Dec-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.9	3.45	58.83	7.7	2.78
2	9.3	3.05	52.06	6.1	2.47
3	7.5	2.74	46.80	5.0	2.24
4	5.4	2.33	39.78	3.3	1.82
5	3.3	1.82	31.21	2.1	1.45

By Linear Regression of Y on X

Slope , mw = 0.0490 **Intercept, bw :** -0.0887

Correlation coefficient* = 0.9985

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.06**

Remarks:

Conducted by: WK Tang Signature: Kwai Date: 7/11/13

Checked by: [illegible] Signature: [illegible] Date: 7 November 2013

WELLAB 匯力 Testing & Research

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

TEST REPORT

Description	Calibration Orifice	**Manufacturer**	TISCH
Serial No.	0993	**Temperature,Ta (K)**	300.8
Model No.	TE-5025A	**Pressure, Pa (mmHg)**	759.3
Date	30 September 2013		

Plate	Diff.Vol (m^3)	Diff.Time (min)	Diff.Hg (mm)	Diff.H_2O (in.)
1	1.00	1.4103	3.4	2.00
2	1.00	0.9980	6.8	4.00
3	1.00	0.8970	8.5	5.00
4	1.00	0.8540	9.4	5.50
5	1.00	0.7060	13.6	8.00

DATA TABULATION

Vstd	(X axis) Qstd	(Y axis)
0.9853	0.6986	1.4069
0.9808	0.9828	1.9897
0.9786	1.0910	2.2245
0.9775	1.1446	2.3331
0.9720	1.3768	2.8138

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

Qstd Slope (m) = 2.07768
Intercept (b) = -0.04613
Coefficient (r) = 0.99997

Va	(X axis) Qa	(Y axis)
0.9955	0.7059	0.8901
0.9910	0.9930	1.2589
0.9888	1.1023	1.4074
0.9876	1.1565	1.4761
0.9821	1.3911	1.7803

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

Qa Slope (m) = 1.30101
Intercept (b) = -0.02919
Coefficient (r) = 0.99997

CALCULATIONS

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

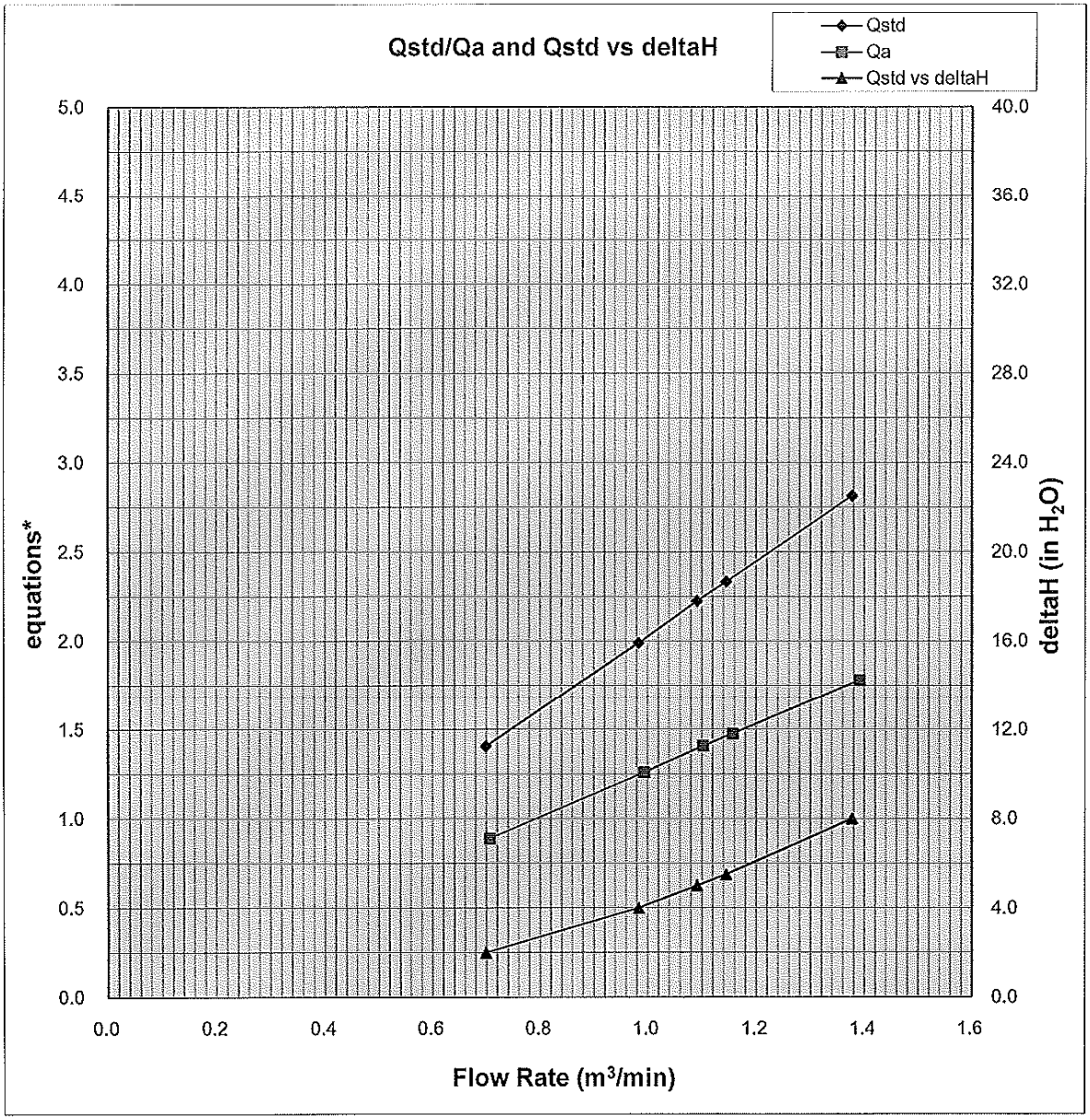
For subsequent flow rate calculations:
Qstd=I/m{[SQRT(H_2O(Pa/760)(298/Ta))]-b}
Qa=I/m{[SQRT H_2O(Ta/Pa)]-b}

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

PATRICK TSE
Laboratory Manager

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

TEST REPORT



Y-axis equations:

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

Qa series: SQRT[ΔH(Ta/Pa)]

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

TEST REPORT

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

Test Report No.:	C/131019A
Date of Issue:	2013-10-19
Date Received:	2013-10-19
Date Tested:	2013-10-19
Date Completed:	2013-10-19
Next Due Date:	2014-04-18

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

Certificate of Calibration

Item for calibration:

Description	: Weather Monitor II
Manufacturer	: Davis Instruments
Model No.	: 7440
Serial No.	: MC20813A11

Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 53%

Test Specifications:

1. Performance check of anemometer
2. Performance check of wind direction sensor

Methodology:

In-house method with reference anemometer (RS232 Integral Vane Digital Anemometer)

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

PATRICK TSE
Laboratory Manager

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

TEST REPORT

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

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

Test Report No.:	C/131101/1
Date of Issue:	2013-11-04
Date Received:	2013-11-01
Date Tested:	2013-11-01
Date Completed:	2013-11-04
Next Due Date:	2014-01-03
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3
Serial No.	: 251634
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 550 CPM
Equipment No.	: A-02-01

Test Conditions:

Room Temperature	: 19 degree Celsius
Relative Humidity	: 54%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0035

****

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

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
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Website: www.wellab.com.hk

TEST REPORT

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

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

Test Report No.:	C/131101/2
Date of Issue:	2013-11-04
Date Received:	2013-11-01
Date Tested:	2013-11-01
Date Completed:	2013-11-04
Next Due Date:	2014-01-03
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 853944
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 685 CPM
Equipment No.	: A-02-04

Test Conditions:

Room Temperature	: 19 degree Celsius
Relative Humidity	: 54%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0034

****

PREPARED AND CHECKED BY:
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Patrick Tse
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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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ATTN: **Mr. WK Tang**

Test Report No.:	C/131018/1
Date of Issue:	2013-10-21
Date Received:	2013-10-18
Date Tested:	2013-10-18
Date Completed:	2013-10-21
Next Due Date:	2013-12-20
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 954253
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 772 CPM
Equipment No.	: A-02-05

Test Conditions:

Room Temperature	: 19 degree Celsius
Relative Humidity	: 60%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0031

****

PREPARED AND CHECKED BY:
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TEST REPORT

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

ATTN: **Mr. WK Tang**

Test Report No.:	C/131223/1
Date of Issue:	2013-12-23
Date Received:	2013-12-20
Date Tested:	2013-12-20
Date Completed:	2013-12-23
Next Due Date:	2014-02-22
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 954253
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 772 CPM
Equipment No.	: A-02-05

Test Conditions:

Room Temperature	: 18 degree Celsius
Relative Humidity	: 62%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0030

****

PREPARED AND CHECKED BY:
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TEST REPORT

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

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

Test Report No.:	C/131101/3
Date of Issue:	2013-11-04
Date Received:	2013-11-01
Date Tested:	2013-11-01
Date Completed:	2013-11-04
Next Due Date:	2014-01-03
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 014750
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 790 CPM
Equipment No.	: A-02-06

Test Conditions:

Room Temperature	: 19 degree Celsius
Relative Humidity	: 54%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0034

****

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

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TEST REPORT

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

Test Report No.:	C/131104/1
Date of Issue:	2013-11-05
Date Received:	2013-11-04
Date Tested:	2013-11-04
Date Completed:	2013-11-05
Next Due Date:	2014-01-04

ATTN: **Mr. W. K. Tang** Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 095039
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 764 CPM
Equipment No.	: A-02-08

Test Conditions:

Room Temperature	: 19 degree Celsius
Relative Humidity	: 54%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0033

****

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

PATRICK TSE
Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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ATTN: **Mr. W. K. Tang**

Test Report No.:	C/131104/2
Date of Issue:	2013-11-05
Date Received:	2013-11-04
Date Tested:	2013-11-04
Date Completed:	2013-11-05
Next Due Date:	2014-01-04
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 095050
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 577 CPM
Equipment No.	: A-02-09

Test Conditions:

Room Temperature	: 19 degree Celsius
Relative Humidity	: 54%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0032

****

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

Patrick Tse

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TEST REPORT

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

Test Report No.:	C/131104/3
Date of Issue:	2013-11-05
Date Received:	2013-11-04
Date Tested:	2013-11-04
Date Completed:	2013-11-05
Next Due Date:	2014-01-04

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

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 095029
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 551 CPM
Equipment No.	: A-02-10

Test Conditions:

Room Temperature	: 19 degree Celsius
Relative Humidity	: 54%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0032

****

PREPARED AND CHECKED BY:
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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
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Test Report No.:	C/N/130919/1
Date of Issue:	2013-09-21
Date Received:	2013-09-19
Date Tested:	2013-09-21
Date Completed:	2013-09-21
Next Due Date:	2014-09-20

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

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 57%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

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

PATRICK TSE
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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/130919/2
Date of Issue:	2013-09-21
Date Received:	2013-09-19
Date Tested:	2013-09-21
Date Completed:	2013-09-21
Next Due Date:	2014-09-20
Page:	1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 57%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

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

Patrick Tse

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TEST REPORT

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

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

Test Report No.:	C/N/130104
Date of Issue:	2013-01-05
Date Received:	2013-01-04
Date Tested:	2013-01-04
Date Completed:	2013-01-05
Next Due Date:	2014-01-04
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 14303
Microphone No.	: 35222
Equipment No.	: N-08-05

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 59%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

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

PREPARED AND CHECKED BY:
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Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/130824/1
Date of Issue:	2013-08-25
Date Received:	2013-08-24
Date Tested:	2013-08-24
Date Completed:	2013-08-25
Next Due Date:	2014-08-24
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 21139
Microphone No.	: 43690
Equipment No.	: N-08-06

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 65%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

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

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/130830/1
Date of Issue:	2013-08-31
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30
Page:	1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 69%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

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

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TEST REPORT

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

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

Test Report No.:	C/N/130830/2
Date of Issue:	2013-08-31
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21459
Microphone No.	: 43676
Equipment No.	: N-08-08

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 69%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

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

PATRICK TSE
Laboratory Manager

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TEST REPORT

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

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

Test Report No.:	C/N/130830/3
Date of Issue:	2013-08-31
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30
Page:	1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 69%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

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

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TEST REPORT

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

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

Test Report No.:	C/N/131129/1
Date of Issue:	2013-11-30
Date Received:	2013-11-29
Date Tested:	2013-11-29
Date Completed:	2013-11-30
Next Due Date:	2014-11-29
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 23853
Microphone No.	: 48530
Equipment No.	: N-08-10

Test conditions:

Room Temperatre	: 19 degree Celsius
Relative Humidity	: 57%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

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

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TEST REPORT

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

Test Report No.:	C/N/131004/1
Date of Issue:	2013-10-05
Date Received:	2013-10-04
Date Tested:	2013-10-04
Date Completed:	2013-10-05
Next Due Date:	2014-10-04
Page:	1 of 1

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

Item for calibration:

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

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 57%

Methodology:

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

Results:

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

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

PATRICK TSE
Laboratory Manager

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TEST REPORT

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

Test Report No.:	C/N/131004/2
Date of Issue:	2013-10-05
Date Received:	2013-10-04
Date Tested:	2013-10-04
Date Completed:	2013-10-05
Next Due Date:	2014-10-04
Page:	1 of 1

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

Item for calibration:

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

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 57%

Methodology:

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

Results:

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

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

PATRICK TSE
Laboratory Manager

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TEST REPORT

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

Test Report No.:	C/N/131004/3
Date of Issue:	2013-10-05
Date Received:	2013-10-04
Date Tested:	2013-10-04
Date Completed:	2013-10-05
Next Due Date:	2014-10-04
Page:	1 of 1

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

Item for calibration:

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

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 57%

Methodology:

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

Results:

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

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

PATRICK TSE
Laboratory Manager

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

TEST REPORT

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

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

Test Report No.:	C/N/131108/1
Date of Issue:	2013-11-09
Date Received:	2013-11-08
Date Tested:	2013-11-08
Date Completed:	2013-11-09
Next Due Date:	2014-11-08
Page:	1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2326353
Project No.	: C13
Equipment No.	: N-02-01

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 52 %

Methodology:

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

Results:

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

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

PATRICK TSE
Laboratory Manager

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

TEST REPORT

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

Test Report No.:	C/N/130830/4
Date of Issue:	2012-08-31
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30

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

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2412367
Equipment No.	: N-02-03

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

Methodology:

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

Results:

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

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

PATRICK TSE
Laboratory Manager

APPENDIX C
WEATHER INFORMATION

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
1 December 2013	14.3 – 20.7	33 – 63	0
2 December 2013	14.6 – 21.4	38 – 71	0
3 December 2013	17.3 – 21.5	45 – 80	0
4 December 2013	16.2 – 22.8	38 – 76	0
5 December 2013	15.8 – 21.4	36 – 57	0
6 December 2013	15.7 – 21.4	33 – 63	0
7 December 2013	16.6 – 22.1	54 – 80	0
8 December 2013	18.2 – 21.4	64 – 85	Trace
9 December 2013	19.8 – 24.9	50 – 78	0
10 December 2013	18.4 – 21.7	55 – 80	0
11 December 2013	17.8 – 20.6	55 – 83	0
12 December 2013	16.6 – 19.3	55 – 72	Trace
13 December 2013	17.9 – 20.7	70 – 81	Trace
14 December 2013	17.2 – 20.5	75 – 99	13.0
15 December 2013	16.5 – 17.6	93 – 99	22.7
16 December 2013	12.2 – 17.2	88 – 99	24.8
17 December 2013	11.4 – 13.1	88 – 99	27.9
18 December 2013	9.2 – 13.4	58 – 86	0
19 December 2013	9.5 – 15.0	53 – 74	0

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
20 December 2013	11.3 – 16.4	54 – 71	0
21 December 2013	13.1 – 16.0	55 – 71	0
22 December 2013	11.3 – 16.0	52 – 69	0
23 December 2013	11.3 – 17.9	45 – 74	0
24 December 2013	12.2 – 17.9	48 – 71	0
25 December 2013	13.4 – 17.6	49 – 67	0
26 December 2013	12.5 – 17.3	35 – 57	0
27 December 2013	11.3 – 15.5	35 – 50	0
28 December 2013	9.9 – 14.6	38 – 55	0
29 December 2013	9.3 – 15.3	36 – 66	0
30 December 2013	10.7 – 16.3	36 – 64	0
31 December 2013	12.5 – 18.1	35 – 65	0

* The above information was extracted from the daily weather summary by Hong Kong Observatory.

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
1-Dec-2013	00:00	2.3	NNE
1-Dec-2013	01:00	2.2	NE
1-Dec-2013	02:00	2.1	NE
1-Dec-2013	03:00	2	NE
1-Dec-2013	04:00	1.9	ENE
1-Dec-2013	05:00	2	NNE
1-Dec-2013	06:00	1.8	NNE
1-Dec-2013	07:00	2.1	ENE
1-Dec-2013	08:00	1.9	NE
1-Dec-2013	09:00	1.9	ENE
1-Dec-2013	10:00	2.1	NNE
1-Dec-2013	11:00	2.1	E
1-Dec-2013	12:00	2.3	ENE
1-Dec-2013	13:00	2.5	ENE
1-Dec-2013	14:00	2.6	ENE
1-Dec-2013	15:00	2.6	ENE
1-Dec-2013	16:00	2.4	NNE
1-Dec-2013	17:00	2.7	NE
1-Dec-2013	18:00	2.2	WSW
1-Dec-2013	19:00	2.1	SW
1-Dec-2013	20:00	2	SE
1-Dec-2013	21:00	1.9	ESE
1-Dec-2013	22:00	2.2	NE
1-Dec-2013	23:00	2.1	ENE
2-Dec-2013	00:00	1.9	N
2-Dec-2013	01:00	1.8	ENE
2-Dec-2013	02:00	1.9	NE
2-Dec-2013	03:00	1.6	NNE
2-Dec-2013	04:00	1.6	NNE
2-Dec-2013	05:00	1.6	NNE
2-Dec-2013	06:00	1.6	NE
2-Dec-2013	07:00	1.6	NNE
2-Dec-2013	08:00	2	NNE
2-Dec-2013	09:00	1.9	NNE
2-Dec-2013	10:00	2.4	NE
2-Dec-2013	11:00	2.6	ENE

II. Mean Wind Speed and Wind Direction

2-Dec-2013	12:00	2.7	ENE
2-Dec-2013	13:00	2.4	NE
2-Dec-2013	14:00	2.6	ESE
2-Dec-2013	15:00	2.8	WSW
2-Dec-2013	16:00	2.5	NE
2-Dec-2013	17:00	2.2	NNE
2-Dec-2013	18:00	2.3	ESE
2-Dec-2013	19:00	2.1	NNE
2-Dec-2013	20:00	2.1	ESE
2-Dec-2013	21:00	2.2	ENE
2-Dec-2013	22:00	2.2	SSE
2-Dec-2013	23:00	2.2	ESE
3-Dec-2013	00:00	2.3	E
3-Dec-2013	01:00	2	NE
3-Dec-2013	02:00	2	NE
3-Dec-2013	03:00	1.8	WNW
3-Dec-2013	04:00	1.7	NW
3-Dec-2013	05:00	1.6	ESE
3-Dec-2013	06:00	1.3	WNW
3-Dec-2013	07:00	1.4	WSW
3-Dec-2013	08:00	1.6	SW
3-Dec-2013	09:00	2.1	WSW
3-Dec-2013	10:00	2.4	WSW
3-Dec-2013	11:00	2.2	SW
3-Dec-2013	12:00	2.2	SSE
3-Dec-2013	13:00	2.2	ESE
3-Dec-2013	14:00	2.1	WNW
3-Dec-2013	15:00	2.2	SE
3-Dec-2013	16:00	2.2	W
3-Dec-2013	17:00	2.5	SSW
3-Dec-2013	18:00	2.2	SSW
3-Dec-2013	19:00	1.9	W
3-Dec-2013	20:00	2	SSE
3-Dec-2013	21:00	2.2	NNE
3-Dec-2013	22:00	2	NE
3-Dec-2013	23:00	2.2	SE
4-Dec-2013	00:00	2.2	NNE

II. Mean Wind Speed and Wind Direction

4-Dec-2013	01:00	2.3	NNE
4-Dec-2013	02:00	2.1	NNE
4-Dec-2013	03:00	1.8	NNE
4-Dec-2013	04:00	1.9	SE
4-Dec-2013	05:00	1.8	SE
4-Dec-2013	06:00	1.7	SE
4-Dec-2013	07:00	1.5	SE
4-Dec-2013	08:00	1.6	SSE
4-Dec-2013	09:00	1.7	SSE
4-Dec-2013	10:00	2.1	SE
4-Dec-2013	11:00	2.2	SSE
4-Dec-2013	12:00	2.1	SSE
4-Dec-2013	13:00	2.4	ESE
4-Dec-2013	14:00	2	E
4-Dec-2013	15:00	2.1	ENE
4-Dec-2013	16:00	1.9	NE
4-Dec-2013	17:00	2	ENE
4-Dec-2013	18:00	1.8	SW
4-Dec-2013	19:00	1.6	WSW
4-Dec-2013	20:00	1.8	WSW
4-Dec-2013	21:00	1.7	SW
4-Dec-2013	22:00	1.9	W
4-Dec-2013	23:00	2.2	NNE
5-Dec-2013	00:00	1.9	NNE
5-Dec-2013	01:00	1.9	ESE
5-Dec-2013	02:00	1.9	N
5-Dec-2013	03:00	1.9	N
5-Dec-2013	04:00	2	SE
5-Dec-2013	05:00	1.8	SE
5-Dec-2013	06:00	1.5	SE
5-Dec-2013	07:00	1.5	ESE
5-Dec-2013	08:00	1.7	ESE
5-Dec-2013	09:00	1.9	ESE
5-Dec-2013	10:00	2.1	ESE
5-Dec-2013	11:00	2.1	ESE
5-Dec-2013	12:00	2.3	ESE
5-Dec-2013	13:00	2.3	SE

II. Mean Wind Speed and Wind Direction

5-Dec-2013	14:00	2.1	E
5-Dec-2013	15:00	2.2	SSE
5-Dec-2013	16:00	2.2	SSE
5-Dec-2013	17:00	2.3	SSE
5-Dec-2013	18:00	2	NNE
5-Dec-2013	19:00	2	SSW
5-Dec-2013	20:00	2	W
5-Dec-2013	21:00	2	SSW
5-Dec-2013	22:00	2	NW
5-Dec-2013	23:00	1.7	S
6-Dec-2013	00:00	1.8	ESE
6-Dec-2013	01:00	1.8	WSW
6-Dec-2013	02:00	1.8	NE
6-Dec-2013	03:00	1.9	NE
6-Dec-2013	04:00	1.8	ENE
6-Dec-2013	05:00	1.8	NE
6-Dec-2013	06:00	1.5	NNE
6-Dec-2013	07:00	1.6	NE
6-Dec-2013	08:00	1.8	NE
6-Dec-2013	09:00	2.2	SE
6-Dec-2013	10:00	2.4	E
6-Dec-2013	11:00	2.6	ENE
6-Dec-2013	12:00	2.6	SE
6-Dec-2013	13:00	2.6	SE
6-Dec-2013	14:00	2.6	ESE
6-Dec-2013	15:00	2.6	NE
6-Dec-2013	16:00	2.6	ESE
6-Dec-2013	17:00	2.2	ESE
6-Dec-2013	18:00	1.9	E
6-Dec-2013	19:00	1.8	ESE
6-Dec-2013	20:00	1.9	ESE
6-Dec-2013	21:00	1.7	ESE
6-Dec-2013	22:00	1.6	ENE
6-Dec-2013	23:00	1.4	N
7-Dec-2013	00:00	1.6	ESE
7-Dec-2013	01:00	1.7	ESE
7-Dec-2013	02:00	1.5	ESE

II. Mean Wind Speed and Wind Direction

7-Dec-2013	03:00	1.4	ESE
7-Dec-2013	04:00	1.4	SE
7-Dec-2013	05:00	1.4	SE
7-Dec-2013	06:00	1.3	SE
7-Dec-2013	07:00	1.3	SE
7-Dec-2013	08:00	1.6	SSE
7-Dec-2013	09:00	1.6	SE
7-Dec-2013	10:00	1.7	ESE
7-Dec-2013	11:00	1.8	SSE
7-Dec-2013	12:00	2	ESE
7-Dec-2013	13:00	1.9	SSE
7-Dec-2013	14:00	1.9	NE
7-Dec-2013	15:00	2.1	ESE
7-Dec-2013	16:00	2.1	ESE
7-Dec-2013	17:00	1.9	ESE
7-Dec-2013	18:00	1.7	SE
7-Dec-2013	19:00	1.6	NE
7-Dec-2013	20:00	1.4	E
7-Dec-2013	21:00	1.3	NNE
7-Dec-2013	22:00	1.4	NE
7-Dec-2013	23:00	1.2	ENE
8-Dec-2013	00:00	1.2	ENE
8-Dec-2013	01:00	1.1	ESE
8-Dec-2013	02:00	1.1	E
8-Dec-2013	03:00	1.1	NE
8-Dec-2013	04:00	1	SSW
8-Dec-2013	05:00	1	W
8-Dec-2013	06:00	0.8	NNE
8-Dec-2013	07:00	0.9	WSW
8-Dec-2013	08:00	1.1	NNE
8-Dec-2013	09:00	1.5	SSE
8-Dec-2013	10:00	1.9	ENE
8-Dec-2013	11:00	1.8	NNE
8-Dec-2013	12:00	1.9	NE
8-Dec-2013	13:00	1.9	SE
8-Dec-2013	14:00	2.2	W
8-Dec-2013	15:00	2.2	NE

II. Mean Wind Speed and Wind Direction

8-Dec-2013	16:00	1.8	N
8-Dec-2013	17:00	1.6	ENE
8-Dec-2013	18:00	1.5	ENE
8-Dec-2013	19:00	1.2	WNW
8-Dec-2013	20:00	1.2	SSE
8-Dec-2013	21:00	1.4	SSE
8-Dec-2013	22:00	1.3	SSE
8-Dec-2013	23:00	1.2	W
9-Dec-2013	00:00	1.4	ENE
9-Dec-2013	01:00	1.3	ENE
9-Dec-2013	02:00	1.3	NE
9-Dec-2013	03:00	1.4	N
9-Dec-2013	04:00	1.4	ESE
9-Dec-2013	05:00	1.2	SSE
9-Dec-2013	06:00	1.1	NE
9-Dec-2013	07:00	1	NE
9-Dec-2013	08:00	1	ENE
9-Dec-2013	09:00	1.3	NE
9-Dec-2013	10:00	1.5	ENE
9-Dec-2013	11:00	1.8	ESE
9-Dec-2013	12:00	1.8	SSE
9-Dec-2013	13:00	1.8	NE
9-Dec-2013	14:00	1.7	ESE
9-Dec-2013	15:00	1.9	E
9-Dec-2013	16:00	1.7	E
9-Dec-2013	17:00	1.6	SE
9-Dec-2013	18:00	1.4	SSE
9-Dec-2013	19:00	1.1	E
9-Dec-2013	20:00	1.1	ESE
9-Dec-2013	21:00	1.2	ESE
9-Dec-2013	22:00	1.2	SSE
9-Dec-2013	23:00	1.1	SSE
10-Dec-2013	00:00	1.9	S
10-Dec-2013	01:00	2	ESE
10-Dec-2013	02:00	2.1	SE
10-Dec-2013	03:00	2.2	SE
10-Dec-2013	04:00	2	SSE

II. Mean Wind Speed and Wind Direction

10-Dec-2013	05:00	1.9	S
10-Dec-2013	06:00	2	SSE
10-Dec-2013	07:00	1.6	ESE
10-Dec-2013	08:00	1.9	E
10-Dec-2013	09:00	2.2	SSE
10-Dec-2013	10:00	2	SE
10-Dec-2013	11:00	2.4	SSE
10-Dec-2013	12:00	2.6	SE
10-Dec-2013	13:00	2.6	SE
10-Dec-2013	14:00	2.5	E
10-Dec-2013	15:00	2.4	SSE
10-Dec-2013	16:00	2.5	SE
10-Dec-2013	17:00	2.3	SSE
10-Dec-2013	18:00	1.9	E
10-Dec-2013	19:00	1.8	E
10-Dec-2013	20:00	2	NNW
10-Dec-2013	21:00	1.5	NE
10-Dec-2013	22:00	1.6	SSE
10-Dec-2013	23:00	1.7	NNE
11-Dec-2013	00:00	1.6	ENE
11-Dec-2013	01:00	1.7	SSE
11-Dec-2013	02:00	1.8	SSE
11-Dec-2013	03:00	1.6	SSE
11-Dec-2013	04:00	1.6	ESE
11-Dec-2013	05:00	1.6	ENE
11-Dec-2013	06:00	1.6	ENE
11-Dec-2013	07:00	1.6	E
11-Dec-2013	08:00	1.6	E
11-Dec-2013	09:00	2	ENE
11-Dec-2013	10:00	2.2	E
11-Dec-2013	11:00	2.2	NE
11-Dec-2013	12:00	2.6	NNE
11-Dec-2013	13:00	2.5	NE
11-Dec-2013	14:00	2.6	SSE
11-Dec-2013	15:00	2.5	SSE
11-Dec-2013	16:00	2.3	SSE
11-Dec-2013	17:00	2.1	ESE

II. Mean Wind Speed and Wind Direction

11-Dec-2013	18:00	1.7	ENE
11-Dec-2013	19:00	1.6	NE
11-Dec-2013	20:00	1.6	SE
11-Dec-2013	21:00	1.3	NE
11-Dec-2013	22:00	1.3	SSE
11-Dec-2013	23:00	1.2	SE
12-Dec-2013	00:00	1.8	ESE
12-Dec-2013	01:00	1.5	NE
12-Dec-2013	02:00	1.5	SSE
12-Dec-2013	03:00	1.6	SSE
12-Dec-2013	04:00	1.6	SE
12-Dec-2013	05:00	1.3	SSW
12-Dec-2013	06:00	1.2	SW
12-Dec-2013	07:00	1.2	E
12-Dec-2013	08:00	1.1	E
12-Dec-2013	09:00	1.6	E
12-Dec-2013	10:00	1.8	W
12-Dec-2013	11:00	2.2	ENE
12-Dec-2013	12:00	2.1	WNW
12-Dec-2013	13:00	2.3	WNW
12-Dec-2013	14:00	2.1	E
12-Dec-2013	15:00	1.7	WNW
12-Dec-2013	16:00	1.7	W
12-Dec-2013	17:00	1.7	SSE
12-Dec-2013	18:00	1.8	ENE
12-Dec-2013	19:00	1.5	WNW
12-Dec-2013	20:00	1.4	N
12-Dec-2013	21:00	1.2	NE
12-Dec-2013	22:00	1.3	ENE
12-Dec-2013	23:00	1.4	ENE
13-Dec-2013	00:00	1.5	SE
13-Dec-2013	01:00	1.3	ESE
13-Dec-2013	02:00	1.1	SSE
13-Dec-2013	03:00	1.1	SSE
13-Dec-2013	04:00	1.2	NE
13-Dec-2013	05:00	1.2	SW
13-Dec-2013	06:00	0.9	SW

II. Mean Wind Speed and Wind Direction

13-Dec-2013	07:00	1.1	W
13-Dec-2013	08:00	1.5	W
13-Dec-2013	09:00	2.1	SW
13-Dec-2013	10:00	2.3	ENE
13-Dec-2013	11:00	2.5	WSW
13-Dec-2013	12:00	2.8	WSW
13-Dec-2013	13:00	2.8	NE
13-Dec-2013	14:00	2.8	ENE
13-Dec-2013	15:00	2.7	NNE
13-Dec-2013	16:00	2.5	NNE
13-Dec-2013	17:00	2.4	NE
13-Dec-2013	18:00	1.9	NNE
13-Dec-2013	19:00	1.6	N
13-Dec-2013	20:00	1.4	ENE
13-Dec-2013	21:00	1.7	W
13-Dec-2013	22:00	1.6	W
13-Dec-2013	23:00	1.4	WSW
14-Dec-2013	00:00	1.1	W
14-Dec-2013	01:00	1.2	NE
14-Dec-2013	02:00	1.1	NW
14-Dec-2013	03:00	1.2	S
14-Dec-2013	04:00	1.2	W
14-Dec-2013	05:00	1.2	W
14-Dec-2013	06:00	1.5	ENE
14-Dec-2013	07:00	1.6	WSW
14-Dec-2013	08:00	1.5	ENE
14-Dec-2013	09:00	1.8	NE
14-Dec-2013	10:00	1.9	WNW
14-Dec-2013	11:00	2	WNW
14-Dec-2013	12:00	1.9	WNW
14-Dec-2013	13:00	2.1	S
14-Dec-2013	14:00	1.9	N
14-Dec-2013	15:00	1.9	SSE
14-Dec-2013	16:00	1.9	N
14-Dec-2013	17:00	1.6	NE
14-Dec-2013	18:00	1.4	WSW
14-Dec-2013	19:00	1.1	W

II. Mean Wind Speed and Wind Direction

14-Dec-2013	20:00	0.9	WNW
14-Dec-2013	21:00	1.4	W
14-Dec-2013	22:00	1.4	WNW
14-Dec-2013	23:00	1.2	W
15-Dec-2013	00:00	1.2	W
15-Dec-2013	01:00	1.2	W
15-Dec-2013	02:00	1.1	WSW
15-Dec-2013	03:00	1.4	WNW
15-Dec-2013	04:00	1.3	W
15-Dec-2013	05:00	1.2	WNW
15-Dec-2013	06:00	1.1	NW
15-Dec-2013	07:00	1.3	WNW
15-Dec-2013	08:00	1.4	WSW
15-Dec-2013	09:00	1.6	WNW
15-Dec-2013	10:00	2.1	WNW
15-Dec-2013	11:00	1.9	NNE
15-Dec-2013	12:00	2	N
15-Dec-2013	13:00	2.3	W
15-Dec-2013	14:00	2.2	W
15-Dec-2013	15:00	2.4	SSW
15-Dec-2013	16:00	2.2	SW
15-Dec-2013	17:00	1.9	WSW
15-Dec-2013	18:00	1.6	N
15-Dec-2013	19:00	1.4	WNW
15-Dec-2013	20:00	1.2	W
15-Dec-2013	21:00	1.2	SE
15-Dec-2013	22:00	1.2	SW
15-Dec-2013	23:00	1.2	WNW
16-Dec-2013	00:00	1.2	NNE
16-Dec-2013	01:00	1.1	S
16-Dec-2013	02:00	1	W
16-Dec-2013	03:00	1.1	WSW
16-Dec-2013	04:00	1.3	NNE
16-Dec-2013	05:00	1.1	NNE
16-Dec-2013	06:00	1.2	WNW
16-Dec-2013	07:00	1.2	NE
16-Dec-2013	08:00	1.2	E

II. Mean Wind Speed and Wind Direction

16-Dec-2013	09:00	1.6	SSW
16-Dec-2013	10:00	1.6	W
16-Dec-2013	11:00	1.7	ENE
16-Dec-2013	12:00	2	N
16-Dec-2013	13:00	2	SW
16-Dec-2013	14:00	2	WSW
16-Dec-2013	15:00	2.1	W
16-Dec-2013	16:00	2	ENE
16-Dec-2013	17:00	1.9	W
16-Dec-2013	18:00	1.8	W
16-Dec-2013	19:00	1.4	NE
16-Dec-2013	20:00	1.3	ENE
16-Dec-2013	21:00	1	N
16-Dec-2013	22:00	0.9	NE
16-Dec-2013	23:00	1	ENE
17-Dec-2013	00:00	1.3	W
17-Dec-2013	01:00	1.2	N
17-Dec-2013	02:00	1.1	NE
17-Dec-2013	03:00	1	NNE
17-Dec-2013	04:00	0.9	W
17-Dec-2013	05:00	0.9	SSE
17-Dec-2013	06:00	1	ENE
17-Dec-2013	07:00	0.9	ENE
17-Dec-2013	08:00	1.2	SW
17-Dec-2013	09:00	1.6	SSW
17-Dec-2013	10:00	1.9	SE
17-Dec-2013	11:00	2.2	W
17-Dec-2013	12:00	2.3	WSW
17-Dec-2013	13:00	2.4	S
17-Dec-2013	14:00	2.5	ESE
17-Dec-2013	15:00	2.4	E
17-Dec-2013	16:00	2.2	NW
17-Dec-2013	17:00	1.9	SSW
17-Dec-2013	18:00	1.7	NE
17-Dec-2013	19:00	1.6	SE
17-Dec-2013	20:00	1.4	ENE
17-Dec-2013	21:00	1.3	ENE

II. Mean Wind Speed and Wind Direction

17-Dec-2013	22:00	1.4	WSW
17-Dec-2013	23:00	1.2	WNW
18-Dec-2013	00:00	1.2	E
18-Dec-2013	01:00	1.3	NE
18-Dec-2013	02:00	1	NE
18-Dec-2013	03:00	1	SW
18-Dec-2013	04:00	1.1	SW
18-Dec-2013	05:00	1.1	ESE
18-Dec-2013	06:00	1	NE
18-Dec-2013	07:00	1.1	WNW
18-Dec-2013	08:00	1.4	WNW
18-Dec-2013	09:00	1.8	WSW
18-Dec-2013	10:00	2	NE
18-Dec-2013	11:00	2.3	SW
18-Dec-2013	12:00	2.7	SSE
18-Dec-2013	13:00	2.6	SW
18-Dec-2013	14:00	2.5	S
18-Dec-2013	15:00	2.4	ESE
18-Dec-2013	16:00	2.3	SSW
18-Dec-2013	17:00	2.1	WSW
18-Dec-2013	18:00	2	E
18-Dec-2013	19:00	1.7	E
18-Dec-2013	20:00	1.6	WNW
18-Dec-2013	21:00	1.5	N
18-Dec-2013	22:00	1.5	ESE
18-Dec-2013	23:00	1.5	NE
19-Dec-2013	00:00	1.6	WSW
19-Dec-2013	01:00	1.4	NW
19-Dec-2013	02:00	1.5	NW
19-Dec-2013	03:00	1.5	NE
19-Dec-2013	04:00	1.5	ENE
19-Dec-2013	05:00	1.5	WNW
19-Dec-2013	06:00	1.2	W
19-Dec-2013	07:00	1.5	SW
19-Dec-2013	08:00	1.7	NE
19-Dec-2013	09:00	2.2	NE
19-Dec-2013	10:00	2.3	NNE

II. Mean Wind Speed and Wind Direction

19-Dec-2013	11:00	2.4	N
19-Dec-2013	12:00	2.2	E
19-Dec-2013	13:00	1.9	NE
19-Dec-2013	14:00	1.8	ESE
19-Dec-2013	15:00	1.9	ESE
19-Dec-2013	16:00	1.9	SE
19-Dec-2013	17:00	1.7	WSW
19-Dec-2013	18:00	1.4	S
19-Dec-2013	19:00	1.5	W
19-Dec-2013	20:00	1.5	NNE
19-Dec-2013	21:00	1.5	NE
19-Dec-2013	22:00	1.3	SSE
19-Dec-2013	23:00	1.4	ENE
20-Dec-2013	00:00	1.4	SE
20-Dec-2013	01:00	1.3	ESE
20-Dec-2013	02:00	1.4	SE
20-Dec-2013	03:00	1.2	ENE
20-Dec-2013	04:00	1.2	NNE
20-Dec-2013	05:00	1.1	SW
20-Dec-2013	06:00	1.2	SE
20-Dec-2013	07:00	1.2	SE
20-Dec-2013	08:00	1.2	SE
20-Dec-2013	09:00	1.5	NNE
20-Dec-2013	10:00	2	NNE
20-Dec-2013	11:00	2.2	WNW
20-Dec-2013	12:00	2.3	ESE
20-Dec-2013	13:00	2.3	WNW
20-Dec-2013	14:00	2.3	NNE
20-Dec-2013	15:00	2.2	NW
20-Dec-2013	16:00	2.3	N
20-Dec-2013	17:00	2.2	NE
20-Dec-2013	18:00	2	ENE
20-Dec-2013	19:00	1.7	NE
20-Dec-2013	20:00	1.5	E
20-Dec-2013	21:00	1.4	SSE
20-Dec-2013	22:00	1.5	SSE
20-Dec-2013	23:00	1.5	WNW

II. Mean Wind Speed and Wind Direction

21-Dec-2013	00:00	1.5	WNW
21-Dec-2013	01:00	1.3	SE
21-Dec-2013	02:00	1.3	SSE
21-Dec-2013	03:00	1.5	ESE
21-Dec-2013	04:00	1.5	SSE
21-Dec-2013	05:00	1.6	SSE
21-Dec-2013	06:00	1.3	SE
21-Dec-2013	07:00	1.2	WNW
21-Dec-2013	08:00	1.4	NE
21-Dec-2013	09:00	1.6	NE
21-Dec-2013	10:00	1.7	NE
21-Dec-2013	11:00	2.1	WNW
21-Dec-2013	12:00	2.2	WNW
21-Dec-2013	13:00	2.5	WSW
21-Dec-2013	14:00	2.3	N
21-Dec-2013	15:00	2.2	WNW
21-Dec-2013	16:00	2.1	ENE
21-Dec-2013	17:00	2	ESE
21-Dec-2013	18:00	1.7	W
21-Dec-2013	19:00	1.6	WNW
21-Dec-2013	20:00	1.7	S
21-Dec-2013	21:00	1.8	N
21-Dec-2013	22:00	1.6	ENE
21-Dec-2013	23:00	1.7	ENE
22-Dec-2013	00:00	1.7	SSE
22-Dec-2013	01:00	1.9	ENE
22-Dec-2013	02:00	1.7	SSE
22-Dec-2013	03:00	1.7	WSW
22-Dec-2013	04:00	1.5	WNW
22-Dec-2013	05:00	1.5	WNW
22-Dec-2013	06:00	1.4	NE
22-Dec-2013	07:00	1.3	SSE
22-Dec-2013	08:00	1.5	W
22-Dec-2013	09:00	1.9	SW
22-Dec-2013	10:00	2.2	WSW
22-Dec-2013	11:00	2.3	NE
22-Dec-2013	12:00	2.3	ENE

II. Mean Wind Speed and Wind Direction

22-Dec-2013	13:00	2.2	NNE
22-Dec-2013	14:00	2.3	ESE
22-Dec-2013	15:00	2.1	W
22-Dec-2013	16:00	2.2	NE
22-Dec-2013	17:00	1.9	SSE
22-Dec-2013	18:00	1.5	ENE
22-Dec-2013	19:00	1.3	NE
22-Dec-2013	20:00	1.5	NNE
22-Dec-2013	21:00	1.7	SE
22-Dec-2013	22:00	1.5	NNE
22-Dec-2013	23:00	1.5	WSW
23-Dec-2013	00:00	1.3	N
23-Dec-2013	01:00	1.4	SW
23-Dec-2013	02:00	1.2	N
23-Dec-2013	03:00	1.1	N
23-Dec-2013	04:00	1.2	ENE
23-Dec-2013	05:00	1.2	WSW
23-Dec-2013	06:00	1.1	WNW
23-Dec-2013	07:00	1.6	ESE
23-Dec-2013	08:00	1.8	ENE
23-Dec-2013	09:00	2.1	NNE
23-Dec-2013	10:00	2.3	ENE
23-Dec-2013	11:00	2.2	ENE
23-Dec-2013	12:00	2.2	W
23-Dec-2013	13:00	2.5	N
23-Dec-2013	14:00	2.3	NE
23-Dec-2013	15:00	2.2	WNW
23-Dec-2013	16:00	2.3	SW
23-Dec-2013	17:00	2.2	SSE
23-Dec-2013	18:00	1.9	ESE
23-Dec-2013	19:00	1.8	WSW
23-Dec-2013	20:00	1.6	W
23-Dec-2013	21:00	1.6	SE
23-Dec-2013	22:00	1.5	E
23-Dec-2013	23:00	1.6	WSW
24-Dec-2013	00:00	1.8	WSW
24-Dec-2013	01:00	1.9	ENE

II. Mean Wind Speed and Wind Direction

24-Dec-2013	02:00	1.8	WSW
24-Dec-2013	03:00	1.8	SSE
24-Dec-2013	04:00	1.9	NNE
24-Dec-2013	05:00	2.5	ENE
24-Dec-2013	06:00	2.3	NE
24-Dec-2013	07:00	2.1	SE
24-Dec-2013	08:00	2.2	NE
24-Dec-2013	09:00	2.6	ESE
24-Dec-2013	10:00	2.4	SSW
24-Dec-2013	11:00	2.5	W
24-Dec-2013	12:00	2.6	NW
24-Dec-2013	13:00	2.9	ENE
24-Dec-2013	14:00	2.9	ENE
24-Dec-2013	15:00	2.4	SE
24-Dec-2013	16:00	2.4	SE
24-Dec-2013	17:00	2.2	WSW
24-Dec-2013	18:00	1.9	WSW
24-Dec-2013	19:00	1.8	SSE
24-Dec-2013	20:00	1.7	SE
24-Dec-2013	21:00	2	S
24-Dec-2013	22:00	1.9	NNE
24-Dec-2013	23:00	2.1	ESE
25-Dec-2013	00:00	2	SSE
25-Dec-2013	01:00	1.9	ENE
25-Dec-2013	02:00	1.9	NE
25-Dec-2013	03:00	1.8	E
25-Dec-2013	04:00	1.6	E
25-Dec-2013	05:00	1.7	NNE
25-Dec-2013	06:00	1.6	NNE
25-Dec-2013	07:00	1.2	E
25-Dec-2013	08:00	1.3	E
25-Dec-2013	09:00	1.8	E
25-Dec-2013	10:00	2.4	SW
25-Dec-2013	11:00	2.5	S
25-Dec-2013	12:00	2.6	SSE
25-Dec-2013	13:00	2.7	ESE
25-Dec-2013	14:00	2.9	NE

II. Mean Wind Speed and Wind Direction

25-Dec-2013	15:00	2.7	ESE
25-Dec-2013	16:00	2.6	SE
25-Dec-2013	17:00	2	ENE
25-Dec-2013	18:00	1.8	SE
25-Dec-2013	19:00	1.6	WNW
25-Dec-2013	20:00	1.6	ESE
25-Dec-2013	21:00	1.4	NW
25-Dec-2013	22:00	1.4	S
25-Dec-2013	23:00	1.5	NW
26-Dec-2013	00:00	1.3	NE
26-Dec-2013	01:00	1.2	N
26-Dec-2013	02:00	1.1	NNE
26-Dec-2013	03:00	1.1	NE
26-Dec-2013	04:00	1	NE
26-Dec-2013	05:00	0.8	SW
26-Dec-2013	06:00	0.8	WNW
26-Dec-2013	07:00	0.9	WSW
26-Dec-2013	08:00	1.4	WSW
26-Dec-2013	09:00	1.6	WSW
26-Dec-2013	10:00	1.7	W
26-Dec-2013	11:00	1.9	SW
26-Dec-2013	12:00	2.3	ENE
26-Dec-2013	13:00	2.5	SSE
26-Dec-2013	14:00	2.1	SSE
26-Dec-2013	15:00	2	NE
26-Dec-2013	16:00	2.1	NE
26-Dec-2013	17:00	1.8	NNE
26-Dec-2013	18:00	1.4	NNE
26-Dec-2013	19:00	1.4	S
26-Dec-2013	20:00	1.2	WNW
26-Dec-2013	21:00	1.6	SSW
26-Dec-2013	22:00	1.3	NNE
26-Dec-2013	23:00	1.4	ENE
27-Dec-2013	00:00	1.4	E
27-Dec-2013	01:00	1.2	NNW
27-Dec-2013	02:00	1.4	ESE
27-Dec-2013	03:00	1.4	SE

II. Mean Wind Speed and Wind Direction

27-Dec-2013	04:00	1.2	SSW
27-Dec-2013	05:00	1.1	SSE
27-Dec-2013	06:00	1.1	S
27-Dec-2013	07:00	1.1	SW
27-Dec-2013	08:00	1.3	NE
27-Dec-2013	09:00	1.7	WSW
27-Dec-2013	10:00	1.8	SSW
27-Dec-2013	11:00	2	S
27-Dec-2013	12:00	2.4	W
27-Dec-2013	13:00	2.3	WSW
27-Dec-2013	14:00	2.2	W
27-Dec-2013	15:00	2	NE
27-Dec-2013	16:00	1.8	NNE
27-Dec-2013	17:00	1.6	ESE
27-Dec-2013	18:00	1.3	ESE
27-Dec-2013	19:00	1.1	NNE
27-Dec-2013	20:00	1	NE
27-Dec-2013	21:00	1.1	ENE
27-Dec-2013	22:00	1.1	SE
27-Dec-2013	23:00	1.2	SSE
28-Dec-2013	00:00	1.2	SE
28-Dec-2013	01:00	1.2	SSE
28-Dec-2013	02:00	1.2	SSE
28-Dec-2013	03:00	1.3	NE
28-Dec-2013	04:00	1.2	NE
28-Dec-2013	05:00	1.3	ESE
28-Dec-2013	06:00	1.2	NE
28-Dec-2013	07:00	1.3	SSE
28-Dec-2013	08:00	1.5	ENE
28-Dec-2013	09:00	1.7	ENE
28-Dec-2013	10:00	2	ESE
28-Dec-2013	11:00	2.1	SSW
28-Dec-2013	12:00	2.3	NNE
28-Dec-2013	13:00	2.4	ENE
28-Dec-2013	14:00	2.3	NNE
28-Dec-2013	15:00	2.4	SW
28-Dec-2013	16:00	2.3	WNW

II. Mean Wind Speed and Wind Direction

28-Dec-2013	17:00	2.3	SW
28-Dec-2013	18:00	1.8	NE
28-Dec-2013	19:00	1.6	NE
28-Dec-2013	20:00	1.4	NE
28-Dec-2013	21:00	1.2	NW
28-Dec-2013	22:00	1.5	NW
28-Dec-2013	23:00	1.4	S
29-Dec-2013	00:00	1.5	NNW
29-Dec-2013	01:00	1.7	NW
29-Dec-2013	02:00	1.8	S
29-Dec-2013	03:00	1.9	NE
29-Dec-2013	04:00	1.8	NW
29-Dec-2013	05:00	2	NNW
29-Dec-2013	06:00	2	W
29-Dec-2013	07:00	2	WNW
29-Dec-2013	08:00	2.1	WNW
29-Dec-2013	09:00	2.5	W
29-Dec-2013	10:00	2.9	WSW
29-Dec-2013	11:00	3	WNW
29-Dec-2013	12:00	3.2	ENE
29-Dec-2013	13:00	3	ENE
29-Dec-2013	14:00	2.8	ESE
29-Dec-2013	15:00	2.7	NE
29-Dec-2013	16:00	2.6	NNE
29-Dec-2013	17:00	2.7	NE
29-Dec-2013	18:00	2.2	ENE
29-Dec-2013	19:00	2.2	NE
29-Dec-2013	20:00	2.1	NNE
29-Dec-2013	21:00	1.9	SE
29-Dec-2013	22:00	2.2	S
29-Dec-2013	23:00	2	S
30-Dec-2013	00:00	1.9	SSE
30-Dec-2013	01:00	2.1	SW
30-Dec-2013	02:00	1.9	ENE
30-Dec-2013	03:00	1.9	ENE
30-Dec-2013	04:00	2.1	SSE
30-Dec-2013	05:00	2.2	ENE

II. Mean Wind Speed and Wind Direction

30-Dec-2013	06:00	2	N
30-Dec-2013	07:00	1.8	NE
30-Dec-2013	08:00	2.2	E
30-Dec-2013	09:00	2.4	SSW
30-Dec-2013	10:00	2.7	E
30-Dec-2013	11:00	3.1	SSE
30-Dec-2013	12:00	2.9	SSW
30-Dec-2013	13:00	2.9	SSE
30-Dec-2013	14:00	2.7	SW
30-Dec-2013	15:00	3	NE
30-Dec-2013	16:00	2.6	E
30-Dec-2013	17:00	2.4	NNE
30-Dec-2013	18:00	2	S
30-Dec-2013	19:00	1.9	WNW
30-Dec-2013	20:00	1.9	WSW
30-Dec-2013	21:00	1.9	W
30-Dec-2013	22:00	1.8	ESE
30-Dec-2013	23:00	2.1	E
31-Dec-2013	00:00	2.2	SSE
31-Dec-2013	01:00	2.5	ENE
31-Dec-2013	02:00	2.3	ENE
31-Dec-2013	03:00	2.2	SSE
31-Dec-2013	04:00	2.2	S
31-Dec-2013	05:00	2.2	ESE
31-Dec-2013	06:00	2	ENE
31-Dec-2013	07:00	2.1	ESE
31-Dec-2013	08:00	2	SSE
31-Dec-2013	09:00	2.3	SE
31-Dec-2013	10:00	2.4	ENE
31-Dec-2013	11:00	2.6	S
31-Dec-2013	12:00	2.4	WSW
31-Dec-2013	13:00	2.3	ENE
31-Dec-2013	14:00	2.5	NW
31-Dec-2013	15:00	2.7	W
31-Dec-2013	16:00	2.6	NE
31-Dec-2013	17:00	2.4	W
31-Dec-2013	18:00	2.2	N

II. Mean Wind Speed and Wind Direction

31-Dec-2013	19:00	2	NNE
31-Dec-2013	20:00	1.9	WNW
31-Dec-2013	21:00	1.8	WSW
31-Dec-2013	22:00	1.9	ENE
31-Dec-2013	23:00	1.7	NE

APPENDIX D
ENVIRONMENTAL MONITORING SCHEDULES

Contract No. KL/2012/03
Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area
Impact Air and Noise Monitoring Schedule for December 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec	7-Dec
			24 hr TSP	1 hr TSP X3 Noise (M8) Noise (M6 and M7)		
8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec
		24 hr TSP	1 hr TSP X3 Noise (M8)	Noise (M6 and M7)		
15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec
	24 hr TSP	1 hr TSP X3 Noise (M8) Noise (M6 and M7)			24 hr TSP	
22-Dec	23-Dec	24-Dec	**25-Dec**	**26-Dec**	27-Dec	28-Dec
	1 hr TSP X3 Noise (M8)	Noise (M6 and M7) 24 hr TSP			1 hr TSP X3	
29-Dec	30-Dec	31-Dec				
	24 hr TSP	1 hr TSP X3 Noise (M8)				

Air Quality Monitoring Station

AM2 - Lee Kau Yan Memorial School
AM3(A) - Holy Trinity Bradbury Centre
AM4(A) - EMSD Workshops
AM5(A) - Po Leung Kuk Ngan Po Ling College

Noise Monitoring Station

M6 - Holy Carpenter Primary School
M7 - CCC Kei To Secondary School
M8 - Po Leung Kuk Ngan Po Ling College

Contract No. KL/2012/03
Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area
Tentative Impact Air and Noise Monitoring Schedule for January 2014

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Jan	2-Jan	3-Jan	4-Jan
					Noise (M6 and M7)	24 hr TSP
5-Jan	6-Jan	7-Jan	8-Jan	9-Jan	10-Jan	11-Jan
	1 hr TSP X3 Noise (M8)			Noise (M6 and M7) 24 hr TSP	1 hr TSP X3	
12-Jan	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan	18-Jan
		Noise (M6 and M7)	24 hr TSP	1 hr TSP X3 Noise (M8)		
19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan	25-Jan
	24 hr TSP	1 hr TSP X3 Noise (M8)	Noise (M6 and M7)		24 hr TSP	
26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	**31-Jan**	
	1 hr TSP X3 Noise (M8)	Noise (M6 and M7)	24 hr TSP	1 hr TSP X3		

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

Air Quality Monitoring Station

AM2 - Lee Kau Yan Memorial School
AM3(A) - Holy Trinity Bradbury Centre
AM4(A) - EMSD Workshops
AM5(A) - Po Leung Kuk Ngan Po Ling College

Noise Monitoring Station

M6 - Holy Carpenter Primary School
M7 - CCC Kei To Secondary School
M8 - Po Leung Kuk Ngan Po Ling College

APPENDIX E
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix E - 1-hour TSP Monitoring Results

Location AM2 - Lee Kau Yan Memorial School			
Date	Time	Weather	Particulate Concentration (µg/m^3)
5-Dec-13	9:00	Sunny	129.4
5-Dec-13	10:00	Sunny	122.1
5-Dec-13	11:00	Sunny	134.6
11-Dec-13	13:15	Cloudy	292.1
11-Dec-13	14:15	Cloudy	283.2
11-Dec-13	15:15	Cloudy	289.2
17-Dec-13	13:30	Cloudy	55.0
17-Dec-13	14:30	Cloudy	65.3
17-Dec-13	15:30	Cloudy	56.4
23-Dec-13	13:00	Sunny	244.1
23-Dec-13	14:00	Sunny	270.9
23-Dec-13	15:00	Sunny	246.7
27-Dec-13	13:00	Fine	199.9
27-Dec-13	14:00	Fine	181.9
27-Dec-13	15:00	Fine	229.5
31-Dec-13	13:00	Sunny	247.6
31-Dec-13	14:00	Sunny	229.7
31-Dec-13	15:00	Sunny	225.1
		Average	194.6
		Maximum	292.1
		Minimum	55.0

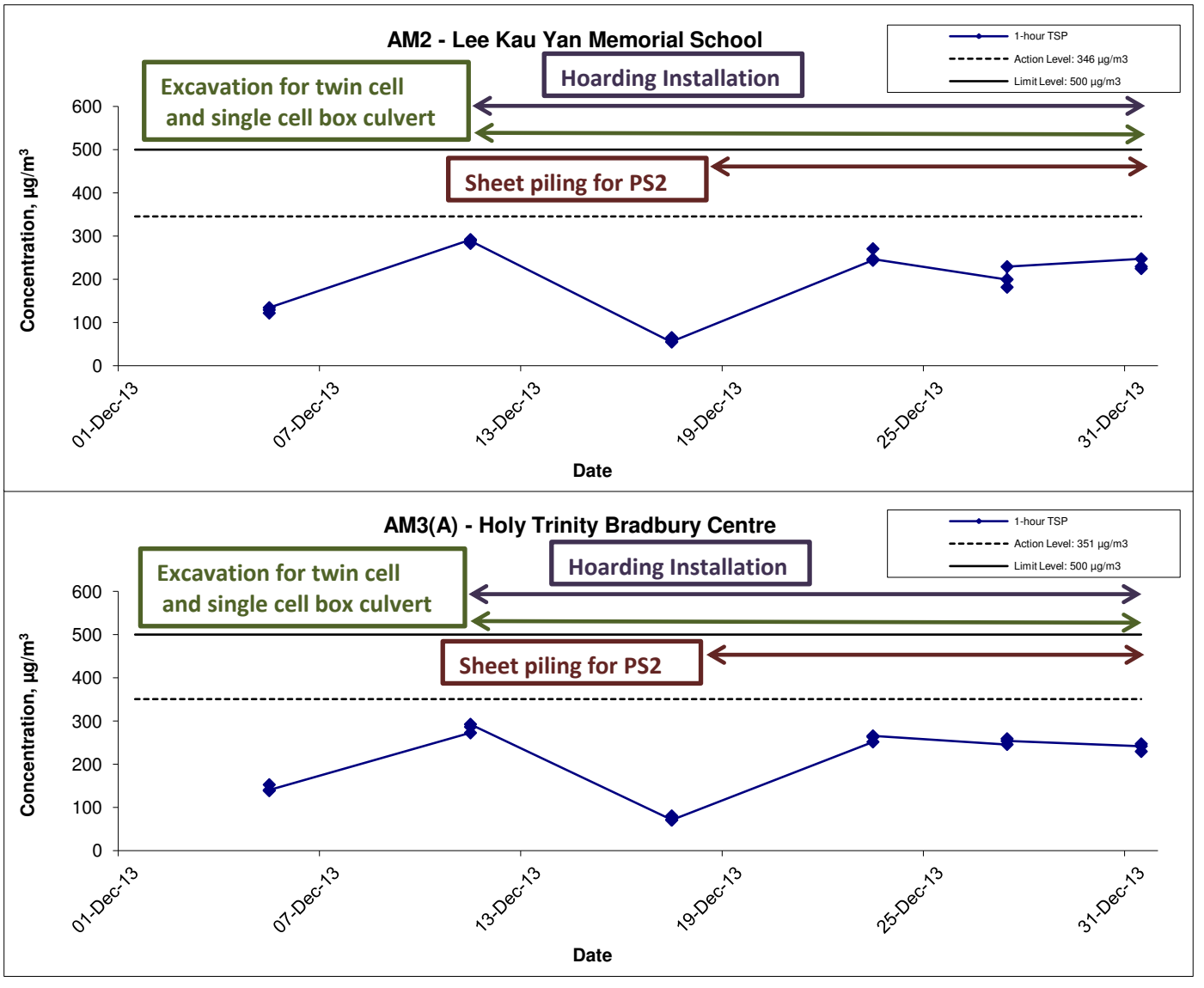
Location AM3(A) - Holy Trinity Bradbury Centre			
Date	Time	Weather	Particulate Concentration (µg/m^3)
5-Dec-13	13:15	Sunny	139.0
5-Dec-13	14:15	Sunny	152.8
5-Dec-13	15:15	Sunny	140.3
11-Dec-13	9:00	Cloudy	272.7
11-Dec-13	10:00	Cloudy	286.6
11-Dec-13	11:00	Cloudy	292.6
17-Dec-13	8:45	Rainy	71.7
17-Dec-13	9:45	Rainy	80.6
17-Dec-13	10:45	Rainy	70.9
23-Dec-13	9:00	Sunny	251.8
23-Dec-13	10:00	Sunny	263.4
23-Dec-13	11:00	Sunny	265.7
27-Dec-13	13:00	Fine	246.0
27-Dec-13	14:00	Fine	259.1
27-Dec-13	15:00	Fine	254.0
31-Dec-13	13:00	Sunny	242.1
31-Dec-13	14:00	Sunny	229.7
31-Dec-13	15:00	Sunny	247.2
		Average	209.2
		Maximum	292.6
		Minimum	70.9

Appendix E - 1-hour TSP Monitoring Results

Location AM4(A) - EMSD Workshops			
Date	Time	Weather	Particulate Concentration (μg/m^3)
5-Dec-13	8:55	Sunny	119.7
5-Dec-13	9:55	Sunny	127.5
5-Dec-13	10:55	Sunny	128.3
11-Dec-13	8:20	Cloudy	323.2
11-Dec-13	9:20	Cloudy	310.4
11-Dec-13	10:20	Cloudy	317.6
17-Dec-13	9:00	Rainy	81.4
17-Dec-13	10:00	Rainy	90.3
17-Dec-13	11:00	Rainy	84.7
23-Dec-13	9:00	Sunny	263.7
23-Dec-13	10:00	Sunny	270.7
23-Dec-13	11:00	Sunny	265.7
27-Dec-13	9:00	Fine	184.9
27-Dec-13	10:00	Fine	191.5
27-Dec-13	11:00	Fine	196.0
31-Dec-13	13:00	Sunny	232.9
31-Dec-13	14:00	Sunny	257.2
31-Dec-13	15:00	Sunny	246.0
		Average	205.1
		Maximum	323.2
		Minimum	81.4

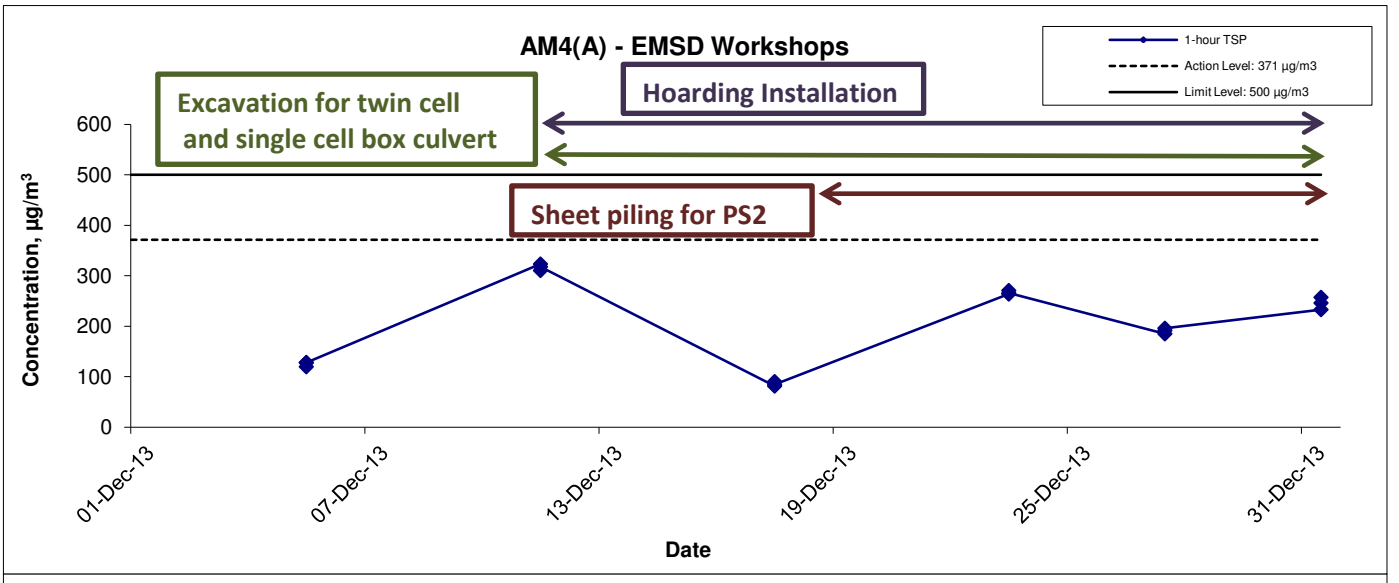
Location AM5(A) - Po Leung Kuk Ngan Po Ling College			
Date	Time	Weather	Particulate Concentration (μg/m^3)
5-Dec-13	9:00	Sunny	148.5
5-Dec-13	10:00	Sunny	141.3
5-Dec-13	11:00	Sunny	136.1
11-Dec-13	8:35	Cloudy	284.0
11-Dec-13	9:35	Cloudy	310.4
11-Dec-13	10:35	Cloudy	327.3
17-Dec-13	9:00	Rainy	62.9
17-Dec-13	10:00	Rainy	66.3
17-Dec-13	11:00	Rainy	65.0
23-Dec-13	9:00	Sunny	211.6
23-Dec-13	10:00	Sunny	235.6
23-Dec-13	11:00	Sunny	233.6
27-Dec-13	13:08	Fine	210.2
27-Dec-13	14:08	Fine	246.6
27-Dec-13	15:08	Fine	267.1
31-Dec-13	9:00	Sunny	234.2
31-Dec-13	10:00	Sunny	243.8
31-Dec-13	11:00	Sunny	239.6
		Average	203.6
		Maximum	327.3
		Minimum	62.9

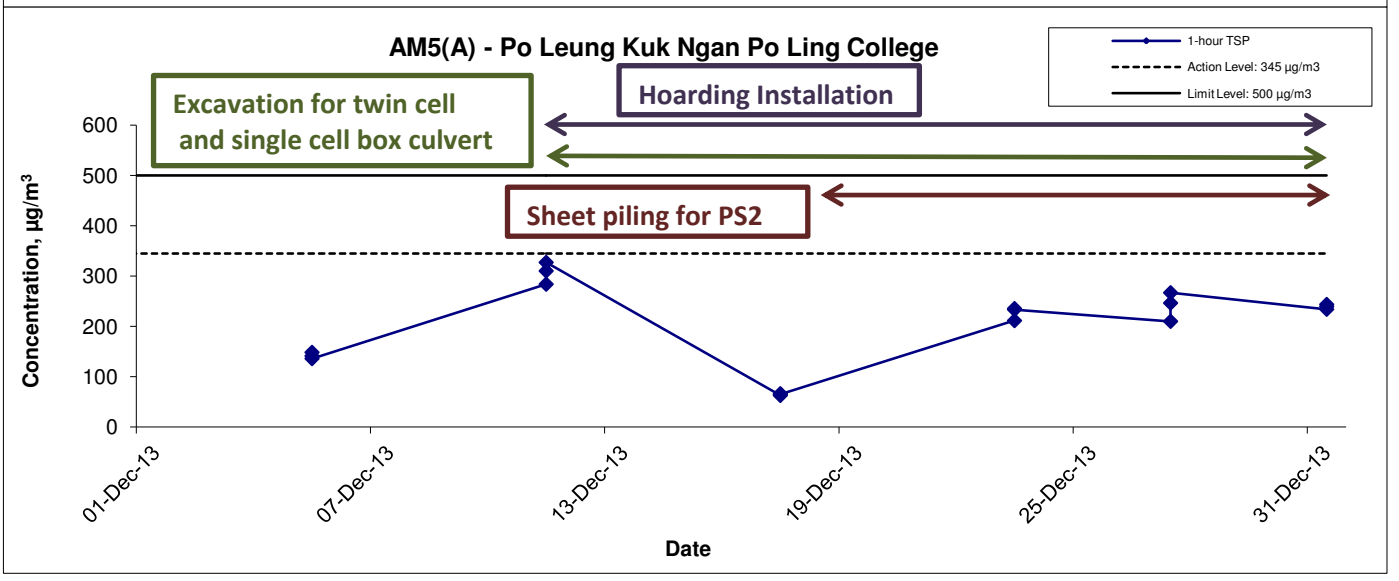
1-hr TSP Concentration Levels



Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 1-hour TSP Monitoring Results	Scale: N.T.S	Project No.: MA13056	CINOTECH
	Date: Dec 13	Appendix: E	

1-hr TSP Concentration Levels





Title	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S	Project No. MA13056	CINOTECH
		Date Dec 13	Appendix E	

APPENDIX F
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix F - 24-hour TSP Monitoring Results

Location AM2 - Lee Kau Yan Memorial School

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. (µg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
4-Dec-13	Sunny	290.4	767.5	3.6288	3.8359	0.2071	12508.7	12532.7	24.0	1.23	1.23	1.23	1768.7	117.1
10-Dec-13	Sunny	290.3	764.9	3.6420	3.8537	0.2117	12532.7	12556.7	24.0	1.23	1.23	1.23	1766.3	119.9
16-Dec-13	Rainy	284.4	764.9	3.6038	3.7327	0.1289	12556.7	12580.7	24.0	1.24	1.24	1.24	1783.2	72.3
20-Dec-13	Sunny	284.3	771.2	3.5670	3.7362	0.1692	12580.7	12604.7	24.0	1.24	1.24	1.24	1790.2	94.5
24-Dec-13	Sunny	284.9	771.5	3.7131	3.9670	0.2539	12604.7	12628.7	24.0	1.24	1.24	1.24	1788.7	141.9
30-Dec-13	Sunny	283.3	771.2	3.6858	3.9170	0.2312	12628.7	12652.7	24.0	1.25	1.24	1.25	1793.1	128.9
													Min	72.3
													Max	141.9
													Average	112.4

Location AM3(A) - Holy Trinity Bradbury Centre

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. (µg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
4-Dec-13	Sunny	290.4	767.5	3.6445	3.8312	0.1867	7138.8	7162.8	24.0	1.23	1.23	1.23	1773.8	105.3
10-Dec-13	Sunny	290.3	764.9	3.7433	3.9753	0.2320	7162.8	7186.8	24.0	1.23	1.23	1.23	1771.3	131.0
16-Dec-13	Rainy	284.4	764.9	3.6154	3.7532	0.1378	7186.8	7210.8	24.0	1.24	1.24	1.24	1788.5	77.0
20-Dec-13	Sunny	284.3	771.2	3.6149	3.7502	0.1353	7210.8	7234.8	24.0	1.25	1.25	1.25	1795.8	75.3
24-Dec-13	Sunny	284.9	771.5	3.7224	3.9118	0.1894	7234.8	7258.8	24.0	1.25	1.25	1.25	1794.3	105.6
30-Dec-13	Sunny	283.3	771.2	3.6942	3.9289	0.2347	7258.8	7282.8	24.0	1.25	1.25	1.25	1798.8	130.5
													Min	75.3
													Max	131.0
													Average	104.1

Appendix F - 24-hour TSP Monitoring Results

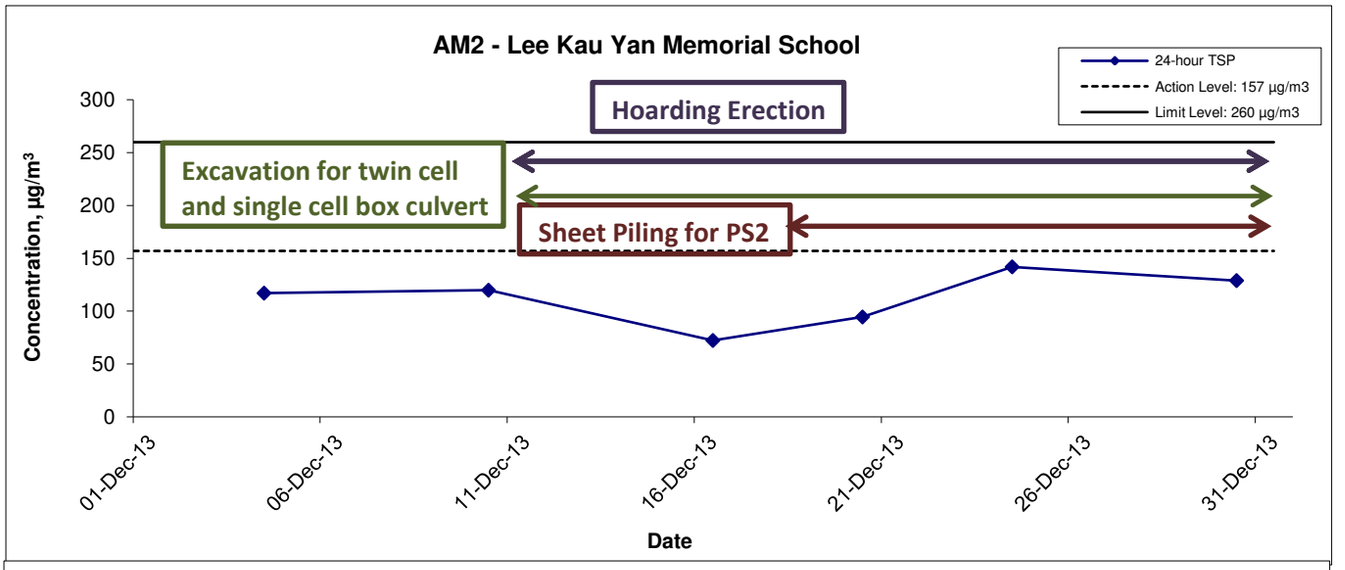
Location AM4(A) - EMSD Workshops

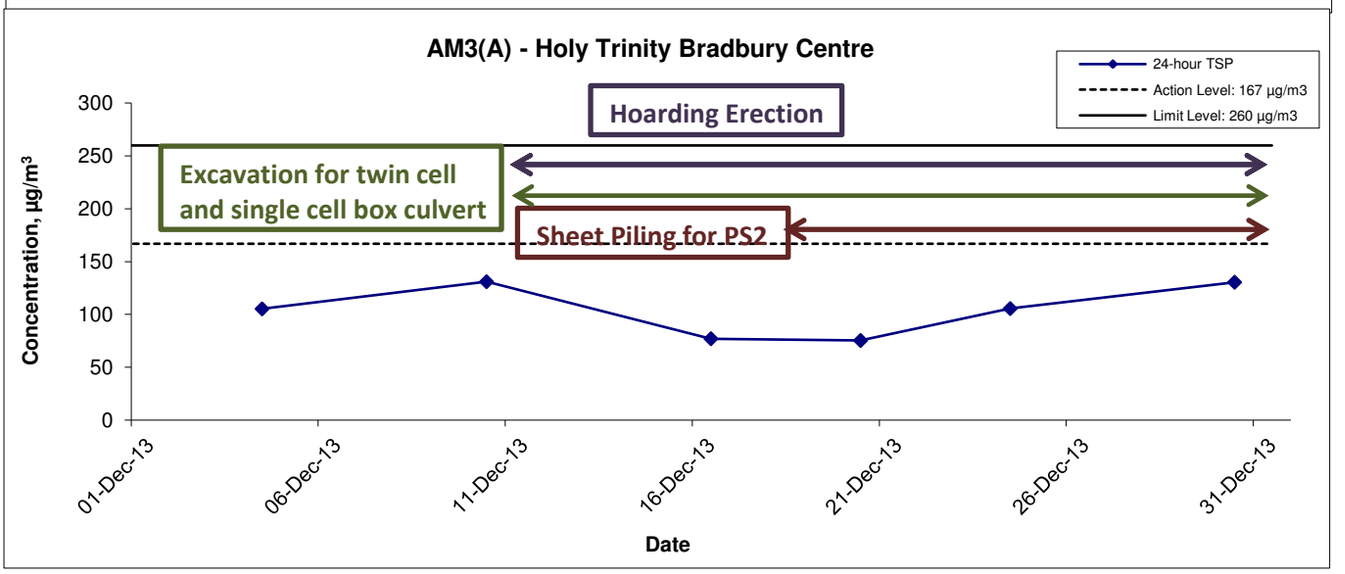
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. (µg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
4-Dec-13	Sunny	290.4	767.5	3.6175	3.8248	0.2073	3381.6	3405.6	24.0	1.24	1.24	1.24	1783.5	116.2
10-Dec-13	Sunny	290.3	764.9	3.7510	3.9786	0.2276	3405.6	3429.6	24.0	1.24	1.24	1.24	1781.0	127.8
16-Dec-13	Rainy	284.4	764.9	3.6184	3.7563	0.1379	3429.6	3453.6	24.0	1.25	1.25	1.25	1797.9	76.7
20-Dec-13	Sunny	284.3	771.2	3.6253	3.8973	0.2720	3453.6	3477.6	24.0	1.25	1.25	1.25	1805.0	150.7
24-Dec-13	Sunny	284.9	771.5	3.7260	3.9933	0.2673	3477.6	3501.6	24.0	1.25	1.25	1.25	1803.5	148.2
30-Dec-13	Sunny	283.3	771.2	3.6754	3.9104	0.2350	3501.6	3525.6	24.0	1.26	1.26	1.26	1807.9	130.0
													Min	76.7
													Max	150.7
													Average	124.9

Location AM5(A) - Po Leung Kuk Ngan Po Ling College

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. (µg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
4-Dec-13	Sunny	290.4	767.5	3.6279	3.7602	0.1323	2414.5	2438.5	24.0	1.24	1.24	1.24	1788.0	74.0
10-Dec-13	Sunny	290.3	764.9	3.7368	3.929	0.1922	2438.5	2462.5	24.0	1.24	1.24	1.24	1785.5	107.6
16-Dec-13	Rainy	284.4	764.9	3.5973	3.689	0.0917	2462.5	2486.5	24.0	1.25	1.25	1.25	1803.1	50.9
20-Dec-13	Sunny	284.3	771.2	3.6397	3.738	0.0983	2486.5	2510.5	24.0	1.26	1.26	1.26	1810.5	54.3
24-Dec-13	Sunny	284.9	771.5	3.6511	3.7983	0.1472	2510.5	2534.5	24.0	1.26	1.26	1.26	1809.0	81.4
30-Dec-13	Sunny	283.3	771.2	3.6986	3.8866	0.1880	2534.5	2558.5	24.0	1.26	1.26	1.26	1813.6	103.7
													Min	50.9
													Max	107.6
													Average	78.6

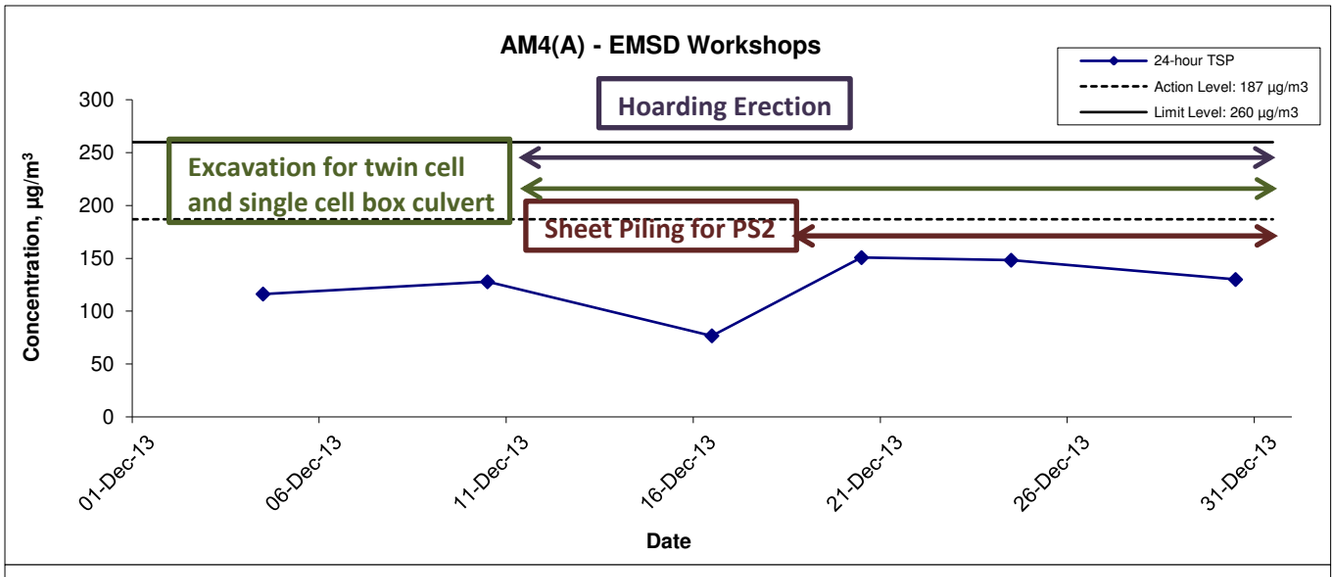
24-hr TSP Concentration Levels

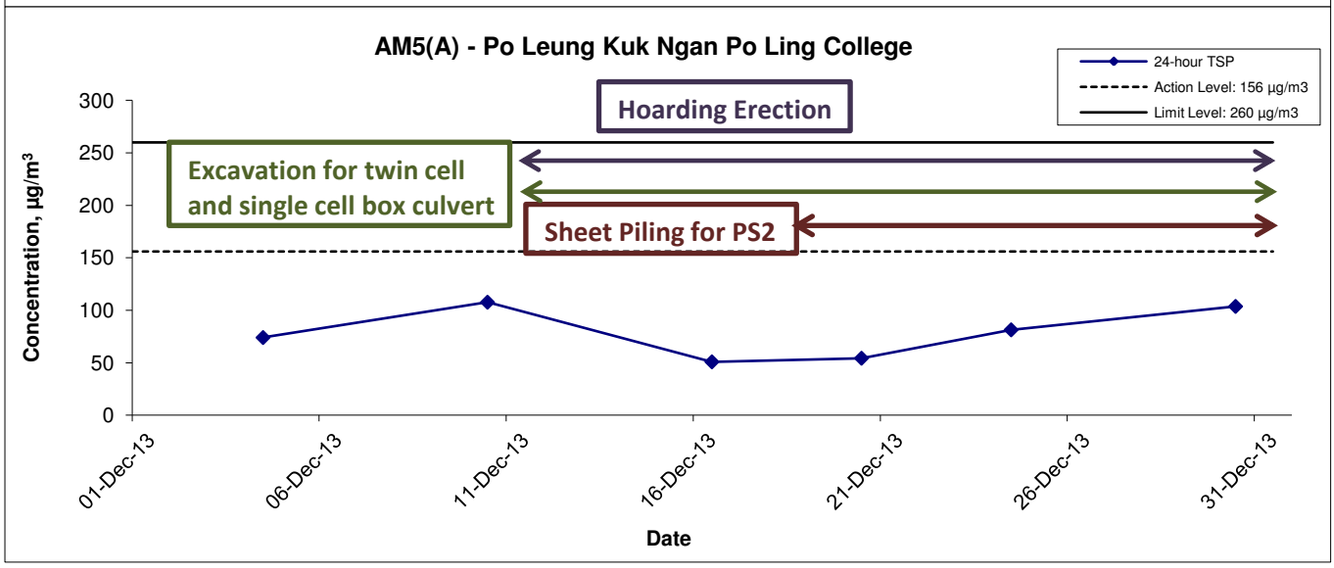




Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S	Project No.: MA13043	CINOTECH
	Date: Dec 13	Appendix: F	

24-hr TSP Concentration Levels





Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S	Project No.: MA13043	CINOTECH
	Date: Dec 13	Appendix: F	

APPENDIX G
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

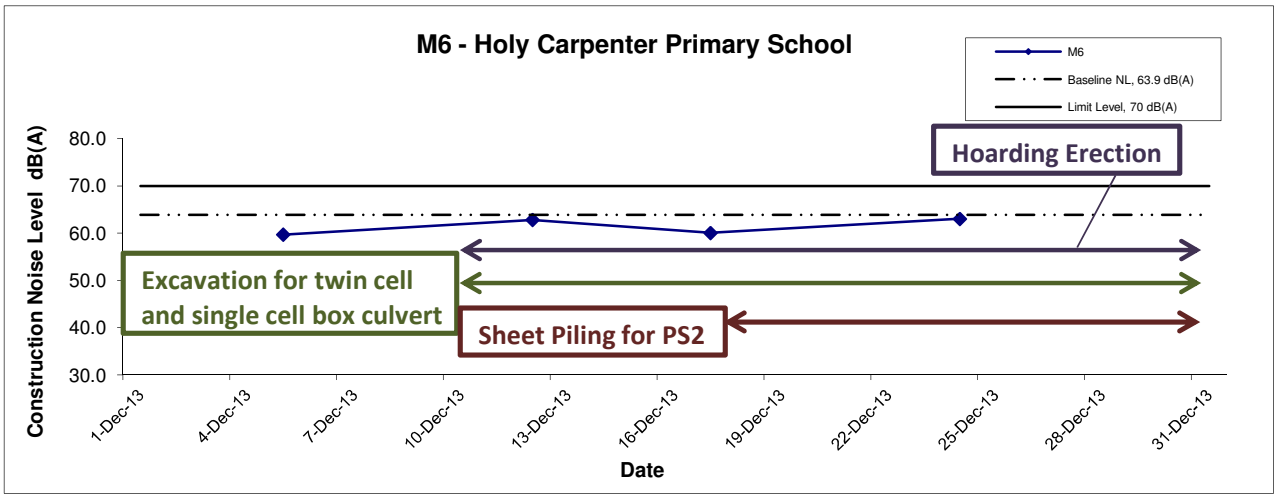
Appendix G - Noise Monitoring Results

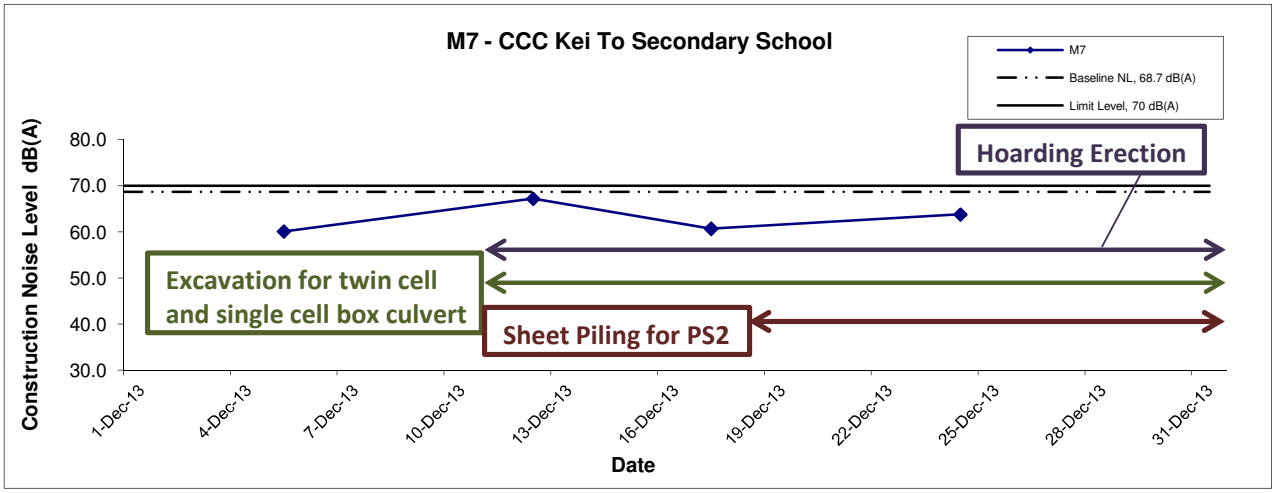
Location M6 - Holy Carpenter Primary School							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
5-Dec-13	09:27	Sunny	65.3	67.1	63.2	63.9	59.7
12-Dec-13	13:09	Cloudy	62.8	63.4	59.5		62.8 Measured ≦ Baseline
17-Dec-13	09:00	Cloudy	65.4	68.3	60.2		60.1
24-Dec-13	10:00	Sunny	66.5	68.0	64.5		63.0

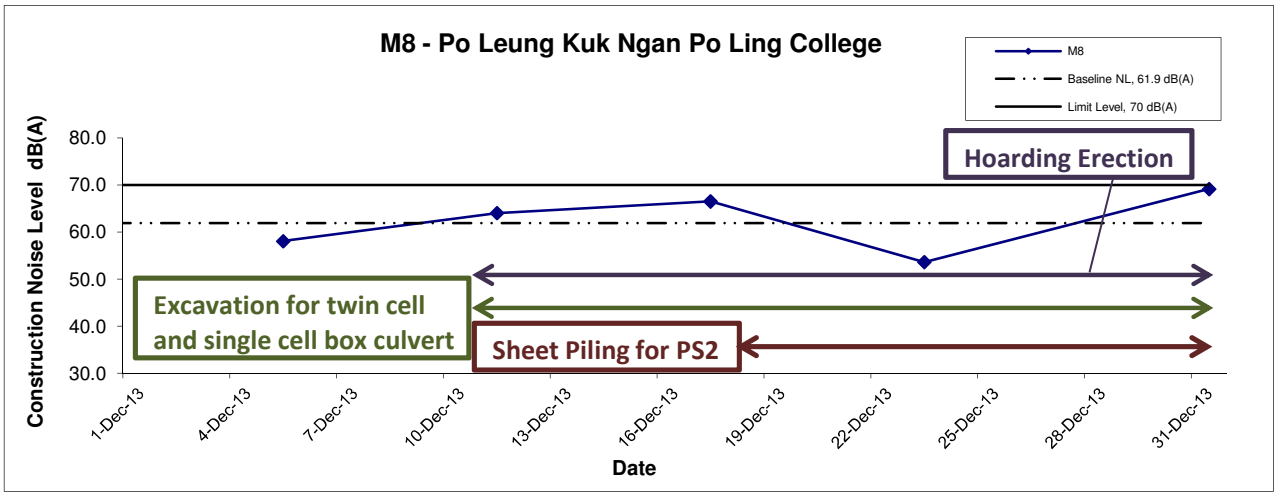
Location M7 - CCC Kei To Secondary School							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
5-Dec-13	10:13	Sunny	60.1	62.8	59.3	68.7	60.1 Measured ≦ Baseline
12-Dec-13	14:00	Cloudy	67.2	69.6	57.9		67.2 Measured ≦ Baseline
17-Dec-13	09:41	Cloudy	60.7	63.4	59.5		60.7 Measured ≦ Baseline
24-Dec-13	09:15	Sunny	63.8	65.9	58.7		63.8 Measured ≦ Baseline

Location M8 - Po Leung Kuk Ngan Po Ling College							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
5-Dec-13	09:55	Sunny	63.4	65.4	60.7	61.9	58.1
11-Dec-13	09:30	Cloudy	66.1	68.4	62.5		64.0
17-Dec-13	11:00	Cloudy	67.8	70.4	63.9		66.5
23-Dec-13	09:00	Sunny	62.5	64.1	59.2		53.6
31-Dec-13	09:00	Sunny	69.9	72.4	67.1		69.2

Noise Levels







Remarks: The construction noise levels in the Tables in Appendix G were adopted for plotting the graphs

Title	Scale	Project No.
Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of Construction Noise Monitoring Results	N.T.S	MA13056
	Date: Dec 13	Appendix: G

CINOTECH

APPENDIX H
SUMMARY OF EXCEEDANCE

Contract No. KL/2012/03
Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area

Appendix H – Summary of Exceedance

Exceedance Report for Contract No. KL/2012/03

(A) Exceedance Report for Air Quality
(NIL in the reporting month)

(B) Exceedance Report for Construction Noise
(NIL in the reporting month)

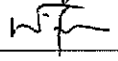
(C) Exceedance Report for Landscape and Visual
(NIL in the reporting month)

APPENDIX I
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	131205
Date	5 December 2013
Time	09:30 – 10:15

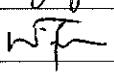
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• N/A	

	Name	Signature	Date
Recorded by	Ivy Tam		5 December 2013
Checked by	Dr. Priscilla Choy		5 December 2013

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	131205
Date	5 December 2013
Time	09:30 – 10:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• N/A	

	Name	Signature	Date
Recorded by	Ivy Tam		5 December 2013
Checked by	Dr. Priscilla Choy		5 December 2013

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	131210
Date	10 December 2013
Time	09:30 – 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
131210-R01	• Properly remove the chemical container within the tree protection area near the site office.	F1
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit section (Ref. No.:131205), no environmental deficiency was identified during site inspection..	

	Name	Signature	Date
Recorded by	Johnny Fung		10 December 2013
Checked by	Dr. Priscilla Choy		10 December 2013

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	131210
Date	10 December 2013
Time	09:30 – 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
131210-R01	• Properly remove the chemical container within the tree protection area near the site office.	F1
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit section (Ref. No.:131205), no environmental deficiency was identified during site inspection..	

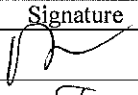
	Name	Signature	Date
Recorded by	Johnny Fung		10 December 2013
Checked by	Dr. Priscilla Choy		10 December 2013

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	131220
Date	20 December 2013
Time	11:00 – 12:00

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

Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit section (Ref. No.:131210), all environmental deficiency was observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Johnny Fung		20 December 2013
Checked by	Dr. Priscilla Choy		20 December 2013

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	131220
Date	20 December 2013
Time	11:00 – 12:00

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

Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit section (Ref. No.:131210), all environmental deficiency was observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Johnny Fung		20 December 2013
Checked by	Dr. Priscilla Choy		20 December 2013

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	131227
Date	27 December 2013
Time	15:00 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
131227-R01	• To display the environmental permit at the site entrance at Portion 1 (Gate 7).	G 1
	H. Others	
	• Follow-up on previous audit section (Ref. No.:131220), no environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Johnny Fung		27 December 2013
Checked by	Dr. Priscilla Choy		27 December 2013

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	131227
Date	27 December 2013
Time	15:00 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit section (Ref. No.:131220), no environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Johnny Fung		27 December 2013
Checked by	Dr. Priscilla Choy		27 December 2013

APPENDIX J
EVENT ACTION PLANS

Appendix J - Event Action Plans

Event/Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded by one sampling	1. Identify source and investigate the causes of exceedance; 2. Inform Contactor, IEC and ER; 3. Repeat measurement to confirm finding.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action Level being exceeded by two or more consecutive sampling	1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC and ER; 3. Increase monitoring frequency to daily; 4. Discuss with IEC and Contractor on remedial actions required; 5. Assess the effectiveness of Contractor's remedial actions; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; 5. Conduct meeting with ET and IEC if exceedance continues.	1. Discuss with ET and IEC on proper remedial actions; 2. Submit proposals for remedial actions to ER and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Limit Level being exceeded by one sampling	1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Assess effectiveness of Contractor's remedial actions and keep	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures;	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be	1. Take immediate action to avoid further exceedance; 2. Discuss with ET and IEC on proper remedial actions; 3. Submit proposals for remedial actions to ER and IEC within three

	EPD, IEC and ER informed of the results.	4. Advise the ER on the effectiveness of the proposed remedial measures.	implemented; 4. Supervise implementation of remedial measures; 5. Conduct meeting with ET and IEC if exceedance continues.	working days of notification; 4. Implement the agreed proposals.
Limit Level being exceeded by two or more consecutive sampling	1. Notify IEC, ER, Contractor and EPD; 2. Repeat measurement to confirm findings; 3. Carry out analysis of Contractor's working procedures to identify source and investigate the causes of exceedance; 4. Increase monitoring frequency to daily; 5. Arrange meeting with IEC, ER and Contractor to discuss the remedial actions to be taken; 6. Assess effectiveness of Contractor's remedial actions and keep EPD, IEC and ER informed of the results; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Discuss with ET, ER and IEC on proper remedial actions; 3. Submit proposals for remedial actions to IEC within three working days of notification; 4. Implement the agreed proposals; 5. Submit further remedial actions if problem still not under control; 6. Stop the relevant portion of works as instructed by the ER until the exceedance is abated.

Appendix J - Event Action Plans

Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded	1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals. (The above actions should be taken within 2 working days after the exceedance is identified)
Limit Level being exceeded	1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance;	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals;

	5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified)	(The above actions should be taken within 2 working days after the exceedance is identified)	measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)	4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)

Appendix J - Event Action Plans

Event/Action Plan for Landscape and Visual

EVENT ACTION LEVEL	ACTION			
	ET	IEC	ER	CONTRACTOR
Design Check	1. Check final design conforms to the requirements of EP and prepare report.	1. Check report. 2. Recommend remedial design if necessary	1. Undertake remedial design if necessary	
Non-conformity on one occasion	1. Identify Source 2. Inform IEC and ER 3. Discuss remedial actions with IEC, ER and Contractor 4. Monitor remedial actions until rectification has been completed	1. Check report 2. Check Contractor's working method 3. Discuss with ET and Contractor on possible remedial measures 4. Advise ER on effectiveness of proposed remedial measures. 5. Check implementation of remedial measures.	1. Notify Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1. Identify Source Inform IEC and	1. Check monitoring report	1. Notify Contractor 2. Ensure remedial measures are properly	1. Amend working methods 2. Rectify damage and

	ER 2. Increase monitoring frequency 3. Discuss remedial actions with IEC, ER and Contractor 4. Monitor remedial actions until rectification has been completed 5. If non-conformity stops, cease additional monitoring	2. Check Contractor's working method 3. Discuss with ET and Contractor on possible remedial measures 4. Advise ER on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures.	implemented	undertake any necessary replacement

APPENDIX K
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)

Appendix K - Summary of Implementation Schedule of Mitigation Measures for Construction Phase

Types of Impacts	Mitigation Measures	Status
Construction Dust	8 times daily watering of the work site with active dust emitting activities. Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts. • Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission. • Misting for the dusty material should be carried out before being loaded into the vehicle. • Any vehicle with an open load carrying area should have properly fitted side and tail boards. • Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin. • The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation. • The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways insider the site. On-site unpaved roads should be compacted and kept free of lose materials. • Vehicle washing facilities should be provided at every	^ ^ ^ ^ ^ ^

	vehicle exit point. • 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. • Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet. • Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides. • Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	^ ^ ^ ^

Construction Noise	Use of quiet PME, movable barriers barrier for Asphalt Paver, Breaker, Excavator and Hand-held breaker and full enclosure for Air Compressor, Bar Bender, Concrete Pump, Generator and Water Pump	^
	Good Site Practice: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. • Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. • Mobile plant, if any, should be sited as far away from NSRs as possible. • Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. • Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	^ N/A(1) ^ ^ ^ ^
	Scheduling of Construction Works during School Examination Period	^
	(i) Provision of low noise surfacing in a section of Road L2; and	N/A
	(ii) Provision of structural fins	N/A

	(i) Avoid the sensitive façade of class room facing Road L2 and L4; and	N/A
	(ii) Provision of low noise surfacing in a section of Road L2 & L4	N/A
	(i) Provision of low noise surfacing in a section of Road L4 before occupation of Site 1I1; and	N/A
	(ii) Setback of building about 5m from site boundary.	N/A
	Setback of building about 35m to the northwest direction at 1L3 and 5m at Site 1L2.	N/A
	(i) avoid any sensitive façades with openable window facing the existing Kowloon City Road network; and	N/A
	(ii) for the sensitive facades facing the To Kwa Wan direction, either setback the facades by about 5m to the northeast direction or do not provide the facades with openable window.	N/A
	(i) avoid any sensitive facades with openable window facing the existing To Kwa Wan Road or	N/A
	(ii) provision of 17.5m high noise tolerant building fronting To Kwa Wan Road and restrict the height of the residential block(s) located at less than 55m away from To Kwa Wan Road to no more than 25m above ground.	N/A
	(i) avoid any sensitive facades with openable window facing the slip road connecting Prince Edward Road East and San Po Kong or other alternative mitigation measures and at-source mitigation measures for the surrounding new local roads to minimise the potential traffic noise impacts from the slip road	N/A

	All the ventilation fans installed in the below will be provided with silencers or acoustics treatment. (i) SPS (ii) ESS (iii) Tunnel Ventilation Shaft (iv) EFTS depot Installation of retractable roof or other equivalent measures	N/A N/A N/A N/A N/A

Construction Water Quality	The following mitigation measures are proposed to be incorporated in the design of the SPS at KTD, including: • Dual power supply or emergency generator should be provided at all the SPSs to secure electrical power supply; • Standby pumps should be provided at all SPSs to ensure smooth operation of the SPS during maintenance of the duty pumps; • An alarm should be installed to signal emergency high water level in the wet well at all SPSs; and • For all unmanned SPSs, a remote monitor system connecting SPSs with the control station through telemetry system should be provided so that swift actions could be taken in case of malfunction of unmanned facilities.	N/A N/A N/A N/A ^

	Land-based Construction *Construction Runoff* Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: • use of sediment traps • adequate maintenance of drainage systems to prevent flooding and overflow Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	^ ^ ^

	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	^
	Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	^
	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	^
	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.	^

	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events.	^
	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	^
	All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	^
	Drainage It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea.	^

	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	^
	All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour WCZ.	^
	Sewage Effluent Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	^
	Stormwater Discharges Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes	N/A

	Debris and Litter In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised and that disposal of any solid materials. litter or wastes to marine waters does not occur *Construction Works at or in Close Proximity of Storm Culvert or Seafront* The proposed works should preferably be carried out within the dry season where the flow in the drainage channel /storm culvert/ nullah is low. The use of less or smaller construction plants may be specified to reduce the disturbance to the bottom sediment at the drainage channel /storm culvert / nullah. Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.	^ ^ ^ ^ ^ ^

		Mitigation measures to control site runoff from entering the nearby water environment should be implemented to minimize water quality impacts. Surface channels should be provided along the edge of the waterfront within the work sites to intercept the runoff.	^
		Construction effluent, site run-off and sewage should be properly collected and/or treated.	^
		Any works site inside the storm water courses should be temporarily isolated, such as by placing of sandbags or silt curtains with lead edge at bottom and properly supported props to prevent adverse impact on the storm water quality.	^
		Silt curtain may be installed around the construction activities at the seafront to minimize the potential impacts due to accidental spillage of construction materials.	^
		Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert/drainage channel/sea.	^
		Supervisory staff should be assigned to station on site to closely supervise and monitor the works	^
		Marine water quality monitoring and audit programme shall be implemented for the proposed sediment treatment operation.	^

	Good Site Practices It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. Recommendations for good site practices during construction activities include: • 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 waste handling procedures • Provision of sufficient waste disposal points and regular collection for disposal • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers • A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites)	^ ^ ^ ^ ^

	Waste Reduction Measures Good management and control can prevent the generation of a significant amount of waste. 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: • Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals • 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, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force • Any unused chemicals or those with remaining functional capacity should be recycled • Proper storage and site practices to minimise the potential for damage or contamination of construction materials	^ ^ ^ ^ ^

	Construction and Demolition Material Mitigation measures and good site practices should be incorporated into contract document to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include: • Where it is unavoidable to have transient stockpiles of C&D material within the Project work site pending collection for disposal, the transient stockpiles should 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	^ ^ ^ ^ ^ ^ ^ ^

	When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. 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 as stipulated in the ETWB TCW No. 31/2004 "Trip Ticket System for Disposal of Construction and Demolition Materials" should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system. Chemical Waste After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation* General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem	^ ^ ^

Landscape and Visual	CM1 All existing trees should be carefully protected during construction.	*
	CM2 Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work.	N/A
	CM3 Control of night-time lighting.	^
	CM4 Erection of decorative screen hoarding.	^

Remarks:	^ Compliance of mitigation measure;	X Non-compliance of mitigation measure;
	N/A Not Applicable at this stage; N/A(1) Not observed;	•Non-compliance but rectified by the contractor;
	* Recommendation was made during site audit but improved/rectified by the contractor.	

APPENDIX L
SUMMARIES OF ENVIRONMENTAL COMPLAINT, WARNING, SUMMON AND NOTIFICATION OF SUCCESSFUL PROSECUTION

Contract No. KL/2012/03

Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area

Appendix L – Summary of environmental complaint, warning, summon and notification of successful prosecution

Reporting Month: December 2013

Contract No. KL/2012/03

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

Remarks: No environmental complaint/warning/summon and prosecution were received in the reporting period.

APPENDIX M
WASTE GENERATED QUANTITY

Monthly Summary Waste Flow Table

(PS Clause 1.86)

Name of Department: CEDD Contract No. : KL/2012/03

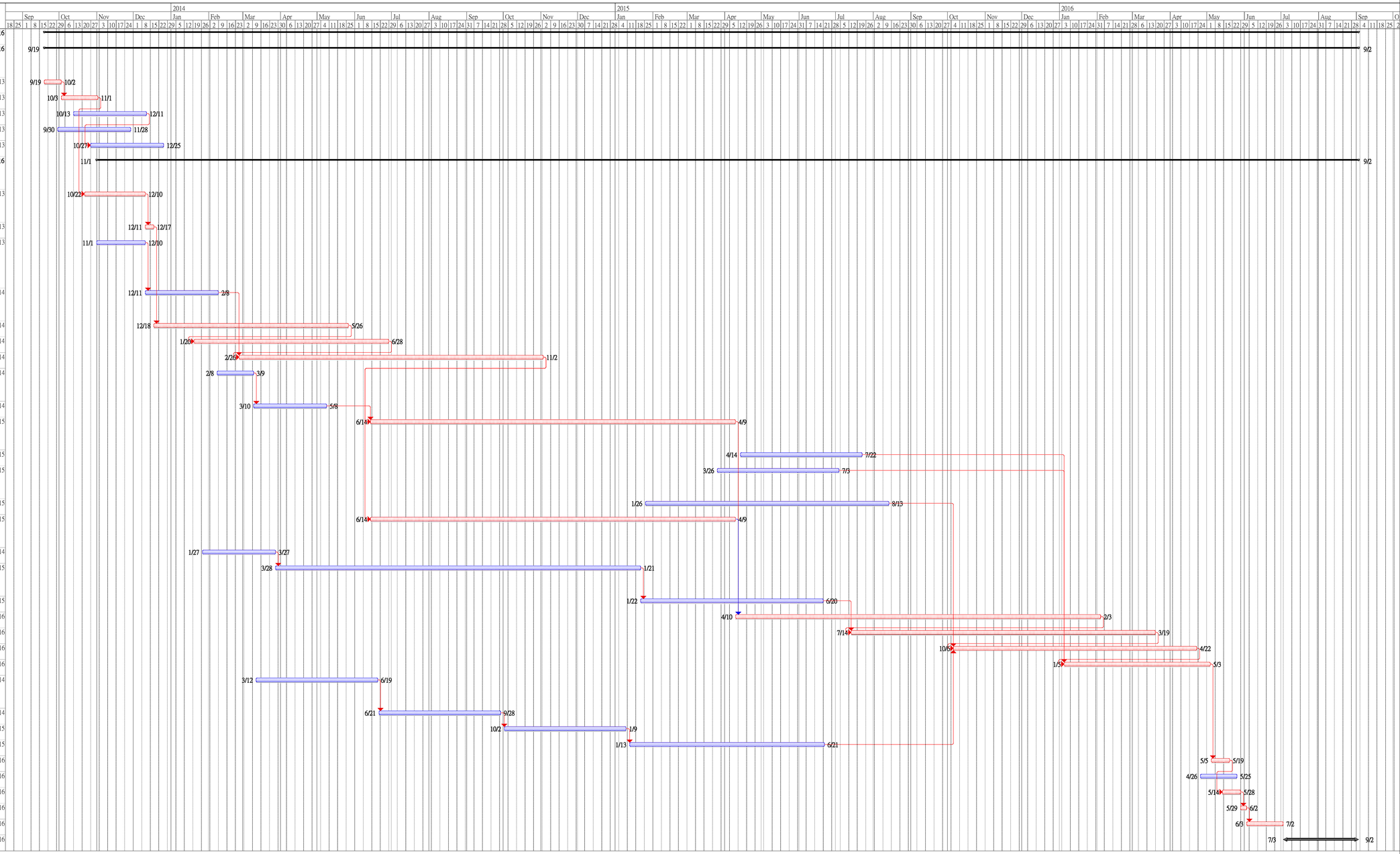
Monthly Summary Waste Flow Table for Dec 2013 (year)

Month	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
		Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Sep	0	0	0	0	0	0	0	0	0	0	0
Oct	0.011	0	0	0	0	0	0	0	0	0	0.011
Nov	0.177	0	0	0	0	0	0	0	0	0	0.177
Dec	0.176	0	0	0	0	0	0	0	0	0	0.176
Sub-Total	0.364	0	0	0	0	0	0	0	0	0	0.364
Jan											
Feb											
Mar											
Apr											
May											
Jun											
Total	0.364	0	0	0	0	0	0	0	0	0	0.364

APPENDIX N
CONSTRUCTION PROGRAMME

Master Programme

ID	Task Name	Duration	Start	Finish
1	**Commence KL/2012/03 construction**	**1080 days**	**Thu 9/19/13**	**Fri 9/2/16**
2	**Section 1: Works within Portion 1 and 3**	**1080 days**	**Thu 9/19/13**	**Fri 9/2/16**
3	Site possession and preparation works	14 days	Thu 9/19/13	Wed 10/2/13
4	Setting out site boundary and site clearance	30 days	Thu 10/3/13	Fri 11/1/13
5	Initial joint survey	60 days	Sun 10/13/13	Wed 12/11/13
6	Obtain underground utilities plans	60 days	Mon 9/30/13	Thu 11/28/13
7	Erect hoarding, chain link fence and vehicular gate	60 days	Sun 10/27/13	Wed 12/25/13
8	**Works for Road L6**	**1037 days**	**Fri 11/1/13**	**Fri 9/2/16**
9	Submission / approval of construction materials, method statements and temporary work design for box culverts B5	50 days	Tue 10/22/13	Tue 12/10/13
10	Plant mobilization	7 days	Wed 12/11/13	Tue 12/17/13
11	Submission / approval of construction materials and delivery of materials and method statements for stormdrain and sewerage drain	40 days	Fri 11/1/13	Tue 12/10/13
12	Install 2x750mm dia sewerage drain from FMH10_345 to FMH10_350 under box culvert B5	60 days	Wed 12/11/13	Sat 2/8/14
13	Temporary works for box culverts B5	160 days	Wed 12/18/13	Mon 5/26/14
14	Excavation to the formation level for box culverts B5	160 days	Mon 1/20/14	Sat 6/28/14
15	Construct drainage box culverts B5 (total length: 231m)	250 days	Wed 2/26/14	Sun 11/2/14
16	Submission / approval of construction materials and method statements for watermains	30 days	Sat 2/8/14	Sun 3/9/14
17	Delivery of FWM and SWM pipes and fittings and valves	60 days	Mon 3/10/14	Thu 5/8/14
18	Install 250mm, 300mm 450mm dia.FWM CHD0-CHD394 and 200mm SWM CHC0-CHC394	300 days	Sat 6/14/14	Thu 4/9/15
19	Pressure test, swabbing, sterilization and connection	100 days	Tue 4/14/15	Wed 7/22/15
20	Construct valve, air-valve and wash-out chambers and fire hyrdants for watermain	100 days	Thu 3/26/15	Fri 7/3/15
21	Install irrigation system	200 days	Mon 1/26/15	Thu 8/13/15
22	Install different dia. of stormwater drain, sewerage drain and manhole	300 days	Sat 6/14/14	Thu 4/9/15
23	Liaison meeting with UU	60 days	Mon 1/27/14	Thu 3/27/14
24	Installation of utility by the utility undertakers along proposed footpath	300 days	Fri 3/28/14	Wed 1/21/15
25	Construct u-channel and drainpit at footpath	150 days	Thu 1/22/15	Sat 6/20/15
26	Construct road gully and gully pipe	300 days	Fri 4/10/15	Wed 2/3/16
27	Construct road kerb	250 days	Tue 7/14/15	Sat 3/19/16
28	Construct footpath, planting area and concrete run-in	200 days	Tue 10/6/15	Fri 4/22/16
29	Construct flexible carriageway	120 days	Tue 1/5/16	Tue 5/3/16
30	Constrict stormwater drain and manhole at pedestrian street	100 days	Wed 3/12/14	Thu 6/19/14
31	Construct u-channel and drainpit at pedestrian street	100 days	Sat 6/21/14	Sun 9/28/14
32	Install irrigation system at pedestrian street	100 days	Thu 10/2/14	Fri 1/9/15
33	Construct pedestrian street	160 days	Tue 1/13/15	Sun 6/21/15
34	Road marking	15 days	Thu 5/5/16	Thu 5/19/16
35	Plants delivery for landscaping works	30 days	Tue 4/26/16	Wed 5/25/16
36	Preparatory works for landscaping works	15 days	Sat 5/14/16	Sat 5/28/16
37	Hydroseeding	5 days	Sun 5/29/16	Thu 6/2/16
38	Tree and shurb planting	30 days	Fri 6/3/16	Sat 7/2/16
39	Terminal float	62 days	Sun 7/3/16	Fri 9/2/16

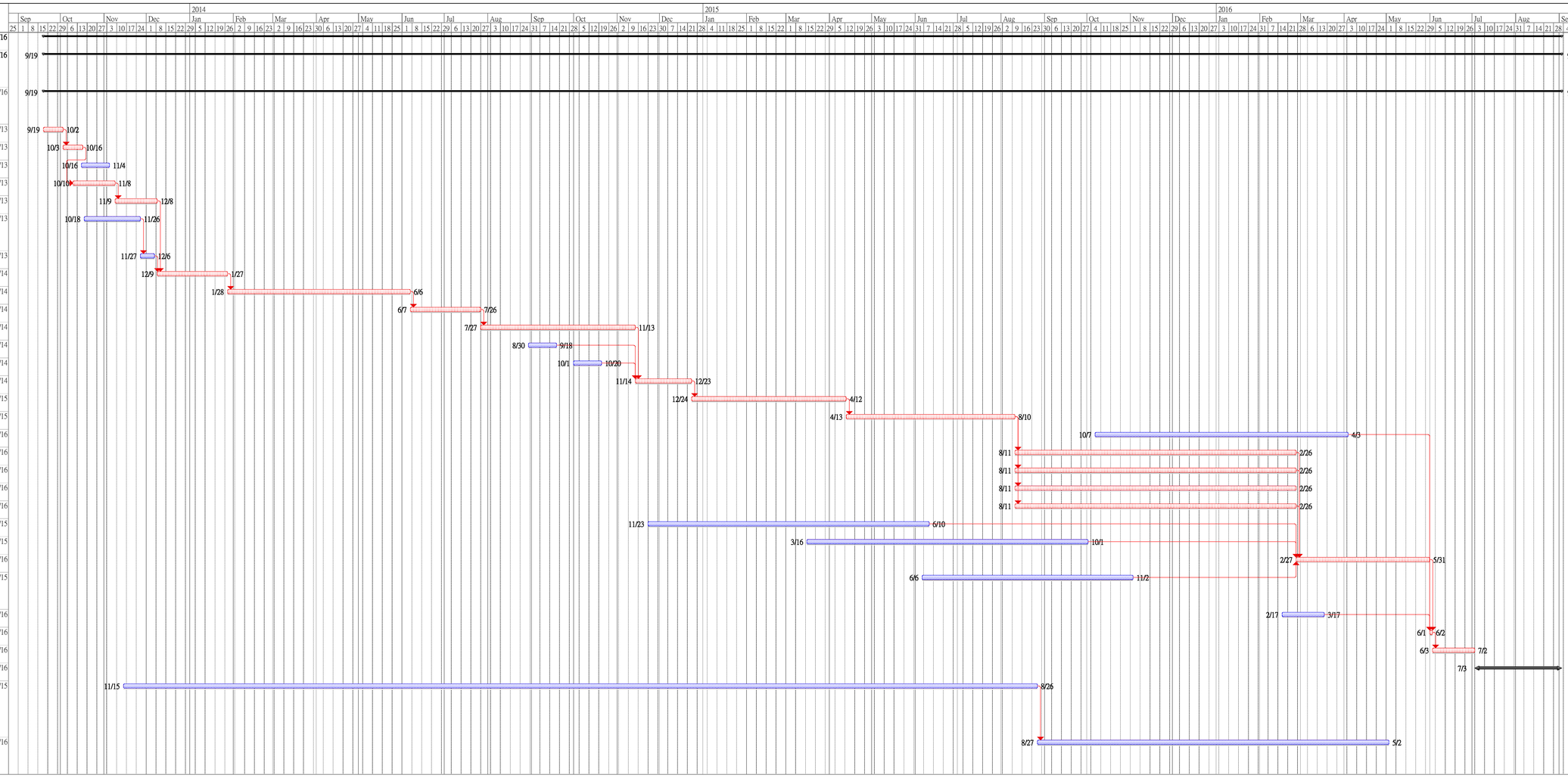


Critical tasks | Non-critical Tasks | Working days

Commencement Date: 19 September 2013
Completion Date: 2 September 2016

Master Programme

ID	Task Name	Duration	Start	Finish
1	Commence KL/2012/03 construction	1080 days	Thu 9/19/13	Fri 9/2/16
2	Section 1: Works within Portion 1 and 3	1080 days	Thu 9/19/13	Fri 9/2/16
3	Construction of Sewerage Pumping Station PS2	1080 days	Thu 9/19/13	Fri 9/2/16
4	Site possession and preparation works	14 days	Thu 9/19/13	Wed 10/2/13
5	Site clearance and setting out pumping station	14 days	Thu 10/3/13	Wed 10/16/13
6	Initial survey	20 days	Wed 10/16/13	Mon 11/4/13
7	Submission of baseline monitoring for EPD approval	30 days	Thu 10/10/13	Fri 11/8/13
8	Approval of baseline monitoring by EPD	30 days	Sat 11/9/13	Sun 12/8/13
9	Submission / approval of method statements and temporary works design	40 days	Fri 10/18/13	Tue 11/26/13
10	Mobilization of plant and delivery of materials	10 days	Wed 11/27/13	Fri 12/6/13
11	Construct sheet piling system	50 days	Mon 12/9/13	Mon 1/27/14
12	Install waling and strut, excavation to the formation level	130 days	Tue 1/28/14	Fri 6/6/14
13	Construct the base slab	50 days	Sat 6/7/14	Sat 7/26/14
14	Construct the basement	110 days	Sun 7/27/14	Thu 11/13/14
15	Install cast-in pipe for intake pipe	20 days	Sat 8/30/14	Thu 9/18/14
16	Install cast-in pipe for overflow pipe and rising main	20 days	Wed 10/1/14	Mon 10/20/14
17	Remove sheet piling and backfilling works	40 days	Fri 11/14/14	Tue 12/23/14
18	Construct upper part wall and column up to beam level	110 days	Wed 12/24/14	Sun 4/12/15
19	Construct the beam and roof	120 days	Mon 4/13/15	Mon 8/10/15
20	Construct green roof system	180 days	Wed 10/7/15	Sun 4/3/16
21	Architectural finishes and erect cladding	200 days	Tue 8/11/15	Fri 2/26/16
22	Erect handrailing, louvre, door, roller shutter etc.	200 days	Tue 8/11/15	Fri 2/26/16
23	Install rising main CHA0-CHA100	200 days	Tue 8/11/15	Fri 2/26/16
24	Construct intake and overflow pipes	200 days	Tue 8/11/15	Fri 2/26/16
25	Construct sewerage, drainage drain and manholes	200 days	Sun 11/23/14	Wed 6/10/15
26	Construct u-channel with cover	200 days	Mon 3/16/15	Thu 10/1/15
27	Construct access road inside PS	95 days	Sat 2/27/16	Tue 5/31/16
28	Erect fence wall, mini bollard light, vehicular and man access	150 days	Sat 6/6/15	Mon 11/2/15
29	Plants delivery for landscaping works	30 days	Wed 2/17/16	Thu 3/17/16
30	Hydroseeding	2 days	Wed 6/1/16	Thu 6/2/16
31	Tree and shurb planting	30 days	Fri 6/3/16	Sat 7/2/16
32	Terminal flout	62 days	Sun 7/3/16	Fri 9/2/16
33	Submission / approval of E&M services materials and delivery (Detailed programme will be submitted separately)	650 days	Fri 11/15/13	Wed 8/26/15
34	E&M building service installation. (Detailed programme will be submitted separately)	250 days	Thu 8/27/15	Mon 5/2/16

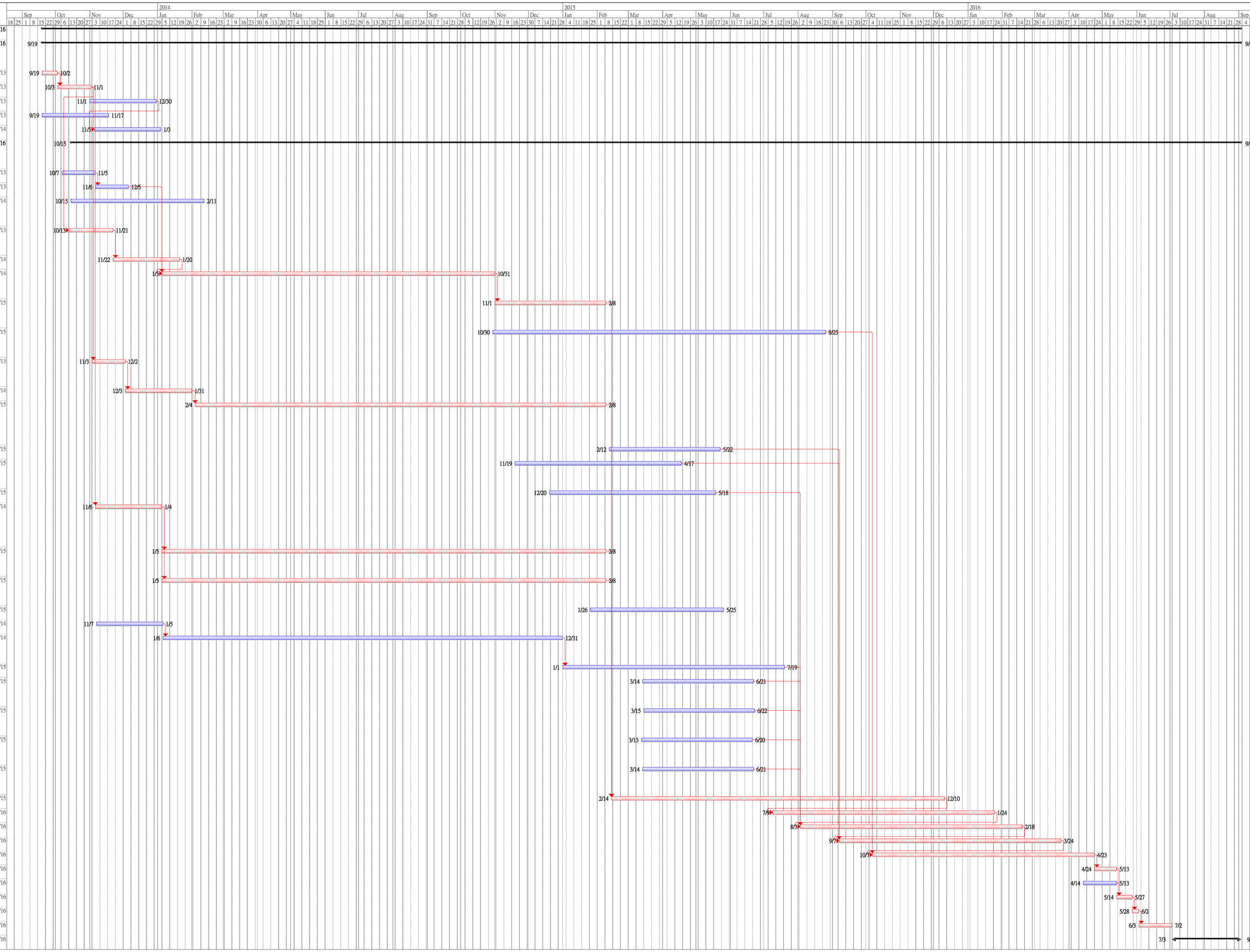


Critical tasks Non-critical tasks Working days

Commencement Date: 19 September 2013
Completion Date: 2 September 2016

Master Programme

ID	Task Name	Duration	Start	Finish
1	Commence KL/2012/03 construction	1080 days	Thu 9/19/13	Fri 9/2/16
2	Section 1: Works within Portion 1 and 3	1080 days	Thu 9/19/13	Fri 9/2/16
3	Site possession and preparation works	14 days	Thu 9/19/13	Wed 10/2/13
4	Setting out site boundary and site clearance	30 days	Thu 10/3/13	Fri 11/1/13
5	Initial joint survey	60 days	Fri 11/1/13	Mon 12/30/13
6	Obtain underground utilities plans	60 days	Thu 9/19/13	Sun 11/17/13
7	Erect hoarding, chain link fence and vehicular gate	60 days	Tue 11/5/13	Fri 1/3/14
8	Works for Northbound of Road D2	1054 days	Tue 10/15/13	Fri 9/2/16
9	Submission of baseline monitoring for EPD approval	30 days	Mon 10/7/13	Tue 11/5/13
10	Approval of baseline monitoring by EPD	30 days	Wed 11/6/13	Thu 12/5/13
11	Submission / approval of condition survey and TDMP for work within existing Kai Tak Tunnel	120 days	Tue 10/15/13	Tue 2/11/14
12	Submission / approval of construction materials and method statements for rising mains	40 days	Sun 10/13/13	Thu 11/21/13
13	Delivery of materials for rising mains	60 days	Fri 11/22/13	Mon 1/20/14
14	Install 2x500mm dia. HDPE rising main CHA100-CHA441	300 days	Sun 1/5/14	Fri 10/31/14
15	Construct 750mm dia. concrete pipes CHA716-CHA745 and 450mm dia. concrete pipes	100 days	Sat 11/1/14	Sun 2/8/15
16	Construct sewerage manhole, discharge chamber, wash-out chamber, air-valve chamber for rising main	300 days	Thu 10/30/14	Tue 8/25/15
17	Submission / approval of construction materials and method statements for watermains	30 days	Sun 11/3/13	Mon 12/2/13
18	Delivery of materials for watermains	60 days	Tue 12/3/13	Fri 1/31/14
19	Install 400mm, 450 & 600 dia. FWM CHC250-CHC921 and 450mm dia. SWM CHB250-CHB920	370 days	Tue 2/4/14	Sun 2/8/15
20	Pressure test, swabbing, sterilization and connection	100 days	Thu 2/12/15	Fri 5/22/15
21	Construct valve, fire hydrant, air-valve and wash-out chambers for watermain	150 days	Wed 11/19/14	Fri 4/17/15
22	Install irrigation system	150 days	Sat 12/20/14	Mon 5/18/15
23	Submission / approval of construction materials and delivery of materials and method statements for stormdrain and sewerage drain	60 days	Wed 11/6/13	Sat 1/4/14
24	Install different dia. of stormwater drain and construct manhole	400 days	Sun 1/5/14	Sun 2/8/15
25	Install different dia. of sewerage drain and construct manhole	400 days	Sun 1/5/14	Sun 2/8/15
26	Reconstruct existing box culvert for addition of DWFI	120 days	Mon 1/26/15	Mon 5/25/15
27	Liaison meeting with UU	60 days	Thu 11/7/13	Sun 1/5/14
28	Installation of utility by the utility undertakers along proposed footpath	360 days	Mon 1/6/14	Wed 12/31/14
29	Construct drainpit and u-channel	200 days	Thu 1/1/15	Sun 7/19/15
30	Install traffic signal at the Junction of Road D2/ Slip Road of KCR	100 days	Sat 3/14/15	Sun 6/21/15
31	Install traffic signal at the Junction of Road D2/ Road D3	100 days	Sun 3/15/15	Mon 6/22/15
32	Install traffic signal at the Junction of Road D2/ Eastern Access Road	100 days	Fri 3/13/15	Sat 6/20/15
33	Install traffic signal at the Junction of Road D2/ Western Access Road	100 days	Sat 3/14/15	Sun 6/21/15
34	Construct road gully and gully pipe	300 days	Sat 2/14/15	Thu 12/10/15
35	Construct road kerb	200 days	Thu 7/9/15	Sun 1/24/16
36	Construct footpath, planting area and concrete run-in	200 days	Mon 8/3/15	Thu 2/18/16
37	Construct central divider	200 days	Mon 9/7/15	Thu 3/24/16
38	Construct flexible carriageway	200 days	Wed 10/7/15	Sat 4/23/16
39	Road marking	20 days	Sun 4/24/16	Fri 5/13/16
40	Plants delivery for landscaping works	30 days	Thu 4/14/16	Fri 5/13/16
41	Preparatory works for landscaping works	14 days	Sat 5/14/16	Fri 5/27/16
42	Hydroseeding	6 days	Sat 5/28/16	Thu 6/2/16
43	Tree and shurb planting	30 days	Fri 6/3/16	Sat 7/2/16
44	Terminal float	62 days	Sun 7/3/16	Fri 9/2/16



Critical tasks | Non-critical tasks | Working days

Commencement Date: 19 September 2013
Completion Date: 2 September 2016

Master Programme

ID	Task Name	Duration	Start	Finish
1	**Commence KL/2012/03 construction**	**1445 days**	**Thu 9/19/13**	**Sat 9/2/17**
2	**Section 1: Works within Portion 1 and 3**	**1080 days**	**Thu 9/19/13**	**Fri 9/2/16**
3	**Widening of Existing Footpaths at Sung Wong Toi Road and To Kwa Wan Road**	**1080 days**	**Thu 9/19/13**	**Fri 9/2/16**
4	Site possession and preparation works	21 days	Thu 9/19/13	Wed 10/9/13
5	Setting out site boundary and site clearance	30 days	Thu 10/10/13	Fri 11/8/13
6	Initial joint survey	25 days	Tue 11/12/13	Fri 12/6/13
7	Obtain underground utilities plans	60 days	Thu 9/19/13	Sun 11/17/13
8	Erect hoarding, chain link fence and vehicular gate	60 days	Thu 12/5/13	Sun 2/2/14
9	Apply XP for roadworks	210 days	Wed 10/2/13	Tue 4/29/14
10	Approval of TTA drawings	90 days	Mon 11/18/13	Sat 2/15/14
11	Liaison meeting with UU	60 days	Sat 11/9/13	Tue 1/7/14
12	Installation of utility by the utility undertakers along proposed footpath, XP to be applied by UU	340 days	Wed 1/8/14	Sat 12/13/14
13	Submission / approval of construction materials and method statements for watermains	30 days	Wed 1/29/14	Thu 2/27/14
14	Delivery of materials for watermains	60 days	Fri 2/28/14	Mon 4/28/14
15	Install 300mm dia. fresh water main CHA0-CHA283	200 days	Wed 4/30/14	Sat 11/15/14
16	Install 300mm dia. fresh water main CHB0-CHB555	200 days	Tue 5/20/14	Fri 12/5/14
17	Install 450mm dia. salt water main CHA0-CHA555	200 days	Sun 6/15/14	Wed 12/31/14
18	Install 800mm dia. salt water main CHD0-CHD52	200 days	Sun 7/13/14	Wed 1/28/15
19	Pressure test, swabbing, sterilization and connection	100 days	Wed 11/12/14	Thu 2/19/15
20	Construct valve, fire hydrant, air-valve and wash-out chambers for watermain	100 days	Fri 10/10/14	Sat 1/17/15
21	Install irrigation system	120 days	Fri 11/14/14	Fri 3/13/15
22	Construct u-channel, drainpit and stormwater drain	150 days	Fri 10/24/14	Sun 3/22/15
23	Construct road gully and gully pipe	250 days	Sun 12/14/14	Thu 8/20/15
24	Application and install traffic signal at the Junction of Sung Wong Toi Road / To Kwa Wan Road	150 days	Sat 4/4/15	Mon 8/31/15
25	Application and install traffic signal at the Junction along Sung Wong Toi Road	150 days	Sun 4/5/15	Tue 9/1/15
26	Construct road kerb and new footpath	240 days	Thu 4/2/15	Fri 11/27/15
27	Construct carriageway at the existing footpath	270 days	Wed 7/1/15	Sat 3/26/16
28	Erect traffic sign	100 days	Sun 1/17/16	Mon 4/25/16
29	Re-surface existing carriageway	60 days	Sun 3/27/16	Wed 5/25/16
30	Road marking	10 days	Wed 5/4/16	Fri 5/13/16
31	Plants delivery for landscaping works	30 days	Mon 4/25/16	Tue 5/24/16
32	Preparatory works for landscaping works	14 days	Thu 5/26/16	Wed 6/8/16
33	Hydroseeding	4 days	Thu 6/9/16	Sun 6/12/16
34	Tree and shurb planting	20 days	Mon 6/13/16	Sat 7/2/16
35	Terminal float	62 days	Sun 7/3/16	Fri 9/2/16
36				
37	**Construction of Box Culverts B6**	**978 days**	**Mon 9/30/13**	**Fri 6/3/16**
38	Site possession and preparation works	15 days	Mon 9/30/13	Mon 10/14/13
39	Submission / approval of construction materials and method statements for box culverts B6	60 days	Tue 10/15/13	Fri 12/13/13
40	Plant mobilization	14 days	Sat 12/14/13	Fri 12/27/13
41	Construct temporary works and excavation to the formation level for box culverts B6	500 days	Sat 12/28/13	Mon 5/11/15
42	Construct drainage box culverts B6	500 days	Wed 6/4/14	Fri 10/16/15
43	Precast box culvert preparation works	100 days	Tue 6/16/15	Wed 9/23/15
44	Modification of seawall	100 days	Sat 10/17/15	Sun 1/24/16
45	Soil backfilling works	160 days	Mon 1/25/16	Sat 7/2/16
46	Terminal float	62 days	Sun 7/3/16	Fri 9/2/16
47				
48	**Demolition of Kowloon East DWFI pumping station**	**120 days**	**Sun 2/28/16**	**Sun 6/26/16**
49	Submission / approval of method statements	60 days	Tue 12/22/15	Fri 2/19/16
50	Demolish Kowloon East DWFI pumping station (To be carried out after completion of NPS)	120 days	Sun 2/28/16	Sun 6/26/16
51				
52	**Section 1A**	1445 days	Thu 9/19/13	Sat 9/2/17
53	**Establishment works for Section 1**	1445 days	Thu 9/19/13	Sat 9/2/17

Critical tasks Non-critical tasks Working days

Commencement Date: 19 September 2013
Completion Date: 2 September 2016

Master Programme

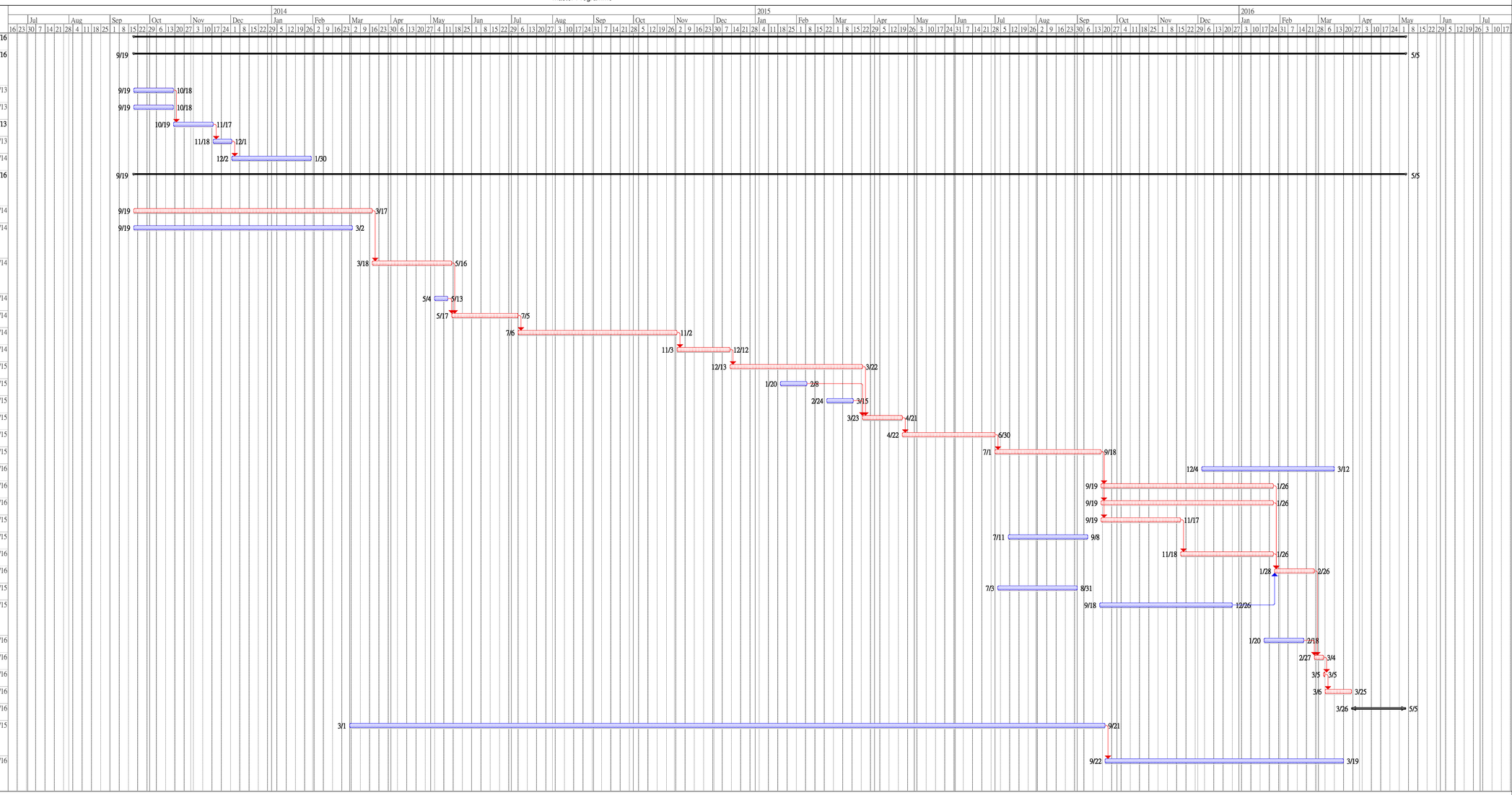
ID	Task Name	Duration	Start	Finish
1	Commence KL/2012/03 construction	1325 days	Thu 9/19/13	Fri 5/5/17
2	Section 2: Works within Portion 1 and 4	960 days	Thu 9/19/13	Thu 5/5/16
3	Setting out site boundary	30 days	Thu 9/19/13	Fri 10/18/13
4	Obtain underground utilities plans	30 days	Thu 9/19/13	Fri 10/18/13
5	Site clearance	30 days	Sat 10/19/13	Sun 11/17/13
6	Initial survey	14 days	Mon 11/18/13	Sun 12/1/13
7	Erect hoarding, chain link fence and vehicular gate	30 days	Mon 12/2/13	Tue 12/31/13
8	Installation of rising main along To Kwa Wan Road	899 days	Thu 9/19/13	Sat 3/5/16
9	Application of XP and TTA for approval	180 days	Sat 10/19/13	Wed 4/16/14
10	Submission / approval of method statement, temporary works design and delivery of materials to site	100 days	Sat 12/28/13	Sun 4/6/14
11	Inspection pits for determining the alignment of rising mains	60 days	Thu 4/17/14	Sun 6/15/14
12	Allow for utilities diversion works by the UU	60 days	Mon 6/16/14	Thu 8/14/14
13	Construct jacking pits at different locations (Locations will be subject to TMLG requirements. Detailed programme will be submitted after approval of TTA)	300 days	Sun 6/29/14	Fri 4/24/15
14	Install 2x630mm HDPE rising main CHB0-CHB1050 (Alignment will be subject to TMLG requirements. Detailed programme will be submitted after approval of TTA)	500 days	Mon 9/1/14	Wed 1/13/16
15	Construct sewerage manhole, discharge chamber, wash-out chamber, air-valve chamber for rising main	300 days	Mon 5/11/15	Sat 3/5/16
16	Terminal float	61 days	Sun 3/6/16	Thu 5/5/16
17				
18	Construction of Road L19	899 days	Thu 9/19/13	Sat 3/5/16
19	Application of XP and TTA for approval	210 days	Thu 9/19/13	Wed 4/16/14
20	Submission / approval of construction materials and method statements for rising mains	30 days	Wed 10/16/13	Thu 11/14/13
21	Delivery of materials for rising mains	60 days	Fri 11/15/13	Mon 1/13/14
22	Install 2x630mm HDPE rising main CHB1089-CHB1159	170 days	Tue 1/14/14	Wed 7/2/14
23	Install 2x750mm dia. concrete pipes CHB1159-CHB1300	170 days	Tue 1/14/14	Wed 7/2/14
24	Install 600mm and 750 dia. stormwater drain	200 days	Thu 7/3/14	Sun 1/18/15
25	Install 300mm dia. sewerage drain	200 days	Thu 7/3/14	Sun 1/18/15
26	Install 200mm dia. fresh water main CHE0-CHE402	200 days	Thu 7/3/14	Sun 1/18/15
27	Install NS125 & NS63 salt water main CHE0-CHE100	200 days	Thu 7/3/14	Sun 1/18/15
28	Pressure test, swabbing, sterilization and connection	100 days	Mon 3/9/15	Tue 6/16/15
29	Construct sewerage manhole, discharge chamber, wash-out chamber, air-valve chamber for rising main	160 days	Thu 12/18/14	Tue 5/26/15
30	Install 2x630mm HDPE rising main CHB1050-CHB1089 by trenchless method	200 days	Thu 4/17/14	Sun 11/2/14
31	Install 2x750mm and 2x900mm dia. concrete pipes CHB1300-CHB1398	150 days	Mon 11/3/14	Wed 4/1/15
32	Liaison meeting with UU	30 days	Sat 12/7/13	Sun 1/5/14
33	Installation of utility by the utility undertakers along proposed footpath	200 days	Mon 1/6/14	Thu 7/24/14
34	Utilities diversion works by the UU	160 days	Fri 7/25/14	Wed 12/31/14
35	Construct road gully and gully pipe	160 days	Thu 4/2/15	Tue 9/8/15
36	Construct road kerb	100 days	Wed 6/10/15	Thu 9/17/15
37	Construct footpath, planting area and concrete run-in	140 days	Sat 7/25/15	Fri 12/11/15
38	Construct central refuge	100 days	Tue 7/28/15	Wed 11/4/15
39	Construct flexible carriageway	90 days	Thu 11/5/15	Tue 2/2/16
40	Road marking	10 days	Mon 2/1/16	Wed 2/10/16
41	Relocate existing directional sign	100 days	Thu 10/29/15	Fri 2/5/16
42	Plants delivery for landscaping works	30 days	Mon 1/4/16	Tue 2/2/16
43	Preparatory works for landscaping works	14 days	Wed 2/3/16	Tue 2/16/16
44	Hydroseeding	2 days	Wed 2/17/16	Thu 2/18/16
45	Tree and shurb planting	16 days	Fri 2/19/16	Sat 3/5/16
46	Terminal flout	61 days	Sun 3/6/16	Thu 5/5/16
47				
48	Section 2A	1325 days	Thu 9/19/13	Fri 5/5/17
49	Establishment works for Section 2	1325 days	Thu 9/19/13	Fri 5/5/17

Critical tasks | Non-critical tasks | Working days

Commencement Date: 19 September 2013
Completion Date: 5 May 2016

Master Programme

ID	Task Name	Duration	Start	Finish
1	**Commence KL/2012/03 construction**	**960 days**	**Thu 9/19/13**	**Thu 5/5/16**
2	**Section 2: Works within Portion 1 and 4**	**960 days**	**Thu 9/19/13**	**Thu 5/5/16**
3	Setting out site boundary	30 days	Thu 9/19/13	Fri 10/18/13
4	Obtain underground utilities plans	30 days	Thu 9/19/13	Fri 10/18/13
5	Site clearance	**30 days**	**Sat 10/19/13**	**Sun 11/17/13**
6	Initial survey	14 days	Mon 11/18/13	Sun 12/1/13
7	Erect hoarding, chain link fence and vehicular gate	60 days	Mon 12/2/13	Thu 1/30/14
8	**Construction of sewrage pumping station NPS**	**960 days**	**Thu 9/19/13**	**Thu 5/5/16**
9	Site Possession	180 days	Thu 9/19/13	Mon 3/17/14
10	Submission / approval of method statements and temporary work design	165 days	Thu 9/19/13	Sun 3/2/14
11	Demolition work of ex-EMSD Sung Wong Toi vehicle repair and maintenance workshop by others	60 days	Tue 3/18/14	Fri 5/16/14
12	Mobilization	10 days	Sun 5/4/14	Tue 5/13/14
13	Construct sheet piling system	50 days	Sat 5/17/14	Sat 7/5/14
14	Install waling and strut, excavation to the formation level	120 days	Sun 7/6/14	Sun 11/2/14
15	Construct the base slab	40 days	Mon 11/3/14	Fri 12/12/14
16	Construct the basement	100 days	Sat 12/13/14	Sun 3/22/15
17	Install cast-in pipe for intake pipe	20 days	Tue 1/20/15	Sun 2/8/15
18	Install cast-in pipe for overflow pipe and rising main	20 days	Tue 2/24/15	Sun 3/15/15
19	Remove sheet piling and backfilling works	30 days	Mon 3/23/15	Tue 4/21/15
20	Construct upper part wall and column up to roof level	70 days	Wed 4/22/15	Tue 6/30/15
21	Construct the beam and roof	80 days	Wed 7/1/15	Fri 9/18/15
22	Establishment of green roof system	100 days	Fri 12/4/15	Sat 3/12/16
23	Architectural finishes and erect granite tile	130 days	Sat 9/19/15	Tue 1/26/16
24	Erect handrailing, louvre, door, roller shutter etc.	130 days	Sat 9/19/15	Tue 1/26/16
25	Install rising main	60 days	Sat 9/19/15	Tue 11/17/15
26	Construct inlet and overflow pipes	60 days	Sat 7/11/15	Tue 9/8/15
27	Construct sewerage, drainage drain and manhole	70 days	Wed 11/18/15	Tue 1/26/16
28	Construct assess road	30 days	Thu 1/28/16	Fri 2/26/16
29	Construct u-channel with cover	60 days	Fri 7/3/15	Mon 8/31/15
30	Erect fence wall, vehicular and man access and mini bollard light	100 days	Fri 9/18/15	Sat 12/26/15
31	Plants delivery for landscaping works	30 days	Wed 1/20/16	Thu 2/18/16
32	Preparatory works for landscaping works	7 days	Sat 2/27/16	Fri 3/4/16
33	Hydroseeding	1 day	Sat 3/5/16	Sat 3/5/16
34	Tree and shurb planting	20 days	Sun 3/6/16	Fri 3/25/16
35	Terminal float	41 days	Sat 3/26/16	Thu 5/5/16
36	Submission / approval of E&M services materials and delivery (Detailed programme will be submitted separately)	570 days	Sat 3/1/14	Mon 9/21/15
37	E&M building service installation. (Details programme will be submitted separately)	180 days	Tue 9/22/15	Sat 3/19/16

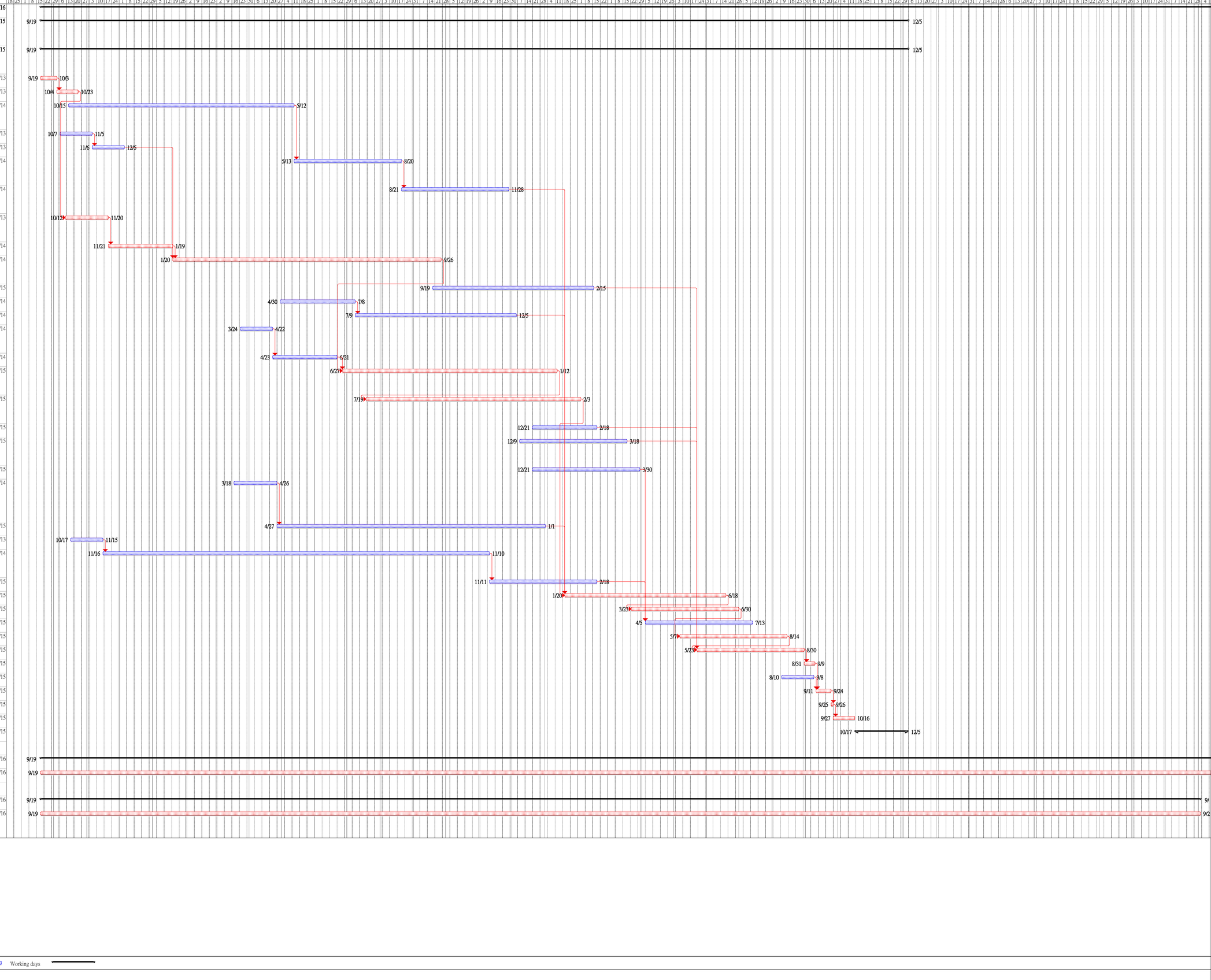


Critical tasks Non-critical tasks Working days

Commencement Date: 19 September 2013
Completion Date: 5 May 2016

Master Programme

ID	Task Name	Duration	Start	Finish
1	Commence KL/2012/03 construction	1173 days	Thu 9/19/13	Sun 12/4/16
2	Section 3: Works within Portion 1	808 days	Thu 9/19/13	Sat 12/5/15
3	Works for Part of Road D2	808 days	Thu 9/19/13	Sat 12/5/15
4	Site possession and preparation works	15 days	Thu 9/19/13	Thu 10/3/13
5	Site clearance and setting out site boundary	20 days	Fri 10/4/13	Wed 10/23/13
6	Apply XP for roadworks at junction of SWTR and TKWR and TTA approval	210 days	Tue 10/15/13	Mon 5/12/14
7	Submission of baseline monitoring for EPD approval	30 days	Mon 10/7/13	Tue 11/5/13
8	Approval of baseline monitoring by EPD	30 days	Wed 11/6/13	Thu 12/5/13
9	Install 400mm dia. fresh water main CHC0-CHC30	100 days	Tue 5/13/14	Wed 8/20/14
10	Install 300 and 450mm dia. salt water main CHB0-CHB30	100 days	Thu 8/21/14	Fri 11/28/14
11	Submission / approval of construction materials and method statements for rising mains	40 days	Sat 10/12/13	Wed 11/20/13
12	Delivery of materials for rising mains	60 days	Thu 11/21/13	Sun 1/19/14
13	Construct 750mm dia. concrete pipes CHA450-CHA630	250 days	Mon 1/20/14	Fri 9/26/14
14	Construct sewerage manhole for rising main	150 days	Fri 9/19/14	Sun 2/15/15
15	Construct jacking pits	70 days	Wed 4/30/14	Tue 7/8/14
16	Install 2x750mm dia. rising main CHA636-CHA716	150 days	Wed 7/9/14	Fri 12/5/14
17	Submission / approval of construction materials and method statements for watermains	30 days	Mon 3/24/14	Tue 4/22/14
18	Delivery of materials for watermains	60 days	Wed 4/23/14	Sat 6/21/14
19	Install 400mm dia. fresh water main CHC30-CHC250	200 days	Fri 6/27/14	Mon 1/12/15
20	Install 300 and 450mm dia. salt water main CHB30-CHB250	200 days	Sat 7/19/14	Tue 2/3/15
21	Pressure test, swabbing, sterilization and connection	60 days	Sun 12/21/14	Wed 2/18/15
22	Construct valve, air-valve and wash-out chambers for watermain	100 days	Tue 12/9/14	Wed 3/18/15
23	Install irrigation system	100 days	Sun 12/21/14	Mon 3/30/15
24	Submission / approval of construction materials and delivery of materials and method statements for stormdrain drain	40 days	Tue 3/18/14	Sat 4/26/14
25	Install stormwater drain and manhole	250 days	Sun 4/27/14	Thu 1/1/15
26	Liaison meeting with UU	30 days	Thu 10/17/13	Fri 11/15/13
27	Installation of utility by the utility undertakers along proposed footpath and CLP tunnel	360 days	Sat 11/16/13	Mon 11/10/14
28	Construct drainpit and u-channel	100 days	Tue 11/11/14	Wed 2/18/15
29	Construct road gully and gully pipe	150 days	Tue 1/20/15	Thu 6/18/15
30	Construct road kerb	100 days	Mon 3/23/15	Tue 6/30/15
31	Construct footpath, planting area and concrete run-in	100 days	Sun 4/5/15	Mon 7/13/15
32	Construct central divider	100 days	Thu 5/7/15	Fri 8/14/15
33	Construct flexible carriageway	100 days	Sat 5/23/15	Sun 8/30/15
34	Road marking	10 days	Mon 8/31/15	Wed 9/9/15
35	Plants delivery for landscaping works	30 days	Mon 8/10/15	Tue 9/8/15
36	Preparatory works for landscaping works	14 days	Fri 9/11/15	Thu 9/24/15
37	Hydroseeding	2 days	Fri 9/25/15	Sat 9/26/15
38	Tree and shurb planting	20 days	Sun 9/27/15	Fri 10/16/15
39	Terminal float	50 days	Sat 10/17/15	Sat 12/5/15
40				
41	Section 3A	1173 days	Thu 9/19/13	Sun 12/4/16
42	Establishment works for Section 3	1173 days	Thu 9/19/13	Sun 12/4/16
43				
44	Section 4	1080 days	Thu 9/19/13	Fri 9/2/16
45	Perservation and preotection of trees within Portions 1 to 4	1080 days	Thu 9/19/13	Fri 9/2/16

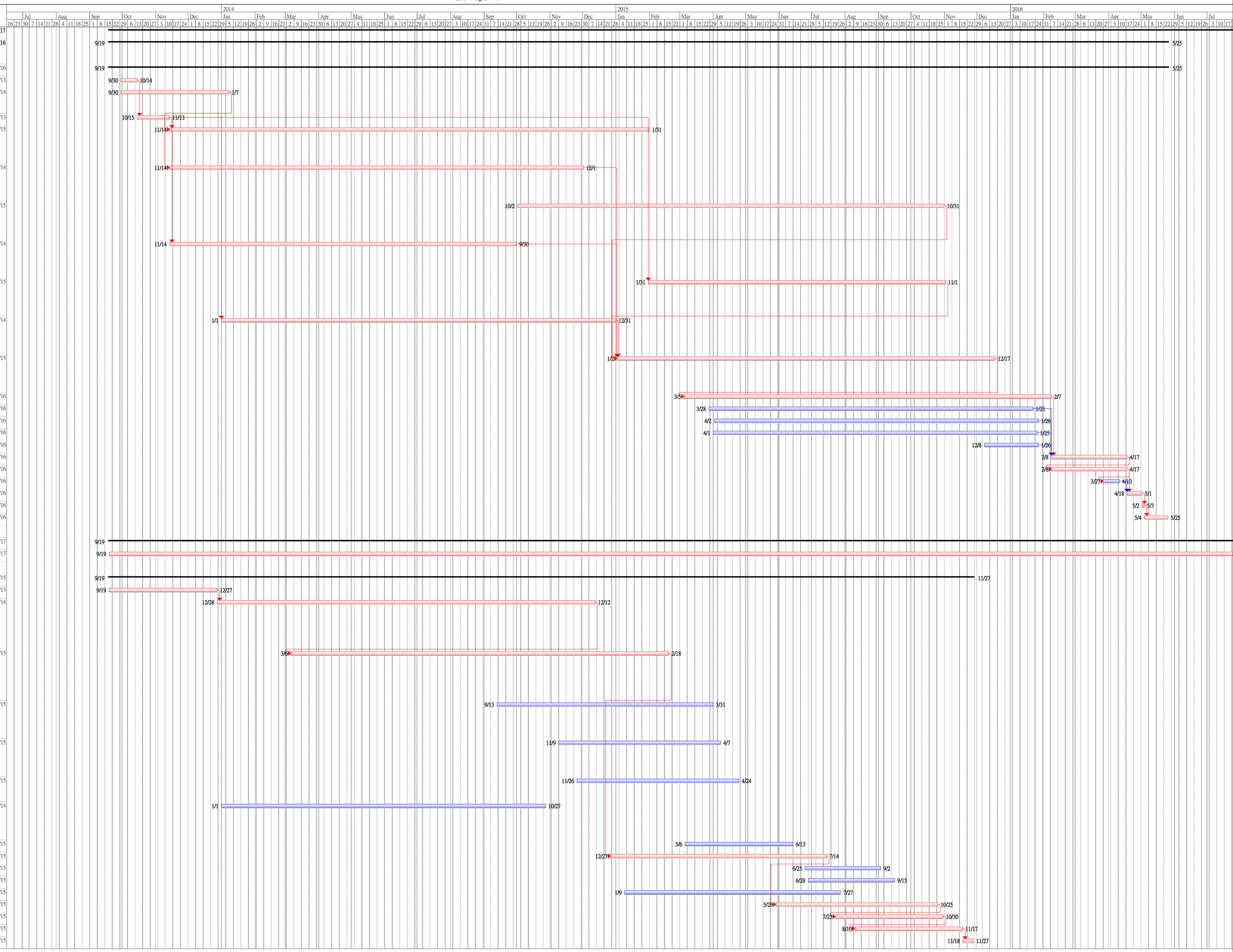


Critical tasks Non-critical tasks Working days

Commencement Date: 19 September 2013
Completion Date: 5 December 2015

Master Programme

ID	Task Name	Duration	Start	Finish
1	Commence KL/2012/03 construction	1345 days	Thu 9/19/13	Thu 5/25/17
2	Section 5: Portion 1 (Subject to Excision)	980 days	Thu 9/19/13	Wed 5/25/16
3	Works for Part of Road D2 (Footpath only)	980 days	Thu 9/19/13	Wed 5/25/16
4	Site possession and preparation works	15 days	Mon 9/30/13	Mon 10/14/13
5	Awaiting for the notifcation of commencement of works by the Engineer	100 days	Mon 9/30/13	Tue 1/7/14
6	Interface works meeting with CLP	30 days	Tue 10/15/13	Wed 11/13/13
7	Construct of CLP tunnel by CLP CH67 to CH250 (Exact duration will be agreed with CLP)	444 days	Thu 11/14/13	Sat 1/31/15
8	Construct of CLP tunnel by CLP CH527 to CH585 (Exact duration will be agreed with CLP)	383 days	Thu 11/14/13	Mon 12/1/14
9	Construct of CLP tunnel by CLP CH385 to CH527(Exact duration will be agreed with CLP)	395 days	Thu 10/2/14	Sat 10/31/15
10	Construct of CLP tunnel by CLP CH250 to CH385 (Exact duration will be agreed with CLP)	321 days	Thu 11/14/13	Tue 9/30/14
11	Construct of CLP tunnel by CLP CH0 to CH67 Exact duration will be agreed with CLP)	275 days	Sat 1/31/15	Sun 11/1/15
12	Construct of CLP tunnel by CLP CH585 to CH724 (Exact duration will be agreed with CLP)	365 days	Wed 1/1/14	Wed 12/31/14
13	Installation of utility by the utility undertakers along proposed footpath (Exact duration will be agreed with UU)	350 days	Fri 1/2/15	Thu 12/17/15
14	Construct drainpit and u-channel	340 days	Thu 3/5/15	Sun 2/7/16
15	Install stormwater drain, sewerage drain and manholes	300 days	Sat 3/28/15	Thu 1/21/16
16	Install FWM and SWM and chambers	300 days	Thu 4/2/15	Tue 1/26/16
17	Install irrigation system	300 days	Wed 4/1/15	Mon 1/25/16
18	Install fire hydrant	50 days	Tue 12/8/15	Tue 1/26/16
19	Install street lighting	70 days	Mon 2/8/16	Sun 4/17/16
20	Construct footpath, planting area and concrete run-in	70 days	Mon 2/8/16	Sun 4/17/16
21	Plants delivery for landscaping works	15 days	Sun 3/27/16	Sun 4/10/16
22	Preparatory works for landscaping works	14 days	Mon 4/18/16	Sun 5/1/16
23	Hydroseeding	2 days	Mon 5/2/16	Tue 5/3/16
24	Tree and shurb planting	22 days	Wed 5/4/16	Wed 5/25/16
25				
26	Section 5A: (Subject to Excision)	1345 days	Thu 9/19/13	Thu 5/25/17
27	Establishment works for Section 5	1345 days	Thu 9/19/13	Thu 5/25/17
28				
29	Section 7A: Portion 1 (Subject to Excision)	800 days	Thu 9/19/13	Fri 11/27/15
30	Awaiting for the notifcation of commencement of works by the I	100 days	Thu 9/19/13	Fri 12/27/13
31	Construct one 500mm dia., two 1000mm dia. District Cooling System (DCS) chilled water pipes and four 1400mm dia. seawater pipes	350 days	Sat 12/28/13	Fri 12/12/14
32	Construct two DCS chilled water pipes tee to the building lots. The diameter of DCS chilled water pipes are 200mm, 500mm and 800mm subject to various locations	350 days	Thu 3/6/14	Wed 2/18/15
33	Construct valve chambers, instrumentation chambers, access manhole, thrust blocks, insulation provision for the DCS chilled water pipes	200 days	Sat 9/13/14	Tue 3/31/15
34	Construct the leakage detection system for DCS chilled water pipes	150 days	Sun 11/9/14	Tue 4/7/15
35	Construct the cable ducts and associated draw pits for the communication system	150 days	Wed 11/26/14	Fri 4/24/15
36	Interfacing works with EMSD 1020EM12A Contractor for connection of the proposed four seawater pipes and three chilled water pipes in Section C to their construction of seawater pipes and chilled water pipes	300 days	Wed 1/1/14	Mon 10/27/14
37	Testing and commissioning of the works	100 days	Fri 3/6/15	Sat 6/13/15
38	Install FWM and SWM and chambers	200 days	Sat 12/27/14	Tue 7/14/15
39	Pressure test, swabbing, sterilization and connection	70 days	Thu 6/25/15	Wed 9/2/15
40	Construct valve, fire hydrant, air-valve and wash-out chambers f	80 days	Sun 6/28/15	Tue 9/15/15
41	Install stormwater drain, sewerage drain and construct manhole	200 days	Fri 1/9/15	Mon 7/27/15
42	Construct road gully and gully pipe	150 days	Fri 5/29/15	Sun 10/25/15
43	Construct road kerb	100 days	Thu 7/23/15	Fri 10/30/15
44	Construct flexible carriageway	100 days	Mon 8/10/15	Tue 11/17/15
45	Road marking	10 days	Wed 11/18/15	Fri 11/27/15



Critical tasks Working days

Commencement Date:
Completion Date:

APPENDIX O
ENVIRONMENTAL REQUIREMENT IN CONTRACT DOCUMENTS

SECTION 25

ENVIRONMENTAL PROTECTION

GENERAL

General requirements 25.01

The following is added after GS Clause 25.01(5)

(6) Any stoppage or reduction in output resulting from compliance with this clause and any other provisions in Section 25, including those provisions inserted, supplemented or modified by PS Section 25 shall not entitle the Contractor to any extension of time for completion or to any additional costs whatsoever.

Add the following clauses after GS Clause 25.01

Environmental permit 25.01A

(1) PS2 and PS NPS Sewage Pumping Stations are classified as a Schedule 2 Part I designated project under the Environmental Impact Assessment Ordinance (Cap.499) (EIAO) and thus its construction and operation shall be governed by an Environmental Permit (EP). For the purpose of this Contract, "Environmental Permit" means any environmental permit issued by the Director of Environmental Protection in respect of the Works or project which the Works form a part thereof under the EIAO including any further environmental permit or variation of the environmental permit.

(2) In accordance with GCC Clause 32, the Contractor shall conform in all respects with the conditions of the EP-344/2009 or the latest version of this EP. The relevant environmental permit No. EP-344/2009 "PS2 and PS NPS Sewage Pumping Stations" under the permit holder of Civil Engineering and Development Department is attached in PS Appendix 25A.

(3) Road D2 is classified as a Schedule 2 Part I designated project under the Environmental Impact Assessment Ordinance (Cap.499) (EIAO) and thus its construction and operation shall be governed by an Environmental Permit (EP). For the purpose of this Contract, "Environmental Permit" means any environmental permit issued by the Director of Environmental Protection in respect of the Works or project which the Works form a part thereof under the EIAO including any further environmental permit or variation of the environmental permit.

(4) In accordance with GCC Clause 32, the Contractor shall conform in all respects with the conditions of the EP-337/2009 or the latest version of this EP. The relevant environmental permit No. EP-337/2009 "Road D2" under the permit holder of Civil Engineering and Development Department is attached in PS Appendix 25B.

(5) The Contractor shall be responsible for displaying a copy of the most updated Environmental Permits at each of the locations within the Site as stipulated under the Environmental Permit and as directed by the Engineer.

(6) Any submission including without limitation, schedules, reports, drawings and documents prepared by the Contractor and any application made by the Contractor for the purpose of satisfying the requirements and obligations under or arising out of the EPs, this PS Section and other relevant provisions of the PS shall be submitted through the Engineer to the Director of Environmental Protection (DEP). The Contractor shall deliver his submissions or applications to the Engineer in a timely manner so as to enable the Engineer to make timely onward submission of the same to the Director of Environmental Protection.

(7) It is unnecessary for the Contractor to apply for and hold the environmental permits since he may rely on the Environmental Permits obtained by the Employer. Should for any reason the Contractor choose to apply for and hold the environmental permit(s) he shall do so at his own risk and cost and it shall not form the basis of any claim for extension of time.

(8) In addition, the Contractor shall provide and carry out pollution control measures for the Works in accordance with this PS Section. The requirements and conditions of the Environmental Permits shall take precedence in the event of any conflict with the conditions stated in this PS Section and other relevant provisions of the PS. The conditions stated in this PS Section and other relevant provisions of the PS shall not supersede or nullify any requirements and conditions of the Environmental Permits. This PS Section provides additional requirements deemed to be necessary for the good environmental management of the Project and to minimize adverse environmental impacts.

(9) The Contractor shall be deemed to have noticed that the environmental protection requirements under this PS section and other relevant provisions of the PS may not be exhaustive for full compliance of the conditions of the EPs. The Contractor shall refer to the following Report:

(i) Project Profile and EIA report for PS2 and PS NPS Sewage Pumping Stations (AEIAR-130/2009).

(ii) Project Profile and EIA report for Road D2 (AEIAR-130/2009).

The Engineer may during the course of execution of this Contract, instruct the Contractor to perform any further environmental protection measures and monitoring as he considered reasonable at the own cost of the Contractor.

(10) According to Condition 1.11 of the EPs, the Contractor shall notify EPD in writing the commencement date of construction of the Works no later than one month prior to the commencement of construction of the Works. The Contractor shall notify EPD in writing immediately if there is any change of the commencement date of the construction.

(11) The Contractor shall fulfil all conditions and requirements specified in the EP Nos. EP-344/2009 and EP-337/2009 at his own cost that are summarised but not limited to the following:

(a) establish an Environmental Team (ET)

(b) employ an Independent Environmental Checker (IEC)

(c) implement measures for mitigating odour impact

(d) implement measures for mitigating noise impact

(e) implement measures for mitigating water quality impact

(f) implement measures for mitigating land contamination impact

(g) implement measures for mitigating landscaping and visual impact

(h) submit baseline monitoring report and monthly EM&A reports

(12) The Contractor shall submit four hard copies and one electronic copy of the baseline monitoring report to the Engineer for comment and approval. The report shall be certified by the ET Leader and verified by the IEC as complying with the relevant requirements as set out in sections 1, 3, 15 & 16 of the EM&A manual of the approved EIA report (Register No. AEIAR-130/2009). The approved EIA report and EM&A manual can be retrieved from EPD's web site http://www.epd.gov.hk/eia/english/register/aeiara/kt.html.

(13) The Contractor shall submit four hard copies and one electronic copy of the monthly EM&A Reports to the Engineer within one week after the end of the reporting month. The monthly EM&A Reports shall include a summary of all non-compliance with the recommendations in the EIA Report or EPs. The reports shall be certified by the ET Leader and verified by the IEC as complying with the relevant requirements as set out in sections 1, 3, 15 & 16 of the EM&A manual of the approved EIA report (Register No. AEIAR-130/2009). The approved EIA report and EM&A manual can be retrieved from EPD's web site http://www.epd.gov.hk/eia/english/register/aeiara/kt.html.

The following is added after GS Clause 25.08 :-

Surface runoff 25.08A

(1) The design of sand/silt removal facilities should be based on the guidelines provided in ProPECC PN 1/94. All sand/silt removal facilities, drainages and manholes should be maintained and deposited silt and grit should be removed regularly to ensure proper and efficient operation at all times and particularly during rainstorms.

The following is added after GS Clause 25.09 :-

Construction works in close proximity of inland water or seafront

25.09A

(1) The Contractor shall adopt the practices outlined in ETWB TC (Works) No. 5/2005 "Protection of natural streams/rivers from adverse impacts arising from construction works" when the construction works located at or near any river channels, natural streams or seafront.

(2) Construction works such as soil excavation should be programmed in dry season where the flow in the storm culvert/river channel/stream is low.

(3) Intercepting channels should be provided to prevent storm runoff from washing across exposed soil surfaces. Temporary sewage system should be designed to prevent wastewater from entering the inland water and inshore water.

(4) Any works site inside the storm water curses should be temporarily isolated, such as by placing of sandbags or silt curtains with lead edge at bottom and properly supported props to prevent adverse impact on the storm water quality.

(5) Final surfaces after excavation shall be compacted and the surface protection shall be carried out as soon as practical after the final surfaces are formed to prevent erosion caused by rainstorms.

Accidental spillage

25.09B

(1) Oil and fuels should only be used and stored in designated areas which have pollution prevention facilities. All fuel tanks and storage areas should be sited on sealed areas in order to prevent spillage of fuels and solvents to the nearby watercourses and coastal water. All waste oils and fuels should be collected in designated tanks prior to disposal.

(2) Maintenance of vehicles and equipments involving activities with potential for leakage and spillage should only be undertaken within the areas which appropriately equipped to control these discharges.

GS Clause 25.13 is renamed as 25.13(1) and add the following after Clause 25.13(1) :-

Construction noise permit 25.13

(2) The Contractor's attention is drawn to the need of considering the cumulative effects of concurrent construction works in the area in his applications to the relevant authorities. The submission shall include, but are not limited to, the following:

(a) the locations of sensitive receivers;

(b) a plant inventory for each major construction activity;

(c) documentary proof of the sound power levels for each item in the plant inventory;

(d) cumulative effects of concurrent works in the vicinity;

(e) predicted noise levels at the sensitive receivers; and

(f) proposed noise mitigation measures if the predicted noise levels exceed the statutory noise limits; adequate details should be included to demonstrate the practicability of any proposed mitigations measures for the plants.

Dust suppression 25.15

The following is added after Clause 25.15(13) :-

(14) Weigh hoppers shall be vented to suitable filters.

(15) The filter bags in the cement silo dust collector must be thoroughly shaken after cement is blown into the silo to ensure adequate dust collection for subsequent loading.

(16) For dry mix bathing, the process should be done in total by enclosure with the exhaust attached on to a fabric filter.

(17) All cement and concrete trucks are to be effectively washed down after loading and prior to leaving the works.

(18) The Contractor shall not install any furnace, boiler or other plant or equipment or use any fuel that might in any circumstance produce smoke or any other air pollution without the prior consent of the Engineer. Unless specifically instructed by the Engineer, the Contractor shall not light fires on site for the burning of debris or any other matter.

(19) The Contractor shall ensure that the portion of any temporary access road leading only to the Site that is within 30m of a discernible or designated vehicle entrance or exit shall be kept clear of dusty materials.

Add the following clauses after GS Clause 25.20:-

Asbestos related works 25.20A

(1) The Contractor shall comply with provisions of the Waste Disposal Ordinance, Cap. 354 relating to the disposal of asbestos waste. In particular, the Contractor shall register with the Environmental Protection Department as a registered waste producer under the Waste Disposal (Chemical Waste) (General) Regulation.

(2) In accordance with Section 21 of the Waste Disposal (Chemical Waste) (General) Regulation, the Contractor shall engage the service of a licensed waste collector to collect the asbestos cement waste for disposal if the Contractor is not a licensed waste collector.

(3) Notwithstanding the provisions in the above sub-clauses, the Contractor shall comply with all Ordinances and Safety Regulations in working with asbestos materials.

GS Clause 25.22 is deleted and replaced by the following :-

Reduced use of timber in temporary works 25.22

(1) Hardwood shall not be used for the following items of Temporary Works :

(a) Hoardings, in both the framing and the paneling.

(b) Falsework, which is defined as a temporary structure used to support formwork and a permanent structure until the permanent structure is self-supporting.

(c) Trench support, which is defined as the shoring, strutting and propping used to support temporary openings below surface ground level.

(d) Formwork, which is defined as the mould against which concrete is cast and which gives the shape and finish to the concrete surface and which may be permanent or temporary.

(e) Project signboard and all its components.

(2) The Contractor shall propose alternatives to hardwood for approval o f the Engineer.

The following is added after GS Clause 25.25

Construction waste disposal charging scheme 25.25A

(1) In addition to the Trip Ticket System, the Contractor shall fully comply with the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N) to implement the Construction Waste Disposal Charging Scheme (Charging Scheme).

(2) The Contractor shall be responsible to open a billing account solely for the contract with the Environmental Protection Department and pay the charges through the account. Application for the billing account shall be made within 21 days after the contract is awarded. Failing this will be an offence under the law.

Baseline and impact monitoring 25.36

(1) The Contractor shall carry out baseline monitoring below at the monitoring locations and numbers to be agreed by the Engineer for at least 14 consecutive days prior to the commissioning of the construction works. The purpose of the baseline monitoring is to establish ambient conditions prior to the commencement of the works and to demonstrate the suitability of the monitoring stations. A schedule on the baseline monitoring and the method statement shall be submitted to the Engineer for approval within 7 days after the commencement of the Contract. During the baseline monitoring, there should not be any construction activities in the vicinity of the monitoring stations.

Noise Monitoring

(a) Within two weeks of the commencement of the Contract, the Contractor shall provide an approved integrating sound level meter in compliance with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) and the manufacturer's recommended sound level calibrator for the exclusive use of the Engineer at all times. The Contractor shall maintain the equipment in proper working order and provide a substitute when the equipment are out of order or otherwise not available. The Contractor shall keep the equipment verified by the manufacturers at suitable intervals, to ensure that the equipment perform the same level of accuracies as stated in the manufacture's specifications, so that at any time of taking measurements, the equipment shall have been verified at least once within the proceeding two years.

(b) Baseline noise monitoring shall be carried out prior to the commencement of the construction works. The baseline monitoring shall be carried out daily for a period of at least two weeks. A schedule on the baseline monitoring shall be sent to the Contractor and Engineer before the monitoring starts.

(c) Impact monitoring shall be carried out at all the designated monitoring stations agreed by the Engineer. The monitoring frequency shall depend on the scale of the construction activities. The following is an initial guide on the regular monitoring frequency for each station on a per week basis when noise generating activities are underway.

(i) one set of measurements between 0700-1900 hours on normal weekdays;

(ii) measurements between 1900-2300 hours;

(iii) measurements between 2300-0700 hours of next day; and

(iv) measurements between 0700-1900 hours on holidays.

For the measurements (ii), (iii) and (iv) above, as an indication, one set of measurements shall at least include 3 consecutive Leq (5 min) results and shall only be carried out when there are construction activities scheduled during those periods. The frequency and scope of monitoring shall be determined by the CNP application and the Noise Control Authority. Applicable permits under NCO shall be obtained by the Contractor.

(d) If a school exists near the construction activity, noise monitoring shall be carried out at the monitoring stations for the schools during the school examination periods. The Contractor shall liaise with the school's personnel and the Examination Authority to ascertain the exact dates and times of all examination periods during the course of the contract.

In case of non-compliance with the construction noise criteria, more frequent monitoring, as specified in the Action Plan in sub-clause (e) below, shall be carried out. This additional monitoring shall be continued until the recorded noise levels are rectified or demonstrated to be unrelated to the construction activities.

(e) The Action and Limit levels for construction noise are defined in Appendix 25C. Should non-compliance of the criteria occurs, action in accordance with the Action Plan in Appendix 25C shall be carried out.

(2) In exceptional cases, when insufficient baseline monitoring data or questionable results are obtained, the Contractor shall liaise with the Engineer to agree on an appropriate set of data to be used as a baseline reference and submit this to the Engineer approval.

(3) The Contractor shall take note to the established baseline measurement that would be used as compliance levels for monitoring and control the environmental impacts of construction activities during the construction period.

(4) The Contractor shall be responsible to carry out additional baseline monitoring as per the Engineer's request from time to time during the construction period.

- End of PS Section 25 -

PS Appendix 1AE

Water Quality Monitoring
(PS Clause 1.90)

Monitoring schedule 1AEA1

The Contractor shall conduct water quality monitoring (WQM) activities at 12 designated monitoring stations for 24 months. The exact schedule of the monitoring work shall be determined by the Engineer's Representative. Extra WQM activities might be required whenever instructed by the Engineer. For any reason that the tentative schedule cannot be fulfilled, the Contractor shall seek agreement with the Engineer in advance.

Details of works 1AEA2

Details of the additional WQM are as follows:

- Water sampling at 12 designated monitoring stations at Kai Tak Approach Channel and other areas as instructed by the Engineer.
- In-situ measurement of dissolved oxygen (DO), ORP, water depth and water temperature
- Laboratory testing of *E.Coli*
- Result analysis and report submission

Sampling frequency and methods 1AEA3

(a) During each monitoring activity, sampling shall be taken at two tide conditions (mid-flood and mid-ebb).

(b) During each sampling occasion, measurements shall be taken at three water depths, namely, 1m below water surface, mid-depth and 1m above sea bed, except where the water depth is less than 6m, in which case the mid-depth station may be omitted. In case that the water depth is less than 3m, only the mid-depth station will be monitored.

(c) At each monitoring location, duplicate samples shall be collected at each water depth. Sufficient volume of each water sample shall be collected for analysis to achieve the required detection limit. Apart from the depth specified in **(b)**, *in-situ* measurement for DO shall also be taken at 0.5m depth intervals at all the marine water quality monitoring stations.

(d) The water quality monitoring programme and schedule should be agreed with the Consultant's Representative at least one week before the monitoring. The Consultant's Representative should be immediately notified of any change of schedule.

Monitoring parameters 1AEA4

The parameters for the WQM include *in-situ* measurements for DO, water temperature and laboratory analysis of *E. coli*.

Other relevant data shall also be recorded, including monitoring location / position, time, water depth, water temperature, sampling depth, tidal stages, weather conditions and any special phenomena or work underway nearby.

Dissolved Oxygen and Temperature Measuring Equipment

Marine water quality monitoring equipment 1AEA5

(a) The instrument shall be a portable and weatherproof DO measuring instrument complete with cable and sensor, and use a DC power source. The equipment shall be capable of measuring:

(i) a DO level in the range of 0 - 20 mg L-1 and 0 - 200% saturation; and

(ii) a temperature of 0 – 45 degree Celsius.

(b) It shall have a membrane electrode with automatic temperature compensation complete with a cable (for example, YSI model 59 meter, YSI 5739 probe, YSI 5795A submersible stirrer with reel and cable or an approved similar instrument). Sufficient stocks of spare electrodes and cables shall be available for replacement where necessary.

(c) Should salinity compensation not be built-in to the DO equipment, in-situ salinity should be measured to calibrate the DO equipment prior to each DO measurement.

Sampler

(d) A water sampler is required. It should comprise a transparent PVC cylinder, with a capacity of not less than 2 litres, which can be effectively sealed with latex cups at both ends. The sampler shall have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth (for example, Kahlsico Water Sampler or an approved similar instrument).

Water Depth Detector

(e) A portable, battery-operated echo sounder should be used for the determination of water depth at each designated monitoring station. This unit can either be hand held or affixed to the bottom of the work boat, if the same vessel is to be used throughout the monitoring programme.

ORP

(f) A redox meter calibrated to ISO9002 standards shall be used to measure the ORP and it shall be readable to 1mV in the reporting limit. The testing method shall follow APHA 20e 2580 B.

Sample Containers and Storage

(g) Water samples for SS shall be stored in high density polythene bottles, packed in ice (cooled to 4°C without being frozen) and delivered to the laboratory and analysed as soon as possible after collection. Sufficient volume of samples shall be collected to achieve the detection limit.

Monitoring Position Equipment

(h) A hand-held or boat-fixed type digital Differential Global Positioning System (DGPS) with way point bearing indication or other equipment instrument of similar accuracy, should be provided and used during water quality monitoring to ensure the monitoring vessel is at the correct location before taking measurements. DGPS or the equivalent instrument, calibrated at appropriate checkpoint (e.g. Quarry Bay Survey Nail at Easting 840683.49, Northing 816709.55) shall be provided and used to ensure the monitoring station is at the correct position before taking measurement and water samples.

Calibration of In-Situ Instruments

(i) All *in-situ* monitoring instruments should be checked, calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme before use and subsequently re-calibrated at three monthly intervals throughout all stages of the water quality monitoring programme. Responses of sensors and electrodes should be checked with certified standard solutions before each use. Wet bulb calibration for a DO meter should be carried out before measurement at each monitoring location.

(j) For the on site calibration of field equipment, the BS 127:1993, Guide to Field and On-Site Test Methods for the Analysis of Water shall be observed.

(k) Sufficient stocks of spare parts shall be maintained for replacements when necessary. Backup monitoring equipment should also be made available so that monitoring can proceed uninterrupted even when some equipment is under maintenance, calibration, etc.

Laboratory measurement / analysis for marine water quality samples 1AEA6

(a) Water samples collected at the monitoring stations shall be analyzed at the laboratory for Ecoli. Sufficient water samples of not less than 2 litre should be collected at the monitoring stations for carrying out the laboratory determinations.

(b) The testing method of *E.Coli* shall in accordance to the Wat. Sci. Tech. Vol.35, No. 11-12, pp 409-413. The lowest detection limit of *E.Coli* testing shall be 1 CFU per 100ml.

(c) The testing of all parameters should be HOKLAS accredited (or if not, approved by the Consultant) and comprehensive quality assurance and control procedures in place in order to ensure quality and consistency in results.

(d) Detailed testing methods, pre-treatment procedures, instrument use, Quality Assurance/ Quality Control (QA/QC) details (such as blank, spike recovery, number of duplicate samples per batch, etc.), detection limits and accuracy shall be in accordance with the requirement of HOKLAS or international accredited scheme and, if required, submitted to the Consultant for approval prior to the commencement of the monitoring programme. The QA/QC results shall be reported.

(e) Additional duplicate samples may be required by the Consultant for inter laboratory calibration. The Contractor shall be responsible for sampling and testing of the duplicate additional samples if required. Remaining samples after analysis should be kept by the laboratory for 3 months in case repeat analysis is required. If in-house or non-standard methods are proposed, details of the method verification may also be required to be submitted to the Consultant. In any circumstance, the sample testing should have comprehensive quality assurance and quality control programmes. The laboratory shall demonstrate the programmes to the Consultant when requested.

Decontamination Procedures

QA/QC requirements 1AEA7

(a) Water sampling equipment used during the course of the monitoring programme shall be decontaminated by manual washing and rinsed with clean seawater/distilled water after each sampling event. All disposable equipment shall be discarded after sampling.

Sample Management & Supervision

(b) Water samples shall be dispatched to the testing laboratory for analysis as soon as possible after the sampling. All samples shall be stored in a cool box and kept at less than 4oC but without frozen. All water samples shall be handled under chain of custody protocols and relinquished to the laboratory representatives at locations specified by the laboratory.

Quality Control Measures for Sample Testing

(c) The samples testing shall be performed by HOKLAS-accredited laboratories. The following quality control programme shall be performed by the laboratories for each batch of samples:

(i) Method blank;

(ii) Sample duplicate;

(iii) Sample spike; and

(iv) Quality control samples.

(d) Detailed testing methods, pre-treatment procedures, instrument use, QA/QC details (such as blank, spike recovery, number of duplicate samples per batch, etc.), detection limits and accuracy shall be in accordance with the requirement of HOKLAS or international accredited scheme. The laboratories shall provide the QA/QC results in the laboratory analysis report.

Reporting on monitoring data 1AEA8 Monitoring data (in both hard and soft copies) shall be prepared and submitted to the Consultant on a monthly basis. The monitoring data shall be submitted within 1 week of completion of every monitoring. The Contractor shall also submit the monitoring report within 14 days after the completion of every monitoring. The monitoring report shall include, but not be limited to the followings:

- Drawing showing locations of the monitoring stations
- Monitoring results together with the following information:
  - Monitoring methodology
  - Name of the laboratory and types of equipment used and calibration details
  - Parameters monitored
  - Monitoring data, time, frequency and duration
  - Quality assurance/ quality control results and detection limits
- Interpretation of the monitoring results includes but not limit to statistical analysis of the monitoring data, graphic presentation of the trend of monitoring data. Details of influencing factors shall be provided whenever anomalies were found.

α *Sampling locations* 1AEA9

Locations of the designated water sampling monitoring stations are summarised below. The exact locations shall be determined on site by the Consultant's Representative.

Station	Easting	Northing
AC1	838736.55	820147.04
AC2	838807.83	820218.32
AC3	838952.22	819920.71
AC4	839030.88	819988.82
AC5	839214.12	819690.85
AC6	839278.27	819755.00
AC7	839418.24	819545.62
KT1	840260.66	819010.57
KTN	838776.18	820399.67
JVBC	839165.73	819940.86