

Civil Engineering and Development Department

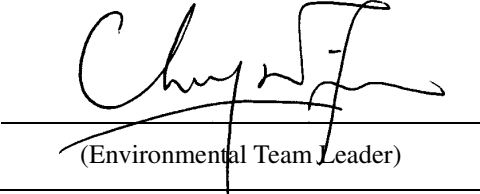
**EP-344/2009 – New Sewage Pumping Stations
Serving KTD**
**EP-337/2009 – New Distributor Roads Serving the
Planned KTD**

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

Monthly EM&A Report

September 2017

(Version 1.0)

Approved By	 (Environmental Team Leader)
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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

CINOTECH CONSULTANTS LTD
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong
Tel: (852) 2151 2083 Fax: (852) 3107 1388
Email: info@cinotech.com.hk

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EXECUTIVE SUMMARY

Introduction

1. This is the 46th Monthly Environmental Monitoring and Audit (EM&A) 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 (DP) Road D2 & Sewage Pumping Station PS2 and PS 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 to 30 September 2017.
2. The major site activities undertaken in the reporting month included:
 - Daily Cleaning
 - Finishing works, E&M work in PS2
 - Water test, backfill and sheet-pile removal in Heading 7A,
 - Chamber construction, DCS pipe installation, backfill and sheet-pile removal, water test, grouting in Heading 7B
 - Backfill and sheet-pile removal, installation of valve in 1L4
 - Road widening work (excavation and UU works) in (Portion 1) Sung Wong Toi Road
 - Maintenance & Servicing Engineer’s office in Portion 9
 - Rising Main installation in Pit2
 - Rising Main installation in Pit 4
 - Install fitting inside chamber in Pit 5
 - Install fitting inside chamber in Pit9
 - Install fitting inside chamber in Pit10
 - Installation of drainage , UU laying works and Road works in Road D2
 - Finishing works and E&M works in NPS
 - UU works and Road Works in Road L19 and Bailey Street
 - Refer construction works of NPS in portion 4 sewerage; and
 - Removal of excavated material in Portion 6

Environmental Monitoring Works

3. 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.
4. Summary of the breaches of action and limit levels in the reporting month for the Project is tabulated in **Table I**.

Table I Breaches of Action and Limit Levels 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

5. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
6. All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
7. For 24-hr TSP monitoring results at AM3(A), all results were adopted from Schedule 3, KLN/2016/09.

Construction Noise Monitoring

8. All construction noise monitoring was conducted as scheduled in the reporting month. No Action and 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 (Waste Producer Number: 5213-286-K2958-05).
11. Water Discharge License (WT00020971-2015).
12. Construction Noise Permit (GW-RE0149-17).

Key Information in the Reporting Month

13. Summary of complaint received, reporting changes and notifications of any summons and successful prosecutions in the reporting month is tabulated in **Table II**.

Table II Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
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:
 - Daily Cleaning
 - Finishing works, E&M work in PS2
 - Water test, backfill and sheet-pile removal in Heading 7A
 - Chamber construction, DCS pipe installation, backfill and sheet-pile removal, water test, grouting in Heading 7B

- Backfill and sheet-pile removal, installation of valve in 1L4
- Road widening work (excavation and UU works) in (Portion 1) Sung Wong Toi Road
- Maintenance & Servicing Engineer's office in Portion 9
- Rising Main installation in Pit2
- Rising Main installation in Pit 4
- Install fitting inside chamber in Pit 5
- Install fitting inside chamber in Pit9
- Install fitting inside chamber in Pit10
- Installation of drainage , UU laying works
- Road works in Road D2
- Finishing works and E&M works in NPS
- UU works and Road Works in Road L19 and Bailey Street
- Refer construction works of NPS in portion 4 sewerage; and
- Removal of excavated material in Portion 6

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. Schedule 2 DPs in this Project include 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 to the Permit Holder Civil Engineering and Development Department on 23 April 2009 for new sewage pumping stations serving the planned KTD and new distributor roads serving the planned KTD respectively.
- 1.3 A study of environmental impact assessment (EIA) was undertaken to identify the key issues of air quality, noise, water quality, waste, land contamination, cultural heritage and landscape and visual impact, and recommend possible mitigation measures associated with the works. The 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) is 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 46th Monthly EM&A report summarizing the EM&A works for the Project from 1 to 30 September 2017.

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) – Arcadis Design & Engineering Limited. (Arcadis).
 - 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. C. K. Choi	Senior Engineer	2301 1174	2301 1277
AECOM	Engineer's Representative	Mr. John Yam	SRE	2798 0771	3013 8864
		Mr. Jacky Pun	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	
Arcadis	Independent Environmental Checker	Mr. Wong Fu Nam	Independent Environmental Checker	2911 2744	2805 5028
Kwan On	Contractor	Mr. Albert Ng	Site Agent	3689 7752	3689 7726
				6146 6761 (Hotline telephone number)	

Construction Activities undertaken during the Reporting Month

1.8 The site activities undertaken in the reporting month included:

- Daily Cleaning
- Finishing works, E&M work in PS2
- Water test, backfill and sheet-pile removal in Heading 7A,
- Chamber construction, DCS pipe installation, backfill and sheet-pile removal, water test, grouting in Heading 7B
- Backfill and sheet-pile removal, installation of valve in 1L4
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- Finishing works and E&M works in NPS
- UU works and Road Works in Road L19 and Bailey Street
- Refer construction works of NPS in portion 4 sewerage; and
- Removal of excavated material in Portion 6

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

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

Construction Works	Generated Major Environmental Impact	Control Measures
Construction of superstructure of Pumping Station PS2 and NPS;	Dust, Water Quality, Waste Management	<ul style="list-style-type: none"> Sufficient watering of the works site with active dust emitting activities; Properly cover the stockpiles; Appropriate desilting/sedimentation devices provided on site for treatment before discharge; Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall; and On-site waste sorting and implementation of trip ticket system.
Backfilling between sewerage manholes 1K1_1 and FMH10_340 and construction of manhole FMH10_370a at L6;	Dust, Noise	<ul style="list-style-type: none"> Use of quiet plant and well-maintained construction plant; and Properly cover the stockpiles;
Installation of precast unit and construction of in-situ portions of Box Culvert B6; Construction of jacking pits nos. 1 and 2; Installation of gas pipe at pit no. 10; Construction of washout chamber at pit no. 11;	Noise, Waste Management	<ul style="list-style-type: none"> Use of quiet plant and well-maintained construction plant; and Provide hoarding. Good management and control on construction waste reduction
Construction of sewerage manhole FMH 10 at Bailey Street; Widening works of Sung Wong Toi Road.	Noise	<ul style="list-style-type: none"> Use of quiet plant and well-maintained construction plant; and Provide hoarding.
Pipe laying from manhole SMH2204 to Box Culvert B6; Laying of rising mains from PS2 to chainage CHA-18; Pipe laying from stormwater manholes SMH1962 to SMH1963 and construction of manholes SMH1953 and SMH1963 at L6; Installation of DCS;	Noise, Water Quality	<ul style="list-style-type: none"> Use of quiet plant and well-maintained construction plant; and Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall.

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 implementation of the EM&A programme for the Project from 1 to 30 September 2017.

- 1.13 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 1.3** (see **Figure 2 and 3** for their locations).

Table 1.3 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	AM2(A) – Ng Wah Catholic Secondary School
AM3 – Sky Tower	No	AM3(A) – Holy Trinity Bradbury Centre
AM4 – Grand Waterfront	No	AM4(A) – EMSD Workshop*
AM5 – CCC Kei To Secondary School	No	N/A^
AM6 – Site 1B4 (Planned)		N/A
Noise Monitoring Stations		
M6 – Holy Carpenter Primary School	No	M6(A) – Oblate Primary School
M7 – CCC Kei To Secondary School	Yes	N/A
M8 – Po Leung Kuk Ngan Po Ling College	Yes	N/A
M9 – Tak Long Estate	Yes	N/A
M10 – Site 1B4 (Planned)		N/A

Remarks:

- “Yes” – Monitoring station is the same as that stated in EM&A Manual
- No – Monitoring station is not the same as that stated in EM&A Manual. Request for carrying monitoring works at the monitoring stations stated in EM&A Manual was rejected by owner of premise. Alternative monitoring stations were proposed by the ET of Schedule 3 EIA and approved by the EPD.
- N/A – No alternative monitoring station is required.
- *AM4(A) – EMSD Workshop was cancelled due to unsuccessful accessibility of the facility. 1-hr TSP monitoring was conducted at AM4(B) – Ma Tau Kok Road (next to EMSD workshop) temporarily and 24-hr TSP monitoring was conducted at AM4(C) – New Pumping Station under Contract No. KL/2012/03.
- ^AM5(A) – Po Leung Kuk Ngan Po Ling College was cancelled because no permission was granted from the premise. Air quality monitoring was carried out at AM5 – CCC Kei To Secondary School.

- 1.14 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, has been conducted in Environmental Monitoring Works for Kai Tak Development under Schedule 3 of KTD, which is on-going starting from December 2010, when the impact monitoring data under Schedule 3 of KTD were adopted for the Project.
- 1.15 Although Contract no. KLN/2013/16 under Schedule 3 of KTD has been superseded by KLN/2016/09 since early March 2017, the ET continued to adopt the impact monitoring data under Schedule 3 of KTD until appropriate new arrangement is agreed. The KLN/2016/09 impact environmental monitoring schedule is shown in **Appendix D**.

Status of Compliance with Environmental Permits Conditions

1.16 The status of required submission related to this Project under the Environmental Permits No. EP-337/2009 and EP-344/2009 is summarized in the **Table 1.4** and **Table 1.5** respectively:

Table 1.4 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	Four hard copies and one electronic copy of the Monthly EM&A Report No. 45 (August 2017)	14 September 2017	Monthly EM&A Report for Contract No. KL/2012/03

Table 1.5 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 PS 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 PS NPS
2.11	Landscape Mitigation Plan(s) for sewage pumping station(s)	7 January 2014	For Pumping Station PS2 and PS 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	Four hard copies and one electronic copy of the Monthly EM&A Report No. 45 (August 2017)	14 September 2017	Monthly EM&A Report for Contract No. KL/2012/03

1. AIR QUALITY

Monitoring Requirements

- 2.1 According to EM&A Manual under the Eps, 1-hour and 24-hour Total Suspended Particulates (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(C) and AM5). **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
AM2(A)	Ng Wah Catholic Secondary School	Rooftop (about 8/F) Area
AM3(A)	Holy Trinity Bradbury Centre	Rooftop (about 8/F) Area
AM4(C)	New Pumping Station	Rooftop (about 6/F) Area
AM5	CCC Kei To Secondary School	Rooftop (about 10/F) Area
#AM6	PA 15	Site 1B4 (Planned)

Remarks: # The impact monitoring at these locations will only be carried out until the sensitive receivers at the building are resided.

Monitoring Equipment

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

Table 2.2 Air Quality Monitoring Equipment

Equipment	Model and Make	Quantity
Calibrator	TE-2025A	2
1-hour TSP Dust Meter	TSI Model AM510 SidePak Personal Aerosol Monitor	3
	Laser Dust Monitor – Model LD-3, LD-3B/	7

	Hal-HPC300/ 301	
HVS Sampler	GMWS 2310 c/w of TSP sampling inlet	3
	TE-5170X	7
Wind Anemometer	Davis Weather Monitor, Vantage Pro2	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	At least three times every 6 days
24-hr TSP	At least once every 6 days

Monitoring Methodology and Quality Assurance and Quality Control (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 High-Volume Sampler (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 samplers (HVS) (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 24-hour TSP sampling, the flow rate of the high volume sampler was properly set (between 1.1 m³/min. and 1.4 m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.
- 2.10 For 24-hour TSP sampling, fiberglass filters having a collection efficiency of $\geq 99\%$ for particles of 0.3 μ m (DOP) 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 so that the TSP will be sampled for 24 hours. 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 completion of sampling, the filter was removed and sent to Wellab Ltd., which is accredited under HOKLAS for laboratory analysis. The elapsed time was also recorded.
- 2.17 Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning temperature should be between 25°C and 30°C and not vary by more than $\pm 3^\circ\text{C}$; the relative humidity (RH) should be $< 50\%$ and not vary by more than $\pm 5\%$. 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.
 - Orifice Transfer Standards were calibrated at yearly intervals throughout all stages of the air quality monitoring.

Results, Observations and Action/Limit Level Exceedance

- 2.19 All other 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 2.20 All other 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 2.21 For 24-hr TSP monitoring results at AM3(A), all results were adopted from Schedule 3, KLN/2016/09.
- 2.22 This weather information for the reporting month is summarized in **Appendix C**.
- 2.23 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendices E and F** respectively.
- 2.24 The summary of exceedance record in the reporting month is shown in **Appendix H**. No exceedance in Action/Limit Levels of 1-hour and 24-hour TSP was recorded for the air quality monitoring.
- 2.25 According to our field observations, the major dust source identified at the designated air quality monitoring stations is as follows:

Table 2.4 Major dust source identified at the designated air quality monitoring stations

Station	Major Dust Source
AM2 – Lee Kau Yan Memorial School	Road Traffic Dust Exposed site area and open stockpiles Site vehicle movement
AM2(A) – Ng Wah Catholic Secondary School	Road Traffic Dust Exposed site area and open stockpiles Excavation works Site vehicle movement
AM3(A) – Holy Trinity Bradbury Centre	Road Traffic Dust Exposed site area Excavation works Site vehicle movement
AM4(C) – New Pumping Station under Contract No. KL/2012/03	Site vehicle movement
AM5 – CCC Kei To Secondary School	Road Traffic Dust

2. 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 to 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 four designated monitoring stations (M6, M7, M8 and M9). **Figure 3** shows the locations of these stations.
- 3.3 Construction noise monitoring at Station M6 – Holy Carpenter Primary School was rejected by the premise owner on 6th October 2014. The monitoring station has been relocated at a proposed alternative noise monitoring station M6(A) – Oblate Primary School since 10th October 2014 to carry out the monitoring works.

Table 3.1 Noise Monitoring Stations

Monitoring Stations	Locations	Location of Measurement
*M6(A)	Oblate 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	Tak Long Estate	Car Park Building (about 2/F)
#M10	Site 1B4 (Planned)	-

Remarks:

* Alternative noise monitoring station for M6 – Holy Carpenter Primary School from 10th October 2014 onwards

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

Monitoring Equipment

- 3.4 **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	3
Calibrator	SVAN 30A & B&K4231	3

Monitoring Parameters, Frequency and Duration

- 3.5 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	Type of Measurement
M7 M8 M9	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 (*)
M6(A)	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	Free Field (*)

(*) Refer to bullet point 1 and 2 in the following section.

Monitoring Methodology and QA/QC Procedures

- The Sound Level Meter was set on a tripod at a point 1m from the exterior of the sensitive receivers building façade and be at a position 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces. All records for free field noise levels was adjusted with a correction of +3 dB(A).
- 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}, L₉₀ and L₁₀ 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

- 3.6 The microphone head of the sound level meter and calibrator was cleaned with a soft cloth at quarterly intervals.
- 3.7 The sound level meter and calibrator were checked and calibrated at yearly intervals.
- 3.8 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, Observations and Action/Limit Level Exceedance

- 3.9 All construction noise monitoring was conducted as scheduled in the reporting month. No Action and Limit Level exceedance was recorded.
- 3.10 The baseline noise level and the Noise Limit Level at each designated noise monitoring station are presented in **Table 3.4**.
- 3.11 Noise monitoring results and graphical presentations are shown in **Appendix G**.
- 3.12 The major noise source identified at the designated noise monitoring stations is as follows:

Table 3.4 Major noise source identified at the designated noise monitoring stations

Monitoring Stations	Locations	Major Noise Source
M6(A)	Oblate 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/14(K)) facing Po Leung Kuk Ngan Po Ling College
M9	Tak Long Estate	Road paving and asphalt paving works

Table 3.5 Baseline noise level and noise limit level for monitoring stations

Monitoring Stations	Baseline Noise Level, dB (A)	Noise Limit Level, dB (A)
M6(A)	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)	
M9	59.0 (at 0700 – 1900 hrs on normal weekdays)	75 (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 According to Section 16.1.6 (vi) of the EM&A Manual, the EM&A data were compared with the EIA predictions as summarized in **Table 4.1** to **4.3** below.

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 (September 2017), µg/m3	
			Average	Range
AM2 – Lee Kau Yan Memorial School	290	312	138.9	61.0 – 186.6
AM3(A) - Holy Trinity Bradbury Centre (Alternative station for Sky Tower)	217	247	128.7	64.1 – 192.5
AM4(C) – New Pumping Station	N/A	N/A	118.9	30.2 – 297.8
AM5– CCC Kei To Secondary School	159	221	107.7	20.1 – 206.5

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 (September 2017), µg/m3	
			Average	Range
AM2(A) – Ng Wah Catholic Secondary School (Alternative station for Lee Kau Yan Memorial School)	145	169	67.4	39.1 – 96.1
AM3(A) - Holy Trinity Bradbury Centre (Alternative station for Sky Tower)	106	138	69.0	37.0 – 112.0
AM4(C) – New Pumping Station	N/A	N/A	45.7	16.8 – 94.6
AM5 – CCC Kei To Secondary School	103	128	27.4	13.5 – 37.2

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 (September 2017), $L_{eq(30min)}$ dB(A)
M6(A) - Oblate Primary School ^	N/A	52.4 – 61.3
M7 - CCC Kei To Secondary School	45 – 68	60.4 – 68.5
M8 - Po Leung Kuk Ngan Po Ling College	44 – 70	57.3 – 68.8
M9 – Tak Long Estate	Not predicted in EIA Report	58.8 – 62.0

(^) Alternative noise monitoring station for M6 – Holy Carpenter Primary School from 10th October 2014 onwards.

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

5. LANDSCAPE AND 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 activities during the construction period on a weekly basis, and to report on the contractor's performance.

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 In accordance with the Action Plan presented in **Appendix J**, no corrective actions were required in the reporting month.

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 1, 8, 15, 20 and 29 September 2017 in the reporting month. IEC site inspection was conducted on 20 September 2017. No non-compliance was observed during the site audits.

Status of Environmental Licensing and Permitting

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

Table 6.1 Summary of Environmental Licensing and Permit Status

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				
WT00020971-2015	22/04/15	21/04/20	Discharge Licence for the discharge of wastewater from the construction site including contaminated surface run-off to the communal storm water drain	Valid
Registration of Chemical Waste Producer				
5213-286-K2958-05	--	--	Registration of chemical waste producer for chemical waste produced during construction of Stage 4 at former North Apron Area Infrastructure.	Valid
Construction Noise Permit				
GW-RE0149-17	29/03/17	28/09/17	Location: Heading 7A & 7B	Expired

Status of Waste Management

- 6.4 The amount of wastes generated by the major site activities of this Project during the reporting month is shown in **Appendix M**.
- 6.5 In respect of the dump truck cover, the Contractor is advised to take record photos and inspection to ensure that the skips of all dump trucks have been fully covered before leaving the site.

Implementation Status of Environmental Mitigation Measures

- 6.6 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 for EP-337/2009

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	20 September 2017	<u>Reminder:</u> Sandbag bund should be provided to gullies to avoid groundwater discharge.	Groundwater was treated in sedimentation tank before discharge on 29 Sep 2017.
	29 September 2017	<u>Reminder:</u> Ponding water near Site Office should be properly cleared.	Follow up actions will be reported in the next month.
<i>Air Quality</i>	25 August 2017	<u>Reminder:</u> Water spraying should be provided more frequently for dust suppression.	Haul road was observed wet on 1 Sep 2017.
	20 September 2017	<u>Reminder:</u> Haul road and unpaved road were observed dry. The contractor was reminded to provide water spraying to haul road and unpaved road for dust suppression.	Haul road was provided with water spraying on 29 Sep 2017.
	29 September 2017	<u>Reminder:</u> Stockpiles near Site Office should be covered with impervious sheets to prevent dust generation.	Follow up actions will be reported in the next month.
<i>Noise</i>	--	--	--
<i>Waste/Chemical Management</i>	15 September 2017	<u>Reminder:</u> Drip tray should be provided to chemical containers near Site Office.	Drip tray was provided on 20 Sep 2017.
<i>Landscape and Visual</i>	--	--	--
<i>Permits /Licences</i>	--	--	--

Table 6.3 Observations and Recommendations of Site Inspections for EP-344/2009

Parameters	Date	Observations and Recommendations	Follow-up
------------	------	----------------------------------	-----------

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	8 September 2017	<u>Reminder:</u> Ponding water near NPS should be cleared.	Ponding water was observed cleared on 15 Sep 2017.
<i>Air Quality</i>	--	--	--
<i>Noise</i>	--	--	--
<i>Waste/Chemical Management</i>	1 September 2017	<u>Reminder:</u> Drip tray should be provided to chemical containers near NPS.	Chemical containers were removed on 8 Sep 2017.
	1 September 2017	<u>Reminder:</u> Housekeeping near NPS should be improved and accumulation of general refuse should be avoided.	Accumulation of waste was not observed near NPS on 8 Sep 2017.
	29 September 2017	<u>Reminder:</u> Drip tray should be provided to chemical containers near NPS.	Follow up actions will be reported in the next month.
<i>Landscape and Visual</i>	--	--	--
<i>Permits /Licences</i>	--	--	--

Summary of Mitigation Measures Implemented

6.7 The monthly IEC audit was carried out on 20 September 2017, the observations were recorded and they are presented as follows:

Follow up of last monthly audit:

- No follow-up actions are needed for the last monthly audit.

Observation(s) in the reporting month:

- Excessive waste was observed at the entrance of site office. Regular removal to appropriate disposal sites is required.

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

Implementation Status of Event Action Plans

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

1-hr TSP Monitoring

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

24-hr TSP Monitoring

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

Construction Noise

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

Landscape and visual

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

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

6.14 No environmental complaint and environmental prosecution was received in the reporting month. The summaries of environmental complaint, warning, summon and notification of successful prosecution for the Project are presented in **Appendix L**.

7. FUTURE KEY ISSUES

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

- Daily Cleaning
- Finishing works, E&M work in PS2
- Water test, backfill and sheet-pile removal in Heading 7A
- Chamber construction, DCS pipe installation, backfill and sheet-pile removal, water test, grouting in Heading 7B
- Backfill and sheet-pile removal, installation of valve in 1L4
- Road widening work (excavation and UU works) in (Portion 1)Sung Wong Toi Road
- Maintenance & Servicing Engineer's office in Portion 9
- Rising Main installation in Pit2
- Rising Main installation in Pit 4
- Install fitting inside chamber in Pit 5
- Install fitting inside chamber in Pit9
- Install fitting inside chamber in Pit10
- Installation of drainage , UU laying works and
- Road works in Road D2
- Finishing works and E&M works in NPS
- UU works and Road Works in Road L19 and Bailey Street
- Refer construction works of NPS in portion 4 sewerage; and
- Removal of excavated material in Portion 6

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:

1. Dust generation from stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
2. Water spraying for dust generating activity and on haul road;
3. Proper storage of construction materials on site;
4. Storage of chemicals/fuel and chemical waste/waste oil on site;
5. Accumulation of general and construction waste on site;
6. Noise from operation of the equipment, especially for rock-breaking activities, piling works and machinery on-site; and
7. 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 environmental mitigation measures for the coming two months, i.e. October and November 2017 are summarized as follows:

Table 7.1 Summary of the tentative program of major site activities, the impact prediction and control measures for October and November 2017

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 site boundary bund 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 required under the EM&A Manual were performed in the reporting month and all monitoring results were checked and reviewed.

1-hr TSP Monitoring

- 8.2 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. 1-hour TSP concentrations in all stations in the reporting month were below the prediction in the approved Environmental Impact Assessment (EIA) Report.

24-hr TSP Monitoring

- 8.3 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. 24-hour TSP concentrations in all stations in the reporting month were below the prediction in the approved Environmental Impact Assessment (EIA) Report

Construction Noise Monitoring

- 8.4 All construction noise monitoring was conducted as scheduled in the reporting month. No Action and Limit Level exceedance was recorded. The construction noise levels in all stations in the reporting month were within the range of predicted mitigated construction noise levels in the approved Environmental Impact Assessment (EIA) report.

Complaints, Notification of any Summons and Prosecution Received

- 8.5 No environmental complaint and environmental prosecution was received in the reporting month. The summaries of environmental complaint, warning, summon and notification of successful prosecution for the Project are presented in **Appendix L**.

Recommendations

- 8.6 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 disperse the locations of noisy equipments and position the equipments 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.

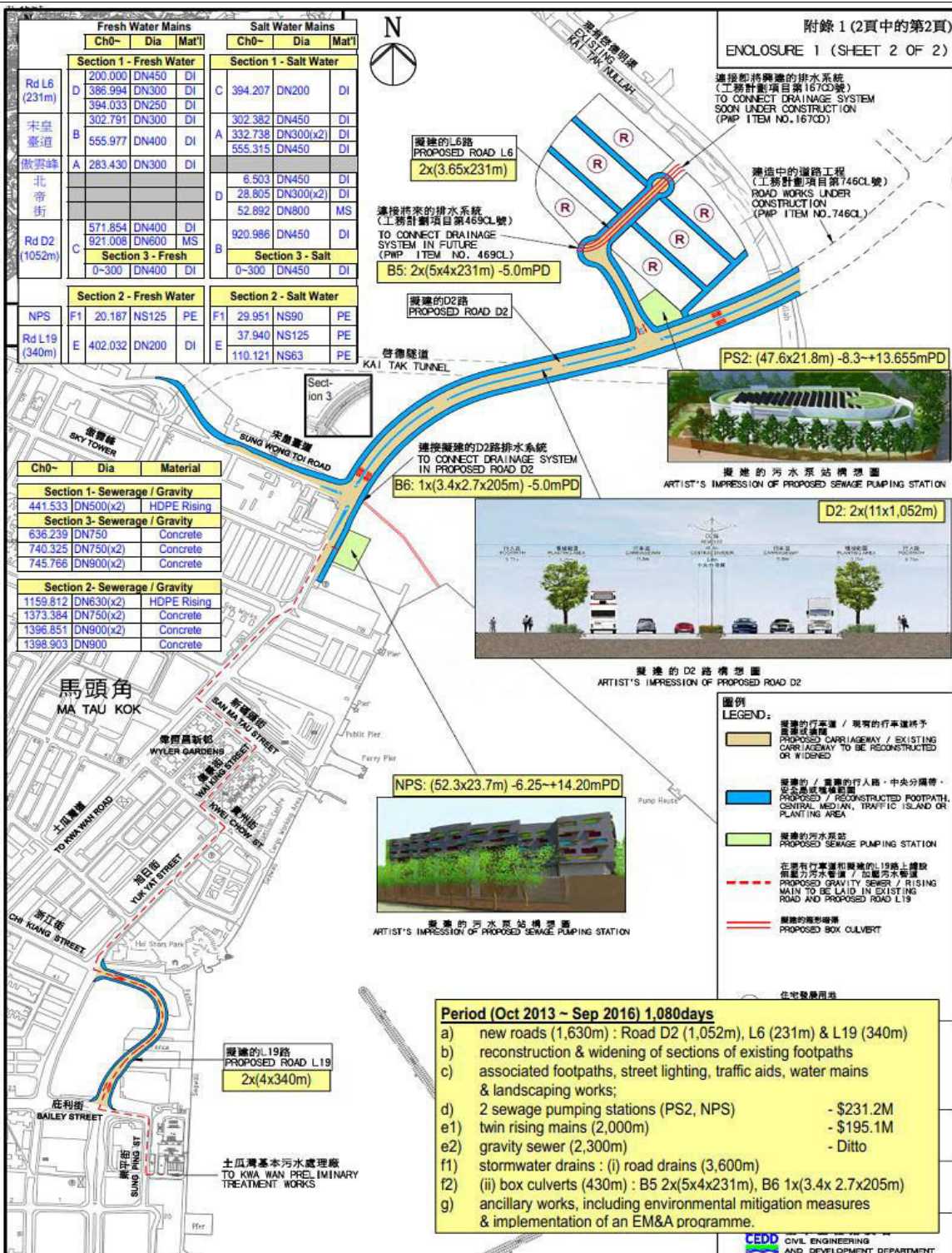
Effectiveness of Environmental Management

- 8.7 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**.
- 8.8 The effectiveness of environmental management is satisfactory as the above recommendations are met. Some of the examples of mitigation measures for the following recommendations are given in **Table 8.1** below.
- Surface runoff discharge into any stream course is prevented;
 - Provision of sedimentation facilities after identification of wastewater discharges from site;
 - Discharge or accidental spillage of chemical waste or oil directly from the site is avoided;
 - Improper handling or storage of oil drum on site is avoided;
 - The existing trees to be retained are protected; and
 - Night-time lighting is controlled.

Table 8.1 Examples of Mitigation Measures for Environmental Recommendations

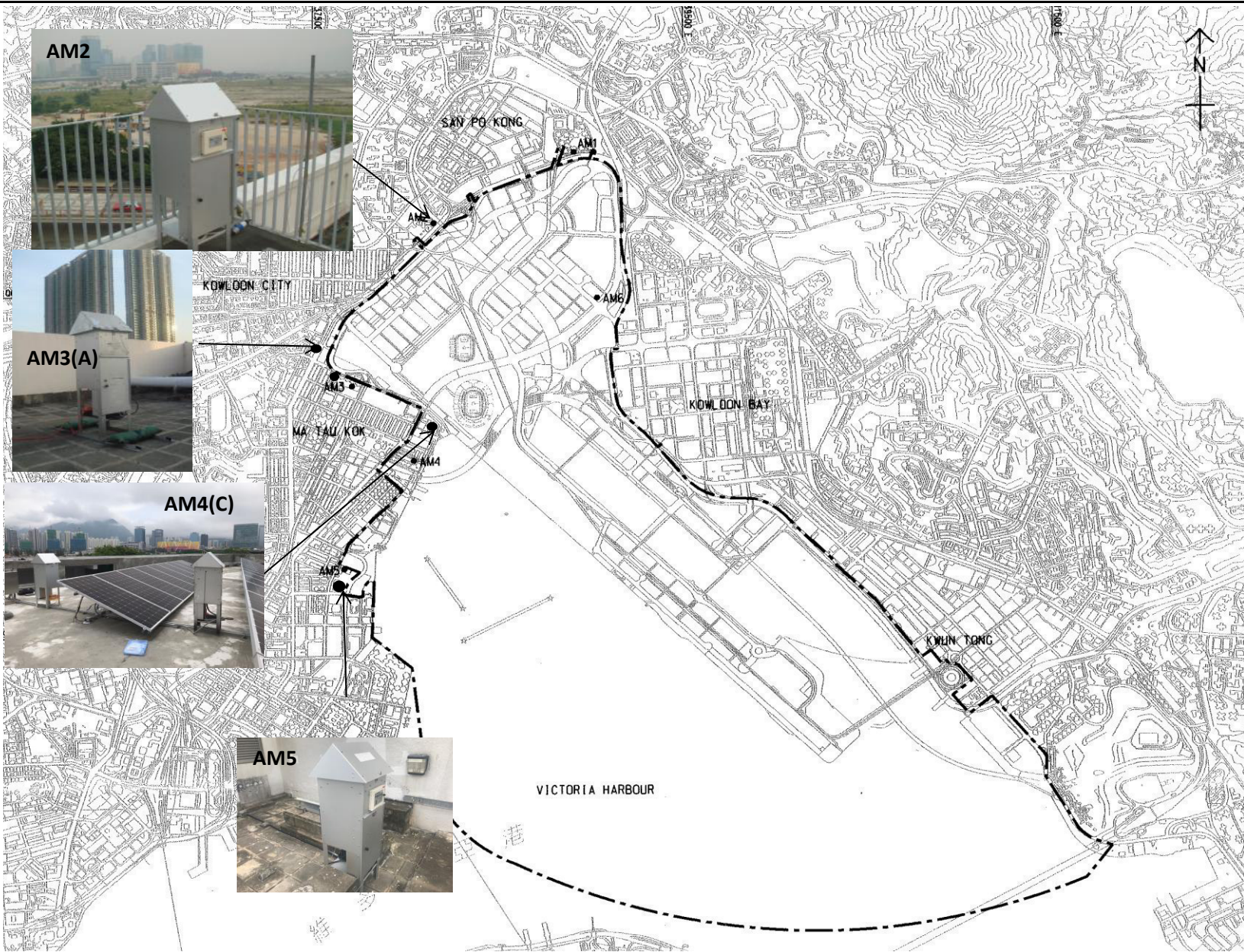
	
<p>To prevent any surface runoff discharge into any stream course.</p>	<p>Follow-up measure(s) after identification of wastewater discharges from site.</p>
	
<p>To avoid any discharge or accidental spillage of chemical waste or oil directly from the site</p>	<p>To avoid improper handling or storage of oil drum on site</p>
	 <p style="text-align: right; color: red;">20/9/2017</p>
<p>To protect the existing trees to be retained</p>	<p>To control of night-time lighting</p>

FIGURES



附錄 1 (2頁中的第2頁)
ENCLOSURE 1 (SHEET 2 OF 2)

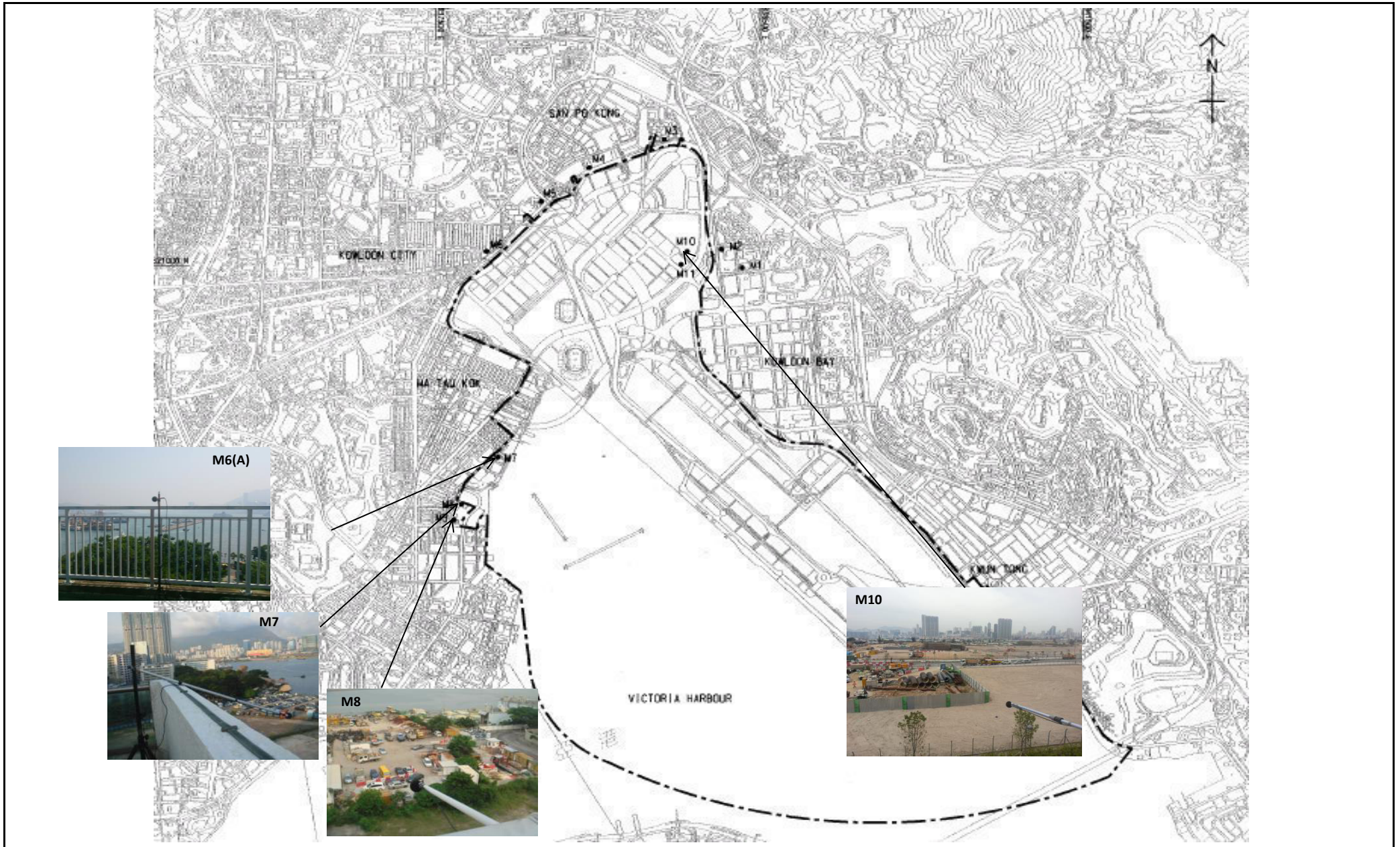
Title	KL/2012/03 - Kai Tak Development - Stage 4 Infrastructure at Former North Apron Area	Scale	N.T.S	Project No.	MA13056	CINOTECH
	Site Layout Plan		Date		Sep-13	



Title Contract No. KL/2012/03
 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area
 Air Quality Monitoring Stations under this Project

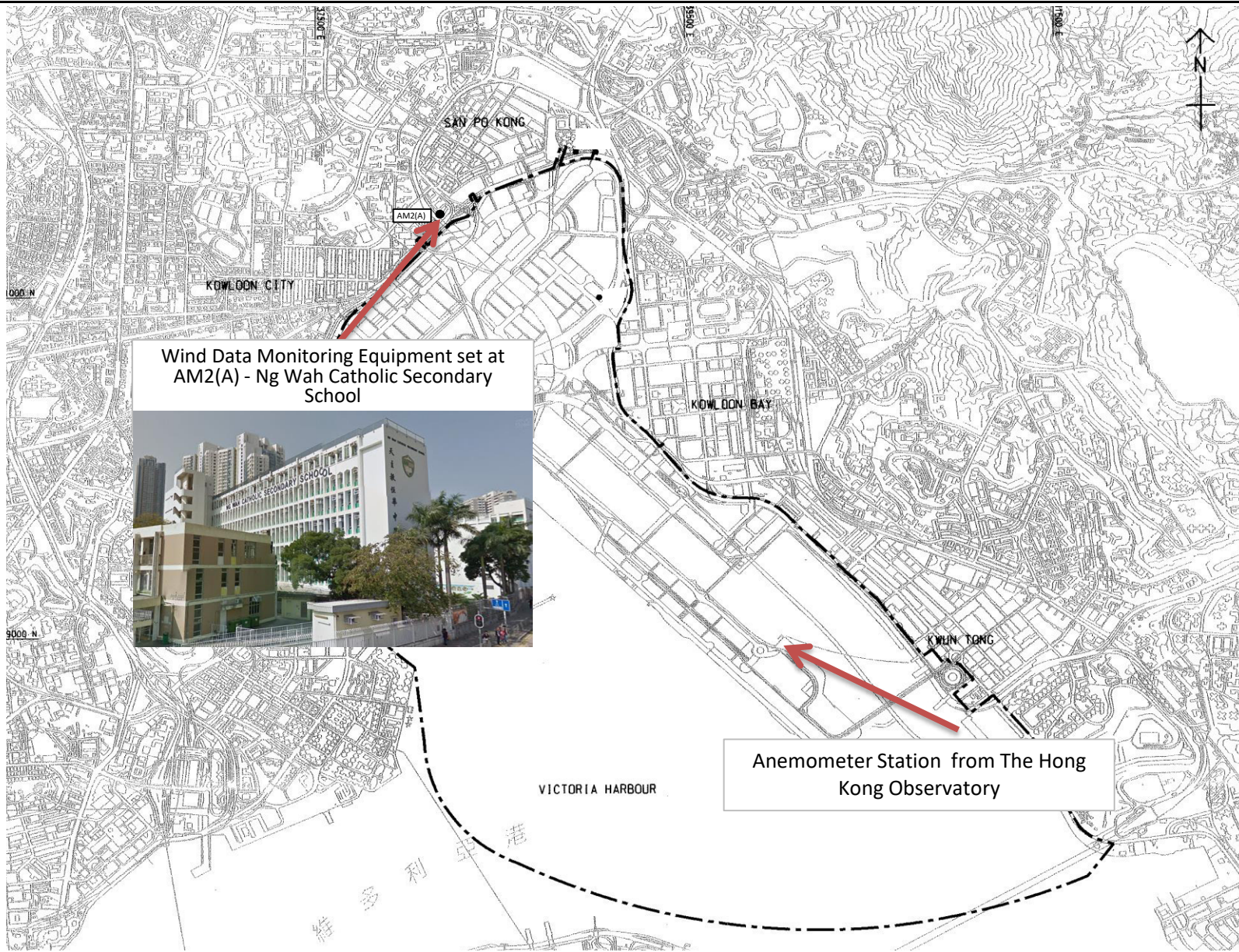
Scale	N.T.S	Project No.	MA13056
Date	Apr-17	Figure	2





Title	Contract No. KL/2012/03		Scale	Project
	Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area		N.T.S	No. MA13056
	Noise Monitoring Stations under this Project		Date	Figure
			Dec-16	3





Wind Data Monitoring Equipment set at AM2(A) - Ng Wah Catholic Secondary School



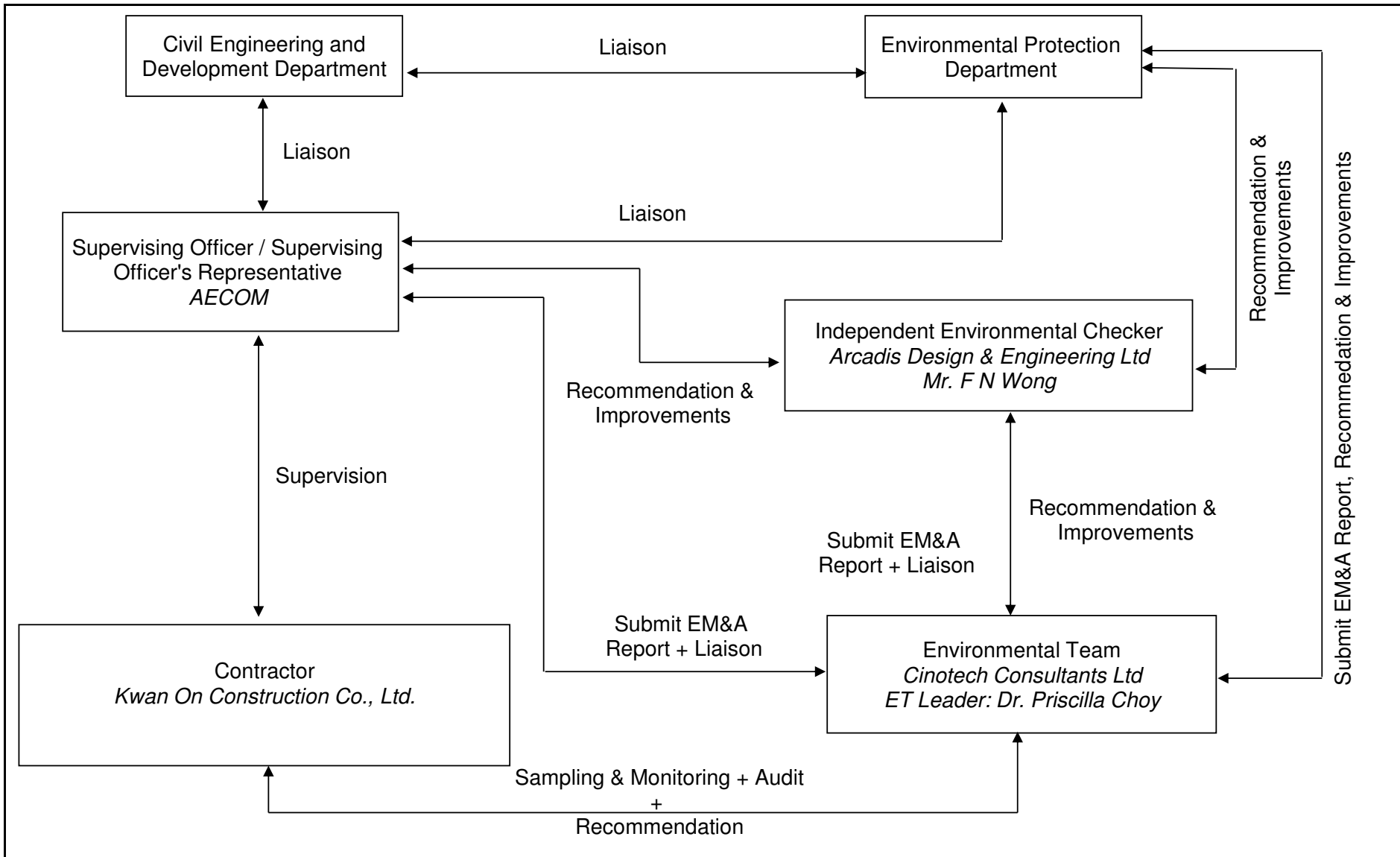
Anemometer Station from The Hong Kong Observatory

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
Date	Aug-17	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	Dec-16	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, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
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, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
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
CERTIFICATES**

TEST REPORT

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

Test Report No.:	C/170901
Date of Issue:	2017-09-04
Date Received:	2017-09-01
Date Tested:	2017-09-01
Date Completed:	2017-09-04
Next Due Date:	2017-11-03

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	: 22 degree Celsius
Relative Humidity	: 65 %

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)	0.0036
-------------------------	--------

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/170818
Date of Issue:	2017-08-21
Date Received:	2017-08-18
Date Tested:	2017-08-18
Date Completed:	2017-08-21
Next Due Date:	2017-10-20

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC300
Serial No.	: 3020408
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-26-01

Test Conditions:

Room Temperature	: 21 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 Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.119
-------------------------	-------

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/170811
Date of Issue:	2017-08-14
Date Received:	2017-08-11
Date Tested:	2017-08-11
Date Completed:	2017-08-14
Next Due Date:	2017-10-13

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC301
Serial No.	: 3011701019
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-01

Test Conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 64 %

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 Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.116
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PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/170811C
Date of Issue:	2017-08-14
Date Received:	2017-08-11
Date Tested:	2017-08-11
Date Completed:	2017-08-14
Next Due Date:	2017-10-13

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC301
Serial No.	: 3011701017
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-04

Test Conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 64 %

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 Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.181
-------------------------	-------

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/170811F
Date of Issue:	2017-08-14
Date Received:	2017-08-11
Date Tested:	2017-08-11
Date Completed:	2017-08-14
Next Due Date:	2017-10-13

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC301
Serial No.	: 3011701012
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-07

Test Conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 64 %

Test Specifications & Methodology:

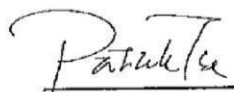
1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and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

Results:

Correlation Factor (CF)	1.184
-------------------------	-------

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/170811H
Date of Issue:	2017-08-14
Date Received:	2017-08-11
Date Tested:	2017-08-11
Date Completed:	2017-08-14
Next Due Date:	2017-10-13

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC301
Serial No.	: 3011701015
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-09

Test Conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 64 %

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 Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.095
-------------------------	-------

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/170811J
Date of Issue:	2017-08-14
Date Received:	2017-08-11
Date Tested:	2017-08-11
Date Completed:	2017-08-14
Next Due Date:	2017-10-13

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC301
Serial No.	: 3011701010
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-10

Test Conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 64 %

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 Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.100
-------------------------	-------

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/160917B
Date of Issue:	2016-09-19
Date Received:	2016-09-17
Date Tested:	2016-09-17
Date Completed:	2016-09-19
Next Due Date:	2017-09-18

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 Temperature	: 24 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
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/170825
Date of Issue:	2017-08-28
Date Received:	2017-08-25
Date Tested:	2017-08-25
Date Completed:	2017-08-28
Next Due Date:	2018-08-27

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 60 %

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/170818A
Date of Issue:	2017-08-21
Date Received:	2017-08-18
Date Tested:	2017-08-18
Date Completed:	2017-08-21
Next Due Date:	2018-08-20

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 957
Serial No.	: 21460
Microphone No.	: 43679
Equipment No.	: N-08-09

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 61 %

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

TEST REPORT

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

Test Report No.:	C/N/161128
Date of Issue:	2016-11-30
Date Received:	2016-11-28
Date Tested:	2016-11-28
Date Completed:	2016-11-30
Next Due Date:	2017-11-29

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 66%

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

TEST REPORT

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

Test Report No.:	C/N/161128B
Date of Issue:	2016-11-30
Date Received:	2016-11-28
Date Tested:	2016-11-28
Date Completed:	2016-11-30
Next Due Date:	2017-11-29

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 23851
Microphone No.	: 48532
Equipment No.	: N-08-12

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 66%

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

TEST REPORT

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

Test Report No.:	C/N/160930A
Date of Issue:	2016-10-03
Date Received:	2016-09-30
Date Tested:	2016-09-30
Date Completed:	2016-10-03
Next Due Date:	2017-10-02

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

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

Test conditions:

Room Temperature	: 25 degree Celsius
Relative Humidity	: 60%

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

TEST REPORT

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

Test Report No.:	C/N/160930B
Date of Issue:	2016-10-03
Date Received:	2016-09-30
Date Tested:	2016-09-30
Date Completed:	2016-10-03
Next Due Date:	2017-10-02

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

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

Test conditions:

Room Temperature	: 25 degree Celsius
Relative Humidity	: 60%

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.**


RATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/161104/1
Date of Issue:	2016-11-07
Date Received:	2016-11-04
Date Tested:	2016-11-04
Date Completed:	2016-11-07
Next Due Date:	2017-11-06

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

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

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 62 %

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

Calibration Certificate for High Volume Sampler (HVS)

CASTCO CASTCO TESTING CENTRE LTD.

Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder & manometer on bottom)

Calibration curve ref. No.: ATSPC-01-2017090701 Date of calibration: 07/09/2017

Location: Contractor's site office of contract KL/2015/03 Sampler: TE-5170 X

Calibration Data

Ambient barometric pressure, Pa = 759 (mmHg) Ambient temperature, Ta = 303 (deg K)

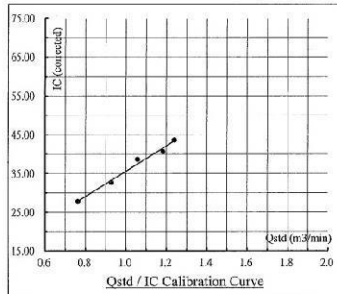
Qstd Slope, m = 2.0736 Qstd Intercept, b = -0.042800

Calibration Curve

Plate No.	H ₂ O (in)	Qstd (m ³ /min)	I (chart)	IC (corrected)	FLOW (mano)	FLOW (corrected)
18	6.50	1.239	44.0	43.61	6.50	2.53
13	5.90	1.182	41.0	40.63	5.30	2.28
10	4.70	1.057	39.0	38.65	4.00	1.98
7	3.60	0.927	33.0	32.71	2.40	1.54
5	2.40	0.761	28.0	27.75	1.40	1.17

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Q_{std} = 1/m [I] \{ \text{Sqrt} [(Pa / 760) (298 / Ta)] \} - b$	32.660	2.9252	0.9922



Calibration curve requirements: (A). $r > 0.990$; (B). At least 3 Qstd numbers are in the TSP range (1.1 - 1.7 m³/min).

Remark: $Q_{std} (m^3/min) = 1/m [\text{Sqrt} (H_2O (Pa / 760) (298 / Ta)) - b]$

$IC (corrected) = I [\text{Sqrt} ((Pa / 760) (298 / Ta))]$

$FLOW (corrected) = \text{Sqrt} (FLOW (mano) (Pa / 760) (298 / Ta))$

Calibrated by: [Signature]

Checked by: [Signature]

Name: (Chan Kwik Ho)

Name: (Leung Miu Teng)

Form No. ENV CAL SAMPLER CCI 01/2/122903

Next Calibration Date: 07-Mar-2018

CASTCO CASTCO TESTING CENTRE LTD.

Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder & manometer on bottom)

Calibration curve ref. No.: ATSPC-01-2017090702 Date of calibration: 07/09/2017

Location: Lee Kau Yen Memorial School Sampler: TE 5170 X

Calibration Data

Ambient barometric pressure, Pa = 759 (mmHg) Ambient temperature, Ta = 303 (deg K)

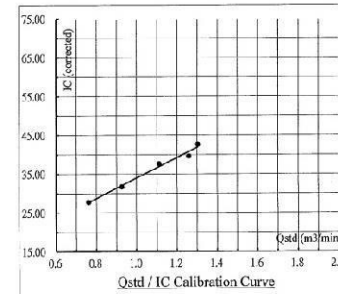
Qstd Slope, m = 2.0736 Qstd Intercept, b = -0.042800

Calibration Curve

Plate No.	H ₂ O (in)	Qstd (m ³ /min)	I (chart)	IC (corrected)	FLOW (mano)	FLOW (corrected)
18	7.20	1.303	43.0	42.62	6.50	2.53
13	6.70	1.258	40.0	39.64	5.30	2.28
10	5.20	1.110	38.0	37.66	4.00	1.98
7	3.60	0.927	32.0	31.71	2.40	1.54
5	2.40	0.761	28.0	27.75	1.40	1.17

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Q_{std} = 1/m [I] \{ \text{Sqrt} [(Pa / 760) (298 / Ta)] \} - b$	26.344	7.6408	0.9915



Calibration curve requirements: (A). $r > 0.990$; (B). At least 3 Qstd numbers are in the TSP range (1.1 - 1.7 m³/min).

Remark: $Q_{std} (m^3/min) = 1/m [\text{Sqrt} (H_2O (Pa / 760) (298 / Ta)) - b]$

$IC (corrected) = I [\text{Sqrt} ((Pa / 760) (298 / Ta))]$

$FLOW (corrected) = \text{Sqrt} (FLOW (mano) (Pa / 760) (298 / Ta))$

Calibrated by: [Signature]

Checked by: [Signature]

Name: (Chan Kwik Ho)

Name: (Leung Miu Teng)

Form No. ENV CAL SAMPLER CCI 01/2/122903

Next Calibration Date: 07-Mar-2018

Calibration Certificate for High Volume Sampler (HVS)

CASTCO CASTCO TESTING CENTRE LTD.

Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder & manometer on bottom)

Calibration curve ref. No.: ATSPC-01-2017090703 Date of calibration: 07/09/2017

Location: Holy Trinity Barchbury Centre Sampler: TE-5170 X

Calibration Data

Ambient barometric pressure, Pa = 759 (mmHg) Ambient temperature, Ta = 303 (deg K)

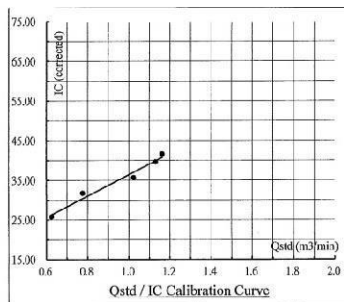
Qstd Slope, m = 2.0736 Qstd Intercept, b = -0.042800

Calibration Curve

Plate No.	H ₂ O (in)	Qstd (m ³ /min)	I (chart)	IC (corrected)	FLOW (mano)	FLOW (corrected)
18	5.70	1.162	42.0	41.62	6.50	2.53
13	5.40	1.131	40.0	39.64	5.30	2.28
10	4.40	1.023	36.0	35.68	4.00	1.98
7	2.50	0.776	32.0	31.71	2.40	1.54
5	1.60	0.625	26.0	25.77	1.40	1.17

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Q_{std} = 1/m [I (1 + \sqrt{ ((Pa / 760) (298 / Ta)) }) - b]$	26.799	9.6023	0.9854



Calibration curve requirements: (A). $r > 0.990$; (B). At least 5 Qstd numbers are in the TSP range (1.1 - 1.7 m³/min).

Remark: $Q_{std} (m^3/min) = 1/m [\text{Sqrt} (H_2O (Pa / 760) (298 / Ta)) - b]$.

$IC (corrected) = I [\text{Sqrt} ((Pa / 760) (298 / Ta))]$.

$FLOW (corrected) = \text{Sqrt} (FLOW (mano) (Pa / 760) (298 / Ta))$.

Calibrated by: [Signature]
Name: (Chau Kwok Ho)

Checked by: [Signature]
Name: (Leung Mrs Tung)

Form No. ENV CAL SAMPLER CCI 4412/22903

Next Calibration Date: 07-Mar-2018

CASTCO CASTCO TESTING CENTRE LTD.

Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder & manometer on bottom)

Calibration curve ref. No.: ATSPC-01-2017090704 Date of calibration: 07/09/2017

Location: NFS Pump Room Sampler: TE-5170 X

Calibration Data

Ambient barometric pressure, Pa = 759 (mmHg) Ambient temperature, Ta = 303 (deg K)

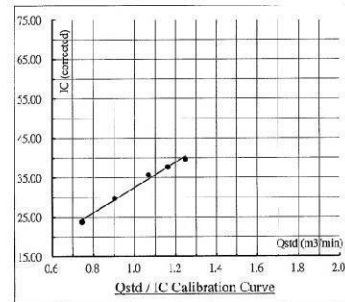
Qstd Slope, m = 2.0736 Qstd Intercept, b = -0.042800

Calibration Curve

Plate No.	H ₂ O (in)	Qstd (m ³ /min)	I (chart)	IC (corrected)	FLOW (mano)	FLOW (corrected)
18	6.60	1.248	40.0	39.64	6.50	2.53
13	5.70	1.162	38.0	37.66	5.30	2.28
10	4.80	1.068	36.0	35.68	4.00	1.98
7	3.40	0.902	30.0	29.73	2.40	1.54
5	2.30	0.745	24.0	23.79	1.40	1.17

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Q_{std} = 1/m [I (1 + \sqrt{ ((Pa / 760) (298 / Ta)) }) - b]$	31.825	0.6791	0.9958



Calibration curve requirements: (A). $r > 0.990$; (B). At least 3 Qstd numbers are in the TSP range (1.1 - 1.7 m³/min).

Remark: $Q_{std} (m^3/min) = 1/m [\text{Sqrt} (H_2O (Pa / 760) (298 / Ta)) - b]$.

$IC (corrected) = I [\text{Sqrt} ((Pa / 760) (298 / Ta))]$.

$FLOW (corrected) = \text{Sqrt} (FLOW (mano) (Pa / 760) (298 / Ta))$.

Calibrated by: [Signature]
Name: (Chau Kwok Ho)

Checked by: [Signature]
Name: (Leung Mrs Tung)

Form No. ENV CAL SAMPLER CCI 4412/22903

Next Calibration Date: 07-Mar-2018

Calibration Certificate for High Volume Sampler (HVS)

CASTCO CASTCO TESTING CENTRE LTD.

Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder & manometer on bottom)

Calibration curve ref. No. : ATSPC-01-2017050705 Date of calibration : 07/09/2017

Location : CCC Kei To Secondary School Sampler : TE-5170 X

Calibration Data

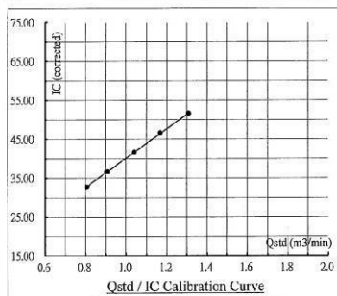
Ambient barometric pressure, Pa = 759 (mmHg) Ambient temperature, Ta = 303 (deg K)
Qstd Slope, m = 2.0736 Qstd Intercept, b = -0.042800

Calibration Curve

Plate No.	H ₂ O (in)	Qstd (m ³ /min)	I (chart)	IC (corrected)	FLOW (mano)	FLOW (corrected)
18	7.25	1.308	52.0	51.54	6.50	2.53
13	5.75	1.167	47.0	46.58	5.30	2.28
10	4.55	1.040	42.0	41.62	4.00	1.98
7	3.45	0.908	37.0	36.67	2.40	1.54
5	2.70	0.806	33.0	32.71	1.40	1.17

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Q_{std} = 1/m \{ [1] \{ \text{Sqrt} \{ (P_{av} / 760) \{ (298 / T_{av}) \} \} \} - b \}$	27.639	2.4612	0.9998



Calibration curve requirements : (A). $r > 0.990$; (B). At least 3 Qstd numbers are in the TSP range (1.1 - 1.7 m³/min).

Remark : $Q_{std} (m^3/min) = 1/m [\text{Sqrt} (H_2O (Pa / 760) (298 / T_a)) - b]$.

IC (corrected) = $I [\text{Sqrt} ((Pa / 760) (298 / T_a))]$.

FLOW (corrected) = $\text{Sqrt} (FLOW (mano) (Pa / 760) (298 / T_a))$.

Calibrated by : Chan Kin Ho
Name : (Chan Kin Ho)

Checked by : Leung Mui Tong
Name : (Leung Mui Tong)

Form No. ENV CAL SAMPLER CCI 01/21/22003

Next Calibration Date: 07-Mar-2018

CASTCO CASTCO TESTING CENTRE LTD.

Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder & manometer on bottom)

Calibration curve ref. No. : ATSPC-01-2017090706 Date of calibration : 07/09/2017

Location : Ching Long Shopping Centre Sampler : TE-5170 X

Calibration Data

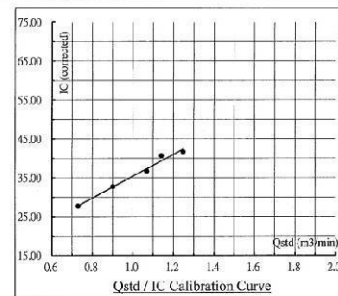
Ambient barometric pressure, Pa = 759 (mmHg) Ambient temperature, Ta = 303 (deg K)
Qstd Slope, m = 2.0736 Qstd Intercept, b = -0.042800

Calibration Curve

Plate No.	H ₂ O (in)	Qstd (m ³ /min)	I (chart)	IC (corrected)	FLOW (mano)	FLOW (corrected)
18	6.60	1.248	42.0	41.62	6.50	2.53
13	5.50	1.141	41.0	40.63	5.30	2.28
10	4.80	1.068	37.0	36.67	4.00	1.98
7	3.40	0.902	33.0	32.71	2.40	1.54
5	2.20	0.730	28.0	27.75	1.40	1.17

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Q_{std} = 1/m \{ [1] \{ \text{Sqrt} \{ (P_{av} / 750) \{ (298 / T_{av}) \} \} \} - b \}$	27.875	7.5050	0.9902



Calibration curve requirements : (A). $r > 0.990$; (B). At least 3 Qstd numbers are in the TSP range (1.1 - 1.7 m³/min).

Remark : $Q_{std} (m^3/min) = 1/m [\text{Sqrt} (H_2O (Pa / 760) (298 / T_a)) - b]$.

IC (corrected) = $I [\text{Sqrt} ((Pa / 760) (298 / T_a))]$.

FLOW (corrected) = $\text{Sqrt} (FLOW (mano) (Pa / 760) (298 / T_a))$.

Calibrated by : Chan Kin Ho
Name : (Chan Kin Ho)

Checked by : Leung Mui Tong
Name : (Leung Mui Tong)

Form No. ENV CAL SAMPLER CCI 01/21/22003

Next Calibration Date: 07-Mar-2018

Calibration Certificate for High Volume Sampler (HVS)

CASTCO CASTCO TESTING CENTRE LTD.

Air Sampler Calibration Curve Plotting & Calculation
(Dickson recorder & manometer on bottom)

Calibration curve ref. No.: ATSPC-01-2017090707 Date of calibration: 07/09/2017

Location: Tek Long Estate Sampler: TE-5170 X

Calibration Data

Ambient barometric pressure, Pa = 759 (mmHg) Ambient temperature, Ta = 303 (deg K)

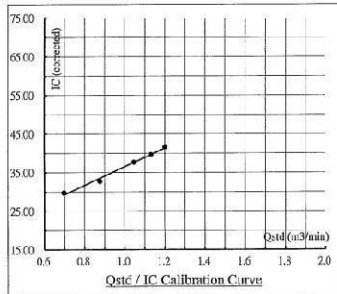
Qstd Slope, m = 2.0736 Qstd Intercept, b = -0.042800

Calibration Curve

Plate No.	H ₂ O (in)	Qstd (m ³ /min)	I (chart)	IC (corrected)	FLOW (mano)	FLOW (corrected)
18	6.10	1.201	42.0	41.62	6.50	2.53
13	5.40	1.131	40.0	39.64	5.30	2.28
10	4.60	1.046	38.0	37.66	4.00	1.98
7	3.20	0.876	33.0	32.71	2.40	1.54
5	2.00	0.697	30.0	29.73	1.40	1.17

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Qstd = 1/m \{ (1) \{ \text{Sqrt} \{ (Pa/760) \} (298/Ta) \} \} - b \}$	24.064	12.4433	0.9948



Calibration curve requirements: (A). $r > 0.990$; (B). At least 3 Qstd numbers are in the TSP range (1.1 - 1.7 m³/min).

Remark: $Qstd (m^3/min) = 1/m \{ \text{Sqrt} \{ (Pa/760) \} (298/Ta) \} - b \}$

$IC (corrected) = I \{ \text{Sqrt} \{ (Pa/760) \} (298/Ta) \}$

$FLOW (corrected) = \text{Sqrt} \{ FLOW (mano) \} (Pa/760) (298/Ta) \}$

Calibrated by: [Signature]
Name: (Chin Kook Ho)

Checked by: [Signature]
Name: (Jey Mio Tay)

Form No. ENV-CAL-SAMPLER-001 461202/2000



TISCH ENVIRONMENTAL, INC.
148 SOUTH MIAMI AVE.
VILLAGE OF CLEVELAND, OH
45002
513.497.9000
877.263.7610 TOLL FREE
513.467.9006 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TB-5025A

Date - Mar 21, 2017 Roots-meter S/N 0438320 Ta (K) - 294
Operator Tisch Orifice I.D. - 0006 Pa (mm) - 754.38

PLATE OR Run #	VOLUME START (m ³)	VOLUME STOP (m ³)	DIFF VOLUME (m ³)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H ₂ O (in.)
1	NA	NA	1.00	1.4170	3.2	2.00
2	NA	NA	1.00	1.0120	6.4	4.00
3	NA	NA	1.00	0.9050	7.9	5.00
4	NA	NA	1.00	0.8610	8.8	5.50
5	NA	NA	1.00	0.7110	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0018	0.7070	1.4185	0.9957	0.7027	0.9829
0.9976	0.9858	2.0061	0.9915	0.9798	1.2406
0.9955	1.1000	2.2429	0.9894	1.0933	1.3959
0.9944	1.1549	2.3524	0.9883	1.1479	1.4641
0.9890	1.3910	2.8371	0.9830	1.3826	1.7657

Qstd slope (m) = 2.07364 Qa slope (m) = 1.29848
intercept (b) = -0.04280 intercept (b) = -0.02664
coefficient (r) = 0.99992 coefficient (r) = 0.99992

y axis = $\text{SQRT} \{ H_2O (Pa/760) (298/Ta) \}$

y axis = $\text{SQRT} \{ H_2O (Ta/Pa) \}$

CALCULATIONS

$Vstd = \text{Diff. Vol} \{ (Pa - \text{Diff. Hg}) / 760 \} (298/Ta)$
 $Qstd = Vstd/Time$

$Va = \text{Diff Vol} \{ (Pa - \text{Diff Hg}) / Pa \}$
 $Qa = Va/Time$

For subsequent flow rate calculations:

$Qstd = 1/m \{ [\text{SQRT} \{ H_2O (Pa/760) (298/Ta) \}] - b \}$
 $Qa = 1/m \{ [\text{SQRT} \{ H_2O (Ta/Pa) \}] - b \}$

Next Calibration Date: 07-Mar-2018

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 September 2017	26.1 – 31.7	68 – 98	6.5
2 September 2017	26.4 – 30.4	74 – 91	1.0
3 September 2017	25.6 – 29.9	74 – 95	23.8
4 September 2017	25.3 – 27.6	81 – 95	32.8
5 September 2017	25.9 – 30.7	77 – 98	6.4
6 September 2017	27.3 – 32.3	65 – 94	Trace
7 September 2017	27.5 – 30.7	74 – 91	1.8
8 September 2017	26.9 – 30.9	71 – 90	1.1
9 September 2017	26.0 – 32.0	69 – 96	25.8
10 September 2017	26.7 – 32.2	64 – 95	Trace
11 September 2017	27.6 – 32.4	61 – 88	0
12 September 2017	27.9 – 32.8	68 – 85	0.6
13 September 2017	28.3 – 34.0	56 – 82	0
14 September 2017	27.6 – 31.5	54 – 76	0
15 September 2017	27.8 – 33.2	66 – 85	Trace
16 September 2017	27.7 – 32.6	53 – 91	0
17 September 2017	28.5 – 32.6	60 – 86	0
18 September 2017	27.8 – 32.9	59 – 87	0
19 September 2017	27.6 – 32.2	64 – 81	0

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
20 September 2017	27.6 – 32.0	66 – 86	0.2
21 September 2017	27.9 – 32.0	67 – 87	Trace
22 September 2017	26.1 – 32.0	74 – 96	17.9
23 September 2017	26.7 – 31.4	74 – 98	33.4
24 September 2017	27.1 – 30.5	77 – 94	5.6
25 September 2017	27.7 – 31.9	71 – 88	0.5
26 September 2017	27.8 – 32.9	63 – 88	0
27 September 2017	27.7 – 33.0	68 – 89	0
28 September 2017	28.2 – 34.1	59 – 86	0
29 September 2017	28.8 – 33.1	65 – 85	Trace
30 September 2017	25.9 – 30.3	76 – 96	35.0

* 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-Sep-2017	0:00	1.8	ESE
1-Sep-2017	1:00	1.8	S
1-Sep-2017	2:00	1.9	SSW
1-Sep-2017	3:00	2.0	S
1-Sep-2017	4:00	1.6	SSE
1-Sep-2017	5:00	1.6	S
1-Sep-2017	6:00	1.5	SSW
1-Sep-2017	7:00	1.9	S
1-Sep-2017	8:00	2.0	SSE
1-Sep-2017	9:00	2.2	SSE
1-Sep-2017	10:00	2.4	SSE
1-Sep-2017	11:00	2.7	SE
1-Sep-2017	12:00	3.0	SSE
1-Sep-2017	13:00	3.0	SSW
1-Sep-2017	14:00	3.0	S
1-Sep-2017	15:00	2.9	S
1-Sep-2017	16:00	2.7	S
1-Sep-2017	17:00	2.5	S
1-Sep-2017	18:00	2.2	S
1-Sep-2017	19:00	1.9	SSW
1-Sep-2017	20:00	2.0	NNE
1-Sep-2017	21:00	2.1	NNE
1-Sep-2017	22:00	2.2	NNE
1-Sep-2017	23:00	2.2	NNE
2-Sep-2017	0:00	2.3	NNE
2-Sep-2017	1:00	2.2	NNE
2-Sep-2017	2:00	2.3	NNE
2-Sep-2017	3:00	2	NNE
2-Sep-2017	4:00	1.8	NNE
2-Sep-2017	5:00	1.6	NNE
2-Sep-2017	6:00	1.3	NNE
2-Sep-2017	7:00	1.6	NNE
2-Sep-2017	8:00	1.5	NNE
2-Sep-2017	9:00	1.7	NNE
2-Sep-2017	10:00	2.2	WSW
2-Sep-2017	11:00	2.7	WSW

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

2-Sep-2017	12:00	2.7	W
2-Sep-2017	13:00	2.5	WNW
2-Sep-2017	14:00	2.7	WNW
2-Sep-2017	15:00	2.5	WNW
2-Sep-2017	16:00	2.2	E
2-Sep-2017	17:00	2.3	NE
2-Sep-2017	18:00	2.2	NE
2-Sep-2017	19:00	2.2	ESE
2-Sep-2017	20:00	2.3	ESE
2-Sep-2017	21:00	2.4	ESE
2-Sep-2017	22:00	2	WSW
2-Sep-2017	23:00	2	NNE
3-Sep-2017	0:00	2	NNE
3-Sep-2017	1:00	2.4	ENE
3-Sep-2017	2:00	2.1	NE
3-Sep-2017	3:00	2.1	NNE
3-Sep-2017	4:00	2	NE
3-Sep-2017	5:00	2	NNE
3-Sep-2017	6:00	1.6	NNE
3-Sep-2017	7:00	1.9	NE
3-Sep-2017	8:00	2	NNE
3-Sep-2017	9:00	2	NNE
3-Sep-2017	10:00	2.3	SE
3-Sep-2017	11:00	2.5	SE
3-Sep-2017	12:00	2.6	N
3-Sep-2017	13:00	3	N
3-Sep-2017	14:00	2.5	W
3-Sep-2017	15:00	2.7	NE
3-Sep-2017	16:00	3	NNE
3-Sep-2017	17:00	2.9	N
3-Sep-2017	18:00	2.8	N
3-Sep-2017	19:00	2.8	NNE
3-Sep-2017	20:00	2.2	N
3-Sep-2017	21:00	2.3	N
3-Sep-2017	22:00	2.3	N
3-Sep-2017	23:00	2.2	W
4-Sep-2017	0:00	2.9	NNE

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

4-Sep-2017	1:00	3	N
4-Sep-2017	2:00	2.8	NNE
4-Sep-2017	3:00	2.8	N
4-Sep-2017	4:00	2.3	N
4-Sep-2017	5:00	2.5	N
4-Sep-2017	6:00	2.4	W
4-Sep-2017	7:00	2.4	S
4-Sep-2017	8:00	2.7	NW
4-Sep-2017	9:00	2.8	W
4-Sep-2017	10:00	3.1	W
4-Sep-2017	11:00	3.1	W
4-Sep-2017	12:00	3.2	WSW
4-Sep-2017	13:00	3.4	W
4-Sep-2017	14:00	3.1	W
4-Sep-2017	15:00	3.4	WSW
4-Sep-2017	16:00	3.1	W
4-Sep-2017	17:00	2.7	W
4-Sep-2017	18:00	2.4	SSW
4-Sep-2017	19:00	2.2	SW
4-Sep-2017	20:00	2.3	NW
4-Sep-2017	21:00	2.1	W
4-Sep-2017	22:00	2.6	WSW
4-Sep-2017	23:00	2.4	WNW
5-Sep-2017	0:00	2.4	SW
5-Sep-2017	1:00	2.3	W
5-Sep-2017	2:00	2.7	SW
5-Sep-2017	3:00	2.3	SW
5-Sep-2017	4:00	2.3	NE
5-Sep-2017	5:00	2	WNW
5-Sep-2017	6:00	2.2	W
5-Sep-2017	7:00	2	N
5-Sep-2017	8:00	2.2	SW
5-Sep-2017	9:00	2.7	WSW
5-Sep-2017	10:00	3.1	SW
5-Sep-2017	11:00	2.7	SW
5-Sep-2017	12:00	3.2	WNW
5-Sep-2017	13:00	3.2	WSW

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

5-Sep-2017	14:00	3.3	WSW
5-Sep-2017	15:00	3.3	W
5-Sep-2017	16:00	3	W
5-Sep-2017	17:00	2.9	W
5-Sep-2017	18:00	2.6	WNW
5-Sep-2017	19:00	2.2	WNW
5-Sep-2017	20:00	2.3	N
5-Sep-2017	21:00	2.6	NNE
5-Sep-2017	22:00	2.4	W
5-Sep-2017	23:00	2.5	WNW
6-Sep-2017	0:00	2.7	WSW
6-Sep-2017	1:00	3.2	WSW
6-Sep-2017	2:00	2.7	SW
6-Sep-2017	3:00	2.7	SW
6-Sep-2017	4:00	2.7	WSW
6-Sep-2017	5:00	2.5	WSW
6-Sep-2017	6:00	2.2	SW
6-Sep-2017	7:00	2.1	WSW
6-Sep-2017	8:00	2.3	W
6-Sep-2017	9:00	2.6	WNW
6-Sep-2017	10:00	2.8	N
6-Sep-2017	11:00	3.2	SE
6-Sep-2017	12:00	3.1	SE
6-Sep-2017	13:00	3.5	SE
6-Sep-2017	14:00	3	SE
6-Sep-2017	15:00	2.8	SE
6-Sep-2017	16:00	3.1	NE
6-Sep-2017	17:00	3	WSW
6-Sep-2017	18:00	2.7	WSW
6-Sep-2017	19:00	2.5	ENE
6-Sep-2017	20:00	2.6	SE
6-Sep-2017	21:00	2.1	SSE
6-Sep-2017	22:00	2.1	SSE
6-Sep-2017	23:00	2.1	ESE
7-Sep-2017	0:00	2.2	SSE
7-Sep-2017	1:00	2.2	SE
7-Sep-2017	2:00	2.2	SSE

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

7-Sep-2017	3:00	1.9	ENE
7-Sep-2017	4:00	1.8	SSE
7-Sep-2017	5:00	2	SSE
7-Sep-2017	6:00	1.8	SSE
7-Sep-2017	7:00	1.8	S
7-Sep-2017	8:00	1.9	S
7-Sep-2017	9:00	2.3	S
7-Sep-2017	10:00	2.8	SSE
7-Sep-2017	11:00	3	SSE
7-Sep-2017	12:00	3	SE
7-Sep-2017	13:00	2.9	SE
7-Sep-2017	14:00	3.1	ESE
7-Sep-2017	15:00	3.4	SE
7-Sep-2017	16:00	3	SSE
7-Sep-2017	17:00	2.9	SSE
7-Sep-2017	18:00	2.3	SE
7-Sep-2017	19:00	2	ENE
7-Sep-2017	20:00	1.7	ESE
7-Sep-2017	21:00	2.1	ENE
7-Sep-2017	22:00	2.1	S
7-Sep-2017	23:00	1.8	ENE
8-Sep-2017	0:00	1.6	NE
8-Sep-2017	1:00	1.7	ENE
8-Sep-2017	2:00	1.6	WNW
8-Sep-2017	3:00	1.6	SSW
8-Sep-2017	4:00	1.5	ENE
8-Sep-2017	5:00	1.6	NW
8-Sep-2017	6:00	1.4	W
8-Sep-2017	7:00	1.6	WNW
8-Sep-2017	8:00	1.9	WNW
8-Sep-2017	9:00	2.2	WSW
8-Sep-2017	10:00	2.5	SW
8-Sep-2017	11:00	2.7	WSW
8-Sep-2017	12:00	3	W
8-Sep-2017	13:00	2.9	WSW
8-Sep-2017	14:00	3.1	WNW
8-Sep-2017	15:00	3.2	W

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

8-Sep-2017	16:00	2.6	W
8-Sep-2017	17:00	2.5	WNW
8-Sep-2017	18:00	2.3	W
8-Sep-2017	19:00	2.1	WNW
8-Sep-2017	20:00	2	NE
8-Sep-2017	21:00	2.1	ENE
8-Sep-2017	22:00	1.9	NE
8-Sep-2017	23:00	1.7	ENE
9-Sep-2017	0:00	1.7	ENE
9-Sep-2017	1:00	1.7	ENE
9-Sep-2017	2:00	1.7	NE
9-Sep-2017	3:00	1.7	ENE
9-Sep-2017	4:00	1.6	ESE
9-Sep-2017	5:00	1.7	E
9-Sep-2017	6:00	1.6	ESE
9-Sep-2017	7:00	1.7	E
9-Sep-2017	8:00	2.1	ESE
9-Sep-2017	9:00	2.6	ENE
9-Sep-2017	10:00	3	NE
9-Sep-2017	11:00	3.1	SE
9-Sep-2017	12:00	3.3	SE
9-Sep-2017	13:00	3.2	ENE
9-Sep-2017	14:00	2.7	S
9-Sep-2017	15:00	3.1	S
9-Sep-2017	16:00	3.2	SE
9-Sep-2017	17:00	2.9	SE
9-Sep-2017	18:00	2.4	E
9-Sep-2017	19:00	2.2	SSE
9-Sep-2017	20:00	1.9	SSE
9-Sep-2017	21:00	1.9	SSE
9-Sep-2017	22:00	1.8	N
9-Sep-2017	23:00	1.6	W
10-Sep-2017	0:00	1.7	W
10-Sep-2017	1:00	1.8	SSE
10-Sep-2017	2:00	1.6	WSW
10-Sep-2017	3:00	1.7	SW
10-Sep-2017	4:00	1.7	SW

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

10-Sep-2017	5:00	1.6	SW
10-Sep-2017	6:00	1.5	SW
10-Sep-2017	7:00	1.5	WNW
10-Sep-2017	8:00	1.6	NE
10-Sep-2017	9:00	2.1	NE
10-Sep-2017	10:00	2.4	S
10-Sep-2017	11:00	2.8	WNW
10-Sep-2017	12:00	3.1	E
10-Sep-2017	13:00	3.1	NE
10-Sep-2017	14:00	2.8	NNE
10-Sep-2017	15:00	3	NE
10-Sep-2017	16:00	2.8	NE
10-Sep-2017	17:00	3	ENE
10-Sep-2017	18:00	2.4	ENE
10-Sep-2017	19:00	2	E
10-Sep-2017	20:00	2	ENE
10-Sep-2017	21:00	1.5	NE
10-Sep-2017	22:00	2	ENE
10-Sep-2017	23:00	1.7	ENE
11-Sep-2017	0:00	2.1	NNE
11-Sep-2017	1:00	1.7	NNE
11-Sep-2017	2:00	1.9	ENE
11-Sep-2017	3:00	1.7	ESE
11-Sep-2017	4:00	1.7	SE
11-Sep-2017	5:00	1.7	ESE
11-Sep-2017	6:00	1.8	ESE
11-Sep-2017	7:00	1.7	ESE
11-Sep-2017	8:00	2.1	E
11-Sep-2017	9:00	2.7	ESE
11-Sep-2017	10:00	2.8	ESE
11-Sep-2017	11:00	2.9	NNW
11-Sep-2017	12:00	2.9	W
11-Sep-2017	13:00	3	W
11-Sep-2017	14:00	3.3	WSW
11-Sep-2017	15:00	3.2	NW
11-Sep-2017	16:00	2.9	SW
11-Sep-2017	17:00	2.6	SW

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

11-Sep-2017	18:00	2.2	S
11-Sep-2017	19:00	2.1	E
11-Sep-2017	20:00	2.2	ENE
11-Sep-2017	21:00	2.3	NE
11-Sep-2017	22:00	2.3	ENE
11-Sep-2017	23:00	2.1	NE
12-Sep-2017	0:00	2.1	N
12-Sep-2017	1:00	2	ENE
12-Sep-2017	2:00	2.1	ENE
12-Sep-2017	3:00	2.2	ENE
12-Sep-2017	4:00	2.1	SSE
12-Sep-2017	5:00	2.1	NNE
12-Sep-2017	6:00	1.8	ENE
12-Sep-2017	7:00	2	NE
12-Sep-2017	8:00	2.3	N
12-Sep-2017	9:00	2.6	N
12-Sep-2017	10:00	2.7	N
12-Sep-2017	11:00	3	NNE
12-Sep-2017	12:00	3.1	NE
12-Sep-2017	13:00	3.3	ESE
12-Sep-2017	14:00	3.1	ENE
12-Sep-2017	15:00	3	ENE
12-Sep-2017	16:00	2.7	ENE
12-Sep-2017	17:00	2.5	ESE
12-Sep-2017	18:00	2.5	ESE
12-Sep-2017	19:00	2.3	SSE
12-Sep-2017	20:00	2.1	ENE
12-Sep-2017	21:00	1.8	NNE
12-Sep-2017	22:00	1.7	NE
12-Sep-2017	23:00	1.8	NE
13-Sep-2017	0:00	1.6	N
13-Sep-2017	1:00	1.7	NNE
13-Sep-2017	2:00	1.6	E
13-Sep-2017	3:00	1.6	NE
13-Sep-2017	4:00	1.6	ENE
13-Sep-2017	5:00	1.5	E
13-Sep-2017	6:00	1.6	NNE

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

13-Sep-2017	7:00	1.5	NNE
13-Sep-2017	8:00	1.9	ENE
13-Sep-2017	9:00	2.3	WSW
13-Sep-2017	10:00	2.7	N
13-Sep-2017	11:00	3	N
13-Sep-2017	12:00	3.3	W
13-Sep-2017	13:00	3.2	ENE
13-Sep-2017	14:00	3.1	ENE
13-Sep-2017	15:00	2.8	ENE
13-Sep-2017	16:00	2.8	W
13-Sep-2017	17:00	2.6	NNE
13-Sep-2017	18:00	2.3	NNE
13-Sep-2017	19:00	2.1	NNE
13-Sep-2017	20:00	1.8	ENE
13-Sep-2017	21:00	1.6	ENE
13-Sep-2017	22:00	1.6	W
13-Sep-2017	23:00	1.8	W
14-Sep-2017	0:00	1.5	W
14-Sep-2017	1:00	1.3	SW
14-Sep-2017	2:00	1.5	SSW
14-Sep-2017	3:00	1.5	SW
14-Sep-2017	4:00	1.4	NNE
14-Sep-2017	5:00	1.3	NNE
14-Sep-2017	6:00	1.3	NNE
14-Sep-2017	7:00	1.3	NNE
14-Sep-2017	8:00	1.8	NNE
14-Sep-2017	9:00	2.5	NNE
14-Sep-2017	10:00	2.8	W
14-Sep-2017	11:00	3.1	WNW
14-Sep-2017	12:00	3.1	WNW
14-Sep-2017	13:00	2.9	WSW
14-Sep-2017	14:00	2.9	SW
14-Sep-2017	15:00	2.9	SW
14-Sep-2017	16:00	2.6	W
14-Sep-2017	17:00	2.7	SW
14-Sep-2017	18:00	2.4	SSW
14-Sep-2017	19:00	2.1	SW

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

14-Sep-2017	20:00	1.8	SW
14-Sep-2017	21:00	1.8	W
14-Sep-2017	22:00	1.9	WSW
14-Sep-2017	23:00	1.5	SW
15-Sep-2017	0:00	1.7	SW
15-Sep-2017	1:00	1.5	W
15-Sep-2017	2:00	1.6	SW
15-Sep-2017	3:00	1.6	WNW
15-Sep-2017	4:00	1.7	WSW
15-Sep-2017	5:00	1.6	SW
15-Sep-2017	6:00	1.5	SW
15-Sep-2017	7:00	1.6	SW
15-Sep-2017	8:00	1.6	SW
15-Sep-2017	9:00	2	SW
15-Sep-2017	10:00	2.2	SW
15-Sep-2017	11:00	2.4	W
15-Sep-2017	12:00	2.6	SSW
15-Sep-2017	13:00	2.3	S
15-Sep-2017	14:00	2.2	W
15-Sep-2017	15:00	2.5	W
15-Sep-2017	16:00	2.4	SW
15-Sep-2017	17:00	2.2	SW
15-Sep-2017	18:00	2.1	SW
15-Sep-2017	19:00	1.5	SE
15-Sep-2017	20:00	1.4	SE
15-Sep-2017	21:00	1.6	SE
15-Sep-2017	22:00	1.5	NE
15-Sep-2017	23:00	1.3	SE
16-Sep-2017	0:00	1.6	NE
16-Sep-2017	1:00	1.5	NNE
16-Sep-2017	2:00	1.5	NE
16-Sep-2017	3:00	1.5	NNE
16-Sep-2017	4:00	1.7	NE
16-Sep-2017	5:00	1.7	NE
16-Sep-2017	6:00	1.4	E
16-Sep-2017	7:00	1.7	E
16-Sep-2017	8:00	1.6	E

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WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

16-Sep-2017	9:00	2.2	E
16-Sep-2017	10:00	2.5	E
16-Sep-2017	11:00	2.8	ENE
16-Sep-2017	12:00	3.1	E
16-Sep-2017	13:00	2.8	WNW
16-Sep-2017	14:00	2.9	SSW
16-Sep-2017	15:00	2.8	ENE
16-Sep-2017	16:00	3	ENE
16-Sep-2017	17:00	3.1	SSE
16-Sep-2017	18:00	2.6	SSE
16-Sep-2017	19:00	2.6	ESE
16-Sep-2017	20:00	2.1	SE
16-Sep-2017	21:00	2.1	W
16-Sep-2017	22:00	1.5	WSW
16-Sep-2017	23:00	1.7	SSW
17-Sep-2017	0:00	1.8	SSW
17-Sep-2017	1:00	1.9	ESE
17-Sep-2017	2:00	1.6	E
17-Sep-2017	3:00	1.4	SSE
17-Sep-2017	4:00	1.4	SSW
17-Sep-2017	5:00	1.5	ESE
17-Sep-2017	6:00	2.2	ESE
17-Sep-2017	7:00	1.6	W
17-Sep-2017	8:00	1.7	SSW
17-Sep-2017	9:00	2.1	ESE
17-Sep-2017	10:00	2.4	ENE
17-Sep-2017	11:00	2.7	ESE
17-Sep-2017	12:00	3.1	ESE
17-Sep-2017	13:00	2.8	ESE
17-Sep-2017	14:00	2.6	SE
17-Sep-2017	15:00	2.9	SE
17-Sep-2017	16:00	3.2	SSW
17-Sep-2017	17:00	2.3	ESE
17-Sep-2017	18:00	2.2	SW
17-Sep-2017	19:00	1.9	SW
17-Sep-2017	20:00	2.1	SW
17-Sep-2017	21:00	2.2	SW

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

17-Sep-2017	22:00	2	W
17-Sep-2017	23:00	1.8	SW
18-Sep-2017	0:00	1.6	E
18-Sep-2017	1:00	1.7	ENE
18-Sep-2017	2:00	1.3	N
18-Sep-2017	3:00	1.6	N
18-Sep-2017	4:00	1.5	N
18-Sep-2017	5:00	1.6	WNW
18-Sep-2017	6:00	1.6	WNW
18-Sep-2017	7:00	1.5	ESE
18-Sep-2017	8:00	2	WNW
18-Sep-2017	9:00	2.6	SSW
18-Sep-2017	10:00	3.2	NW
18-Sep-2017	11:00	3.1	W
18-Sep-2017	12:00	3.2	NNE
18-Sep-2017	13:00	3.1	NNE
18-Sep-2017	14:00	3.2	NNE
18-Sep-2017	15:00	3.2	NNE
18-Sep-2017	16:00	3.1	NNE
18-Sep-2017	17:00	2.9	NE
18-Sep-2017	18:00	2.7	NNE
18-Sep-2017	19:00	2.6	NE
18-Sep-2017	20:00	2.3	ENE
18-Sep-2017	21:00	2.3	NE
18-Sep-2017	22:00	2.4	NE
18-Sep-2017	23:00	2.3	NE
19-Sep-2017	0:00	2.6	NE
19-Sep-2017	1:00	2.3	NE
19-Sep-2017	2:00	2.5	ENE
19-Sep-2017	3:00	2.3	ENE
19-Sep-2017	4:00	2.3	NE
19-Sep-2017	5:00	2.2	SE
19-Sep-2017	6:00	1.9	NE
19-Sep-2017	7:00	2	ENE
19-Sep-2017	8:00	2.2	NE
19-Sep-2017	9:00	2.8	ENE
19-Sep-2017	10:00	2.9	ENE

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WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

19-Sep-2017	11:00	3.1	NNE
19-Sep-2017	12:00	2.9	NNE
19-Sep-2017	13:00	2.9	NE
19-Sep-2017	14:00	2.8	NE
19-Sep-2017	15:00	3.1	NE
19-Sep-2017	16:00	3	N
19-Sep-2017	17:00	2.9	N
19-Sep-2017	18:00	2.5	W
19-Sep-2017	19:00	2.4	N
19-Sep-2017	20:00	2.1	N
19-Sep-2017	21:00	1.9	W
19-Sep-2017	22:00	2.3	W
19-Sep-2017	23:00	2.4	WSW
20-Sep-2017	0:00	2.3	SW
20-Sep-2017	1:00	2.4	ENE
20-Sep-2017	2:00	2.3	SW
20-Sep-2017	3:00	2.4	SW
20-Sep-2017	4:00	2.3	W
20-Sep-2017	5:00	2.4	SSW
20-Sep-2017	6:00	2.5	NE
20-Sep-2017	7:00	2.3	ENE
20-Sep-2017	8:00	2.2	E
20-Sep-2017	9:00	3	ENE
20-Sep-2017	10:00	3.1	WSW
20-Sep-2017	11:00	3.7	WSW
20-Sep-2017	12:00	3.5	WSW
20-Sep-2017	13:00	3.7	SW
20-Sep-2017	14:00	3.5	W
20-Sep-2017	15:00	3.2	W
20-Sep-2017	16:00	2.9	WSW
20-Sep-2017	17:00	3.4	WSW
20-Sep-2017	18:00	2.9	SW
20-Sep-2017	19:00	2.9	N
20-Sep-2017	20:00	2	W
20-Sep-2017	21:00	2.3	W
20-Sep-2017	22:00	2.4	W
20-Sep-2017	23:00	2.7	W

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

21-Sep-2017	0:00	3.1	W
21-Sep-2017	1:00	2.3	W
21-Sep-2017	2:00	2.5	ENE
21-Sep-2017	3:00	2.7	ENE
21-Sep-2017	4:00	2.8	NE
21-Sep-2017	5:00	2.6	NE
21-Sep-2017	6:00	2.3	NE
21-Sep-2017	7:00	2.9	ENE
21-Sep-2017	8:00	3.3	ENE
21-Sep-2017	9:00	3.6	ENE
21-Sep-2017	10:00	3.5	WNW
21-Sep-2017	11:00	3.8	ENE
21-Sep-2017	12:00	4.1	N
21-Sep-2017	13:00	4	ENE
21-Sep-2017	14:00	3.9	ENE
21-Sep-2017	15:00	3.6	NE
21-Sep-2017	16:00	3.6	N
21-Sep-2017	17:00	3.4	ESE
21-Sep-2017	18:00	3.4	ESE
21-Sep-2017	19:00	3.2	ESE
21-Sep-2017	20:00	2.8	NNE
21-Sep-2017	21:00	3	ENE
21-Sep-2017	22:00	2.8	ENE
21-Sep-2017	23:00	3	SSW
22-Sep-2017	0:00	2.9	SSW
22-Sep-2017	1:00	2.5	WNW
22-Sep-2017	2:00	2.2	SW
22-Sep-2017	3:00	2.4	WSW
22-Sep-2017	4:00	2.7	W
22-Sep-2017	5:00	2.5	WSW
22-Sep-2017	6:00	2	NNE
22-Sep-2017	7:00	2.4	E
22-Sep-2017	8:00	2.9	WSW
22-Sep-2017	9:00	3.2	SSW
22-Sep-2017	10:00	3.3	NE
22-Sep-2017	11:00	3.3	NE
22-Sep-2017	12:00	3.4	ENE

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

22-Sep-2017	13:00	3.1	ENE
22-Sep-2017	14:00	3.2	ENE
22-Sep-2017	15:00	3	ENE
22-Sep-2017	16:00	3.2	ENE
22-Sep-2017	17:00	2.8	N
22-Sep-2017	18:00	2.1	N
22-Sep-2017	19:00	1.8	NNE
22-Sep-2017	20:00	1.9	N
22-Sep-2017	21:00	1.7	W
22-Sep-2017	22:00	1.6	W
22-Sep-2017	23:00	1.8	ENE
23-Sep-2017	0:00	1.6	NE
23-Sep-2017	1:00	1.7	N
23-Sep-2017	2:00	1.8	NW
23-Sep-2017	3:00	1.7	NE
23-Sep-2017	4:00	1.6	ESE
23-Sep-2017	5:00	1.6	ESE
23-Sep-2017	6:00	1.6	NE
23-Sep-2017	7:00	1.8	SSW
23-Sep-2017	8:00	2	W
23-Sep-2017	9:00	2.4	WSW
23-Sep-2017	10:00	3	NE
23-Sep-2017	11:00	3.4	N
23-Sep-2017	12:00	3.2	ESE
23-Sep-2017	13:00	3.5	ESE
23-Sep-2017	14:00	3.3	ENE
23-Sep-2017	15:00	3.2	SE
23-Sep-2017	16:00	3.3	S
23-Sep-2017	17:00	2.9	SW
23-Sep-2017	18:00	2.7	NE
23-Sep-2017	19:00	2.6	ENE
23-Sep-2017	20:00	2.2	ENE
23-Sep-2017	21:00	2	ENE
23-Sep-2017	22:00	2	ENE
23-Sep-2017	23:00	1.9	NE
24-Sep-2017	0:00	1.9	NNE
24-Sep-2017	1:00	2	ENE

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

24-Sep-2017	2:00	1.8	E
24-Sep-2017	3:00	1.8	E
24-Sep-2017	4:00	2	SE
24-Sep-2017	5:00	2.3	ENE
24-Sep-2017	6:00	2	ENE
24-Sep-2017	7:00	1.9	E
24-Sep-2017	8:00	2.4	ESE
24-Sep-2017	9:00	2.7	NE
24-Sep-2017	10:00	3	ENE
24-Sep-2017	11:00	3.3	ESE
24-Sep-2017	12:00	3.3	NE
24-Sep-2017	13:00	3.4	ENE
24-Sep-2017	14:00	3.3	ENE
24-Sep-2017	15:00	3.3	NE
24-Sep-2017	16:00	3.2	NE
24-Sep-2017	17:00	3.1	NE
24-Sep-2017	18:00	2.5	ENE
24-Sep-2017	19:00	2.3	NE
24-Sep-2017	20:00	2.1	NE
24-Sep-2017	21:00	2.3	ENE
24-Sep-2017	22:00	2.1	ENE
24-Sep-2017	23:00	2.2	ENE
25-Sep-2017	0:00	2.3	ENE
25-Sep-2017	1:00	2.3	ENE
25-Sep-2017	2:00	2.4	SE
25-Sep-2017	3:00	2.1	E
25-Sep-2017	4:00	2.1	E
25-Sep-2017	5:00	2.1	E
25-Sep-2017	6:00	1.8	E
25-Sep-2017	7:00	1.7	NNE
25-Sep-2017	8:00	2	NE
25-Sep-2017	9:00	2.3	NNE
25-Sep-2017	10:00	2.7	ESE
25-Sep-2017	11:00	2.9	SSE
25-Sep-2017	12:00	3.2	NE
25-Sep-2017	13:00	2.8	NE
25-Sep-2017	14:00	2.8	NNE

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WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

25-Sep-2017	15:00	2.8	NNE
25-Sep-2017	16:00	2.7	SSE
25-Sep-2017	17:00	2.2	ENE
25-Sep-2017	18:00	1.9	NE
25-Sep-2017	19:00	1.7	ENE
25-Sep-2017	20:00	1.5	ENE
25-Sep-2017	21:00	1.3	ENE
25-Sep-2017	22:00	1.5	E
25-Sep-2017	23:00	1.4	ENE
26-Sep-2017	0:00	1.3	ENE
26-Sep-2017	1:00	1.2	ENE
26-Sep-2017	2:00	1.3	NE
26-Sep-2017	3:00	1.6	ENE
26-Sep-2017	4:00	1.2	ENE
26-Sep-2017	5:00	1.1	ENE
26-Sep-2017	6:00	0.9	ENE
26-Sep-2017	7:00	1.2	ENE
26-Sep-2017	8:00	1.6	NE
26-Sep-2017	9:00	1.8	NE
26-Sep-2017	10:00	2.3	NE
26-Sep-2017	11:00	2.5	NE
26-Sep-2017	12:00	2.9	ENE
26-Sep-2017	13:00	3.3	NE
26-Sep-2017	14:00	2.9	NE
26-Sep-2017	15:00	2.5	NNE
26-Sep-2017	16:00	2.8	NNE
26-Sep-2017	17:00	2.3	NE
26-Sep-2017	18:00	2.1	E
26-Sep-2017	19:00	1.8	ESE
26-Sep-2017	20:00	1.5	ENE
26-Sep-2017	21:00	1.6	ENE
26-Sep-2017	22:00	1.4	ENE
26-Sep-2017	23:00	1.4	E
27-Sep-2017	0:00	1.7	E
27-Sep-2017	1:00	1.5	ENE
27-Sep-2017	2:00	1.5	ESE
27-Sep-2017	3:00	1.5	NE

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

27-Sep-2017	4:00	1.4	E
27-Sep-2017	5:00	1.4	ESE
27-Sep-2017	6:00	1.2	NNE
27-Sep-2017	7:00	1.2	SSE
27-Sep-2017	8:00	1.5	SSE
27-Sep-2017	9:00	2.2	NE
27-Sep-2017	10:00	2.5	ENE
27-Sep-2017	11:00	2.6	N
27-Sep-2017	12:00	2.9	ENE
27-Sep-2017	13:00	2.9	ENE
27-Sep-2017	14:00	3	E
27-Sep-2017	15:00	2.7	ENE
27-Sep-2017	16:00	2.5	ENE
27-Sep-2017	17:00	2.6	ESE
27-Sep-2017	18:00	1.9	NNE
27-Sep-2017	19:00	1.6	NNE
27-Sep-2017	20:00	1.7	NNE
27-Sep-2017	21:00	2.2	NE
27-Sep-2017	22:00	1.4	ENE
27-Sep-2017	23:00	1.8	NE
28-Sep-2017	0:00	1.8	ENE
28-Sep-2017	1:00	1.7	NE
28-Sep-2017	2:00	1.8	ENE
28-Sep-2017	3:00	1.9	E
28-Sep-2017	4:00	1.9	NNE
28-Sep-2017	5:00	1.7	ENE
28-Sep-2017	6:00	1.6	NE
28-Sep-2017	7:00	1.6	ENE
28-Sep-2017	8:00	1.9	NE
28-Sep-2017	9:00	2.1	ESE
28-Sep-2017	10:00	4.4	ENE
28-Sep-2017	11:00	4.6	ENE
28-Sep-2017	12:00	4.6	ENE
28-Sep-2017	13:00	4.6	NNE
28-Sep-2017	14:00	4.4	ESE
28-Sep-2017	15:00	4.4	ESE
28-Sep-2017	16:00	4.3	SSW

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

28-Sep-2017	17:00	3.7	SSE
28-Sep-2017	18:00	3.9	ENE
28-Sep-2017	19:00	3.5	ENE
28-Sep-2017	20:00	3.5	NNE
28-Sep-2017	21:00	3.7	NNE
28-Sep-2017	22:00	3.6	NNE
28-Sep-2017	23:00	3.7	NE
29-Sep-2017	0:00	4	NE
29-Sep-2017	1:00	3.8	ESE
29-Sep-2017	2:00	4	ENE
29-Sep-2017	3:00	4.2	NNE
29-Sep-2017	4:00	3.8	NNE
29-Sep-2017	5:00	4.7	NNE
29-Sep-2017	6:00	4.5	NE
29-Sep-2017	7:00	3.7	NNE
29-Sep-2017	8:00	4	ESE
29-Sep-2017	9:00	4.3	ENE
29-Sep-2017	10:00	4.1	W
29-Sep-2017	11:00	4.5	NE
29-Sep-2017	12:00	4.7	NNE
29-Sep-2017	13:00	4.6	ENE
29-Sep-2017	14:00	4.6	ENE
29-Sep-2017	15:00	4.6	N
29-Sep-2017	16:00	4.4	NE
29-Sep-2017	17:00	4.5	ENE
29-Sep-2017	18:00	4.2	ENE
29-Sep-2017	19:00	4	W
29-Sep-2017	20:00	3.9	NNE
29-Sep-2017	21:00	3.8	N
29-Sep-2017	22:00	4.1	SSE
29-Sep-2017	23:00	3.7	SE
30-Sep-2017	0:00	3.8	WSW
30-Sep-2017	1:00	3.9	SSE
30-Sep-2017	2:00	3.7	SSE
30-Sep-2017	3:00	1.8	SSE
30-Sep-2017	4:00	2	ENE
30-Sep-2017	5:00	2.1	ENE

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WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

30-Sep-2017	6:00	1.9	NE
30-Sep-2017	7:00	2	NE
30-Sep-2017	8:00	2.3	NNE
30-Sep-2017	9:00	2.7	NE
30-Sep-2017	10:00	3	ENE
30-Sep-2017	11:00	3.3	E
30-Sep-2017	12:00	3.7	ENE
30-Sep-2017	13:00	3.6	SSE
30-Sep-2017	14:00	3.5	NE
30-Sep-2017	15:00	3.4	NNE
30-Sep-2017	16:00	3.1	NNE
30-Sep-2017	17:00	2.7	ENE
30-Sep-2017	18:00	2.3	SW
30-Sep-2017	19:00	2.2	WSW
30-Sep-2017	20:00	2.2	W
30-Sep-2017	21:00	2.1	WSW
30-Sep-2017	22:00	2.1	NE
30-Sep-2017	23:00	2.2	ESE

**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 September 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Sep	2-Sep
					1 hr TSP X3 AM4(C), AM5 Noise M6(A) M7, M8, M9	
3-Sep	4-Sep	5-Sep	6-Sep	7-Sep	8-Sep	9-Sep
			1 hr TSP X3 AM2, AM3(A) 24-hr TSP AM2(A), AM3(A), AM4(C), AM5	1 hr TSP X3 AM4(C), AM5 Noise M6(A) M7, M8, M9		
10-Sep	11-Sep	12-Sep	13-Sep	14-Sep	15-Sep	16-Sep
		1 hr TSP X3 AM2, AM3(A) 24-hr TSP AM2(A), AM3(A), AM4(C), AM5	1 hr TSP X3 AM4(C), AM5 Noise M6(A) M7, M8, M9			
17-Sep	18-Sep	19-Sep	20-Sep	21-Sep	22-Sep	23-Sep
	1 hr TSP X3 AM2, AM3(A) 24-hr TSP AM2(A), AM3(A), AM4(C), AM5	1 hr TSP X3 AM4(C), AM5 Noise M6(A) M7, M8, M9				1 hr TSP X3 AM2, AM3(A) 24-hr TSP AM2(A), AM3(A), AM4(C), AM5
24-Sep	25-Sep	26-Sep	27-Sep	28-Sep	29-Sep	30-Sep
	1 hr TSP X3 AM4(C), AM5				1 hr TSP X3 AM2, AM3(A), AM4(C), AM5 Noise M6(A) M7, M8, M9 24-hr TSP AM2(A), AM3(A), AM4(C), AM5	

Monitoring works conducted by Castco are highlighted in blue.

Air Quality Monitoring Station

AM2 - Lee Kau Yan Memorial School
AM2(A) - Ng Wah Catholic Secondary School
AM3(A) - Holy Trinity Bradbury Centre
AM4(C) - New Pumping Station under Contract KL/2012/03
AM5 - CCC Kei To Secondary School

Noise Monitoring Station

M6(A) - Oblate Primary School
M7 - CCC Kei To Secondary School
M8 - Po Leung Kuk Ngan Po Ling College
M9 - Tak Long Estate

Contract No. KL/2012/03
Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area
Tentative Impact Air and Noise Monitoring Schedule for October 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Oct	2-Oct	3-Oct	4-Oct	5-Oct	6-Oct	7-Oct
		1 hr TSP X3 AM2, AM3(A), AM4(C), AM5 Noise M6(A) M7, M8, M9	24-hr TSP AM2(A),AM4(C), AM5			
8-Oct	9-Oct	10-Oct	11-Oct	12-Oct	13-Oct	14-Oct
	1 hr TSP X3 AM2, AM3(A), AM4(C), AM5	24-hr TSP AM2(A),AM4(C), AM5			1 hr TSP X3 AM4(C), AM5 Noise M6(A) M7, M8, M9	1 hr TSP X3 AM2, AM3(A)
15-Oct	16-Oct	17-Oct	18-Oct	19-Oct	20-Oct	21-Oct
	24-hr TSP AM2(A),AM4(C), AM5		1 hr TSP X3 AM4(C), AM5 Noise M6(A) M7, M8, M9	1 hr TSP X3 AM2, AM3(A)		24-hr TSP AM2(A),AM4(C), AM5
22-Oct	23-Oct	24-Oct	25-Oct	26-Oct	27-Oct	28-Oct
		1 hr TSP X3 AM4(C), AM5 Noise M6(A) M7, M8, M9	1 hr TSP X3 AM2, AM3(A)		24-hr TSP AM2(A),AM4(C), AM5	
29-Oct	30-Oct	31-Oct				
	1 hr TSP X3 AM4(C), AM5 Noise M6(A) M7, M8, M9	1 hr TSP X3 AM2, AM3(A)				

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

Air Quality Monitoring Station

AM2 - Lee Kau Yan Memorial School
AM2(A) - Ng Wah Catholic Secondary School
AM3(A) - Holy Trinity Bradbury Centre
AM4(C) - New Pumping Station under Contract KL/2012/03
AM5 - CCC Kei To Secondary School

Noise Monitoring Station

M6(A) - Oblate Primary School
M7 - CCC Kei To Secondary School
M8 - Po Leung Kuk Ngan Po Ling College
M9 - Tak Long Estate

**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 ($\mu\text{g}/\text{m}^3$)
6-Sep-17	13:35	Cloudy	128.9
6-Sep-17	14:35	Cloudy	121.2
6-Sep-17	15:35	Cloudy	134.3
12-Sep-17	13:00	Cloudy	167.9
12-Sep-17	14:00	Cloudy	172.1
12-Sep-17	15:00	Cloudy	176.6
18-Sep-17	13:00	Sunny	154.5
18-Sep-17	14:00	Sunny	148.2
18-Sep-17	15:00	Sunny	142.8
23-Sep-17	13:00	Sunny	181.8
23-Sep-17	14:00	Sunny	186.6
23-Sep-17	15:00	Sunny	170.2
29-Sep-17	8:50	Sunny	66.7
29-Sep-17	9:50	Sunny	61.0
29-Sep-17	10:50	Sunny	71.4
		Average	138.9
		Maximum	186.6
		Minimum	61.0

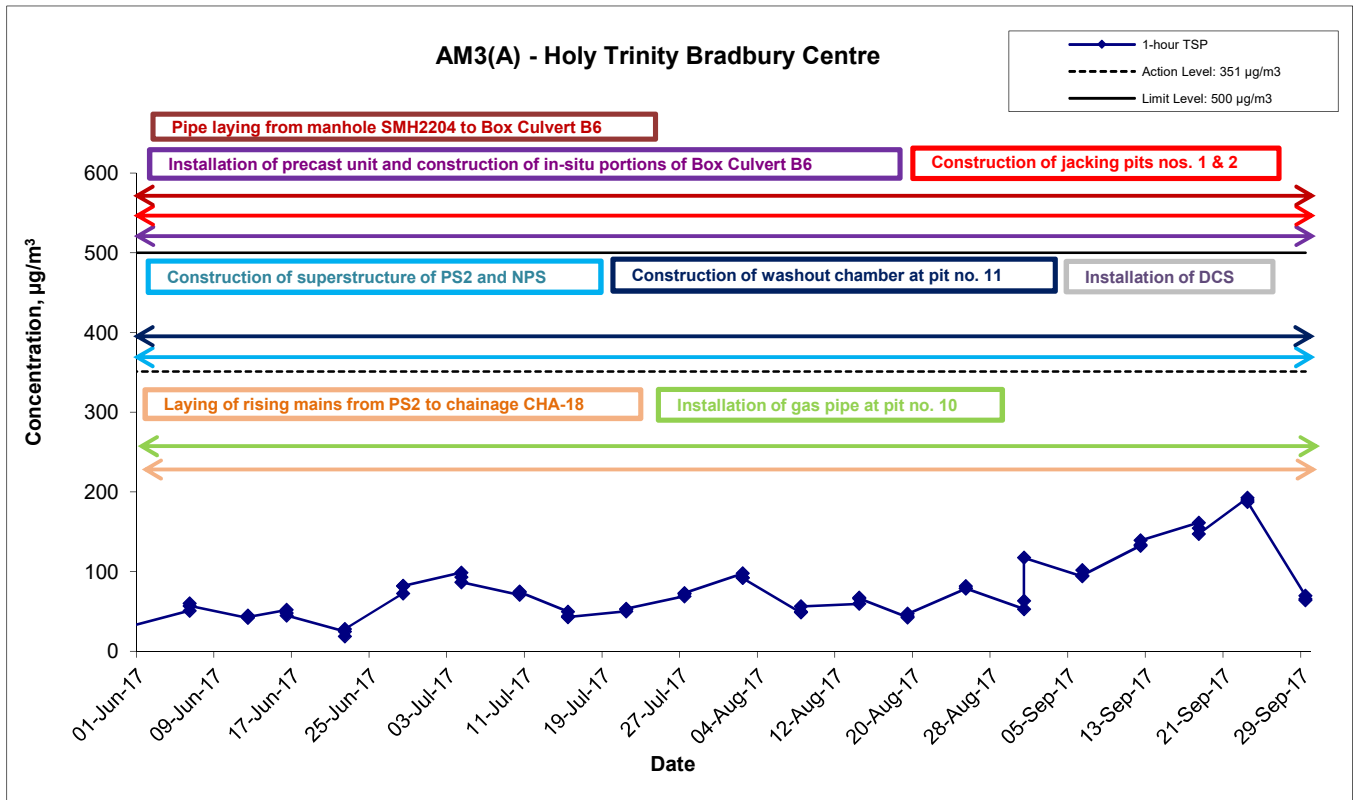
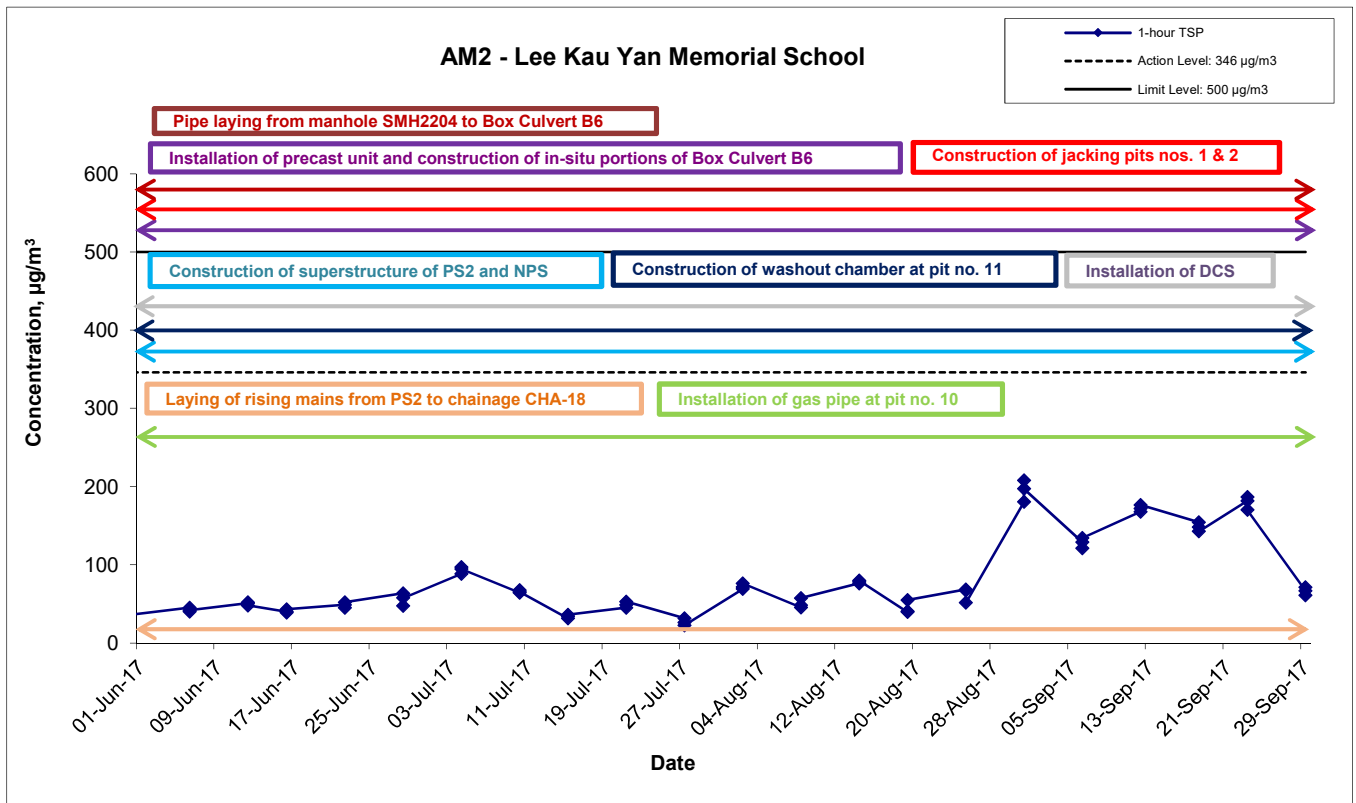
Location AM3(A) - Holy Trinity Bradury Centre			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
6-Sep-17	9:00	Cloudy	94.1
6-Sep-17	10:00	Cloudy	102.1
6-Sep-17	11:00	Cloudy	95.3
12-Sep-17	9:00	Cloudy	132.6
12-Sep-17	10:00	Cloudy	133.5
12-Sep-17	11:00	Cloudy	139.2
18-Sep-17	9:00	Sunny	161.5
18-Sep-17	10:00	Sunny	154.5
18-Sep-17	11:00	Sunny	147.5
23-Sep-17	9:00	Sunny	192.5
23-Sep-17	10:00	Sunny	189.9
23-Sep-17	11:00	Sunny	187.5
29-Sep-17	13:00	Sunny	70.0
29-Sep-17	14:00	Sunny	65.7
29-Sep-17	15:00	Sunny	64.1
		Average	128.7
		Maximum	192.5
		Minimum	64.1

Appendix E - 1-hour TSP Monitoring Results

Location AM4(C) - New Pumping Station			
Date	Time	Weather	Particulate Concentration (µg/m3)
1-Sep-17	9:00	Cloudy	297.8
1-Sep-17	10:00	Cloudy	251.7
1-Sep-17	11:00	Cloudy	228.3
7-Sep-17	13:00	Cloudy	143.0
7-Sep-17	14:00	Cloudy	145.5
7-Sep-17	15:00	Cloudy	134.9
13-Sep-17	13:00	Sunny	142.1
13-Sep-17	14:00	Sunny	145.2
13-Sep-17	15:00	Sunny	140.7
19-Sep-17	9:00	Sunny	31.3
19-Sep-17	10:00	Sunny	30.2
19-Sep-17	11:00	Sunny	31.3
25-Sep-17	13:00	Sunny	89.4
25-Sep-17	14:00	Sunny	99.9
25-Sep-17	15:00	Sunny	97.8
29-Sep-17	9:00	Sunny	42.3
29-Sep-17	10:00	Sunny	44.2
29-Sep-17	11:00	Sunny	44.9
		Average	118.9
		Maximum	297.8
		Minimum	30.2

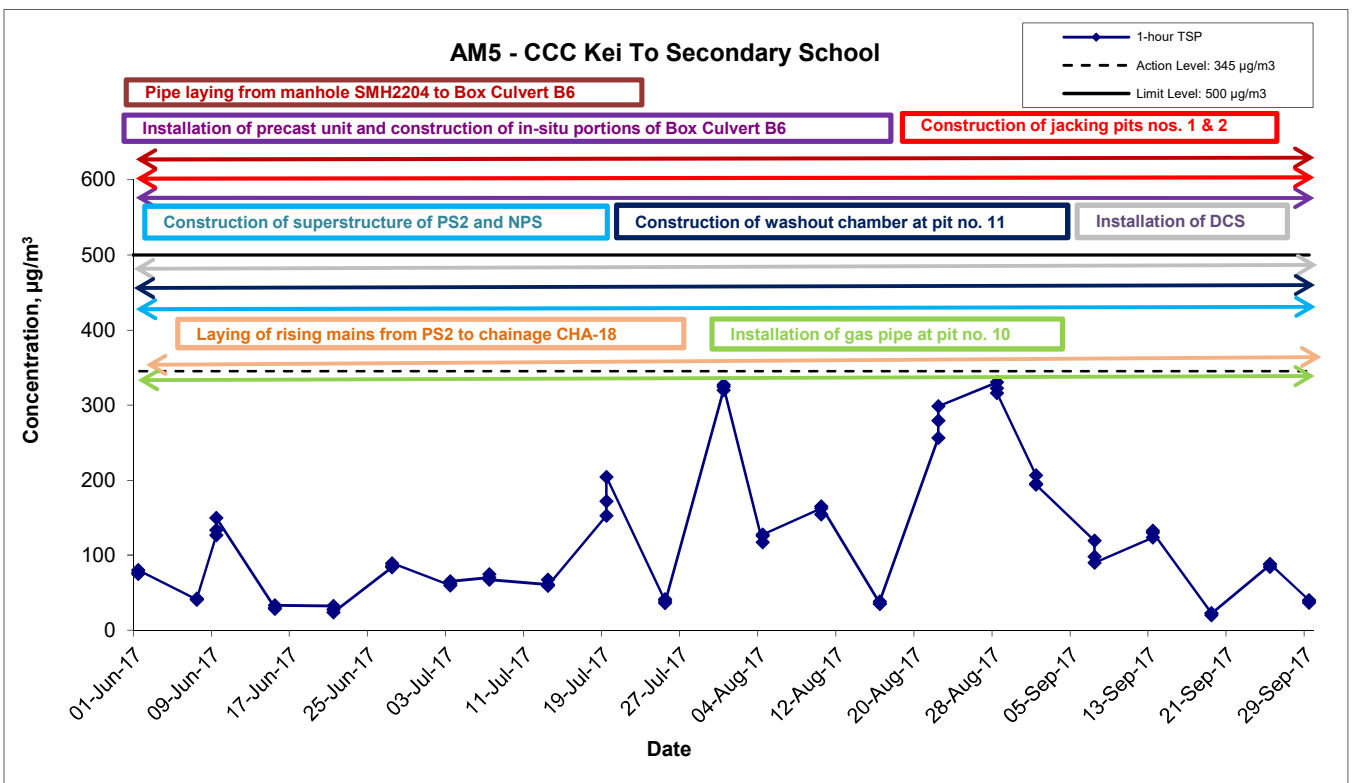
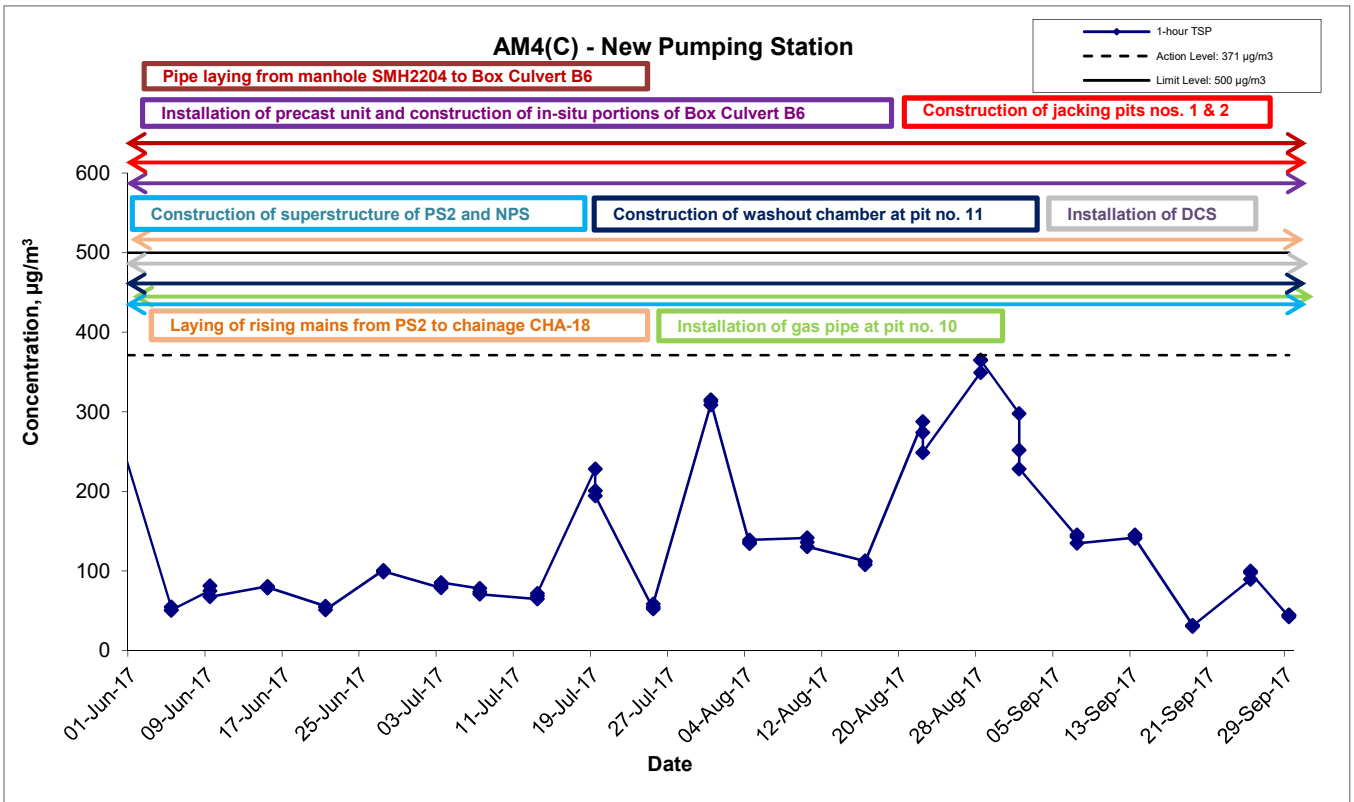
Location AM5 - CCC Kei To Secondary School			
Date	Time	Weather	Particulate Concentration (µg/m3)
1-Sep-17	13:00	Cloudy	206.5
1-Sep-17	14:00	Cloudy	195.3
1-Sep-17	15:00	Cloudy	194.0
7-Sep-17	9:00	Sunny	119.5
7-Sep-17	10:00	Sunny	97.9
7-Sep-17	11:00	Sunny	90.1
13-Sep-17	13:00	Sunny	123.8
13-Sep-17	14:00	Sunny	132.6
13-Sep-17	15:00	Sunny	130.2
19-Sep-17	13:30	Sunny	22.4
19-Sep-17	14:30	Sunny	20.1
19-Sep-17	15:30	Sunny	22.4
25-Sep-17	9:00	Sunny	87.3
25-Sep-17	10:00	Sunny	84.4
25-Sep-17	11:00	Sunny	88.3
29-Sep-17	9:00	Sunny	40.2
29-Sep-17	10:00	Sunny	36.8
29-Sep-17	11:00	Sunny	39.2
		Average	107.7
		Maximum	206.5
		Minimum	20.1

1-hr TSP Concentration Levels



Title Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 1-hour TSP Monitoring Results	Contract No. KL/2012/03	Scale N.T.S	Project No. MA13056	CINOTECH
		Date Sep 17	Appendix E	

1-hr TSP Concentration Levels



Title	Contract No. KL/2012/03	Scale	Project No.	CINOTECH
	Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area	N.T.S	MA13056	
Graphical Presentation of 1-hour TSP Monitoring Results		Date	Appendix	
		Sep 17	E	

**APPENDIX F
24-HOUR TSP MONITORING RESULTS
AND GRAPHICAL PRESENTATION**

Appendix F - 24-hour TSP Monitoring Results

Location AM2(A) - Ng Wah Catholic Secondary 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			
6-Sep-17	Cloudy	303.3	758.2	2.8214	2.8903	0.0689	15547.2	15571.2	24.0	1.22	1.22	1.22	1762.4	39.1
12-Sep-17	Cloudy	303.7	759.3	3.3276	3.4937	0.1661	15595.2	15619.2	24.0	1.22	1.22	1.22	1762.5	94.2
18-Sep-17	Sunny	303.6	760.8	3.3236	3.4932	0.1696	15643.2	15667.2	24.0	1.23	1.23	1.23	1764.5	96.1
23-Sep-17	Sunny	300.3	760.3	2.8168	2.9140	0.0972	15691.2	15715.2	24.0	1.23	1.23	1.23	1773.7	54.8
29-Sep-17	Sunny	302.3	761.7	3.3271	3.4199	0.0928	15739.2	15763.2	24.0	1.22	1.22	1.22	1761.1	52.7
													Min	39.1
													Max	96.1
													Average	67.4

Location AM4(C) - New Pumping Station under Contract KL/2012/03

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			
7-Sep-17	Sunny	300.5	758.1	2.8603	2.8934	0.0331	1773.2	1797.2	24.0	1.21	1.21	1.21	1745.5	19.0
13-Sep-17	Sunny	304.3	759.7	2.8082	2.8373	0.0291	1797.2	1821.2	24.0	1.21	1.20	1.21	1735.2	16.8
18-Sep-17	Sunny	302.7	761.4	2.8288	2.9949	0.1661	0.6	24.6	24.0	1.22	1.22	1.22	1755.6	94.6
23-Sep-17	Sunny	300.7	760.1	3.2940	3.3558	0.0618	24.6	48.6	24.0	1.22	1.22	1.22	1760.3	35.1
29-Sep-17	Sunny	302.8	761.6	2.9103	3.0206	0.1103	48.6	72.6	24.0	1.22	1.22	1.22	1755.6	62.8
													Min	16.8
													Max	94.6
													Average	45.7

Location AM5 - CCC Kei To Secondary 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			
6-Sep-17	Sunny	303.8	758.6	2.9189	2.9422	0.0233	3386.2	3410.2	24.0	1.20	1.19	1.19	1720.5	13.5
12-Sep-17	Cloudy	303.5	759.1	3.3368	3.3920	0.0552	3410.2	3434.2	24.0	1.21	1.21	1.21	1744.8	31.6
18-Sep-17	Sunny	303.2	760.5	3.3391	3.3879	0.0488	120.3	144.3	24.0	1.21	1.21	1.21	1747.3	27.9
23-Sep-17	Sunny	299.7	760.8	2.8243	2.8897	0.0654	144.3	168.3	24.0	1.22	1.22	1.22	1758.0	37.2
29-Sep-17	Sunny	302.9	761.4	3.3015	3.3486	0.0471	168.3	192.3	24.0	1.22	1.21	1.21	1749.3	26.9
													Min	13.5
													Max	37.2
													Average	27.4

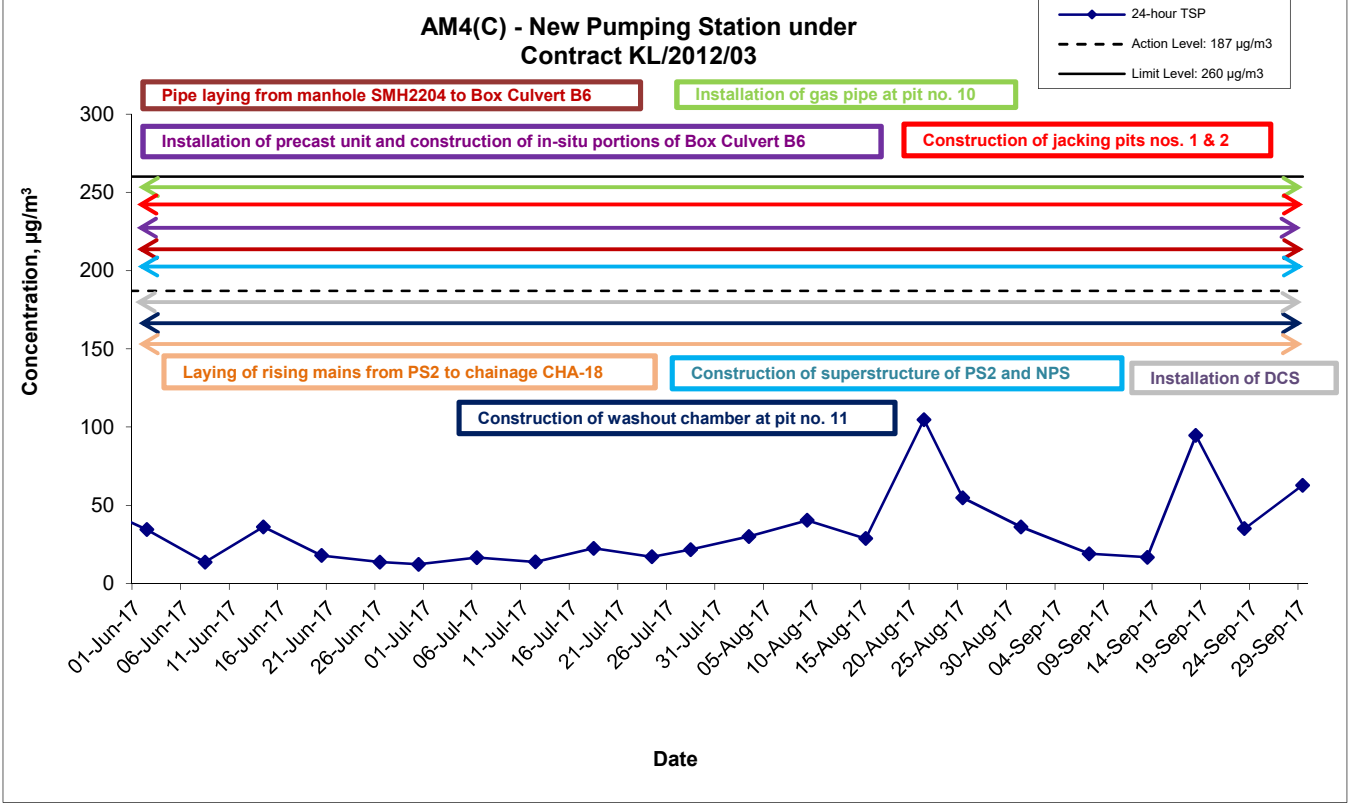
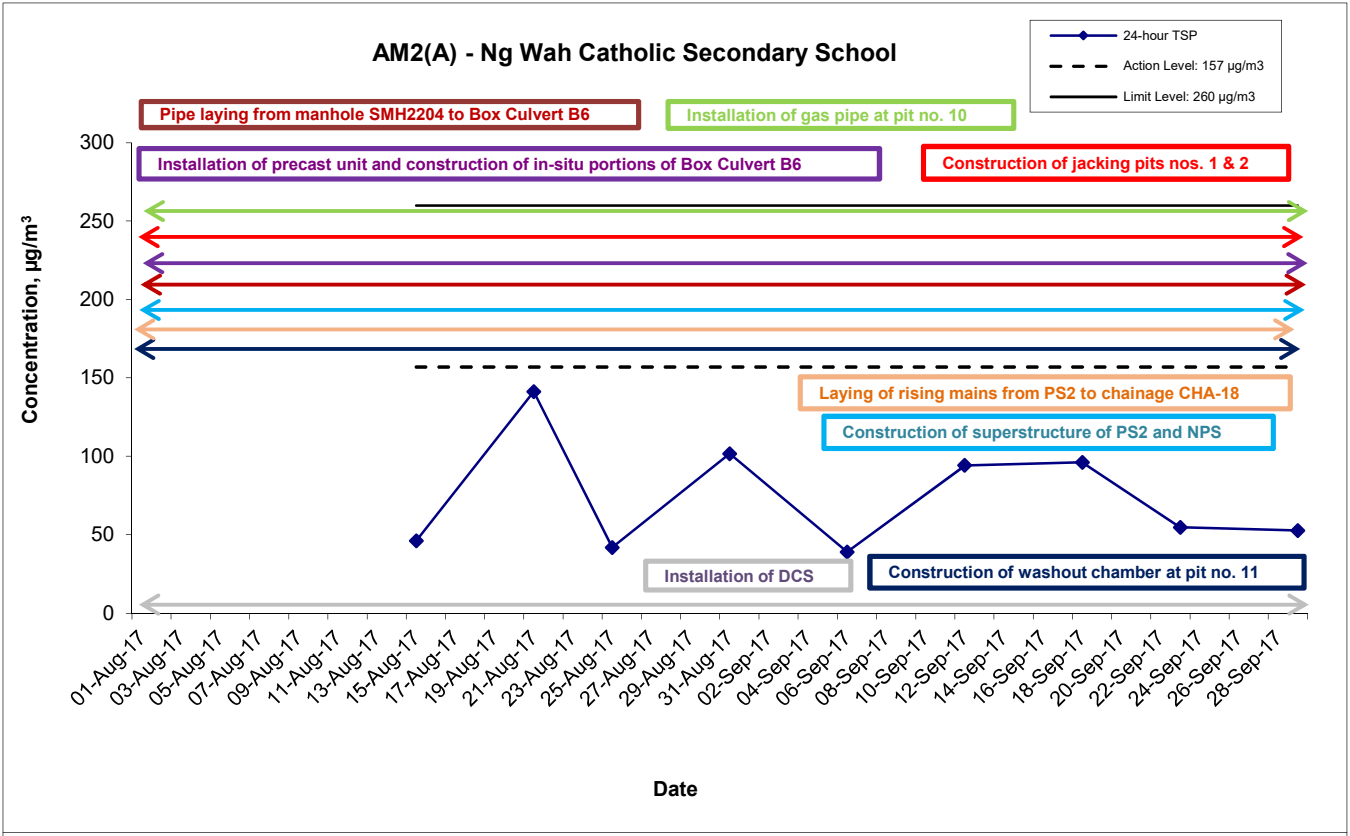
Appendix F - 24-hour TSP Monitoring Results

Monitoring data at AM3(A) was conducted by Castco

Location AM3(A) - Holy Trinity Bradbury Centre

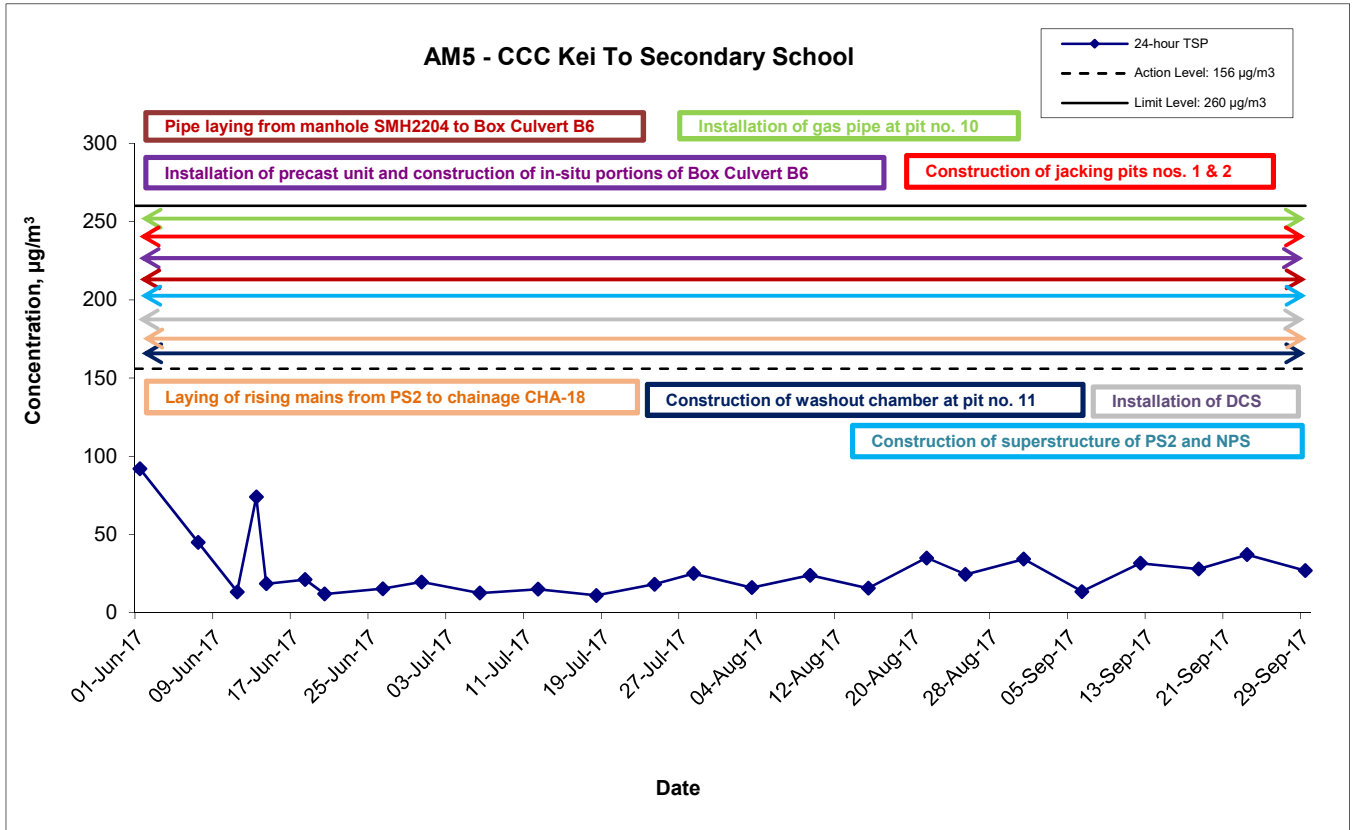
Start Date	Weather Condition	Conc. ($\mu\text{g}/\text{m}^3$)
6-Sep-17	Sunny	51
12-Sep-17	Sunny	103
18-Sep-17	Sunny	112
23-Sep-17	Sunny	37
29-Sep-17	Sunny	43
	Min	37
	Max	112
	Average	69

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	Project		
		N.T.S		No. MA13056
	Date	Sep 17		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. MA13056	CINOTECH
	Date Sep 17	Appendix F	

**APPENDIX G
NOISE MONITORING RESULTS AND
GRAPHICAL PRESENTATION**

Appendix G - Noise Monitoring Results

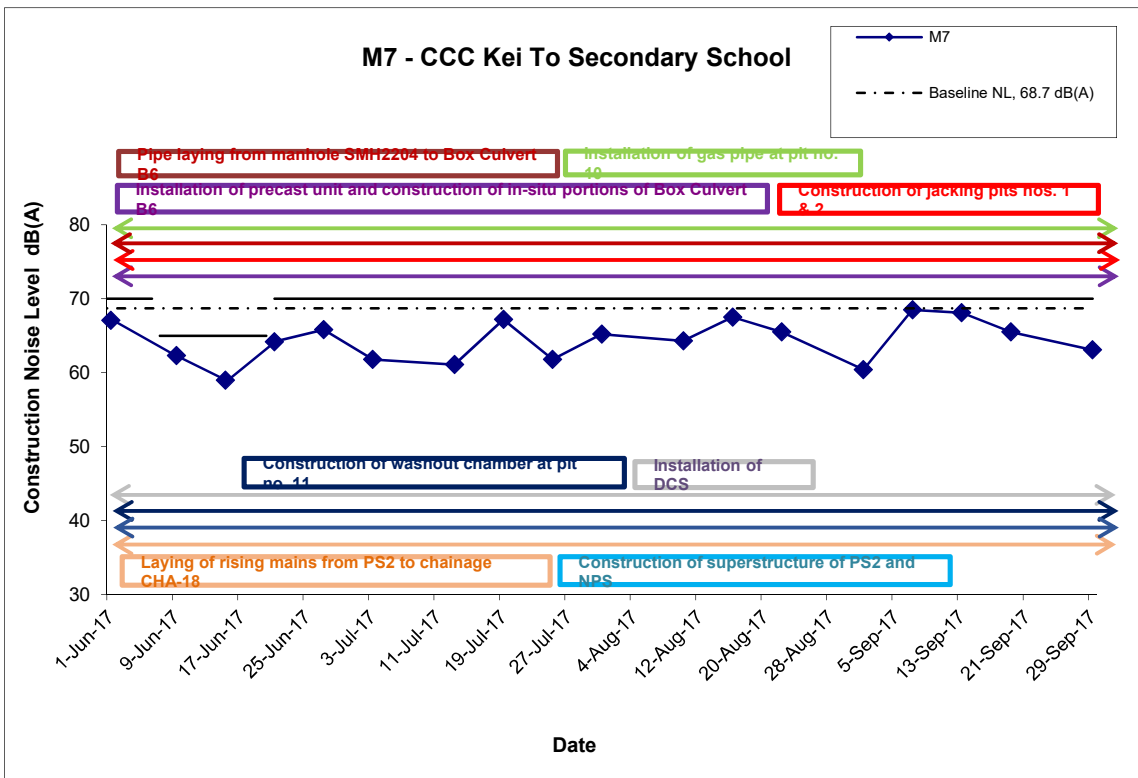
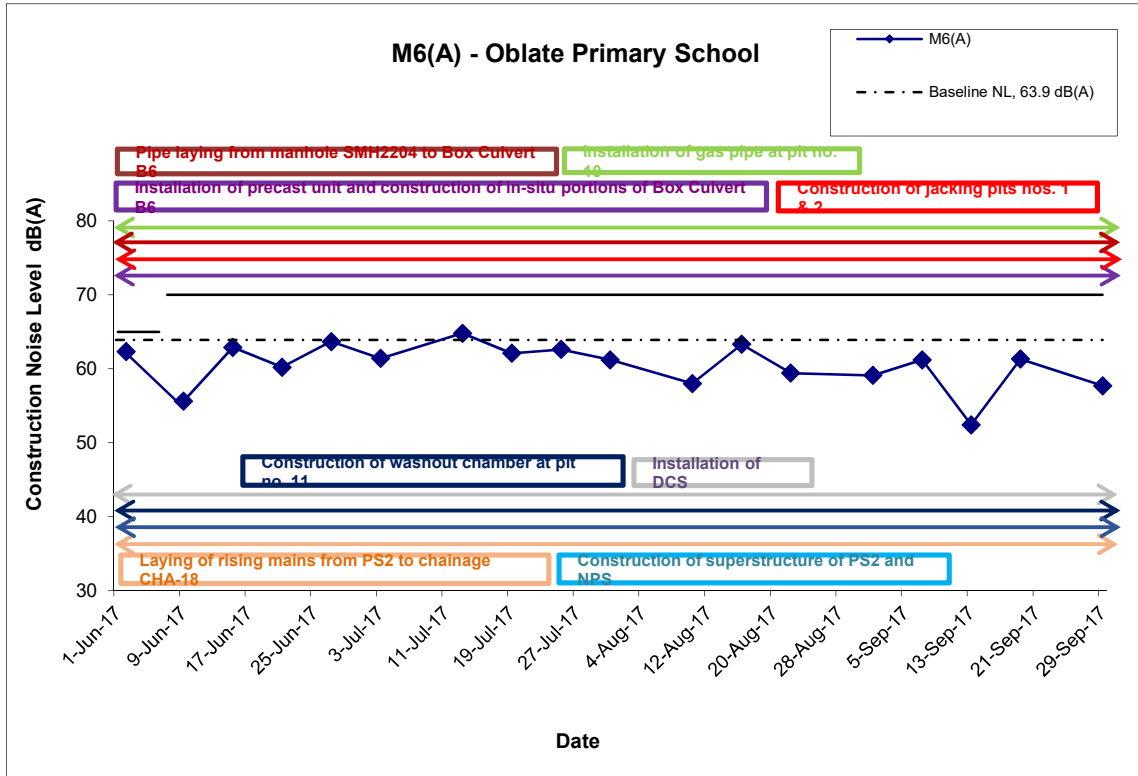
Location M6(A) - Oblate Primary School							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
1-Sep-17	14:00	Cloudy	59.1	61.2	58.1	63.9	59.1 Measured ≤ Baseline
7-Sep-17	14:00	Rainy	61.2	62.6	58.5		61.2 Measured ≤ Baseline
13-Sep-17	10:45	Cloudy	64.2	66.5	62.3		52.4
19-Sep-17	11:00	Sunny	61.3	62.7	59.4		61.3 Measured ≤ Baseline
29-Sep-17	10:40	Sunny	57.7	59.5	55.4		57.7 Measured ≤ Baseline

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}
1-Sep-17	13:05	Cloudy	69.3	71.8	66.2	68.7	60.4
7-Sep-17	9:30	Sunny	68.5	71.0	63.8		68.5 Measured ≤ Baseline
13-Sep-17	13:05	Cloudy	68.1	71.0	62.6		68.1 Measured ≤ Baseline
19-Sep-17	13:45	Sunny	70.4	71.8	64.4		65.5
29-Sep-17	9:05	Sunny	63.1	64.6	58.5		63.1 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}
1-Sep-17	15:00	Cloudy	63.2	65.0	58.2	61.9	57.3
7-Sep-17	13:00	Sunny	69.6	76.0	65.4		68.8
13-Sep-17	11:30	Cloudy	64.2	66.6	60.0		60.3
19-Sep-17	15:00	Sunny	63.6	66.1	59.0		58.7
29-Sep-17	11:30	Sunny	65.5	66.9	62.5		63.0

Location M9 - Tak Long Estate							
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}
1-Sep-17	9:30	Cloudy	63.0	64.3	61.2	59.9	60.1
7-Sep-17	10:30	Cloudy	64.0	65.7	62.1		61.9
13-Sep-17	9:00	Cloudy	62.9	65.6	62.0		59.9
19-Sep-17	13:00	Sunny	64.1	65.6	62.2		62.0
29-Sep-17	13:20	Sunny	62.4	64.1	60.5		58.8

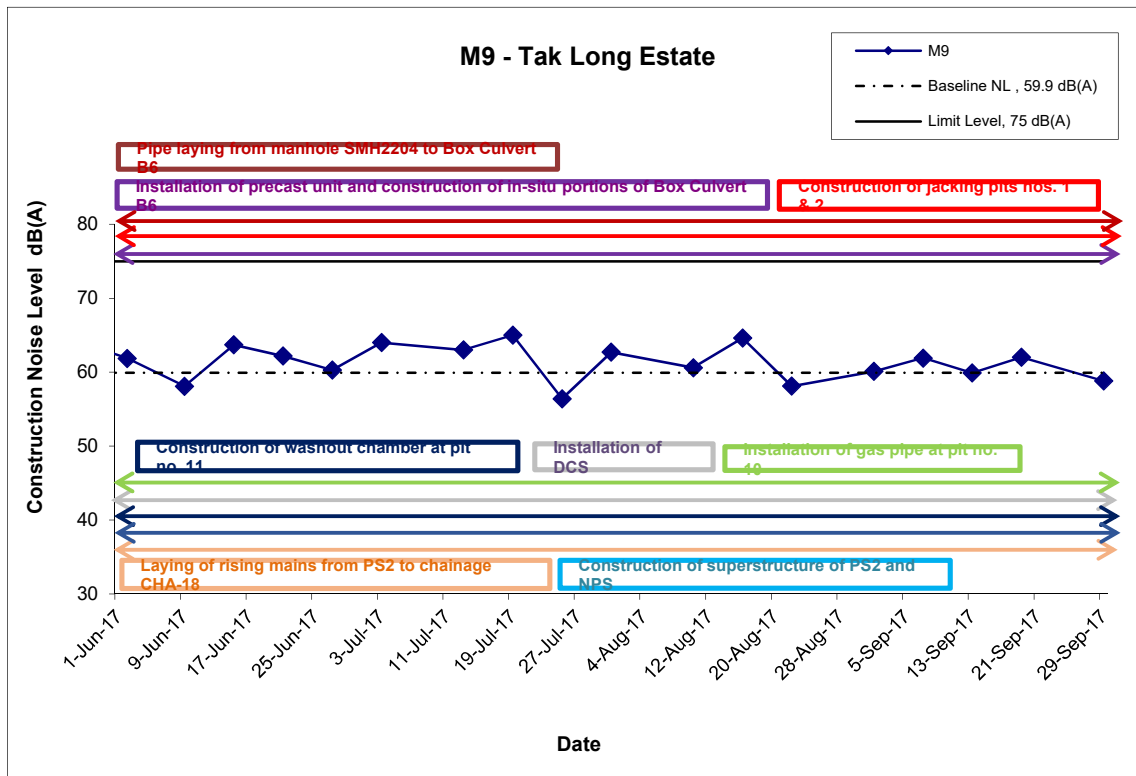
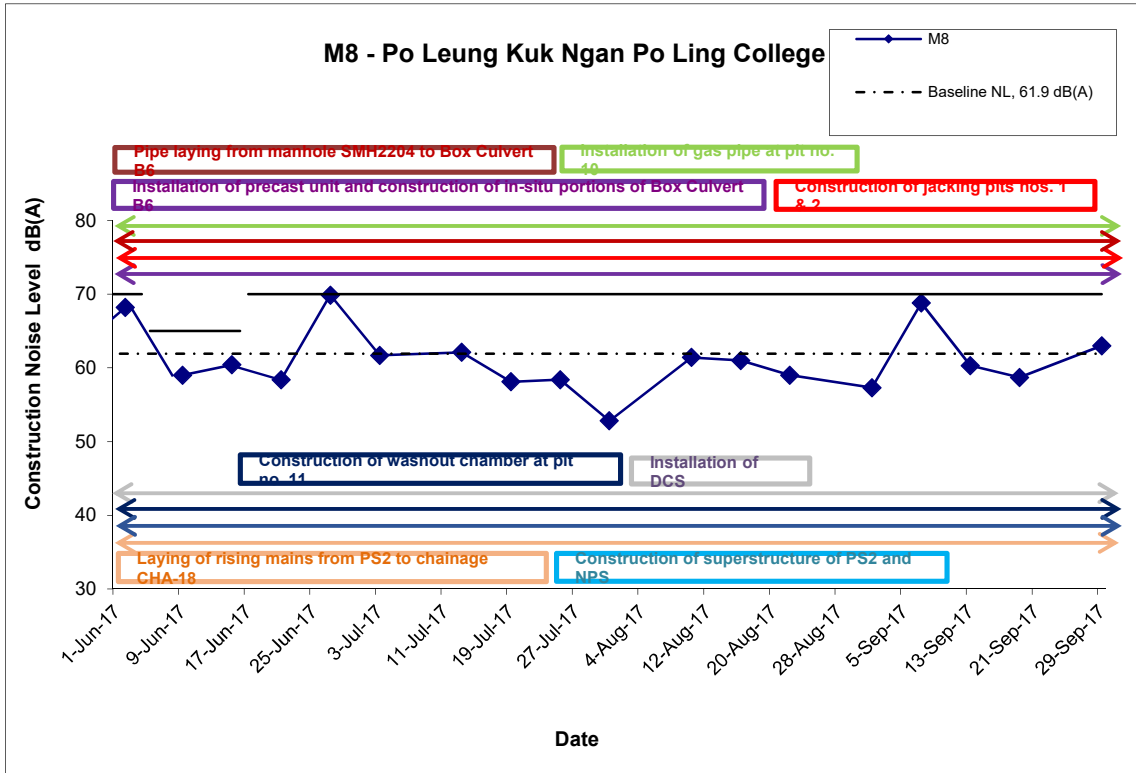
Noise Levels



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

Title Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of Construction Noise Monitoring Results	Scale	Project No.	CINOTECH
	Date	Appendix	
	N.T.S	VA13056	
	Sep 17	G	

Noise Levels



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

Title Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of Construction Noise Monitoring Results	Scale	Project No.	CINOTECH
	Date	Appendix	
	N.T.S	VA13056	
	Sep 17	G	

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**



Contract No. KL/2012/03

**Kai Tak Development - Stage 4 Infrastructure at Former North Apron Area
EP-337/2009 - New Distributor Roads serving the Planned Kai Tak Development**

**Weekly Site Inspection Record Summary
Inspection Information**

Checklist Reference Number	170901
Date	1 September 2017
Time	10:00-12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	D. Noise	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	H. Others	
	<ul style="list-style-type: none">Follow-up on previous audit session (Ref. No.: 170825), all environmental deficiencies were improved/rectified during the site inspection.	

	Name	Signature	Date
Recorded by	Kelvin Koo		1 September 2017
Checked by	Dr. Priscilla Choy		1 September 2017

Contract No. KL/2012/03

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



EP-337/2009 - New Distributor Roads serving the Planned Kai Tak Development

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	170908
Date	8 September 2017
Time	14:00-17:00

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 session (Ref. No.: 170901), all environmental deficiencies were improved/rectified during the site inspection.	

	Name	Signature	Date
Recorded by	Kelvin Koo		8 September 2017
Checked by	Dr. Priscilla Choy		8 September 2017

Contract No. KL/2012/03

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



EP-337/2009 - New Distributor Roads serving the Planned Kai Tak Development

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	170915
Date	15 September 2017
Time	14:00-15:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	D. Noise	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
170915-R01	<ul style="list-style-type: none">Drip tray should be provided to chemical containers near Site Office.	E 8
	F. Visual and Landscape	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	H. Others	
	<ul style="list-style-type: none">Follow-up on previous audit session (Ref. No.: 170908), no environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Kelvin Koo		15 September 2017
Checked by	Dr. Priscilla Choy		15 September 2017

Contract No. KL/2012/03

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



EP-337/2009 - New Distributor Roads serving the Planned Kai Tak Development

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	170920
Date	20 September 2017
Time	14:00-17:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
170920-R02	• Sandbag bund should be provided to gullies to avoid groundwater discharge.	B16
	C. Air Quality	
170920-R01	• Haul road and unpaved road were observed dry. The contractor was reminded to provide water spraying to haul road and unpaved road for dust suppression.	C5, C6
	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 session (Ref. No.: 170915), no environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Kelvin Koo		20 September 2017
Checked by	Dr. Priscilla Choy		20 September 2017

Contract No. KL/2012/03

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

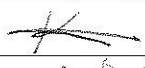

EP-337/2009 - New Distributor Roads serving the Planned Kai Tak Development

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	170929
Date	29 September 2017
Time	14:00-16:00



Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
170929-R01	• Ponding water near Site Office should be properly cleared.	B 8
	C. Air Quality	
170929-R02	• Stockpiles near Site Office should be covered with impervious sheets to prevent dust generation.	C 7
	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 session (Ref. No.: 170920), all environmental deficiencies were improved/rectified during the site inspection.	

	Name	Signature	Date
Recorded by	Kelvin Koo		29 September 2017
Checked by	Dr. Priscilla Choy		29 September 2017

Weekly Site Inspection Record Summary
 Inspection Information

Checklist Reference Number	170901
Date	1 September 2017
Time	10:00-12:00

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	
170901-R01	• Drip tray should be provided to chemical containers near NPS.	E 8
170901-R02	• Housekeeping near NPS should be improved and accumulation of general refuse should be avoided.	E 7
	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 session (Ref. No.: 170825), no major environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Kelvin Koo		1 September 2017
Checked by	Dr. Priscilla Choy		1 September 2017



Contract No. KL/2012/03

**Kai Tak Development - Stage 4 Infrastructure at Former North Apron Area
EP-344/2009 - New Sewage Pumping Stations serving Kai Tak Development**

**Weekly Site Inspection Record Summary
Inspection Information**

Checklist Reference Number	170908
Date	8 September 2017
Time	14:00-17:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
170908-R01	• Ponding water near NPS should be cleared.	B 8
	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 session (Ref. No.: 170901), all environmental deficiencies were improved/rectified during the site inspection.	

	Name	Signature	Date
Recorded by	Kelvin Koo		8 September 2017
Checked by	Dr. Priscilla Choy		8 September 2017



Contract No. KL/2012/03

**Kai Tak Development - Stage 4 Infrastructure at Former North Apron Area
EP-344/2009 - New Sewage Pumping Stations serving Kai Tak Development**

**Weekly Site Inspection Record Summary
Inspection Information**

Checklist Reference Number	170915
Date	15 September 2017
Time	14:00-15:30

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	
	• 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 session (Ref. No.: 170908), all environmental deficiencies were improved/rectified during the site inspection.	

	Name	Signature	Date
Recorded by	Kelvin Koo		15 September 2017
Checked by	Dr. Priscilla Choy		15 September 2017



Contract No. KL/2012/03

**Kai Tak Development - Stage 4 Infrastructure at Former North Apron Area
EP-344/2009 - New Sewage Pumping Stations serving Kai Tak Development**

**Weekly Site Inspection Record Summary
Inspection Information**

Checklist Reference Number	170920
Date	20 September 2017
Time	14:00-17:30

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	
	• 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 session (Ref. No.: 170915), all environmental deficiencies were improved/rectified during the site inspection.	

	Name	Signature	Date
Recorded by	Kelvin Koo		20 September 2017
Checked by	Dr. Priscilla Choy		20 September 2017



Contract No. KL/2012/03

**Kai Tak Development - Stage 4 Infrastructure at Former North Apron Area
EP-344/2009 - New Sewage Pumping Stations serving Kai Tak Development**

**Weekly Site Inspection Record Summary
Inspection Information**

Checklist Reference Number	170929
Date	29 September 2017
Time	14:00-16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	D. Noise	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
170929-R03	<ul style="list-style-type: none">Drip tray should be provided to chemical containers near NPS.	E 8
	F. Visual and Landscape	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	H. Others	
	<ul style="list-style-type: none">Follow-up on previous audit session (Ref. No.: 170920), no environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Kelvin Koo		29 September 2017
Checked by	Dr. Priscilla Choy		29 September 2017

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	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Inform Contactor, IEC and ER; 3. Repeat measurement to confirm finding. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action Level being exceeded by two or more consecutive sampling	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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

Appendix J - Event Action Plans

	<p>EPD, IEC and ER informed of the results.</p>	<p>4. Advise the ER on the effectiveness of the proposed remedial measures.</p>	<p>implemented; 4. Supervise implementation of remedial measures; 5. Conduct meeting with ET and IEC if exceedance continues.</p>	<p>working days of notification; 4. Implement the agreed proposals.</p>
<p>Limit Level being exceeded by two or more consecutive sampling</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>

Appendix J - Event Action Plans

Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded	<ol style="list-style-type: none"> 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. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 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. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 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. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>
Limit Level being exceeded	<ol style="list-style-type: none"> 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; 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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;

Appendix J - Event Action Plans

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

Appendix J - Event Action Plans

	<p>ER</p> <p>2. Increase monitoring frequency</p> <p>3. Discuss remedial actions with IEC, ER and Contractor</p> <p>4. Monitor remedial actions until rectification has been completed</p> <p>5. If non-conformity stops, cease additional monitoring</p>	<p>2. Check Contractor's working method</p> <p>3. Discuss with ET and Contractor on possible remedial measures</p> <p>4. Advise ER on effectiveness of proposed remedial measures</p> <p>5. Supervise implementation of remedial measures.</p>	<p>implemented</p>	<p>undertake any necessary replacement</p>
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**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
<p align="center">Construction Dust</p>	<p>8 times daily watering of the work site with active dust emitting activities.</p>	<p align="center">^</p> <p align="center">*</p> <p align="center">^</p> <p align="center">^</p> <p align="center">^</p> <p align="center">^</p> <p align="center">^</p> <p align="center">^</p> <p align="center">^</p> <p align="center">^</p> <p align="center">^</p> <p align="center">^</p>
	<p>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.</p>	
	<ul style="list-style-type: none"> • Stockpiling site(s) should be lined with impermeable sheeting and banded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission. 	
	<ul style="list-style-type: none"> • Misting for the dusty material should be carried out before being loaded into the vehicle. 	
	<ul style="list-style-type: none"> • Any vehicle with an open load carrying area should have properly fitted side and tail boards. 	
	<ul style="list-style-type: none"> • 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. 	
	<ul style="list-style-type: none"> • The tarpaulin should be properly secured and should extend at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation. 	
	<ul style="list-style-type: none"> • 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. 	
	<ul style="list-style-type: none"> • Vehicle washing facilities should be provided at every vehicle exit point. 	
	<ul style="list-style-type: none"> • 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. 	
	<ul style="list-style-type: none"> • 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. 	
	<ul style="list-style-type: none"> • 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. 	
	<ul style="list-style-type: none"> • 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.	N/A(1)
	• 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.	^
	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 111; 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	

	<p>(i) avoid any sensitive facades with openable window facing the existing To Kwa Wan Road or</p> <p>(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.</p> <p>(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</p> <hr/> <p>All the ventilation fans installed in the below will be provided with silencers or acoustics treatment.</p> <p>(i) SPS (ii) ESS (iii) Tunnel Ventilation Shaft (iv) EFTS depot</p> <p>Installation of retractable roof or other equivalent measures</p>	<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>
<p>Construction Water Quality</p>	<p>The following mitigation measures are proposed to be incorporated in the design of the SPS at KTD, including:</p> <ul style="list-style-type: none"> • 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. <p><u>Land-based Construction</u></p> <p><i>Construction Runoff</i></p> <p>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:</p> <ul style="list-style-type: none"> • use of sediment traps • adequate maintenance of drainage systems to prevent flooding and overflow 	<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>^</p> <p>^</p> <p>^</p>

	<p>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 sediment deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.</p> <p>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.</p> <p>Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m³ 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.</p> <p>Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m³ 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.</p> <p>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.</p> <p>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.</p> <p>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.</p>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
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	<p>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.</p> <p><i>Drainage</i></p> <p>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.</p> <p>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.</p> <p>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.</p> <p><i>Sewage Effluent</i></p> <p>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.</p> <p><i>Stormwater Discharges</i></p> <p>Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes</p>	<p>*</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>N/A</p>
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	<p>General Refuse</p> <p>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</p>	*
Landscape and Visual	<p>CM1 All existing trees should be carefully protected during construction.</p>	^
	<p>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.</p>	N/A
	<p>CM3 Control of night-time lighting.</p>	^
	<p>CM4 Erection of decorative screen hoarding.</p>	^

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: September 2017

Warnings / Summons and Successful Prosecutions received in the reporting month

Log Ref.	Received Date	Details of Warning / Summons and Successful Prosecutions	Investigation/Mitigation Action	Status
N/A	N/A	N/A	N/A	N/A

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

Complaint Log

EPD Complaint Ref No.	Date of Complaint	Complaint Details	Investigation / Mitigation Action	Status
N/A	N/A	N/A	N/A	N/A

**APPENDIX M
GENERATED WASTE QUANTITY**

APPENDIX IV
Monthly Summary Waste Flow Table
 (PS Clause 1.86)

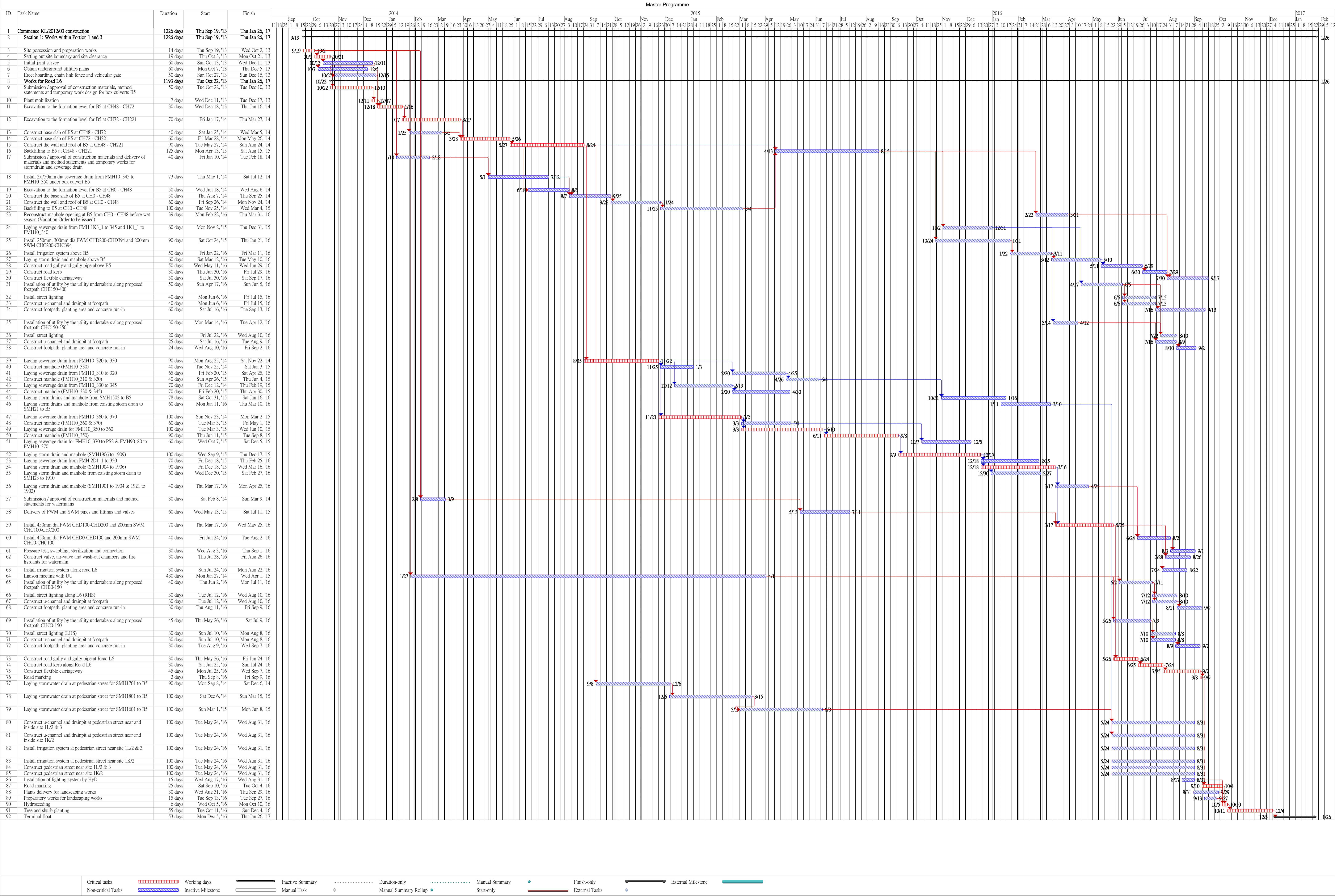
Name of Department: CEDD

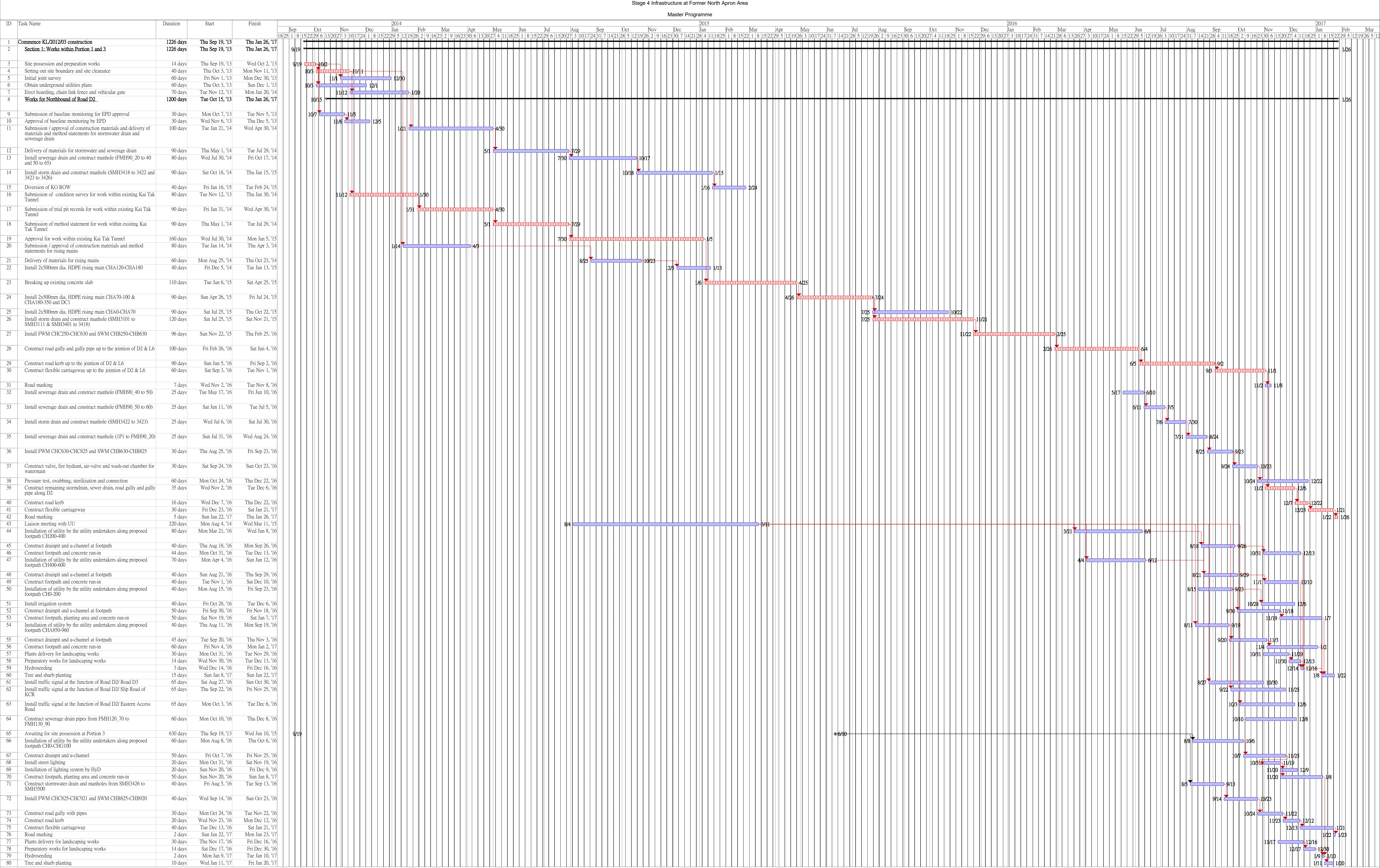
Contract No. : KL/2012/03

Monthly Summary Waste Flow Table for September 2017 (year) (in tons)

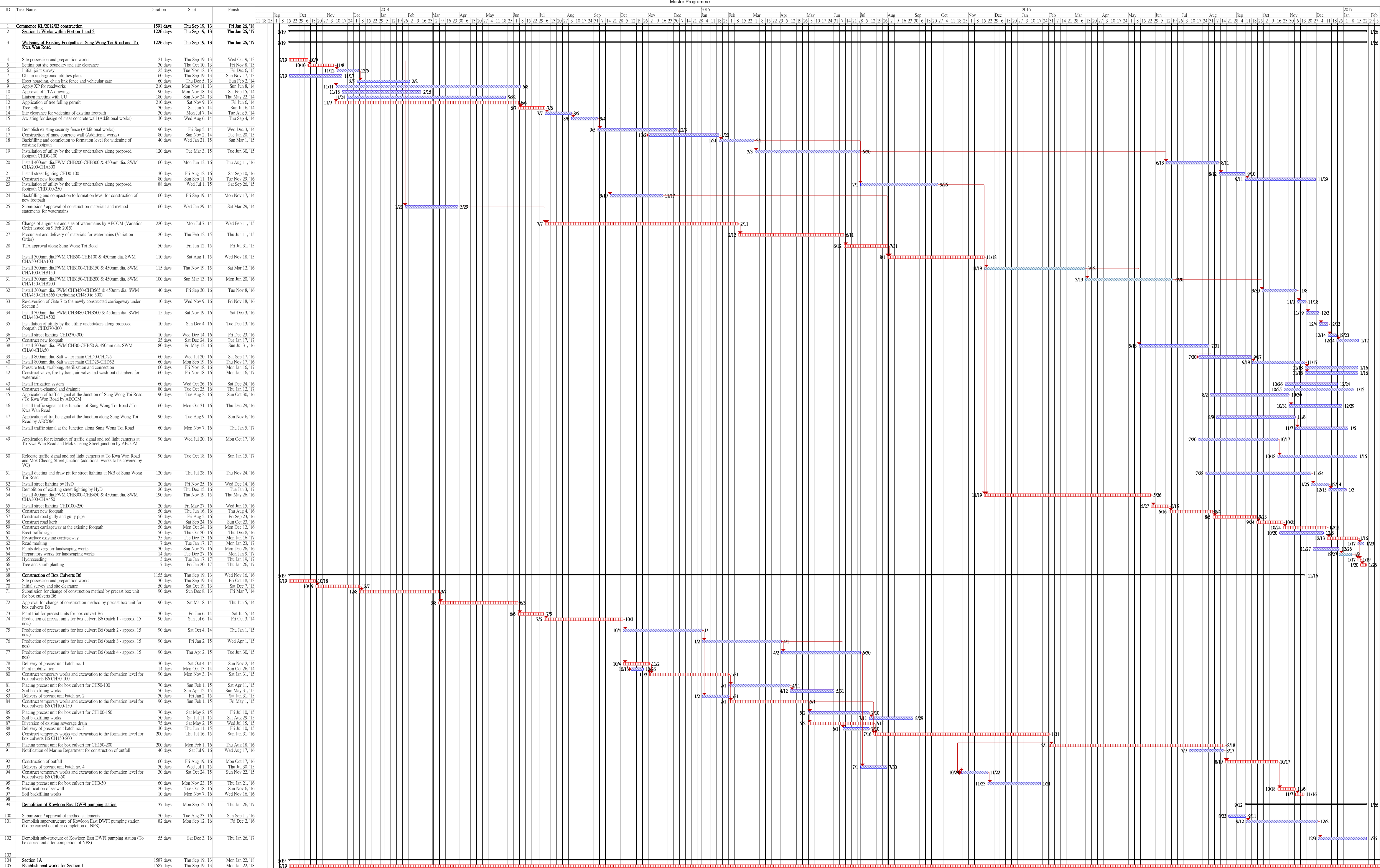
Month	Total Disposal Loads	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
	(No.s)	(in tons)	Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse
			(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)
2013 (Oct - Dec) Sub-Total	108	463.69	0	0	0	0	0	0	0	0	0	463.69
2014 (Jan – Dec) Sub-Total	24	16925.7	0	0	16798.93	83.66	1804.27	0	0	0	0	43.11
2015 (Jan – Dec) Sub-Total	284	81859.97	0	0	38291.91	43457.21	19920	0	0	0	0	310.26
2015 (Jan – Dec) Sub-Total	3369	50762.64	0	0	0	49894.67	4020	0	0	0	0	867.95
Jan-17	23	107.63	0	0	0	58.53	0	0	0	0	0	39.1
Feb-17	1227	18948.76	0	0	0	18898.13	0	0	0	0	0	50.63
Mar-17	307	4426.51	0	0	0	4379.15	0	0	0	0	0	47.36
Apr-17	124	1741.5	0	0	0	1703.61	0	0	0	0	0	37.89
May-17	111	1608.02	0	0	0	1590.33	0	0	0	0	0	17.69
Jun-17	176	2649.19	0	0	0	2631.73	0	0	0	0	0	17.46
Jul-17	123	1732.3	0	0	0	1688.75	0	0	0	0	0	43.55
Aug-17	93	1229.67	0	0	0	1188.3	0	0	0	0	0	41.37
Sep-17	22	130.42	0	0	0	80.2	0	0	0	0	0	50.22
Oct-17												
Nov-17												
Dec-17												
Total	5991	182586	0	0	55090.84	125654.3	25744.27	0	0	0	0	2030.28

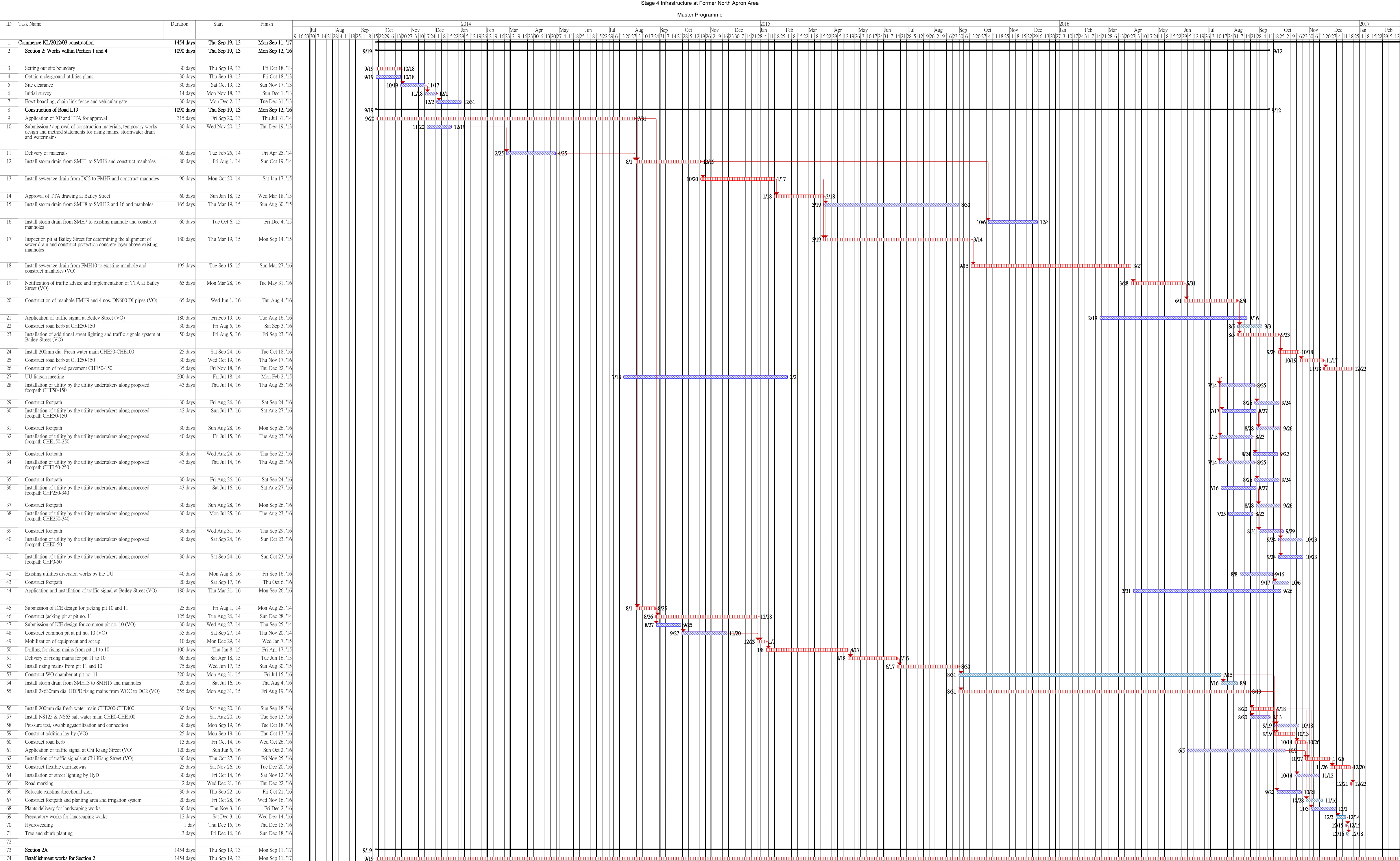
APPENDIX N
CONSTRUCTION PROGRAMME

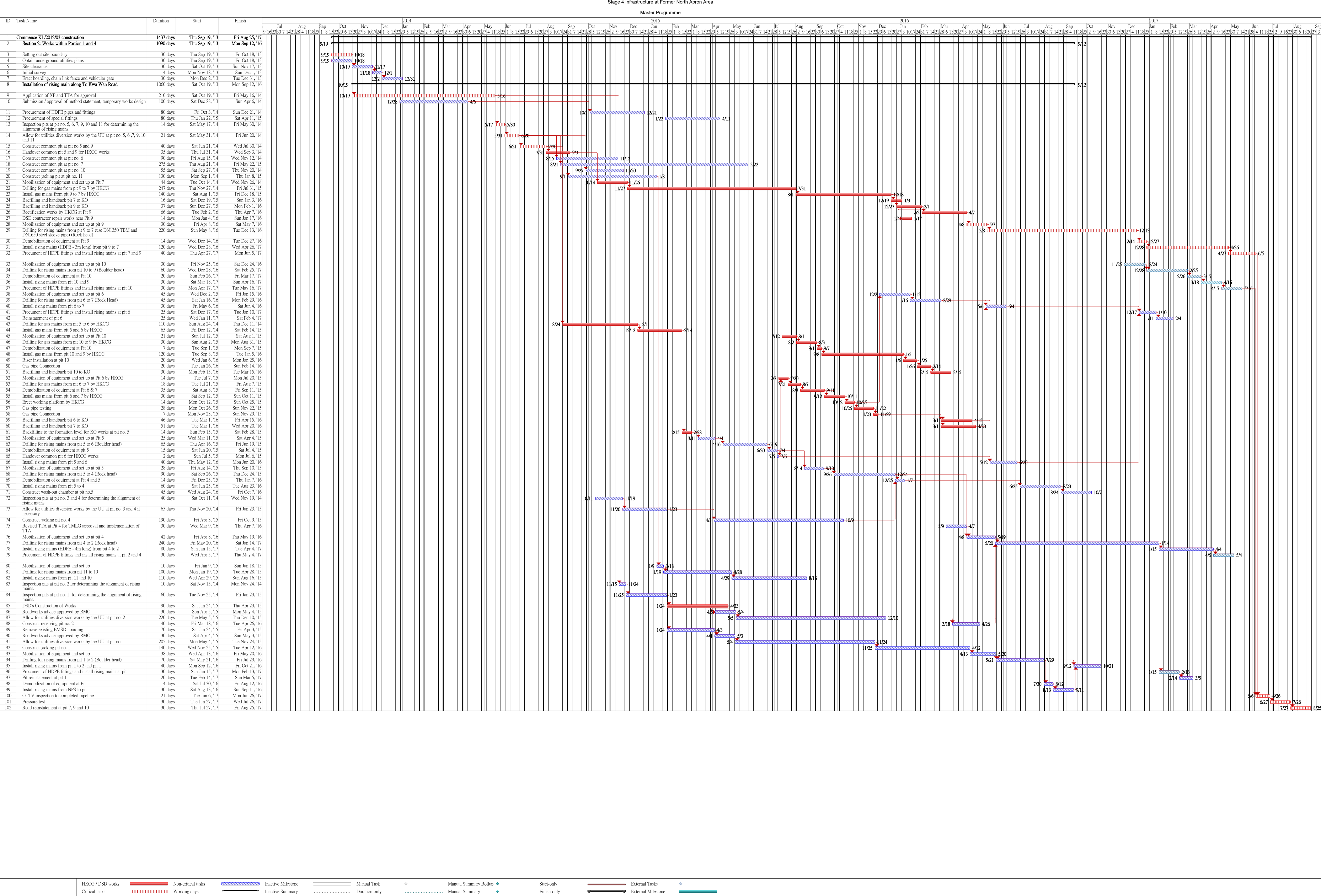


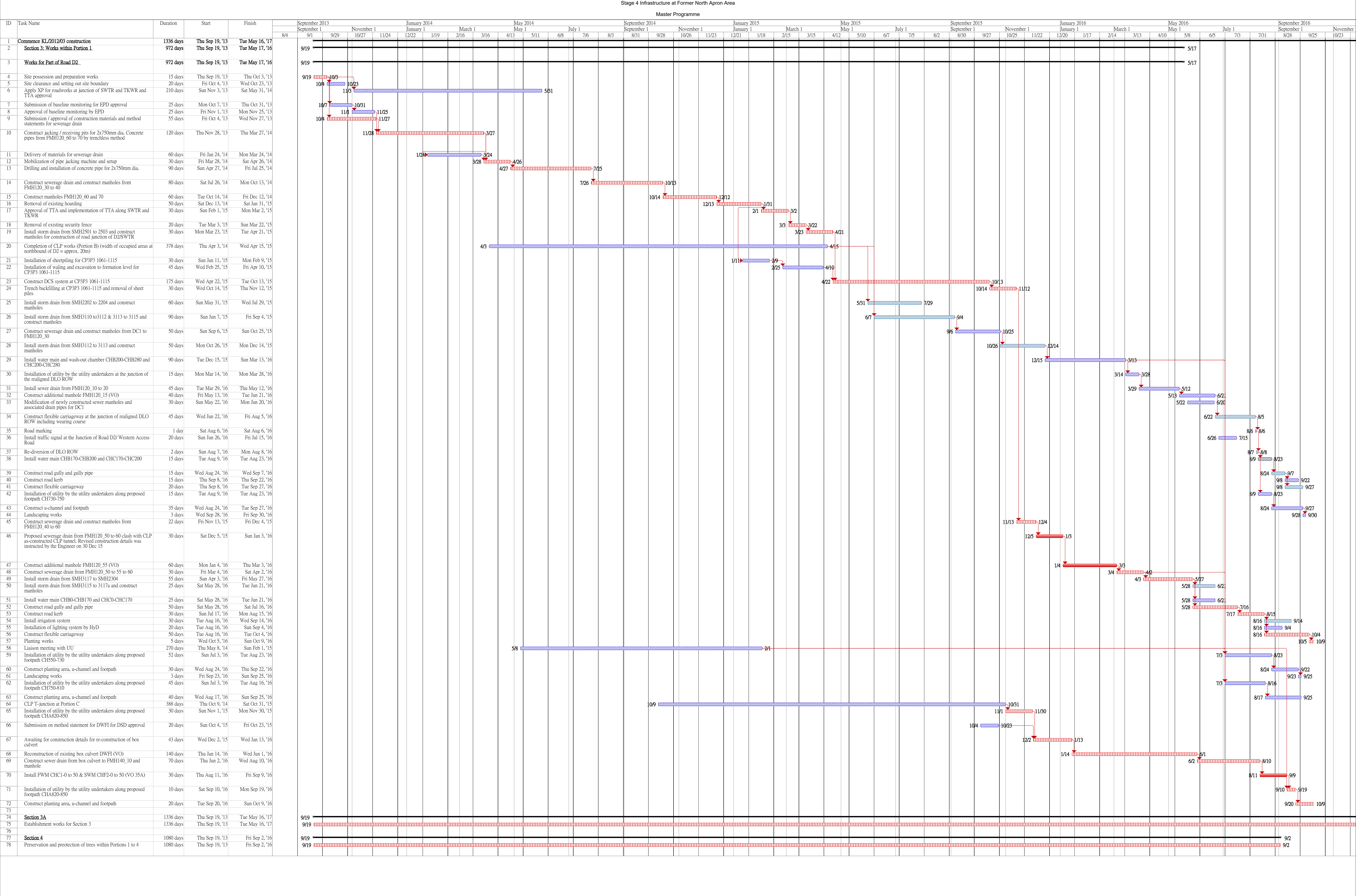


ID	Task Name	Duration	Start	Finish
1	Commence KL/2012/03 construction	1226 days	Thu Sep 19, '13	Thu Jan 26, '17
2	Section 1: Works within Portion 1 and 3	1226 days	Thu Sep 19, '13	Thu Jan 26, '17
3	Site possession and preparation works	14 days	Thu Sep 19, '13	Wed Oct 2, '13
4	Setting out site boundary and site clearance	40 days	Thu Oct 3, '13	Mon Nov 11, '13
5	Initial joint survey	60 days	Fri Nov 1, '13	Mon Dec 30, '13
6	Obtain underground utilities plans	60 days	Thu Oct 3, '13	Sun Dec 1, '13
7	Erect hoarding, chain link fence and vehicular gate	70 days	Tue Nov 12, '13	Mon Jan 20, '14
8	Works for Northbound of Road D2	1200 days	Tue Oct 15, '13	Thu Jan 26, '17
9	Submission of baseline monitoring for EPD approval	30 days	Mon Oct 7, '13	Tue Nov 5, '13
10	Approval of baseline monitoring by EPD	30 days	Thu Dec 5, '13	Thu Dec 5, '13
11	Submission / approval of construction materials and delivery of materials and method statements for stormwater drain and sewerage drain	100 days	Tue Jan 21, '14	Wed Apr 30, '14
12	Delivery of materials for stormwater and sewerage drain	90 days	Thu May 1, '14	Tue Jul 29, '14
13	Install sewerage drain and construct manhole (FMH90_20 to 40 and 50 to 65)	80 days	Fri Oct 17, '14	Fri Oct 17, '14
14	Install storm drain and construct manhole (SMH3418 to 3422 and 3423 to 3426)	90 days	Sat Oct 18, '14	Thu Jan 15, '15
15	Diversion of KO ROW	40 days	Fri Jan 16, '15	Tue Feb 24, '15
16	Submission of condition survey for work within existing Kai Tak Tunnel	80 days	Tue Nov 12, '13	Thu Jan 30, '14
17	Submission of trial pit records for work within existing Kai Tak Tunnel	90 days	Fri Jan 31, '14	Wed Apr 30, '14
18	Submission of method statement for work within existing Kai Tak Tunnel	90 days	Thu May 1, '14	Tue Jul 29, '14
19	Approval for work within existing Kai Tak Tunnel	80 days	Wed Jul 30, '14	Mon Jan 5, '15
20	Submission / approval of construction materials and method statements for rising mains	160 days	Tue Jan 14, '14	Thu Apr 3, '14
21	Delivery of materials for rising mains	60 days	Mon Aug 25, '14	Thu Oct 23, '14
22	Install 2x500mm dia. HDPE rising main CHA120-CHA180	40 days	Fri Dec 5, '14	Tue Jan 13, '15
23	Breaking up existing concrete slab	110 days	Tue Jan 6, '15	Sat Apr 25, '15
24	Install 2x500mm dia. HDPE rising main CHA70-100 & CHA180-350 and DC1	90 days	Sun Apr 26, '15	Fri Jul 24, '15
25	Install 2x500mm dia. HDPE rising main CHA0-CHA70	90 days	Sat Jul 25, '15	Thu Oct 22, '15
26	Install storm drain and construct manhole (SMH3101 to SMH3111 & SMH3401 to 3418)	120 days	Sat Jul 25, '15	Sat Nov 21, '15
27	Install FWM CHC250-CHC630 and SWM CHB250-CHB630	96 days	Sun Nov 22, '15	Thu Feb 25, '16
28	Construct road gully and gully pipe up to the jointion of D2 & L6	100 days	Fri Feb 26, '16	Sat Jun 4, '16
29	Construct road kerb up to the jointion of D2 & L6	90 days	Sun Jun 5, '16	Fri Sep 2, '16
30	Construct flexible carriageway up to the jointion of D2 & L6	60 days	Sat Sep 3, '16	Tue Nov 1, '16
31	Road marking	7 days	Wed Nov 8, '16	Tue Nov 8, '16
32	Install sewerage drain and construct manhole (FMH90_40 to 50)	25 days	Tue May 17, '16	Fri Jun 10, '16
33	Install sewerage drain and construct manhole (FMH90_50 to 60)	25 days	Sat Jun 11, '16	Tue Jul 5, '16
34	Install storm drain and construct manhole (SMH3422 to 3423)	25 days	Wed Jul 6, '16	Sat Jul 30, '16
35	Install sewerage drain and construct manhole (IP1 to FMH90_20)	25 days	Sun Jul 31, '16	Wed Aug 24, '16
36	Install FWM CHC630-CHC825 and SWM CHB630-CHB825	30 days	Thu Aug 25, '16	Fri Sep 23, '16
37	Construct valve, fire hydrant, air-valve and wash-out chamber for watermain	30 days	Sat Sep 24, '16	Sun Oct 23, '16
38	Pressure test, swabbing, sterilization and connection	60 days	Mon Oct 24, '16	Thu Dec 22, '16
39	Construct remaining stormdrain, sewer drain, road gully and gully pipe along D2	35 days	Wed Nov 2, '16	Tue Dec 6, '16
40	Construct road kerb	16 days	Wed Dec 7, '16	Thu Dec 22, '16
41	Construct flexible carriageway	30 days	Fri Dec 23, '16	Sat Jan 21, '17
42	Road marking	5 days	Sun Jan 22, '17	Thu Jan 26, '17
43	Liaison meeting with UU	220 days	Mon Aug 4, '14	Wed Mar 11, '15
44	Installation of utility by the utility undertakers along proposed footpath CH200-400	80 days	Mon Mar 21, '16	Wed Jun 8, '16
45	Construct draipit and u-channel at footpath	40 days	Thu Aug 18, '16	Mon Sep 26, '16
46	Construct footpath and concrete run-in	44 days	Mon Oct 31, '16	Tue Dec 13, '16
47	Installation of utility by the utility undertakers along proposed footpath CH400-600	70 days	Mon Apr 4, '16	Sun Jun 12, '16
48	Construct draipit and u-channel at footpath	40 days	Sun Aug 21, '16	Thu Sep 29, '16
49	Construct footpath and concrete run-in	40 days	Tue Nov 1, '16	Sat Dec 10, '16
50	Installation of utility by the utility undertakers along proposed footpath CH0-200	40 days	Mon Aug 15, '16	Fri Sep 23, '16
51	Install irrigation system	40 days	Fri Oct 28, '16	Tue Dec 6, '16
52	Construct draipit and u-channel at footpath	50 days	Fri Sep 30, '16	Fri Nov 18, '16
53	Construct footpath, planting area and concrete run-in	50 days	Sat Nov 19, '16	Sat Jan 7, '17
54	Installation of utility by the utility undertakers along proposed footpath CHA850-960	40 days	Thu Aug 11, '16	Mon Sep 19, '16
55	Construct draipit and u-channel at footpath	45 days	Tue Sep 20, '16	Thu Nov 3, '16
56	Construct footpath and concrete run-in	60 days	Fri Nov 4, '16	Mon Jan 2, '17
57	Plants delivery for landscaping works	30 days	Mon Oct 31, '16	Tue Nov 29, '16
58	Preparatory works for landscaping works	14 days	Wed Nov 30, '16	Tue Dec 13, '16
59	Hydroseeding	3 days	Wed Dec 14, '16	Fri Dec 16, '16
60	Tree and shrub planting	15 days	Sun Jan 8, '17	Sun Jan 22, '17
61	Install traffic signal at the Junction of Road D2/ Road D3	65 days	Sat Aug 27, '16	Sun Oct 30, '16
62	Install traffic signal at the Junction of Road D2/ Slip Road of KCR	65 days	Thu Sep 22, '16	Fri Nov 25, '16
63	Install traffic signal at the Junction of Road D2/ Eastern Access Road	65 days	Mon Oct 3, '16	Tue Dec 6, '16
64	Construct sewerage drain pipes from FMH120_70 to FMH130_90	60 days	Mon Oct 10, '16	Thu Dec 8, '16
65	Awaiting for site possession at Portion 3	630 days	Thu Sep 19, '13	Wed Jun 10, '15
66	Installation of utility by the utility undertakers along proposed footpath CH0-CHG100	60 days	Mon Aug 8, '16	Thu Oct 6, '16
67	Construct draipit and u-channel	50 days	Fri Oct 7, '16	Fri Nov 25, '16
68	Install street lighting	20 days	Mon Oct 31, '16	Sat Nov 19, '16
69	Installation of lighting system by HyD	20 days	Sun Nov 20, '16	Fri Dec 9, '16
70	Construct footpath, planting area and concrete run-in	50 days	Sun Nov 20, '16	Sun Jan 8, '17
71	Construct stormwater drain and manholes from SMH3426 to SMH3500	40 days	Fri Aug 5, '16	Tue Sep 13, '16
72	Install FWM CHC825-CHC921 and SWM CHB825-CHB920	40 days	Wed Sep 14, '16	Sun Oct 23, '16
73	Construct road gully with pipes	30 days	Mon Oct 24, '16	Tue Nov 22, '16
74	Construct road kerb	20 days	Wed Nov 23, '16	Mon Dec 12, '16
75	Construct flexible carriageway	40 days	Tue Dec 13, '16	Sat Jan 21, '17
76	Road marking	2 days	Sun Jan 22, '17	Mon Jan 23, '17
77	Plants delivery for landscaping works	30 days	Thu Nov 17, '16	Fri Dec 16, '16
78	Preparatory works for landscaping works	14 days	Sat Dec 17, '16	Fri Dec 30, '16
79	Hydroseeding	2 days	Mon Jan 9, '17	Tue Jan 10, '17
80	Tree and shrub planting	10 days	Wed Jan 11, '17	Fri Jan 20, '17

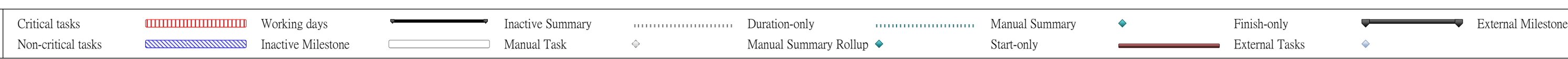
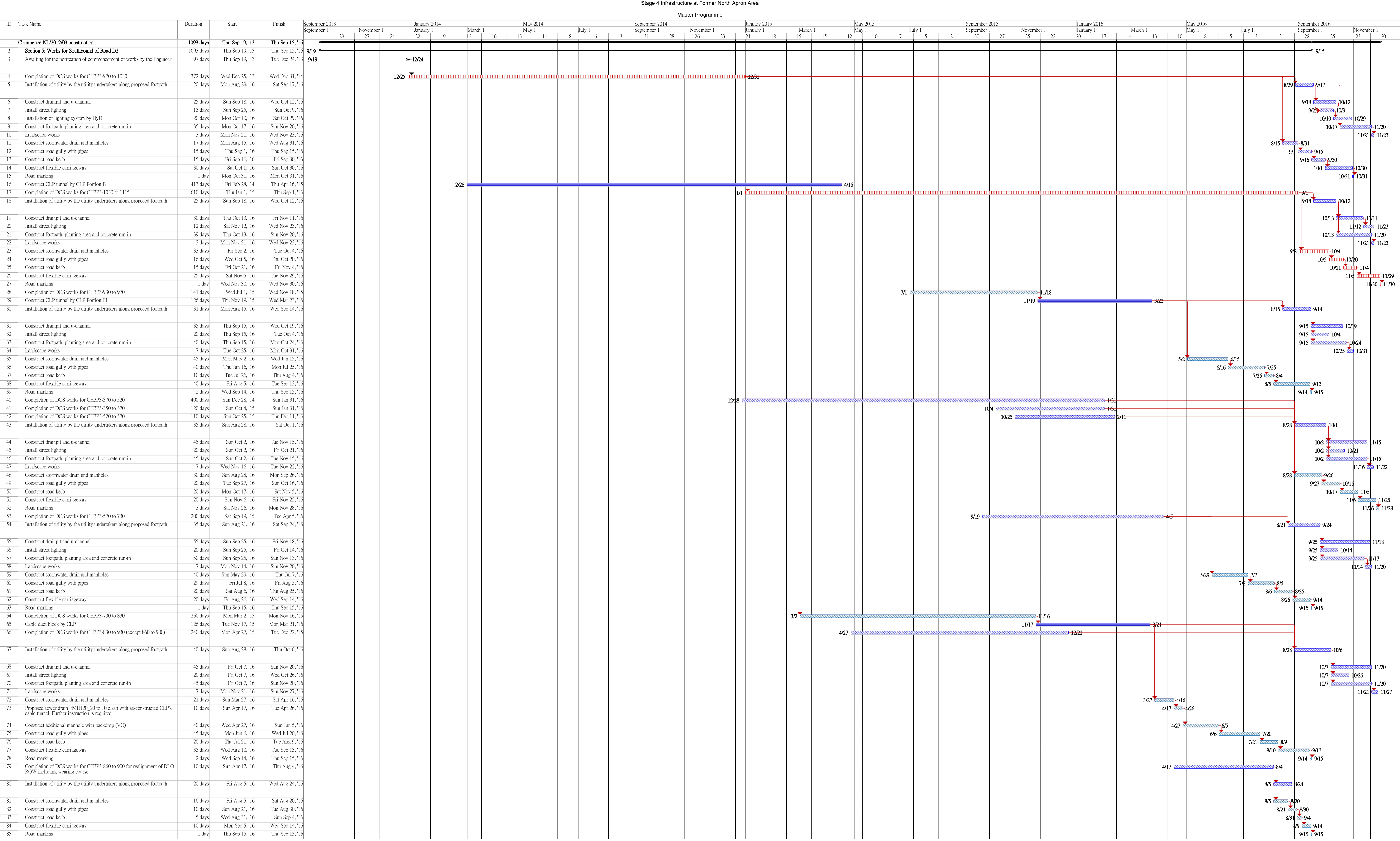


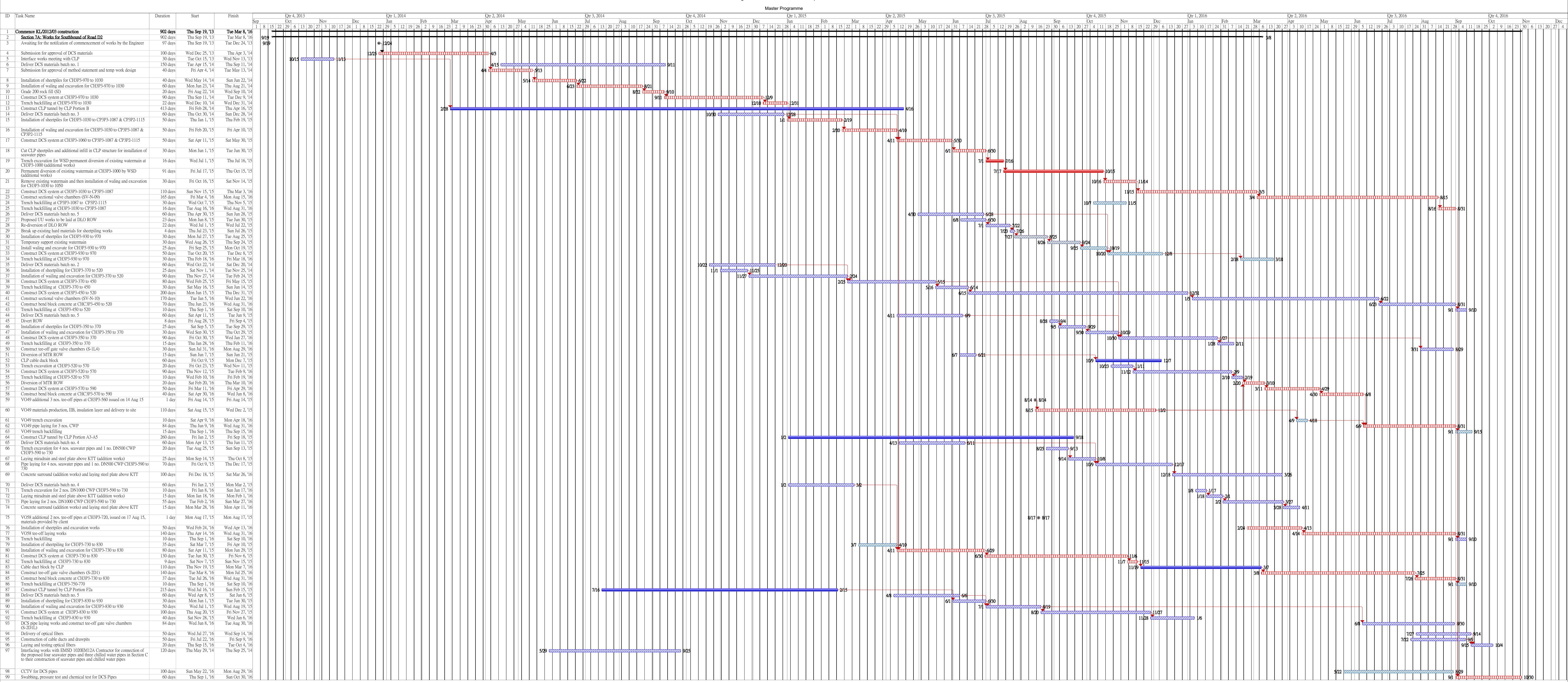




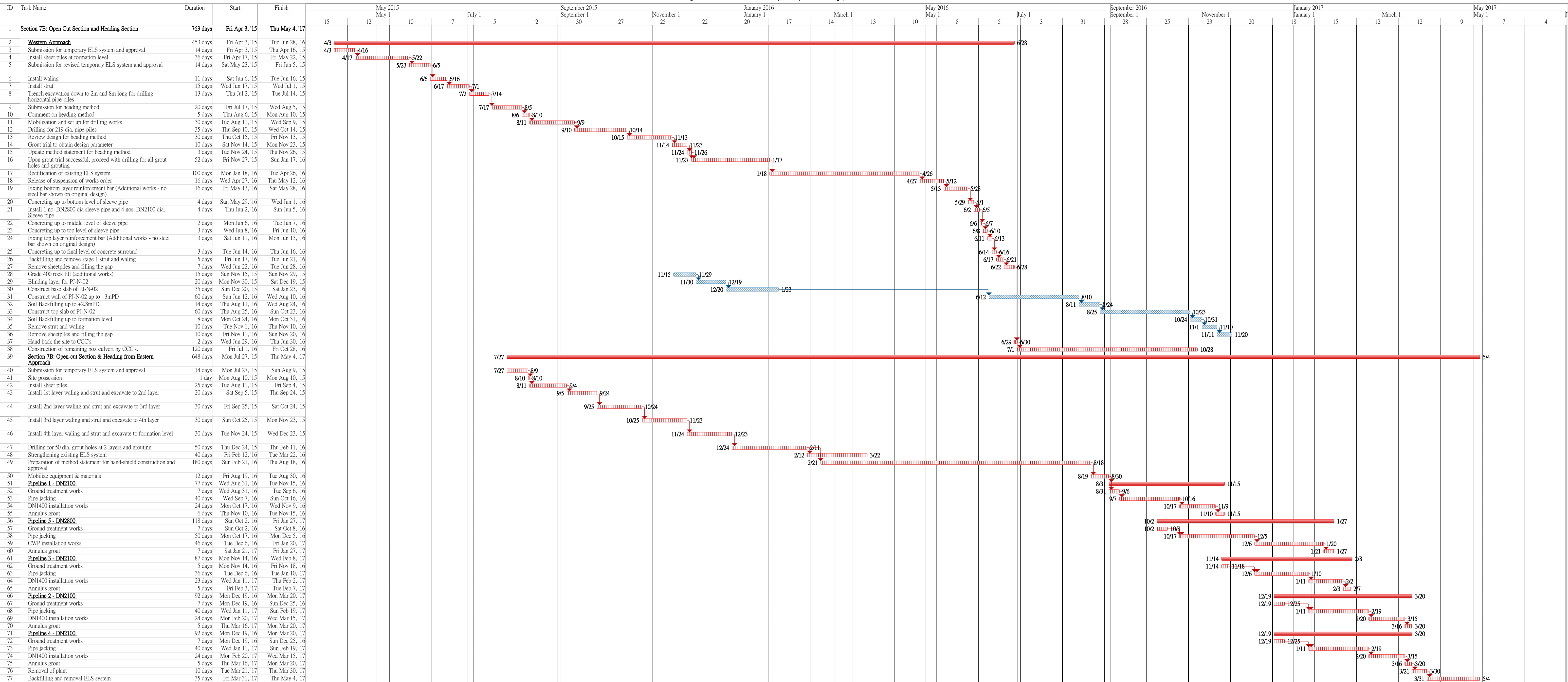


Legend: Critical tasks (red hatched), Non-critical tasks (blue hatched), Working days (solid blue), Inactive Milestone (dashed blue), Inactive Summary (solid black), Manual Task (dotted black), Duration-only (dotted red), Manual Summary Rollup (dotted blue), Manual Summary (dotted green), Start-only (dotted purple), Finish-only (dotted orange), External Tasks (dotted yellow), External Milestone (solid black with arrow), External Milestone (solid blue with arrow).





Programme for Installation of DCS Pipelines (Revised Design) within Portion 3



Site Activity [Pattern]

