FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.
Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

21st CONSOLIDATED MONTHLY EM&A REPORT

July 2018

Client	**:**	Civil Engineering and Development Department, HKSAR
EP No.	**:**	EP-337/2009 – New Distributor Roads Serving the Planned Kai Tak Development Area
Contract No.	**:**	KLN/2016/05 – Independent Environmental Checker for Contract No. KL/2015/02 Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area
Report No.	**:**	0087/16/ED/0785

Prepared by	**:**	Wingo So
Reviewed by	**:**	Calvin Leung
Certified by	**:**	 Colin Yung Independent Environmental Checker Fugro Technical Services Limited

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.
Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

TABLE OF CONTENTS

LIST OF APPENDICES

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

EXECUTIVE SUMMARY

i. This is the 21st Consolidated Monthly EM&A Report which summaries the EM&A works undertaken by respective contract under EP-337/2009 within the period between 1 July and 31 July 2018.

ii. The EP-337/2009 relevant major construction activities undertaken in the reporting month are summarized as follow:

Contract No. KL/2010/03:
- NA (The works has been completed and no further EM&A submission is required.)

Contract No. KL/2012/02:
All major construction activities were completed from 31st May 2018, the site activities undertaken in the reporting month included:
- Defect rectification and modification for VT1, SW2, SW3 and PRPE footpath.

Contract No. KL/2012/03:
- Daily Cleaning;
- Finishing works, E&M work, Access Road Construction in PS2;
- Site Clearance Works in DCS;
- Road widening work, Pavement Construction in Sung Wong Toi Road;
- Road works and Footpath Construction in Road D2;
- Finishing works, E&M works and Access Road Construction in Portion 4 (NPS & Sewerage); and
- Removal of excavated material in Portion 6.

Contract No. KL/2014/01:
- TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
- ELS installation and construction of box culvert and underpass;
- Construction of utilities trough and its laying of utilities at Kai Tak Bridge;
- Construction of pile caps, noise barrier footings and steel structure, outfalls, deck structure and columns;
- Laying of sewer, drainage and pavement; and
- Erection of noise barrier steel structure and panels.

Contract No. KL/2014/03:
- Excavation and laying of drainage pipe and manhole;
- Seawall modification works;
- Construction of tunnel box structure;
- D-wall construction works;
- Pumping test; and
- Excavation and ELS construction.

Contract No. KL/2015/02:
- Excavate with ELS works for subway construction
- Steel fixing for the base slab of subway SW6
- Cut the existing DN800 salt water main for sheet piling works at PERE (Stage 1)
- Installing sheet piles for subway SW6 at PERE (Stage 1)
- Carry out trial pits at SKLR Playground and Ramp K73
- Formwork erection for pile caps at the existing bridge K72

- Remedial works and application of joint sealant in box culverts
- ELS works for box culvert B5 connection
- Backfilling works at box culvert B1
- DCS valve chamber construction works in Road L7 Portion 6
- Water mains, drainage, sewerage and DCS works in Road L7
- Sewerage works in Portion 4
- Drainage and sewerage works in Portion 2 & 3

Breaches of the Action and Limit Levels

iii. No Action / Limit Level exceedance was recorded for 24-hr TSP monitoring in the reporting month.

iv. No Action / Limit Level exceedance was recorded for 1-hr TSP monitoring in the reporting month.

v. No Action / Limit Level exceedance was recorded for noise monitoring in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

vi. No complaint, notification of summons or prosecution was received in this reporting month.

Reporting Changes

vii. There was no reporting change in the reporting month.

Future Key Issues

viii. The potential environmental impacts for the coming month and the control measures are shown in **Table I**:

Table I Summary of Key Issues for the Coming Month and Control Measures

Major Impact Prediction	Control Measures
Contract No. KL/2012/03:	
Air quality impact (dust)	• Frequent watering of haul road and unpaved/exposed areas; • Frequent watering or covering stockpiles with tarpaulin or similar means; and • Watering of any earth moving activities.
Water quality impact (surface run-off)	• Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; • Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; • 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 • Provision of measures to prevent discharge into the stream.
Noise Impact	• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; • Controlling the number of plants use on site; • Regular maintenance of machines; and • Use of acoustic barriers if necessary.
Contract No. KL/2014/01:	
Air quality impact (dust)	• Frequent watering of haul road and unpaved/exposed areas; • Frequent watering or covering stockpiles with tarpaulin or similar means; and • Watering of any earth moving activities.
Water quality impact (surface run-off)	• Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; • Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; • Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and • Provision of measures to prevent discharge into the stream.
Noise Impact	• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; • Controlling the number of plants use on site; • Regular maintenance of machines; and • Use of acoustic barriers if necessary.
Contract No. KL/2014/03:	
Construction dust, construction noise, water quality, waste management and landscape and visual impact.	• Sufficient watering of the works site with the active dust emitting activities; • Limitation of the speed for vehicles on unpaved site roads; • Properly cover or enclosure of the stockpiles and dusty materials; • Good site practices on loading dusty materials; • Providing sufficient vehicles washing facilities at every vehicle exit point; • Good maintenance to the plant and equipment; • Use of quieter plant and Quality Powered Mechanical Equipment (QPME); • Use of acoustic fabric and noise barrier; • Using the approved Non-road Mobile Machineries (NRMMs);

Major Impact Prediction	Control Measures
	• Proper storage and handling of chemical; • Appropriate desilting, oil interceptors or sedimentation devices provided on site for treatment before discharge; • Onsite waste sorting and implementation of trip ticket system; • Training of the site personnel in proper waste management and chemical waste handling procedures; • Proper storage of the construction materials; • Erection of decorative screen hoarding; • Strictly following the Environmental Permits and Licenses; • Provide sufficient mitigation measures as recommended in Approved EIA Reports
Contract No. KL/2015/02:	
Air quality impact (dust)	• Frequent watering of haul road and unpaved/exposed areas; • Frequent watering or covering stockpiles with tarpaulin or similar means; and • Watering of any earth moving activities.
Water quality impact (surface run-off)	• Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; • Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; • Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and • Provision of measures to prevent discharge into the stream.
Noise Impact	• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; • Controlling the number of plants use on site; • Regular maintenance of machines; and • Use of acoustic barriers if necessary.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre, 5 Lok Yi Street, Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

1. INTRODUCTION

1.1 Background

1.1.1 The Kai Tak Development is located in the south-eastern part of Kowloon Peninsula of the HKSAR, 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.

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

1.1.3 The EP-337/2009 was issued on 23 April 2009 for the new distributor roads serving the planned Kai Tak Development to the following scale and slope:

a) Road D1 – a dual 2-lane carriageway of approximately 1.3 km long.
b) Road D2 – a dual 3-lane carriageway of approximately 1.1 km long.
c) Road D3 – a dual 2-lane carriageway of approximately 2.3 km long.
d) Road D4 – a dual 2-lane carriageway of approximately 0.9 km long.

1.1.4 The Civil Engineering and Development Department HKSAR has appointed Fugro Technical Services Limited (FTS) to undertake the role of Independent Environmental Checker (IEC) for the Contract No. KL/2015/02.

1.1.5 This is the 21st Consolidated Monthly EM&A Report which summaries the EM&A works undertaken by respective contract under EP-337/2009 within the period between 1 July and 31 July 2018.

1.2 Summary of relevant Contract Information of Key Personnel

Party	Position	Name	Telephone	Fax
Contract No. KL/2012/02:				
Project Proponent CEDD)	Senior Engineer	Mr. Mike Cho	3106 2584	3579 4512
Engineer's Representative (ARUP)	SRE	Mr. Gary Cheung	2210 6100	2210 6110
	RE	Ms. Edith Fung		
IEC (ANewR)	IEC	Mr. James Choi	2618 2836	3007 8648
		Mr. Adi Lee		
ET (Cinotech)	ET Leader	Dr. Priscilla Choy	2151 2089	3107 1388
	Project Coordinator and Audit Team Leader	Ms. Ivy Tam	2151 2090	
Main Contractor (Build King)	Project Manager	Mr. Joe Yip	9209 5920	2639 6208
	Construction Manager	Mr. Cheung Wai Por	9663 9908	
Contract No. KL/2012/03:				
Project Proponent (CEDD)	Senior Engineer	Mr. C. K. Choi	2301 1174	2301 1277
Engineer's Representative (AECOM)	CRE	Mr. W. K. Leung	2798 0771	3013 8864
	RE	Mr. Jacky Pun		
IEC (ANewR)	IEC	Mr. Adi Lee	2618 2831	3007 8648
ET (Cinotech)	ET Leader	Dr. Priscilla Choy	2151 2089	3107 1388

Party	Position	Name	Telephone	Fax
	Project Coordinator and Audit Team Leader	Ms. Ivy Tam	2151 2090	
Main Contractor (Kwan On)	Site Agent	Mr. Albert Ng	3689 7752	3689 7726
			6146 6761 (Hotline)	
Contract No. KL/2014/01:				
Project Proponent (CEDD)	Senior Engineer	Mr. Sunny Lo	3579 2450	3579 4516
	Engineer	Mr. Keith Chu	3579 2124	
Engineer's Representative (AECOM)	CRE	Mr. Clive Cheng	3746 1801	2798 0783
IEC (KSMC)	IEC	Dr. C. F. Ng	2618 2166	2120 7752
ET (Cinotech)	ET Leader	Dr. Priscilla Choy	2151 2089	3107 1388
	Audit Team Leader	Ms. Ivy Tam	2151 2090	
Main Contractor (CCJV)	EO	Mr. Dennis Ho	2960 1398	2960 1399
Contract No. KL/2014/03:				
Project Proponent (CEDD)	Co-ordinator	Ms. Amy Chu	3106 3172	2369 4980
Engineer's Representative (HMJV)	CRE	Mr. Chris Wong	3742 3803	3742 3899
IEC (Ramboll Hong Kong Limited)	IEC	Mr. F. C. Tsang	3465 2851	3465 2899
ET (MCL)	ET Leader	Mr. Colin Yung	3565 4114	3565 4160
Main Contractor (CRBC)	Site Agent	Mr. Arnold Chan	9380 4110	2283 1689
		Mr. Dickey Yau	5699 4503	
	EO	Mr. Calvin So	9724 6254	
Contract No. KL/2015/02:				
Project Proponent (CEDD)	Senior Engineer	Ms. K. Pong	2301 1466	2369 4980
Engineer's Representative (AECOM)	SRE	Mr. Vincent Lee	2798 0771	2210 6110
IEC (FTS)	IEC	Mr. Colin Yung	3565 4114	2450 8032
ET (Cinotech)	ET Leader	Dr. Priscilla Choy	2151 2089	3107 1388
	Audit Team Leader	Ms. Ivy Tam	2151 2090	
Main Contractor (PWHJV)	Site Agent	Mr. W. M. Wong	6386 3535	2398 8301

1.3 Summary of Construction Programme and Activities

1.3.1 The construction programme of each Contract is summarized in the appendices of the corresponding Monthly EM&A.

1.3.2 The major construction activities undertaken in the reporting month are summarized as follow:

Contract No. KL/2010/03:

- NA (The works has been completed and no further EM&A submission is required.)

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.
Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

Contract No. KL/2012/02:

All major construction activities were completed from 31st May 2018, the site activities undertaken in the reporting month included:

- Defect rectification and modification for VT1, SW2, SW3 and PRPE footpath.

Contract No. KL/2012/03:

- Daily Cleaning;
- Finishing works, E&M work, Access Road Construction in PS2;
- Site Clearance Works in DCS;
- Road widening work, Pavement Construction in Sung Wong Toi Road;
- Road works and Footpath Construction in Road D2;
- Finishing works, E&M works and Access Road Construction in Portion 4 (NPS & Sewerage); and
- Removal of excavated material in Portion 6.

Contract No. KL/2014/01:

- TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
- ELS installation and construction of box culvert and underpass;
- Construction of utilities trough and its laying of utilities at Kai Tak Bridge;
- Construction of pile caps, noise barrier footings and steel structure, outfalls, deck structure and columns;
- Laying of sewer, drainage and pavement; and
- Erection of noise barrier steel structure and panels.

Contract No. KL/2014/03:

- Excavation and laying of drainage pipe and manhole;
- Seawall modification works;
- Construction of tunnel box structure;
- D-wall construction works;
- Pumping test; and
- Excavation and ELS construction.

Contract No. KL/2015/02:

- Excavate with ELS works for subway construction
- Steel fixing for the base slab of subway SW6
- Cut the existing DN800 salt water main for sheet piling works at PERE (Stage 1)
- Installing sheet piles for subway SW6 at PERE (Stage 1)
- Carry out trial pits at SKLR Playground and Ramp K73
- Formwork erection for pile caps at the existing bridge K72
- Remedial works and application of joint sealant in box culverts
- ELS works for box culvert B5 connection
- Backfilling works at box culvert B1
- DCS valve chamber construction works in Road L7 Portion 6
- Water mains, drainage, sewerage and DCS works in Road L7
- Sewerage works in Portion 4
- Drainage and sewerage works in Portion 2 & 3

1.4 Summary of Inter-relationship with the environmental protection/ mitigation measures with the construction programme

1.4.1 The summary of inter-relationship with environmental protection/mitigation measures are presented as follow:

Major Environmental Impact	Control Measures
Contract No. KL/2012/03:	
Dust, Water Quality, Waste Management (Construction of superstructure of Pumping Station PS2 and NPS)	• 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.
Dust, Noise (Backfilling between sewerage manholes 1K1_1 and FMH10_340 and construction of manhole FMH10_370a at L6)	• Use of quiet plant and well-maintained construction plant; and • Properly cover the stockpiles;
Noise, Waste Management (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)	• Use of quiet plant and well-maintained construction plant; and • Provide hoarding. • Good management and control on construction waste reduction
Noise (Construction of sewerage manhole FMH 10 at Bailey Street; Widening works of Sung Wong Toi Road.)	• Use of quiet plant and well-maintained construction plant; and • Provide hoarding.
Noise, Water Quality (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)	• Use of quiet plant and well-maintained construction plant; and • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall.
Contract No. KL/2014/01:	
Noise, dust impact, water quality and waste generation	• Sufficient watering of the works site with active dust emitting activities; • Properly cover the stockpiles; • On-site waste sorting and implementation of trip ticket system • Appropriate desilting/sedimentation devices provided on site for treatment before discharge; • Use of quiet plant and well-maintained construction plant; • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall; • Provide mitigation measure to temporary use of chemicals;

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.
Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

Major Environmental Impact	Control Measures
	• Provide sufficient mitigation measures as recommended in Approved EIA Report/Lease requirement.
Contract No. KL/2014/03:	
Air Quality Impact, Construction Noise Impact, Water Quality Impact, Chemical and Waste Management, Landscape and Visual Impact	• Sufficient watering of the works site with the active dust emitting activities; • Limitation of the speed for vehicles on unpaved site roads; • Properly cover or enclosure of the stockpiles and dusty materials; • Good site practices on loading dusty materials; • Providing sufficient vehicles washing facilities at every vehicle exit point; • Good maintenance to the plant and equipment; • Use of quieter plant and Quality Powered Mechanical Equipment (QPME); • Use of acoustic fabric and noise barrier; • Using the approved Non-road Mobile Machineries (NRMMs); • Proper storage and handling of chemical; • Appropriate desilting, oil interceptors or sedimentation devices provided on site for treatment before discharge; • Onsite waste sorting and implementation of trip ticket system; • Training of the site personnel in proper waste management and chemical waste handling procedures; • Proper storage of the construction materials; • Erection of decorative screen hoarding; • Strictly following the Environmental Permits and Licenses; • Provide sufficient mitigation measures as recommended in Approved EIA Reports
Contract No. KL/2015/02:	
Noise, dust impact, water quality and waste generation	• Sufficient watering of the works site with active dust emitting activities; • Properly cover the stockpiles; • On-site waste sorting and implementation of trip ticket system • Appropriate desilting/sedimentation devices provided on site for treatment before discharge; • Use of quiet plant and well-maintained construction plant; • Provide movable noise barrier; • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall; • Provide sufficient mitigation measures as recommended in Approved EIA Report/Lease requirement.

1.5 Summary Status of Environmental Licences, Notifications and Permits

1.5.1 A summary of the relevant environmental licenses, permits and/or notifications on environmental protection for this EP and relevant Contract are presented in **Table 1.1**.

Table 1.1 Relevant Environmental Licenses, Permits and/or Notifications

Environmental License / Permit / Notification	Reference Number	Valid From	Valid Till
Contract No. KL/2012/02:			
Environmental Permit	EP-337/2009	23/04/2009	N/A
Effluent Discharge License	WT00016873-2013	-	31/08/2018
	WT00016723-2013	-	31/08/2018
Registration of Chemical Waste Producer	5213-286-K3022-04	-	N/A
Construction Noise Permit	GW-RE0454-18	04/07/2018	01/09/2018
Contract No. KL/2012/03:			
Environmental Permit	EP-337/2009 EP-344/2009	23/04/2009 23/04/2009	N/A N/A
Effluent Discharge License	WT00020971-2015	22/04/2015	21/04/2020
Registration of Chemical Waste Producer	5213-286-K2958-05	-	N/A
Contract No. KL/2014/01:			
Environmental Permit	EP-337/2009 EP-445/2013/A	23/04/2009 13/08/2009	N/A N/A
Effluent Discharge License	WT00023634-2016	-	31/03/2021
Registration of Chemical Waste Producer	5213-247-C4004-01	-	N/A
Construction Noise Permit	GW-RE0182-18	22/03/2018	17/09/2018
Contract No. KL/2014/03:			
Environmental Permit	EP-337/2009 EP-339/2009/A EP-451/2013	23/04/2009 18/06/2009 19/09/2013	N/A N/A N/A
Notification pursuant to Air Pollution (Construction Dust) Regulation	395601	16/11/2015	N/A
Billing Account for Waste Disposal	A/C No.: 7023814	30/11/2015	N/A
Billing Account for Waste Disposal (Vessel)	A/C No.: 7027469	25/08/2017	18/11/2017
		22/11/2017	18/02/2018
Construction Noise Permit	GW-RE0395-18	05/06/2018	04/12/2018
	GW-RE0006-18	12/01/2018	11/07/2018
	GW-RE0489-18	14/07/2018	11/01/2019
Wastewater Discharge License	WT00023125-2015	06/01/2016	31/01/2021
Chemical Waste Producer License	5213-247-C1232-12	23/11/2015	N/A
Contract No. KL/2015/02:			
Environmental Permit	EP-337/2009	23/04/2009	N/A
Wastewater Discharge License	WT00027495-2017	28/03/2017	31/03/2022
Billing Account for Waste Disposal	A/C No.: 7026164	20/10/2016	N/A
Registration of Chemical Waste Producer	WPN5213-229-P3271-01	14/08/2017	N/A
Construction Noise Permit	-	-	-

2. ENVIRONMENTAL MONITORING AND AUDIT

2.1 Results and Observations

Air Quality

2.1.1 The schedule of air quality monitoring in reporting month is provided in the appendices of the corresponding Monthly EM&A.

2.1.2 The weather conditions during the monitoring are provided in the appendices of the corresponding Monthly EM&A.

2.1.3 The monitoring data of 24-hr TSP and 1 hour TSP are summarized in **Table 2.1**. Detailed monitoring data are presented in the appendices of the corresponding Monthly EM&A.

Table 2.1 Summary of 24-hr and 1 hour TSP Monitoring Results

Parameter	Monitoring Station	Average ($\mu g/m^3$)	Range ($\mu g/ m^3$)	Action Level ($\mu g/ m^3$)	Limit Level ($\mu g/ m^3$)
Contract No. KL/2012/02:					
1-hr TSP	AM1(C)	123.3	58.3 – 174.8	342	500
	AM2	162.7	113.1 – 244.7	346	
24-hr TSP	AM1(C)	33.5	10.5 – 50.7	159	260
	AM2(A)	36.9	30.4 – 47.6	157	
Contract No. KL/2012/03:					
1-hr TSP	AM2	158.2	86.0 – 220.2	346	500
	AM3(A)	128.7	81.5 – 194.2	351	
	AM4(C)	221.5	164.3 – 286.5	371	
	AM5	164.9	93.9 – 237.4	345	
24-hr TSP	AM2(A)	32.8	22.5 – 47.1	157	260
	AM3(B)	48.7	23.2 – 74.7	187	
	AM4(C)	48.5	37.3 – 71.2	187	
	AM5	22.3	18.0 – 27.1	156	
Contract No. KL/2014/01:					
NA (No air quality monitoring is required for the Project)					
Contract No. KL/2014/03:					
1-hr TSP	KTD1a	No complaint of air quality was received. Therefore, no impact 1-hour TSP monitoring was conducted.			
	KTD2a				
	KER1b				
24-hr TSP	KTD1a	29	19 - 46	177	260
	KTD2a	34	23 - 43	157	
	KER1b	33	23 - 55	172	
Contract No. KL/2015/02:					
1-hr TSP	AM2	149.7	105.6 – 211.2	346	500
24-hr TSP	AM2(A)	36.9	30.4 – 47.6	157	260

2.1.4 No Action / Limit Level exceedance was recorded for 24-hr TSP monitoring in the reporting month.

2.1.5 No Action / Limit Level exceedance was recorded for 1-hr TSP monitoring in the reporting month.

2.1.6 The monitoring data of 24-hr TSP was compared with the EIA predictions are presented in the appendices of the corresponding Monthly EM&A.

2.1.7 The Event and Action Plan for air quality is given in in the appendices of the corresponding Monthly EM&A.

Noise

2.1.8 The schedule of noise monitoring in reporting month is provided in in the appendices of the corresponding Monthly EM&A.

2.1.9 The noise monitoring data are summarized in **Table 2.2**. Detailed monitoring data are presented in the appendices of the corresponding Monthly EM&A.

Table 2.2 Summary of Noise Impact Monitoring Results

Monitoring Stations	Construction Noise Level Leq $_{(30min)}$ dB(A) (Range)	Action Level	Limit Level dB (A)
Contract No. KL/2012/02:		When one documented complaint is received	
M3	64.1 – 69.5		70*
M4	75.2 – 76.1 #		70*
M9	56.7 – 64.0		75
Contract No. KL/2012/03:			
M6(A)	50.6 – 63.2		70*
M7	63.4 – 69.1		70*
M8	57.7 – 71.9		70*
M9	54.5 – 64.9		75
Contract No. KL/2014/01:			
NA (No Construction noise monitoring is required for the Project.)			NA
Contract No. KL/2014/03:			
KTD1a	65 - 72		75
KTD2a	59 - 64		75
KER1b	63 - 67		75
Contract No. KL/2015/02:			
M3	65.6 – 77.8 #		70*
M4	75.1 – 76.5 #		70*
M5(C)	66.3 – 75.6 #		75

(*) Noise Limit Level is 65 dB(A) during school examination periods.
(#) Measured noise level ≤ background / baseline noise level, detailed data refer to the corresponding Monthly EM&A report.

2.1.10 The noise monitoring data was compared with the EIA predictions are presented in the appendices of the corresponding Monthly EM&A.

2.1.11 No Action / Limit Level exceedance was recorded for noise monitoring in the reporting month.

2.1.12 The Event and Action Plan for noise is given in in the appendices of the corresponding Monthly EM&A.

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.
Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

Landscape and Visual

2.1.13 Site audits were carried out on a weekly basis to monitor and audit the landscape and visual mitigation measures within the site boundaries of this Project. Detailed of observations are presented in the appendices of the corresponding Monthly EM&A.

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.
Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

3. SITE INSPECTION

3.1 Site Inspection

3.1.1 Site inspections were carried out weekly to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. The site inspection of each Contract are summarized as follow:

Contract No. KL/2012/02:
Site audits were conducted on 4, 11, 18, 24 and 31 July 2018 in the reporting month. IEC site inspection was conducted on 18 July 2018.

Contract No. KL/2012/03:
Site audits were conducted on 6, 13, 18 and 27 July 2018 in the reporting month. IEC site inspection was conducted on 18 July 2018.

Contract No. KL/2014/01:
Site audits were conducted by representatives of the Contractor, Supervising Officer and ET on 4, 11, 18 and 25 July 2018 in the reporting month. IEC joint site inspection was conducted on 25 July 2018.

Contract No. KL/2014/03:
In the reporting month, four site inspections were carried out on 4, 11, 18 and 25 July 2018.
One of them, held on 11 July 2018 was the joint inspections with the IEC, ER, the Contractor and the ET.

Contract No. KL/2015/02:
Site audits were conducted on 3, 11, 16, 23 and 30 July 2018 in the reporting month. A joint site audit with the representative of IEC, ER, the Contractor and the ET was conducted on 11 July 2018.

3.1.2 Detailed of observation, recommendation of site inspections and summary of the mitigation measures implementation schedule is provided in the appendices of the corresponding Monthly EM&A.

4. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

4.1 Complaints, Notification of Summons and Prosecution

4.1.1 The summary of complaints, notification of summons and prosecution in the reporting month is shown as **Table 4.1**.

Table 4.1 Summary of Complaints, Notification of Summons and Prosecution

Event	No. of Event This Month	Remark
Contract No. KL/2012/02:		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA
Contract No. KL/2012/03:		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA
Contract No. KL/2014/01:		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA
Contract No. KL/2014/03:		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA
Contract No. KL/2015/02:		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA

4.1.2 Detailed records are presented in the appendices of the corresponding Monthly EM&A.

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

5. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

5.1 Implementation Status

5.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and the EM&A Manuals. The implementation status of the mitigation measures during the reporting month are presented in the appendices of the corresponding Monthly EM&A.

5.2 Waste Management

5.2.1 The amount of wastes generated of this Project during the reporting month is shown in the appendices of the corresponding Monthly EM&A.

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.
Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

6. FUTURE KEY ISSUES

6.1 Construction Programme for the Next Two Months

6.1.1 The major site activities undertaken for the coming two months are summarized in follow:

Contract No. KL/2012/02:

- Defect rectification

Contract No. KL/2012/03:

- Daily Cleaning;
- Finishing works, E&M work and Access Road Construction in PS2;
- Site Clearance works in DCS;
- Road widening works and Pavement Construction at Sung Wong Toi Road;
- Finishing works and E&M works and Access Road Construction in Portion 4 (NPS & Sewerage); and
- Removal of excavated materials in Portion 6

Contract No. KL/2014/01:

- TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
- ELS installation and construction of box culvert and underpass;
- Construction of utilities trough and its laying of utilities at Kai Tak Bridge;
- Construction of remaining piles, pile caps, noise barrier footings and steel structure, outfalls, deck structure and columns;
- Laying of sewer, drainage and pavement;
- Erection of noise barrier steel structure and panels; and
- Construction of Ground Level Open Space (GLOS).

Contract No. KL/2014/03:

- Installation of sheet pile for drainage works;
- Excavation and laying of drainage pipe and manhole;
- Construction of road base and road pavement;
- Seawall modification works;
- Construction of tunnel box structure;
- D-wall construction works;
- Construction of socketed H-Pile;
- Pumping test; and
- Excavation and ELS construction.

Contract No. KL/2015/02:

- Excavate with ELS works for subway construction at PERE
- Structural works for the base slab of subway SW6
- Steel fixing for pile cap at the existing Bridge K72
- Installing sheet piles for subway SW6 at layby of PERE (Stage 4)
- Remedial works and application of joint sealant in box culverts
- Construction of platform under access manhole
- Construction of the connection between existing box culvert and B5
- Preparation works for temporary flow diversion at upstream, i.e. B6 connection.
- DCS valve chamber construction works in Road L7 Portion 6
- Water mains, drainage, sewerage and DCS works in Road L7
- Water mains & sewerage works in Portion 4
- Drainage and sewerage works in Portion 2 & 3

6.2 Key Issues for the Coming Month

6.2.1 The potential environmental impacts arising from the above construction activities and the control measures are shown in **Table 6.1**:

Table 6.1 Summary of Key Issues for the Coming Month and Control Measures

Major Impact Prediction	Control Measures
Contract No. KL/2012/03:	
Air quality impact (dust)	• Frequent watering of haul road and unpaved/exposed areas; • Frequent watering or covering stockpiles with tarpaulin or similar means; and • Watering of any earth moving activities.
Water quality impact (surface run-off)	• Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; • Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; • 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 • Provision of measures to prevent discharge into the stream.
Noise Impact	• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; • Controlling the number of plants use on site; • Regular maintenance of machines; and • Use of acoustic barriers if necessary.
Contract No. KL/2014/01:	
Air quality impact (dust)	• Frequent watering of haul road and unpaved/exposed areas; • Frequent watering or covering stockpiles with tarpaulin or similar means; and • Watering of any earth moving activities.
Water quality impact (surface run-off)	• Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; • Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; • Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and • Provision of measures to prevent discharge into the stream.
Noise Impact	• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; • Controlling the number of plants use on site; • Regular maintenance of machines; and • Use of acoustic barriers if necessary.
Contract No. KL/2014/03:	
Construction dust, construction noise, water quality, waste management and landscape and visual impact.	• Sufficient watering of the works site with the active dust emitting activities; • Limitation of the speed for vehicles on unpaved site roads; • Properly cover or enclosure of the stockpiles and dusty materials; • Good site practices on loading dusty materials; • Providing sufficient vehicles washing facilities at every vehicle exit point; • Good maintenance to the plant and equipment; • Use of quieter plant and Quality Powered Mechanical Equipment (QPME); • Use of acoustic fabric and noise barrier; • Using the approved Non-road Mobile Machineries (NRMMs); • Proper storage and handling of chemical; • Appropriate desilting, oil interceptors or sedimentation devices provided on site for treatment before discharge;

Major Impact Prediction	Control Measures
	• Onsite waste sorting and implementation of trip ticket system; • Training of the site personnel in proper waste management and chemical waste handling procedures; • Proper storage of the construction materials; • Erection of decorative screen hoarding; • Strictly following the Environmental Permits and Licenses; • Provide sufficient mitigation measures as recommended in Approved EIA Reports
Contract No. KL/2015/02:	
Air quality impact (dust)	• Frequent watering of haul road and unpaved/exposed areas; • Frequent watering or covering stockpiles with tarpaulin or similar means; and • Watering of any earth moving activities.
Water quality impact (surface run-off)	• Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; • Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; • Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and • Provision of measures to prevent discharge into the stream.
Noise Impact	• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; • Controlling the number of plants use on site; • Regular maintenance of machines; and • Use of acoustic barriers if necessary.

6.3 Monitoring Schedules for the Next Three Months

6.3.1 The tentative schedules for environmental monitoring in the coming three months are provided in in the appendices of the corresponding Monthly EM&A.

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

7. CONCLUSIONS

7.1.1 No Action / Limit Level exceedance was recorded for 24-hr TSP monitoring in the reporting month.

7.1.2 No Action / Limit Level exceedance was recorded for 1-hr TSP monitoring in the reporting month.

7.1.3 No Action / Limit Level exceedance was recorded for noise monitoring in the reporting month.

7.1.4 No complaint, notification of summons or prosecution was received in this reporting month.

7.1.5 The potential environmental impacts arising from the coming two months of major construction activities and the control measures are shown in **Table 6.1**

FUGRO TECHNICAL SERVICES LIMITED

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

Appendix A

Monthly EM&A Report
For
Contract No. KL/2012/02
Kai Tak Development - Stage 3A Infrastructure at North Apron Area

Civil Engineering and Development Department

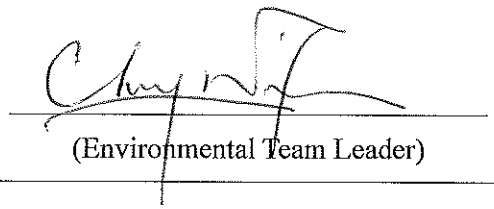
EP-337/2009 – New Distributor Roads Serving the Planned KTD

Contract No. KL/2012/02
Kai Tak Development – Stage 3A Infrastructure at Former North Apron Area

Monthly EM&A Report

July 2018

(Version 1.0)

Approved By	 (Environmental Team Leader)

REMARKS:

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

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

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

ANEWR

Ove Arup & Partners Hong Kong Limited
L5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Hong Kong

Your reference:

Our reference: HKCEDD04/50/105173

Date: 10 August 2018

Attention: Mr Gary Cheung / Mr Chris Lee

BY POST

Dear Sirs

Contract No.: KLN/2013/01
Independent Environmental Checker for "Contract No. KL/2012/02
Kai Tak Development – Stage 3A Infrastructure at Former North Apron Area"
Verification of Monthly EM&A Report for July 2018

We refer to emails of 6, 9 and 10 August 2018 attaching a Monthly EM&A Report for July 2018 prepared by the ET.

We have no further comment and hereby verify the Report in accordance with Clause 3.3 of the Environmental Permit no. EP-337/2009.

Please do not hesitate to contact the undersigned or our Mr Adi Lee on 2618 2831 should you have any queries.

Yours faithfully
ANEWR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/LYMA/LHHN/WCKJ/csym

ANewR Consulting Limited
Unit 517, 5/F, Tower A, Regent Centre
63 Wo Yi Hop Road, Kwai Chung, Hong Kong
Tel: (852) 2618 2831 Fax: (852) 3007 8648
Email: info@anewr.com
Web: www.anewr.com

ISO 9001 : 2015
Certificate No.: CC 3988

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

EXECUTIVE SUMMARY

Introduction

1. This is the 58th Monthly Environmental Monitoring and Audit Report prepared by Cinotech Consultants Ltd. for "Contract No. KL/2012/02 - Kai Tak Development – Stage 3A Infrastructure at Former North Apron Area" (Hereafter referred to as "the Project"). This contract comprises one Schedule 2 designated project (DP), namely the new distributor road D1 serving the planned KTD. The DP is part of the designated project under Environmental Permit (EP) No.: EP-337/2009 ("New distributor roads serving the planned Kai Tak Development") respectively. This report documents the findings of EM&A Works conducted from 1 – 31 July 2018.

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

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

Locations	Monitoring Stations In accordance with EM&A Manual	Alternative Monitoring Stations
Air Quality Monitoring Stations		
AM1 - Rhythm Garden	No (1-hour & 24-hour TSP)	AM1(C) – Contractor Site Office (SCL 1107)
AM2 – Lee Kau Yan Memorial School	Yes (1-hour TSP)	N/A
	No (24-hour TSP)	AM2(A) – Ng Wah Catholic Secondary School
AM6 – Site 1B4 (Planned)	N/A	
Noise Monitoring Stations		
M3 – Cognitio College	Yes	N/A
M4 – Lee Kau Yan Memorial School	Yes	N/A
M9 – Tak Long Estate	Yes	N/A
M10 – Site 1B4 (Planned)	N/A	

3. All major construction activities were completed from 31st May 2018, the site activities undertaken in the reporting month included:
   - Defect rectification and modification for VT1, SW2, SW3, and PERE footpath.

Environmental Monitoring Works

4. 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.

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

Table II Non-compliance Recorded 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

6. 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

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

Construction Noise Monitoring

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

Environmental Licenses and Permits

9. Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Project, EP-337/2009 issued on 23 April 2009.

10. Registration of Chemical Waste Producer (License: 5213-286-K3022-04).

11. Water Discharge License (License No.: WT00016873-2013 and WT00016723-2013).

12. Construction Noise Permit (Permit No. GW-RE0454-18)

Key Information in the Reporting Month

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

Table III Summary Table for Key Information in the Reporting Month

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

Future Key Issues

14. The future key environmental issues in the coming month include:
    - All major construction activities were completed from 31st May 2018. No major environmental impact would be anticipated due to construction works.

1. INTRODUCTION

Background

1.1 The Kai Tak Development (KTD) is located in the south-eastern part of Kowloon Peninsula, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling. It covers a land area of about 328 hectares. Stage 3A Infrastructure at Former North Apron Area is one of the construction stages of KTD. It contains one Schedule 2 DP including new distributor roads serving the planned KTD. The general layout of the Project is shown in **Figure 1.**

1.2 One Environmental Permit (EP) No. EP-337/2009 was also issued on 23 April 2009 for new distributor roads serving the planned KTD to Civil Engineering and Development Department as the Permit Holder.

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

1.4 Cinotech Consultants Limited (Cinotech) was commissioned by Build King Construction Ltd. (the Contractor) to undertake the role of the Environmental Team (ET) for the Contract No. KL/2012/02 – Stage 3A Infrastructure at Former North Apron Area. The construction work under KL/2012/02 comprises the construction of part of the Road D1 under the EP (EP-337/2009).

1.5 Cinotech Consultants Limited was commissioned by Build King Construction Ltd. To undertake the Environmental Monitoring and Audit (EM&A) works for the Project. The construction commencement of this Contract was on 24th October 2013 for Road D1 (part). This is the 58th Monthly EM&A report summarizing the EM&A works for the Project from 1 – 31 July 2018.

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) – Ove Arup & Partners (ARUP).
- Environmental Team (ET) – Cinotech Consultants Limited (CCL)
- Independent Environmental Checker (IEC) – ANewR Consulting Limited (ANewR)
- Contractor – Build King Construction Ltd. (Build King)

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

Table 1.1 Key Project Contacts

Party	Role	Contact Person	Position	Phone No.	Fax No.
CEDD	Project Proponent	Mr. Mike Cho	Senior Engineer	3106 2584	3579 4512
ARUP	Engineer's Representative	Mr. Gary Cheung	SRE	2210 6100	2210 6110
		Ms. Edith Fung	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	
ANewR	Independent Environmental Checker	Mr. James Choi	Independent Environmental Checker	2618 2836	3007 8648
		Mr. Adi Lee			
Build King	Contractor	Mr. Joe Yip	Project Manager	9209 5920	2639 6208
		Mr. Cheung Wai Por	Construction Manager	9663 9908	

Construction Activities undertaken during the Reporting Month

1.8 All major construction activities were completed from 31st May 2018, the site activities undertaken in the reporting month included:

- Defect rectification and modification for VT1, SW2, SW3 and PRPE footpath.

Summary of EM&A Requirements

1.9 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.

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

1.11 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely air quality and noise levels and audit works for the Project from 1 – 31 July 2018.

2. AIR QUALITY

Monitoring Requirements

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

Monitoring Locations

2.2 Impact dust monitoring was conducted at the air quality monitoring stations, AM1(C) - Contractor Site Office (SCL 1107), AM2 - Lee Kau Yan Memorial School and AM2(A) – Ng Wah Catholic Secondary School in the reporting month. **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	Monitoring Parameter	Location of Measurement
AM1(C)	Contractor Site Office (SCL 1107)	1-hour & 24-hour TSP	Ground Floor Area
AM2	Lee Kau Yan Memorial School	1-hour TSP	Rooftop (about 8/F) Area
AM2(A)	Ng Wah Catholic Secondary School	24-hour TSP	Rooftop (about 8/F) Area
#AM6	PA 15	1-hour & 24-hour TSP	Site 1B4 (Planned)

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

Monitoring Equipment

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

Table 2.2 Air Quality Monitoring Equipment

Equipment	Model and Make	Quantity
Calibrator	TISCH TE-5025A	1
1-hour TSP Dust Meter	Hal Technology Hal-HPC301	5
HVS Sampler	TISCH TE-5170	2

Monitoring Parameters, Frequency and Duration

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

Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration

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

Monitoring Methodology and QA/QC Procedure

1-hour TSP Monitoring

Measuring Procedures

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

Maintenance/Calibration

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

Check the meter at a 3-month interval and calibrate the meter at a 1-year interval throughout all stages of the air quality monitoring.

24-hour TSP Monitoring

Instrumentation

2.7 High volume (HVS) samplers (TISCH TE-5170) completed with appropriate sampling inlets were employed for 24-hour TSP monitoring. The sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50). Moreover, the HVS also met all the requirements in section 2.5 of the updated EM&A Manual.

Operating/Analytical Procedures

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

- A horizontal platform was provided with appropriate support to secure the samplers against gusty wind.
- No two samplers were placed less than 2 meters apart.
- The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
- A minimum of 2 meters of separation from walls, parapets and penthouses was required

for rooftop samples.

- A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
- No furnaces or incineration flues were nearby.
- Airflow around the sampler was unrestricted.
- The sampler was more than 20 meters from the drip line.
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

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

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

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

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

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

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

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

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

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

Maintenance/Calibration

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

- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good

working condition.

- High volume samplers were calibrated at bi-monthly intervals using TE-5025A Calibration Kit throughout all stages of the air quality monitoring.

Results and Observations

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

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

2.21 The weather information for the reporting month is summarized in **Appendix C.**

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

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

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

Station	Major Dust Source
AM1(C) – Contractor Site Office (SCL 1107)	Road Traffic Dust Exposed site area and open stockpiles Site vehicle movement
AM2 – Lee Kau Yan Memorial School	Road Traffic Dust Exposed site area and open stockpiles Excavation works Site vehicle movement
AM2(A) – Ng Wah Catholic Secondary School	

2.25 The summary of 1-hour and 24-hour TSP air quality monitoring results during the reporting month are shown in **Appendix E** and **Appendix F** respectively.

3. NOISE

Monitoring Requirements

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

Monitoring Locations

3.2 Four designated monitoring stations were selected for noise monitoring programme. Noise monitoring was conducted at three designated monitoring stations (M3, M4, M9). **Figure 3** shows the locations of these stations.

Table 3.1 Noise Monitoring Stations

Monitoring Stations	Locations	Location of Measurement
M3	Cognitio College	Rooftop (about 6/F) Area
M4	Lee Kau Yan Memorial School	Rooftop (about 7/F) Area
M9	Tak Long Estate	Car Park Building (about 2/F)
#M10	Site 1B4 (Planned)	-

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

Monitoring Equipment

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

Table 3.2 Noise Monitoring Equipment

Equipment	Model and Make	Qty.
Integrating Sound Level Meter	• SVAN957/977 & BSWA 801	4
Calibrator	• SVANTEK SV30A	2

Monitoring Parameters, Frequency and Duration

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

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency	Measurement
M3 M4 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

Monitoring Methodology and QA/QC Procedures

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

Maintenance and Calibration

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

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

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

Results and Observations

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

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

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

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

Monitoring Stations	Locations	Major Noise Source
M3	Cognitio College	Traffic Noise Daily school activities
M4	Lee Kau Yan Memorial School	Traffic Noise Site vehicle movement Excavation works Piling works Daily school activities
M9	Tak Long Estate	Traffic Noise Construction works

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

Station	Baseline Noise Level, dB (A)	Noise Limit Level, dB (A)
M3	76.3/78.6(1) (at 0700 – 1900 hrs on normal weekdays) /	70(2)(4) (at 0700 – 1900 hrs on normal weekdays)
M4	76.7 (at 0700 – 1900 hrs on normal weekdays)	70(4) (at 0700 – 1900 hrs on normal weekdays)
M9	59.9 (at 0700 – 1900 hrs on normal weekdays)	75 (at 0700 – 1900 hrs on normal weekdays)

Note:
(1) The baseline noise review report submitted under KLN/2013/16 for M3 was approved by EPD on 23rd August 2013. (Baseline Level was found to be 78.6 dB(A)at Rooftop of Cognitio College)
(2) The background Noise Level was recorded during the Lunch Hour of Construction Site (i.e. 12:00-13:00) and to be used as the referencing value for compliance checking for Noise Action and Limit Level.
(3) The noise level due to the construction work (CNL) was calculated by the following formula:

$$CNL = 10 \log (10^{MNL/10} – 10^{BNL/10})$$

MNL = Measured Noise Level, BNL = Baseline Noise Level

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

4. COMPARISON OF EM&A RESULTS WITH EIA PREDICTIONS

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

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

Station	Predicted 1-hr TSP conc.		Measured 1-hr TSP conc.
	Scenario1 (Mid 2009 to Mid 2013), µg/m^3	Scenario2 (Mid 2013 to Late 2016), µg/m^3	Reporting Month (Jul 18), µg/m^3
AM1(C) – Contractor Site Office of SCL 1107	192	298	123.3
AM2 – Lee Kau Yan Memorial School	290	312	162.7

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

Station	Predicted 24-hr TSP conc.		Measured 24-hr TSP conc.
	Scenario1 (Mid 2009 to Mid 2013), µg/m^3	Scenario2 (Mid 2013 to Late 2016), µg/m^3	Reporting Month (Jul 18), µg/m^3
AM1(C) – Contractor Site Office of SCL 1107	121	156	33.5
AM2(A) – Ng Wah Catholic Secondary School	145	169	36.9

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 (Jul 18), $L_{eq\ (30min)}$ dB(A)
M3 – Cognitio College	47 – 75	64.1 – 69.5
M4 – Lee Kau Yan Memorial School	47 – 74	75.2 – 76.1
M9 – Tak Long Estate	Not Predicted in EIA Report	56.7 – 64.0

Remark:
(1) Since the baseline noise level was higher than those measured noise level during the construction period, the construction noise levels were considered as non-valid exceedance of Noise Limit Level.

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

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

4.4 The noise data at M3 were within the range of construction noise level predicted in EIA Report.

4.5 The noise data at M4 were slightly above the predicted mitigated construction noise level in the EIA Report while did not exceed the referencing baseline level. This was due to the major noise source during monitoring, i.e. background road traffic noise at the monitoring station. As the baseline noise level was higher than those measured noise level during the construction period, the construction noise levels were considered as non-valid exceedance of Noise Limit Level.

4.6 Mitigated construction noise levels at M9 were not predicted in 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 operation during the construction period on a weekly basis, and to report on the contractor's compliance.

Results and Observations

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

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

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

6. ENVIRONMENTAL AUDIT

Site Audits

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

6.2 Site audits were conducted on 4, 11, 18, 24 and 31 July 2018 in the reporting month. IEC site inspection was conducted on 18 July 2018. No non-compliance was observed during the site audits.

Review of Environmental Monitoring Procedures

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

Air Quality Monitoring

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

Noise Monitoring

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

Status of Environmental Licensing and Permitting

6.4 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
Effluent Discharge License				
WT00016873-2013	-	31/08/18	Wastewater from the construction site including contaminated surface run-off	Valid
WT00016723-2013	-	31/08/18		Valid
Registration of Chemical Waste Producer				
5213-286-K3022-04	-	N/A	Chemical Waste Types: Spent lubricating oil, Soil contaminated with lubricating oil, Spent battery containing heavy metals, Surplus paint, Spend solvent, Spend alkali and acid	Valid
Construction Noise Permit (CNP)				
GW-RE0454-18	04/07/18	01/09/18	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work other than percussive pilling and performing prescribed construction work.	Valid

Status of Waste Management

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

6.6 The Contractor is advised to take photo and inspection records to ensure that all dump trucks have the skip fully covered before leaving the site.

Implementation Status of Environmental Mitigation Measures

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

Table 6.2 Observations and Recommendations of Site Inspections

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	--	--	--
Air Quality	27th June 2018	Reminder: Unpaved area should be covered by imperious sheeting properly.	The unpaved area was covered properly.
Noise	--	--	--
Waste/ Chemical Management	--	--	--
Landscape and Visual	--	--	--
Permits/ Licenses	--	--	--

Summary of Mitigation Measures Implemented

6.8 The monthly IEC audit was carried out on 18 July 2018, the observations were recorded and they are presented as follows:

Observation/Reminder:
- No major environmental deficiency was observed.

Follow up of last observation:
- N/A

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

Implementation Status of Event Action Plans

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

1-hr TSP Monitoring

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

24-hr TSP Monitoring

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

Construction Noise

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

Landscape and visual

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

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

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

7. FUTURE KEY ISSUES

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

- Defect rectification

Monitoring Schedule for the Next Month

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

8. CONCLUSIONS

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

1-hr TSP Monitoring

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

24-hr TSP Monitoring

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

Construction Noise Monitoring

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

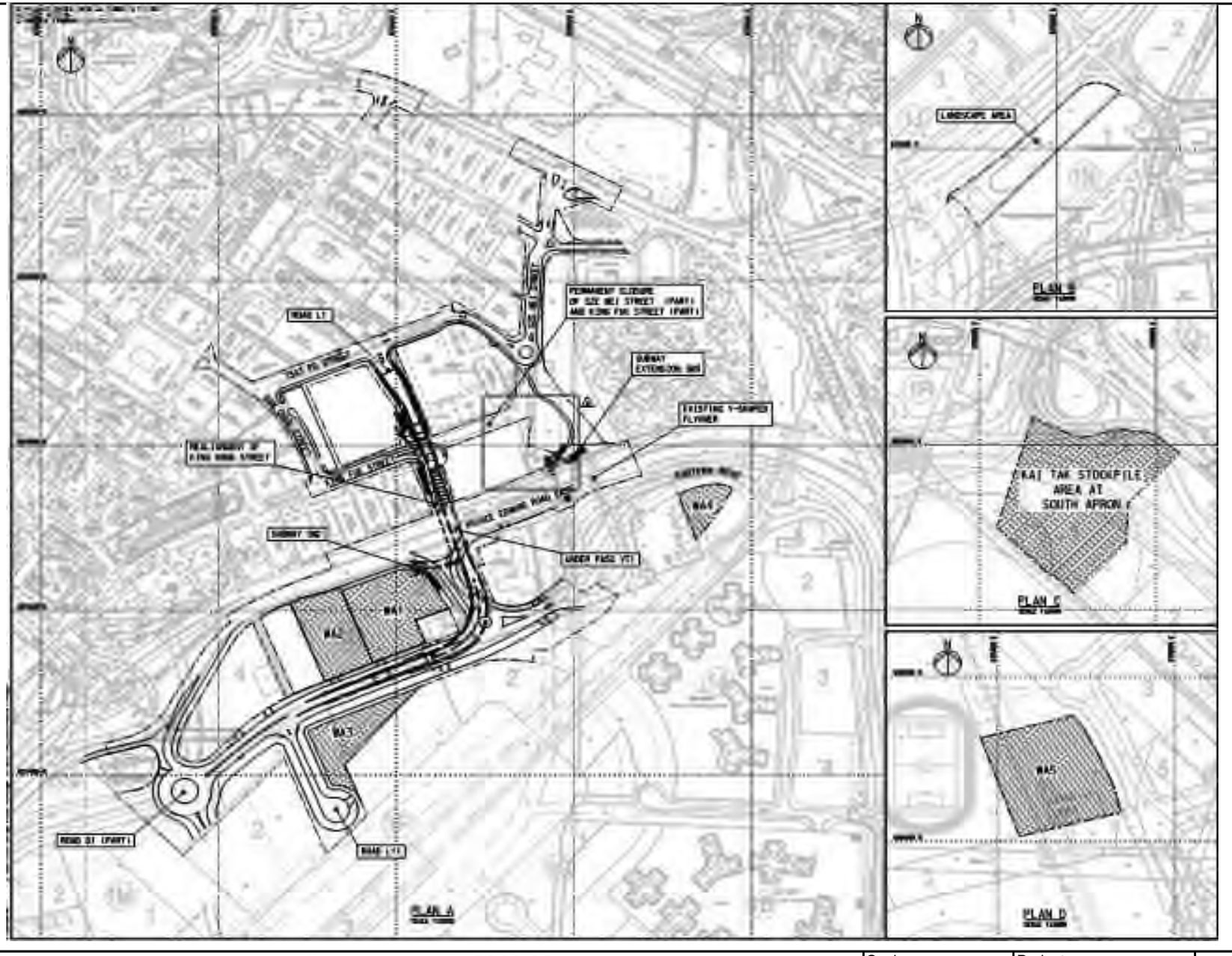
Landscape and visual

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

Complaint and Prosecution

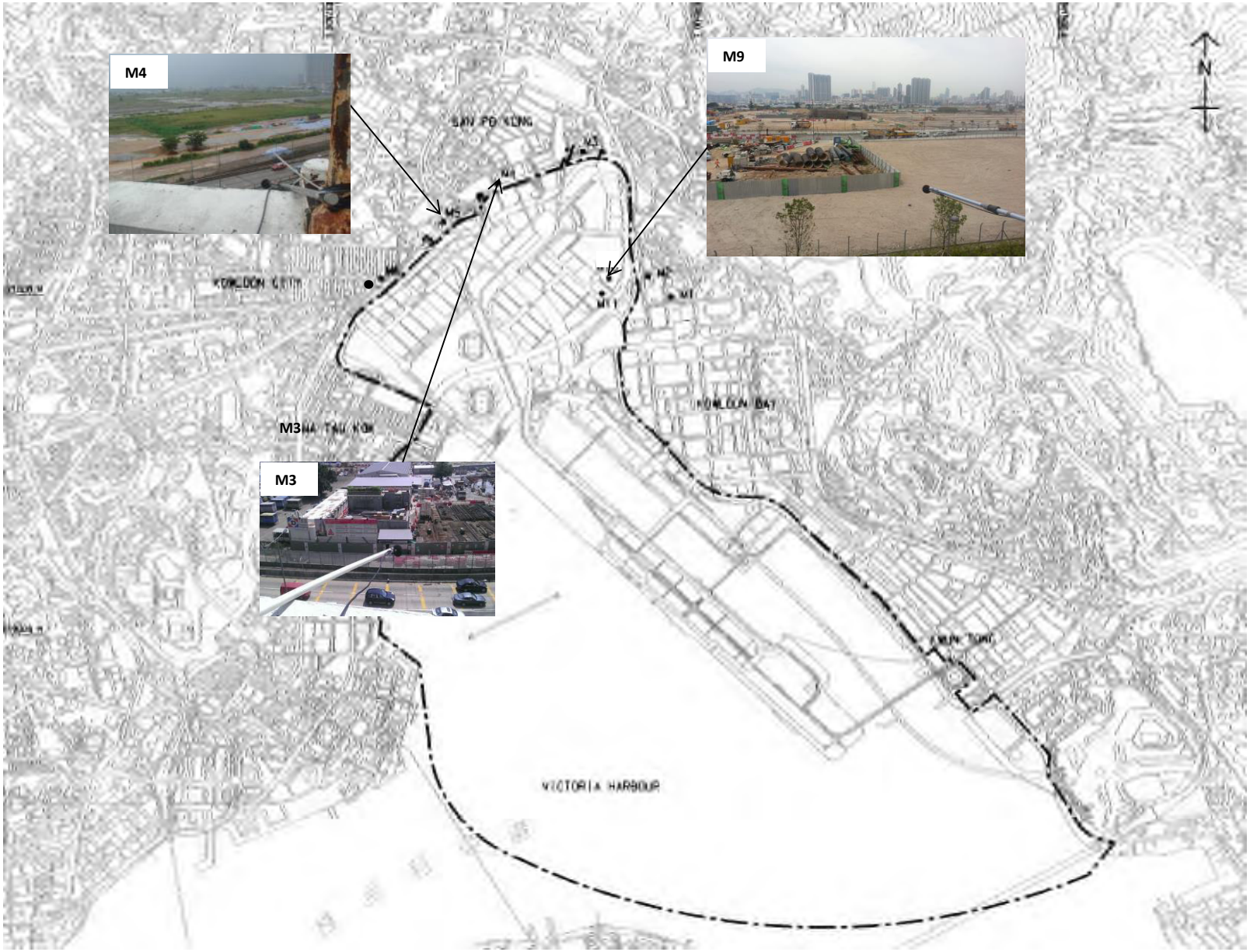
8.6 No environmental complaint and environmental prosecution was received in the reporting month.

FIGURES

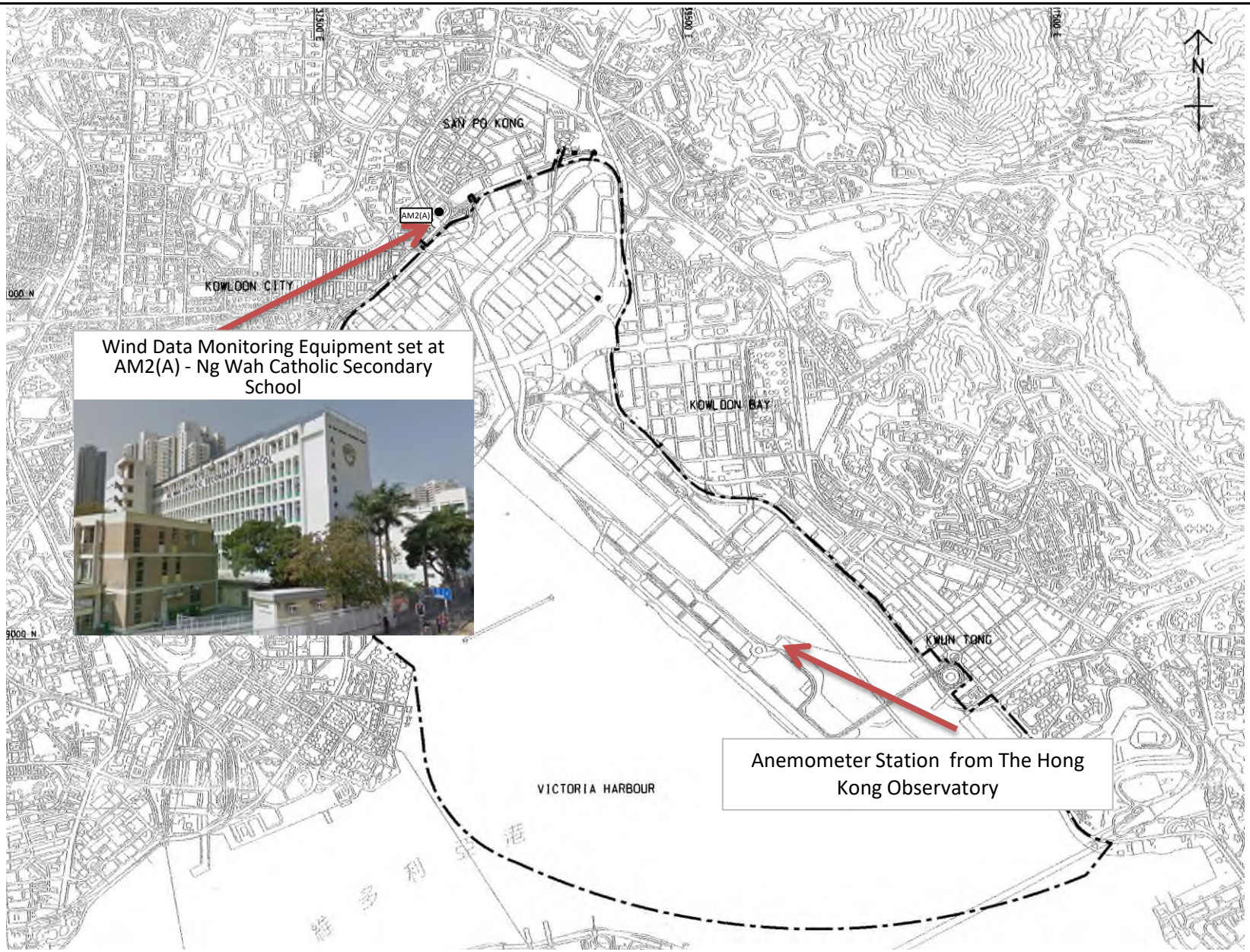


Title	Contract No. KL/2012/02	Scale N.T.S	Project No. MA13043
	Kai Tak Development –Stage 3A Infrastructure at Former North Apron Area	Date Aug-13	Figure 1
	Site Layout Plan		CINOTECH

Title	Contract No. KL/2012/02	Scale N.T.S	Project No. MA13043
	Kai Tak Development –Stage 3A Infrastructure at Former North Apron Area	Date Aug-17	Figure 2
	Location of Air Quality Mointoring Location		CINOTECH



Title: Contract No. KL/2012/02 Kai Tak Development –Stage 3A Infrastructure at Former North Apron Area Location of Noise Monitoring Stations under this Project	Scale: N.T.S Date: Apr-17	Project No.: MA13043 Figure: 3	CINOTECH



Title	Contract No. KL/2012/02 Kai Tak Development –Stage 3A Infrastructure at Former North Apron Area Location of Wind Monitoring Location	Scale: N.T.S Date: Aug-17	Project No.: MA13043 Figure: 4

CINOTECH

APPENDIX A
ACTION AND LIMIT LEVELS FOR AIR QUALITY AND NOISE

Appendix A - Action and Limit Levels

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

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM1(C)	342	500
AM2	346	

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

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM1(C)	159	260
AM2(A)	157	

Table A-3 Action and Limit Levels for Construction Noise

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

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

APPENDIX B
COPIES OF CALIBRATION CERTIFCATES

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	29026
Date of Issue:	2018-06-11
Date Received:	2018-06-08
Date Tested:	2018-06-08
Date Completed:	2018-06-11
Next Due Date:	2018-08-10
Page:	1 of 1

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

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	: 17-22 degree Celsius
Relative Humidity	: 40-70%

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)	1.226

****

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

PATRICK TSE
Laboratory Manager

WELLAB 匯力
Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	29026A
Date of Issue:	2018-06-11
Date Received:	2018-06-08
Date Tested:	2018-06-08
Date Completed:	2018-06-11
Next Due Date:	2018-08-10

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.	: 3011701016
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-03

Test Conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

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)	1.239

****

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

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	29026B
Date of Issue:	2018-06-11
Date Received:	2018-06-08
Date Tested:	2018-06-08
Date Completed:	2018-06-11
Next Due Date:	2018-08-10

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

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	: 17-22 degree Celsius
Relative Humidity	: 40-70%

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)	1.204

****

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

PATRICK TSE
Laboratory Manager

WELLAB 匯力
Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

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

Test Report No.:	29026D
Date of Issue:	2018-06-11
Date Received:	2018-06-08
Date Tested:	2018-06-08
Date Completed:	2018-06-11
Next Due Date:	2018-08-10
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC301
Serial No.	: 3011701013
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-08

Test Conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

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)	1.220

****

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

Patrick Tse
PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	29026E
Date of Issue:	2018-06-11
Date Received:	2018-06-08
Date Tested:	2018-06-08
Date Completed:	2018-06-11
Next Due Date:	2018-08-10
Page:	1 of 1

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

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	: 17-22 degree Celsius
Relative Humidity	: 40-70%

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)	1.213

****

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

PATRICK TSEp
Laboratory Manager

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

TEST REPORT

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

Test Report No.:	C/N/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 Temperatre	: 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

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 1516, 1701 & 1716, Technology Park,
18 On Lai Street, Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/N/170915C
Date of Issue:	2017-09-18
Date Received:	2017-09-15
Date Tested:	2017-09-15
Date Completed:	2017-09-18
Next Due Date:	2018-09-17
Page:	1 of 1

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

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 977
Serial No.	: 45482
Microphone No.	: 63626
Equipment No.	: N-08-14

Test conditions:

Room Temperatre	: 22 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

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/N/171215
Date of Issue:	2017-12-18
Date Received:	2017-12-15
Date Tested:	2017-12-15
Date Completed:	2017-12-18
Next Due Date:	2018-12-17

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

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35924
Equipment No.	: N-13-01

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

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

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

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

Test Report No.:	C/N/171215B
Date of Issue:	2017-12-18
Date Received:	2017-12-15
Date Tested:	2017-12-15
Date Completed:	2017-12-18
Next Due Date:	2018-12-17
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35927
Equipment No.	: N-13-03

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

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

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/N/170929
Date of Issue:	2017-09-30
Date Received:	2017-09-29
Date Tested:	2017-09-29
Date Completed:	2017-09-30
Next Due Date:	2018-09-29

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 Temperatre	: 21 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

WELLAB 匯力
Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/N/170929B
Date of Issue:	2017-09-30
Date Received:	2017-09-29
Date Tested:	2017-09-29
Date Completed:	2017-09-30
Next Due Date:	2018-09-29
Page:	1 of 1

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

Item for calibration:

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

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 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
PATRICK TSE
Laboratory Manager

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13043/53/0007

Project No. AM1(C) -Boundary of KTD/
Outside Contractor's site office of Contract SCL 1107

Date: 29-Jun-18 Next Due Date: 28-Aug-18 Operator: MH

Equipment No.: A-01-53 Model No.: TE-5170 Serial No.: 1535

Ambient Condition			
Temperature, Ta (K)	304	Pressure, Pa (mmHg)	756.4

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	16.2	3.98	67.93	9.8	3.09
2	13.4	3.62	61.78	8.4	2.86
3	10.0	3.12	53.37	6.2	2.46
4	7.6	2.72	46.53	4.8	2.16
5	4.2	2.02	34.59	2.7	1.62

By Linear Regression of Y on X

Slope , mw = 0.0445 **Intercept, bw =** 0.0898

Correlation coefficient* = 0.9996

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

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

Remarks:

Conducted by: LEE MAN HEI Signature: hei Date: 29/6/2018

Checked by: WK Tang Signature: Kwan Date: 29/6/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13056/13/0006

Station: AM2(A) - Ng Wah Catholic Secondary School

Date: 17-May-18 | Next Due Date: 16-Jul-18 | Operator: MH

Equipment No.: A-01-13 | Model No.: TE-5170 | Serial No.: 1352

Ambient Condition			
Temperature, Ta (K)	305.2	Pressure, Pa (mmHg)	759.3

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	13-Feb-19	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	12.6	3.51	59.91	8.0	2.79
2	10.8	3.25	55.46	6.8	2.58
3	8.0	2.79	47.74	4.9	2.19
4	5.4	2.30	39.22	3.3	1.79
5	3.4	1.82	31.12	2.3	1.50

By Linear Regression of Y on X

Slope , mw = **0.0455** **Intercept, bw =** **0.0433**

Correlation coefficient* = **0.9982**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

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

Remarks:

Conducted by: Lee Man Hei Signature: Hei Date: 17/5/2018

Checked by: W K Tang Signature: Kwai Date: 17/5/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13056/13/0007

Station: AM2(A) - Ng Wah Catholic Secondary School

Date: 14-Jul-18 Next Due Date: 13-Sep-18 Operator: MH

Equipment No.: A-01-13 Model No.: TE-5170 Serial No.: 1352

Ambient Condition			
Temperature, Ta (K)	299.3	Pressure, Pa (mmHg)	755.8

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	13-Feb-19	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	12.5	3.52	60.12	7.9	2.80
2	10.9	3.29	56.14	6.8	2.59
3	7.8	2.78	47.49	5.2	2.27
4	5.5	2.33	39.88	3.4	1.83
5	3.3	1.81	30.89	2.1	1.44

By Linear Regression of Y on X

Slope , mw = 0.0464 **Intercept, bw =** 0.0099

Correlation coefficient* = 0.9983

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.07**

Remarks:

Conducted by: Lee Man Hei Signature: Date: 14/7/2018

Checked by: Wk. Tang Signature: Date: 14/7/2018

TISCH Environmental

RECALIBRATION DUE DATE:
February 13, 2019

Certificate of Calibration

Calibration Certification Information					
Cal. Date:	February 13, 2018	**Rootsmeter S/N:** 438320	**Ta:** 293	°K	
Operator:	Jim Tisch		**Pa:** 763.3	mm Hg	
Calibration Model #:	TE-5025A	**Calibrator S/N:** **2896**			

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4670	3.2	2.00
2	3	4	1	1.0380	6.4	4.00
3	5	6	1	0.9220	8.0	5.00
4	7	8	1	0.8840	8.8	5.50
5	9	10	1	0.7250	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0172	0.6934	1.4293	0.9958	0.6788	0.8762
1.0129	0.9758	2.0213	0.9916	0.9553	1.2392
1.0107	1.0962	2.2599	0.9895	1.0732	1.3854
1.0097	1.1422	2.3702	0.9885	1.1182	1.4530
1.0043	1.3853	2.8586	0.9832	1.3562	1.7524
QSTD	**m=**	**2.06726**	**QA**	**m=**	**1.29448**
	b=	**-0.00045**		**b=**	**-0.00028**
	r=	**0.99992**		**r=**	**0.99992**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

Key
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION
US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

Tisch Environmental, Inc.
145 South Miami Avenue
Village of Cleves, OH 45002

www.tisch-env.com
TOLL FREE: (877)263-7610
FAX: (513)467-9009

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 July 2018	30.2	77	4.1
2 July 2018	29.5	81	2.1
3 July 2018	29.7	81	15.4
4 July 2018	30.3	78	3.4
5 July 2018	30	78	1.5
6 July 2018	30.1	80	5
7 July 2018	29	84	5.2
8 July 2018	28.2	88	14.4
9 July 2018	28.2	85	11.3
10 July 2018	29	80	1.3
11 July 2018	29.6	74	-
12 July 2018	30	77	Trace
13 July 2018	26.7	93	50.4
14 July 2018	27	91	52.7
15 July 2018	26.6	89	67.4
16 July 2018	28.2	81	5.8
17 July 2018	30	78	6.5
18 July 2018	27.7	88	29.6
19 July 2018	27.9	87	17.3

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
20 July 2018	28.2	87	7.1
21 July 2018	29.5	75	-
22 July 2018	29	76	Trace
23 July 2018	28.4	87	30.8
24 July 2018	29.8	80	0.1
25 July 2018	29.4	83	2.7
26 July 2018	29.6	82	3.4
27 July 2018	29.8	78	0.3
28 July 2018	30.2	75	-
29 July 2018	30.2	73	-
30 July 2018	30.4	74	-
31 July 2018	30.2	76	3.3

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

** Trace means rainfall less than 0.05 mm

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
1-Jul-2018	00:00	2	NE
1-Jul-2018	01:00	2	NNE
1-Jul-2018	02:00	2	NNE
1-Jul-2018	03:00	2	NE
1-Jul-2018	04:00	1.9	ENE
1-Jul-2018	05:00	1.9	ESE
1-Jul-2018	06:00	1.9	ESE
1-Jul-2018	07:00	1.5	E
1-Jul-2018	08:00	1.2	ENE
1-Jul-2018	09:00	1.5	SSE
1-Jul-2018	10:00	1.2	S
1-Jul-2018	11:00	1.8	ESE
1-Jul-2018	12:00	2.2	E
1-Jul-2018	13:00	1.8	NNE
1-Jul-2018	14:00	1.9	ENE
1-Jul-2018	15:00	1.7	ENE
1-Jul-2018	16:00	1.7	SSW
1-Jul-2018	17:00	1.2	N
1-Jul-2018	18:00	1	N
1-Jul-2018	19:00	0.9	ENE
1-Jul-2018	20:00	0.6	NE
1-Jul-2018	21:00	0.7	WNW
1-Jul-2018	22:00	0.9	WNW
1-Jul-2018	23:00	0.7	W
2-Jul-2018	00:00	1.1	W
2-Jul-2018	01:00	0.9	W
2-Jul-2018	02:00	0.9	WNW
2-Jul-2018	03:00	1	W
2-Jul-2018	04:00	0.9	WSW
2-Jul-2018	05:00	0.7	WNW
2-Jul-2018	06:00	0.5	WNW
2-Jul-2018	07:00	0.5	W
2-Jul-2018	08:00	0.7	W
2-Jul-2018	09:00	1.3	WSW
2-Jul-2018	10:00	1.4	W
2-Jul-2018	11:00	1.4	W
2-Jul-2018	12:00	1.8	W

II. Mean Wind Speed and Wind Direction

2-Jul-2018	13:00	1.6	W
2-Jul-2018	14:00	1.3	W
2-Jul-2018	15:00	1.2	SW
2-Jul-2018	16:00	1.1	W
2-Jul-2018	17:00	1	W
2-Jul-2018	18:00	0.7	W
2-Jul-2018	19:00	0.5	SW
2-Jul-2018	20:00	0.8	E
2-Jul-2018	21:00	0.6	W
2-Jul-2018	22:00	0.8	W
2-Jul-2018	23:00	0.6	N
3-Jul-2018	00:00	0.6	ENE
3-Jul-2018	01:00	0.6	N
3-Jul-2018	02:00	0.9	N
3-Jul-2018	03:00	1.1	ESE
3-Jul-2018	04:00	1.3	NNE
3-Jul-2018	05:00	1.1	NE
3-Jul-2018	06:00	0.9	NNE
3-Jul-2018	07:00	0.8	E
3-Jul-2018	08:00	1.1	ENE
3-Jul-2018	09:00	1.6	NNE
3-Jul-2018	10:00	1.8	N
3-Jul-2018	11:00	1.9	NE
3-Jul-2018	12:00	1.8	NNE
3-Jul-2018	13:00	1.8	NNE
3-Jul-2018	14:00	1.7	NNE
3-Jul-2018	15:00	1.8	NNE
3-Jul-2018	16:00	1.6	ENE
3-Jul-2018	17:00	1.5	ENE
3-Jul-2018	18:00	1.3	ENE
3-Jul-2018	19:00	1	E
3-Jul-2018	20:00	0.6	N
3-Jul-2018	21:00	0.5	ENE
3-Jul-2018	22:00	0.9	ENE
3-Jul-2018	23:00	1	ENE
4-Jul-2018	00:00	1.1	ESE
4-Jul-2018	01:00	0.9	NNE
4-Jul-2018	02:00	1	NE

II. Mean Wind Speed and Wind Direction

4-Jul-2018	03:00	1	NE
4-Jul-2018	04:00	1	SSE
4-Jul-2018	05:00	1	NNE
4-Jul-2018	06:00	1.3	ENE
4-Jul-2018	07:00	1.1	NE
4-Jul-2018	08:00	1.2	NE
4-Jul-2018	09:00	1.6	E
4-Jul-2018	10:00	2.8	ENE
4-Jul-2018	11:00	2.7	ENE
4-Jul-2018	12:00	2.9	ENE
4-Jul-2018	13:00	2.8	ENE
4-Jul-2018	14:00	2.7	NNE
4-Jul-2018	15:00	2.6	ENE
4-Jul-2018	16:00	2.2	NE
4-Jul-2018	17:00	2.2	NE
4-Jul-2018	18:00	1.8	ENE
4-Jul-2018	19:00	1.4	ENE
4-Jul-2018	20:00	1.2	N
4-Jul-2018	21:00	1.5	NE
4-Jul-2018	22:00	1.6	NNE
4-Jul-2018	23:00	1.4	SSW
5-Jul-2018	00:00	1.5	N
5-Jul-2018	01:00	1.6	E
5-Jul-2018	02:00	1.3	WSW
5-Jul-2018	03:00	1.5	WNW
5-Jul-2018	04:00	1.7	SW
5-Jul-2018	05:00	1.9	SW
5-Jul-2018	06:00	1.7	WSW
5-Jul-2018	07:00	2	SW
5-Jul-2018	08:00	2.3	SW
5-Jul-2018	09:00	2.7	WSW
5-Jul-2018	10:00	2.7	WSW
5-Jul-2018	11:00	3.2	SW
5-Jul-2018	12:00	3.1	WNW
5-Jul-2018	13:00	3.1	SE
5-Jul-2018	14:00	3.1	SE
5-Jul-2018	15:00	3.2	ESE
5-Jul-2018	16:00	3.1	ESE

II. Mean Wind Speed and Wind Direction

5-Jul-2018	17:00	2.8	W
5-Jul-2018	18:00	2.5	SSW
5-Jul-2018	19:00	1.9	SSW
5-Jul-2018	20:00	1.9	SSW
5-Jul-2018	21:00	1.9	SW
5-Jul-2018	22:00	2.1	SSW
5-Jul-2018	23:00	2	SW
6-Jul-2018	00:00	1.7	SW
6-Jul-2018	01:00	1.8	SW
6-Jul-2018	02:00	1.9	WNW
6-Jul-2018	03:00	2.1	WNW
6-Jul-2018	04:00	1.9	E
6-Jul-2018	05:00	1.8	ENE
6-Jul-2018	06:00	2	WSW
6-Jul-2018	07:00	1.8	WNW
6-Jul-2018	08:00	2	SW
6-Jul-2018	09:00	2.5	WSW
6-Jul-2018	10:00	2.6	SW
6-Jul-2018	11:00	2.8	WSW
6-Jul-2018	12:00	2.6	WNW
6-Jul-2018	13:00	2.7	N
6-Jul-2018	14:00	2.8	SSW
6-Jul-2018	15:00	2.7	S
6-Jul-2018	16:00	2.7	SW
6-Jul-2018	17:00	2.6	WSW
6-Jul-2018	18:00	2.3	SW
6-Jul-2018	19:00	2.2	WNW
6-Jul-2018	20:00	2	WNW
6-Jul-2018	21:00	1.8	WSW
6-Jul-2018	22:00	1.9	SW
6-Jul-2018	23:00	1.9	SW
7-Jul-2018	00:00	2.2	WNW
7-Jul-2018	01:00	2.2	WNW
7-Jul-2018	02:00	2	WNW
7-Jul-2018	03:00	2.2	WNW
7-Jul-2018	04:00	2.3	WNW
7-Jul-2018	05:00	2.1	W
7-Jul-2018	06:00	2	WNW

II. Mean Wind Speed and Wind Direction

7-Jul-2018	07:00	1.7	WNW
7-Jul-2018	08:00	2.1	W
7-Jul-2018	09:00	2.3	W
7-Jul-2018	10:00	2.3	W
7-Jul-2018	11:00	2.2	SSW
7-Jul-2018	12:00	2.5	W
7-Jul-2018	13:00	2.5	W
7-Jul-2018	14:00	1.9	W
7-Jul-2018	15:00	2.1	WNW
7-Jul-2018	16:00	1.9	W
7-Jul-2018	17:00	1.9	W
7-Jul-2018	18:00	2	WNW
7-Jul-2018	19:00	2	WNW
7-Jul-2018	20:00	1.7	SSW
7-Jul-2018	21:00	1.6	SW
7-Jul-2018	22:00	1.8	N
7-Jul-2018	23:00	1.4	N
8-Jul-2018	00:00	1.4	N
8-Jul-2018	01:00	1.4	NNW
8-Jul-2018	02:00	1.4	NNW
8-Jul-2018	03:00	1.4	NW
8-Jul-2018	04:00	1.5	W
8-Jul-2018	05:00	1.4	W
8-Jul-2018	06:00	1.4	SSW
8-Jul-2018	07:00	1.5	W
8-Jul-2018	08:00	1.7	ENE
8-Jul-2018	09:00	2.2	NE
8-Jul-2018	10:00	2.1	NE
8-Jul-2018	11:00	2.5	NE
8-Jul-2018	12:00	2.6	ENE
8-Jul-2018	13:00	2.7	ENE
8-Jul-2018	14:00	2.7	ENE
8-Jul-2018	15:00	2.4	E
8-Jul-2018	16:00	2.4	SE
8-Jul-2018	17:00	2	SSE
8-Jul-2018	18:00	1.6	SSE
8-Jul-2018	19:00	1.5	WSW
8-Jul-2018	20:00	1.3	S

II. Mean Wind Speed and Wind Direction

8-Jul-2018	21:00	1.4	SSW
8-Jul-2018	22:00	1.4	W
8-Jul-2018	23:00	1.3	SSE
9-Jul-2018	00:00	1.3	SSE
9-Jul-2018	01:00	1.2	ENE
9-Jul-2018	02:00	1.3	N
9-Jul-2018	03:00	1.5	NNE
9-Jul-2018	04:00	1.6	NNE
9-Jul-2018	05:00	1.5	ESE
9-Jul-2018	06:00	1.3	ESE
9-Jul-2018	07:00	1.4	ESE
9-Jul-2018	08:00	1.5	ENE
9-Jul-2018	09:00	1.8	E
9-Jul-2018	10:00	1.9	NNE
9-Jul-2018	11:00	1.9	SSE
9-Jul-2018	12:00	2	NNE
9-Jul-2018	13:00	2	NE
9-Jul-2018	14:00	2	ENE
9-Jul-2018	15:00	1.6	ENE
9-Jul-2018	16:00	1.7	N
9-Jul-2018	17:00	1.2	ENE
9-Jul-2018	18:00	1	ENE
9-Jul-2018	19:00	0.7	NE
9-Jul-2018	20:00	0.7	NNE
9-Jul-2018	21:00	0.9	ENE
9-Jul-2018	22:00	0.8	NE
9-Jul-2018	23:00	0.6	ENE
10-Jul-2018	00:00	0.6	E
10-Jul-2018	01:00	0.7	NE
10-Jul-2018	02:00	0.6	NNE
10-Jul-2018	03:00	0.6	NE
10-Jul-2018	04:00	0.5	NNE
10-Jul-2018	05:00	0.5	NNE
10-Jul-2018	06:00	0.6	NNE
10-Jul-2018	07:00	0.5	NNE
10-Jul-2018	08:00	0.5	NNE
10-Jul-2018	09:00	1.2	NNE
10-Jul-2018	10:00	1.5	NNE

II. Mean Wind Speed and Wind Direction

10-Jul-2018	11:00	2.2	NNE
10-Jul-2018	12:00	2	NE
10-Jul-2018	13:00	2.2	NNE
10-Jul-2018	14:00	2	NE
10-Jul-2018	15:00	1.8	NE
10-Jul-2018	16:00	1.8	NE
10-Jul-2018	17:00	1.7	NE
10-Jul-2018	18:00	1.4	NE
10-Jul-2018	19:00	1.3	ENE
10-Jul-2018	20:00	1.5	ENE
10-Jul-2018	21:00	1.4	ENE
10-Jul-2018	22:00	1.4	SE
10-Jul-2018	23:00	1.6	NE
11-Jul-2018	00:00	1.4	ENE
11-Jul-2018	01:00	1.5	SSE
11-Jul-2018	02:00	1.4	SSE
11-Jul-2018	03:00	1.4	ENE
11-Jul-2018	04:00	1.3	ENE
11-Jul-2018	05:00	1.2	ESE
11-Jul-2018	06:00	1.5	SSE
11-Jul-2018	07:00	1.4	ESE
11-Jul-2018	08:00	1.4	ESE
11-Jul-2018	09:00	1.8	S
11-Jul-2018	10:00	1.7	S
11-Jul-2018	11:00	1.8	W
11-Jul-2018	12:00	2	WSW
11-Jul-2018	13:00	1.9	ESE
11-Jul-2018	14:00	2	ENE
11-Jul-2018	15:00	2.1	E
11-Jul-2018	16:00	2	SSE
11-Jul-2018	17:00	1.8	NNE
11-Jul-2018	18:00	1.8	ESE
11-Jul-2018	19:00	1.8	ENE
11-Jul-2018	20:00	1.8	SSE
11-Jul-2018	21:00	1.6	ESE
11-Jul-2018	22:00	2	E
11-Jul-2018	23:00	1.8	SSE
12-Jul-2018	00:00	1.8	S

II. Mean Wind Speed and Wind Direction

12-Jul-2018	01:00	1.4	ESE
12-Jul-2018	02:00	1.1	SW
12-Jul-2018	03:00	1.2	SW
12-Jul-2018	04:00	1.1	WNW
12-Jul-2018	05:00	0.9	W
12-Jul-2018	06:00	1	WNW
12-Jul-2018	07:00	1.1	N
12-Jul-2018	08:00	1	NNE
12-Jul-2018	09:00	1.2	WSW
12-Jul-2018	10:00	1.6	WSW
12-Jul-2018	11:00	1.8	W
12-Jul-2018	12:00	1.7	W
12-Jul-2018	13:00	1.4	W
12-Jul-2018	14:00	1.5	W
12-Jul-2018	15:00	1.7	WSW
12-Jul-2018	16:00	1.9	NE
12-Jul-2018	17:00	1.7	NE
12-Jul-2018	18:00	1.4	NE
12-Jul-2018	19:00	1.2	WNW
12-Jul-2018	20:00	1.1	NE
12-Jul-2018	21:00	0.9	NE
12-Jul-2018	22:00	1.1	NE
12-Jul-2018	23:00	1.2	W
13-Jul-2018	00:00	1	WSW
13-Jul-2018	01:00	0.9	WNW
13-Jul-2018	02:00	0.6	WNW
13-Jul-2018	03:00	0.9	NE
13-Jul-2018	04:00	1.1	NNE
13-Jul-2018	05:00	0.9	ENE
13-Jul-2018	06:00	0.7	SE
13-Jul-2018	07:00	0.7	NE
13-Jul-2018	08:00	0.8	ENE
13-Jul-2018	09:00	1.6	ENE
13-Jul-2018	10:00	2.1	NE
13-Jul-2018	11:00	2.8	ESE
13-Jul-2018	12:00	2.7	ESE
13-Jul-2018	13:00	2.8	E
13-Jul-2018	14:00	2.5	S

II. Mean Wind Speed and Wind Direction

13-Jul-2018	15:00	2.4	E
13-Jul-2018	16:00	2	SE
13-Jul-2018	17:00	1.9	E
13-Jul-2018	18:00	1.7	SE
13-Jul-2018	19:00	1.3	SE
13-Jul-2018	20:00	1	W
13-Jul-2018	21:00	0.8	SW
13-Jul-2018	22:00	1	WSW
13-Jul-2018	23:00	0.8	SW
14-Jul-2018	00:00	0.9	NNE
14-Jul-2018	01:00	1.2	SSW
14-Jul-2018	02:00	1.2	ESE
14-Jul-2018	03:00	1.4	WNW
14-Jul-2018	04:00	1.7	SE
14-Jul-2018	05:00	1.7	SSE
14-Jul-2018	06:00	1.7	ESE
14-Jul-2018	07:00	1.7	WNW
14-Jul-2018	08:00	1.8	ENE
14-Jul-2018	09:00	2	ENE
14-Jul-2018	10:00	2.4	N
14-Jul-2018	11:00	2.5	NNE
14-Jul-2018	12:00	2.8	NE
14-Jul-2018	13:00	2.7	NE
14-Jul-2018	14:00	2.3	WNW
14-Jul-2018	15:00	2.4	WNW
14-Jul-2018	16:00	2.7	WNW
14-Jul-2018	17:00	2.5	N
14-Jul-2018	18:00	1.8	N
14-Jul-2018	19:00	1.9	SW
14-Jul-2018	20:00	1.7	W
14-Jul-2018	21:00	1.6	W
14-Jul-2018	22:00	1.6	W
14-Jul-2018	23:00	1.6	WNW
15-Jul-2018	00:00	1.6	WSW
15-Jul-2018	01:00	1.7	N
15-Jul-2018	02:00	1.6	E
15-Jul-2018	03:00	1.4	ENE
15-Jul-2018	04:00	1.7	W

II. Mean Wind Speed and Wind Direction

15-Jul-2018	05:00	1.9	W
15-Jul-2018	06:00	1.8	WSW
15-Jul-2018	07:00	1.9	NNE
15-Jul-2018	08:00	1.8	NE
15-Jul-2018	09:00	2	NE
15-Jul-2018	10:00	2.2	WNW
15-Jul-2018	11:00	2.1	W
15-Jul-2018	12:00	2.1	W
15-Jul-2018	13:00	2.2	SSW
15-Jul-2018	14:00	2.3	SSW
15-Jul-2018	15:00	2.5	SSE
15-Jul-2018	16:00	2.2	NNW
15-Jul-2018	17:00	1.7	WNW
15-Jul-2018	18:00	1.6	NNW
15-Jul-2018	19:00	1.2	NE
15-Jul-2018	20:00	1.2	NE
15-Jul-2018	21:00	1.2	WNW
15-Jul-2018	22:00	1.2	WNW
15-Jul-2018	23:00	1.4	W
16-Jul-2018	00:00	1.2	NW
16-Jul-2018	01:00	1.3	SSW
16-Jul-2018	02:00	1.3	W
16-Jul-2018	03:00	1.3	WSW
16-Jul-2018	04:00	1.4	NNE
16-Jul-2018	05:00	1.5	W
16-Jul-2018	06:00	1.4	W
16-Jul-2018	07:00	1.5	W
16-Jul-2018	08:00	1.4	W
16-Jul-2018	09:00	1.7	W
16-Jul-2018	10:00	2	W
16-Jul-2018	11:00	1.9	WNW
16-Jul-2018	12:00	2.3	W
16-Jul-2018	13:00	2.2	ESE
16-Jul-2018	14:00	2	WNW
16-Jul-2018	15:00	2.5	WSW
16-Jul-2018	16:00	2.3	ESE
16-Jul-2018	17:00	1.9	NNW
16-Jul-2018	18:00	1.9	WSW

II. Mean Wind Speed and Wind Direction

16-Jul-2018	19:00	1.2	SE
16-Jul-2018	20:00	1	SE
16-Jul-2018	21:00	1.1	WNW
16-Jul-2018	22:00	0.8	NNE
16-Jul-2018	23:00	0.9	NNW
17-Jul-2018	00:00	0.9	NW
17-Jul-2018	01:00	0.9	NW
17-Jul-2018	02:00	1.3	S
17-Jul-2018	03:00	1.3	SW
17-Jul-2018	04:00	1.3	WNW
17-Jul-2018	05:00	1	WNW
17-Jul-2018	06:00	0.9	NW
17-Jul-2018	07:00	1.1	NNW
17-Jul-2018	08:00	1.2	NW
17-Jul-2018	09:00	1.4	ESE
17-Jul-2018	10:00	1.9	ESE
17-Jul-2018	11:00	2.2	S
17-Jul-2018	12:00	2.2	SE
17-Jul-2018	13:00	2.3	S
17-Jul-2018	14:00	2.3	SW
17-Jul-2018	15:00	2.5	S
17-Jul-2018	16:00	2.5	NNW
17-Jul-2018	17:00	2	S
17-Jul-2018	18:00	2	ENE
17-Jul-2018	19:00	1.9	NNE
17-Jul-2018	20:00	1.9	NNE
17-Jul-2018	21:00	1.7	WNW
17-Jul-2018	22:00	1.6	WNW
17-Jul-2018	23:00	1.5	W
18-Jul-2018	00:00	1.5	WNW
18-Jul-2018	01:00	1.5	WNW
18-Jul-2018	02:00	1.7	WNW
18-Jul-2018	03:00	1.5	NW
18-Jul-2018	04:00	1.6	NE
18-Jul-2018	05:00	1.4	NE
18-Jul-2018	06:00	1.6	NNE
18-Jul-2018	07:00	1.5	NNE
18-Jul-2018	08:00	1.6	NNE

II. Mean Wind Speed and Wind Direction

18-Jul-2018	09:00	2	NNE
18-Jul-2018	10:00	2.4	ENE
18-Jul-2018	11:00	2.6	ENE
18-Jul-2018	12:00	2.4	ENE
18-Jul-2018	13:00	2.6	NNE
18-Jul-2018	14:00	2.6	NNE
18-Jul-2018	15:00	2.5	ENE
18-Jul-2018	16:00	2.2	NNE
18-Jul-2018	17:00	1.8	NNE
18-Jul-2018	18:00	1.4	ENE
18-Jul-2018	19:00	1.4	ESE
18-Jul-2018	20:00	1.2	E
18-Jul-2018	21:00	0.9	SSW
18-Jul-2018	22:00	0.9	SSE
18-Jul-2018	23:00	1.1	SSW
19-Jul-2018	00:00	1.2	SSW
19-Jul-2018	01:00	0.9	E
19-Jul-2018	02:00	1.3	ESE
19-Jul-2018	03:00	1.3	SW
19-Jul-2018	04:00	1.4	N
19-Jul-2018	05:00	1.4	ESE
19-Jul-2018	06:00	1.4	S
19-Jul-2018	07:00	1.4	SE
19-Jul-2018	08:00	1.8	WNW
19-Jul-2018	09:00	1.8	E
19-Jul-2018	10:00	2	SSW
19-Jul-2018	11:00	2	W
19-Jul-2018	12:00	2.2	ENE
19-Jul-2018	13:00	1.9	WSW
19-Jul-2018	14:00	1.9	SW
19-Jul-2018	15:00	2.3	ENE
19-Jul-2018	16:00	2.2	ESE
19-Jul-2018	17:00	2.1	ENE
19-Jul-2018	18:00	1.5	ENE
19-Jul-2018	19:00	1.4	NE
19-Jul-2018	20:00	1	N
19-Jul-2018	21:00	1	W
19-Jul-2018	22:00	1.4	SSW

II. Mean Wind Speed and Wind Direction

19-Jul-2018	23:00	1.2	NE
20-Jul-2018	00:00	1.3	SW
20-Jul-2018	01:00	1.2	SW
20-Jul-2018	02:00	1.3	W
20-Jul-2018	03:00	1.2	SE
20-Jul-2018	04:00	1.4	WNW
20-Jul-2018	05:00	1.4	WNW
20-Jul-2018	06:00	1.5	WNW
20-Jul-2018	07:00	1.3	W
20-Jul-2018	08:00	1.7	W
20-Jul-2018	09:00	1.9	SSE
20-Jul-2018	10:00	2.5	S
20-Jul-2018	11:00	2.6	SSE
20-Jul-2018	12:00	2.5	SW
20-Jul-2018	13:00	2.4	E
20-Jul-2018	14:00	2.5	NE
20-Jul-2018	15:00	2.2	SSW
20-Jul-2018	16:00	2	E
20-Jul-2018	17:00	1.6	SW
20-Jul-2018	18:00	1.4	W
20-Jul-2018	19:00	1.4	WSW
20-Jul-2018	20:00	1.2	WSW
20-Jul-2018	21:00	1.2	SSW
20-Jul-2018	22:00	1.3	S
20-Jul-2018	23:00	1.3	W
21-Jul-2018	00:00	1.2	W
21-Jul-2018	01:00	1.1	SW
21-Jul-2018	02:00	1.3	S
21-Jul-2018	03:00	1.4	W
21-Jul-2018	04:00	1.2	W
21-Jul-2018	05:00	1.4	W
21-Jul-2018	06:00	1.8	W
21-Jul-2018	07:00	1.7	WNW
21-Jul-2018	08:00	1.7	WNW
21-Jul-2018	09:00	1.7	WNW
21-Jul-2018	10:00	2.1	WNW
21-Jul-2018	11:00	2.3	WNW
21-Jul-2018	12:00	2.4	N

II. Mean Wind Speed and Wind Direction

21-Jul-2018	13:00	2.5	W
21-Jul-2018	14:00	2.6	WNW
21-Jul-2018	15:00	2.8	WNW
21-Jul-2018	16:00	2.4	WNW
21-Jul-2018	17:00	2.1	W
21-Jul-2018	18:00	1.7	N
21-Jul-2018	19:00	1.6	WNW
21-Jul-2018	20:00	1.4	ENE
21-Jul-2018	21:00	1.3	WSW
21-Jul-2018	22:00	1.3	SW
21-Jul-2018	23:00	1.4	SW
22-Jul-2018	00:00	1.4	WNW
22-Jul-2018	01:00	1.5	WNW
22-Jul-2018	02:00	1.5	S
22-Jul-2018	03:00	1.6	S
22-Jul-2018	04:00	1.4	S
22-Jul-2018	05:00	1.4	WSW
22-Jul-2018	06:00	1.4	W
22-Jul-2018	07:00	1.5	SW
22-Jul-2018	08:00	1.8	WNW
22-Jul-2018	09:00	1.7	SW
22-Jul-2018	10:00	2	SW
22-Jul-2018	11:00	2.3	SSW
22-Jul-2018	12:00	2.1	SW
22-Jul-2018	13:00	2	W
22-Jul-2018	14:00	2.1	ENE
22-Jul-2018	15:00	2.2	ENE
22-Jul-2018	16:00	2	NW
22-Jul-2018	17:00	1.7	NE
22-Jul-2018	18:00	1.6	E
22-Jul-2018	19:00	1.1	N
22-Jul-2018	20:00	1.4	N
22-Jul-2018	21:00	1.5	N
22-Jul-2018	22:00	1.7	ENE
22-Jul-2018	23:00	1.9	SSE
23-Jul-2018	00:00	1.8	NE
23-Jul-2018	01:00	1.7	NE
23-Jul-2018	02:00	1.5	E

II. Mean Wind Speed and Wind Direction

23-Jul-2018	03:00	1.5	ENE
23-Jul-2018	04:00	1.5	ENE
23-Jul-2018	05:00	1.4	ENE
23-Jul-2018	06:00	1.5	ENE
23-Jul-2018	07:00	1.5	ENE
23-Jul-2018	08:00	1.7	NNE
23-Jul-2018	09:00	1.9	NNE
23-Jul-2018	10:00	2.4	N
23-Jul-2018	11:00	2.7	N
23-Jul-2018	12:00	2.5	NNE
23-Jul-2018	13:00	2.4	NNE
23-Jul-2018	14:00	2.6	NE
23-Jul-2018	15:00	2.6	N
23-Jul-2018	16:00	2.5	NE
23-Jul-2018	17:00	2.5	NNE
23-Jul-2018	18:00	2	NNE
23-Jul-2018	19:00	1.7	NNE
23-Jul-2018	20:00	1.6	S
23-Jul-2018	21:00	1.4	WNW
23-Jul-2018	22:00	1.4	W
23-Jul-2018	23:00	1.4	WNW
24-Jul-2018	00:00	1.4	WNW
24-Jul-2018	01:00	1.5	NW
24-Jul-2018	02:00	1.6	E
24-Jul-2018	03:00	1.8	NE
24-Jul-2018	04:00	1.9	NNE
24-Jul-2018	05:00	2	NE
24-Jul-2018	06:00	1.6	S
24-Jul-2018	07:00	1.5	S
24-Jul-2018	08:00	1.9	WNW
24-Jul-2018	09:00	2	WSW
24-Jul-2018	10:00	2.6	WSW
24-Jul-2018	11:00	2.6	WNW
24-Jul-2018	12:00	2.6	W
24-Jul-2018	13:00	2.7	W
24-Jul-2018	14:00	2.4	WNW
24-Jul-2018	15:00	2.5	E
24-Jul-2018	16:00	2.3	WNW

II. Mean Wind Speed and Wind Direction

24-Jul-2018	17:00	2	W
24-Jul-2018	18:00	1.6	W
24-Jul-2018	19:00	1.3	W
24-Jul-2018	20:00	1.4	W
24-Jul-2018	21:00	1.4	SW
24-Jul-2018	22:00	1.5	SSW
24-Jul-2018	23:00	1.4	SSW
25-Jul-2018	00:00	1.4	SSW
25-Jul-2018	01:00	1.4	N
25-Jul-2018	02:00	1.2	WNW
25-Jul-2018	03:00	1.1	WNW
25-Jul-2018	04:00	1.2	WNW
25-Jul-2018	05:00	0.9	WSW
25-Jul-2018	06:00	1	WSW
25-Jul-2018	07:00	1	WSW
25-Jul-2018	08:00	1.4	W
25-Jul-2018	09:00	1.9	W
25-Jul-2018	10:00	2.3	WSW
25-Jul-2018	11:00	2.6	SW
25-Jul-2018	12:00	2.6	NNE
25-Jul-2018	13:00	2.3	N
25-Jul-2018	14:00	2.6	SW
25-Jul-2018	15:00	2.5	NNE
25-Jul-2018	16:00	2.2	W
25-Jul-2018	17:00	1.8	W
25-Jul-2018	18:00	1.5	WNW
25-Jul-2018	19:00	1.4	WSW
25-Jul-2018	20:00	1.4	W
25-Jul-2018	21:00	1.3	WSW
25-Jul-2018	22:00	1.6	W
25-Jul-2018	23:00	1.8	WSW
26-Jul-2018	00:00	1.3	W
26-Jul-2018	01:00	1.4	E
26-Jul-2018	02:00	1.4	SW
26-Jul-2018	03:00	1.4	WSW
26-Jul-2018	04:00	1.3	SW
26-Jul-2018	05:00	1.5	SW
26-Jul-2018	06:00	1.4	W

II. Mean Wind Speed and Wind Direction

26-Jul-2018	07:00	1.6	W
26-Jul-2018	08:00	1.6	W
26-Jul-2018	09:00	1.8	W
26-Jul-2018	10:00	1.9	NNE
26-Jul-2018	11:00	2.4	NNE
26-Jul-2018	12:00	2.7	NE
26-Jul-2018	13:00	2.8	W
26-Jul-2018	14:00	2.5	W
26-Jul-2018	15:00	2.6	SW
26-Jul-2018	16:00	2.6	SW
26-Jul-2018	17:00	2.3	SW
26-Jul-2018	18:00	1.9	WSW
26-Jul-2018	19:00	1.7	W
26-Jul-2018	20:00	1.4	WNW
26-Jul-2018	21:00	1.4	W
26-Jul-2018	22:00	1.3	WNW
26-Jul-2018	23:00	1.6	W
27-Jul-2018	00:00	1.6	ESE
27-Jul-2018	01:00	1.4	W
27-Jul-2018	02:00	1.4	WSW
27-Jul-2018	03:00	1.5	WSW
27-Jul-2018	04:00	1.4	W
27-Jul-2018	05:00	1.5	SW
27-Jul-2018	06:00	1.3	SW
27-Jul-2018	07:00	1.7	SW
27-Jul-2018	08:00	1.7	SW
27-Jul-2018	09:00	1.9	SW
27-Jul-2018	10:00	2	W
27-Jul-2018	11:00	2.5	W
27-Jul-2018	12:00	2.7	W
27-Jul-2018	13:00	2.7	W
27-Jul-2018	14:00	2.6	WSW
27-Jul-2018	15:00	2.5	WSW
27-Jul-2018	16:00	2.5	SSW
27-Jul-2018	17:00	2.2	NE
27-Jul-2018	18:00	1.8	SE
27-Jul-2018	19:00	1.5	SSE
27-Jul-2018	20:00	1.6	SW

II. Mean Wind Speed and Wind Direction

27-Jul-2018	21:00	1.7	ENE
27-Jul-2018	22:00	1.5	NNW
27-Jul-2018	23:00	1.6	SSE
28-Jul-2018	00:00	1.8	SSE
28-Jul-2018	01:00	1.8	SE
28-Jul-2018	02:00	1.9	N
28-Jul-2018	03:00	1.7	WNW
28-Jul-2018	04:00	1.6	ENE
28-Jul-2018	05:00	1.5	ENE
28-Jul-2018	06:00	1.6	ESE
28-Jul-2018	07:00	1.7	E
28-Jul-2018	08:00	1.9	SW
28-Jul-2018	09:00	2.2	SSE
28-Jul-2018	10:00	2.2	SW
28-Jul-2018	11:00	2.6	SW
28-Jul-2018	12:00	2.6	NNE
28-Jul-2018	13:00	2.3	SSW
28-Jul-2018	14:00	2.3	W
28-Jul-2018	15:00	2.3	W
28-Jul-2018	16:00	2.4	ENE
28-Jul-2018	17:00	2.2	WNW
28-Jul-2018	18:00	1.9	ENE
28-Jul-2018	19:00	1.5	N
28-Jul-2018	20:00	1.5	N
28-Jul-2018	21:00	1.6	N
28-Jul-2018	22:00	1.5	NNE
28-Jul-2018	23:00	1.8	SSW
29-Jul-2018	00:00	1.7	NE
29-Jul-2018	01:00	2	W
29-Jul-2018	02:00	2	WNW
29-Jul-2018	03:00	2.2	ESE
29-Jul-2018	04:00	1.7	SE
29-Jul-2018	05:00	1.8	SSW
29-Jul-2018	06:00	1.6	ESE
29-Jul-2018	07:00	1.4	SW
29-Jul-2018	08:00	1.4	WSW
29-Jul-2018	09:00	1.6	SSW
29-Jul-2018	10:00	2.1	WSW

II. Mean Wind Speed and Wind Direction

29-Jul-2018	11:00	2.2	WSW
29-Jul-2018	12:00	2.1	SW
29-Jul-2018	13:00	2.3	W
29-Jul-2018	14:00	2.3	WSW
29-Jul-2018	15:00	2.2	W
29-Jul-2018	16:00	2.2	SW
29-Jul-2018	17:00	2.2	SSW
29-Jul-2018	18:00	1.8	W
29-Jul-2018	19:00	1.4	NNE
29-Jul-2018	20:00	1.1	N
29-Jul-2018	21:00	1.2	WNW
29-Jul-2018	22:00	1.4	NE
29-Jul-2018	23:00	1.3	ESE
30-Jul-2018	00:00	1.3	E
30-Jul-2018	01:00	1.4	SSE
30-Jul-2018	02:00	1.4	ENE
30-Jul-2018	03:00	1.5	NE
30-Jul-2018	04:00	1.5	ENE
30-Jul-2018	05:00	1.5	SW
30-Jul-2018	06:00	1.4	SW
30-Jul-2018	07:00	1.3	NNE
30-Jul-2018	08:00	1.7	NNE
30-Jul-2018	09:00	2.1	W
30-Jul-2018	10:00	2.3	WNW
30-Jul-2018	11:00	2.8	WNW
30-Jul-2018	12:00	3.2	WSW
30-Jul-2018	13:00	2.6	WNW
30-Jul-2018	14:00	2.8	N
30-Jul-2018	15:00	2.9	SW
30-Jul-2018	16:00	2.5	NNE
30-Jul-2018	17:00	2.2	WSW
30-Jul-2018	18:00	2	N
30-Jul-2018	19:00	1.6	N
30-Jul-2018	20:00	1.6	NNE
30-Jul-2018	21:00	1.5	NE
30-Jul-2018	22:00	1.8	NE
30-Jul-2018	23:00	1.8	SE
31-Jul-2018	00:00	1.9	NE

II. Mean Wind Speed and Wind Direction

31-Jul-2018	01:00	1.8	N
31-Jul-2018	02:00	1.7	N
31-Jul-2018	03:00	1.9	SE
31-Jul-2018	04:00	1.6	SE
31-Jul-2018	05:00	1.5	NE
31-Jul-2018	06:00	1.7	NE
31-Jul-2018	07:00	1.5	ESE
31-Jul-2018	08:00	1.4	ESE
31-Jul-2018	09:00	1.9	SSE
31-Jul-2018	10:00	1.9	SSE
31-Jul-2018	11:00	1.8	NE
31-Jul-2018	12:00	2	ENE
31-Jul-2018	13:00	2	E
31-Jul-2018	14:00	2	ENE
31-Jul-2018	15:00	2.1	ESE
31-Jul-2018	16:00	1.8	NE
31-Jul-2018	17:00	1.8	ENE
31-Jul-2018	18:00	2	NE
31-Jul-2018	19:00	1.9	NE
31-Jul-2018	20:00	1.9	NNE
31-Jul-2018	21:00	2	ENE
31-Jul-2018	22:00	1.9	NE
31-Jul-2018	23:00	1.9	ESE

APPENDIX D
ENVIRONMENTAL MONITORING SCHEDULES

Contract No. KL/2012/02
Kai Tak Development - Stage 3A Infrastructure at Former North Apron Area
Impact Air and Noise Monitoring Schedule for July 2018

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Jul	**2-Jul**	3-Jul	4-Jul	5-Jul	6-Jul	7-Jul
		1 hr TSP X3 [AM2] **Noise** [M4]	**Noise** [M3, M9] **24 hr TSP** [AM1(C) , AM2(A)]	**1 hr TSP X3** [AM1C] [AM1]		
8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul
	1 hr TSP X3 [AM2] **Noise** [M4]	**Noise** [M3, M9] **24 hr TSP** [AM1(C) , AM2(A)]	**1 hr TSP X3** [AM1C]			**1 hr TSP X3** [AM2]
15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul
	24 hr TSP [AM1(C) , AM2(A)]	**1 hr TSP X3** [AM1C] **Noise** [M3]			**1 hr TSP X3** [AM2] **Noise** [M4, M9] **24 hr TSP** [AM1(C) , AM2(A)]	
22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul
	1 hr TSP X3 [AM1C] **Noise** [M3]			**1 hr TSP X3** [AM2] **Noise** [M4, M9] **24 hr TSP** [AM1(C) , AM2(A)]	**1 hr TSP X3** [AM1C]	
29-Jul	30-Jul	31-Jul				

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

Air Quality Monitoring Station

AM1(C) -Boundary of KTD/Outside Contractor's site office of Contract SCL 1107
AM2 - Lee Kau Yan Memorial School
AM2(A) - Ng Wah Catholic Secondary School

Noise Monitoring Station

M3 - Cognitio College
M4 - Lee Kau Yan Memorial School
M9 - Tak Long Estate

Contract No. KL/2012/02
Kai Tak Development - Stage 3A Infrastructure at Former North Apron Area
Tentative Impact Air and Noise Monitoring Schedule for August 2018

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Aug	2-Aug	3-Aug	4-Aug
			1 hr TSP X3 [AM2] **Noise** [M4, M9] **24 hr TSP** [AM1(C), AM2(A)]	**1 hr TSP X3** [AM1C] **Noise** [M3]		
5-Aug	6-Aug	7-Aug	8-Aug	9-Aug	10-Aug	11-Aug
		1 hr TSP X3 [AM2] **Noise** [M4, M9] **24 hr TSP** [AM1(C), AM2(A)]	**1 hr TSP X3** [AM1C] **Noise** [M3]			
12-Aug	13-Aug	14-Aug	15-Aug	16-Aug	17-Aug	18-Aug
	1 hr TSP X3 [AM2] **Noise** [M4, M9] **24 hr TSP** [AM1(C), AM2(A)]	**1 hr TSP X3** [AM1C] **Noise** [M3]				**1 hr TSP X3** [AM2] **24 hr TSP** [AM1(C), AM2(A)]
19-Aug	20-Aug	21-Aug	22-Aug	23-Aug	24-Aug	25-Aug
	1 hr TSP X3 [AM1C] **Noise** [M3]			**Noise** [M9]	**1 hr TSP X3** [AM1C, AM2] **Noise** [M4] **24 hr TSP** [AM1(C), AM2(A)]	
26-Aug	27-Aug	28-Aug	29-Aug	30-Aug	31-Aug	
			Noise [M9]	**1 hr TSP X3** [AM1C, AM2] **Noise** [M3, M4] **24 hr TSP** [AM1(C), AM2(A)]		

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

Air Quality Monitoring Station

AM1(C) -Boundary of KTD/Outside Contractor's site office of Contract SCL 1107
AM2 - Lee Kau Yan Memorial School
AM2(A) - Ng Wah Catholic Secondary School

Noise Monitoring Station

M3 - Cognitio College
M4 - Lee Kau Yan Memorial School
M9 - Tak Long Estate

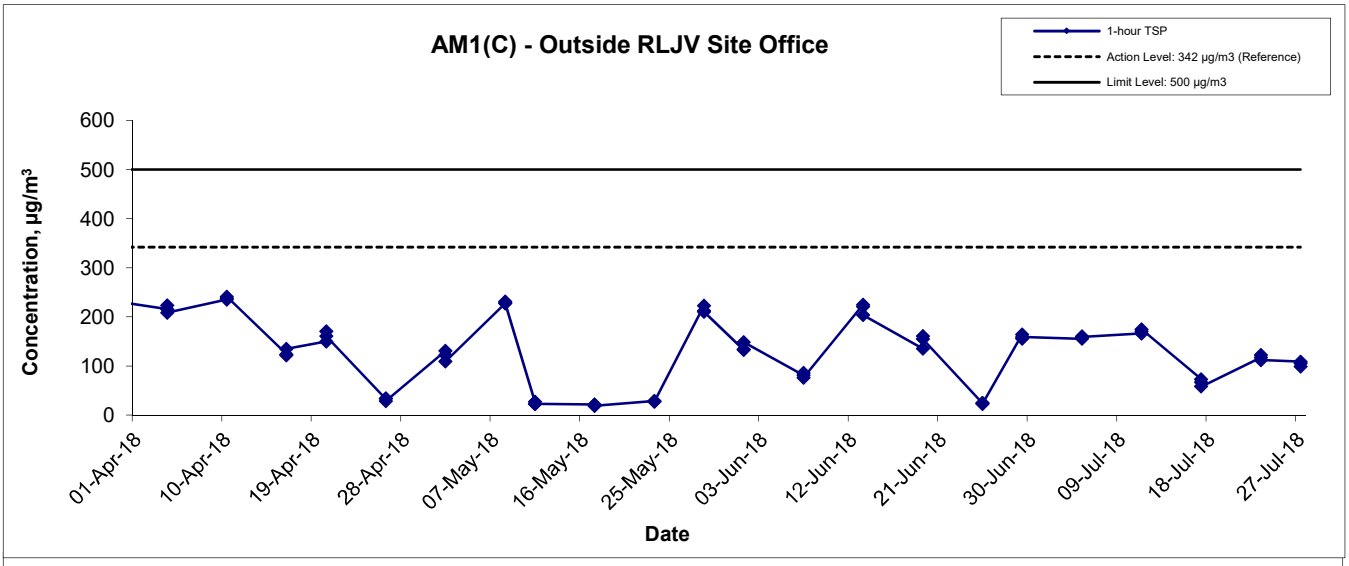
APPENDIX E
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

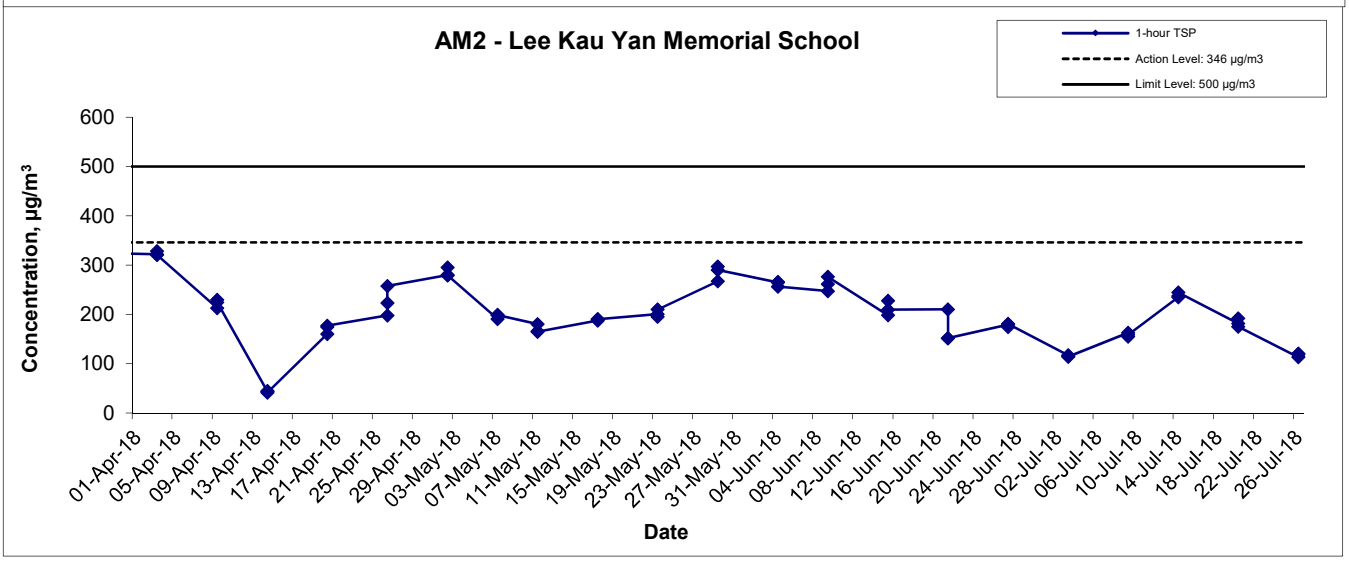
Appendix E - 1-hour TSP Monitoring Results

Location AM1(C) - Boundary of KTD/ Outside Contractor's site office of Contract SCL 1107			
Date	Time	Weather	Particulate Concentration (µg/m3)
5-Jul-18	14:30	Cloudy	155.4
5-Jul-18	15:30	Cloudy	160.3
5-Jul-18	16:30	Cloudy	159.3
11-Jul-18	13:00	Sunny	165.9
11-Jul-18	14:00	Sunny	170.6
11-Jul-18	15:00	Sunny	174.8
17-Jul-18	8:30	Sunny	73.1
17-Jul-18	9:30	Sunny	67.2
17-Jul-18	10:30	Sunny	58.3
23-Jul-18	9:00	Cloudy	117.2
23-Jul-18	10:00	Cloudy	122.3
23-Jul-18	11:00	Cloudy	112.2
27-Jul-18	9:00	Sunny	108.7
27-Jul-18	10:00	Sunny	98.7
27-Jul-18	11:00	Sunny	105.7
		Average	123.3
		Maximum	174.8
		Minimum	58.3

Location AM2 - Lee Kau Yan Memorial School			
Date	Time	Weather	Particulate Concentration (µg/m3)
3-Jul-18	9:00	Cloudy	117.2
3-Jul-18	10:00	Cloudy	115.1
3-Jul-18	11:00	Cloudy	113.8
9-Jul-18	13:05	Sunny	162.6
9-Jul-18	14:05	Sunny	154.7
9-Jul-18	15:05	Sunny	158.9
14-Jul-18	13:05	Cloudy	234.8
14-Jul-18	14:05	Cloudy	237.2
14-Jul-18	15:05	Cloudy	244.7
20-Jul-18	13:10	Sunny	181.5
20-Jul-18	14:10	Sunny	192.0
20-Jul-18	15:10	Sunny	175.1
26-Jul-18	13:10	Sunny	113.1
26-Jul-18	14:10	Sunny	120.2
26-Jul-18	15:10	Sunny	118.9
		Average	162.7
		Maximum	244.7
		Minimum	113.1

1-hr TSP Concentration Levels





Title: Contract No. KL/2012/02 Kai Tak Development - Stage 3A Infrastructure at Former North Apron Area Graphical Presentation of 1-hour TSP Monitoring Results	Scale: N.T.S Date: Jul 18	Project No.: MA13043 Appendix: E	CINOTECH

APPENDIX F
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix F - 24-hour TSP Monitoring Results

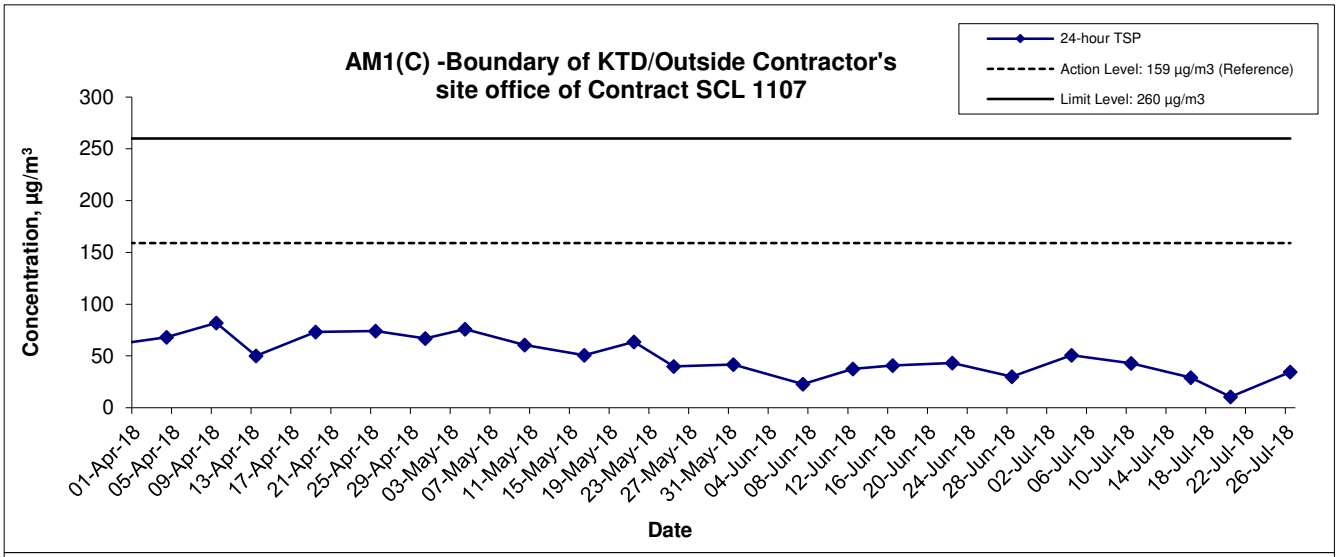
AM1(C) -Boundary of KTD/Outside Contractor's site office of Contract SCL 1107

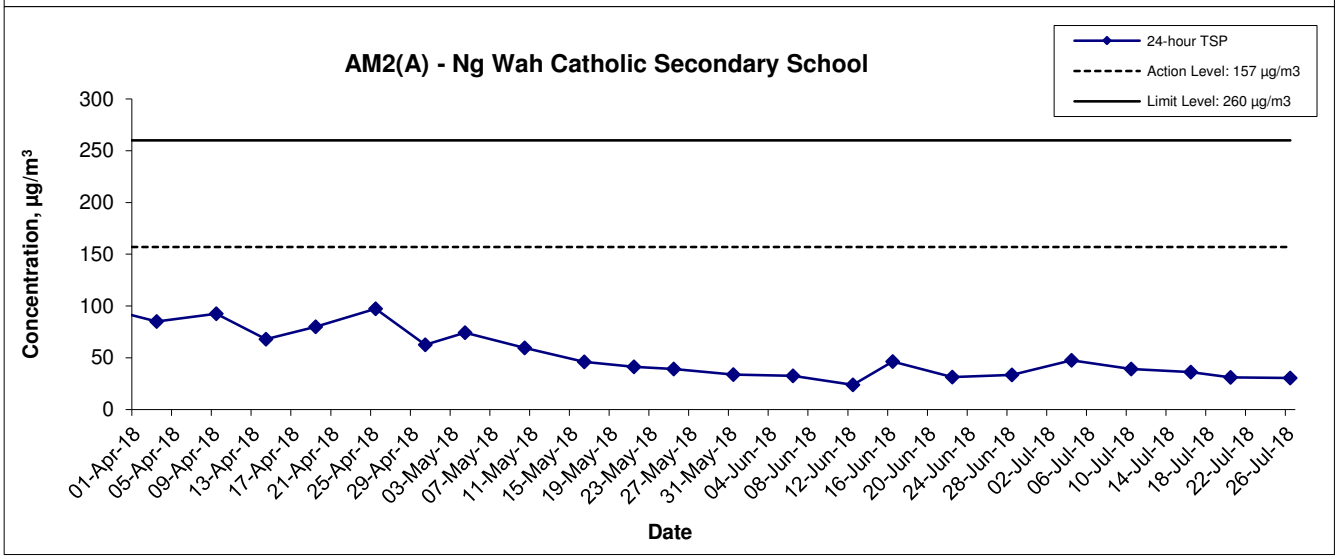
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. (μg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
4-Jul-18	Cloudy	303.1	755.0	2.9709	3.0597	0.0888	8172.8	8196.8	24.0	1.22	1.22	1.22	1750.3	50.7
10-Jul-18	Sunny	301.7	757.3	2.9837	3.0589	0.0752	8221.6	8245.6	24.0	1.22	1.22	1.22	1757.4	42.8
16-Jul-18	Sunny	300.4	756.3	3.2761	3.3272	0.0511	8245.6	8269.6	24.0	1.22	1.22	1.22	1760.1	29.0
20-Jul-18	Cloudy	301.1	756.0	2.8444	2.8629	0.0185	8269.6	8293.6	24.0	1.22	1.22	1.22	1757.6	10.5
26-Jul-18	Sunny	303.2	757.4	3.2496	3.3103	0.0607	8293.6	8317.6	24.0	1.22	1.22	1.22	1753.0	34.6
													Min	10.5
													Max	50.7
													Average	33.5

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			
4-Jul-18	Cloudy	302.4	754.9	3.2364	3.3199	0.0835	1944.2	1968.2	24.0	1.22	1.22	1.22	1755.5	47.6
10-Jul-18	Sunny	302.3	757.2	2.9863	3.0554	0.0691	1992.2	2016.2	24.0	1.22	1.22	1.22	1758.5	39.3
16-Jul-18	Cloudy	300.1	756.2	3.2951	3.3589	0.0638	2040.2	2064.2	24.0	1.22	1.22	1.22	1759.0	36.3
20-Jul-18	Cloudy	302.5	759.8	2.9890	3.0434	0.0544	2088.2	2112.2	24.0	1.22	1.22	1.22	1756.1	31.0
26-Jul-18	Sunny	303.4	757.5	3.2945	3.3477	0.0532	2136.2	2160.2	24.0	1.22	1.22	1.22	1750.9	30.4
													Min	30.4
													Max	47.6
													Average	36.9

24-hr TSP Concentration Levels





Title: Contract No. KL/2012/02 Kai Tak Development - Stage 3A Infrastructure at Former North Apron Area Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S Date: Jul 18	Project No.: MA13043 Appendix: F	CINOTECH

APPENDIX G
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

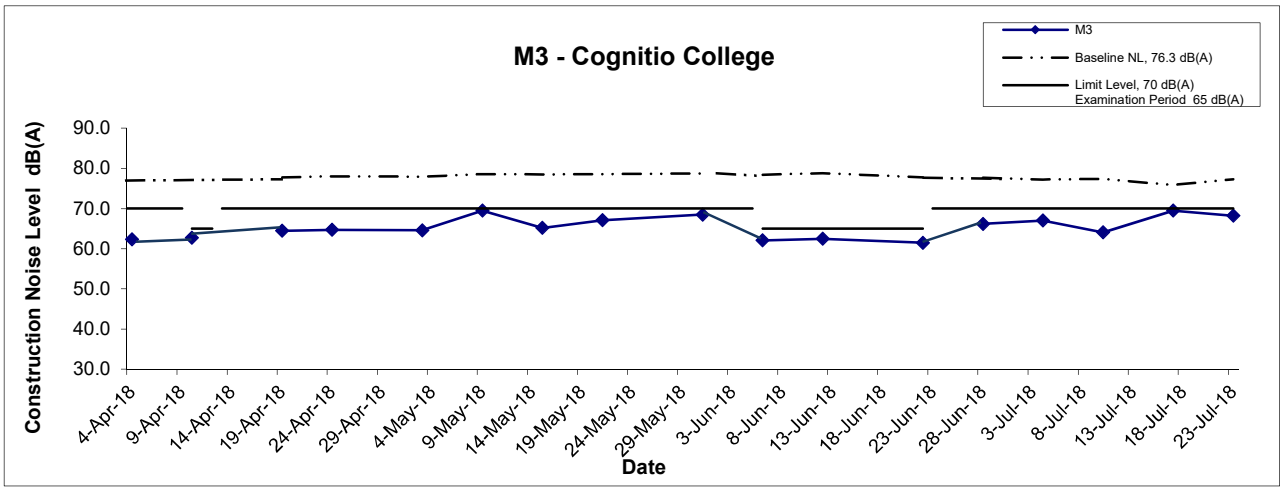
Appendix G - Noise Monitoring Results

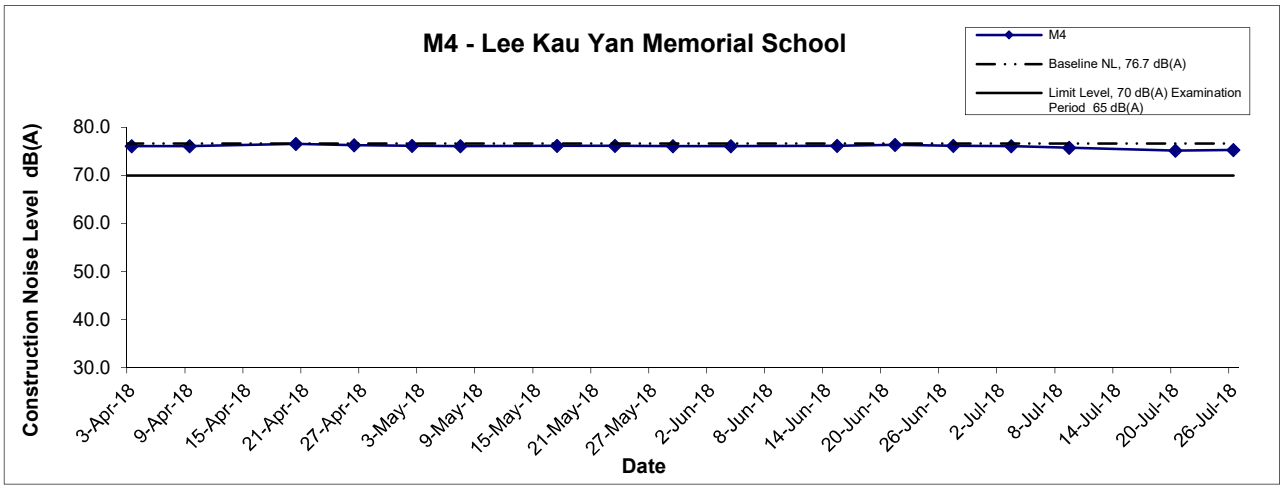
Location M3 - Cognitio College							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Background Noise	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
4-Jul-18	11:30	Sunny	77.6	78.8	76.2	77.2	67.0
10-Jul-18	11:30	Sunny	77.6	78.2	76.1	77.4	64.1
17-Jul-18	11:30	Sunny	76.8	79.1	70.2	75.9	69.5
23-Jul-18	11:30	Cloudy	77.8	79.0	74.1	77.3	68.2

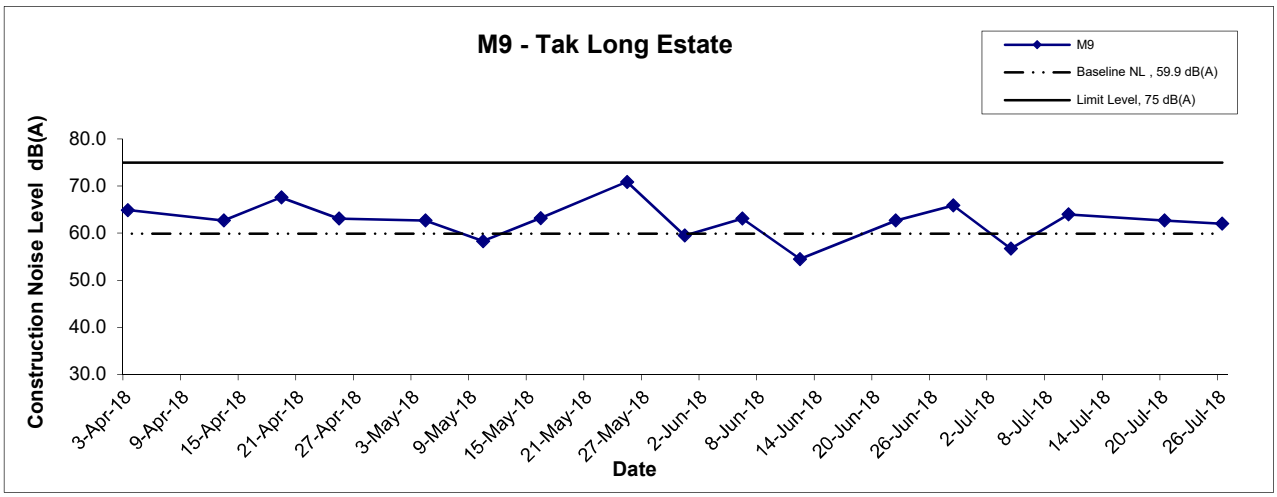
Location M4 - Lee Kau Yan Memorial School							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
3-Jul-18	13:15	Cloudy	76.1	77.3	75.8	76.7	76.1 Measured ≦ Baseline
9-Jul-18	14:45	Sunny	75.8	77.4	73.5		75.8 Measured ≦ Baseline
20-Jul-18	13:45	Sunny	75.2	76.8	70.9		75.2 Measured ≦ Baseline
26-Jul-18	13:45	Sunny	75.3	76.5	74.0		75.3 Measured ≦ Baseline

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}
4-Jul-18	9:30	Sunny	61.6	63.9	60.2	59.9	56.7
10-Jul-18	16:15	Sunny	65.4	68.3	60.1		64.0
20-Jul-18	10:30	Sunny	64.5	66.9	61.2		62.7
26-Jul-18	13:30	Sunny	64.1	65.4	61.2		62.0

Noise Levels







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

Title: Contract No. KL/2012/02 Kai Tak Development - Stage 3A Infrastructure at Former North Apron Area Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S	Project No.: MA13043	CINOTECH
	Date: Jul 18	Appendix: G	

APPENDIX H
SUMMARY OF EXCEEDANCE

Contract No. KL/2012/02
Kai Tak Development –Stage 3A Infrastructure at Former North Apron Area

Appendix H – Summary of Exceedance

Exceedance Report for Contract No. KL/2012/02

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

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

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

APPENDIX I
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180704
Date	4 July 2018
Time	14:00 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during the site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	D. Noise	
	• No environmental deficiency was identified during the site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during the site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during the site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 180627), the major environmental deficiency was rectified/improved by the Contractor.	

	Name	Signature	Date
Recorded by	Tommy Cheng		5 July 2017
Checked by	Dr. Priscilla Choy		5 July 2017

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180711
Date	11 July 2018
Time	14:00 – 15:00

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 the site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	D. Noise	
	• No environmental deficiency was identified during the site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during the site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during the site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 180704), no environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Tommy Cheng		12 July 2017
Checked by	Dr. Priscilla Choy		12 July 2017

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180718
Date	18 July 2018
Time	14:00 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during the site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	D. Noise	
	• No environmental deficiency was identified during the site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during the site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during the site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 180711), no environmental deficiency was observed during site inspection.	

	Name	Signature	Date
Recorded by	Tommy Cheng		19 July 2017
Checked by	Dr. Priscilla Choy		19 July 2017

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180724
Date	24 July 2018
Time	14:00 – 15:00

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 the site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	D. Noise	
	• No environmental deficiency was identified during the site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during the site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during the site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 180718), no environmental deficiency was observed during site inspection.	

	Name	Signature	Date
Recorded by	Tommy Cheng		26 July 2017
Checked by	Dr. Priscilla Choy		26 July 2017

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180731
Date	31 July 2018
Time	14:00 – 15:00

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 the site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	D. Noise	
	• No environmental deficiency was identified during the site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during the site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during the site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 180724), no environmental deficiency was observed during site inspection.	

	Name	Signature	Date
Recorded by	Tommy Cheng		1 August 2018
Checked by	Dr. Priscilla Choy		1 August 2018

APPENDIX J
EVENT ACTION PLANS

Appendix J - Event Action Plans

Event/Action Plan for Air Quality

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

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

Appendix J - Event Action Plans

Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded	1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals. (The above actions should be taken within 2 working days after the exceedance is identified)
Limit Level being exceeded	1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor	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. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues,	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; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the

	and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified)		consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)	exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)

Appendix J - Event Action Plans

Event/Action Plan for Landscape and Visual

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

	actions with IEC, ER and Contractor 4. Monitor remedial actions until rectification has been completed 5. If non-conformity stops, cease additional monitoring	remedial measures 4. Advise ER on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures.		

APPENDIX K
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)

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

EIA Ref.	Recommended Mitigation Measures	Implementation Status
Construction Air Quality		
S6.5	8 times daily watering of the work site with active dust emitting activities.	^
S6.8	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.	
	• Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.	^
	• Misting for the dusty material should be carried out before being loaded into the vehicle. Any vehicle with an open load carrying area should have properly fitted side and tail boards.	^
	• Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.	^
	• The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation.	^
	• The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways insider the site. Onsite unpaved roads should be compacted and kept free of lose materials.	^
	• Vehicle washing facilities should be provided at every vehicle exit point.	^
	• The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	^
	• Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	^
	• Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides.	^
	• Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	^

S6.8	• DWFI compound for JVBC: A DWFI compound is proposed at the downstream of JVC to contain pollution in drainage systems entering the KTAC and KTTS by interception facilities until the ultimate removal of the pollution sources. Tidal barriers and desiliting facilities will form part of the compounds to prevent any accumulation of sediment within the downstream section of JVBC and hence fully mitigate the potential odour emissions from the headspace of JVBC near the existing discharge locations. The odour generating operations within the proposed desilting compound will be fully enclosed and the odorous air will be collected and treated by high efficiency deodorizers before discharge to the atmosphere.	N/A
	• Desilting compound for KTN: Two desilting compounds are proposed for KTN (at Site 1D6 and Site 1P1) to contain pollution in drainage systems entering the KTAC and KTTS by interception facilities until the ultimate removal of the pollution sources. Tidal barriers and desiliting facilities will form part of the compounds to prevent any accumulation of sediment within the downstream section of KTN and hence fully mitigate the potential odour emissions from the headspace of KTN near the existing discharge locations. The odour generating operations within the proposed desilting compound will be fully enclosed and the odorous air will be collected and treated by high efficiency deodorizers before discharge to the atmosphere.	N/A
	• Decking or reconstruction of KTN within apron area: It is proposed to deck the KTN or reconstruct the KTN within the former Apron area into Kai Tak River from the south of Road D1 to the north of Road D2 along the existing alignment of KTN. The Kai Tak River will compose of a number of channels flowing with nonodorous fresh water and THEES effluent. The channel flowing with THEES effluent will be designed with the width of water surface of not more than 16m.	N/A
	• Localised maintenance dredging: Localised maintenance dredging should be conducted to provide water depth of not less than 3.5m over the whole of KTAC and KTTS. With reference to the water depth data recorded during the odour survey, only some of the areas in the northern part of KTAC (i.e. to the north of taxiway bridge) including the area near the northern edge of KTAC, the area near western bank of KTAC, and the area near the JVC discharge have water depths shallower than 3.5m. The area involved would be about 40% of the northern KTAC and the dredging depth required would be from about 2.7m to less than 1m. The maintenance dredging to be carried out prior to the occupation of any new development in the immediate vicinity of KTAC to avoid potential localized odour	N/A

	impacts at the future ASRs during the maintenance dredging operation. • Improvement of water circulation in KTAC and KTTS: 600m gap opening at the northern part of the former Kai Tak runway, the water circulation in KTAC and KTTS would be substantially improved. Together with the improvement in water circulation, the DO level in KTAC and KTTS would also be increased. • In-situ sediment treatment by bioremediation: Bioremediation would be applied to the entire KTAC and KTTS.	N/A N/A
Construction Noise		
S7.8	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.	^
S7.9	Good Site Practice: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. • Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. • Mobile plant, if any, should be sited as far away from NSRs as possible. • Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. • Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	 ^ ^ ^ ^ ^ ^
S7.9	Scheduling of Construction Works during School Examination Period	^
S7.8	(i) Provision of low noise surfacing in a section of Road L2; and (ii) Provision of structural fins	N/A N/A
S7.8	(i) Avoid the sensitive façade of class room facing Road L2 and L4; and (ii) Provision of low noise surfacing in a section of Road L2 & L4	N/A N/A

S7.8	(i) Provision of low noise surfacing in a section of Road L4 before occupation of Site 1I1; and (ii) Setback of building about 5m from site boundary.	N/A N/A
S7.8	Setback of building about 35m to the northwest direction at 1L3 and 5m at Site 1L2.	N/A
S7.8	(i) avoid any sensitive façades with openable window facing the existing Kowloon City Road network; and Avoid the sensitive façade of class room facing Road L2 and L4; and (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 N/A
S7.8	(i) avoid any sensitive facades with openable window facing the existing To Kwa Wan Road or (ii) provision of 17.5m high noise tolerant building fronting To Kwa Wan Road and restrict the height of the residential block(s) located at less than 55m away from To Kwa Wan Road to no more than 25m above ground	N/A N/A
S7.8	(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	^
S7.8	All the ventilation fans installed in the below will be provided with silencers or acoustics treatment. (i) SPS (ii) ESS (iii) Tunnel Ventilation Shaft (iv) EFTS depot	 N/A N/A N/A N/A
S7.8	Installation of retractable roof or other equivalent measures	N/A
Construction Water Quality		
S8.8	The following mitigation measures are proposed to be incorporated in the design of the SPS at KTD, including: • Dual power supply or emergency generator should be provided at all the SPSs to secure electrical power supply; • Standby pumps should be provided at all SPSs to ensure smooth operation of the SPS during maintenance of the duty pumps; • An alarm should be installed to signal emergency high water level in the wet well at all SPSs; and	 N/A N/A N/A

	• For all unmanned SPSs, a remote monitor system connecting SPSs with the control station through telemetry system should be provided so that swift actions could be taken in case of malfunction of unmanned facilities	N/A
S8.8	**Construction Phase** Marine-based Construction *Capital and Maintenance Dredging for Cruise Terminal* Mitigation measures for construction of the proposed cruise terminal should follow those recommended in the approved EIA for CT Dredging.	N/A
S8.8	*Fireboat Berth, Runway Opening and Road T2* Silt curtains should be deployed around the close grab dredger to minimize release of sediment and other contaminants for any dredging and filling activities in open water.	N/A
S8.8	Dredging at and near the seawall area for construction of the public landing steps cum fireboat berth should be carried out at a maximum production rate of 1,000m^3 per day using one grab dredger.	N/A
S8.8	The proposed construction method for runway opening should adopt an approach where the existing seawall at the runway will not be removed until completion of all excavation and dredging works for demolition of the runway. Thus, excavation of bulk fill and majority of the dredging works will be carried out behind the existing seawall, and the sediment plume can be effectively contained within the works area. As there is likely some accumulation of sediments alongside the runway, there will be a need to dredge the existing seabed after completion of all the demolition works. Dredging alongside the 600m opening should be carried out at a maximum production rate of 2,000m^3 per day using one grab dredger.	N/A
8.8	Dredging for Road T2 should be conducted at a maximum rate of 8,000m^3 per day (using four grab dredgers) whereas the sand filling should be conducted at a maximum rate of 2,000m3 per day (using two grab dredgers).	N/A
8.8	Silt screens shall be applied to seawater intakes at WSD seawater intake.	N/A

S8.8	Land-based Construction *Construction Runoff* Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: • use of sediment traps • adequate maintenance of drainage systems to prevent flooding and overflow	 ^ ^
S8.8	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.	^
S8.8	Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	^
S8.8	Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	^
S8.8	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	^
S8.8	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.	^
S8.8	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.	
S8.8	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.	N/A(1)
S8.8	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.	^
S8.8	*Drainage* It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea	^
S8.8	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.	^
S8.8	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.	^
S8.8	*Sewage Effluent* Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	^

S8.8	*Stormwater Discharges* Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes	^
S8.8	*Debris and Litter* In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised and that disposal of any solid materials, litter or wastes to marine waters does not occur	^
S8.8	*Construction Works at or in Close Proximity of Storm Culvert or Seafront* The proposed works should preferably be carried out within the dry season where the flow in the drainage channel /storm culvert/ nullah is low.	^
S8.8	The use of less or smaller construction plants may be specified to reduce the disturbance to the bottom sediment at the drainage channel /storm culvert / nullah.	^
S8.8	Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works	^
S8.8	Stockpiling of construction materials and dusty materials should be covered and located away from any water courses.	^
S8.8	Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers.	^
S8.8	Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.	^
S8.8	Mitigation measures to control site runoff from entering the nearby water environment should be implemented to minimize water quality impacts. Surface channels should be provided along the edge of the waterfront within the work sites to intercept the runoff.	^
S8.8	Construction effluent, site run-off and sewage should be properly collected and/or treated.	^
S8.8	Any works site inside the storm water courses should be temporarily isolated, such as by placing of sandbags or silt curtains with lead	N/A

	edge at bottom and properly supported props to prevent adverse impact on the storm water quality.	
S8.8	Silt curtain may be installed around the construction activities at the seafront to minimize the potential impacts due to accidental spillage of construction materials.	N/A
S8.8	Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert/drainage channel/sea.	N/A
S8.8	Supervisory staff should be assigned to station on site to closely supervise and monitor the works	^
S8.8	Marine water quality monitoring and audit programme shall be implemented for the proposed sediment treatment operation.	N/A
Construction Waste Management		
S9.5	Good Site Practices It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. Recommendations for good site practices during the dredging activities include: • Nomination of an approved person, such as a site manager, be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site. • Training of site personnel in proper waste management and chemical waste handling procedures. • Provision of sufficient waste disposal points and regular collection for disposal. • Appropriate measure to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. • A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).	^ ^ ^ ^ ^
S9.5	Waste Reduction Measures Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include: • Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal • Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force	^ ^ ^

	• Any unused chemicals or those with remaining functional capacity should be recycled • Proper storage and site practices to minimise the potential for damage or contamination of construction materials	^ ^
S9.5	Dredged Marine Sediment The basic requirements and procedures for dredged mud disposal are specified under the ETWB TCW No. 34/2002. The management of the dredging, use and disposal of marine mud is monitored by the MFC, while the licensing of marine dumping is required under the Dumping at Sea Ordinance and is the responsibility of the Director of Environmental Protection (DEP)	N/A
S9.5	The dredged marine sediments would be loaded onto barges and transported to the designated disposal sites allocated by the MFC depending on their level of contamination. Sediment classified as Category L would be suitable for Type 1 - Open Sea Disposal. Contaminated sediment would require either Type 1 – Open Sea Disposal (Dedicated Sites), Type 2 - Confined Marine Disposal, or Type 3 – Special Treatment / Disposal and must be dredged and transported with great care in accordance with ETWB TCW No. 34/2002. Subject to the final allocation of the disposal sites by MFC, the dredged contaminated sediment must be effectively isolated from the environment and disposed properly at the designated disposal site	N/A
S9.5	It will be the responsibility of the contractor to satisfy the appropriate authorities that the contamination levels of the marine sediment to be dredged have been analysed and recorded. According to the ETWB TCW No. 34/2002, this will involve the submission of a formal Sediment Quality Report to the DEP, prior to the dredging contract being tendered. The contractor for the dredging works should apply for allocation of marine disposal sites and all necessary permits from relevant authorities for the disposal of dredged sediment. During transportation and disposal of the dredged marine sediments requiring Type 1, Type 2, or Type 3 disposal, the following measures should be taken to minimise potential impacts on water quality: • Bottom opening of barges should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved • Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic selfmonitoring devices as required under the Dumping at Sea Ordinance and as specified by the DEP • Barges or hopper barges should not be filled to a level that would cause the overflow of materials or sediment laden water during loading or transportation	N/A N/A N/A

S9.5	Construction and Demolition Material Mitigation measures and good site practices should be incorporated into contract document to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include: • Where it is unavoidable to have transient stockpiles of C&D material within the Project work site pending collection for disposal, the transient stockpiles should be located away from waterfront or storm drains as far as possible • Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric • Skip hoist for material transport should be totally enclosed by impervious sheeting • Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site • The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores • The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle • All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet • The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 “Trip Ticket System for Disposal of Construction and Demolition Materials” should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.	^ ^ ^ ^ ^ ^ ^ ^

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

S9.5	Chemical Waste After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*		^
S9.5	General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem		^
Construction Landscape and Visual			
S13.9	CM1	All existing trees should be carefully protected during construction.	^
	CM2	Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work.	^
	CM3	Control of night-time lighting.	N/A(1)
	CM4	Erection of decorative screen hoarding.	^

Remarks:

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

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

Contract No. KL/2012/02

Kai Tak Development –Stage 3A Infrastructure at Former North Apron Area

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

Reporting Month: July 2018

Contract No. KL/2012/02

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

APPENDIX M
SUMMARY OF WASTE GENERATION AND DISPOSAL RECORDS

Name of Department : Civil Engineering and Development Department / Kowloon Development Office **Contract No. : KL/2012/02**

Appendix M: MONTHLY SUMMARY WASTE FLOW TABLE FOR 2018 (YEAR)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Borken Concrete (4)	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Import Fill	Metals	Paper / Cardboard Packaging	Plastics (3)	Chemical Waste	Other, e.g. general refuse
	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000m^3]
JAN	0.13459	0	0	0	0.08129	0	0	0	0	0	0.0533
FEB	0.14402	0	0	0	0.08117	0	0	0	0	0	0.06285
MAR	0.34721	0	0	0	0.09636	0	0	0	0	0	0.25085
APR	0.03363	0	0	0	0.03363	0	0	0	0	0	0
MAY	0.09975	0	0	0	0.02930	0	0	0	0	0	0.07045
JUNE	0.00395	0	0	0	0.00395	0	0	0	0	0	0
SUB-TOTAL	0.76315	0	0	0.00000	0.32570	0	0	0	0	0	0.43745
JULY	0.01792	0	0	0	0.01157						0.00635
AUG											
SEPT											
OCT											
NOV											
DEC											
Jan-19											
TOTAL	0.78107	0	0	0.00000	0.33727	0	0	0	0	0	0.44380

Forecast of Total Quantities of C&D materials to be Generated from the Contracts *										
Total Quantity	Borken Concrete	Reused in the Contract	Reused in other	Disposal as Public Fill	Import Fill	Metals (3)	Paper / Cardboard	Plastics (2)(3)	Chemical Waste (3)	Other, e.g. general
[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000m^3]
2	1	0	0	0	0	0	0.2	0	0.2	1

Notes :
(1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the site.
(2) Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material.
(3) Quantities of Metals, Paper/Cardboard, Plastics and Chemical Waste are excluded from total quantiteis of C&D materials to be generated from the contracts

FUGRO TECHNICAL SERVICES LIMITED

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

Appendix B

Monthly EM&A Report
For
Contract No. KL/2012/03
Kai Tak Development - Stage 4 Infrastructure at North Apron Area

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

July 2018

(Version 1.0)

Approved By	(Environmental Team Leader)

REMARKS:

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

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

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

ANEWR

Kai Tak Development Site Office
Contract No. KL/2012/03
c/o AECOM
8/F, Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
Shatin
New Territories
Hong Kong

Attention: Mr Stanley Chan

Your reference:

Our reference: HKCEDD11/50/105174

Date: 10 August 2018

BY EMAIL & POST
(email: RE1@ktd-5a.com)

Dear Sirs

Agreement No. EDO 08/2018
Independent Environmental Checker (IEC) for CEDD Contract No. KL/2012/03
Kai Tak Development – Stage 4 infrastructure at former north apron area
Verification of Monthly EM&A Report for July 2018

We refer to emails of 6, 9 and 10 August 2018 attaching a Monthly EM&A Report for July 2018 prepared by the ET.

We have no further comment and hereby verify the Report in accordance with Clause 3.3 of the Environmental Permit nos. EP-337/2009 and EP-344/2009.

Please do not hesitate to contact the undersigned or our Mr Nic Lam on 2618 2831 should you have any queries.

Yours faithfully
ANEWR CONSULTING LIMITED

Adi Lee
Independent Environmental Checker

LYMA/LHHN/WCKJ/csym

cc CEDD – Mr C K Choi (email: ckchoi@cedd.gov.hk)
Cinotech – Dr Priscilla Choy (email: priscilla.choy@cinotech.com.hk)

ANewR Consulting Limited
Unit 517, 5/F, Tower A, Regent Centre
63 Wo Yi Hop Road, Kwai Chung, Hong Kong
Tel: (852) 2618 2831 Fax: (852) 3007 8648
Email: info@anewr.com
Web: www.anewr.com

ISO 9001 : 2015
Certificate No.: CC 3988

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

EXECUTIVE SUMMARY

Introduction

1. This is the 56th 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 31 July 2018.

2. The major site activities undertaken in the reporting month included:
   - Daily Cleaning;
   - Finishing works, E&M work, Access Road Construction in PS2;
   - Site Clearance Works in DCS;
   - Road widening work, Pavement Construction in Sung Wong Toi Road;
   - Road works and Footpath Construction in Road D2;
   - Finishing works, E&M works and Access Road Construction in Portion 4 (NPS & 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.

Construction Noise Monitoring

7. All construction noise monitoring was conducted as scheduled in the reporting month. One Noise Limit Level exceedance was recorded on 4th July 2018. Since the works at Road L19 was completed and to be handed over to Highways Department on 7th September 2017, the Limit Level exceedance was considered to be non-related to the Project.

Environmental Licenses and Permits

8. 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.

9. Registration of Chemical Waste Producer (Waste Producer Number: 5213-286-K2958-05).

10. Water Discharge License (WT00020971-2015).

Key Information in the Reporting Month

11. 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

12. The future 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.

1. INTRODUCTION

Background

1.1 The Kai Tak Development (KTD) is located in the south-eastern part of Kowloon Peninsula, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling. It covers a land area of about 328 hectares. Stage 4 Infrastructure at Former North Apron Area is one of the construction stages of KTD. 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 56th Monthly EM&A report summarizing the EM&A works for the Project from 1 to 31 July 2018.

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) – ANewR Consulting Limited. (ANewR).
- 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. W. K. Leung	CRE	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	
ANewR	Independent Environmental Checker	Mr. Adi Lee	Independent Environmental Checker	2618 2831	3007 8648
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, Access Road Construction in PS2;
- Site Clearance Works in DCS;
- Road widening work, Pavement Construction in Sung Wong Toi Road;
- Road works and Footpath Construction in Road D2;
- Finishing works, E&M works and Access Road Construction in Portion 4 (NPS & 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	• 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	• 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	• 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	• 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	• 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 31 July 2018.

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. 55 (June 2018)	12 July 2018	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. 55 (June2018)	12 July 2018	Monthly EM&A Report for Contract No. KL/2012/03

2. 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-5025A	1
1-hour TSP Dust Meter	Laser Dust Monitor – Model LD-3, LD-3B/ Hal-HPC300/ 301	3
HVS Sampler	TE-5170X	4
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 m^3/min. and 1.4 m^3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

2.10 For 24-hour TSP sampling, fiberglass filters having a collection efficiency of ≥ 99% for particles of 0.3μm (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 ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%.

Maintenance/Calibration

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

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

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

2.23 The summary of exceedance record in 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.

2.24 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(B) – Family Planning Association of Hong Kong	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

3. NOISE

Monitoring Requirements

3.1 According to EM&A Manuals under the EP, construction noise monitoring was conducted to monitor the construction noise arising from the construction activities within KTD. The regular monitoring frequency for each monitoring station shall be on a weekly basis 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	SVANTEK SVAN 955/957/977 & BSWA 801	4
Calibrator	SVAN 30A	2

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}, L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused temporarily during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.

Maintenance and Calibration

3.6 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. One Noise Limit Level exceedance was recorded on 4th July 2018. Since the works at Road L19 was completed and to be handed over to Highways Department on 7th September 2017, the Limit Level exceedance was considered to be non-related to the Project.

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	59.9 (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 (Jul 2018), µg/m3	
			Average	Range
AM2 – Lee Kau Yan Memorial School	290	312	158.2	86.0 – 220.2
AM3(A) - Holy Trinity Bradbury Centre (Alternative station for Sky Tower)	217	247	128.7	81.5 – 194.2
AM4(C) – New Pumping Station	N/A	N/A	221.5	164.3 – 286.5
AM5– CCC Kei To Secondary School	159	221	164.9	93.9 – 237.4

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 (Jul 2018), µg/m3	
			Average	Range
AM2(A) – Ng Wah Catholic Secondary School (Alternative station for Lee Kau Yan Memorial School)	145	169	32.8	22.5 – 47.1
AM3(B) – Family Planning Association of Hong Kong	N/A	N/A	48.7	23.2 – 74.7
AM4(C) – New Pumping Station	N/A	N/A	48.5	37.3 – 71.2
AM5 – CCC Kei To Secondary School	103	128	22.3	18.0 – 27.1

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 (Jul 2018), $L_{eq\ (30min)}$ dB(A)
M6(A) - Oblate Primary School ^	N/A	50.6 – 63.2
M7 - CCC Kei To Secondary School	45 – 68	63.4 – 69.1
M8 - Po Leung Kuk Ngan Po Ling College	44 – 70	57.7 – 71.9
M9 – Tak Long Estate	Not predicted in EIA Report	54.5 – 64.9

(^) 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 above 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.

4.4 The range of noise level monitoring at all stations in the reporting month were slightly above the prediction in the approved Environmental Impact Assessment (EIA) Report. One Noise Limit Level exceedance was recorded on 4th July 2018. Since the works at Road L19 was completed and to be handed over to Highways Department on 7th September 2017, the Limit Level exceedance was considered to be non-related to the Project.

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 6, 13, 18 and 27 July 2018 in the reporting month. IEC site inspection was conducted on 18 July 2018. 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 License 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

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
Water Quality	--	--	**--**
Air Quality	--	--	**--**
Noise	--	--	**--**
Waste/Chemical Management	--	--	**--**
Landscape and Visual	--	--	**--**
Permits /Licences	--	--	**--**

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

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	29th June 2018	Reminder: Drainage was observed to be blocked. The debris and rubbish should be removed.	The debris and rubbish was removed on 6th July 2018.
	6th July 2018	Observation: The debris and litters should be removed within the U-channel to avoid blockage of drainage system.	The debris and litters were removed on 13th July 2018.
Air Quality	29th June 2018	Reminder: Dusty material should be removed to prevent dust generation.	The duty material was removed on 6th July 2018.
	29th June 2018	Reminder: Stockpile should be covered completely and properly by impervious sheeting.	The stockpile was covered properly on 6th July 2018.
	6th July 2018	Reminder: The stockpile should be covered by impervious material properly to avoid dust generation	Stockpile was covered properly on 13th July 2018.
	13th July 2018	Reminder: Stockpile should be covered completely by impervious material for dust suppression.	Remarked on 18th July 2018 for further following up.
	18th July 2018	Observation: Dusty Stockpile should be covered by impervious material properly.	Dusty stockpile was removed on 27th July 2018.
	27th July 2018	Observation: The NRMM label should be displayed at the conspicuous position of PME.	This item will be followed up in the next reporting month.
Noise	--	--	**--**
Waste/Chemical Management	29th June 2018	Reminder: Chemical containers should be stored in drip tray or designated area to prevent leakage.	No chemical container was placed on the ground on 6th July.
	6th July 2018	Reminder: General refuse should be disposed regularly to avoid accumulation.	General refuse has been removed on 13th July 2018.
Landscape and Visual	--	--	**--**
Permits /Licences	--	--	**--**

Summary of Mitigation Measures Implemented

6.7 The monthly IEC audit was carried out on 18 July 2018, the observations were recorded and they are presented as follows:

Follow up of last monthly audit:
- The contractor has carried out proper rectification.

Observation(s) in the reporting month:
- Open stockpile was left uncovered. The Contractor was requested to cover the open stockpile properly

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 One Noise Limit Level exceedance was recorded on 4th July 2018. Since the works at L19 Road was completed and to be handed over to Highways Department on 7th September 2017, the Limit Level exceedance was considered to be non-related to the Project.

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 and Access Road Construction in PS2;
- Site Clearance works in DCS;
- Road widening works and Pavement Construction at Sung Wong Toi Road;
- Finishing works and E&M works and Access Road Construction in Portion 4 (NPS & Sewerage); and
- Removal of excavated materials 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. August and September 2018 are summarized as follows:

Table 7.1 Summary of the tentative program of major site activities, the impact prediction and control measures for August and September 2018

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. The construction noise levels in all stations in the reporting month were slightly above the range of predicted mitigated construction noise levels in the approved Environmental Impact Assessment (EIA) report. One Noise Limit Level exceedance was recorded on 4th July 2018. Since the works at Road L19 was completed and to be handed over to Highways Department on 7th September 2017, the Limit Level exceedance was considered to be non-related to the Project.

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 on 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.

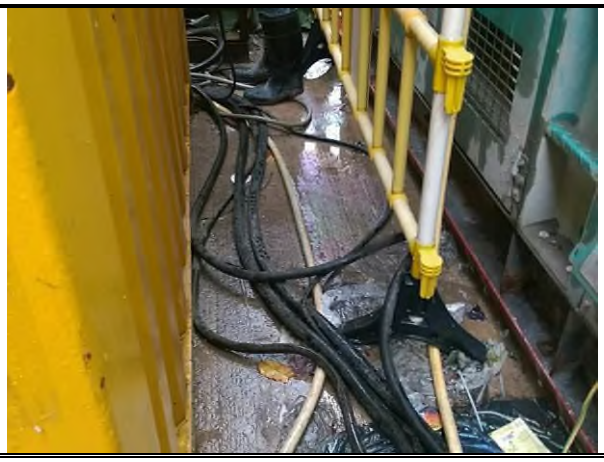
Landscape and Visual
- To protect the existing trees to be retained.
- To transplant the trees unavoidably affected by the works.
- To control of night-time lighting.
- To provide decorative screen hoarding.
- To complete landscape works at site area as early as possible.

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

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

FIGURES

APPENDIX A
ACTION AND LIMIT LEVELS

Appendix A - Action and Limit Levels

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

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

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

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

Table A-3 Action and Limit Levels for Construction Noise

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

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

APPENDIX B
COPIES OF CALIBRATION CERTIFCATES

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	29026
Date of Issue:	2018-06-11
Date Received:	2018-06-08
Date Tested:	2018-06-08
Date Completed:	2018-06-11
Next Due Date:	2018-08-10
Page:	1 of 1

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

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	: 17-22 degree Celsius
Relative Humidity	: 40-70%

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)	1.226

****

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

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	29026A
Date of Issue:	2018-06-11
Date Received:	2018-06-08
Date Tested:	2018-06-08
Date Completed:	2018-06-11
Next Due Date:	2018-08-10

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.	: 3011701016
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-03

Test Conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

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)	1.239

****

PREPARED AND CHECKED BY:

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

Patrick Tse

PATRICK TSE
Laboratory Manager

WELLAB 匯力
Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

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

Test Report No.:	29026C
Date of Issue:	2018-06-11
Date Received:	2018-06-08
Date Tested:	2018-06-08
Date Completed:	2018-06-11
Next Due Date:	2018-08-10
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	: 17-22 degree Celsius
Relative Humidity	: 40-70%

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)	1.239

****

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

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 1516, 1701 & 1716, Technology Park,
18 On Lai Street, Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

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

Test Report No.:	C/N/170915A
Date of Issue:	2017-09-18
Date Received:	2017-09-15
Date Tested:	2017-09-15
Date Completed:	2017-09-18
Next Due Date:	2018-09-17
Page:	1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 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
PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

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

TEST REPORT

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 Temperatre	: 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

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 1516, 1701 & 1716, Technology Park,
18 On Lai Street, Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/N/170915C
Date of Issue:	2017-09-18
Date Received:	2017-09-15
Date Tested:	2017-09-15
Date Completed:	2017-09-18
Next Due Date:	2018-09-17
Page:	1 of 1

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

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 977
Serial No.	: 45482
Microphone No.	: 63626
Equipment No.	: N-08-14

Test conditions:

Room Temperatre	: 22 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

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/N/171215
Date of Issue:	2017-12-18
Date Received:	2017-12-15
Date Tested:	2017-12-15
Date Completed:	2017-12-18
Next Due Date:	2018-12-17

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

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35924
Equipment No.	: N-13-01

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

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

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/N/170929
Date of Issue:	2017-09-30
Date Received:	2017-09-29
Date Tested:	2017-09-29
Date Completed:	2017-09-30
Next Due Date:	2018-09-29

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 Temperatre	: 21 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
PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/N/170929B
Date of Issue:	2017-09-30
Date Received:	2017-09-29
Date Tested:	2017-09-29
Date Completed:	2017-09-30
Next Due Date:	2018-09-29

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

Page: 1 of 1

Item for calibration:

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

Test conditions:

Room Temperatre	: 21 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
PATRICK TSE
Laboratory Manager

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13056/13/0006

Station: AM2(A) - Ng Wah Catholic Secondary School

Date: 17-May-18 Next Due Date: 16-Jul-18 Operator: MH

Equipment No.: A-01-13 Model No.: TE-5170 Serial No.: 1352

Ambient Condition			
Temperature, Ta (K)	305.2	Pressure, Pa (mmHg)	759.3

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	12.6	3.51	59.91	8.0	2.79
2	10.8	3.25	55.46	6.8	2.58
3	8.0	2.79	47.74	4.9	2.19
4	5.4	2.30	39.22	3.3	1.79
5	3.4	1.82	31.12	2.3	1.50

By Linear Regression of Y on X

Slope , mw = 0.0455 **Intercept, bw =** 0.0433

Correlation coefficient* = 0.9982

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

mw x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

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

Remarks:

Conducted by: LEE MAN HEI Signature: hei Date: 17/5/2018

Checked by: W K Tang Signature: Kwai Date: 17/5/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13056/13/0007

Station: AM2(A) - Ng Wah Catholic Secondary School

Date: 14-Jul-18 Next Due Date: 13-Sep-18 Operator: MH

Equipment No.: A-01-13 Model No.: TE-5170 Serial No.: 1352

Ambient Condition			
Temperature, Ta (K)	299.3	Pressure, Pa (mmHg)	755.8

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	13-Feb-19	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	12.5	3.52	60.12	7.9	2.80
2	10.9	3.29	56.14	6.8	2.59
3	7.8	2.78	47.49	5.2	2.27
4	5.5	2.33	39.88	3.4	1.83
5	3.3	1.81	30.89	2.1	1.44

By Linear Regression of Y on X

Slope , mw = 0.0464 **Intercept, bw =** 0.0099

Correlation coefficient* = 0.9983

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.07**

Remarks:

Conducted by: Lee Man Hei Signature: Date: 14/7/2018

Checked by: Wk. Tang Signature: Date: 14/7/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13056/16/0004

Station: AM3(B) - Hong Kong Family Planning Association Operator: MH

Date: 21-May-18 Next Due Date: 20-Jul-18

Equipment No.: A-01-16 Serial No. 3456

Ambient Condition			
Temperature, Ta (K)	305.9	Pressure, Pa (mmHg)	758.5

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	13-Feb-19	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	12.7	3.51	60.04	7.8	2.75
2	9.9	3.10	53.01	6.1	2.44
3	8.0	2.79	47.66	5.0	2.20
4	5.4	2.29	39.16	3.5	1.84
5	3.3	1.79	30.61	2.0	1.39

By Linear Regression of Y on X

Slope , mw = 0.0456 **Intercept, bw =** 0.0242

Correlation coefficient* = 0.9991

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.05**

Remarks:

Conducted by: Lit Man Hei Signature: [signature] Date: 21/5/2018

Checked by: Wk Tang Signature: [signature] Date: 21/5/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13056/16/0005

Station: AM3(B) - Hong Kong Family Planning Association Operator: MH

Date: 20-Jul-18 Next Due Date: 19-Sep-18

Equipment No.: A-01-16 Serial No. 3456

Ambient Condition			
Temperature, Ta (K)	302.7	Pressure, Pa (mmHg)	757.7

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	13-Feb-19	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	12.7	3.53	60.33	7.9	2.78
2	9.8	3.10	53.00	6.4	2.51
3	8.1	2.82	48.18	5.1	2.24
4	5.6	2.34	40.06	3.4	1.83
5	3.1	1.74	29.81	2.0	1.40

By Linear Regression of Y on X

Slope , mw = 0.0464 **Intercept, bw :** 0.0024

Correlation coefficient* = 0.9984

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.07**

Remarks:

Conducted by: Leung Hei Signature: Date: 20/7/2018

Checked by: WK Tang Signature: Date: 20/7/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13056/62/0008

Project No. AM4(C) -
New Pumping Station under Contract KL/2012/03

Operator: MH

Date: 28-Jun-18

Next Due Date: 27-Aug-18

Equipment No.: A-01-62

Serial No. 2351

Ambient Condition			
Temperature, Ta (K)	303.1	Pressure, Pa (mmHg)	760.1

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	13.6	3.66	62.49	8.1	2.82
2	10.7	3.24	55.43	6.9	2.60
3	8.4	2.87	49.11	5.2	2.26
4	5.1	2.24	38.27	3.2	1.77
5	3.3	1.80	30.78	2.1	1.44

By Linear Regression of Y on X

Slope , mw = 0.0448 **Intercept, bw =** 0.0660

Correlation coefficient* = 0.9981

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.03**

Remarks:

Conducted by: LEE MAN KIT Signature: Date: 28/6/2018

Checked by: WK Tang Signature: Date: 28/6/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13056/59/0007

Station: AM5 - CCC Kei To Secondary School Operator: MH

Date: 4-Jun-18 Next Due Date: 3-Aug-18

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

Ambient Condition			
Temperature, Ta (K)	302.3	Pressure, Pa (mmHg)	758

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	13-Feb-19	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	12.7	3.53	60.38	7.9	2.79
2	10.8	3.26	55.68	6.7	2.57
3	7.4	2.70	46.09	4.8	2.17
4	5.2	2.26	38.64	3.4	1.83
5	3.5	1.86	31.70	2.2	1.47

By Linear Regression of Y on X

Slope , mw = 0.0452 **Intercept, bw =** 0.0616

Correlation coefficient* = 0.9992

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

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

Remarks:

Conducted by: Ho Man Hei Signature: Hei Date: 4/6/2018

Checked by: WK Tang Signature: Kwok Date: 4/6/2018

TISCH Environmental

RECALIBRATION DUE DATE:
February 13, 2019

Certificate of Calibration

Calibration Certification Information					
Cal. Date:	February 13, 2018	**Rootsmeter S/N:** 438320	**Ta:** 293	°K	
Operator:	Jim Tisch		**Pa:** 763.3	mm Hg	
Calibration Model #:	TE-5025A	**Calibrator S/N:** **2896**			

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4670	3.2	2.00
2	3	4	1	1.0380	6.4	4.00
3	5	6	1	0.9220	8.0	5.00
4	7	8	1	0.8840	8.8	5.50
5	9	10	1	0.7250	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0172	0.6934	1.4293	0.9958	0.6788	0.8762
1.0129	0.9758	2.0213	0.9916	0.9553	1.2392
1.0107	1.0962	2.2599	0.9895	1.0732	1.3854
1.0097	1.1422	2.3702	0.9885	1.1182	1.4530
1.0043	1.3853	2.8586	0.9832	1.3562	1.7524
QSTD	**m=**	**2.06726**	**QA**	**m=**	**1.29448**
	b=	**-0.00045**		**b=**	**-0.00028**
	r=	**0.99992**		**r=**	**0.99992**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

Key
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION
US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

Tisch Environmental, Inc.
145 South Miami Avenue
Village of Cleves, OH 45002

www.tisch-env.com
TOLL FREE: (877)263-7610
FAX: (513)467-9009

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	28394E
Date of Issue:	2018-02-25
Date Received:	2018-02-24
Date Tested:	2018-02-24
Date Completed:	2018-02-25
Next Due Date:	2018-08-24

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

Certificate of Calibration

Item for calibration:

Description	: Weather Stations, Vantage Pro2
Manufacturer	: Davis Instruments
Model No.	: 6152CUK
Serial No.	: AK130520006

Test conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70 %

Test Specifications:

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

Methodology:

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

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

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

Test Report No.:	28394E
Date of Issue:	2018-02-25
Date Received:	2018-02-24
Date Tested:	2018-02-24
Date Completed:	2018-02-25
Next Due Date:	2018-08-24
Page:	2 of 2

Results:

1. Performance check of anemometer

Air Velocity, m/s		Difference D (m/s)
Instrument Reading (V1)	Reference Value (V1)	D = V1 – V2
2.00	2.00	0.00

2. Performance check of wind direction sensor

Wind Direction (°)		Difference D (°)
Instrument Reading (W1)	Reference Value (W2)	D = W1 - W2
0	0	0
45.1	45	0.1
90	90	0
135.2	135	0.2
180.3	180	0.3
224.8	225	-0.2
270	270	0
315.1	315	0.1
360	360	0

**********END OF REPORT**********

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 July 2018	30.2	77	4.1
2 July 2018	29.5	81	2.1
3 July 2018	29.7	81	15.4
4 July 2018	30.3	78	3.4
5 July 2018	30	78	1.5
6 July 2018	30.1	80	5
7 July 2018	29	84	5.2
8 July 2018	28.2	88	14.4
9 July 2018	28.2	85	11.3
10 July 2018	29	80	1.3
11 July 2018	29.6	74	-
12 July 2018	30	77	Trace
13 July 2018	26.7	93	50.4
14 July 2018	27	91	52.7
15 July 2018	26.6	89	67.4
16 July 2018	28.2	81	5.8
17 July 2018	30	78	6.5
18 July 2018	27.7	88	29.6
19 July 2018	27.9	87	17.3

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
20 July 2018	28.2	87	7.1
21 July 2018	29.5	75	-
22 July 2018	29	76	Trace
23 July 2018	28.4	87	30.8
24 July 2018	29.8	80	0.1
25 July 2018	29.4	83	2.7
26 July 2018	29.6	82	3.4
27 July 2018	29.8	78	0.3
28 July 2018	30.2	75	-
29 July 2018	30.2	73	-
30 July 2018	30.4	74	-
31 July 2018	30.2	76	3.3

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

** Trace means rainfall less than 0.05 mm

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
1-Jul-2018	00:00	2	NE
1-Jul-2018	01:00	2	NNE
1-Jul-2018	02:00	2	NNE
1-Jul-2018	03:00	2	NE
1-Jul-2018	04:00	1.9	ENE
1-Jul-2018	05:00	1.9	ESE
1-Jul-2018	06:00	1.9	ESE
1-Jul-2018	07:00	1.5	E
1-Jul-2018	08:00	1.2	ENE
1-Jul-2018	09:00	1.5	SSE
1-Jul-2018	10:00	1.2	S
1-Jul-2018	11:00	1.8	ESE
1-Jul-2018	12:00	2.2	E
1-Jul-2018	13:00	1.8	NNE
1-Jul-2018	14:00	1.9	ENE
1-Jul-2018	15:00	1.7	ENE
1-Jul-2018	16:00	1.7	SSW
1-Jul-2018	17:00	1.2	N
1-Jul-2018	18:00	1	N
1-Jul-2018	19:00	0.9	ENE
1-Jul-2018	20:00	0.6	NE
1-Jul-2018	21:00	0.7	WNW
1-Jul-2018	22:00	0.9	WNW
1-Jul-2018	23:00	0.7	W
2-Jul-2018	00:00	1.1	W
2-Jul-2018	01:00	0.9	W
2-Jul-2018	02:00	0.9	WNW
2-Jul-2018	03:00	1	W
2-Jul-2018	04:00	0.9	WSW
2-Jul-2018	05:00	0.7	WNW
2-Jul-2018	06:00	0.5	WNW
2-Jul-2018	07:00	0.5	W
2-Jul-2018	08:00	0.7	W
2-Jul-2018	09:00	1.3	WSW
2-Jul-2018	10:00	1.4	W
2-Jul-2018	11:00	1.4	W
2-Jul-2018	12:00	1.8	W

II. Mean Wind Speed and Wind Direction

2-Jul-2018	13:00	1.6	W
2-Jul-2018	14:00	1.3	W
2-Jul-2018	15:00	1.2	SW
2-Jul-2018	16:00	1.1	W
2-Jul-2018	17:00	1	W
2-Jul-2018	18:00	0.7	W
2-Jul-2018	19:00	0.5	SW
2-Jul-2018	20:00	0.8	E
2-Jul-2018	21:00	0.6	W
2-Jul-2018	22:00	0.8	W
2-Jul-2018	23:00	0.6	N
3-Jul-2018	00:00	0.6	ENE
3-Jul-2018	01:00	0.6	N
3-Jul-2018	02:00	0.9	N
3-Jul-2018	03:00	1.1	ESE
3-Jul-2018	04:00	1.3	NNE
3-Jul-2018	05:00	1.1	NE
3-Jul-2018	06:00	0.9	NNE
3-Jul-2018	07:00	0.8	E
3-Jul-2018	08:00	1.1	ENE
3-Jul-2018	09:00	1.6	NNE
3-Jul-2018	10:00	1.8	N
3-Jul-2018	11:00	1.9	NE
3-Jul-2018	12:00	1.8	NNE
3-Jul-2018	13:00	1.8	NNE
3-Jul-2018	14:00	1.7	NNE
3-Jul-2018	15:00	1.8	NNE
3-Jul-2018	16:00	1.6	ENE
3-Jul-2018	17:00	1.5	ENE
3-Jul-2018	18:00	1.3	ENE
3-Jul-2018	19:00	1	E
3-Jul-2018	20:00	0.6	N
3-Jul-2018	21:00	0.5	ENE
3-Jul-2018	22:00	0.9	ENE
3-Jul-2018	23:00	1	ENE
4-Jul-2018	00:00	1.1	ESE
4-Jul-2018	01:00	0.9	NNE
4-Jul-2018	02:00	1	NE

II. Mean Wind Speed and Wind Direction

4-Jul-2018	03:00	1	NE
4-Jul-2018	04:00	1	SSE
4-Jul-2018	05:00	1	NNE
4-Jul-2018	06:00	1.3	ENE
4-Jul-2018	07:00	1.1	NE
4-Jul-2018	08:00	1.2	NE
4-Jul-2018	09:00	1.6	E
4-Jul-2018	10:00	2.8	ENE
4-Jul-2018	11:00	2.7	ENE
4-Jul-2018	12:00	2.9	ENE
4-Jul-2018	13:00	2.8	ENE
4-Jul-2018	14:00	2.7	NNE
4-Jul-2018	15:00	2.6	ENE
4-Jul-2018	16:00	2.2	NE
4-Jul-2018	17:00	2.2	NE
4-Jul-2018	18:00	1.8	ENE
4-Jul-2018	19:00	1.4	ENE
4-Jul-2018	20:00	1.2	N
4-Jul-2018	21:00	1.5	NE
4-Jul-2018	22:00	1.6	NNE
4-Jul-2018	23:00	1.4	SSW
5-Jul-2018	00:00	1.5	N
5-Jul-2018	01:00	1.6	E
5-Jul-2018	02:00	1.3	WSW
5-Jul-2018	03:00	1.5	WNW
5-Jul-2018	04:00	1.7	SW
5-Jul-2018	05:00	1.9	SW
5-Jul-2018	06:00	1.7	WSW
5-Jul-2018	07:00	2	SW
5-Jul-2018	08:00	2.3	SW
5-Jul-2018	09:00	2.7	WSW
5-Jul-2018	10:00	2.7	WSW
5-Jul-2018	11:00	3.2	SW
5-Jul-2018	12:00	3.1	WNW
5-Jul-2018	13:00	3.1	SE
5-Jul-2018	14:00	3.1	SE
5-Jul-2018	15:00	3.2	ESE
5-Jul-2018	16:00	3.1	ESE

II. Mean Wind Speed and Wind Direction

5-Jul-2018	17:00	2.8	W
5-Jul-2018	18:00	2.5	SSW
5-Jul-2018	19:00	1.9	SSW
5-Jul-2018	20:00	1.9	SSW
5-Jul-2018	21:00	1.9	SW
5-Jul-2018	22:00	2.1	SSW
5-Jul-2018	23:00	2	SW
6-Jul-2018	00:00	1.7	SW
6-Jul-2018	01:00	1.8	SW
6-Jul-2018	02:00	1.9	WNW
6-Jul-2018	03:00	2.1	WNW
6-Jul-2018	04:00	1.9	E
6-Jul-2018	05:00	1.8	ENE
6-Jul-2018	06:00	2	WSW
6-Jul-2018	07:00	1.8	WNW
6-Jul-2018	08:00	2	SW
6-Jul-2018	09:00	2.5	WSW
6-Jul-2018	10:00	2.6	SW
6-Jul-2018	11:00	2.8	WSW
6-Jul-2018	12:00	2.6	WNW
6-Jul-2018	13:00	2.7	N
6-Jul-2018	14:00	2.8	SSW
6-Jul-2018	15:00	2.7	S
6-Jul-2018	16:00	2.7	SW
6-Jul-2018	17:00	2.6	WSW
6-Jul-2018	18:00	2.3	SW
6-Jul-2018	19:00	2.2	WNW
6-Jul-2018	20:00	2	WNW
6-Jul-2018	21:00	1.8	WSW
6-Jul-2018	22:00	1.9	SW
6-Jul-2018	23:00	1.9	SW
7-Jul-2018	00:00	2.2	WNW
7-Jul-2018	01:00	2.2	WNW
7-Jul-2018	02:00	2	WNW
7-Jul-2018	03:00	2.2	WNW
7-Jul-2018	04:00	2.3	WNW
7-Jul-2018	05:00	2.1	W
7-Jul-2018	06:00	2	WNW

II. Mean Wind Speed and Wind Direction

7-Jul-2018	07:00	1.7	WNW
7-Jul-2018	08:00	2.1	W
7-Jul-2018	09:00	2.3	W
7-Jul-2018	10:00	2.3	W
7-Jul-2018	11:00	2.2	SSW
7-Jul-2018	12:00	2.5	W
7-Jul-2018	13:00	2.5	W
7-Jul-2018	14:00	1.9	W
7-Jul-2018	15:00	2.1	WNW
7-Jul-2018	16:00	1.9	W
7-Jul-2018	17:00	1.9	W
7-Jul-2018	18:00	2	WNW
7-Jul-2018	19:00	2	WNW
7-Jul-2018	20:00	1.7	SSW
7-Jul-2018	21:00	1.6	SW
7-Jul-2018	22:00	1.8	N
7-Jul-2018	23:00	1.4	N
8-Jul-2018	00:00	1.4	N
8-Jul-2018	01:00	1.4	NNW
8-Jul-2018	02:00	1.4	NNW
8-Jul-2018	03:00	1.4	NW
8-Jul-2018	04:00	1.5	W
8-Jul-2018	05:00	1.4	W
8-Jul-2018	06:00	1.4	SSW
8-Jul-2018	07:00	1.5	W
8-Jul-2018	08:00	1.7	ENE
8-Jul-2018	09:00	2.2	NE
8-Jul-2018	10:00	2.1	NE
8-Jul-2018	11:00	2.5	NE
8-Jul-2018	12:00	2.6	ENE
8-Jul-2018	13:00	2.7	ENE
8-Jul-2018	14:00	2.7	ENE
8-Jul-2018	15:00	2.4	E
8-Jul-2018	16:00	2.4	SE
8-Jul-2018	17:00	2	SSE
8-Jul-2018	18:00	1.6	SSE
8-Jul-2018	19:00	1.5	WSW
8-Jul-2018	20:00	1.3	S

II. Mean Wind Speed and Wind Direction

8-Jul-2018	21:00	1.4	SSW
8-Jul-2018	22:00	1.4	W
8-Jul-2018	23:00	1.3	SSE
9-Jul-2018	00:00	1.3	SSE
9-Jul-2018	01:00	1.2	ENE
9-Jul-2018	02:00	1.3	N
9-Jul-2018	03:00	1.5	NNE
9-Jul-2018	04:00	1.6	NNE
9-Jul-2018	05:00	1.5	ESE
9-Jul-2018	06:00	1.3	ESE
9-Jul-2018	07:00	1.4	ESE
9-Jul-2018	08:00	1.5	ENE
9-Jul-2018	09:00	1.8	E
9-Jul-2018	10:00	1.9	NNE
9-Jul-2018	11:00	1.9	SSE
9-Jul-2018	12:00	2	NNE
9-Jul-2018	13:00	2	NE
9-Jul-2018	14:00	2	ENE
9-Jul-2018	15:00	1.6	ENE
9-Jul-2018	16:00	1.7	N
9-Jul-2018	17:00	1.2	ENE
9-Jul-2018	18:00	1	ENE
9-Jul-2018	19:00	0.7	NE
9-Jul-2018	20:00	0.7	NNE
9-Jul-2018	21:00	0.9	ENE
9-Jul-2018	22:00	0.8	NE
9-Jul-2018	23:00	0.6	ENE
10-Jul-2018	00:00	0.6	E
10-Jul-2018	01:00	0.7	NE
10-Jul-2018	02:00	0.6	NNE
10-Jul-2018	03:00	0.6	NE
10-Jul-2018	04:00	0.5	NNE
10-Jul-2018	05:00	0.5	NNE
10-Jul-2018	06:00	0.6	NNE
10-Jul-2018	07:00	0.5	NNE
10-Jul-2018	08:00	0.5	NNE
10-Jul-2018	09:00	1.2	NNE
10-Jul-2018	10:00	1.5	NNE

II. Mean Wind Speed and Wind Direction

10-Jul-2018	11:00	2.2	NNE
10-Jul-2018	12:00	2	NE
10-Jul-2018	13:00	2.2	NNE
10-Jul-2018	14:00	2	NE
10-Jul-2018	15:00	1.8	NE
10-Jul-2018	16:00	1.8	NE
10-Jul-2018	17:00	1.7	NE
10-Jul-2018	18:00	1.4	NE
10-Jul-2018	19:00	1.3	ENE
10-Jul-2018	20:00	1.5	ENE
10-Jul-2018	21:00	1.4	ENE
10-Jul-2018	22:00	1.4	SE
10-Jul-2018	23:00	1.6	NE
11-Jul-2018	00:00	1.4	ENE
11-Jul-2018	01:00	1.5	SSE
11-Jul-2018	02:00	1.4	SSE
11-Jul-2018	03:00	1.4	ENE
11-Jul-2018	04:00	1.3	ENE
11-Jul-2018	05:00	1.2	ESE
11-Jul-2018	06:00	1.5	SSE
11-Jul-2018	07:00	1.4	ESE
11-Jul-2018	08:00	1.4	ESE
11-Jul-2018	09:00	1.8	S
11-Jul-2018	10:00	1.7	S
11-Jul-2018	11:00	1.8	W
11-Jul-2018	12:00	2	WSW
11-Jul-2018	13:00	1.9	ESE
11-Jul-2018	14:00	2	ENE
11-Jul-2018	15:00	2.1	E
11-Jul-2018	16:00	2	SSE
11-Jul-2018	17:00	1.8	NNE
11-Jul-2018	18:00	1.8	ESE
11-Jul-2018	19:00	1.8	ENE
11-Jul-2018	20:00	1.8	SSE
11-Jul-2018	21:00	1.6	ESE
11-Jul-2018	22:00	2	E
11-Jul-2018	23:00	1.8	SSE
12-Jul-2018	00:00	1.8	S

II. Mean Wind Speed and Wind Direction

12-Jul-2018	01:00	1.4	ESE
12-Jul-2018	02:00	1.1	SW
12-Jul-2018	03:00	1.2	SW
12-Jul-2018	04:00	1.1	WNW
12-Jul-2018	05:00	0.9	W
12-Jul-2018	06:00	1	WNW
12-Jul-2018	07:00	1.1	N
12-Jul-2018	08:00	1	NNE
12-Jul-2018	09:00	1.2	WSW
12-Jul-2018	10:00	1.6	WSW
12-Jul-2018	11:00	1.8	W
12-Jul-2018	12:00	1.7	W
12-Jul-2018	13:00	1.4	W
12-Jul-2018	14:00	1.5	W
12-Jul-2018	15:00	1.7	WSW
12-Jul-2018	16:00	1.9	NE
12-Jul-2018	17:00	1.7	NE
12-Jul-2018	18:00	1.4	NE
12-Jul-2018	19:00	1.2	WNW
12-Jul-2018	20:00	1.1	NE
12-Jul-2018	21:00	0.9	NE
12-Jul-2018	22:00	1.1	NE
12-Jul-2018	23:00	1.2	W
13-Jul-2018	00:00	1	WSW
13-Jul-2018	01:00	0.9	WNW
13-Jul-2018	02:00	0.6	WNW
13-Jul-2018	03:00	0.9	NE
13-Jul-2018	04:00	1.1	NNE
13-Jul-2018	05:00	0.9	ENE
13-Jul-2018	06:00	0.7	SE
13-Jul-2018	07:00	0.7	NE
13-Jul-2018	08:00	0.8	ENE
13-Jul-2018	09:00	1.6	ENE
13-Jul-2018	10:00	2.1	NE
13-Jul-2018	11:00	2.8	ESE
13-Jul-2018	12:00	2.7	ESE
13-Jul-2018	13:00	2.8	E
13-Jul-2018	14:00	2.5	S

II. Mean Wind Speed and Wind Direction

13-Jul-2018	15:00	2.4	E
13-Jul-2018	16:00	2	SE
13-Jul-2018	17:00	1.9	E
13-Jul-2018	18:00	1.7	SE
13-Jul-2018	19:00	1.3	SE
13-Jul-2018	20:00	1	W
13-Jul-2018	21:00	0.8	SW
13-Jul-2018	22:00	1	WSW
13-Jul-2018	23:00	0.8	SW
14-Jul-2018	00:00	0.9	NNE
14-Jul-2018	01:00	1.2	SSW
14-Jul-2018	02:00	1.2	ESE
14-Jul-2018	03:00	1.4	WNW
14-Jul-2018	04:00	1.7	SE
14-Jul-2018	05:00	1.7	SSE
14-Jul-2018	06:00	1.7	ESE
14-Jul-2018	07:00	1.7	WNW
14-Jul-2018	08:00	1.8	ENE
14-Jul-2018	09:00	2	ENE
14-Jul-2018	10:00	2.4	N
14-Jul-2018	11:00	2.5	NNE
14-Jul-2018	12:00	2.8	NE
14-Jul-2018	13:00	2.7	NE
14-Jul-2018	14:00	2.3	WNW
14-Jul-2018	15:00	2.4	WNW
14-Jul-2018	16:00	2.7	WNW
14-Jul-2018	17:00	2.5	N
14-Jul-2018	18:00	1.8	N
14-Jul-2018	19:00	1.9	SW
14-Jul-2018	20:00	1.7	W
14-Jul-2018	21:00	1.6	W
14-Jul-2018	22:00	1.6	W
14-Jul-2018	23:00	1.6	WNW
15-Jul-2018	00:00	1.6	WSW
15-Jul-2018	01:00	1.7	N
15-Jul-2018	02:00	1.6	E
15-Jul-2018	03:00	1.4	ENE
15-Jul-2018	04:00	1.7	W

II. Mean Wind Speed and Wind Direction

15-Jul-2018	05:00	1.9	W
15-Jul-2018	06:00	1.8	WSW
15-Jul-2018	07:00	1.9	NNE
15-Jul-2018	08:00	1.8	NE
15-Jul-2018	09:00	2	NE
15-Jul-2018	10:00	2.2	WNW
15-Jul-2018	11:00	2.1	W
15-Jul-2018	12:00	2.1	W
15-Jul-2018	13:00	2.2	SSW
15-Jul-2018	14:00	2.3	SSW
15-Jul-2018	15:00	2.5	SSE
15-Jul-2018	16:00	2.2	NNW
15-Jul-2018	17:00	1.7	WNW
15-Jul-2018	18:00	1.6	NNW
15-Jul-2018	19:00	1.2	NE
15-Jul-2018	20:00	1.2	NE
15-Jul-2018	21:00	1.2	WNW
15-Jul-2018	22:00	1.2	WNW
15-Jul-2018	23:00	1.4	W
16-Jul-2018	00:00	1.2	NW
16-Jul-2018	01:00	1.3	SSW
16-Jul-2018	02:00	1.3	W
16-Jul-2018	03:00	1.3	WSW
16-Jul-2018	04:00	1.4	NNE
16-Jul-2018	05:00	1.5	W
16-Jul-2018	06:00	1.4	W
16-Jul-2018	07:00	1.5	W
16-Jul-2018	08:00	1.4	W
16-Jul-2018	09:00	1.7	W
16-Jul-2018	10:00	2	W
16-Jul-2018	11:00	1.9	WNW
16-Jul-2018	12:00	2.3	W
16-Jul-2018	13:00	2.2	ESE
16-Jul-2018	14:00	2	WNW
16-Jul-2018	15:00	2.5	WSW
16-Jul-2018	16:00	2.3	ESE
16-Jul-2018	17:00	1.9	NNW
16-Jul-2018	18:00	1.9	WSW

II. Mean Wind Speed and Wind Direction

16-Jul-2018	19:00	1.2	SE
16-Jul-2018	20:00	1	SE
16-Jul-2018	21:00	1.1	WNW
16-Jul-2018	22:00	0.8	NNE
16-Jul-2018	23:00	0.9	NNW
17-Jul-2018	00:00	0.9	NW
17-Jul-2018	01:00	0.9	NW
17-Jul-2018	02:00	1.3	S
17-Jul-2018	03:00	1.3	SW
17-Jul-2018	04:00	1.3	WNW
17-Jul-2018	05:00	1	WNW
17-Jul-2018	06:00	0.9	NW
17-Jul-2018	07:00	1.1	NNW
17-Jul-2018	08:00	1.2	NW
17-Jul-2018	09:00	1.4	ESE
17-Jul-2018	10:00	1.9	ESE
17-Jul-2018	11:00	2.2	S
17-Jul-2018	12:00	2.2	SE
17-Jul-2018	13:00	2.3	S
17-Jul-2018	14:00	2.3	SW
17-Jul-2018	15:00	2.5	S
17-Jul-2018	16:00	2.5	NNW
17-Jul-2018	17:00	2	S
17-Jul-2018	18:00	2	ENE
17-Jul-2018	19:00	1.9	NNE
17-Jul-2018	20:00	1.9	NNE
17-Jul-2018	21:00	1.7	WNW
17-Jul-2018	22:00	1.6	WNW
17-Jul-2018	23:00	1.5	W
18-Jul-2018	00:00	1.5	WNW
18-Jul-2018	01:00	1.5	WNW
18-Jul-2018	02:00	1.7	WNW
18-Jul-2018	03:00	1.5	NW
18-Jul-2018	04:00	1.6	NE
18-Jul-2018	05:00	1.4	NE
18-Jul-2018	06:00	1.6	NNE
18-Jul-2018	07:00	1.5	NNE
18-Jul-2018	08:00	1.6	NNE

II. Mean Wind Speed and Wind Direction

18-Jul-2018	09:00	2	NNE
18-Jul-2018	10:00	2.4	ENE
18-Jul-2018	11:00	2.6	ENE
18-Jul-2018	12:00	2.4	ENE
18-Jul-2018	13:00	2.6	NNE
18-Jul-2018	14:00	2.6	NNE
18-Jul-2018	15:00	2.5	ENE
18-Jul-2018	16:00	2.2	NNE
18-Jul-2018	17:00	1.8	NNE
18-Jul-2018	18:00	1.4	ENE
18-Jul-2018	19:00	1.4	ESE
18-Jul-2018	20:00	1.2	E
18-Jul-2018	21:00	0.9	SSW
18-Jul-2018	22:00	0.9	SSE
18-Jul-2018	23:00	1.1	SSW
19-Jul-2018	00:00	1.2	SSW
19-Jul-2018	01:00	0.9	E
19-Jul-2018	02:00	1.3	ESE
19-Jul-2018	03:00	1.3	SW
19-Jul-2018	04:00	1.4	N
19-Jul-2018	05:00	1.4	ESE
19-Jul-2018	06:00	1.4	S
19-Jul-2018	07:00	1.4	SE
19-Jul-2018	08:00	1.8	WNW
19-Jul-2018	09:00	1.8	E
19-Jul-2018	10:00	2	SSW
19-Jul-2018	11:00	2	W
19-Jul-2018	12:00	2.2	ENE
19-Jul-2018	13:00	1.9	WSW
19-Jul-2018	14:00	1.9	SW
19-Jul-2018	15:00	2.3	ENE
19-Jul-2018	16:00	2.2	ESE
19-Jul-2018	17:00	2.1	ENE
19-Jul-2018	18:00	1.5	ENE
19-Jul-2018	19:00	1.4	NE
19-Jul-2018	20:00	1	N
19-Jul-2018	21:00	1	W
19-Jul-2018	22:00	1.4	SSW

II. Mean Wind Speed and Wind Direction

19-Jul-2018	23:00	1.2	NE
20-Jul-2018	00:00	1.3	SW
20-Jul-2018	01:00	1.2	SW
20-Jul-2018	02:00	1.3	W
20-Jul-2018	03:00	1.2	SE
20-Jul-2018	04:00	1.4	WNW
20-Jul-2018	05:00	1.4	WNW
20-Jul-2018	06:00	1.5	WNW
20-Jul-2018	07:00	1.3	W
20-Jul-2018	08:00	1.7	W
20-Jul-2018	09:00	1.9	SSE
20-Jul-2018	10:00	2.5	S
20-Jul-2018	11:00	2.6	SSE
20-Jul-2018	12:00	2.5	SW
20-Jul-2018	13:00	2.4	E
20-Jul-2018	14:00	2.5	NE
20-Jul-2018	15:00	2.2	SSW
20-Jul-2018	16:00	2	E
20-Jul-2018	17:00	1.6	SW
20-Jul-2018	18:00	1.4	W
20-Jul-2018	19:00	1.4	WSW
20-Jul-2018	20:00	1.2	WSW
20-Jul-2018	21:00	1.2	SSW
20-Jul-2018	22:00	1.3	S
20-Jul-2018	23:00	1.3	W
21-Jul-2018	00:00	1.2	W
21-Jul-2018	01:00	1.1	SW
21-Jul-2018	02:00	1.3	S
21-Jul-2018	03:00	1.4	W
21-Jul-2018	04:00	1.2	W
21-Jul-2018	05:00	1.4	W
21-Jul-2018	06:00	1.8	W
21-Jul-2018	07:00	1.7	WNW
21-Jul-2018	08:00	1.7	WNW
21-Jul-2018	09:00	1.7	WNW
21-Jul-2018	10:00	2.1	WNW
21-Jul-2018	11:00	2.3	WNW
21-Jul-2018	12:00	2.4	N

II. Mean Wind Speed and Wind Direction

21-Jul-2018	13:00	2.5	W
21-Jul-2018	14:00	2.6	WNW
21-Jul-2018	15:00	2.8	WNW
21-Jul-2018	16:00	2.4	WNW
21-Jul-2018	17:00	2.1	W
21-Jul-2018	18:00	1.7	N
21-Jul-2018	19:00	1.6	WNW
21-Jul-2018	20:00	1.4	ENE
21-Jul-2018	21:00	1.3	WSW
21-Jul-2018	22:00	1.3	SW
21-Jul-2018	23:00	1.4	SW
22-Jul-2018	00:00	1.4	WNW
22-Jul-2018	01:00	1.5	WNW
22-Jul-2018	02:00	1.5	S
22-Jul-2018	03:00	1.6	S
22-Jul-2018	04:00	1.4	S
22-Jul-2018	05:00	1.4	WSW
22-Jul-2018	06:00	1.4	W
22-Jul-2018	07:00	1.5	SW
22-Jul-2018	08:00	1.8	WNW
22-Jul-2018	09:00	1.7	SW
22-Jul-2018	10:00	2	SW
22-Jul-2018	11:00	2.3	SSW
22-Jul-2018	12:00	2.1	SW
22-Jul-2018	13:00	2	W
22-Jul-2018	14:00	2.1	ENE
22-Jul-2018	15:00	2.2	ENE
22-Jul-2018	16:00	2	NW
22-Jul-2018	17:00	1.7	NE
22-Jul-2018	18:00	1.6	E
22-Jul-2018	19:00	1.1	N
22-Jul-2018	20:00	1.4	N
22-Jul-2018	21:00	1.5	N
22-Jul-2018	22:00	1.7	ENE
22-Jul-2018	23:00	1.9	SSE
23-Jul-2018	00:00	1.8	NE
23-Jul-2018	01:00	1.7	NE
23-Jul-2018	02:00	1.5	E

II. Mean Wind Speed and Wind Direction

23-Jul-2018	03:00	1.5	ENE
23-Jul-2018	04:00	1.5	ENE
23-Jul-2018	05:00	1.4	ENE
23-Jul-2018	06:00	1.5	ENE
23-Jul-2018	07:00	1.5	ENE
23-Jul-2018	08:00	1.7	NNE
23-Jul-2018	09:00	1.9	NNE
23-Jul-2018	10:00	2.4	N
23-Jul-2018	11:00	2.7	N
23-Jul-2018	12:00	2.5	NNE
23-Jul-2018	13:00	2.4	NNE
23-Jul-2018	14:00	2.6	NE
23-Jul-2018	15:00	2.6	N
23-Jul-2018	16:00	2.5	NE
23-Jul-2018	17:00	2.5	NNE
23-Jul-2018	18:00	2	NNE
23-Jul-2018	19:00	1.7	NNE
23-Jul-2018	20:00	1.6	S
23-Jul-2018	21:00	1.4	WNW
23-Jul-2018	22:00	1.4	W
23-Jul-2018	23:00	1.4	WNW
24-Jul-2018	00:00	1.4	WNW
24-Jul-2018	01:00	1.5	NW
24-Jul-2018	02:00	1.6	E
24-Jul-2018	03:00	1.8	NE
24-Jul-2018	04:00	1.9	NNE
24-Jul-2018	05:00	2	NE
24-Jul-2018	06:00	1.6	S
24-Jul-2018	07:00	1.5	S
24-Jul-2018	08:00	1.9	WNW
24-Jul-2018	09:00	2	WSW
24-Jul-2018	10:00	2.6	WSW
24-Jul-2018	11:00	2.6	WNW
24-Jul-2018	12:00	2.6	W
24-Jul-2018	13:00	2.7	W
24-Jul-2018	14:00	2.4	WNW
24-Jul-2018	15:00	2.5	E
24-Jul-2018	16:00	2.3	WNW

II. Mean Wind Speed and Wind Direction

24-Jul-2018	17:00	2	W
24-Jul-2018	18:00	1.6	W
24-Jul-2018	19:00	1.3	W
24-Jul-2018	20:00	1.4	W
24-Jul-2018	21:00	1.4	SW
24-Jul-2018	22:00	1.5	SSW
24-Jul-2018	23:00	1.4	SSW
25-Jul-2018	00:00	1.4	SSW
25-Jul-2018	01:00	1.4	N
25-Jul-2018	02:00	1.2	WNW
25-Jul-2018	03:00	1.1	WNW
25-Jul-2018	04:00	1.2	WNW
25-Jul-2018	05:00	0.9	WSW
25-Jul-2018	06:00	1	WSW
25-Jul-2018	07:00	1	WSW
25-Jul-2018	08:00	1.4	W
25-Jul-2018	09:00	1.9	W
25-Jul-2018	10:00	2.3	WSW
25-Jul-2018	11:00	2.6	SW
25-Jul-2018	12:00	2.6	NNE
25-Jul-2018	13:00	2.3	N
25-Jul-2018	14:00	2.6	SW
25-Jul-2018	15:00	2.5	NNE
25-Jul-2018	16:00	2.2	W
25-Jul-2018	17:00	1.8	W
25-Jul-2018	18:00	1.5	WNW
25-Jul-2018	19:00	1.4	WSW
25-Jul-2018	20:00	1.4	W
25-Jul-2018	21:00	1.3	WSW
25-Jul-2018	22:00	1.6	W
25-Jul-2018	23:00	1.8	WSW
26-Jul-2018	00:00	1.3	W
26-Jul-2018	01:00	1.4	E
26-Jul-2018	02:00	1.4	SW
26-Jul-2018	03:00	1.4	WSW
26-Jul-2018	04:00	1.3	SW
26-Jul-2018	05:00	1.5	SW
26-Jul-2018	06:00	1.4	W

II. Mean Wind Speed and Wind Direction

26-Jul-2018	07:00	1.6	W
26-Jul-2018	08:00	1.6	W
26-Jul-2018	09:00	1.8	W
26-Jul-2018	10:00	1.9	NNE
26-Jul-2018	11:00	2.4	NNE
26-Jul-2018	12:00	2.7	NE
26-Jul-2018	13:00	2.8	W
26-Jul-2018	14:00	2.5	W
26-Jul-2018	15:00	2.6	SW
26-Jul-2018	16:00	2.6	SW
26-Jul-2018	17:00	2.3	SW
26-Jul-2018	18:00	1.9	WSW
26-Jul-2018	19:00	1.7	W
26-Jul-2018	20:00	1.4	WNW
26-Jul-2018	21:00	1.4	W
26-Jul-2018	22:00	1.3	WNW
26-Jul-2018	23:00	1.6	W
27-Jul-2018	00:00	1.6	ESE
27-Jul-2018	01:00	1.4	W
27-Jul-2018	02:00	1.4	WSW
27-Jul-2018	03:00	1.5	WSW
27-Jul-2018	04:00	1.4	W
27-Jul-2018	05:00	1.5	SW
27-Jul-2018	06:00	1.3	SW
27-Jul-2018	07:00	1.7	SW
27-Jul-2018	08:00	1.7	SW
27-Jul-2018	09:00	1.9	SW
27-Jul-2018	10:00	2	W
27-Jul-2018	11:00	2.5	W
27-Jul-2018	12:00	2.7	W
27-Jul-2018	13:00	2.7	W
27-Jul-2018	14:00	2.6	WSW
27-Jul-2018	15:00	2.5	WSW
27-Jul-2018	16:00	2.5	SSW
27-Jul-2018	17:00	2.2	NE
27-Jul-2018	18:00	1.8	SE
27-Jul-2018	19:00	1.5	SSE
27-Jul-2018	20:00	1.6	SW

II. Mean Wind Speed and Wind Direction

27-Jul-2018	21:00	1.7	ENE
27-Jul-2018	22:00	1.5	NNW
27-Jul-2018	23:00	1.6	SSE
28-Jul-2018	00:00	1.8	SSE
28-Jul-2018	01:00	1.8	SE
28-Jul-2018	02:00	1.9	N
28-Jul-2018	03:00	1.7	WNW
28-Jul-2018	04:00	1.6	ENE
28-Jul-2018	05:00	1.5	ENE
28-Jul-2018	06:00	1.6	ESE
28-Jul-2018	07:00	1.7	E
28-Jul-2018	08:00	1.9	SW
28-Jul-2018	09:00	2.2	SSE
28-Jul-2018	10:00	2.2	SW
28-Jul-2018	11:00	2.6	SW
28-Jul-2018	12:00	2.6	NNE
28-Jul-2018	13:00	2.3	SSW
28-Jul-2018	14:00	2.3	W
28-Jul-2018	15:00	2.3	W
28-Jul-2018	16:00	2.4	ENE
28-Jul-2018	17:00	2.2	WNW
28-Jul-2018	18:00	1.9	ENE
28-Jul-2018	19:00	1.5	N
28-Jul-2018	20:00	1.5	N
28-Jul-2018	21:00	1.6	N
28-Jul-2018	22:00	1.5	NNE
28-Jul-2018	23:00	1.8	SSW
29-Jul-2018	00:00	1.7	NE
29-Jul-2018	01:00	2	W
29-Jul-2018	02:00	2	WNW
29-Jul-2018	03:00	2.2	ESE
29-Jul-2018	04:00	1.7	SE
29-Jul-2018	05:00	1.8	SSW
29-Jul-2018	06:00	1.6	ESE
29-Jul-2018	07:00	1.4	SW
29-Jul-2018	08:00	1.4	WSW
29-Jul-2018	09:00	1.6	SSW
29-Jul-2018	10:00	2.1	WSW

II. Mean Wind Speed and Wind Direction

29-Jul-2018	11:00	2.2	WSW
29-Jul-2018	12:00	2.1	SW
29-Jul-2018	13:00	2.3	W
29-Jul-2018	14:00	2.3	WSW
29-Jul-2018	15:00	2.2	W
29-Jul-2018	16:00	2.2	SW
29-Jul-2018	17:00	2.2	SSW
29-Jul-2018	18:00	1.8	W
29-Jul-2018	19:00	1.4	NNE
29-Jul-2018	20:00	1.1	N
29-Jul-2018	21:00	1.2	WNW
29-Jul-2018	22:00	1.4	NE
29-Jul-2018	23:00	1.3	ESE
30-Jul-2018	00:00	1.3	E
30-Jul-2018	01:00	1.4	SSE
30-Jul-2018	02:00	1.4	ENE
30-Jul-2018	03:00	1.5	NE
30-Jul-2018	04:00	1.5	ENE
30-Jul-2018	05:00	1.5	SW
30-Jul-2018	06:00	1.4	SW
30-Jul-2018	07:00	1.3	NNE
30-Jul-2018	08:00	1.7	NNE
30-Jul-2018	09:00	2.1	W
30-Jul-2018	10:00	2.3	WNW
30-Jul-2018	11:00	2.8	WNW
30-Jul-2018	12:00	3.2	WSW
30-Jul-2018	13:00	2.6	WNW
30-Jul-2018	14:00	2.8	N
30-Jul-2018	15:00	2.9	SW
30-Jul-2018	16:00	2.5	NNE
30-Jul-2018	17:00	2.2	WSW
30-Jul-2018	18:00	2	N
30-Jul-2018	19:00	1.6	N
30-Jul-2018	20:00	1.6	NNE
30-Jul-2018	21:00	1.5	NE
30-Jul-2018	22:00	1.8	NE
30-Jul-2018	23:00	1.8	SE
31-Jul-2018	00:00	1.9	NE

II. Mean Wind Speed and Wind Direction

31-Jul-2018	01:00	1.8	N
31-Jul-2018	02:00	1.7	N
31-Jul-2018	03:00	1.9	SE
31-Jul-2018	04:00	1.6	SE
31-Jul-2018	05:00	1.5	NE
31-Jul-2018	06:00	1.7	NE
31-Jul-2018	07:00	1.5	ESE
31-Jul-2018	08:00	1.4	ESE
31-Jul-2018	09:00	1.9	SSE
31-Jul-2018	10:00	1.9	SSE
31-Jul-2018	11:00	1.8	NE
31-Jul-2018	12:00	2	ENE
31-Jul-2018	13:00	2	E
31-Jul-2018	14:00	2	ENE
31-Jul-2018	15:00	2.1	ESE
31-Jul-2018	16:00	1.8	NE
31-Jul-2018	17:00	1.8	ENE
31-Jul-2018	18:00	2	NE
31-Jul-2018	19:00	1.9	NE
31-Jul-2018	20:00	1.9	NNE
31-Jul-2018	21:00	2	ENE
31-Jul-2018	22:00	1.9	NE
31-Jul-2018	23:00	1.9	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 July 2018

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

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
AM3(B) - Hong Kong Family Planning Association
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 August 2018

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Aug	2-Aug	3-Aug	4-Aug
			1 hr TSP X3 AM2, AM3(A) AM4(C), AM5 **Noise** M6(A) M7, M8, M9			
5-Aug	6-Aug	7-Aug	8-Aug	9-Aug	10-Aug	11-Aug
	24-hr TSP AM2(A),AM3(B) 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(B) AM4(C),AM5
12-Aug	13-Aug	14-Aug	15-Aug	16-Aug	17-Aug	18-Aug
	1 hr TSP X3 AM2, AM3(A) AM4(C), AM5 **Noise** M6(A) M7, M8, M9				**1 hr TSP X3** AM4(C), AM5 **24-hr TSP** AM2(A),AM3(B) AM4(C),AM5	**1 hr TSP X3** AM2, AM3(A)
19-Aug	20-Aug	21-Aug	22-Aug	23-Aug	24-Aug	25-Aug
				1 hr TSP X3 AM4(C), AM5 **Noise** M6(A) M7, M8, M9 **24-hr TSP** AM2(A),AM3(B) AM4(C),AM5	**1 hr TSP X3** AM2, AM3(A)	
26-Aug	27-Aug	28-Aug	29-Aug	30-Aug	31-Aug	
			1 hr TSP X3 AM4(C), AM5 **Noise** M6(A) M7, M8, M9 **24-hr TSP** AM2(A),AM3(B) AM4(C),AM5	**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
AM3(B) - Hong Kong Family Planning Association
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 (µg/m3)
3-Jul-18	8:50	Cloudy	122.5
3-Jul-18	9:50	Cloudy	118.1
3-Jul-18	10:50	Cloudy	120.0
9-Jul-18	13:00	Sunny	140.4
9-Jul-18	14:00	Sunny	149.2
9-Jul-18	15:00	Sunny	154.3
14-Jul-18	13:00	Cloudy	211.6
14-Jul-18	14:00	Cloudy	217.5
14-Jul-18	15:00	Cloudy	220.2
20-Jul-18	13:00	Sunny	213.0
20-Jul-18	14:00	Sunny	212.0
20-Jul-18	15:00	Sunny	218.9
26-Jul-18	13:00	Sunny	92.6
26-Jul-18	14:00	Sunny	96.1
26-Jul-18	15:00	Sunny	86.0
		Average	158.2
		Maximum	220.2
		Minimum	86.0

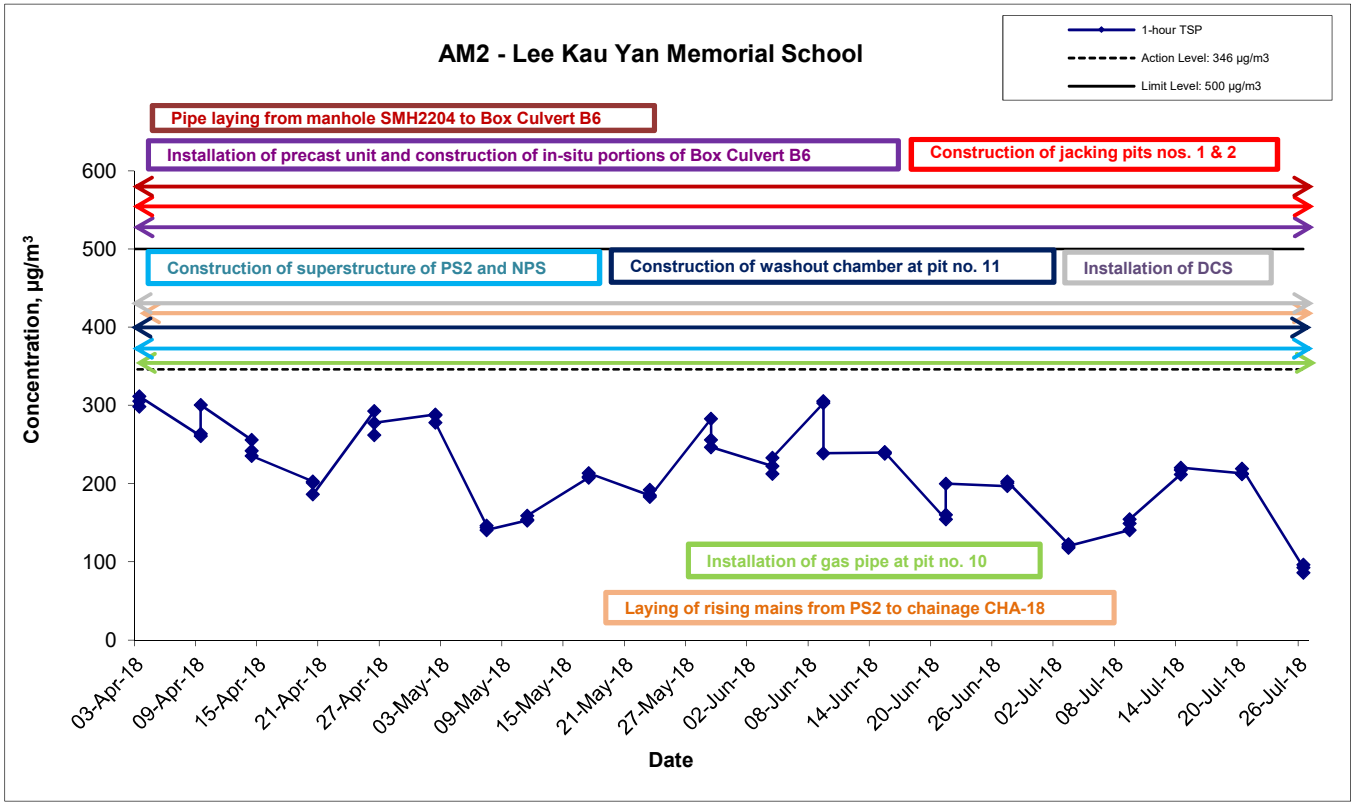
Location AM3(A) - Holy Trinity Bradury Centre			
Date	Time	Weather	Particulate Concentration (µg/m3)
3-Jul-18	13:00	Cloudy	91.4
3-Jul-18	14:00	Cloudy	96.5
3-Jul-18	15:00	Cloudy	95.0
9-Jul-18	9:00	Sunny	112.0
9-Jul-18	10:00	Sunny	118.7
9-Jul-18	11:00	Sunny	109.9
14-Jul-18	9:00	Cloudy	184.5
14-Jul-18	10:00	Cloudy	183.2
14-Jul-18	11:00	Cloudy	177.0
20-Jul-18	9:00	Sunny	189.6
20-Jul-18	10:00	Sunny	125.0
20-Jul-18	11:00	Sunny	194.2
26-Jul-18	9:00	Sunny	85.0
26-Jul-18	10:00	Sunny	81.5
26-Jul-18	11:00	Sunny	87.6
		Average	128.7
		Maximum	194.2
		Minimum	81.5

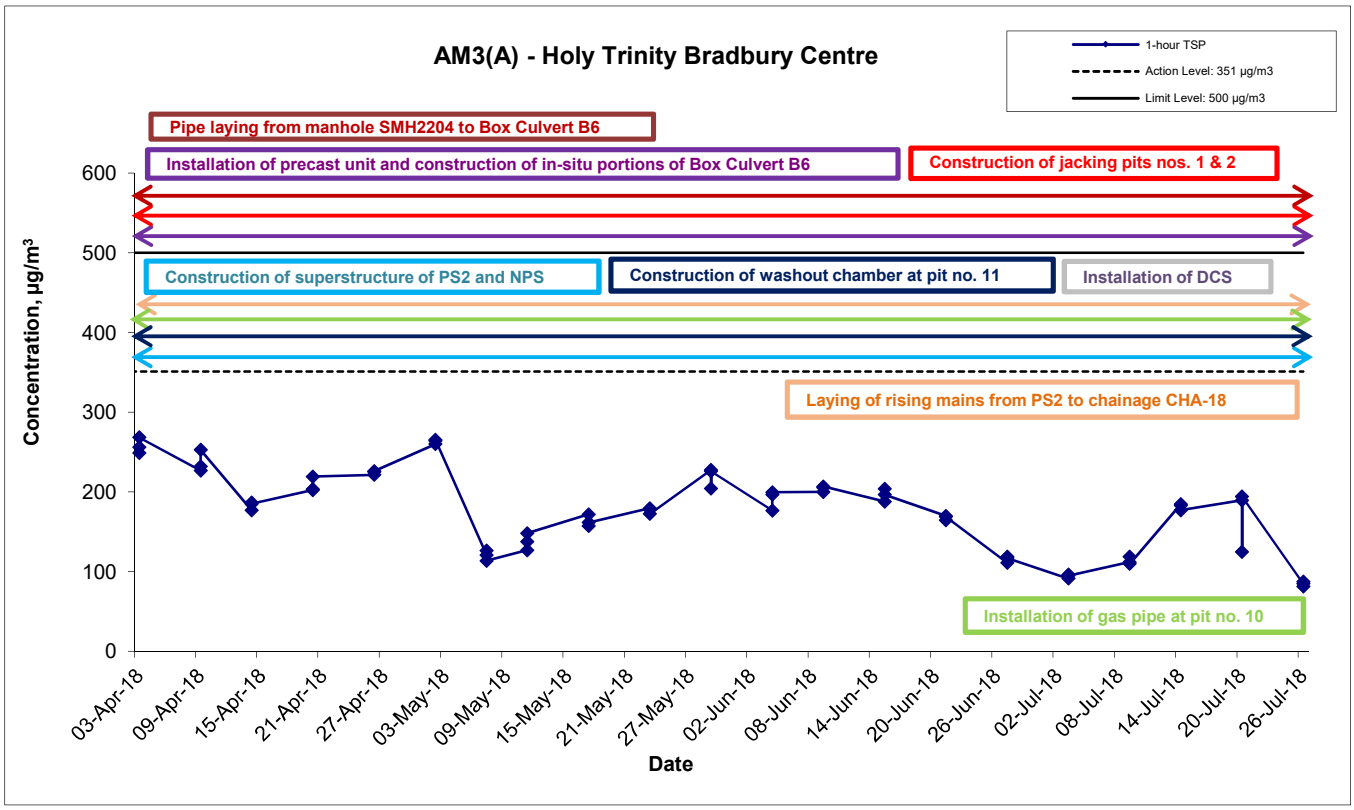
Appendix E - 1-hour TSP Monitoring Results

Location AM4(C) - New Pumping Station			
Date	Time	Weather	Particulate Concentration (µg/m3)
4-Jul-18	9:00	Sunny	206.8
4-Jul-18	10:00	Sunny	191.2
4-Jul-18	11:00	Sunny	208.6
10-Jul-18	9:00	Sunny	171.8
10-Jul-18	10:00	Sunny	164.3
10-Jul-18	11:00	Sunny	203.8
16-Jul-18	9:00	Sunny	270.2
16-Jul-18	10:00	Sunny	267.4
16-Jul-18	11:00	Sunny	286.5
20-Jul-18	9:00	Sunny	227.0
20-Jul-18	10:00	Sunny	236.1
20-Jul-18	11:00	Sunny	237.0
26-Jul-18	13:00	Sunny	218.3
26-Jul-18	14:00	Sunny	219.4
26-Jul-18	15:00	Sunny	214.7
		Average	221.5
		Maximum	286.5
		Minimum	164.3

Location AM5 - CCC Kei To Secondary School			
Date	Time	Weather	Particulate Concentration (µg/m3)
4-Jul-18	14:00	Sunny	98.1
4-Jul-18	15:00	Sunny	93.9
4-Jul-18	16:00	Sunny	101.7
10-Jul-18	13:00	Sunny	114.6
10-Jul-18	14:00	Sunny	113.3
10-Jul-18	15:00	Sunny	106.9
16-Jul-18	13:00	Sunny	231.5
16-Jul-18	14:00	Sunny	222.7
16-Jul-18	15:00	Sunny	237.4
20-Jul-18	13:00	Cloudy	180.4
20-Jul-18	14:00	Cloudy	183.8
20-Jul-18	15:00	Cloudy	170.5
26-Jul-18	9:00	Sunny	208.7
26-Jul-18	10:00	Sunny	204.4
26-Jul-18	11:00	Sunny	206.3
		Average	164.9
		Maximum	237.4
		Minimum	93.9

1-hr TSP Concentration Levels

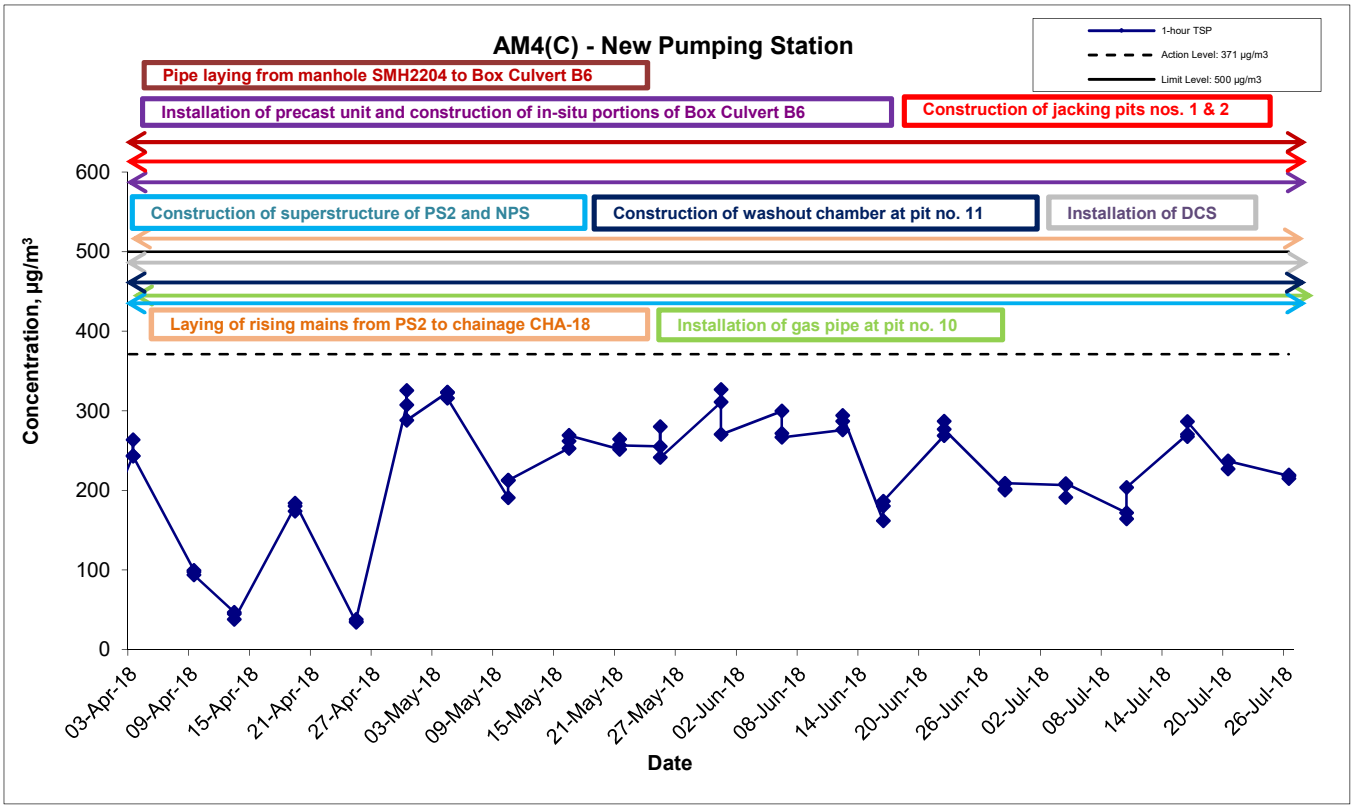


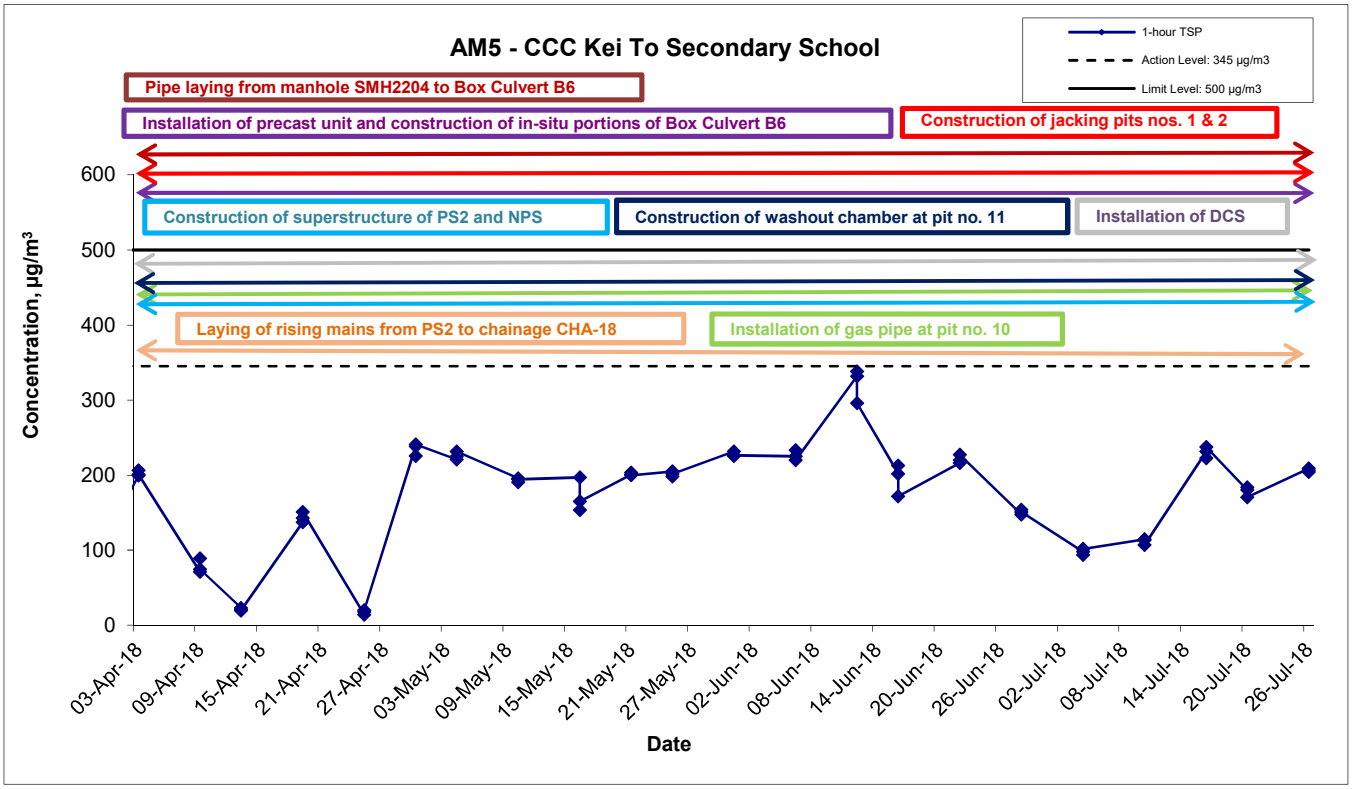


Title: Graphical Presentation of 1-hour TSP Monitoring Results	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area	Scale: N.T.S Date: Jul 18	Project No.: MA13056 Appendix: E

CINOTECH

1-hr TSP Concentration Levels





Title: Graphical Presentation of 1-hour TSP Monitoring Results	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area	Scale: N.T.S Date: Jul 18	Project No.: MA13056 Appendix: E

CINOTECH

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. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
3-Jul-18	Cloudy	302.2	755.0	2.9968	3.0796	0.0828	1920.2	1944.2	24.0	1.22	1.22	1.22	1756.2	47.1
9-Jul-18	Sunny	302.1	757.3	2.9622	3.0178	0.0556	1968.2	1992.2	24.0	1.22	1.22	1.22	1759.2	31.6
13-Jul-18	Cloudy	298.9	756.1	3.2649	3.3123	0.0474	2016.2	2040.2	24.0	1.23	1.23	1.23	1767.4	26.8
19-Jul-18	Cloudy	301.9	756.1	3.3105	3.3500	0.0395	2064.2	2088.2	24.0	1.22	1.22	1.22	1753.6	22.5
25-Jul-18	Sunny	302.9	758.0	3.2807	3.3436	0.0629	2112.2	2136.2	24.0	1.22	1.22	1.22	1752.9	35.9
31-Jul-18	Sunny	303.5	757.5	3.6310	3.6880	0.0570	2160.2	2184.2	24.0	1.22	1.22	1.22	1750.6	32.6
													Min	22.5
													Max	47.1
													Average	32.8

Location AM3(B) - Hong Kong Family Planning Association

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. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
3-Jul-18	Cloudy	302.7	755.4	2.9940	3.0888	0.0948	865.2	889.2	24.0	1.23	1.23	1.23	1768.4	53.6
9-Jul-18	Sunny	302.4	757.2	2.9742	3.1066	0.1324	889.2	913.2	24.0	1.23	1.23	1.23	1771.4	74.7
13-Jul-18	Cloudy	299.2	756.5	2.9922	3.0524	0.0602	913.2	937.2	24.0	1.24	1.24	1.24	1780.1	33.8
19-Jul-18	Cloudy	301.6	756.4	3.2836	3.3561	0.0725	937.2	961.2	24.0	1.23	1.23	1.23	1772.8	40.9
25-Jul-18	Sunny	302.4	758.1	2.9969	3.1133	0.1164	961.2	985.2	24.0	1.22	1.22	1.22	1761.1	66.1
31-Jul-18	Sunny	303.7	757.3	2.8560	2.8967	0.0407	985.2	1009.2	24.0	1.22	1.22	1.22	1756.4	23.2
													Min	23.2
													Max	74.7
													Average	48.7

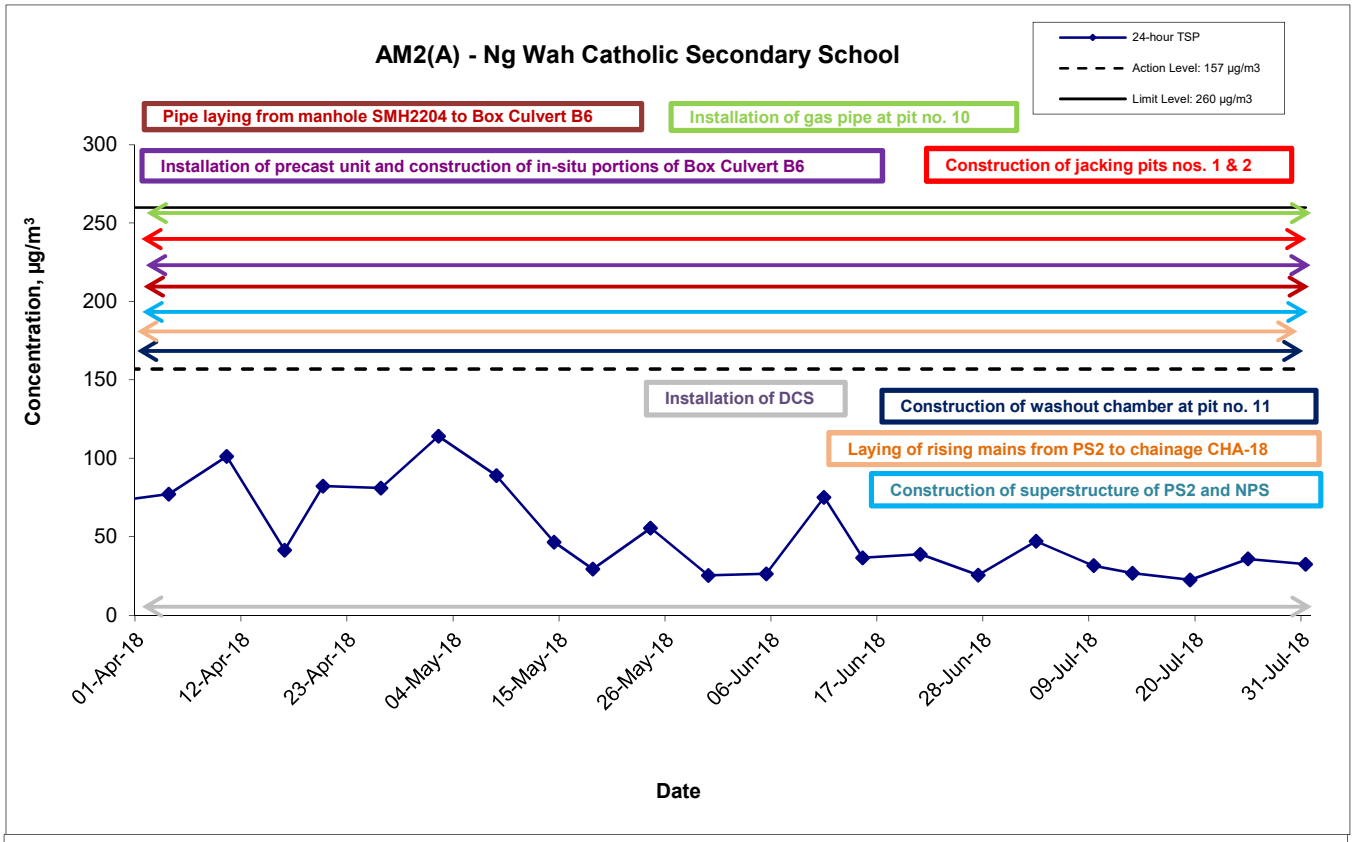
Location AM4(C) - New Pumping Station under Contract KL/2012/03

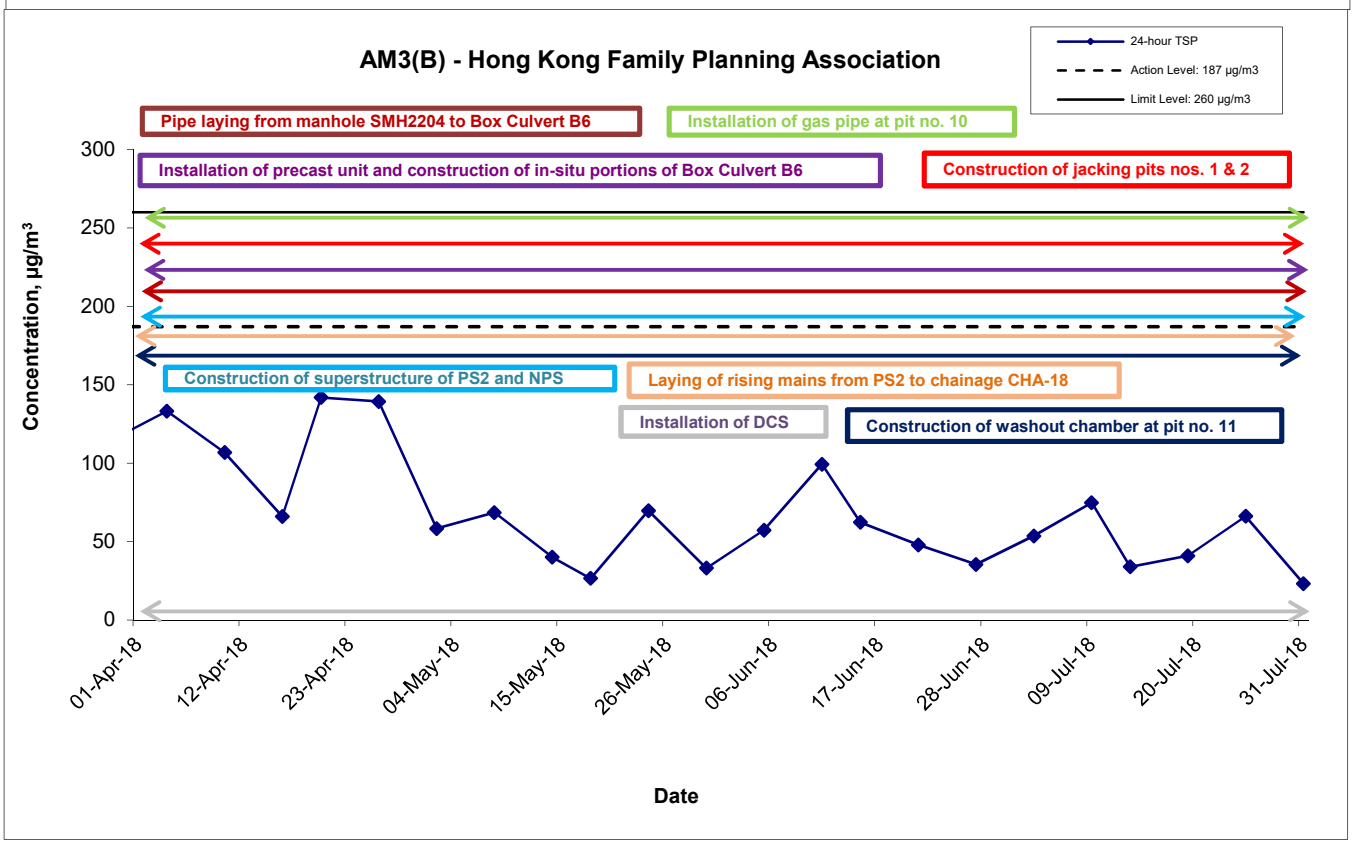
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
3-Jul-18	Cloudy	302.3	754.9	2.9667	3.0464	0.0797	1241.1	1265.1	24.0	1.21	1.21	1.21	1740.2	45.8
10-Jul-18	Sunny	302.5	757.3	3.0016	3.1257	0.1241	1265.1	1289.1	24.0	1.21	1.21	1.21	1742.4	71.2
13-Jul-18	Cloudy	298.8	756.3	2.9958	3.0918	0.0960	1289.1	1313.1	24.0	1.22	1.22	1.22	1752.4	54.8
19-Jul-18	Cloudy	301.7	756.2	3.2613	3.3281	0.0668	1313.1	1337.1	24.0	1.21	1.21	1.21	1743.5	38.3
25-Jul-18	Sunny	302.7	758.0	3.2954	3.3708	0.0754	1337.1	1361.1	24.0	1.21	1.21	1.21	1742.7	43.3
31-Jul-18	Sunny	302.5	758.1	2.8381	2.9032	0.0651	1361.1	1385.1	24.0	1.21	1.21	1.21	1743.4	37.3
													Min	37.3
													Max	71.2
													Average	48.5

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. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
3-Jul-18	Cloudy	301.9	754.6	2.9836	3.0290	0.0454	1346.0	1370.0	24.0	1.22	1.22	1.22	1751.8	25.9
9-Jul-18	Sunny	302.7	757.1	2.9840	3.0315	0.0475	1370.0	1394.0	24.0	1.22	1.22	1.22	1752.4	27.1
13-Jul-18	Cloudy	298.6	756.8	2.9696	3.0032	0.0336	1394.0	1418.0	24.0	1.23	1.22	1.23	1764.4	19.0
19-Jul-18	Cloudy	301.6	756.7	3.2945	3.3261	0.0316	1418.0	1442.0	24.0	1.22	1.22	1.22	1755.2	18.0
25-Jul-18	Sunny	302.5	758.4	2.9922	3.0329	0.0407	1442.0	1466.0	24.0	1.22	1.22	1.22	1754.5	23.2
31-Jul-18	Sunny	302.8	757.8	2.8802	2.9165	0.0363	1466.0	1490.0	24.0	1.22	1.22	1.22	1752.9	20.7
													Min	18.0
													Max	27.1
													Average	22.3

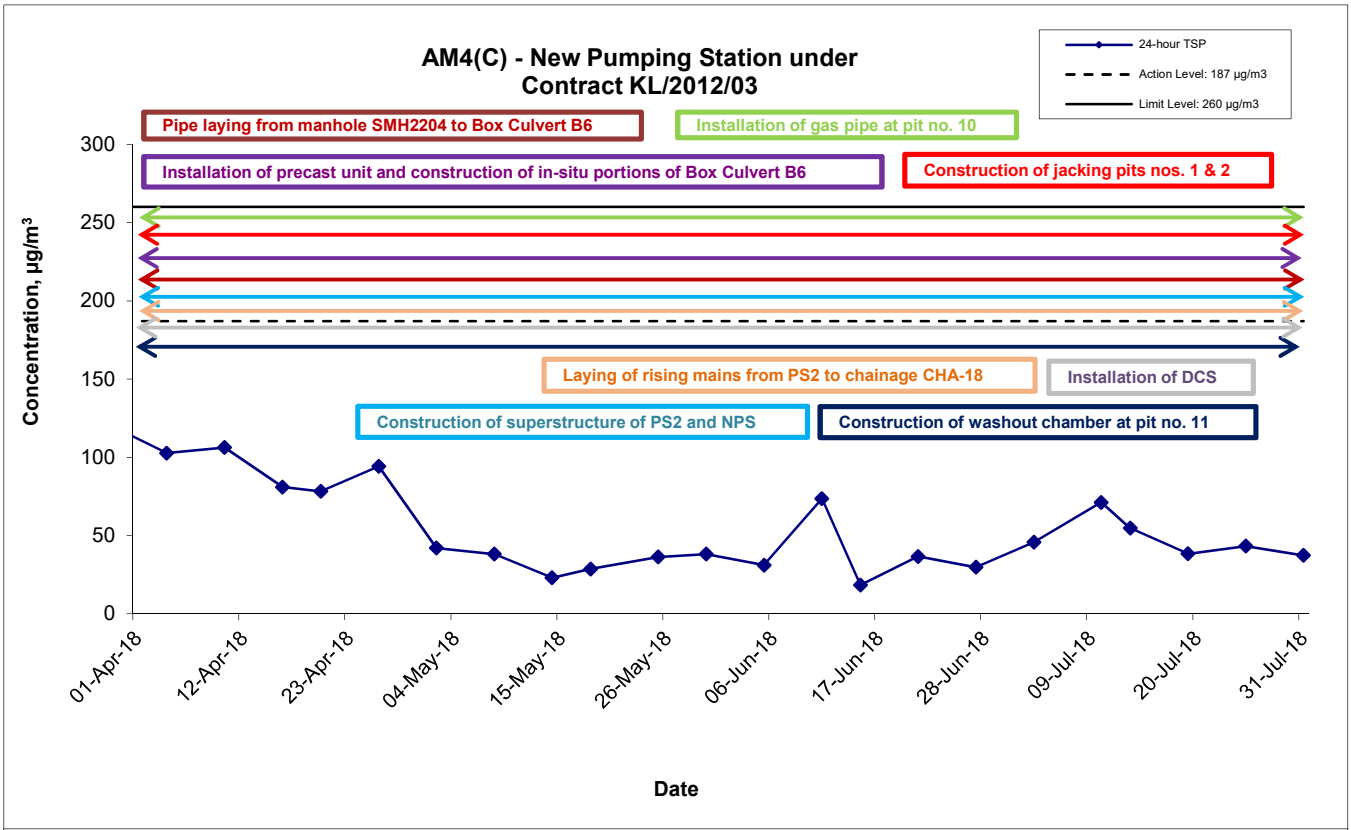
24-hr TSP Concentration Levels

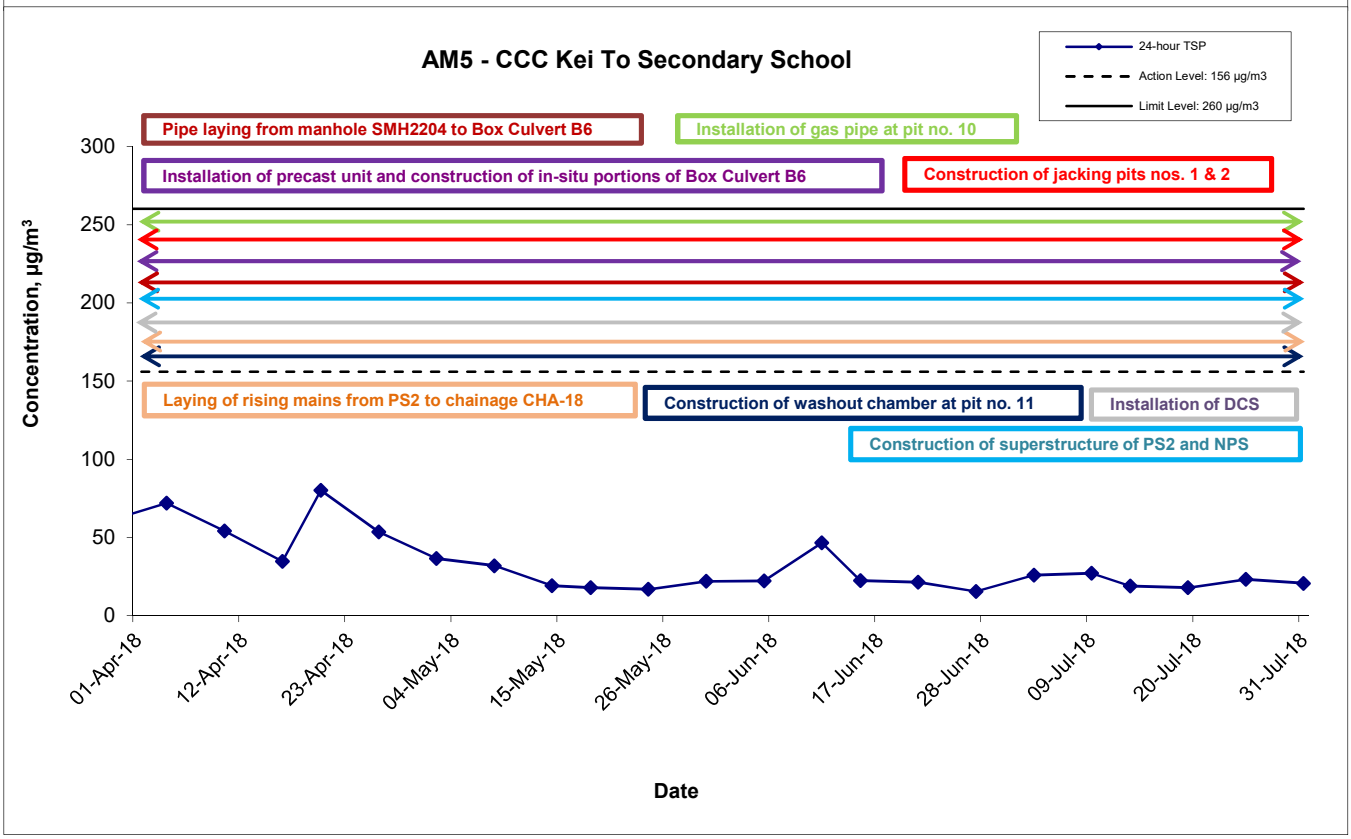




Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S Date: Jul 18	Project No.: MA13056 Appendix: F	CINOTECH

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 Date: Jul 18	Project No.: MA13056 Appendix: F	CINOTECH

APPENDIX G
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix G - Noise Monitoring Results

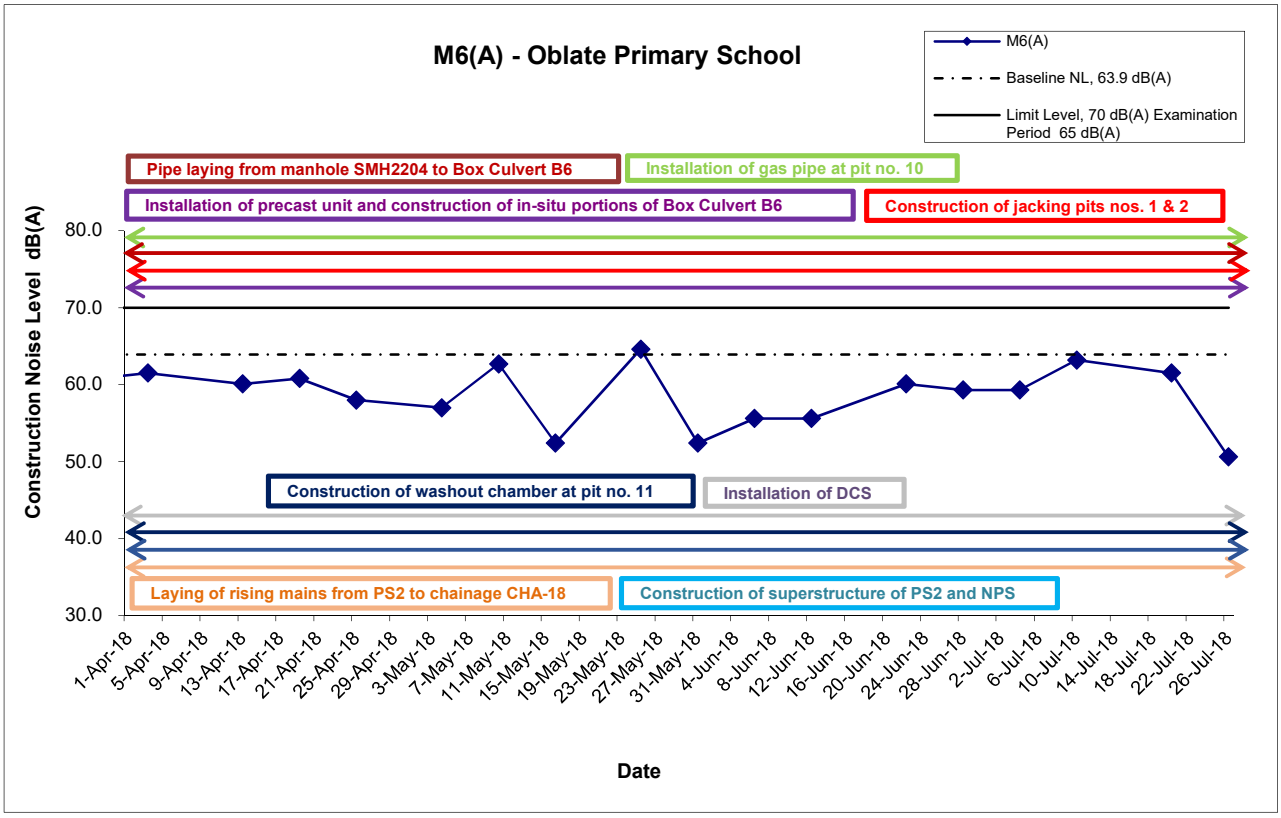
Location M6(A) - Oblate Primary School							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
4-Jul-18	14:00	Sunny	65.2	68.2	61.1	63.9	59.3
10-Jul-18	13:45	Sunny	63.2	65.9	58.3		63.2 Measured ≦ Baseline
20-Jul-18	14:00	Cloudy	61.5	63.4	59.1		61.5 Measured ≦ Baseline
26-Jul-18	14:30	Sunny	64.1	66.9	62.8		50.6

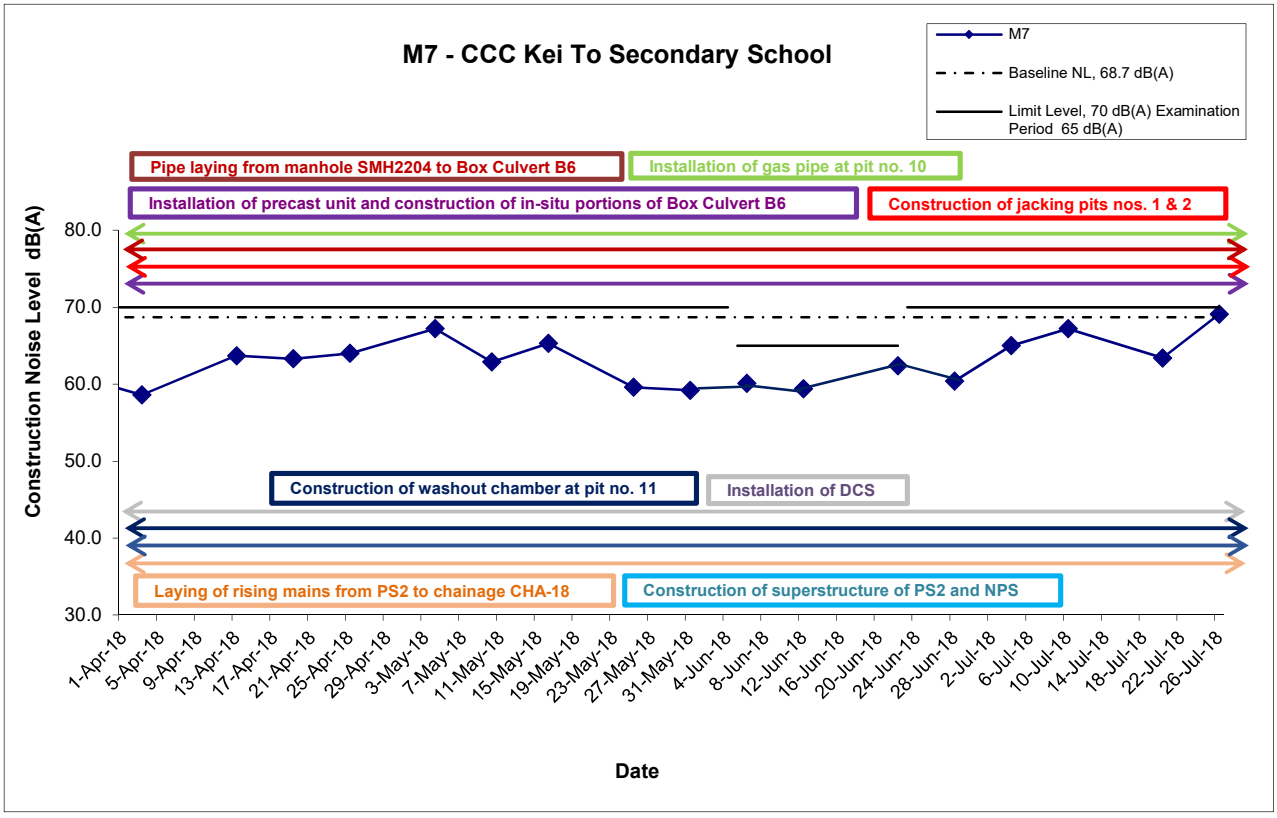
Location M7 - CCC Kei To Secondary School							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
4-Jul-18	15:00	Sunny	65.0	67.6	62.4	68.7	65.0 Measured ≦ Baseline
10-Jul-18	13:05	Sunny	67.2	70.4	60.3		67.2 Measured ≦ Baseline
20-Jul-18	13:15	Cloudy	63.4	65.3	60.9		63.4 Measured ≦ Baseline
26-Jul-18	11:30	Sunny	71.9	74.8	69.3		69.1

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}
4-Jul-18	13:00	Sunny	72.3	61.8	57.7	61.9	71.9
10-Jul-18	15:00	Sunny	65.3	67.2	62.1		62.6
20-Jul-18	15:00	Cloudy	63.3	64.9	59.8		57.7
26-Jul-18	15:10	Sunny	64.2	66.7	61.4		60.3

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}
4-Jul-18	10:00	Sunny	61.0	61.7	58.6	59.9	54.5
10-Jul-18	16:45	Sunny	66.1	68.7	60.5		64.9
20-Jul-18	10:00	Sunny	63.7	65.9	60.4		61.4
26-Jul-18	13:00	Sunny	62.7	63.6	60.2		59.5

Noise Levels

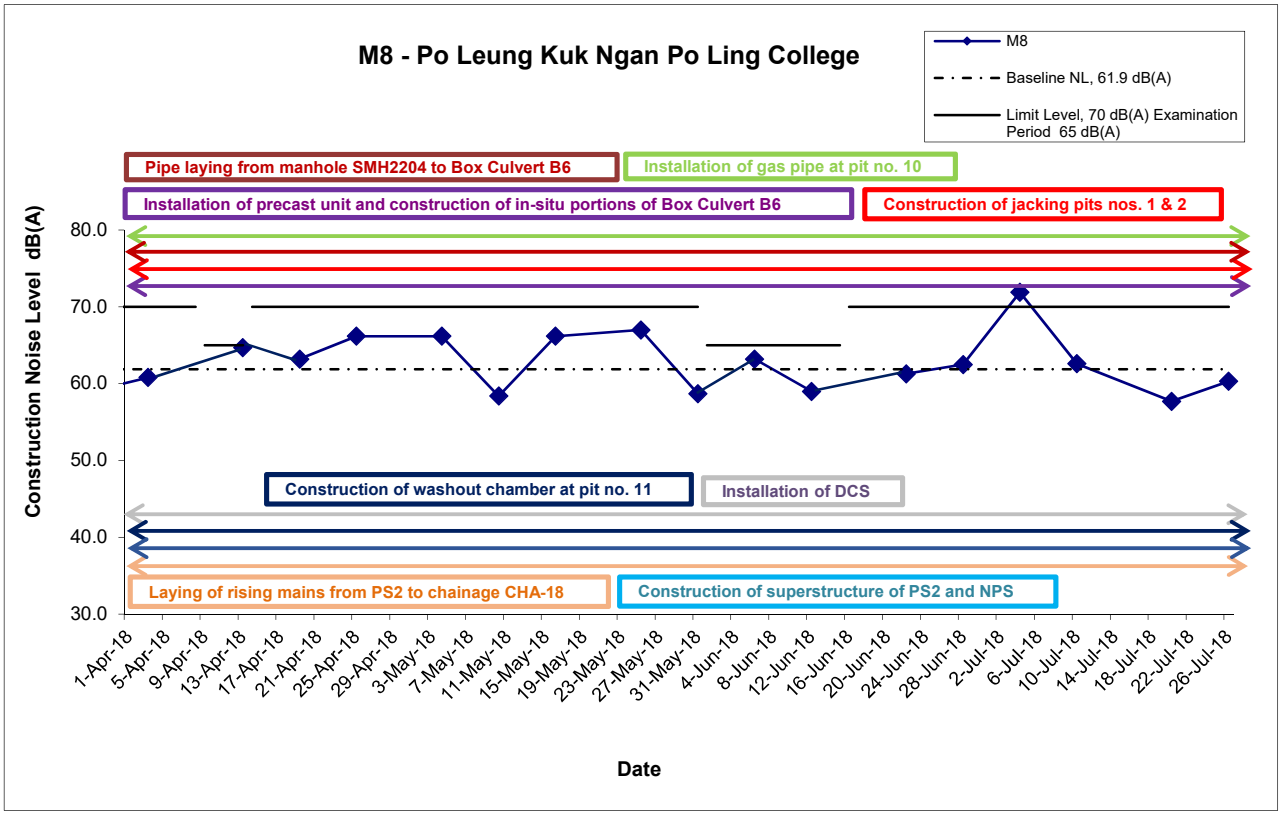


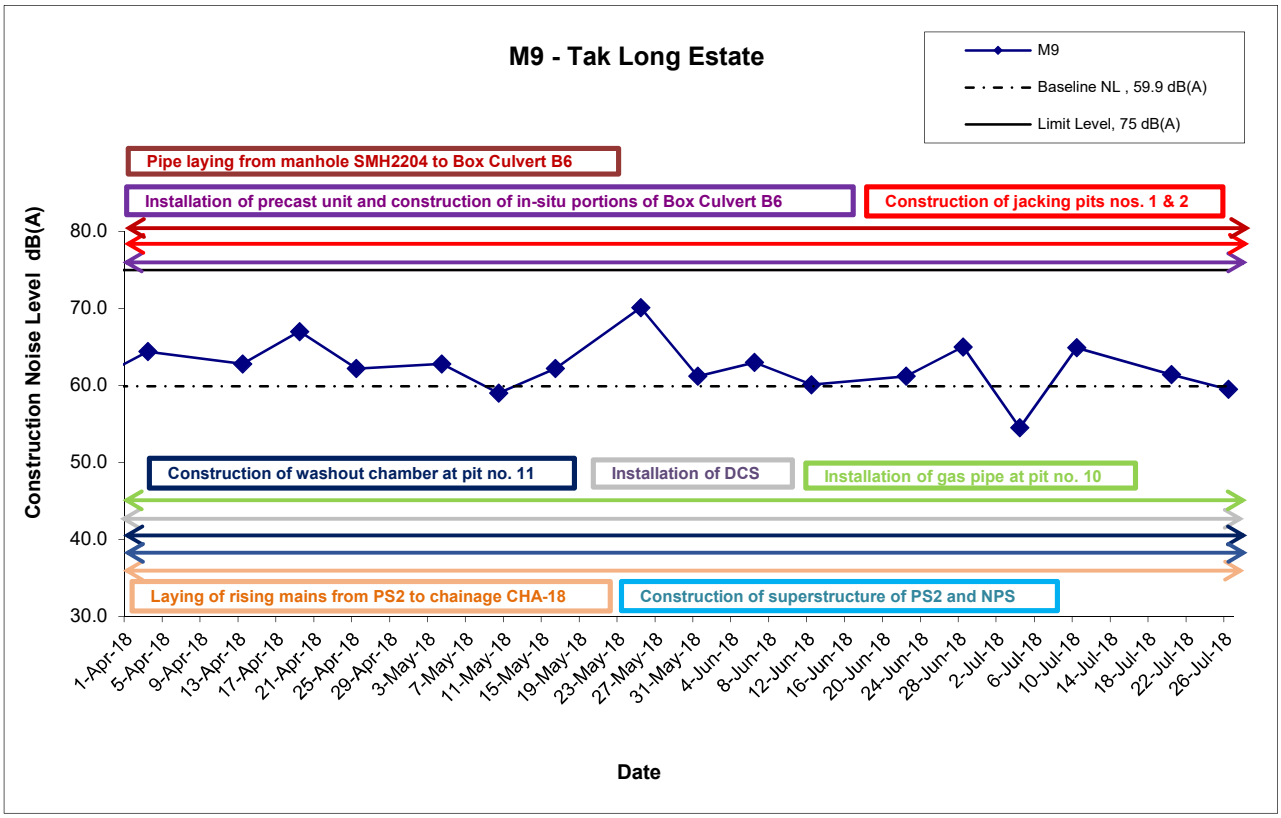


Remarks: The construction noise levels in the Tables in Appendix G were adopted for plotting the graphs

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: N.T.S Date: Jul 18	Project No.: MA13056 Appendix: G	CINOTECH

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: N.T.S	Project No.: MA13056	CINOTECH
	Date: Jul 18	Appendix: 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
(One Limit Level exceedance was recorded at monitoring station M8 – Po Leung Kok Ngan Po Ling College on 4 July 2018.)

Cause of exceedance(s)

The exceedance was considered non-related to the Contract works:

- According to field staffs' observation during the noise monitoring, the major noise source came from the Operation of excavator and dump truck and traffic activities.
- The work at Road L19 is completed on 7th September 2017 and handed over to Highways Department (see the enclosed document), the nearest construction works area (Sewage Pumping Station NPS) under this Contract is over 900m from the monitoring station M8.

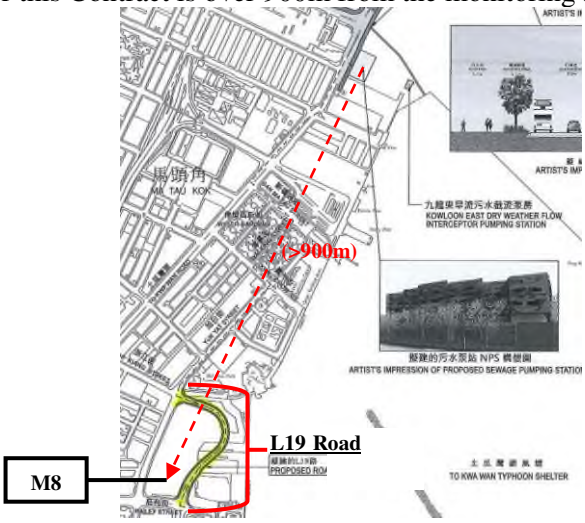


Figure 1 – The distance between Noise Monitoring Station (M8) and Sewage Pumping Station NPS

- As the nearest noise source from Contractor is over 900m from the monitoring station (M8), no noise impact would be anticipated from the Contractor's construction area, the Limit Level exceedance was considered to be non- related to this Contract.

ET's conclusions/recommendations for mitigation

- The exceedance was considered non-related to the Contract works.
- No further mitigation measures would be implemented by the Contractor.

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

均 安 建 築 有 限 公 司
KWAN ON CONSTRUCTION CO. LTD.

10th January 2018

AECOM Asia Co., Ltd.
8/F, Grand Central Plaza, Tower 2,
138 Shatin Rural Committee Road,
Shatin, NT

By Hand

Attn: Ir W K Leung

Dear Sir,

Contract No. KL/2012/03cladding
Kai Tak Development – Stage 4 Infrastructure at former north apron area
Re: Completion of Works for Road L19 and Letter of Undertaking to carry out Outstanding Works

The works in Road L19 had been substantially completed and had satisfactorily passed any final test as prescribed by the contract on18th August 2017 though road opening was postponed to 7th September 2017 not due to the fault on our side. So, we write to request the Engineer to issue a certificate of completion in respect of the works in Road L19 on the date of 18th August 2017.

By virtue of G.C.C Clause 53(1), this letter also serves the purpose as our affirmation of undertaking any outstanding work at Road L19 during the maintenance period from the aforesaid date onwards.

Thank you for your kind attention

Yours faithfully,

Albert NG

cc. K.O. Head Office

KL/2012/03/6062

香港上環蘇杭街四十一號至四十七號蘇杭商業大廈五樓 電話：28892675 圖文傳真：25586900
5/F., SO HONG COMMERCIAL BUILDING, 41-47 JERVOIS STREET, SHEUNG WAN, HONG KONG.TEL: 28892675FAX: 25586900

APPENDIX I
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180706
Date	6 July 2018
Time	14:30-16:00

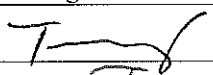
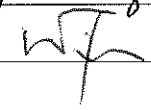
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 180629), no environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Tommy Cheng		9 July 2018
Checked by	Dr. Priscilla Choy		9 July 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	18013
Date	13 July 2018
Time	10:00-12:00

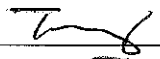
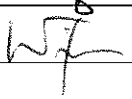
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• 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.: 180706), no environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Tommy Cheng		17 July 2018
Checked by	Dr. Priscilla Choy		17 July 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	18018
Date	18 July 2018
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	
	• 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.: 180713), no environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Tommy Cheng		19 July 2018
Checked by	Dr. Priscilla Choy		19 July 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	18027
Date	27 July 2018
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	
	• 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.: 180718), no environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Tommy Cheng		27 July 2018
Checked by	Dr. Priscilla Choy		27 July 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180706
Date	6 July 2018
Time	14:30-16:00

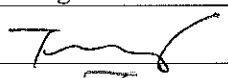
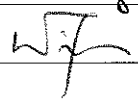
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
180706-O01	• The debris and litters should be removed within the U-channel to avoid blockage of drainage system.	B15
	C. Air Quality	
180706-O02	• The stockpile should be covered by impervious material properly to avoid dust generation.	C7
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
180706-R03	• General refuse should be disposed regularly to avoid accumulation.	E1i
	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.: 180629), all environmental deficiency was rectified/improved by the Contractor.	

	Name	Signature	Date
Recorded by	Tommy Cheng		9 July 2018
Checked by	Dr. Priscilla Choy		9 July 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180713
Date	13 July 2018
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	
180713-R01	• The stockpile should be covered completely by impervious material for dust suppression.	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.: 180629), all environmental deficiencies were rectified/improved by the Contractor.	

	Name	Signature	Date
Recorded by	Tommy Cheng		17 July 2018
Checked by	Dr. Priscilla Choy		17 July 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180718
Date	18 July 2018
Time	10:00-12:00

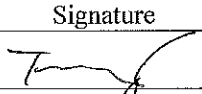
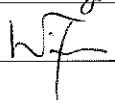
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
180713-O01	• Dusty stockpile should be covered by impervious material properly.	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.: 180713), the item no. 180713-R01 was remarked as item no. 180718-O01 for further improvement/rectification.	

	Name	Signature	Date
Recorded by	Tommy Cheng		19 July 2018
Checked by	Dr. Priscilla Choy		19 July 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180727
Date	27 July 2018
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	
180727-O01	• The NRMM label should be displayed at the conspicuous position of PME.	C19
	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.: 180718), the environmental deficiency was improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Tommy Cheng		27 July 2018
Checked by	Dr. Priscilla Choy		27 July 2018

APPENDIX J
EVENT ACTION PLANS

Appendix J - Event Action Plans

Event/Action Plan for Air Quality

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

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

Appendix J - Event Action Plans

Event/Action Plan for Construction Noise

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

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

Appendix J - Event Action Plans

Event/Action Plan for Landscape and Visual

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

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

APPENDIX K
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)

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

Types of Impacts	Mitigation Measures	Status
Construction Dust	8 times daily watering of the work site with active dust emitting activities.	^
	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.	
	• Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.	*
	• Misting for the dusty material should be carried out before being loaded into the vehicle.	^
	• Any vehicle with an open load carrying area should have properly fitted side and tail boards.	^
	• Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.	^
	• The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation.	^
	• The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways insider the site. On-site unpaved roads should be compacted and kept free of lose materials.	^
	• Vehicle washing facilities should be provided at every vehicle exit point.	^
	• The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	^
	• Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	^
	• Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides.	^
	• Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	^

Construction Noise	Use of quiet PME, movable barriers barrier for Asphalt Paver, Breaker, Excavator and Hand-held breaker and full enclosure for Air Compressor, Bar Bender, Concrete Pump, Generator and Water Pump	^
	Good Site Practice: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. • Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. • Mobile plant, if any, should be sited as far away from NSRs as possible. • Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. • Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	^ N/A(1) ^ ^ ^ ^
	Scheduling of Construction Works during School Examination Period	^
	(i) Provision of low noise surfacing in a section of Road L2; and	N/A
	(ii) Provision of structural fins	N/A
	(i) Avoid the sensitive façade of class room facing Road L2 and L4; and	N/A
	(ii) Provision of low noise surfacing in a section of Road L2 & L4	N/A
	(i) Provision of low noise surfacing in a section of Road L4 before occupation of Site 1I1; and	N/A
	(ii) Setback of building about 5m from site boundary.	N/A
	Setback of building about 35m to the northwest direction at 1L3 and 5m at Site 1L2.	N/A
	(i) avoid any sensitive façades with openable window facing the existing Kowloon City Road network; and	N/A
	(ii) for the sensitive facades facing the To Kwa Wan direction, either setback the facades by about 5m to the northeast direction or do not provide the facades with openable window.	N/A

	(i) avoid any sensitive facades with openable window facing the existing To Kwa Wan Road or (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. (i) avoid any sensitive facades with openable window facing the slip road connecting Prince Edward Road East and San Po Kong or other alternative mitigation measures and at-source mitigation measures for the surrounding new local roads to minimise the potential traffic noise impacts from the slip road	N/A N/A N/A
	All the ventilation fans installed in the below will be provided with silencers or acoustics treatment. (i) SPS (ii) ESS (iii) Tunnel Ventilation Shaft (iv) EFTS depot Installation of retractable roof or other equivalent measures	N/A N/A N/A N/A N/A
Construction Water Quality	The following mitigation measures are proposed to be incorporated in the design of the SPS at KTD, including: • Dual power supply or emergency generator should be provided at all the SPSs to secure electrical power supply; • Standby pumps should be provided at all SPSs to ensure smooth operation of the SPS during maintenance of the duty pumps; • An alarm should be installed to signal emergency high water level in the wet well at all SPSs; and • For all unmanned SPSs, a remote monitor system connecting SPSs with the control station through telemetry system should be provided so that swift actions could be taken in case of malfunction of unmanned facilities. <u>Land-based Construction</u> *Construction Runoff* Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: • use of sediment traps • adequate maintenance of drainage systems to prevent flooding and overflow	N/A N/A N/A N/A ^ ^ ^

	Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	^
	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	^
	Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	^
	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	^
	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.	^
	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events.	^
	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	^

	All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	^
	Drainage It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea.	^
	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	*
	All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour WCZ.	^
	Sewage Effluent Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	^
	Stormwater Discharges Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes	N/A

	Debris and Litter	*
	In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised and that disposal of any solid materials. litter or wastes to marine waters does not occur	
	Construction Works at or in Close Proximity of Storm Culvert or Seafront	^
	The proposed works should preferably be carried out within the dry season where the flow in the drainage channel /storm culvert/ nullah is low.	
	The use of less or smaller construction plants may be specified to reduce the disturbance to the bottom sediment at the drainage channel /storm culvert / nullah.	^
	Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works.	^
	Stockpiling of construction materials and dusty materials should be covered and located away from any water courses.	^
	Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers.	^
	Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.	^
	Mitigation measures to control site runoff from entering the nearby water environment should be implemented to minimize water quality impacts. Surface channels should be provided along the edge of the waterfront within the work sites to intercept the runoff.	^
	Construction effluent, site run-off and sewage should be properly collected and/or treated.	^
	Any works site inside the storm water courses should be temporarily isolated, such as by placing of sandbags or silt curtains with lead edge at bottom and properly supported props to prevent adverse impact on the storm water quality.	^
	Silt curtain may be installed around the construction activities at the seafront to minimize the potential impacts due to accidental spillage of construction materials.	^
	Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert/drainage channel/sea.	^

Supervisory staff should be assigned to station on site to closely supervise and monitor the works ^

Marine water quality monitoring and audit programme shall be implemented for the proposed sediment treatment operation. ^

Good Site Practices

It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. Recommendations for good site practices during construction activities include:

- Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site ^
- Training of site personnel in proper waste management and chemical waste handling procedures ^
- Provision of sufficient waste disposal points and regular collection for disposal ^
- Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers ^
- A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites) ^

Waste Reduction Measures

Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:

- Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals ^
- Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal ^
- Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force ^
- Any unused chemicals or those with remaining functional capacity should be recycled ^
- Proper storage and site practices to minimise the potential for damage or contamination of construction materials ^

Construction and Demolition Material

Mitigation measures and good site practices should be incorporated into contract document to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include:

- Where it is unavoidable to have transient stockpiles of C&D material within the Project work site pending collection for disposal, the transient stockpiles should be located away from waterfront or storm drains as far as possible ^
- Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric ^
- Skip hoist for material transport should be totally enclosed by impervious sheeting ^
- Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site ^
- The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores ^
- The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle ^
- All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet ^
- The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading ^

When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 "Trip Ticket System for Disposal of Construction and Demolition Materials" should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system. ^

Chemical Waste

After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation* *

	General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem	*
Landscape and Visual	CM1 All existing trees should be carefully protected during construction. CM2 Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work. CM3 Control of night-time lighting. CM4 Erection of decorative screen hoarding.	^ N/A ^ ^

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: July 2018

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

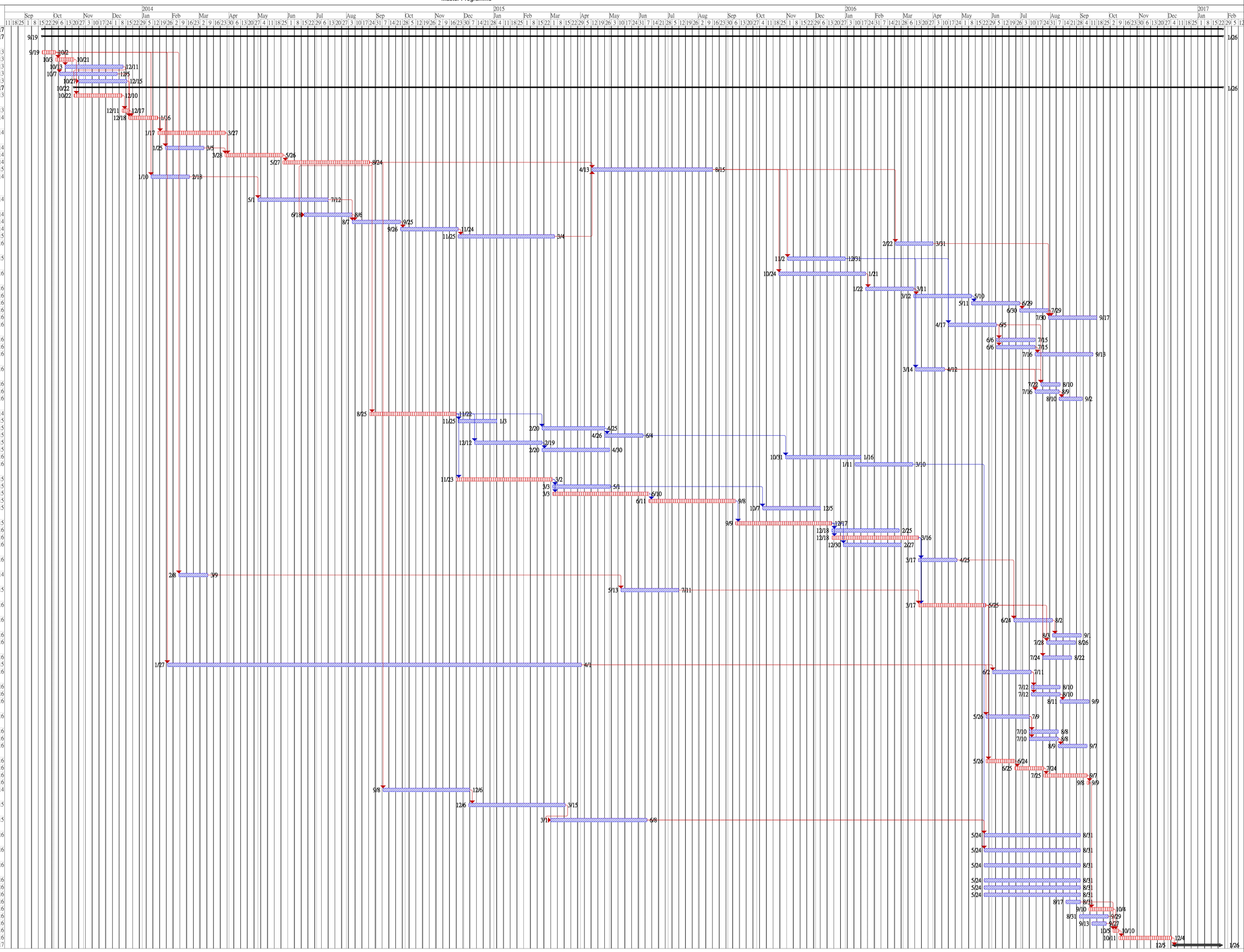
Monthly Summary Waste Flow Table for July 2018 (year) (in tons)

Month	Total Disposal Loads	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
			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
	(No.s)	(in tons)	0	(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
2016 (Jan – Dec) Sub-Total	3369	50762.64	0	0	0	49894.67	4020	0	0	0	0	867.95
2017 (Jan – Dec) Sub-Total	2737	39615.16	0	0	0	38996.26	0	0	0	0	0	603.11
Jan-18	48	575.23	0	0	0	497.91	0	0	0	0	0	77.32
Feb-18	10	81.78	0	0	0	30.34	0	0	0	0	0	51.44
Mar-18	59	869.93	0	0	0	817.87	0	0	0	0	0	52.06
Apr-18	14	136.71	0	0	0	91.67	0	0	0	0	0	45.04
May-18	327	5176.05	0	0	0	5125.76	0	0	0	0	0	50.29
Jun-18	14	141.28	0	0	0	104.01	0	0	0	0	0	37.27
Jul-18	22	188.88	0	0	0	121.23	0	0	0	0	0	67.65
Aug-18												
Sep-18												
Oct-18												
Nov-18												
Dec-18												
Total	7016	196797.02	0	0	55090.84	139220.6	25744.27	0	0	0	0	2669.19

APPENDIX N
CONSTRUCTION PROGRAMME

Master 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	19 days	Thu Oct 3, '13	Mon Oct 21, '13
5	Initial joint survey	60 days	Sun Oct 13, '13	Wed Dec 11, '13
6	Obtain underground utilities plan	60 days	Mon Oct 7, '13	Thu Dec 5, '13
7	Erect hoarding, chain link fence and vehicular gate	50 days	Sun Oct 27, '13	Sun Dec 15, '13
8	**Works for Road L6**	**1193 days**	**Tue Oct 22, '13**	**Thu Jan 26, '17**
9	Submission / approval of construction materials, method statements and temporary work design for box culverts B5	50 days	Tue Oct 22, '13	Tue Dec 10, '13
10	Plant mobilization	7 days	Wed Dec 11, '13	Tue Dec 17, '13
11	Excavation to the formation level for B5 at CH48 - CH72	30 days	Wed Dec 18, '13	Thu Jan 16, '14
12	Excavation to the formation level for B5 at CH72 - CH221	70 days	Fri Jan 17, '14	Thu Mar 27, '14
13	Construct base slab of B5 at CH48 - CH72	40 days	Sat Jan 25, '14	Wed Mar 5, '14
14	Construct base slab of B5 at CH72 - CH221	60 days	Fri Mar 28, '14	Mon May 26, '14
15	Construct the wall and roof of B5 at CH48 - CH221	90 days	Tue May 27, '14	Sun Aug 24, '14
16	Backfilling to B5 at CH48 - CH221	125 days	Mon Apr 13, '15	Sat Aug 15, '15
17	Submission / approval of construction materials and delivery of materials and method statements and temporary works for stormdrain and sewerage drain	40 days	Fri Jan 10, '14	Tue Feb 18, '14
18	Install 2x750mm dia sewerage drain from FMH10_345 to FMH10_350 under box culvert B5	73 days	Thu May 1, '14	Sat Jul 12, '14
19	Excavation to the formation level for B5 at CH0 - CH48	50 days	Wed Jun 18, '14	Wed Aug 6, '14
20	Construct the base slab of B5 at CH0 - CH48	50 days	Thu Aug 7, '14	Thu Sep 25, '14
21	Construct the wall and roof of B5 at CH0 - CH48	60 days	Fri Sep 26, '14	Mon Nov 24, '14
22	Backfilling to B5 at CH0 - CH48	100 days	Tue Nov 25, '14	Wed Mar 4, '15
23	Reconstruct manhole opening at B5 from CH0 - CH48 before wet season (Variation Order to be issued)	39 days	Mon Feb 22, '16	Thu Mar 31, '16
24	Laying sewerage drain from FMH 1K3_1 to 345 and 1K1_1 to FMH10_340	60 days	Mon Nov 2, '15	Thu Dec 31, '15
25	Install 250mm, 300mm dia.FWM CHD200-CHD394 and 200mm SWM CHC200-CHC394	90 days	Sat Oct 24, '15	Thu Jan 21, '16
26	Install irrigation system above B5	50 days	Fri Jan 22, '16	Fri Mar 11, '16
27	Laying storm drain and manhole above B5	60 days	Sat Mar 12, '16	Tue May 10, '16
28	Construct road gully and gully pipe above B5	50 days	Wed May 11, '16	Wed Jun 29, '16
29	Construct road kerb	30 days	Thu Jun 30, '16	Fri Jul 29, '16
30	Construct flexible carriageway	50 days	Sat Jul 30, '16	Sat Sep 17, '16
31	Installation of utility by the utility undertakers along proposed footpath CHB150-400	50 days	Sun Apr 17, '16	Sun Jun 5, '16
32	Install street lighting	40 days	Mon Jun 6, '16	Fri Jul 15, '16
33	Construct u-channel and drainpit at footpath	40 days	Mon Jun 6, '16	Fri Jul 15, '16
34	Construct footpath, planting area and concrete run-in	60 days	Sat Jul 16, '16	Tue Sep 13, '16
35	Installation of utility by the utility undertakers along proposed footpath CHC150-350	30 days	Mon Mar 14, '16	Tue Apr 12, '16
36	Install street lighting	20 days	Fri Jul 22, '16	Wed Aug 10, '16
37	Construct u-channel and drainpit at footpath	25 days	Sat Jul 16, '16	Tue Aug 9, '16
38	Construct footpath, planting area and concrete run-in	24 days	Wed Aug 10, '16	Fri Sep 2, '16
39	Laying sewerage drain from FMH10_320 to 330	90 days	Mon Aug 25, '14	Sat Nov 22, '14
40	Construct manhole (FMH10_330)	40 days	Tue Nov 25, '14	Sat Jan 3, '15
41	Laying sewerage drain from FMH10_310 to 320	65 days	Fri Feb 20, '15	Sat Apr 25, '15
42	Construct manhole (FMH10_310 & 320)	40 days	Sun Apr 26, '15	Thu Jun 4, '15
43	Laying sewerage drain from FMH10_330 to 345	70 days	Fri Dec 12, '14	Thu Feb 19, '15
44	Construct manhole (FMH10_330 & 345)	70 days	Fri Feb 20, '15	Thu Apr 30, '15
45	Laying storm drains and manhole from SMH1502 to B5	78 days	Sat Oct 31, '15	Sat Jan 16, '16
46	Laying storm drains and manhole from existing storm drain to SMH21 to B5	60 days	Mon Jan 11, '16	Thu Mar 10, '16
47	Laying sewerage drain from FMH10_360 to 370	100 days	Sun Nov 23, '14	Mon Mar 2, '15
48	Construct manhole (FMH10_360 & 370)	60 days	Tue Mar 3, '15	Fri May 1, '15
49	Laying sewerage drain for FMH10_350 to 360	100 days	Tue Mar 3, '15	Wed Jun 10, '15
50	Construct manhole (FMH10_350)	90 days	Thu Jun 11, '15	Tue Sep 8, '15
51	Laying sewerage drain for FMH10_370 to PS2 & FMH90_80 to FMH10_370	60 days	Wed Oct 7, '15	Sat Dec 5, '15
52	Laying storm drain and manhole (SMH1906 to 1909)	100 days	Wed Sep 9, '15	Thu Dec 17, '15
53	Laying sewerage drain from FMH 2D1_1 to 350	70 days	Fri Dec 18, '15	Thu Feb 25, '16
54	Laying storm drain and manhole (SMH1904 to 1906)	90 days	Fri Dec 18, '15	Wed Mar 16, '16
55	Laying storm drain and manhole from existing storm drain to SMH23 to 1910	60 days	Wed Dec 30, '15	Sat Feb 27, '16
56	Laying storm drain and manhole (SMH1901 to 1904 & 1921 to 1902)	40 days	Thu Mar 17, '16	Mon Apr 25, '16
57	Submission / approval of construction materials and method statements for watermains	30 days	Sat Feb 8, '14	Sun Mar 9, '14
58	Delivery of FWM and SWM pipes and fittings and valves	60 days	Wed May 13, '15	Sat Jul 11, '15
59	Install 450mm dia.FWM CHD100-CHD200 and 200mm SWM CHC100-CHC200	70 days	Thu Mar 17, '16	Wed May 25, '16
60	Install 450mm dia.FWM CHD0-CHD100 and 200mm SWM CHC0-CHC100	40 days	Fri Jun 24, '16	Tue Aug 2, '16
61	Pressure test, swabbing, sterilization and connection	30 days	Wed Aug 3, '16	Thu Sep 1, '16
62	Construct valve, air-valve and wash-out chambers and fire hyrdants for watermain	30 days	Thu Jul 28, '16	Fri Aug 26, '16
63	Install irrigation system along road L6	30 days	Sun Jul 24, '16	Mon Aug 22, '16
64	Liaison meeting with UU	430 days	Mon Jan 27, '14	Wed Apr 1, '15
65	Installation of utility by the utility undertakers along proposed footpath CHB0-150	40 days	Thu Jun 2, '16	Mon Jul 11, '16
66	Install street lighting along L6 (RHS)	30 days	Tue Jul 12, '16	Wed Aug 10, '16
67	Construct u-channel and drainpit at footpath	30 days	Tue Jul 12, '16	Wed Aug 10, '16
68	Construct footpath, planting area and concrete run-in	30 days	Thu Aug 11, '16	Fri Sep 9, '16
69	Installation of utility by the utility undertakers along proposed footpath CHC0-150	45 days	Thu May 26, '16	Sat Jul 9, '16
70	Install street lighting (LHS)	30 days	Sun Jul 10, '16	Mon Aug 8, '16
71	Construct u-channel and drainpit at footpath	30 days	Sun Jul 10, '16	Mon Aug 8, '16
72	Construct footpath, planting area and concrete run-in	30 days	Tue Aug 9, '16	Wed Sep 7, '16
73	Construct road gully and gully pipe at Road L6	30 days	Thu May 26, '16	Fri Jun 24, '16
74	Construct road kerb along Road L6	30 days	Sat Jun 25, '16	Sun Jul 24, '16
75	Construct flexible carriageway	45 days	Mon Jul 25, '16	Wed Sep 7, '16
76	Road marking	2 days	Thu Sep 8, '16	Fri Sep 9, '16
77	Laying stormwater drain at pedestrian street for SMH1701 to B5	90 days	Mon Sep 8, '14	Sat Dec 6, '14
78	Laying stormwater drain at pedestrian street for SMH1801 to B5	100 days	Sat Dec 6, '14	Sun Mar 15, '15
79	Laying stormwater drain at pedestrian street for SMH1601 to B5	100 days	Sun Mar 1, '15	Mon Jun 8, '15
80	Construct u-channel and drainpit at pedestrian street near and inside site 1L/2 & 3	100 days	Tue May 24, '16	Wed Aug 31, '16
81	Construct u-channel and drainpit at pedestrian street near and inside site 1K/2	100 days	Tue May 24, '16	Wed Aug 31, '16
82	Install irrigation system at pedestrian street near site 1L/2 & 3	100 days	Tue May 24, '16	Wed Aug 31, '16
83	Install irrigation system at pedestrian street near site 1K/2	100 days	Tue May 24, '16	Wed Aug 31, '16
84	Construct pedestrian street near site 1L/2 & 3	100 days	Tue May 24, '16	Wed Aug 31, '16
85	Construct pedestrian street near site 1K/2	100 days	Tue May 24, '16	Wed Aug 31, '16
86	Installation of lighting system by HyD	15 days	Wed Aug 17, '16	Wed Aug 31, '16
87	Road marking	25 days	Sat Sep 10, '16	Tue Oct 4, '16
88	Plants delivery for landscaping works	30 days	Wed Aug 31, '16	Thu Sep 29, '16
89	Preparatory works for landscaping works	15 days	Tue Sep 13, '16	Tue Sep 27, '16
90	Hydroseeding	6 days	Wed Oct 5, '16	Mon Oct 10, '16
91	Tree and shurb planting	55 days	Tue Oct 11, '16	Sun Dec 4, '16
92	Terminal float	53 days	Mon Dec 5, '16	Thu Jan 26, '17



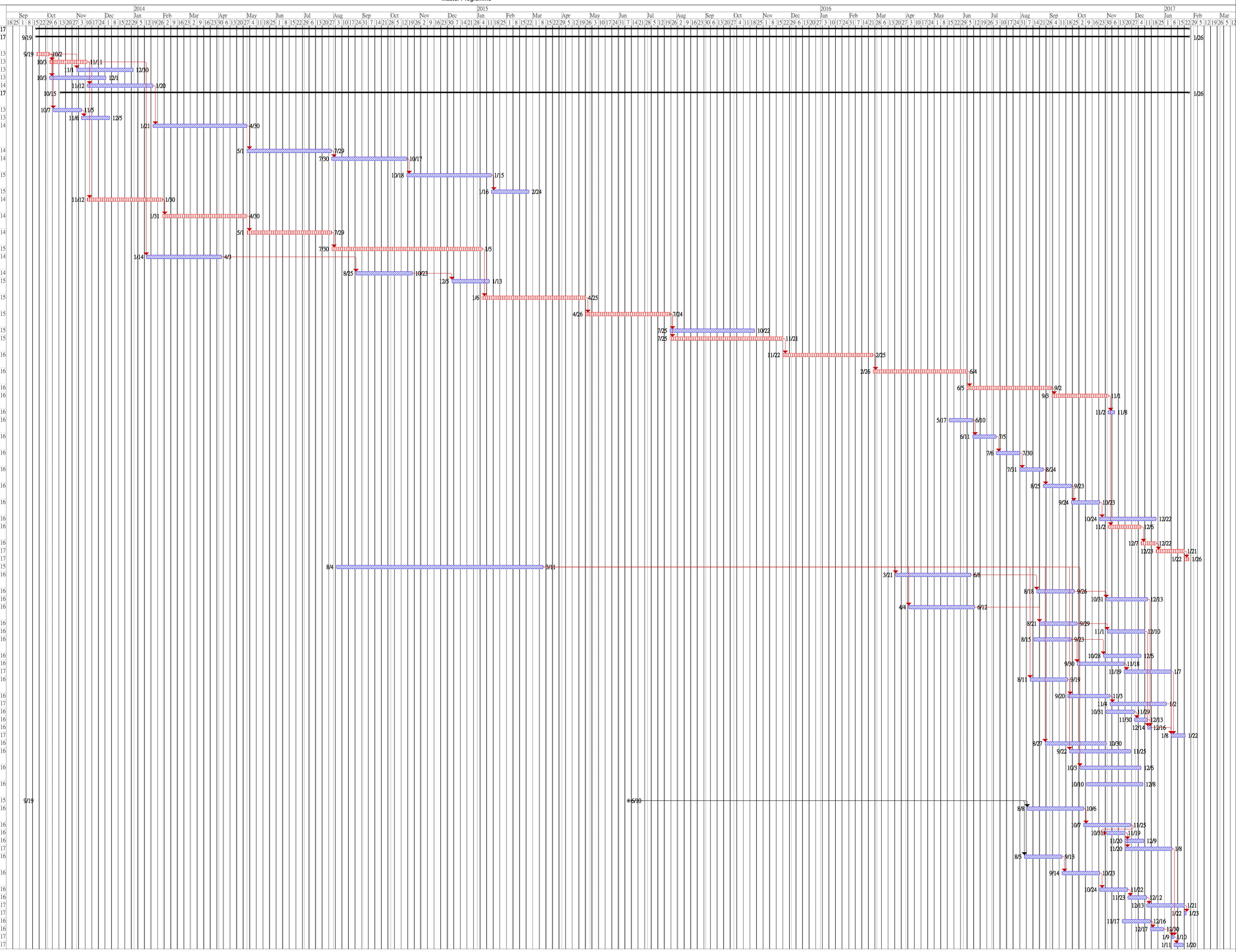
Critical tasks | Working days | Inactive Summary | Duration-only | Manual Summary | Finish-only | External Milestone
Non-critical Tasks | Inactive Milestone | Manual Task | Manual Summary Rollup | Start-only | External Tasks

Commencement Date: 19 September 2013
Completion Date: 2 September 2016
Revised Completion Date: 26 January 2017

updated on 22 July 2016

Master 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	Wed Nov 6, '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	Wed Jul 30, '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	160 days	Wed Jul 30, '14	Mon Jan 5, '15
20	Submission / approval of construction materials and method statements for rising mains	80 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 2, '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 (1P1 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 drainpit 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 drainpit 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 drainpit 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 drainpit 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 shurb 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 drainpit 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 shurb planting	10 days	Wed Jan 11, '17	Fri Jan 20, '17

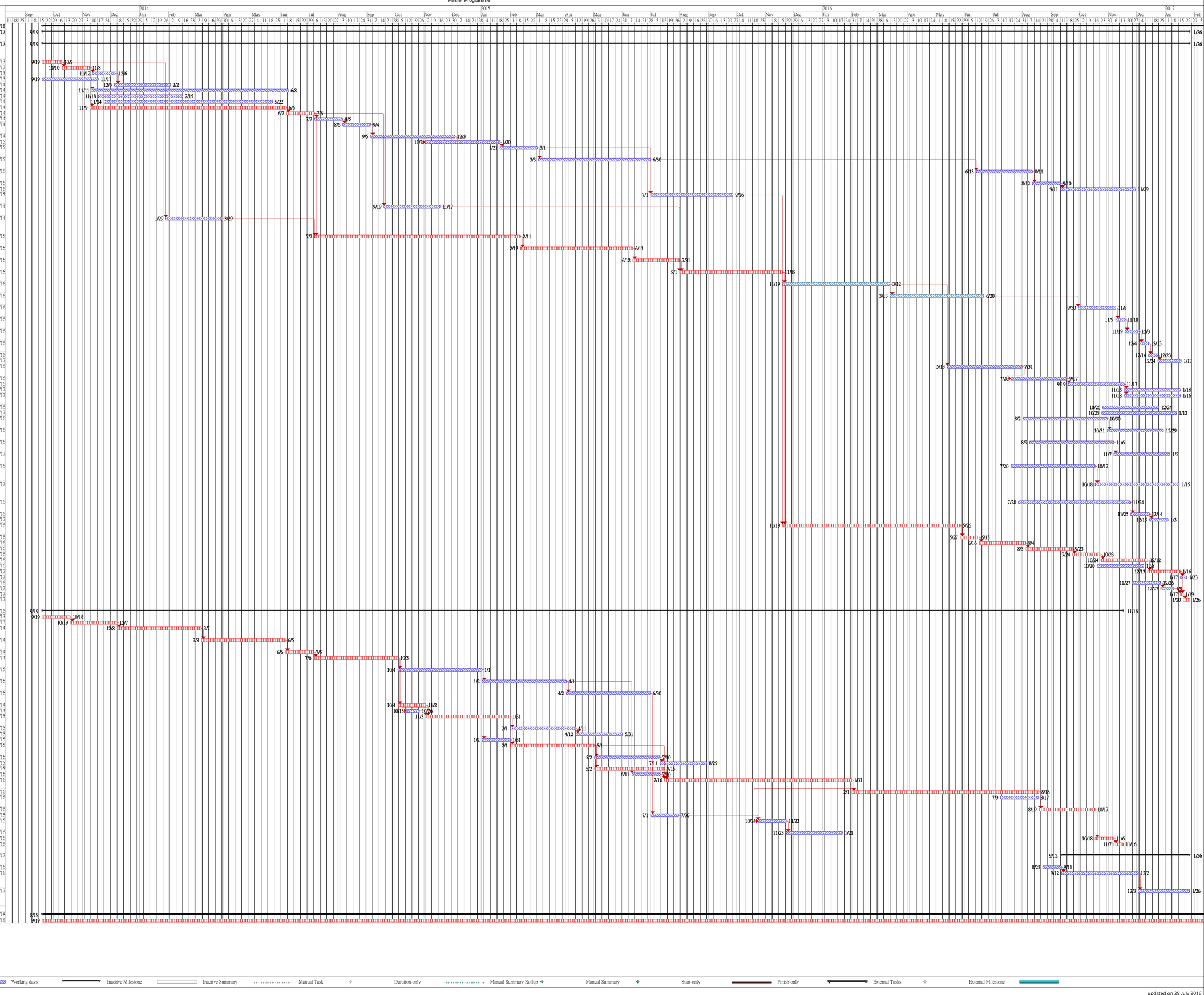


Critical tasks | Working days | Inactive Summary | Duration-only | Manual Summary | Finish-only | External Milestone
Non-critical tasks | Inactive Milestone | Manual Task | Manual Summary Rollup | Start-only | External Tasks

Commencement Date: 19 September 2013
Completion Date: 2 September 2016
Revised Completion Date: 26 January 2017

updated on 30 July 2016

ID	Task Name	Duration	Start	Finish
1	Commence KL/2012/03 construction	1591 days	Thu Sep 19, '13	Fri Jan 26, '18
2	Section 1: Works within Portion 1 and 3	1226 days	Thu Sep 19, '13	Thu Jan 26, '17
3	Widening of Existing Footpaths at Sung Wong Toi Road and To Kwa Wan Road	1226 days	Thu Sep 19, '13	Thu Jan 26, '17
4	Site possession and preparation works	21 days	Thu Sep 19, '13	Wed Oct 9, '13
5	Setting out site boundary and site clearance	30 days	Thu Oct 10, '13	Fri Nov 8, '13
6	Initial joint survey	25 days	Tue Nov 12, '13	Fri Dec 6, '13
7	Obtain underground utilities plans	60 days	Thu Sep 19, '13	Sun Nov 17, '13
8	Erect hoarding, chain link fence and vehicular gate	60 days	Thu Dec 5, '13	Sun Feb 2, '14
9	Apply XP for roadworks	210 days	Mon Nov 11, '13	Sun Jun 8, '14
10	Approval of TTA drawings	90 days	Mon Nov 18, '13	Sat Feb 15, '14
11	Liaison meeting with UU	180 days	Sun Nov 24, '13	Thu May 22, '14
12	Application of tree felling permit	210 days	Sat Nov 9, '13	Fri Jun 6, '14
13	Tree felling	30 days	Sat Jun 7, '14	Sun Jul 6, '14
14	Site clearance for widening of existing footpath	30 days	Mon Jul 7, '14	Tue Aug 5, '14
15	Awaiting for design of mass concrete wall (Additional works)	30 days	Wed Aug 6, '14	Thu Sep 4, '14
16	Demolish existing security fence (Additional works)	90 days	Fri Sep 5, '14	Wed Dec 3, '14
17	Construction of mass concrete wall (Additional works)	80 days	Sun Nov 2, '14	Tue Jan 20, '15
18	Backfilling and completion to formation level for widening of existing footpath	40 days	Wed Jun 21, '15	Sun Mar 1, '15
19	Installation of utility by the utility undertakers along proposed footpath CHD0-100	120 days	Tue Mar 3, '15	Tue Jun 30, '15
20	Install 400mm dia.FWM CHB200-CHB300 & 450mm dia. SWM CHA200-CHA300	60 days	Mon Jun 13, '16	Thu Aug 11, '16
21	Install street lighting CHD0-100	30 days	Fri Aug 12, '16	Sat Sep 10, '16
22	Construct new footpath	80 days	Sun Sep 11, '16	Tue Nov 29, '16
23	Installation of utility by the utility undertakers along proposed footpath CHD100-250	88 days	Wed Jul 1, '15	Sat Sep 26, '15
24	Backfilling and compaction to formation level for construction of new footpath	60 days	Fri Sep 19, '14	Mon Nov 17, '14
25	Submission / approval of construction materials and method statements for watermains	60 days	Wed Jan 29, '14	Sat Mar 29, '14
26	Change of alignment and size of watermains by AECOM (Variation Order issued on 9 Feb 2015)	220 days	Mon Jul 7, '14	Wed Feb 11, '15
27	Procument and delivery of materials for watermains (Variation Order)	120 days	Thu Feb 12, '15	Thu Jun 11, '15
28	TTA approval along Sung Wong Toi Road	50 days	Fri Jun 12, '15	Fri Jul 31, '15
29	Install 300mm dia.FWM CHB50-CHB100 & 450mm dia. SWM CHA50-CHA100	110 days	Sat Aug 1, '15	Wed Nov 18, '15
30	Install 300mm dia.FWM CHB100-CHB150 & 450mm dia. SWM CHA100-CHB150	115 days	Thu Nov 19, '15	Sat Mar 12, '16
31	Install 300mm dia.FWM CHB150-CHB200 & 450mm dia. SWM CHA150-CHB200	100 days	Sun Mar 13, '16	Mon Jun 20, '16
32	Install 300mm dia. FWM CHB450-CHB565 & 450mm dia. SWM CHA450-CHA565 (excluding CH480 to 500)	40 days	Fri Sep 30, '16	Tue Nov 8, '16
33	Re-diversion of Gate 7 to the newly constructed carriageway under Section 3	10 days	Wed Nov 9, '16	Fri Nov 18, '16
34	Install 300mm dia. FWM CHB480-CHB500 & 450mm dia. SWM CHA480-CHA500	15 days	Sat Nov 19, '16	Sat Dec 3, '16
35	Installation of utility by the utility undertakers along proposed footpath CHD270-300	10 days	Sun Dec 4, '16	Tue Dec 13, '16
36	Install street lighting CHD270-300	10 days	Wed Dec 14, '16	Fri Dec 23, '16
37	Construct new footpath	25 days	Sat Dec 24, '16	Tue Jan 17, '17
38	Install 300mm dia. FWM CHB0-CHB50 & 450mm dia. SWM CHA0-CHA50	80 days	Fri May 13, '16	Sun Jul 31, '16
39	Install 800mm dia. Salt water main CHD0-CHD25	60 days	Wed Jul 20, '16	Sat Sep 17, '16
40	Install 800mm dia. Salt water main CHD25-CHD52	60 days	Mon Sep 19, '16	Thu Nov 17, '16
41	Pressure test, swabbing, sterilization and connection	60 days	Fri Nov 18, '16	Mon Jan 16, '17
42	Construct valve, fire hydrant, air-valve and wash-out chambers for watermain	60 days	Fri Nov 18, '16	Mon Jan 16, '17
43	Install irrigation system	60 days	Wed Oct 26, '16	Sat Dec 24, '16
44	Construct u-channel and drainpit	80 days	Tue Oct 25, '16	Thu Jan 12, '17
45	Application of traffic signal at the Junction of Sung Wong Toi Road / To Kwa Wan Road by AECOM	90 days	Tue Aug 2, '16	Sun Oct 30, '16
46	Install traffic signal at the Junction of Sung Wong Toi Road / To Kwa Wan Road	60 days	Mon Oct 31, '16	Thu Dec 29, '16
47	Application of traffic signal at the Junction along Sung Wong Toi Road by AECOM	90 days	Tue Aug 9, '16	Sun Nov 6, '16
48	Install traffic signal at the Junction along Sung Wong Toi Road	60 days	Mon Nov 7, '16	Thu Jan 5, '17
49	Application for relocation of traffic signal and red light cameras at To Kwa Wan Road and Mok Cheong Street junction by AECOM	90 days	Wed Jul 20, '16	Mon Oct 17, '16
50	Relocate traffic signal and red light cameras at To Kwa Wan Road and Mok Cheong Street junction (additional works to be covered by VO)	90 days	Tue Oct 18, '16	Sun Jan 15, '17
51	Install ducting and draw pit for street lighting at N/B of Sung Wong Toi Road	120 days	Thu Jul 28, '16	Thu Nov 24, '16
52	Install street lighting by HyD	20 days	Fri Nov 25, '16	Wed Dec 14, '16
53	Demolition of existing street lighting by HyD	20 days	Thu Dec 15, '16	Tue Jan 3, '17
54	Install 400mm dia.FWM CHB300-CHB450 & 450mm dia. SWM CHA300-CHA450	190 days	Thu Nov 19, '15	Thu May 26, '16
55	Install street lighting CHD100-250	20 days	Fri May 27, '16	Wed Jun 15, '16
56	Construct new footpath	50 days	Thu Jun 16, '16	Thu Aug 4, '16
57	Construct road gully and gully pipe	50 days	Fri Aug 5, '16	Fri Sep 23, '16
58	Construct road kerb	30 days	Sat Sep 24, '16	Sun Oct 23, '16
59	Construct carriageway at the existing footpath	50 days	Mon Oct 24, '16	Mon Dec 12, '16
60	Erect traffic sign	50 days	Thu Oct 20, '16	Thu Dec 8, '16
61	Re-surface existing carriageway	35 days	Tue Dec 13, '16	Mon Jan 16, '17
62	Road marking	7 days	Tue Jan 17, '17	Mon Jan 23, '17
63	Plants delivery for landscaping works	30 days	Sun Nov 27, '16	Mon Dec 26, '16
64	Preparatory works for landscaping works	14 days	Tue Dec 27, '16	Mon Jan 9, '17
65	Hydroseeding	3 days	Tue Jan 17, '17	Thu Jan 19, '17
66	Tree and shurb planting	7 days	Fri Jan 20, '17	Thu Jan 26, '17
67				
68	Construction of Box Culverts B6	1155 days	Thu Sep 19, '13	Wed Nov 16, '16
69	Site possession and preparation works	30 days	Thu Sep 19, '13	Fri Oct 18, '13
70	Initial survey and site clearance	50 days	Sat Oct 19, '13	Sat Dec 7, '13
71	Submission for change of construction method by precast box unit for box culverts B6	90 days	Sun Dec 8, '13	Fri Mar 7, '14
72	Approval for change of construction method by precast box unit for box culverts B6	90 days	Sat Mar 8, '14	Thu Jun 5, '14
73	Plant trial for precast units for box culvert B6	30 days	Fri Jun 6, '14	Sat Jul 5, '14
74	Production of precast units for box culvert B6 (batch 1 - approx. 15 nos.)	90 days	Sun Jul 6, '14	Fri Oct 3, '14
75	Production of precast units for box culvert B6 (batch 2 - approx. 15 nos.)	90 days	Sat Oct 4, '14	Thu Jan 1, '15
76	Production of precast units for box culvert B6 (batch 3 - approx. 15 nos)	90 days	Fri Jan 2, '15	Wed Apr 1, '15
77	Production of precast units for box culvert B6 (batch 4 - approx. 15 nos)	90 days	Thu Apr 2, '15	Tue Jun 30, '15
78	Delivery of precast unit batch no. 1	30 days	Sat Oct 4, '14	Sun Nov 2, '14
79	Plant mobilization	14 days	Mon Oct 13, '14	Sun Oct 26, '14
80	Construct temporary works and excavation to the formation level for box culverts B6 CH50-100	90 days	Mon Nov 3, '14	Sat Jan 31, '15
81	Placing precast unit for box culvert for CH50-100	70 days	Sun Feb 1, '15	Sat Apr 11, '15
82	Soil backfilling works	50 days	Sun Apr 12, '15	Sun May 31, '15
83	Delivery of precast unit batch no. 2	30 days	Fri Jan 2, '15	Sat Jan 31, '15
84	Construct temporary works and excavation to the formation level for box culverts B6 CH100-150	90 days	Sun Feb 1, '15	Fri May 1, '15
85	Placing precast unit for box culvert for CH100-150	70 days	Sat May 2, '15	Fri Jul 10, '15
86	Soil backfilling works	50 days	Sat Jul 11, '15	Sat Aug 29, '15
87	Diversion of existing sewerage drain	75 days	Sat May 2, '15	Wed Jul 15, '15
88	Delivery of precast unit batch no. 3	30 days	Thu Jun 11, '15	Fri Jul 10, '15
89	Construct temporary works and excavation to the formation level for box culverts B6 CH150-200	200 days	Thu Jul 16, '15	Sun Jan 31, '16
90	Placing precast unit for box culvert for CH150-200	200 days	Mon Feb 1, '16	Thu Aug 18, '16
91	Notification of Marine Department for construction of outfall	40 days	Sat Jul 9, '16	Wed Aug 17, '16
92	Construction of outfall	60 days	Fri Aug 19, '16	Mon Oct 17, '16
93	Delivery of precast unit batch no. 4	30 days	Wed Jul 1, '15	Thu Jul 30, '15
94	Construct temporary works and excavation to the formation level for box culverts B6 CH0-50	30 days	Sat Oct 24, '15	Sun Nov 22, '15
95	Placing precast unit for box culvert for CH0-50	60 days	Mon Nov 23, '15	Thu Jan 21, '16
96	Modification of seawall	20 days	Tue Oct 18, '16	Sun Nov 6, '16
97	Soil backfilling works	10 days	Mon Nov 7, '16	Wed Nov 16, '16
98				
99	Demolition of Kowloon East DWFI pumping station	137 days	Mon Sep 12, '16	Thu Jan 26, '17
100	Submission / approval of method statements	20 days	Tue Aug 23, '16	Sun Sep 11, '16
101	Demolish super-structure of Kowloon East DWFI pumping station (To be carried out after completion of NPS)	82 days	Mon Sep 12, '16	Fri Dec 2, '16
102	Demolish sub-structure of Kowloon East DWFI pumping station (To be carried out after completion of NPS)	55 days	Sat Dec 3, '16	Thu Jan 26, '17
103				
104	Section 1A	1587 days	Thu Sep 19, '13	Mon Jan 22, '18
105	Establishment works for Section 1	1587 days	Thu Sep 19, '13	Mon Jan 22, '18



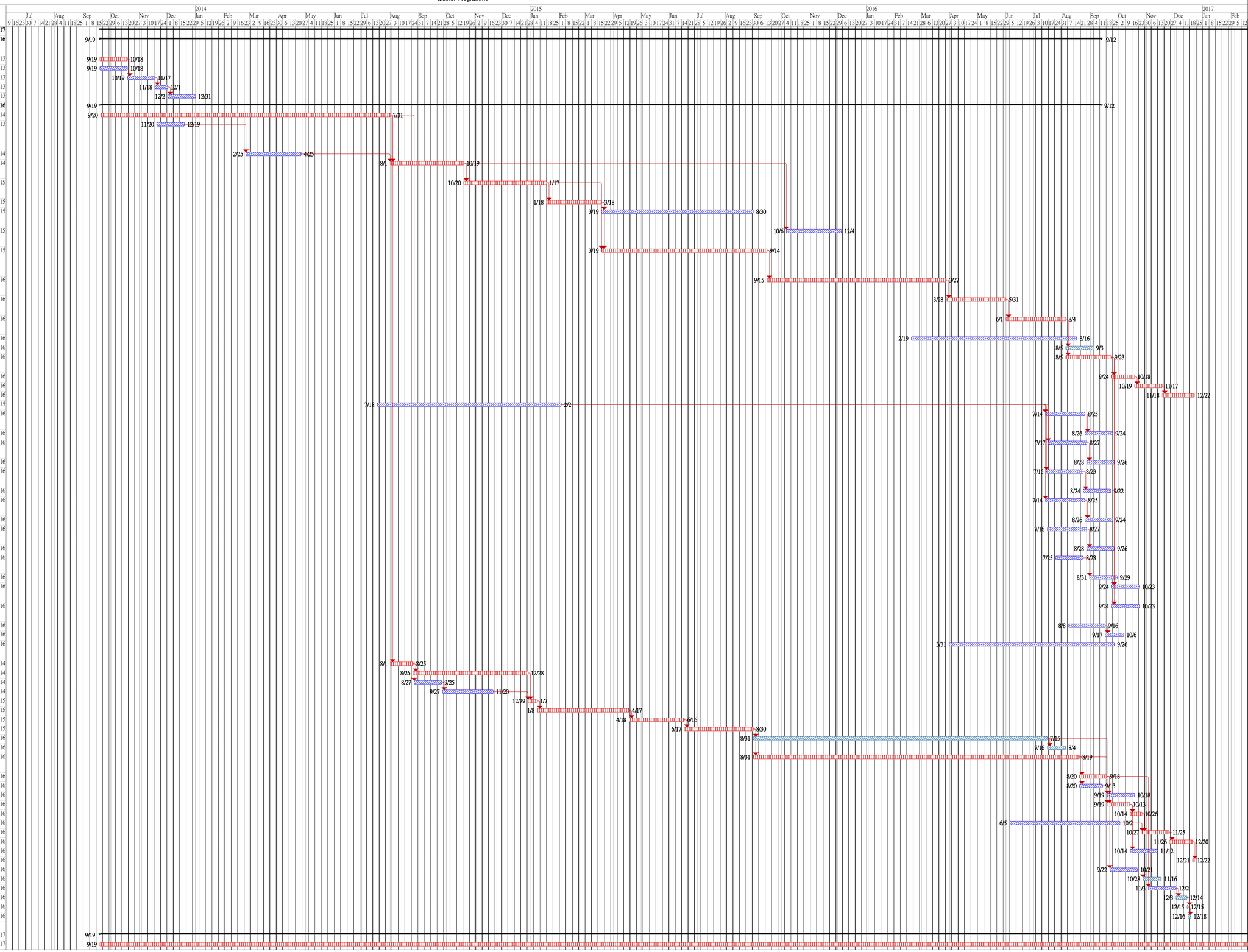
Critical tasks | Non-critical tasks | Working days | Inactive Milestone | Inactive Summary | Manual Task | Duration-only | Manual Summary Rollup | Manual Summary | Start-only | Finish-only | External Tasks | External Milestone

Commencement Date: 19 September 2013
Completion Date: 2 September 2016
Revised Completion Date: 26 January 2017

updated on 29 July 2016

Master Programme

ID	Task Name	Duration	Start	Finish
1	**Commence KL/2012/03 construction**	**1454 days**	**Thu Sep 19, '13**	**Mon Sep 11, '17**
2	**Section 2: Works within Portion 1 and 4**	**1090 days**	**Thu Sep 19, '13**	**Mon Sep 12, '16**
3	Setting out site boundary	30 days	Thu Sep 19, '13	Fri Oct 18, '13
4	Obtain underground utilities plans	30 days	Thu Sep 19, '13	Fri Oct 18, '13
5	Site clearance	30 days	Sat Oct 19, '13	Sun Nov 17, '13
6	Initial survey	14 days	Mon Nov 18, '13	Sun Dec 1, '13
7	Erect hoarding, chain link fence and vehicular gate	30 days	Mon Dec 2, '13	Tue Dec 31, '13
8	**Construction of Road L19**	**1090 days**	**Thu Sep 19, '13**	**Mon Sep 12, '16**
9	Application of XP and TTA for approval	315 days	Fri Sep 20, '13	Thu Jul 31, '14
10	Submission / approval of construction materials, temporary works design and method statements for rising mains, stormwater drain and watermains	30 days	Wed Nov 20, '13	Thu Dec 19, '13
11	Delivery of materials	60 days	Tue Feb 25, '14	Fri Apr 25, '14
12	Install storm drain from SMH1 to SMH6 and construct manholes	80 days	Fri Aug 1, '14	Sun Oct 19, '14
13	Install sewerage drain from DC2 to FMH7 and construct manholes	90 days	Mon Oct 20, '14	Sat Jan 17, '15
14	Approval of TTA drawing at Bailey Street	60 days	Sun Jan 18, '15	Wed Mar 18, '15
15	Install storm drain from SMH8 to SMH12 and 16 and manholes	165 days	Thu Mar 19, '15	Sun Aug 30, '15
16	Install storm drain from SMH7 to existing manhole and construct manholes	60 days	Tue Oct 6, '15	Fri Dec 4, '15
17	Inspection pit at Bailey Street for determining the alignment of sewer drain and construct protection concrete layer above existing manholes	180 days	Thu Mar 19, '15	Mon Sep 14, '15
18	Install sewerage drain from FMH10 to existing manhole and construct manholes (VO)	195 days	Tue Sep 15, '15	Sun Mar 27, '16
19	Notification of traffic advice and implementation of TTA at Bailey Street (VO)	65 days	Mon Mar 28, '16	Tue May 31, '16
20	Construction of manhole FMH9 and 4 nos. DN600 DI pipes (VO)	65 days	Wed Jun 1, '16	Thu Aug 4, '16
21	Application of traffic signal at Beiley Street (VO)	180 days	Fri Feb 19, '16	Tue Aug 16, '16
22	Construct road kerb at CHE50-150	30 days	Fri Aug 5, '16	Sat Sep 3, '16
23	Installation of additional street lighting and traffic signals system at Bailey Street (VO)	50 days	Fri Aug 5, '16	Fri Sep 23, '16
24	Install 200mm dia. Fresh water main CHE50-CHE100	25 days	Sat Sep 24, '16	Tue Oct 18, '16
25	Construct road kerb at CHE50-150	30 days	Wed Oct 19, '16	Thu Nov 17, '16
26	Construction of road pavement CHE50-150	35 days	Fri Nov 18, '16	Thu Dec 22, '16
27	UU liaison meeting	200 days	Fri Jul 18, '14	Mon Feb 2, '15
28	Installation of utility by the utility undertakers along proposed footpath CHF50-150	43 days	Thu Jul 14, '16	Thu Aug 25, '16
29	Construct footpath	30 days	Fri Aug 26, '16	Sat Sep 24, '16
30	Installation of utility by the utility undertakers along proposed footpath CHE50-150	42 days	Sun Jul 17, '16	Sat Aug 27, '16
31	Construct footpath	30 days	Sun Aug 28, '16	Mon Sep 26, '16
32	Installation of utility by the utility undertakers along proposed footpath CHE150-250	40 days	Fri Jul 15, '16	Tue Aug 23, '16
33	Construct footpath	30 days	Wed Aug 24, '16	Thu Sep 22, '16
34	Installation of utility by the utility undertakers along proposed footpath CHF150-250	43 days	Thu Jul 14, '16	Thu Aug 25, '16
35	Construct footpath	30 days	Fri Aug 26, '16	Sat Sep 24, '16
36	Installation of utility by the utility undertakers along proposed footpath CHF250-340	43 days	Sat Jul 16, '16	Sat Aug 27, '16
37	Construct footpath	30 days	Sun Aug 28, '16	Mon Sep 26, '16
38	Installation of utility by the utility undertakers along proposed footpath CHE250-340	30 days	Mon Jul 25, '16	Tue Aug 23, '16
39	Construct footpath	30 days	Wed Aug 31, '16	Thu Sep 29, '16
40	Installation of utility by the utility undertakers along proposed footpath CHE0-50	30 days	Sat Sep 24, '16	Sun Oct 23, '16
41	Installation of utility by the utility undertakers along proposed footpath CHF0-50	30 days	Sat Sep 24, '16	Sun Oct 23, '16
42	Existing utilities diversion works by the UU	40 days	Mon Aug 8, '16	Fri Sep 16, '16
43	Construct footpath	20 days	Sat Sep 17, '16	Thu Oct 6, '16
44	Application and installation of traffic signal at Beiley Street (VO)	180 days	Thu Mar 31, '16	Mon Sep 26, '16
45	Submission of ICE design for jacking pit 10 and 11	25 days	Fri Aug 1, '14	Mon Aug 25, '14
46	Construct jacking pit at pit no. 11	125 days	Tue Aug 26, '14	Sun Dec 28, '14
47	Submission of ICE design for common pit no. 10 (VO)	30 days	Wed Aug 27, '14	Thu Sep 25, '14
48	Construct common pit at pit no. 10 (VO)	55 days	Sat Sep 27, '14	Thu Nov 20, '14
49	Mobilization of equipment and set up	10 days	Mon Dec 29, '14	Wed Jan 7, '15
50	Drilling for rising mains from pit 11 to 10	100 days	Thu Jan 8, '15	Fri Apr 17, '15
51	Delivery of rising mains for pit 11 to 10	60 days	Sat Apr 18, '15	Tue Jun 16, '15
52	Install rising mains from pit 11 and 10	75 days	Wed Jun 17, '15	Sun Aug 30, '15
53	Construct WO chamber at pit no. 11	320 days	Mon Aug 31, '15	Fri Jul 15, '16
54	Install storm drain from SMH13 to SMH15 and manholes	20 days	Sat Jul 16, '16	Thu Aug 4, '16
55	Install 2x630mm dia. HDPE rising mains from WOC to DC2 (VO)	355 days	Mon Aug 31, '15	Fri Aug 19, '16
56	Install 200mm dia fresh water main CHE200-CHE400	30 days	Sat Aug 20, '16	Sun Sep 18, '16
57	Install NS125 & NS63 salt water main CHE0-CHE100	25 days	Sat Aug 20, '16	Tue Sep 13, '16
58	Pressure test, swabbing,sterilization and connection	30 days	Mon Sep 19, '16	Tue Oct 18, '16
59	Construct addition lay-by (VO)	25 days	Mon Sep 19, '16	Thu Oct 13, '16
60	Construct road kerb	13 days	Fri Oct 14, '16	Wed Oct 26, '16
61	Application of traffic signal at Chi Kiang Street (VO)	120 days	Sun Jun 5, '16	Sun Oct 2, '16
62	Installation of traffic signals at Chi Kiang Street (VO)	30 days	Thu Oct 27, '16	Fri Nov 25, '16
63	Construct flexible carriageway	25 days	Sat Nov 26, '16	Tue Dec 20, '16
64	Installation of street lighting by HyD	30 days	Fri Oct 14, '16	Sat Nov 12, '16
65	Road marking	2 days	Wed Dec 21, '16	Thu Dec 22, '16
66	Relocate existing directional sign	30 days	Thu Sep 22, '16	Fri Oct 21, '16
67	Construct footpath and planting area and irrigation system	20 days	Fri Oct 28, '16	Wed Nov 16, '16
68	Plants delivery for landscaping works	30 days	Thu Nov 3, '16	Fri Dec 2, '16
69	Preparatory works for landscaping works	12 days	Sat Dec 3, '16	Wed Dec 14, '16
70	Hydroseeding	1 day	Thu Dec 15, '16	Thu Dec 15, '16
71	Tree and shurb planting	3 days	Fri Dec 16, '16	Sun Dec 18, '16
72				
73	**Section 2A**	1454 days	Thu Sep 19, '13	Mon Sep 11, '17
74	**Establishment works for Section 2**	1454 days	Thu Sep 19, '13	Mon Sep 11, '17

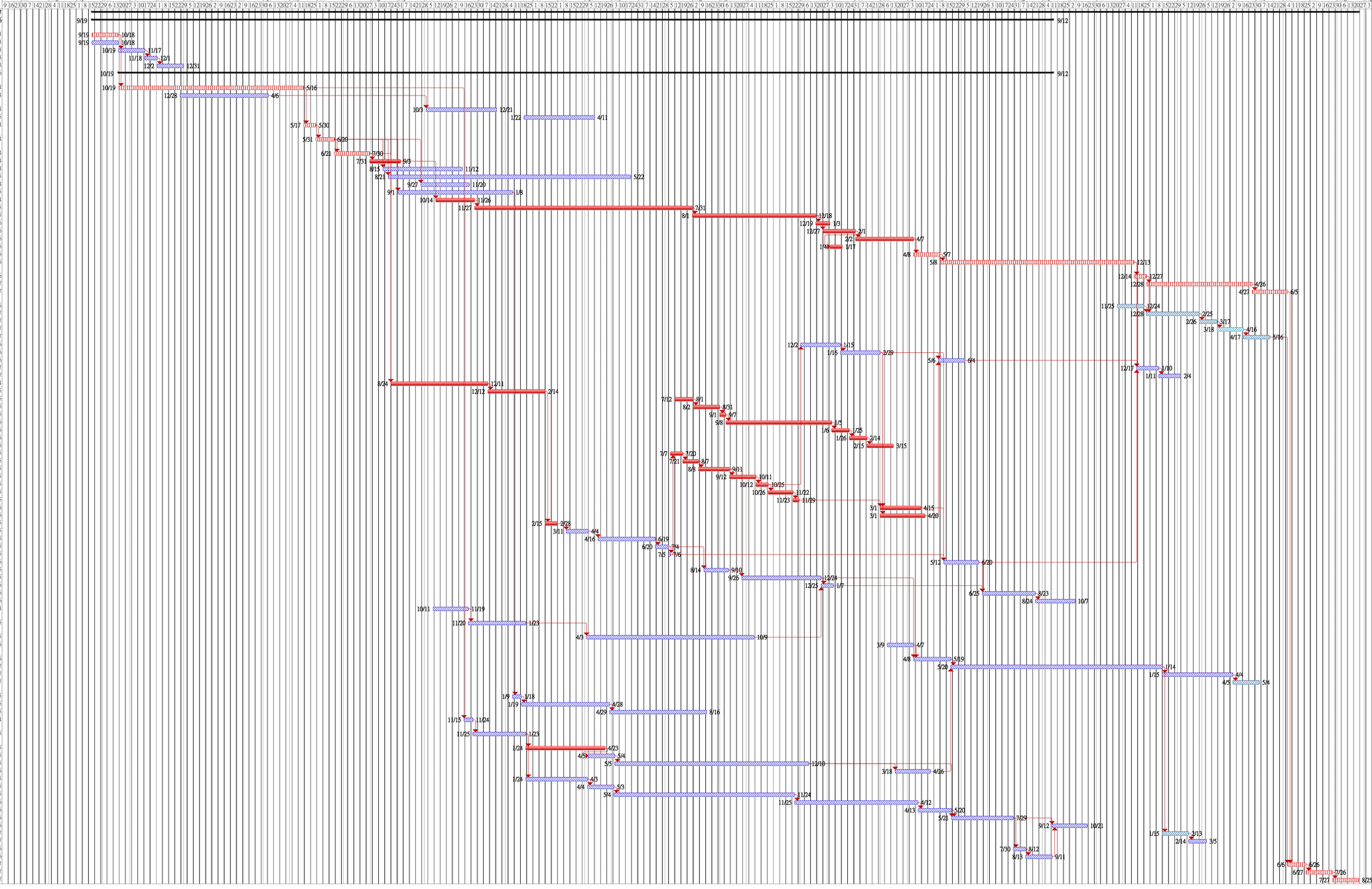


Critical tasks — Working days — Inactive Summary — Duration-only — Manual Summary — Finish-only — External Milestone
Non-critical tasks — Inactive Milestone — Manual Task — Manual Summary Rollup — Start-only — External Tasks

Commencement Date: 19 September 2013
Completion Date: 5 May 2016
Revised Completion Date: 12 September 2016

updated on 29 July 2016

ID	Task Name	Duration	Start	Finish
1	**Commence KL/2012/03 construction**	**1437 days**	**Thu Sep 19, '13**	**Fri Aug 25, '17**
2	**Section 2: Works within Portion 1 and 4**	**1090 days**	**Thu Sep 19, '13**	**Mon Sep 12, '16**
3	Setting out site boundary	30 days	Thu Sep 19, '13	Fri Oct 18, '13
4	Obtain underground utilities plans	30 days	Thu Sep 19, '13	Fri Oct 18, '13
5	Site clearance	30 days	Sat Oct 19, '13	Sun Nov 17, '13
6	Initial survey	14 days	Mon Nov 18, '13	Sun Dec 1, '13
7	Erect hoarding, chain link fence and vehicular gate	30 days	Mon Dec 2, '13	Tue Dec 31, '13
8	**Installation of rising main along To Kwa Wan Road**	1060 days	Sat Oct 19, '13	Mon Sep 12, '16
9	Application of XP and TTA for approval	210 days	Sat Oct 19, '13	Fri May 16, '14
10	Submission / approval of method statement, temporary works design	100 days	Sat Dec 28, '13	Sun Apr 6, '14
11	Procurement of HDPE pipes and fittings	80 days	Fri Oct 3, '14	Sun Dec 21, '14
12	Procurement of special fittings	80 days	Thu Jan 22, '15	Sat Apr 11, '15
13	Inspection pits at pit no. 5, 6, 7, 9, 10 and 11 for determining the alignment of rising mains.	14 days	Sat May 17, '14	Fri May 30, '14
14	Allow for utilities diversion works by the UU at pit no. 5, 6 ,7, 9, 10 and 11	21 days	Sat May 31, '14	Fri Jun 20, '14
15	Construct common pit at pit no.5 and 9	40 days	Sat Jun 21, '14	Wed Jul 30, '14
16	Handover common pit 5 and 9 for HKCG works	35 days	Thu Jul 31, '14	Wed Sep 3, '14
17	Construct common pit at pit no. 6	90 days	Fri Aug 15, '14	Wed Nov 12, '14
18	Construct common pit at pit no. 7	275 days	Thu Aug 21, '14	Fri May 22, '15
19	Construct common pit at pit no. 10	55 days	Sat Sep 27, '14	Thu Nov 20, '14
20	Construct jacking pit at pit no. 11	130 days	Mon Sep 1, '14	Thu Jan 8, '15
21	Mobilization of equipment and set up at Pit 7	44 days	Tue Oct 14, '14	Wed Nov 26, '14
22	Drilling for gas mains from pit 9 to 7 by HKCG	247 days	Thu Nov 27, '14	Fri Jul 31, '15
23	Install gas mains from pit 9 to 7 by HKCG	140 days	Sat Aug 1, '15	Fri Dec 18, '15
24	Backfilling and handback pit 7 to KO	16 days	Sat Dec 19, '15	Sun Jan 3, '16
25	Backfilling and handback pit 9 to KO	37 days	Sun Dec 27, '15	Mon Feb 1, '16
26	Rectification works by HKCG at Pit 9	66 days	Tue Feb 2, '16	Thu Apr 7, '16
27	DSD contractor repair works near Pit 9	14 days	Mon Jan 4, '16	Sun Jan 17, '16
28	Mobilization of equipment and set up at pit 9	30 days	Fri Apr 8, '16	Sat May 7, '16
29	Drilling for rising mains from pit 9 to 7 (use DN1350 TBM and DN1650 steel sleeve pipe) (Rock head)	220 days	Sun May 8, '16	Tue Dec 13, '16
30	Demobilization of equipment at Pit 9	14 days	Wed Dec 14, '16	Tue Dec 27, '16
31	Install rising mains (HDPE - 3m long) from pit 9 to 7	120 days	Wed Dec 28, '16	Wed Apr 26, '17
32	Procument of HDPE fittings and install rising mains at pit 7 and 9	40 days	Thu Apr 27, '17	Mon Jun 5, '17
33	Mobilization of equipment and set up at pit 10	30 days	Fri Nov 25, '16	Sat Dec 24, '16
34	Drilling for rising mains from pit 10 to 9 (Boulder head)	60 days	Wed Dec 28, '16	Sat Feb 25, '17
35	Demobilization of equipment at Pit 10	20 days	Sun Feb 26, '17	Fri Mar 17, '17
36	Install rising mains from pit 10 and 9	30 days	Sat Mar 18, '17	Sun Apr 16, '17
37	Procument of HDPE fittings and install rising mains at pit 10	30 days	Mon Apr 17, '17	Tue May 16, '17
38	Mobilization of equipment and set up at pit 6	45 days	Wed Dec 2, '15	Fri Jan 15, '16
39	Drilling for rising mains from pit 6 to 7 (Rock Head)	45 days	Sat Jan 16, '16	Mon Feb 29, '16
40	Install rising mains from pit 6 to 7	30 days	Fri May 6, '16	Sat Jun 4, '16
41	Procument of HDPE fittings and install rising mains at pit 6	25 days	Sat Dec 17, '16	Tue Jan 10, '17
42	Reinstatement of pit 6	25 days	Wed Jan 11, '17	Sat Feb 4, '17
43	Drilling for gas mains from pit 5 to 6 by HKCG	110 days	Sun Aug 24, '14	Thu Dec 11, '14
44	Install gas mains from pit 5 and 6 by HKCG	65 days	Fri Dec 12, '14	Sat Feb 14, '15
45	Mobilization of equipment and set up at Pit 10	21 days	Sun Jul 12, '15	Sat Aug 1, '15
46	Drilling for gas mains from pit 10 to 9 by HKCG	30 days	Sun Aug 2, '15	Mon Aug 31, '15
47	Demobilization of equipment at Pit 10	7 days	Tue Sep 1, '15	Mon Sep 7, '15
48	Install gas mains from pit 10 and 9 by HKCG	120 days	Tue Sep 8, '15	Tue Jan 5, '16
49	Riser installation at pit 10	20 days	Wed Jan 6, '16	Mon Jan 25, '16
50	Gas pipe Connection	20 days	Tue Jan 26, '16	Sun Feb 14, '16
51	Backfilling and handback pit 10 to KO	30 days	Mon Feb 15, '16	Tue Mar 15, '16
52	Mobilization of equipment and set up at Pit 6 by HKCG	14 days	Tue Jul 7, '15	Mon Jul 20, '15
53	Drilling for gas mains from pit 6 to 7 by HKCG	18 days	Tue Jul 21, '15	Fri Aug 7, '15
54	Demobilization of equipment at Pit 6 & 7	35 days	Sat Aug 8, '15	Fri Sep 11, '15
55	Install gas mains from pit 6 and 7 by HKCG	30 days	Sat Sep 12, '15	Sun Oct 11, '15
56	Erect working platform by HKCG	14 days	Mon Oct 12, '15	Sun Oct 25, '15
57	Gas pipe testing	28 days	Mon Oct 26, '15	Sun Nov 22, '15
58	Gas pipe Connection	7 days	Mon Nov 23, '15	Sun Nov 29, '15
59	Backfilling and handback pit 6 to KO	46 days	Tue Mar 1, '16	Fri Apr 15, '16
60	Backfilling and handback pit 7 to KO	51 days	Tue Mar 1, '16	Wed Apr 20, '16
61	Backfilling to the formation level for KO works at pit no. 5	14 days	Sun Feb 15, '15	Sat Feb 28, '15
62	Mobilization of equipment and set up at Pit 5	25 days	Wed Mar 11, '15	Sat Apr 4, '15
63	Drilling for rising mains from pit 5 to 6 (Boulder head)	65 days	Thu Apr 16, '15	Fri Jun 19, '15
64	Demobilization of equipment at pit 5	15 days	Sat Jun 20, '15	Sat Jul 4, '15
65	Handover common pit 6 for HKCG works	2 days	Sun Jul 5, '15	Mon Jul 6, '15
66	Install rising mains from pit 5 and 6	40 days	Thu May 12, '16	Mon Jun 20, '16
67	Mobilization of equipment and set up at pit 5	28 days	Fri Aug 14, '15	Thu Sep 10, '15
68	Drilling for rising mains from pit 5 to 4 (Rock head)	90 days	Sat Sep 26, '15	Thu Dec 24, '15
69	Demobilization of equipment at Pit 4 and 5	14 days	Fri Dec 25, '15	Thu Jan 7, '16
70	Install rising mains from pit 5 to 4	60 days	Sat Jun 25, '16	Tue Aug 23, '16
71	Construct wash-out chamber at pit no.5	45 days	Wed Aug 24, '16	Fri Oct 7, '16
72	Inspection pits at pit no. 3 and 4 for determining the alignment of rising mains.	40 days	Sat Oct 11, '14	Wed Nov 19, '14
73	Allow for utilities diversion works by the UU at pit no. 3 and 4 if necessary	65 days	Thu Nov 20, '14	Fri Jan 23, '15
74	Construct jacking pit no. 4	190 days	Fri Apr 3, '15	Fri Oct 9, '15
75	Revised TTA at Pit 4 for TMLG approval and implementation of TTA	30 days	Wed Mar 9, '16	Thu Apr 7, '16
76	Mobilization of equipment and set up at pit 4	42 days	Fri Apr 8, '16	Thu May 19, '16
77	Drilling for rising mains from pit 4 to 2 (Rock head)	240 days	Fri May 20, '16	Sat Jan 14, '17
78	Install rising mains (HDPE - 4m long) from pit 4 to 2	80 days	Sun Jan 15, '17	Tue Apr 4, '17
79	Procument of HDPE fittings and install rising mains at pit 2 and 4	30 days	Wed Apr 5, '17	Thu May 4, '17
80	Mobilization of equipment and set up	10 days	Fri Jan 9, '15	Sun Jan 18, '15
81	Drilling for rising mains from pit 11 to 10	100 days	Mon Jan 19, '15	Tue Apr 28, '15
82	Install rising mains from pit 11 and 10	110 days	Wed Apr 29, '15	Sun Aug 16, '15
83	Inspection pits at pit no. 2 for determining the alignment of rising mains.	10 days	Sat Nov 15, '14	Mon Nov 24, '14
84	Inspection pits at pit no. 1 for determining the alignment of rising mains.	60 days	Tue Nov 25, '14	Fri Jan 23, '15
85	DSD's Construction of Works	90 days	Sat Jan 24, '15	Thu Apr 23, '15
86	Roadworks advice approved by RMO	30 days	Sun Apr 5, '15	Mon May 4, '15
87	Allow for utilities diversion works by the UU at pit no. 2	220 days	Tue May 5, '15	Thu Dec 10, '15
88	Construct receiving pit no. 2	40 days	Fri Mar 18, '16	Tue Apr 26, '16
89	Remove existing EMSD hoarding	70 days	Sat Jan 24, '15	Fri Apr 3, '15
90	Roadworks advice approved by RMO	30 days	Sat Apr 4, '15	Sun May 3, '15
91	Allow for utilities diversion works by the UU at pit no. 1	205 days	Mon May 4, '15	Tue Nov 24, '15
92	Construct jacking pit no. 1	140 days	Wed Nov 25, '15	Tue Apr 12, '16
93	Mobilization of equipment and set up	38 days	Wed Apr 13, '16	Fri May 20, '16
94	Drilling for rising mains from pit 1 to 2 (Boulder head)	70 days	Sat May 21, '16	Fri Jul 29, '16
95	Install rising mains from pit 1 to 2 and pit 1	40 days	Mon Sep 12, '16	Fri Oct 21, '16
96	Procument of HDPE fittings and install rising mains at pit 1	30 days	Sun Jan 15, '17	Mon Feb 13, '17
97	Pit reinstatement at pit 1	20 days	Tue Feb 14, '17	Sun Mar 5, '17
98	Demobilization of equipment at Pit 1	14 days	Sat Jul 30, '16	Fri Aug 12, '16
99	Install rising mains from NPS to pit 1	30 days	Sat Aug 13, '16	Sun Sep 11, '16
100	CCTV inspection to completed pipeline	21 days	Tue Jun 6, '17	Mon Jun 26, '17
101	Pressure test	30 days	Tue Jun 27, '17	Wed Jul 26, '17
102	Road reinstatement at pit 7, 9 and 10	30 days	Thu Jul 27, '17	Fri Aug 25, '17

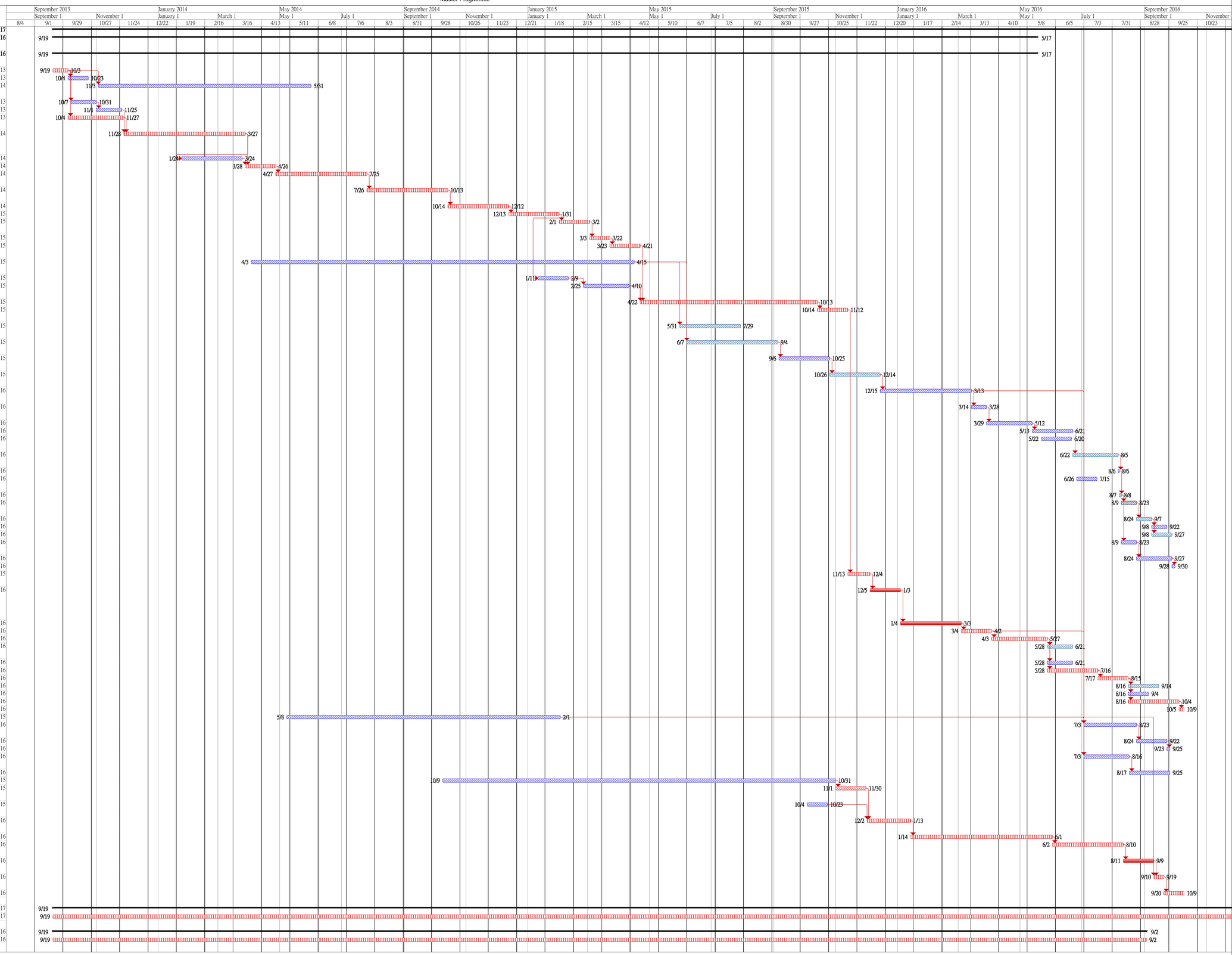


HKCG / DSD works | Non-critical tasks | Inactive Milestone | Manual Task | Manual Summary Rollup | Start-only | External Tasks
Critical tasks | Working days | Inactive Summary | Duration-only | Manual Summary | Finish-only | External Milestone

Commencement Date: 19 September 2013
Completion Date: 5 May 2016
Revised Completion Date: 12 September 2016

Updated on 29 July 2016

ID	Task Name	Duration	Start	Finish
1	Commence KL/2012/03 construction	1336 days	Thu Sep 19, '13	Tue May 16, '17
2	Section 3: Works within Portion 1	972 days	Thu Sep 19, '13	Tue May 17, '16
3	Works for Part of Road D2	972 days	Thu Sep 19, '13	Tue May 17, '16
4	Site possession and preparation works	15 days	Thu Sep 19, '13	Thu Oct 3, '13
5	Site clearance and setting out site boundary	20 days	Fri Oct 4, '13	Wed Oct 23, '13
6	Apply XP for roadworks at junction of SWTR and TKWR and TTA approval	210 days	Sun Nov 3, '13	Sat May 31, '14
7	Submission of baseline monitoring for EPD approval	25 days	Mon Oct 7, '13	Thu Oct 31, '13
8	Approval of baseline monitoring by EPD	25 days	Fri Nov 1, '13	Mon Nov 25, '13
9	Submission / approval of construction materials and method statements for sewerage drain	55 days	Fri Oct 4, '13	Wed Nov 27, '13
10	Construct jacking / receiving pits for 2x750mm dia. Concrete pipes from FMH120_60 to 70 by trenchless method	120 days	Thu Nov 28, '13	Thu Mar 27, '14
11	Delivery of materials for sewerage drain	60 days	Fri Jan 24, '14	Mon Mar 24, '14
12	Mobilization of pipe jacking machine and setup	30 days	Fri Mar 28, '14	Sat Apr 26, '14
13	Drilling and installation of concrete pipe for 2x750mm dia.	90 days	Sun Apr 27, '14	Fri Jul 25, '14
14	Construct sewerage drain and construct manholes from FMH120_30 to 40	80 days	Sat Jul 26, '14	Mon Oct 13, '14
15	Construct manholes FMH120_60 and 70	60 days	Tue Oct 14, '14	Fri Dec 12, '14
16	Removal of existing hoarding	50 days	Sat Dec 13, '14	Sat Jan 31, '15
17	Approval of TTA and implementation of TTA along SWTR and TKWR	30 days	Sun Feb 1, '15	Mon Mar 2, '15
18	Removal of existing security fence	20 days	Tue Mar 3, '15	Sun Mar 22, '15
19	Install storm drain from SMH2501 to 2503 and construct manholes for construction of road junction of D2/SWTR	30 days	Mon Mar 23, '15	Tue Apr 21, '15
20	Completion of CLP works (Portion B) (width of occupied areas at northbound of D2 = approx. 20m)	378 days	Thu Apr 3, '14	Wed Apr 15, '15
21	Installation of sheetpiling for CP3P3 1061-1115	30 days	Sun Jan 11, '15	Mon Feb 9, '15
22	Installation of waling and excavation to formation level for CP3P3 1061-1115	45 days	Wed Feb 25, '15	Fri Apr 10, '15
23	Construct DCS system at CP3P3 1061-1115	175 days	Wed Apr 22, '15	Tue Oct 13, '15
24	Trench backfilling at CP3P3 1061-1115 and removal of sheet piles	30 days	Wed Oct 14, '15	Thu Nov 12, '15
25	Install storm drain from SMH2202 to 2204 and construct manholes	60 days	Sun May 31, '15	Wed Jul 29, '15
26	Install storm drain from SMH3110 to3112 & 3113 to 3115 and construct manholes	90 days	Sun Jun 7, '15	Fri Sep 4, '15
27	Construct sewerage drain and construct manholes from DC1 to FMH120_30	50 days	Sun Sep 6, '15	Sun Oct 25, '15
28	Install storm drain from SMH3112 to 3113 and construct manholes	50 days	Mon Oct 26, '15	Mon Dec 14, '15
29	Install water main and wash-out chamber CHB200-CHB280 and CHC200-CHC280	90 days	Tue Dec 15, '15	Sun Mar 13, '16
30	Installation of utility by the utility undertakers at the junction of the realigned DLO ROW	15 days	Mon Mar 14, '16	Mon Mar 28, '16
31	Install sewer drain from FMH120_10 to 20	45 days	Tue Mar 29, '16	Thu May 12, '16
32	Construct additional manhole FMH120_15 (VO)	40 days	Fri May 13, '16	Tue Jun 21, '16
33	Modification of newly constructed sewer manholes and associated drain pipes for DC1	30 days	Sun May 22, '16	Mon Jun 20, '16
34	Construct flexible carriageway at the junction of realigned DLO ROW including wearing course	45 days	Wed Jun 22, '16	Fri Aug 5, '16
35	Road marking	1 day	Sat Aug 6, '16	Sat Aug 6, '16
36	Install traffic signal at the Junction of Road D2/ Western Access Road	20 days	Sun Jun 26, '16	Fri Jul 15, '16
37	Re-diversion of DLO ROW	2 days	Sun Aug 7, '16	Mon Aug 8, '16
38	Install water main CHB170-CHB200 and CHC170-CHC200	15 days	Tue Aug 9, '16	Tue Aug 23, '16
39	Construct road gully and gully pipe	15 days	Wed Aug 24, '16	Wed Sep 7, '16
40	Construct road kerb	15 days	Thu Sep 8, '16	Thu Sep 22, '16
41	Construct flexible carriageway	20 days	Thu Sep 8, '16	Tue Sep 27, '16
42	Installation of utility by the utility undertakers along proposed footpath CH730-750	15 days	Tue Aug 9, '16	Tue Aug 23, '16
43	Construct u-channel and footpath	35 days	Wed Aug 24, '16	Tue Sep 27, '16
44	Landscaping works	3 days	Wed Sep 28, '16	Fri Sep 30, '16
45	Construct sewerage drain and construct manholes from FMH120_40 to 60	22 days	Fri Nov 13, '15	Fri Dec 4, '15
46	Proposed sewerage drain from FMH120_50 to 60 clash with CLP as-constructed CLP tunnel. Revised construction details was instructed by the Engineer on 30 Dec 15	30 days	Sat Dec 5, '15	Sun Jan 3, '16
47	Construct additional manhole FMH120_55 (VO)	60 days	Mon Jan 4, '16	Thu Mar 3, '16
48	Construct sewerage drain from FMH120_50 to 55 to 60	30 days	Fri Mar 4, '16	Sat Apr 2, '16
49	Install storm drain from SMH3117 to SMH2304	55 days	Sun Apr 3, '16	Fri May 27, '16
50	Install storm drain from SMH3115 to 3117a and construct manholes	25 days	Sat May 28, '16	Tue Jun 21, '16
51	Install water main CHB0-CHB170 and CHC0-CHC170	25 days	Sat May 28, '16	Tue Jun 21, '16
52	Construct road gully and gully pipe	50 days	Sat May 28, '16	Sat Jul 16, '16
53	Construct road kerb	30 days	Sun Jul 17, '16	Mon Aug 15, '16
54	Install irrigation system	30 days	Tue Aug 16, '16	Wed Sep 14, '16
55	Installation of lighting system by HyD	20 days	Tue Aug 16, '16	Sun Sep 4, '16
56	Construct flexible carriageway	50 days	Tue Aug 16, '16	Tue Oct 4, '16
57	Planting works	5 days	Wed Oct 5, '16	Sun Oct 9, '16
58	Liaison meeting with UU	270 days	Thu May 8, '14	Sun Feb 1, '15
59	Installation of utility by the utility undertakers along proposed footpath CH550-730	52 days	Sun Jul 3, '16	Tue Aug 23, '16
60	Construct planting area, u-channel and footpath	30 days	Wed Aug 24, '16	Thu Sep 22, '16
61	Landscaping works	3 days	Fri Sep 23, '16	Sun Sep 25, '16
62	Installation of utility by the utility undertakers along proposed footpath CH750-810	45 days	Sun Jul 3, '16	Tue Aug 16, '16
63	Construct planting area, u-channel and footpath	40 days	Wed Aug 17, '16	Sun Sep 25, '16
64	CLP T-junction at Portion C	388 days	Thu Oct 9, '14	Sat Oct 31, '15
65	Installation of utility by the utility undertakers along proposed footpath CHA820-850	30 days	Sun Nov 1, '15	Mon Nov 30, '15
66	Submission on method statement for DWFI for DSD approval	20 days	Sun Oct 4, '15	Fri Oct 23, '15
67	Awaiting for construction details for re-construction of box culvert	43 days	Wed Dec 2, '15	Wed Jan 13, '16
68	Reconstruction of existing box culvert DWFI (VO)	140 days	Thu Jan 14, '16	Wed Jun 1, '16
69	Construct sewer drain from box culvert to FMH140_10 and manhole	70 days	Thu Jun 2, '16	Wed Aug 10, '16
70	Install FWM CHC1-0 to 50 & SWM CHF2-0 to 50 (VO 35A)	30 days	Thu Aug 11, '16	Fri Sep 9, '16
71	Installation of utility by the utility undertakers along proposed footpath CHA820-850	10 days	Sat Sep 10, '16	Mon Sep 19, '16
72	Construct planting area, u-channel and footpath	20 days	Tue Sep 20, '16	Sun Oct 9, '16
73				
74	Section 3A	1336 days	Thu Sep 19, '13	Tue May 16, '17
75	Establishment works for Section 3	1336 days	Thu Sep 19, '13	Tue May 16, '17
76				
77	Section 4	1080 days	Thu Sep 19, '13	Fri Sep 2, '16
78	Perservation and preotection of trees within Portions 1 to 4	1080 days	Thu Sep 19, '13	Fri Sep 2, '16



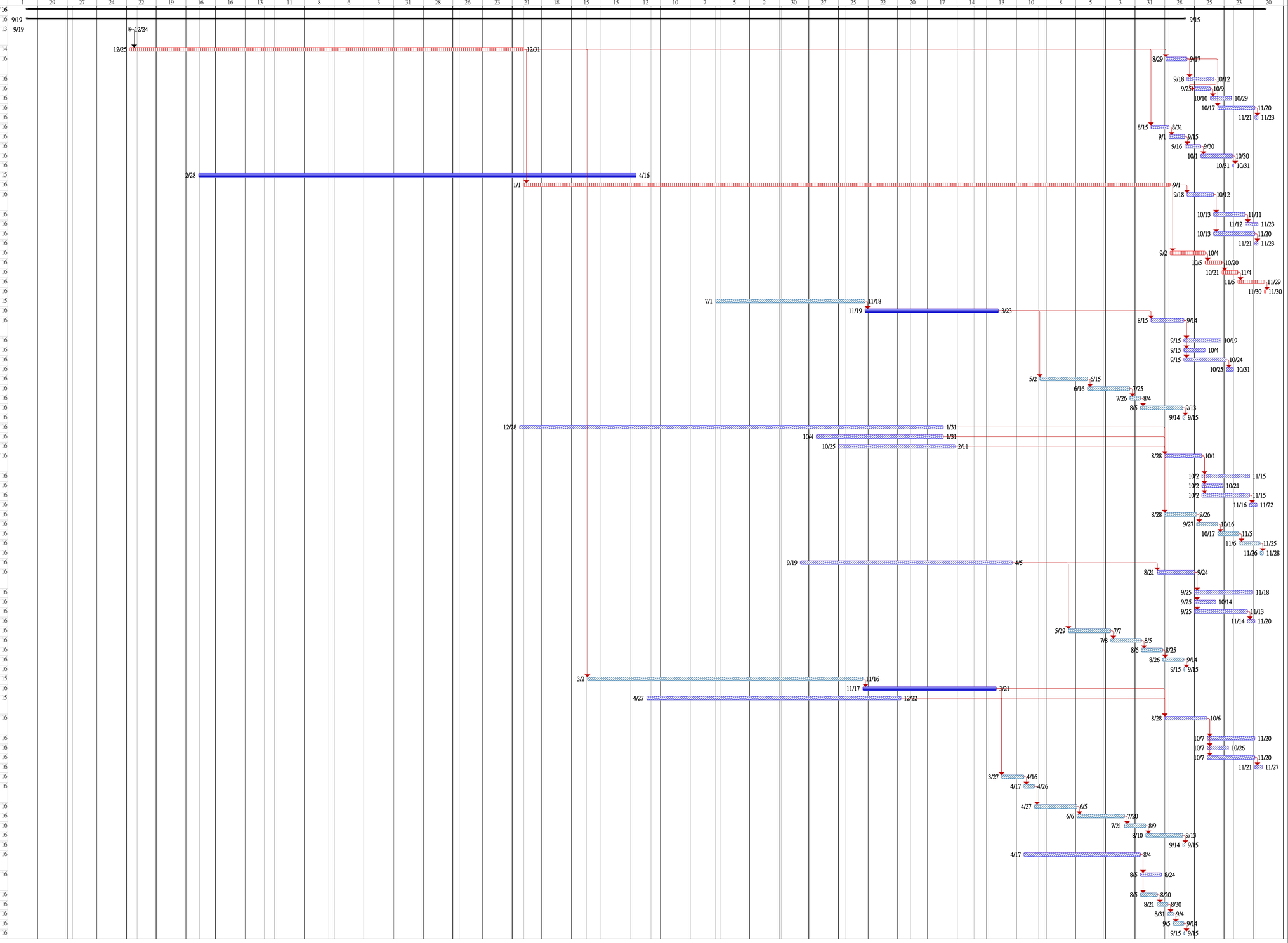
Critical tasks | Working days | Inactive Summary | Duration-only | Manual Summary | Finish-only | External Milestone
Non-critical tasks | Inactive Milestone | Manual Task | Manual Summary Rollup | Start-only | External Tasks

Section 3
Commencement Date: 19 September 2013
Completion Date: 17 May 2016

updated on 29 July 2016

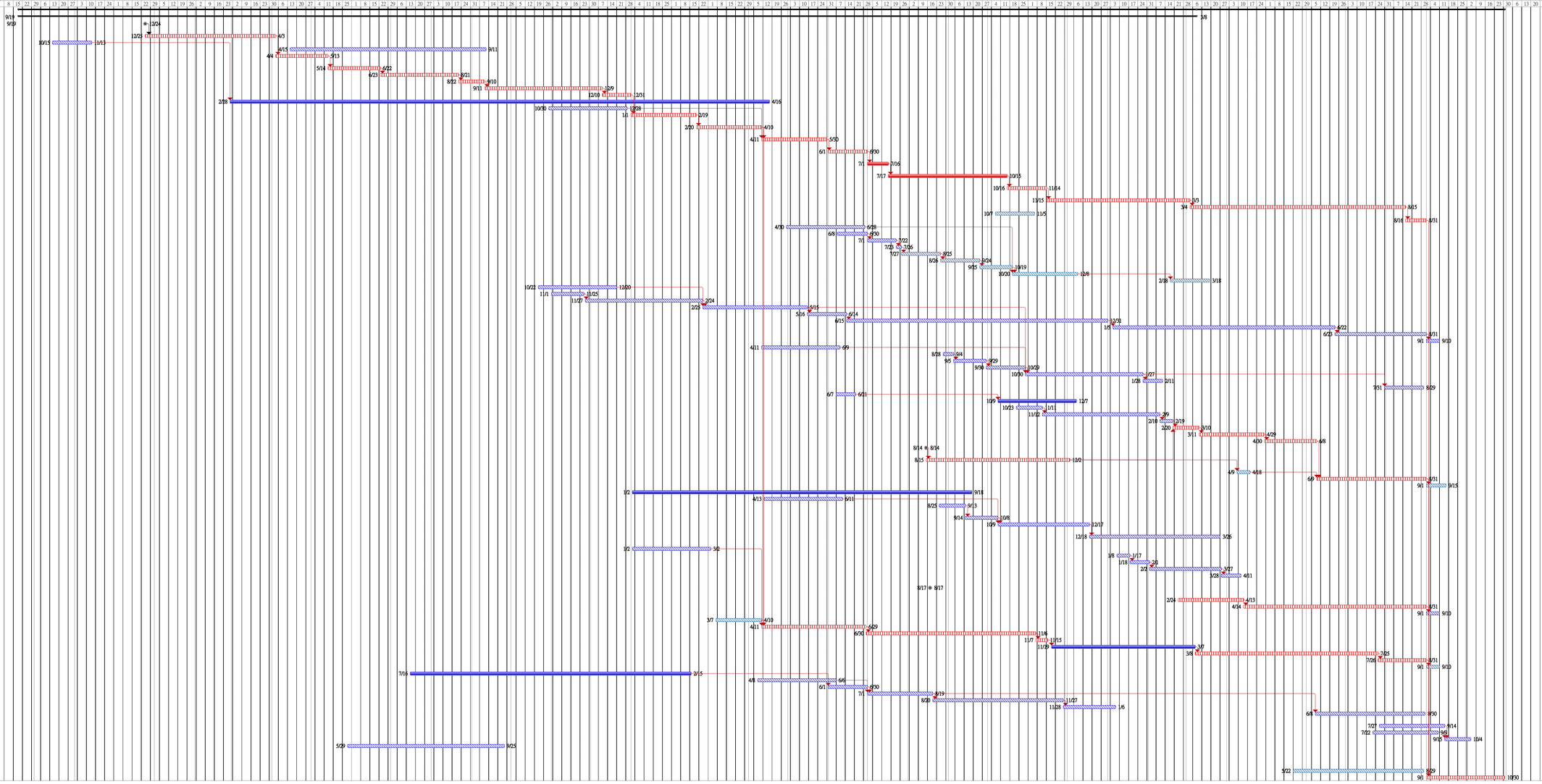
Master Programme

ID	Task Name	Duration	Start	Finish
1	**Commence KL/2012/03 construction**	**1093 days**	**Thu Sep 19, '13**	**Thu Sep 15, '16**
2	**Section 5: Works for Southbound of Road D2**	1093 days	Thu Sep 19, '13	Thu Sep 15, '16
3	Awaiting for the notifcation of commencement of works by the Engineer	97 days	Thu Sep 19, '13	Tue Dec 24, '13
4	Completion of DCS works for CH3P3-970 to 1030	372 days	Wed Dec 25, '13	Wed Dec 31, '14
5	Installation of utility by the utility undertakers along proposed footpath	20 days	Mon Aug 29, '16	Sat Sep 17, '16
6	Construct drainpit and u-channel	25 days	Sun Sep 18, '16	Wed Oct 12, '16
7	Install street lighting	15 days	Sun Sep 25, '16	Sun Oct 9, '16
8	Installation of lighting system by HyD	20 days	Mon Oct 10, '16	Sat Oct 29, '16
9	Construct footpath, planting area and concrete run-in	35 days	Mon Oct 17, '16	Sun Nov 20, '16
10	Landscape works	3 days	Mon Nov 21, '16	Wed Nov 23, '16
11	Construct stormwater drain and manholes	17 days	Mon Aug 15, '16	Wed Aug 31, '16
12	Construct road gully with pipes	15 days	Thu Sep 1, '16	Thu Sep 15, '16
13	Construct road kerb	15 days	Fri Sep 16, '16	Fri Sep 30, '16
14	Construct flexible carriageway	30 days	Sat Oct 1, '16	Sun Oct 30, '16
15	Road marking	1 day	Mon Oct 31, '16	Mon Oct 31, '16
16	Construct CLP tunnel by CLP Portion B	413 days	Fri Feb 28, '14	Thu Apr 16, '15
17	Completion of DCS works for CH3P3-1030 to 1115	610 days	Thu Jan 1, '15	Thu Sep 1, '16
18	Installation of utility by the utility undertakers along proposed footpath	25 days	Sun Sep 18, '16	Wed Oct 12, '16
19	Construct drainpit and u-channel	30 days	Thu Oct 13, '16	Fri Nov 11, '16
20	Install street lighting	12 days	Sat Nov 12, '16	Wed Nov 23, '16
21	Construct footpath, planting area and concrete run-in	39 days	Thu Oct 13, '16	Sun Nov 20, '16
22	Landscape works	3 days	Mon Nov 21, '16	Wed Nov 23, '16
23	Construct stormwater drain and manholes	33 days	Fri Sep 2, '16	Tue Oct 4, '16
24	Construct road gully with pipes	16 days	Wed Oct 5, '16	Thu Oct 20, '16
25	Construct road kerb	15 days	Fri Oct 21, '16	Fri Nov 4, '16
26	Construct flexible carriageway	25 days	Sat Nov 5, '16	Tue Nov 29, '16
27	Road marking	1 day	Wed Nov 30, '16	Wed Nov 30, '16
28	Completion of DCS works for CH3P3-930 to 970	141 days	Wed Jul 1, '15	Wed Nov 18, '15
29	Construct CLP tunnel by CLP Portion F1	126 days	Thu Nov 19, '15	Wed Mar 23, '16
30	Installation of utility by the utility undertakers along proposed footpath	31 days	Mon Aug 15, '16	Wed Sep 14, '16
31	Construct drainpit and u-channel	35 days	Thu Sep 15, '16	Wed Oct 19, '16
32	Install street lighting	20 days	Thu Sep 15, '16	Tue Oct 4, '16
33	Construct footpath, planting area and concrete run-in	40 days	Thu Sep 15, '16	Mon Oct 24, '16
34	Landscape works	7 days	Tue Oct 25, '16	Mon Oct 31, '16
35	Construct stormwater drain and manholes	45 days	Mon May 2, '16	Wed Jun 15, '16
36	Construct road gully with pipes	40 days	Thu Jun 16, '16	Mon Jul 25, '16
37	Construct road kerb	10 days	Tue Jul 26, '16	Thu Aug 4, '16
38	Construct flexible carriageway	40 days	Fri Aug 5, '16	Tue Sep 13, '16
39	Road marking	2 days	Wed Sep 14, '16	Thu Sep 15, '16
40	Completion of DCS works for CH3P3-370 to 520	400 days	Sun Dec 28, '14	Sun Jan 31, '16
41	Completion of DCS works for CH3P3-350 to 370	120 days	Sun Oct 4, '15	Sun Jan 31, '16
42	Completion of DCS works for CH3P3-520 to 570	110 days	Sun Oct 25, '15	Thu Feb 11, '16
43	Installation of utility by the utility undertakers along proposed footpath	35 days	Sun Aug 28, '16	Sat Oct 1, '16
44	Construct drainpit and u-channel	45 days	Sun Oct 2, '16	Tue Nov 15, '16
45	Install street lighting	20 days	Sun Oct 2, '16	Fri Oct 21, '16
46	Construct footpath, planting area and concrete run-in	45 days	Sun Oct 2, '16	Tue Nov 15, '16
47	Landscape works	7 days	Wed Nov 16, '16	Tue Nov 22, '16
48	Construct stormwater drain and manholes	30 days	Sun Aug 28, '16	Mon Sep 26, '16
49	Construct road gully with pipes	20 days	Tue Sep 27, '16	Sun Oct 16, '16
50	Construct road kerb	20 days	Mon Oct 17, '16	Sat Nov 5, '16
51	Construct flexible carriageway	20 days	Sun Nov 6, '16	Fri Nov 25, '16
52	Road marking	3 days	Sat Nov 26, '16	Mon Nov 28, '16
53	Completion of DCS works for CH3P3-570 to 730	200 days	Sat Sep 19, '15	Tue Apr 5, '16
54	Installation of utility by the utility undertakers along proposed footpath	35 days	Sun Aug 21, '16	Sat Sep 24, '16
55	Construct drainpit and u-channel	55 days	Sun Sep 25, '16	Fri Nov 18, '16
56	Install street lighting	20 days	Sun Sep 25, '16	Fri Oct 14, '16
57	Construct footpath, planting area and concrete run-in	50 days	Sun Sep 25, '16	Sun Nov 13, '16
58	Landscape works	7 days	Mon Nov 14, '16	Sun Nov 20, '16
59	Construct stormwater drain and manholes	40 days	Sun May 29, '16	Thu Jul 7, '16
60	Construct road gully with pipes	29 days	Fri Jul 8, '16	Fri Aug 5, '16
61	Construct road kerb	20 days	Sat Aug 6, '16	Thu Aug 25, '16
62	Construct flexible carriageway	20 days	Fri Aug 26, '16	Wed Sep 14, '16
63	Road marking	1 day	Thu Sep 15, '16	Thu Sep 15, '16
64	Completion of DCS works for CH3P3-730 to 830	260 days	Mon Mar 2, '15	Mon Nov 16, '15
65	Cable duct block by CLP	126 days	Tue Nov 17, '15	Mon Mar 21, '16
66	Completion of DCS works for CH3P3-830 to 930 (except 860 to 900)	240 days	Mon Apr 27, '15	Tue Dec 22, '15
67	Installation of utility by the utility undertakers along proposed footpath	40 days	Sun Aug 28, '16	Thu Oct 6, '16
68	Construct drainpit and u-channel	45 days	Fri Oct 7, '16	Sun Nov 20, '16
69	Install street lighting	20 days	Fri Oct 7, '16	Wed Oct 26, '16
70	Construct footpath, planting area and concrete run-in	45 days	Fri Oct 7, '16	Sun Nov 20, '16
71	Landscape works	7 days	Mon Nov 21, '16	Sun Nov 27, '16
72	Construct stormwater drain and manholes	21 days	Sun Mar 27, '16	Sat Apr 16, '16
73	Proposed sewer drain FMH120_20 to 10 clash with as-constructed CLP's cable tunnel. Further instruction is required	10 days	Sun Apr 17, '16	Tue Apr 26, '16
74	Construct additional manhole with backdrop (VO)	40 days	Wed Apr 27, '16	Sun Jun 5, '16
75	Construct road gully with pipes	45 days	Mon Jun 6, '16	Wed Jul 20, '16
76	Construct road kerb	20 days	Thu Jul 21, '16	Tue Aug 9, '16
77	Construct flexible carriageway	35 days	Wed Aug 10, '16	Tue Sep 13, '16
78	Road marking	2 days	Wed Sep 14, '16	Thu Sep 15, '16
79	Completion of DCS works for CH3P3-860 to 900 for realignment of DLO ROW including wearing course	110 days	Sun Apr 17, '16	Thu Aug 4, '16
80	Installation of utility by the utility undertakers along proposed footpath	20 days	Fri Aug 5, '16	Wed Aug 24, '16
81	Construct stormwater drain and manholes	16 days	Fri Aug 5, '16	Sat Aug 20, '16
82	Construct road gully with pipes	10 days	Sun Aug 21, '16	Tue Aug 30, '16
83	Construct road kerb	5 days	Wed Aug 31, '16	Sun Sep 4, '16
84	Construct flexible carriageway	10 days	Mon Sep 5, '16	Wed Sep 14, '16
85	Road marking	1 day	Thu Sep 15, '16	Thu Sep 15, '16



Critical tasks · Non-critical tasks · Working days · Inactive Milestone · Inactive Summary · Manual Task · Duration-only · Manual Summary Rollup · Manual Summary · Start-only · Finish-only · External Tasks · External Milestone

ID	Task Name	Duration	Start	Finish
1	**Commence KL/2012/03 construction**	902 days	Thu Sep 19, '13	Tue Mar 8, '16
2	**Section 7A: Works for Southbound of Road D2**	902 days	Thu Sep 19, '13	Tue Mar 8, '16
3	Awaiting for the notification of commencement of works by the Engineer	97 days	Thu Sep 19, '13	Tue Dec 24, '13
4	Submission for approval of DCS materials	100 days	Wed Dec 25, '13	Thu Apr 3, '14
5	Interface works meeting with CLP	30 days	Tue Oct 15, '13	Wed Nov 13, '13
6	Deliver DCS materials batch no. 1	150 days	Tue Apr 15, '14	Thu Sep 11, '14
7	Submission for approval of method statement and temp work design	40 days	Fri Apr 4, '14	Tue May 13, '14
8	Installation of sheetpiles for CH3P3-970 to 1030	40 days	Wed May 14, '14	Sun Jun 22, '14
9	Installation of wailing and excavation for CH3P3-970 to 1030	60 days	Mon Jun 23, '14	Thu Aug 21, '14
10	Grade 200 rock fill (SD)	20 days	Fri Aug 22, '14	Wed Sep 10, '14
11	Construct DCS system at CH3P3-970 to 1030	90 days	Thu Sep 11, '14	Tue Dec 9, '14
12	Trench backfilling at CH3P3-970 to 1030	22 days	Wed Dec 10, '14	Wed Dec 31, '14
13	Construct CLP tunnel by CLP Portion B	413 days	Fri Feb 28, '14	Thu Apr 16, '15
14	Deliver DCS materials batch no. 3	60 days	Thu Oct 30, '14	Sun Dec 28, '14
15	Installation of sheetpiles for CH3P3-1030 to CP3P3-1087 & CP3P2-1115	50 days	Thu Jun 1, '15	Thu Feb 19, '15
16	Installation of waling and excavation for CH3P3-1030 to CP3P3-1087 & CP3P2-1115	50 days	Fri Feb 20, '15	Fri Apr 10, '15
17	Construct DCS system at CH3P3-1060 to CP3P3-1087 & CP3P2-1115	50 days	Sat Apr 11, '15	Sat May 30, '15
18	Cut CLP sheetpiles and additional infill in CLP structure for installation of seawater pipes	30 days	Mon Jun 1, '15	Tue Jun 30, '15
19	Trench excavation for WSD permanent diversion of existing watermain at CH3P3-1000 (additional works)	16 days	Wed Jul 1, '15	Thu Jul 16, '15
20	Permanent diversion of existing watermain at CH3P3-1000 by WSD (additional works)	91 days	Fri Jul 17, '15	Thu Oct 15, '15
21	Remove existing watermain and then installation of waling and excavation for CH3P3-1030 to 1050	30 days	Fri Oct 16, '15	Sat Nov 14, '15
22	Construct DCS system at CH3P3-1030 to CP3P3-1087	110 days	Sun Nov 15, '15	Thu Mar 3, '16
23	Construct sectional valve chambers (SV-N-09)	165 days	Fri Mar 4, '16	Mon Aug 15, '16
24	Trench backfilling at CP3P3-1087 to CP3P2-1115	30 days	Wed Oct 7, '15	Thu Nov 5, '15
25	Trench backfilling at CH3P3-1030 to CP3P3-1087	16 days	Tue Aug 16, '16	Wed Aug 31, '16
26	Deliver DCS materials batch no. 5	60 days	Thu Apr 30, '15	Sun Jun 28, '15
27	Proposed UU works to be laid at DLO ROW	23 days	Mon Jun 8, '15	Tue Jun 30, '15
28	Re-diversion of DLO ROW	22 days	Wed Jul 1, '15	Wed Jul 22, '15
29	Break up existing hard materials for sheetpiling works	4 days	Thu Jul 23, '15	Sun Jul 26, '15
30	Installation of sheetpiles for CH3P3-930 to 970	30 days	Mon Jul 27, '15	Tue Aug 25, '15
31	Temporary support existing watermain	30 days	Wed Aug 26, '15	Thu Sep 24, '15
32	Install waling and excavate for CH3P3-930 to 970	25 days	Fri Sep 25, '15	Mon Oct 19, '15
33	Construct DCS system at CH3P3-930 to 970	50 days	Tue Oct 20, '15	Tue Dec 8, '15
34	Trench backfilling at CH3P3-930 to 970	30 days	Thu Feb 18, '16	Fri Mar 18, '16
35	Deliver DCS materials batch no. 2	60 days	Wed Oct 22, '14	Sat Dec 20, '14
36	Installation of sheetpiling for CH3P3-370 to 520	25 days	Sat Nov 1, '14	Tue Nov 25, '14
37	Installation of waling and excavation for CH3P3-370 to 520	90 days	Thu Nov 27, '14	Tue Feb 24, '15
38	Construct DCS system at CH3P3-370 to 450	80 days	Wed Feb 25, '15	Fri May 15, '15
39	Trench backfilling at CH3P3-370 to 450	30 days	Sat May 16, '15	Sun Jun 14, '15
40	Construct DCS system at CH3P3-450 to 520	200 days	Mon Jun 15, '15	Thu Dec 31, '15
41	Construct sectional valve chambers (SV-N-10)	170 days	Tue Jun 5, '16	Wed Jun 22, '16
42	Construct bend block concrete at CHC3P3-450 to 520	70 days	Thu Jun 23, '16	Wed Aug 31, '16
43	Trench backfilling at CH3P3-450 to 520	10 days	Thu Sep 1, '16	Sat Sep 10, '16
44	Deliver DCS materials batch no. 5	60 days	Sat Apr 11, '15	Tue Jun 9, '15
45	Divert ROW	8 days	Fri Aug 28, '15	Fri Sep 4, '15
46	Installation of sheetpiles for CH3P3-350 to 370	25 days	Sat Sep 5, '15	Tue Sep 29, '15
47	Installation of wailing and excavation for CH3P3-350 to 370	30 days	Wed Sep 30, '15	Thu Oct 29, '15
48	Construct DCS system at CH3P3-350 to 370	90 days	Fri Oct 30, '15	Wed Jan 27, '16
49	Trench backfilling at CH3P3-350 to 370	15 days	Thu Jan 28, '16	Thu Feb 11, '16
50	Construct tee-off gate valve chambers (S-1L4)	30 days	Sun Jul 31, '16	Mon Aug 29, '16
51	Diversion of MTR ROW	15 days	Sun Jun 7, '15	Sun Jun 21, '15
52	CLP cable duck block	60 days	Fri Oct 9, '15	Mon Dec 7, '15
53	Trench excavation at CH3P3-520 to 570	20 days	Fri Oct 23, '15	Wed Nov 11, '15
54	Construct DCS system at CH3P3-520 to 570	90 days	Thu Nov 12, '15	Tue Feb 9, '16
55	Trench backfilling at CH3P3-520 to 570	10 days	Wed Feb 10, '16	Fri Feb 19, '16
56	Diversion of MTR ROW	20 days	Sat Feb 20, '16	Thu Mar 10, '16
57	Construct DCS system at CH3P3-570 to 590	50 days	Fri Mar 11, '16	Fri Apr 29, '16
58	Construct bend block concrete at CHC3P3-570 to 590	40 days	Sat Apr 30, '16	Wed Jun 8, '16
59	VO49 additional 3 nos. tee-off pipes at CH3P3-560 issued on 14 Aug 15	1 day	Fri Aug 14, '15	Fri Aug 14, '15
60	VO49 materials production, IIB, insulation layer and delivery to site	110 days	Sat Aug 15, '15	Wed Dec 2, '15
61	VO49 trench excavation	10 days	Sat Apr 9, '16	Mon Apr 18, '16
62	VO49 pipe laying for 3 nos. CWP	84 days	Thu Jun 9, '16	Wed Aug 31, '16
63	VO49 trench backfilling	15 days	Thu Sep 1, '16	Thu Sep 15, '16
64	Construct CLP tunnel by CLP Portion A3-A5	260 days	Fri Jan 2, '15	Fri Sep 18, '15
65	Deliver DCS materials batch no. 4	60 days	Mon Apr 13, '15	Thu Jun 11, '15
66	Trench excavation for 4 nos. seawater pipes and 1 no. DN500 CWP CH3P3-590 to 730	20 days	Tue Aug 25, '15	Sun Sep 13, '15
67	Laying miradrain and steel plate above KTT (addition works)	25 days	Mon Sep 14, '15	Thu Oct 8, '15
68	Pipe laying for 4 nos. seawater pipes and 1 no. DN500 CWP CH3P3-590 to 730	70 days	Fri Oct 9, '15	Thu Dec 17, '15
69	Concrete surround (addition works) and laying steel plate above KTT	100 days	Fri Dec 18, '15	Sat Mar 26, '16
70	Deliver DCS materials batch no. 4	60 days	Fri Jan 2, '15	Mon Mar 2, '15
71	Trench excavation for 2 nos. DN1000 CWP CH3P3-590 to 730	10 days	Fri Jan 8, '16	Sun Jan 17, '16
72	Laying miradrain and steel plate above KTT (addition works)	15 days	Mon Jan 18, '16	Mon Feb 1, '16
73	Pipe laying for 2 nos. DN1000 CWP CH3P3-590 to 730	55 days	Tue Feb 2, '16	Sun Mar 27, '16
74	Concrete surround (addition works) and laying steel plate above KTT	15 days	Mon Mar 28, '16	Mon Apr 11, '16
75	VO58 additional 2 nos. tee-off pipes at CH3P3-720, issued on 17 Aug 15, materials provided by client	1 day	Mon Aug 17, '15	Mon Aug 17, '15
76	Installation of sheetpiles and excavation works	50 days	Wed Feb 24, '16	Wed Apr 13, '16
77	VO58 tee-off laying works	140 days	Thu Apr 14, '16	Wed Aug 31, '16
78	Trench backfilling	10 days	Thu Sep 1, '16	Sat Sep 10, '16
79	Installation of sheetpiling for CH3P3-730 to 830	35 days	Sat Mar 7, '15	Fri Apr 10, '15
80	Installation of wailing and excavation for CH3P3-730 to 830	80 days	Sat Apr 11, '15	Mon Jun 29, '15
81	Construct DCS system at CH3P3-730 to 830	130 days	Tue Jun 30, '15	Fri Nov 6, '15
82	Trench backfilling at CH3P3-730 to 830	9 days	Sat Nov 7, '15	Sun Nov 15, '15
83	Cable duct block by CLP	110 days	Thu Nov 19, '15	Mon Mar 7, '16
84	Construct tee-off gate valve chambers (S-2D1)	140 days	Tue Mar 8, '16	Mon Jul 25, '16
85	Construct bend block concrete at CH3P3-730 to 830	37 days	Tue Jul 26, '16	Wed Aug 31, '16
86	Trench backfilling at CH3P3-750-770	10 days	Thu Sep 1, '16	Sat Sep 10, '16
87	Construct CLP tunnel by CLP Portion F2a	215 days	Wed Jul 16, '14	Sun Feb 15, '15
88	Deliver DCS materials batch no. 5	60 days	Wed Apr 8, '15	Sat Jun 6, '15
89	Installation of sheetpiling for CH3P3-830 to 930	30 days	Mon Jun 1, '15	Tue Jun 30, '15
90	Installation of wailing and excavation for CH3P3-830 to 930	50 days	Wed Jul 1, '15	Wed Aug 19, '15
91	Construct DCS system at CH3P3-830 to 930	100 days	Thu Aug 20, '15	Fri Nov 27, '15
92	Trench backfilling at CH3P3-830 to 930	40 days	Sat Nov 28, '15	Wed Jan 6, '16
93	DCS pipe laying works and construct tee-off gate valve chambers (S-2D1L)	84 days	Wed Jun 8, '16	Tue Aug 30, '16
94	Delivery of optical fibers	50 days	Wed Jul 27, '16	Wed Sep 14, '16
95	Construction of cable ducts and drawpits	50 days	Fri Jul 22, '16	Fri Sep 9, '16
96	Laying and testing optical fibers	20 days	Thu Sep 15, '16	Tue Oct 4, '16
97	Interfacing works with EMSD 1020EM12A Contractor for connection of the proposed four seawater pipes and three chilled water pipes in Section C to their construction of seawater pipes and chilled water pipes	120 days	Thu May 29, '14	Thu Sep 25, '14
98	CCTV for DCS pipes	100 days	Sun May 22, '16	Mon Aug 29, '16
99	Swabbing, pressure test and chemical test for DCS Pipes	60 days	Thu Sep 1, '16	Sun Oct 30, '16

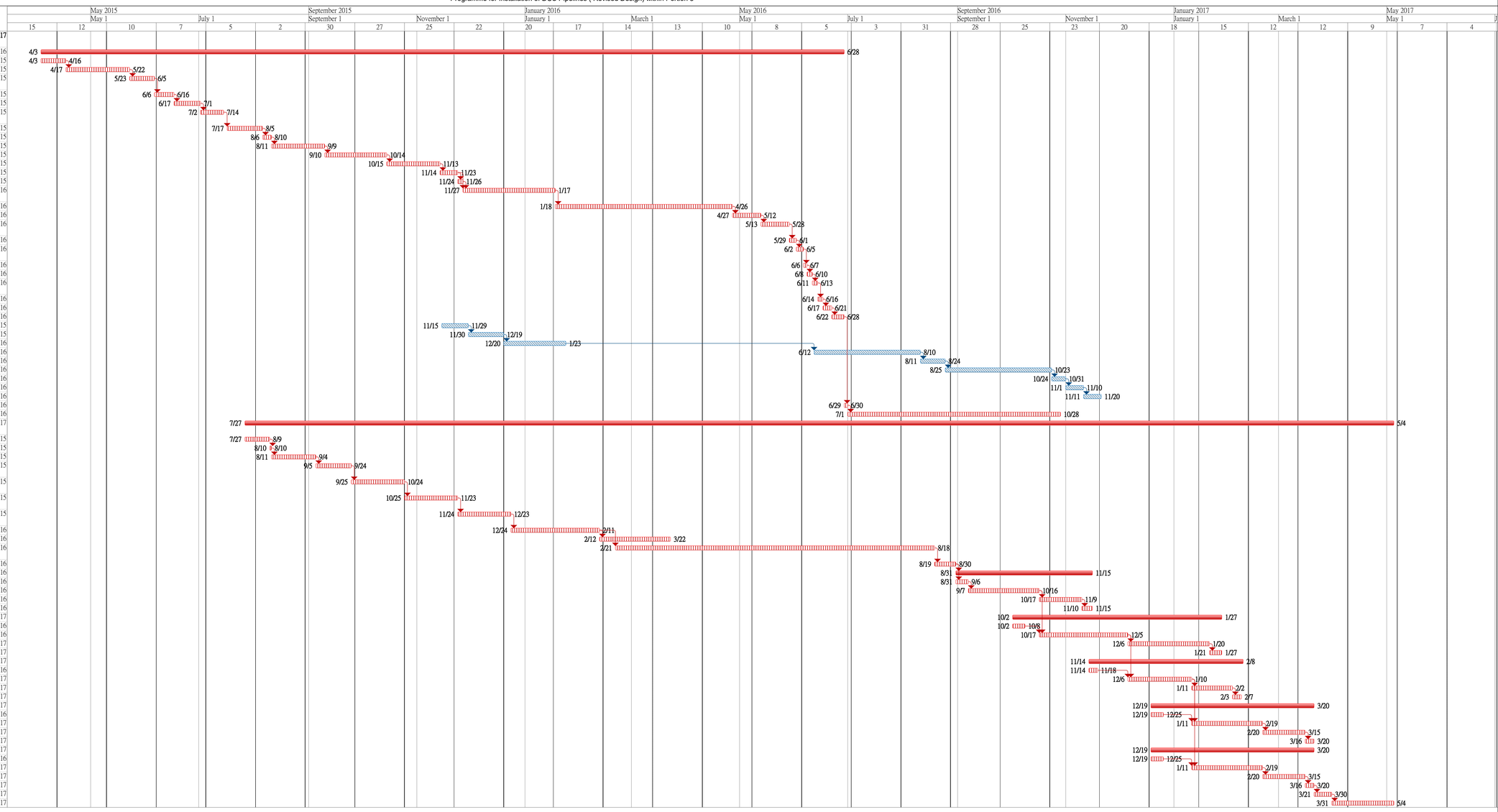


Critical tasks | Non-critical tasks | Working days | Inactive Milestone | Inactive Summary | Manual Task | Duration-only | Manual Summary Rollup | Manual Summary | Start-only | Finish-only | External Tasks | External Milestone

Updated on 29 July 2016

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

ID	Task Name	Duration	Start	Finish
1	**Section 7B: Open Cut Section and Heading Section**	**763 days**	**Fri Apr 3, '15**	**Thu May 4, '17**
2	**Western Approach**	453 days	Fri Apr 3, '15	Tue Jun 28, '16
3	Submission for temporary ELS system and approval	14 days	Fri Apr 3, '15	Thu Apr 16, '15
4	Install sheet piles at formation level	36 days	Fri Apr 17, '15	Fri May 22, '15
5	Submission for revised temporary ELS system and approval	14 days	Sat May 23, '15	Fri Jun 5, '15
6	Install waling	11 days	Sat Jun 6, '15	Tue Jun 16, '15
7	Install strut	15 days	Wed Jun 17, '15	Wed Jul 1, '15
8	Trench excavation down to 2m and 8m long for drilling horizontal pipe-piles	13 days	Thu Jul 2, '15	Tue Jul 14, '15
9	Submission for heading method	20 days	Fri Jul 17, '15	Wed Aug 5, '15
10	Comment on heading method	5 days	Thu Aug 6, '15	Mon Aug 10, '15
11	Mobilization and set up for drilling works	30 days	Tue Aug 11, '15	Wed Sep 9, '15
12	Drilling for 219 dia. pipe-piles	35 days	Thu Sep 10, '15	Wed Oct 14, '15
13	Review design for heading method	30 days	Thu Oct 15, '15	Fri Nov 13, '15
14	Grout trial to obtain design parameter	10 days	Sat Nov 14, '15	Mon Nov 23, '15
15	Update method statement for heading method	3 days	Tue Nov 24, '15	Thu Nov 26, '15
16	Upon grout trial successful, proceed with drilling for all grout holes and grouting	52 days	Fri Nov 27, '15	Sun Jan 17, '16
17	Rectification of existing ELS system	100 days	Mon Jan 18, '16	Tue Apr 26, '16
18	Release of suspension of works order	16 days	Wed Apr 27, '16	Thu May 12, '16
19	Fixing bottom layer reinforcement bar (Additional works - no steel bar shown on original design)	16 days	Fri May 13, '16	Sat May 28, '16
20	Concreting up to bottom level of sleeve pipe	4 days	Sun May 29, '16	Wed Jun 1, '16
21	Install 1 no. DN2800 dia sleeve pipe and 4 nos. DN2100 dia. Sleeve pipe	4 days	Thu Jun 2, '16	Sun Jun 5, '16
22	Concreting up to middle level of sleeve pipe	2 days	Mon Jun 6, '16	Tue Jun 7, '16
23	Concreting up to top level of sleeve pipe	3 days	Wed Jun 8, '16	Fri Jun 10, '16
24	Fixing top layer reinforcement bar (Additional works - no steel bar shown on original design)	3 days	Sat Jun 11, '16	Mon Jun 13, '16
25	Concreting up to final level of concrete surround	3 days	Tue Jun 14, '16	Thu Jun 16, '16
26	Backfilling and remove stage 1 strut and waling	5 days	Fri Jun 17, '16	Tue Jun 21, '16
27	Remove sheetpiles and filling the gap	7 days	Wed Jun 22, '16	Tue Jun 28, '16
28	Grade 400 rock fill (additional works)	15 days	Sun Nov 15, '15	Sun Nov 29, '15
29	Blinding layer for PJ-N-02	20 days	Mon Nov 30, '15	Sat Dec 19, '15
30	Construct base slab of PJ-N-02	35 days	Sun Dec 20, '15	Sat Jan 23, '16
31	Construct wall of PJ-N-02 up to +3mPD	60 days	Sun Jun 12, '16	Wed Aug 10, '16
32	Soil Backfilling up to +2.8mPD	14 days	Thu Aug 11, '16	Wed Aug 24, '16
33	Construct top slab of PJ-N-02	60 days	Thu Aug 25, '16	Sun Oct 23, '16
34	Soil Backfilling up to formation level	8 days	Mon Oct 24, '16	Mon Oct 31, '16
35	Remove strut and waling	10 days	Tue Nov 1, '16	Thu Nov 10, '16
36	Remove sheetpiles and filling the gap	10 days	Fri Nov 11, '16	Sun Nov 20, '16
37	Hand back the site to CCC's	2 days	Wed Jun 29, '16	Thu Jun 30, '16
38	Construction of remaining box culvert by CCC's.	120 days	Fri Jul 1, '16	Fri Oct 28, '16
39	**Section 7B: Open-cut Section & Heading from Eastern Approach**	648 days	Mon Jul 27, '15	Thu May 4, '17
40	Submission for temporary ELS system and approval	14 days	Mon Jul 27, '15	Sun Aug 9, '15
41	Site possession	1 day	Mon Aug 10, '15	Mon Aug 10, '15
42	Install sheet piles	25 days	Tue Aug 11, '15	Fri Sep 4, '15
43	Install 1st layer waling and strut and excavate to 2nd layer	20 days	Sat Sep 5, '15	Thu Sep 24, '15
44	Install 2nd layer waling and strut and excavate to 3rd layer	30 days	Fri Sep 25, '15	Sat Oct 24, '15
45	Install 3rd layer waling and strut and excavate to 4th layer	30 days	Sun Oct 25, '15	Mon Nov 23, '15
46	Install 4th layer waling and strut and excavate to formation level	30 days	Tue Nov 24, '15	Wed Dec 23, '15
47	Drilling for 50 dia. grout holes at 2 layers and grouting	50 days	Thu Dec 24, '15	Thu Feb 11, '16
48	Strengthening existing ELS system	40 days	Fri Feb 12, '16	Tue Mar 22, '16
49	Preparation of method statement for hand-shield construction and approval	180 days	Sun Feb 21, '16	Thu Aug 18, '16
50	Mobilize equipment & materials	12 days	Fri Aug 19, '16	Tue Aug 30, '16
51	**Pipeline 1 - DN2100**	77 days	Wed Aug 31, '16	Tue Nov 15, '16
52	Ground treatment works	7 days	Wed Aug 31, '16	Tue Sep 6, '16
53	Pipe jacking	40 days	Wed Sep 7, '16	Sun Oct 16, '16
54	DN1400 installation works	24 days	Mon Oct 17, '16	Wed Nov 9, '16
55	Annulus grout	6 days	Thu Nov 10, '16	Tue Nov 15, '16
56	**Pipeline 5 - DN2800**	118 days	Sun Oct 2, '16	Fri Jan 27, '17
57	Ground treatment works	7 days	Sun Oct 2, '16	Sat Oct 8, '16
58	Pipe jacking	50 days	Mon Oct 17, '16	Mon Dec 5, '16
59	CWP installation works	46 days	Tue Dec 6, '16	Fri Jan 20, '17
60	Annulus grout	7 days	Sat Jan 21, '17	Fri Jan 27, '17
61	**Pipeline 3 - DN2100**	87 days	Mon Nov 14, '16	Wed Feb 8, '17
62	Ground treatment works	5 days	Mon Nov 14, '16	Fri Nov 18, '16
63	Pipe jacking	36 days	Tue Dec 6, '16	Tue Jan 10, '17
64	DN1400 installation works	23 days	Wed Jan 11, '17	Thu Feb 2, '17
65	Annulus grout	5 days	Fri Feb 3, '17	Tue Feb 7, '17
66	**Pipeline 2 - DN2100**	92 days	Mon Dec 19, '16	Mon Mar 20, '17
67	Ground treatment works	7 days	Mon Dec 19, '16	Sun Dec 25, '16
68	Pipe jacking	40 days	Wed Jan 11, '17	Sun Feb 19, '17
69	DN1400 installation works	24 days	Mon Feb 20, '17	Wed Mar 15, '17
70	Annulus grout	5 days	Thu Mar 16, '17	Mon Mar 20, '17
71	**Pipeline 4 - DN2100**	92 days	Mon Dec 19, '16	Mon Mar 20, '17
72	Ground treatment works	7 days	Mon Dec 19, '16	Sun Dec 25, '16
73	Pipe jacking	40 days	Wed Jan 11, '17	Sun Feb 19, '17
74	DN1400 installation works	24 days	Mon Feb 20, '17	Wed Mar 15, '17
75	Annulus grout	5 days	Thu Mar 16, '17	Mon Mar 20, '17
76	Removal of plant	10 days	Tue Mar 21, '17	Thu Mar 30, '17
77	Backfilling and removal ELS system	35 days	Fri Mar 31, '17	Thu May 4, '17

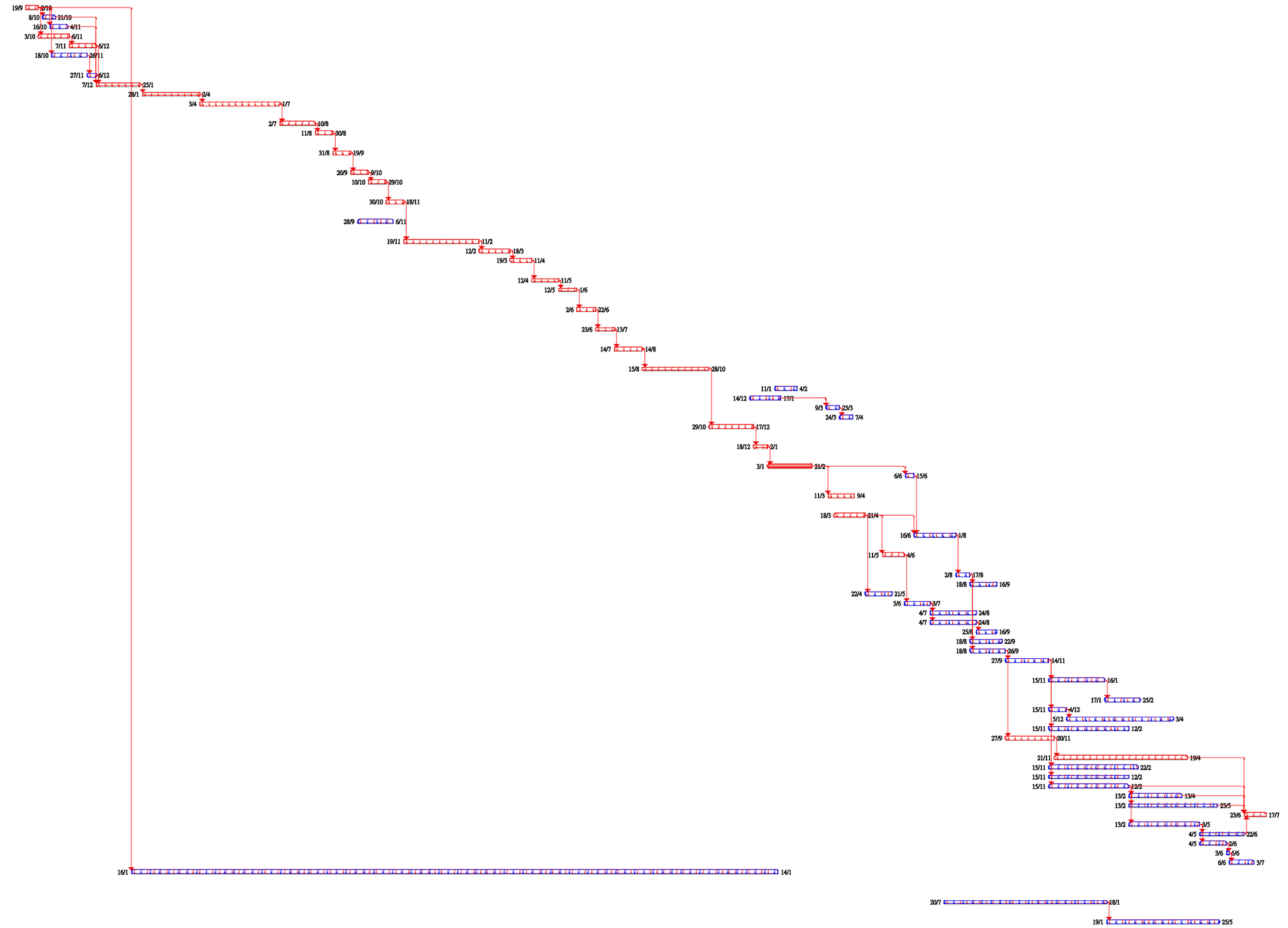


Site Activity

Updated on 29 July 2016

Master Programme

ID	Task Name	Duration	Start	Finish
1	**Commence KL/2012/03 construction**	**1398 days**	**Thu 19/9/13**	**Mon 17/7/17**
2	**Section 1: Works within Portion 1 and 3**	**1345 days**	**Thu 19/9/13**	**Thu 25/5/17**
3	**Construction of Sewerage Pumping Station PS2**	1345 days	Thu 19/9/13	Thu 25/5/17
4	Site possession and preparation works	14 days	Thu 19/9/13	Wed 2/10/13
5	Site clearance and setting out pumping station	14 days	Tue 8/10/13	Mon 21/10/13
6	Initial survey	20 days	Wed 16/10/13	Mon 4/11/13
7	Submission of baseline monitoring for EPD approval	35 days	Thu 3/10/13	Wed 6/11/13
8	Approval of baseline monitoring by EPD	30 days	Thu 7/11/13	Fri 6/12/13
9	Submission / approval of method statements and temporary works design	40 days	Fri 18/10/13	Tue 26/11/13
10	Mobilization of plant and delivery of materials	10 days	Wed 27/11/13	Fri 6/12/13
11	Construct sheet piling system	50 days	Sat 7/12/13	Sat 25/1/14
12	Install waling and strut, excavation to -1 mPD	65 days	Tue 28/1/14	Wed 2/4/14
13	Install waling and strut, excavation to the formation level	90 days	Thu 3/4/14	Tue 1/7/14
14	Construct the base slab	40 days	Wed 2/7/14	Sun 10/8/14
15	Construct 1st layer lower wall Grid C to D and Grid 2 to 5	20 days	Mon 11/8/14	Sat 30/8/14
16	Construct 1st layer lower wall Grid E to H and Grid 2 to 4	20 days	Sun 31/8/14	Fri 19/9/14
17	Construct the remaining base slab	20 days	Sat 20/9/14	Thu 9/10/14
18	Construct 1 st layer lower wall Grid D to E and Grid 2 to 3	20 days	Fri 10/10/14	Wed 29/10/14
19	Construct 1st layer lower wall Grid D to E and Grid 3 to 5	20 days	Thu 30/10/14	Tue 18/11/14
20	Submission of ICE design for removal of 1st and 2nd layers of waling and strut	40 days	Sun 28/9/14	Thu 6/11/14
21	Backfilling behind the wall up to -1.3mPD	85 days	Wed 19/11/14	Wed 11/2/15
22	Removal of 2nd layer of waling and struts	35 days	Thu 12/2/15	Wed 18/3/15
23	Construct 2nd layer lower wall Grid E to H and Grid 2 to 4	24 days	Thu 19/3/15	Sat 11/4/15
24	Removal of 2nd and 3rd layer of waling and struts	30 days	Sun 12/4/15	Mon 11/5/15
25	Construct 2nd layer lower wall Grid D to E and Grid 2 to 3	21 days	Tue 12/5/15	Mon 1/6/15
26	Construct 2nd layer lower wall Grid D to E and Grid 3 to 5	21 days	Tue 2/6/15	Mon 22/6/15
27	Construct 2nd layer lower wall Grid C to D and Grid 2 to 5	21 days	Tue 23/6/15	Mon 13/7/15
28	Remove 1st layer waling and struts and then remove sheetpiles	32 days	Tue 14/7/15	Fri 14/8/15
29	Construct ground floor slab except ground slab above intake and overflow pipe	75 days	Sat 15/8/15	Wed 28/10/15
30	Install rising main CHA0-CHA15	25 days	Mon 11/1/16	Thu 4/2/16
31	Construct intake pipes	35 days	Mon 14/12/15	Sun 17/1/16
32	Construct overflow pipes	15 days	Wed 9/3/16	Wed 23/3/16
33	Construct remaining ground slab	15 days	Thu 24/3/16	Thu 7/4/16
34	Construct wall, column, beam and roof Grid A to E and 1 to 2 and A to C and 2 to 5	50 days	Thu 29/10/15	Thu 17/12/15
35	Construct wall, column, beam and roof Grid C to E and 2 to 5	16 days	Fri 18/12/15	Sat 2/1/16
36	Revoking SN's	50 days	Sun 3/1/16	Sun 21/2/16
37	Water tightness test for lower roof at transformer room at Grid D to E and 1 to 2	10 days	Mon 6/6/16	Wed 15/6/16
38	Construct wall, column, beam and roof Grid C to D and 2 to 5	30 days	Fri 11/3/16	Sat 9/4/16
39	Construct wall, column, beam and roof Grid D to E and 2 to 5	35 days	Fri 18/3/16	Thu 21/4/16
40	Construct double roof Grid A to E and 1 to 2 and A to C and 2 to 5	47 days	Thu 16/6/16	Mon 1/8/16
41	Construct wall, column, beam and roof Grid E to H and 1 to 5	25 days	Wed 11/5/16	Sat 4/6/16
42	Construct Double slab & fence wall	16 days	Tue 2/8/16	Wed 17/8/16
43	Construct roof plinth & fence wall	30 days	Thu 18/8/16	Fri 16/9/16
44	Construct corbel C to D	30 days	Fri 22/4/16	Sat 21/5/16
45	Construct corbel E to F	29 days	Sun 5/6/16	Sun 3/7/16
46	Construct plinth DO room	52 days	Mon 4/7/16	Wed 24/8/16
47	Construct plinth screen room	52 days	Mon 4/7/16	Wed 24/8/16
48	Construct plinth room for water booster system	23 days	Thu 25/8/16	Fri 16/9/16
49	Staircase No.2 at Dry Well	36 days	Thu 18/8/16	Thu 22/9/16
50	Working platform at wet well, drt well, screen channel	40 days	Thu 18/8/16	Mon 26/9/16
51	Follow up defect works before architecural finish & mobilization	49 days	Tue 27/9/16	Mon 14/11/16
52	Water tightness test for inlet chamber, screen channel and wet wells	63 days	Tue 15/11/16	Mon 16/1/17
53	Install protective liner at the retaining structure	40 days	Tue 17/1/17	Sat 25/2/17
54	Water tightness test for upper roof at transformer room	20 days	Tue 15/11/16	Sun 4/12/16
55	Construct green roof system	120 days	Mon 5/12/16	Mon 3/4/17
56	Architectural finishes (internal)	90 days	Tue 15/11/16	Sun 12/2/17
57	Submission of method statement and preparation works for erection of cladding	55 days	Tue 27/9/16	Sun 20/11/16
58	Erect cladding (external)	150 days	Mon 21/11/16	Wed 19/4/17
59	Erect door, roller shutter etc.	100 days	Tue 15/11/16	Wed 22/2/17
60	Erect handrailing, louvre etc.	90 days	Tue 15/11/16	Sun 12/2/17
61	Construct storm drain and manholes	90 days	Tue 15/11/16	Sun 12/2/17
62	Construct cable ducts and draw pits for PCCW	60 days	Mon 13/2/17	Thu 13/4/17
63	Construct u-channel with cover along access road	100 days	Mon 13/2/17	Tue 23/5/17
64	Construct access road inside PS	25 days	Fri 23/6/17	Mon 17/7/17
65	Erect fence wall and mini bollard light	80 days	Mon 13/2/17	Wed 3/5/17
66	Erect vehicular and man access	50 days	Thu 4/5/17	Thu 22/6/17
67	Plants delivery for landscaping works	30 days	Thu 4/5/17	Fri 2/6/17
68	Hydroseeding	3 days	Sat 3/6/17	Mon 5/6/17
69	Tree and shurb planting	28 days	Tue 6/6/17	Mon 3/7/17
70	Submission / approval of E&M services materials and delivery (Detailed programme will be submitted separately)	729 days	Thu 16/1/14	Thu 14/1/16
71	E&M building service installation. (Detailed programme will be submitted separately)	183 days	Wed 20/7/16	Wed 18/1/17
72	E&M building service testing & comissioning. (Detailed programme will be submitted separately)	127 days	Thu 19/1/17	Thu 25/5/17



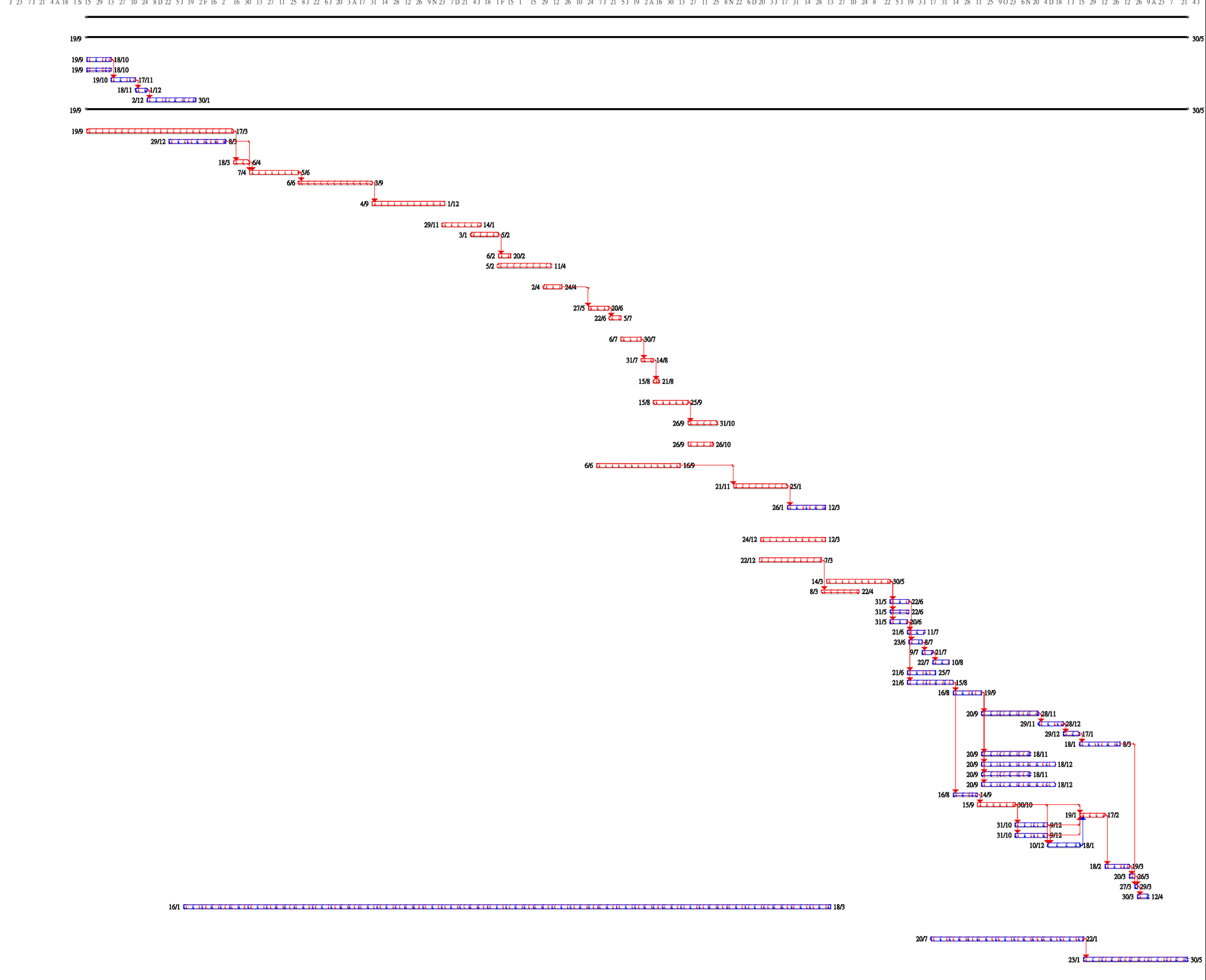
Critical tasks Non-critical tasks Working days

Commencement Date: 19 September 2013
Completion Date: 2 September 2016
Revised Completion Date: 25 May 2017

updated on 20 July 2016

Master Programme

ID	Task Name	Duration	Start	Finish	Predecessors
1	**Commence KL/2012/03 construction**	**1350 days**	**Thu 19/9/13**	**Tue 30/5/17**	
2	Commence KL/2012/03 construction	0 days	Thu 19/9/13	Thu 19/9/13	
3	**Section 2: Works within Portion 1 and 4**	**1350 days**	**Thu 19/9/13**	**Tue 30/5/17**	
4	Setting out site boundary	30 days	Thu 19/9/13	Fri 18/10/13	
5	Obtain underground utilities plans	30 days	Thu 19/9/13	Fri 18/10/13	
6	Site clearance	30 days	Sat 19/10/13	Sun 17/11/13	4
7	Initial survey	14 days	Mon 18/11/13	Sun 1/12/13	6
8	Erect hoarding, chain link fence and vehicular gate	60 days	Mon 2/12/13	Thu 30/1/14	7
9	**Construction of sewerage pumping station NPS**	**1350 days**	**Thu 19/9/13**	**Tue 30/5/17**	
10	Site Possession	180 days	Thu 19/9/13	Mon 17/3/14	
11	Submission / approval of method statements and temporary work design	70 days	Sun 29/12/13	Sat 8/3/14	
12	Mobilization	20 days	Tue 18/3/14	Sun 6/4/14	10
13	Construct sheet piling system	60 days	Mon 7/4/14	Thu 5/6/14	12,11
14	Install waling and strut, excavation to the formation level (1st and 2nd layers)	90 days	Fri 6/6/14	Wed 3/9/14	13
15	Install waling and strut, excavation to the formation level (3rd layer)	89 days	Thu 4/9/14	Mon 1/12/14	14
16	Construct the base slab	47 days	Sat 29/11/14	Wed 14/1/15	
17	Construct the external and internal wall Grid E to G and Grid 2 to 3 up to -1.25 mPD	34 days	Sat 3/1/15	Thu 5/2/15	
18	Backfilling works behind completed base slab and wall	15 days	Fri 6/2/15	Fri 20/2/15	17
19	Construct the external wall Grid C to E and Grid 2 to 4 up to -0.95 mPD	66 days	Thu 5/2/15	Sat 11/4/15	
20	Construct the external wall Grid C to E and Grid 1 to 2 up to -0.95 mPD	23 days	Thu 2/4/15	Fri 24/4/15	
21	Construct the internal wall Grid D to E up to -0.95 mPD	25 days	Wed 27/5/15	Sat 20/6/15	20
22	Backfilling works behind constructed wall and remove 2nd layer of waling and strut	14 days	Mon 22/6/15	Sun 5/7/15	21
23	Construct the external wall Grid C to E and Grid 2 to 4 up to +2.25 mPD	25 days	Mon 6/7/15	Thu 30/7/15	
24	Construct the external wall Grid C to E and Grid 1 to 2 up to +2..25 mPD	15 days	Fri 31/7/15	Fri 14/8/15	23
25	Construct the internal wall Grid D to E up to +2.25 mPD	7 days	Sat 15/8/15	Fri 21/8/15	24
26	Backfilling works behind constructed wall and remove 1st layer of waling and strut and sheetpiles	42 days	Sat 15/8/15	Fri 25/9/15	
27	Construct the external and internal wall Grid A to E and Grid 1 to 2 up to +4.7 mPD	36 days	Sat 26/9/15	Sat 31/10/15	26
28	Construct the external and internal wall Grid A to E and Grid 2 to 4 up to +4.7 mPD	31 days	Sat 26/9/15	Mon 26/10/15	
29	Construct the external and internal wall Grid E to G and Grid 2 to 3 up to +4.7 mPD	103 days	Sat 6/6/15	Wed 16/9/15	
30	Construct upper wall and column up to beam level Grid A to C and 1 to 5	66 days	Sat 21/11/15	Mon 25/1/16	29
31	Construct the beam and roof Grid A to C and 1 to 5, Only double ceiling will be divided into two layers for construction	47 days	Tue 26/1/16	Sat 12/3/16	30
32	Construct upper wall and column up to beam level Grid E to G and 1 to 5	80 days	Thu 24/12/15	Sat 12/3/16	
33	Construct upper wall and column up to beam level Grid C to E and 1 to 5	77 days	Tue 22/12/15	Mon 7/3/16	
34	Construct the beam and roof Grid E to G and 1 to 5	78 days	Mon 14/3/16	Mon 30/5/16	
35	Construct the beam and roof Grid C to E and 1 to 5	46 days	Tue 8/3/16	Fri 22/4/16	33
36	Construct roof plinth and fence wall	23 days	Tue 31/5/16	Wed 22/6/16	34
37	Construct ventilation house	23 days	Tue 31/5/16	Wed 22/6/16	34
38	Construct corbel Grid Cto D	21 days	Tue 31/5/16	Mon 20/6/16	34
39	Construct corbel Grid E to F	21 days	Tue 21/6/16	Mon 11/7/16	38
40	Construct Plinth DO room 1	16 days	Thu 23/6/16	Fri 8/7/16	36
41	Construct Plinth DO room 2	13 days	Sat 9/7/16	Thu 21/7/16	40
42	Construct Plinth Room for waterbooster system	20 days	Fri 22/7/16	Wed 10/8/16	41
43	Staircase No1 at Dry Well	35 days	Tue 21/6/16	Mon 25/7/16	38
44	Working plantform at Wet well, Dry weel, screen channel	56 days	Tue 21/6/16	Mon 15/8/16	38
45	Follow up defect works before arcectural finish works & mobilization	35 days	Tue 16/8/16	Mon 19/9/16	44
46	Water tightness test for retaining structure	70 days	Tue 20/9/16	Mon 28/11/16	45
47	Install protective liner at the retaining structure	30 days	Tue 29/11/16	Wed 28/12/16	46
48	Water tightness test for the double ceiling	20 days	Thu 29/12/16	Tue 17/1/17	47
49	Establishment of green roof system	50 days	Wed 18/1/17	Wed 8/3/17	48
50	Architectural finishes (internal)	60 days	Tue 20/9/16	Fri 18/11/16	45
51	Erect granite tile	90 days	Tue 20/9/16	Sun 18/12/16	45
52	Erect louvre and door	60 days	Tue 20/9/16	Fri 18/11/16	45
53	Erect handrailing and roller shutter etc.	90 days	Tue 20/9/16	Sun 18/12/16	45
54	Install rising main	30 days	Tue 16/8/16	Wed 14/9/16	44
55	Construct sewerage, drainage drain and manhole	46 days	Thu 15/9/16	Sun 30/10/16	54
56	Construct assess road	30 days	Thu 19/1/17	Fri 17/2/17	59,55,58,57
57	Construct cable ducts and draw pits for PCCW and CLP	40 days	Mon 31/10/16	Fri 9/12/16	55
58	Construct u-channel with cover along access road	40 days	Mon 31/10/16	Fri 9/12/16	55
59	Erect vehicular and man access and mini bollard light	40 days	Sat 10/12/16	Wed 18/1/17	55,58,57
60	Plants delivery for landscaping works	30 days	Sat 18/2/17	Sun 19/3/17	56
61	Preparatory works for landscaping works	7 days	Mon 20/3/17	Sun 26/3/17	60
62	Hydroseeding	3 days	Mon 27/3/17	Wed 29/3/17	61,49
63	Tree and shurb planting	14 days	Thu 30/3/17	Wed 12/4/17	62
64	Submission / approval of E&M services materials and delivery (Detailed programme will be submitted separately)	793 days	Thu 16/1/14	Fri 18/3/16	
65	E&M building service installation. (Detailed programme will be submitted separately)	187 days	Wed 20/7/16	Sun 22/1/17	
66	E&M building service Testing & Commissioning (Detailed programme will be submitted separately)	128 days	Mon 23/1/17	Tue 30/5/17	65



Commencement Date: 19 September 2013
Completion Date: 5 May 2016
Revised Completion Date: 30 May 2017

updated on 20 July 2016

FUGRO TECHNICAL SERVICES LIMITED

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

Appendix C

Monthly EM&A Report
For
Contract No. KL/2014/01
Kai Tak Development - Stage 2 Infrastructure works for Developments at Southern Part of the Former Runway

Civil Engineering and Development Department

EP-337/2009 & EP-445/2013/A

Contract No. KL/2014/01

Kai Tak Development –
Stage 2 Infrastructure works for Developments at Southern Part of the Former Runway

Monthly EM&A Report
July 2018

(Version 1.0)

Approved By	(Environmental Team Leader)

REMARKS:

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

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

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

嘉誠管理顧問有限公司
Ka Shing management consultant Limited

Our ref: 9-8-2018

9-8-2018

By email: clive.cheng@aecom-ktd.com and By hand

Supervising Officer Representative
Aecom Asia Co Ltd.
8/F Grand Central Plaza Tower 2
138 Shatin Rural Committee Road
Sha Tin, N.T. Hong Kong
(Attn: Mr. Cheng Chi Hung)

Dear Mr. Cheng,

Re: Contract No. KL/2014/01 (Environmental Permit Nos. EP-337/2009 and EP-445/2013/A)
Kai Tak Development –Stage 2 Infrastructure Works for Developments at Southern Part of the Former Runway
Monthly EM&A report for July 2018

Reference is made to the Environmental Team's submission of the draft Monthly EM&A Report (version 1.0) for July 2018 provided to Independent Environmental Checker (IEC) via email dated on 9 th August 2018 for review and comment.

Please be informed that IEC has no adverse comment on the captioned submission. IEC writes to verify the captioned submission in accordance with Specific Condition 2.2 of the Environmental Permit No. 337/2009 and 445/2013/A.

Thank you very much for your attention and please feel free to contact the undersigned should you require further information.

Yours faithfully,
For and on behalf of
Ka Shing Management Consultant Limited

Dr. C.F. Ng
Independent Environmental Checker

c.c.	CEDD	Mr. Sunny Lo	(By email: sunnysplo@cedd.gov.hk)
	AECOM	Mr. Anthony Lok	(By email: anthony.lok@aecom-ktd.com)
	CEC-CCC	Mr. Eric Fong	(By email: eric-cs-fong@continental-engineering.com)
	Cinotech	Dr. Priscilla Choy	(By email: priscilla.choy@cinotech.com.hk)
	SFK	Ms Alice Leung	(By email: aliceleung@sfk.com.hk)

Unit 2, 13/F Kai Yue Commercial Building, 2C Argyle St, Mong Kok, Kowloon
九龍旺角亞皆老街 2C 號啟如商業大廈 13 樓 2 室
Tel: (852) 2618 2166 Fax: (852) 2120 7752 Web Site: www.ka-shing.net
電話: (852) 2618 2166 傳真: (852) 2120 7752 網站: www.ka-shing.net

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

EXECUTIVE SUMMARY

Introduction

1. This is the 28th Monthly Environmental Monitoring and Audit Report prepared by Cinotech Consultants Ltd. for "Contract No. KL/2014/01 - Kai Tak Development – Stage 2 Infrastructure Works for Developments at the Southern Part of the Former Runway" (Hereafter referred to as "the Project"). This contract work comprises two Schedule 2 designated projects (DP), namely the new distributor road D4(part) and roads D3A & D4A serving the planned KTD. The DPs are part of the designated projects under Environmental Permits (EP) No.: EP-337/2009 ("New distributor roads serving the planned Kai Tak Development") and EP-445/2013/A ("Kai Tak Development – Roads D3A & D4A") respectively. This report documents the findings of EM&A Works conducted from 1 – 31 July 2018.

2. With reference to the same principle of EIA report of the Project, no air quality monitoring station within 500m and noise monitoring station within 300m from the boundary of this Project are considered as relevant monitoring locations. In such regard, no relevant air quality and noise monitoring location are required for monitoring under the Project. The monitoring works for recommended monitoring stations in EM&A Manual of the DPs are conducted by Kai Tak Development (KTD) Schedule 3 Project.

3. The major site activities undertaken in the reporting month included:
   - TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
   - ELS installation and construction of box culvert and underpass;
   - Construction of utilities trough and its laying of utilities at Kai Tak Bridge;
   - Construction of pile caps, noise barrier footings and steel structure, outfalls, deck structure and columns;
   - Laying of sewer, drainage and pavement; and
   - Erection of noise barrier steel structure and panels.

Environmental Monitoring Works

4. 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.

5. Summary of the non-compliance in the reporting month for the Project is tabulated in Table I.

Table I Non-compliance Recorded for the Project in the Reporting Month

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

Environmental Monitoring for Air Quality and Construction Noise

6. No monitoring for air quality and construction noise is required. No Action/Limit Level exceedance was recorded.

Environmental Licenses and Permits

7. Licenses/Permits granted to the Project include the Environmental Permits (EP) for the Project, EP-337/2009 issued on 23 April 2009 and EP-445/2013 issued on 3 May 2013 (Amended Environmental Permit (No.: EP-445/2013/A) issued on 13 August 2014).

8. Billing Account for Disposal of Construction Waste (A/C No. 7024073)

9. Registration of Chemical Waste Producer (License: 5213-247-C4004-01).

10. Water Discharge License (License: WT00023634-2016).

11. Construction Noise Permits (Permit: GW-RE0182-18)

Key Information in the Reporting Month

12. Summary of key information 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

13. The future key environmental issues in the coming month include:
- Dust generation from stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
- Water spraying for dust generating activity and on haul road;
- Proper storage of construction materials on site;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Accumulation of general and construction waste on site;
- Noise from operation of the equipment, especially for excavation activities and machinery on-site;
- Wastewater and runoff discharge from site;
- Regular removal of silt, mud and sand along u-channels and sedimentation tanks; and
- Review and implementation of temporary drainage system for the surface runoff.

1. INTRODUCTION

Background

1.1 The Kai Tak Development (KTD) is located in the south-eastern part of Kowloon Peninsula, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling. It covers a land area of about 328 hectares. Stage 2 Infrastructure Works for Developments for Southern Part of the Former Runway is one of the construction stages of KTD. It contains two Schedule 2 DPs including new distributor roads serving the planned KTD and KTD Roads D3A & D4A. The general layout of the Project is shown in **Figure 1.**

1.2 One Environmental Permit (EP) No.: EP-337/2009 was issued on 23 April 2009 for new distributor roads serving the planned KTD and one Environmental Permit No.: EP-445/2013 was issued on 3 May 2013 for Kai Tak Development Roads D3A & D4A to Civil Engineering and Development Department (CEDD) as the Permit Holder. Pursuant to Section 13 of the EIAO, the Director of Environmental Protection Department amended the Environmental Permit No.: EP-445/2013 based on the Application No. VEP-449/2014 and the Environmental Permit (No.: EP-445/2013/A) was issued on 13 August 2014.

1.3 A study of environmental impact assessment (EIA) was undertaken to consider the key issues of air quality, noise, water quality, waste, land contamination, cultural heritage and landscape and visual impact, and identify possible mitigation measures associated with the works. EIA Reports (Register No. AEIAR-130/2009 and AEIAR-170/2013) were approved by the Environmental Protection Department (EPD) on 4 March 2009 and 3 May 2013 respectively.

1.4 Cinotech Consultants Limited (Cinotech) was commissioned by Civil Engineering and Development Department (CEDD) to undertake the role of the Environmental Team (ET) for the Contract No. KL/2014/01 – Stage 2 Infrastructure Works for Developments at the Southern Part of the Former Runway. The construction work under KL/2014/01 comprises the construction of part of the Road D4 under the EP (EP-337/2009) and the construction of Roads D3A & D4A under the EP (EP-445/2013/A).

1.5 Cinotech Consultants Limited was commissioned by Civil Engineering and Development Department (CEDD) to undertake the Environmental Monitoring and Audit (EM&A) works for the Project. The construction commencement of this Contract is on 13 April 2016. This is the 28th Monthly EM&A report summarizing the EM&A works for the Project from 1 – 31 July 2018.

1.6 All project information since the commencement of work under EPs including Monthly EM&A Reports is made available to the public via internet access at the website: http://www.kl201401.com/

Project Organizations

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

- Project Proponent – Civil Engineering and Development Department (CEDD).
- The Supervising Officer and the Supervising Officer's Representative (SO) – AECOM Asia Co. Ltd. (AECOM).
- Environmental Team (ET) – Cinotech Consultants Limited (CCL).
- Independent Environmental Checker (IEC) – Ka Shing Management Consultant Ltd. (KSMC).
- Contractor – Continental Engineering Corp. and Chit Cheung Construction Co. Ltd. Joint Venture (CCJV).

1.8 The key contacts of the Project are shown in **Table 1.1**.

Table 1.1 Key Project Contacts

Party	Role	Contact Person	Position	Phone No.	Fax No.
CEDD	Project Proponent	Mr. Sunny Lo	Senior Engineer	3579 2450	3579 4516
		Mr. Keith Chu	Engineer	3579 2124	
AECOM	Supervising Officer	Mr. Clive Cheng	CRE	3746 1801	2798 0783
Cinotech	Environmental Team	Dr. Priscilla Choy	Environmental Team Leader	2151 2089	3107 1388
		Ms. Ivy Tam	Audit Team Leader	2151 2090	
KSMC	Independent Environmental Checker	Dr. C. F. Ng	IEC	2618 2166	2120 7752
CCJV	Contractor	Mr. Dennis Ho	Environmental Officer	2960 1398	2960 1399

Construction Activities undertaken during the Reporting Month

1.9 The site activities undertaken in the reporting month included:

- TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
- ELS installation and construction of box culvert and underpass;
- Construction of utilities trough and its laying of utilities at Kai Tak Bridge;
- Construction of pile caps, noise barrier footings and steel structure, outfalls, deck structure and columns;
- Laying of sewer, drainage and pavement; and
- Erection of noise barrier steel structure and panels.

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

Summary of EM&A Requirements

1.11 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.

1.12 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 5 of this report.

2. AIR QUALITY

Monitoring Requirements

2.1 With reference to the same principle of EIA report of the Project, no air quality monitoring station within 500m from the boundary of this Project are considered as relevant monitoring locations. No air quality monitoring is required for the Project.

Observations

2.2 No monitoring for air quality is required for the Project.

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

3. NOISE

Monitoring Requirements

3.1 With reference to the same principle of EIA report of the Project, no construction noise monitoring station within 300m from the boundary of this Project are considered as relevant monitoring locations. No Construction noise monitoring is required for the Project. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Observations

3.2 No monitoring for construction noise is required for the Project. No Action/Limit Level exceedance was recorded. The summary of exceedance record in reporting month is shown in **Appendix B**.

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

4. LANDSCAPE AND VISUAL

Monitoring Requirements

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

Results and Observations

4.2 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 C**.

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

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

5. ENVIRONMENTAL AUDIT

Site Audits

5.1 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 C**.

5.2 Site audits were conducted by representatives of the Contractor, Supervising Officer and ET on 4, 11, 18 and 25 July 2018 in the reporting month. IEC joint site inspection was conducted on 25 July 2018. No non-compliance was observed during the site audits.

Status of Environmental Licensing and Permitting

5.3 All permits/licenses obtained for the Project are summarized in Table 5.1.

Table 5.1 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-445/2013/A	13/08/14	N/A	Construction of Kai Tak Development roads D3A and D4A	Valid
Effluent Discharge License				
WT00023634-2016	--	31/03/21	Wastewater from the construction site including effluent treated by screen and sedimentation tank	Valid
Registration of Chemical Waste Producer				
5213-247-C4004-01	--	N/A	Chemical Waste Types: Surplus paint, waste contaminated by paint, diesel, waste contaminated by diesel, spent lubricating oil and waste, soil contaminated by lubricating oil.	Valid
Construction Noise Permit (CNP)				
GW-RE0182-18	22/03/18	17/09/18	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work other than percussive pilling and performing prescribed construction work.	Valid

Status of Waste Management

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

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

Implementation Status of Environmental Mitigation Measures

5.6 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 5.2.

Table 5.2 Observations and Recommendations of Site Inspections

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	25 July 2018	Reminder: Ponding water should be avoided in the site generally.	Follow up actions will be reported in the next reporting month.
Air Quality	27 June 2018	Reminder: To clear/replace the damaged sand bag at near Cruise Terminal.	The condition was observed to be improved/rectified by the contractor during the audit session on 4 July 2018
	27 June 2018	Reminder: To provide sufficient water spray for haul road at near urban room B for dust suppression.	The condition was observed to be improved/rectified by the contractor during the audit session on 4 July 2018
	11 July 2018	Reminder: To properly cover the dusty stockpile at near urban room B to avoid dust generation.	The condition was observed to be improved/rectified by the contractor during the audit session on 18 July 2018
Noise	--	--	--
Waste/ Chemical Management	18 July 2018	Reminder: To provide a drip tray for the chemical containers at urban room C.	The condition was observed to be improved/rectified by the contractor during the audit session on 18 July 2018
Landscape and Visual	--	--	--
Permits/ Licences	--	--	--

Summary of Mitigation Measures Implemented

5.7 An updated summary of the EMIS is provided in **Appendix E**.

Implementation Status of Event Action Plans

5.8 The Event Action Plans for noise and landscape and visual are presented in **Appendix D**. No Event Action Plan for air quality is considered necessary.

Construction Noise

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

Landscape and visual

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

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

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

6. FUTURE KEY ISSUES

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

- TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
- ELS installation and construction of box culvert and underpass;
- Construction of utilities trough and its laying of utilities at Kai Tak Bridge;
- Construction of remaining piles, pile caps, noise barrier footings and steel structure, outfalls, deck structure and columns;
- Laying of sewer, drainage and pavement;
- Erection of noise barrier steel structure and panels; and
- Construction of Ground Level Open Space (GLOS).

Key Issues for the Coming Month

6.2 Key environmental issues in the coming month include:

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

6.3 The tentative program of major site activities and the impact prediction and control measures for the coming two months, i.e. August and September 2018 are summarized as follows:

Construction Works	**Major Impact Prediction**	**Control Measures**
As mentioned in Section 7.1	Air quality impact (dust)	a) Frequent watering of haul road and unpaved/exposed areas; b) Frequent watering or covering stockpiles with tarpaulin or similar means; and c) Watering of any earth moving activities.
	Water quality impact (surface run-off)	a) Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; b) Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; c) Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and d) Provision of measures to prevent discharge into the stream.

Construction Works	Major Impact Prediction	Control Measures
	Noise Impact	a) Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; b) Controlling the number of plants use on site; c) Regular maintenance of machines; and d) Use of acoustic barriers if necessary.

7. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

7.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 July 2018.

Air Quality and Construction Noise

7.2 No regular monitoring air quality and noise monitoring is required for the Project. No Action/Limit Level exceedance was recorded.

Landscape and visual

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

Complaint and Prosecution

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

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

Recommendations

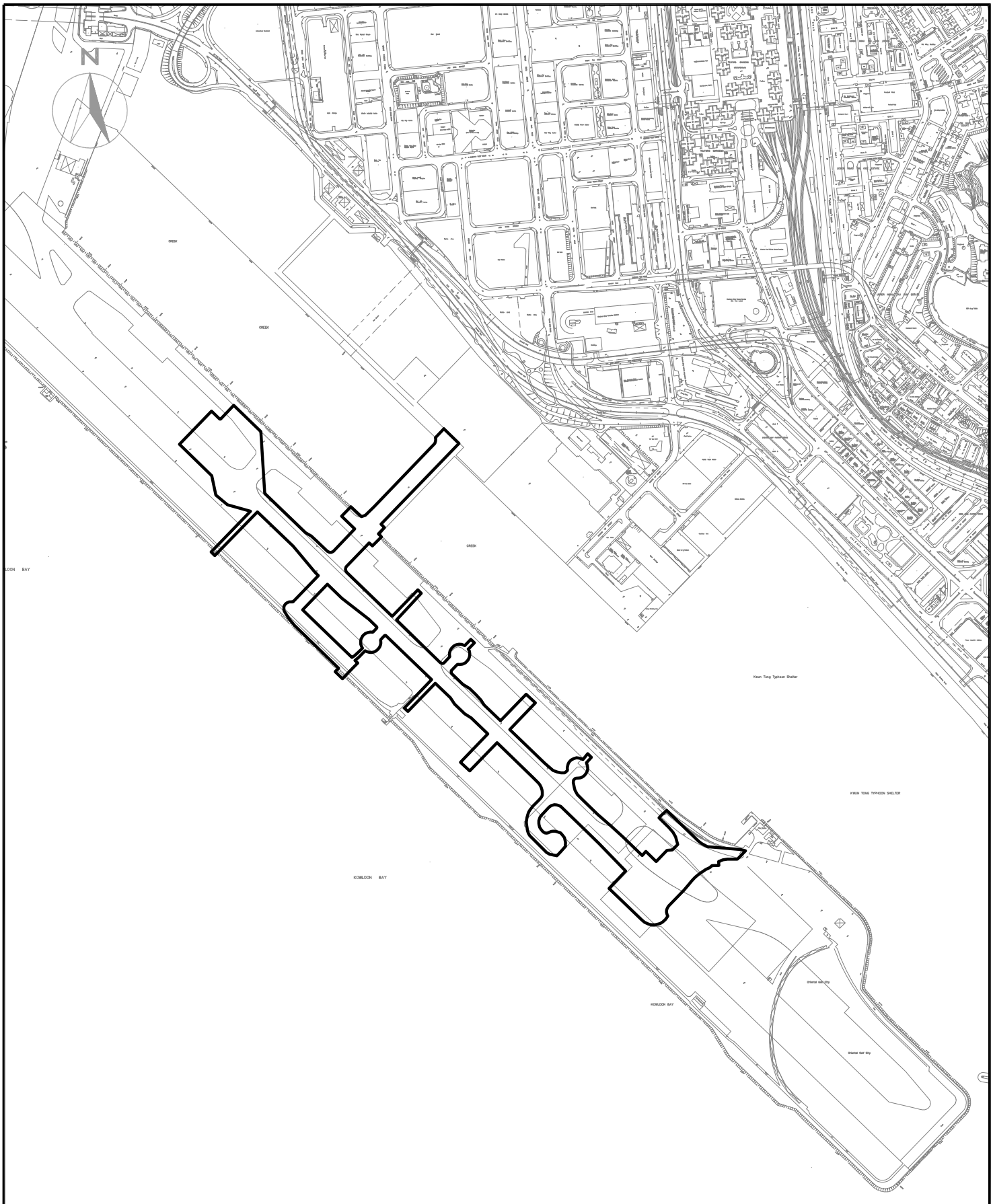
7.6 According to the environmental audit performed in the reporting month, the following recommendations were made:

Water Quality
- Ponding water should be avoided.

Air Quality
- To provide sufficient water spraying more frequently to haul roads or unpaved area for dust suppression.
- To clear/replace the damaged sand bag.
- To properly cover the dusty stockpile to prevent dust generation.

Waste/Chemical management
- To provide secondary spill containment (e.g. drip tray) for the chemical containers to prevent leakage.

FIGURES



LEGEND:

SITE BOUNDARY

CINOTECH

Cinotech Consultants Limited

KL/2014/01 KAI TAK DEVELOPMENT - STAGE 2
INFRASTRUCTURE WORKS FOR DEVELOPMENT AT
SOUTHERN PART OF THE FORMER RUNWAY

SITE LAYOUT PLAN

SCALE	1:1000@A4	DATE	MAY 2016
CHECK	JL	DRAWN	JW
JOB No.	MA15046	FIGURE NO. 1	REV -

APPENDIX A
ACTION AND LIMIT LEVELS

Appendix A - Action and Limit Levels

Table A-1 Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level[(1)(2)]
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) 70dB(A)/65dB(A)*

Remarks: (1) 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.

(2) No regular noise impact monitoring station for this Contract. It is subject to the noise sensitive receiver(s) and additional monitoring work.

(*) 70dB(A) and 65dB(A) for schools during normal teaching periods and school examination periods, respectively.

APPENDIX B
SUMMARY OF EXCEEDANCE

Contract No. KL/2014/01
Kai Tak Development –Stage 2 Infrastructure Works for Developments at the Southern Part of the Former Runway

Appendix B – Summary of Exceedance

Exceedance Record for Contract No. KL/2014/01

Reporting Month: July 2018

(A) Exceedance Record for Construction Noise

(NIL in the reporting month)

(B) Exceedance Record for Landscape and Visual

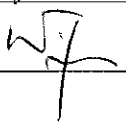
(NIL in the reporting month)

APPENDIX C
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180704
Date	4 July 2018 (Wednesday)
Time	14:00 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.:180627), all identified deficiencies were observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kinson Poon		4 July 2018
Checked by	Dr. Priscilla Choy		5 July 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180711
Date	11 July 2018 (Wednesday)
Time	14:00 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
180711-R01	• To properly cover the dusty stockpile at near urban room B to avoid 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.:180704), no major environmental deficiency was observed during site inspection.	

	Name	Signature	Date
Recorded by	Kinson Poon		11 July 2018
Checked by	Dr. Priscilla Choy		12 July 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180718
Date	18 July 2018 (Wednesday)
Time	14:00 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
180718-R01	• To provide a drip tray for the chemical containers at urban room C.	E 8
	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.:180711), all identified deficiencies were observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kinson Poon		18 July 2018
Checked by	Dr. Priscilla Choy		19 July 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180725
Date	25 July 2018 (Wednesday)
Time	14:30 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
180725-R01	• Ponding water should be avoided in the site generally.	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.:180718), all identified deficiencies were observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kinson Poon		25 July 2018
Checked by	Dr. Priscilla Choy		27 July 2018

APPENDIX D
EVENT ACTION PLANS

Appendix D - Event Action Plans

Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded	4. Notify ER, IEC and Contractor; 5. Carry out investigation; 6. Report the results of investigation to the IEC, ER and Contractor; 7. Discuss with the IEC and Contractor on remedial measures required; 8. Increase monitoring frequency to check mitigation effectiveness. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals. (The above actions should be taken within 2 working days after the exceedance is identified)
Limit Level being exceeded	1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified)	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. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)	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; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)

Appendix D - Event Action Plans

Event/Action Plan for Landscape and Visual

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

APPENDIX E
ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

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

EIA Ref.	Mitigation Measures	Status
Construction Air Quality		
S3.2 (AEIAR-130/2009)	8 times daily watering of the work site with active dust emitting activities.	^
S4.8 (AEIAR-170/2013)	Control measures stipulated in the approved KTD Schedule 3 EIA Report should be strictly followed.	^
S3.2 (AEIAR-130/2009) and S4.8 (AEIAR-170/2013)	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.	
	● Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.	*
	● Misting for the dusty material should be carried out before being loaded into the vehicle.	^
	● Any vehicle with an open load carrying area should have properly fitted side and tail boards.	^
	● Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.	^
	● The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation.	^
	● The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways insider the site. Onsite unpaved roads should be compacted and kept free of lose materials.	^
	● Vehicle washing facilities should be provided at every vehicle exit point.	^

EIA Ref.	Mitigation Measures	Status
	● The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores. ● Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet. ● Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides; and ● Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	^ * ^ ^
Construction Noise		
S3.3 (AEIAR-130/2009)	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.	^
S3.3 (AEIAR-130/2009)	Good Site Practice: ● Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. ● Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. ● Mobile plant, if any, should be sited as far away from NSRs as possible. ● Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. ● Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. ● Material stockpiles and other structures should be effectively utilized, wherever	^ ^ ^ ^ ^

EIA Ref.	Mitigation Measures	Status
	practicable, in screening noise from on-site construction activities.	
S3.3 (AEIAR-130/2009)	Scheduling of Construction Works during School Examination Period	N/A
S3.8 (AEIAR-170/2013)	Provision of a landscaped deck along Roads D3A & D4A.	N/A
S3.8 (AEIAR-170/2013)	● Provision of about 1090 m length of vertical noise barrier (connected to the deck) at Roads D3A & D4A; ● Provision of about 60 m length of overhang vertical noise barrier (connected to the deck) at Road D4A; and ● Provision of staircases with noise barriers next to Sites 4A1 and 4B1 It should be noted that the exact length of the mitigation measures would be subject to minor refinement during the detailed design stage.	N/A N/A N/A
S3.8 (AEIAR-170/2013)	Non-noise sensitive use areas within Sites 4A1 and 4B1.	N/A
S3.8 (AEIAR-170/2013)	Avoid sensitive façade with openable window facing Road D3A.	N/A
Construction Water Quality		
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	<u>Construction Runoff</u> Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: ● use of sediment traps ● adequate maintenance of drainage systems to prevent flooding and overflow	 ^ ^

EIA Ref.	Mitigation Measures	Status
	Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	^
	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	^
S5.8 (AEIAR-170/2013)	Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.	^
	Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	^
S3.4 (AEIAR-130/2009)	Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m^3 capacity, are recommended as a general mitigation measure	^

EIA Ref.	Mitigation Measures	Status
	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.	
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	^
	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.	^
S3.4 (AEIAR-130/2009)	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events.	^
	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	^
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	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	^

EIA Ref.	Mitigation Measures	Status
	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.	
S5.8 (AEIAR-170/2013)	<u>Boring and Drilling Water</u> Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	^
	<u>Acid Cleaning, Etching and Pickling Wastewater</u> Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers	^
S3.4 (AEIAR-130/2009)	<u>Drainage</u> 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.	^
S3.4 (AEIAR-130/2009)	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.	^

EIA Ref.	Mitigation Measures	Status
S3.4 (AEIAR-130/2009)	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.	^
S5.8 (AEIAR-170/2013)	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distance of 100 m should be maintained between the discharge points of construction site effluent and the existing seawater intakes and the planned WSR mentioned in S5.3.1 as appropriate. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the relevant WPCO licence which is under the ambit of regional office (RO) of EPD.	^
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	<u>Sewage Effluent</u> 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.	^
S5.8	Notices should be posted at conspicuous locations to remind the workers not to discharge	^

EIA Ref.	Mitigation Measures	Status
(AEIAR-170/2013)	any sewage or wastewater into the surrounding environment. Regular environmental audit of the construction site will provide an effective control of any malpractices and can encourage continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the project would not cause water pollution problem after undertaking all required measures.	
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	<u>Stormwater Discharges</u> Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes.	^
	<u>Debris and Litter</u> In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised and that disposal of any solid materials, litter or wastes to marine waters does not occur.	^
S5.8 (AEIAR-170/2013)	<u>Accidental Spillage</u> Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation, should be observed and complied with for control of chemical wastes. Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	^

EIA Ref.	Mitigation Measures	Status
	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: ● Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. ● Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. ● Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	^ ^ ^
Construction Waste Management		
S6.7 (AEIAR-170/2013)	Prepare a Waste Management Plan, which becomes a part of the Environmental Management Plan, in accordance with the requirements stipulated in ETWB TC(W) No. 19/2005, approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites.	^
S3.5 (AEIAR-130/2009) and S6.7 (AEIAR-170/2013)	Good Site Practices It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. Recommendations for good site practices during construction activities include: ● Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site Training of site personnel in proper waste management and chemical waste handling procedures ● Provision of sufficient waste disposal points and regular collection for disposal	^ ^

EIA Ref.	Mitigation Measures	Status
	● Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers ● A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites) ● Regular cleaning and maintenance systems, sumps and oil interceptors ● Separation of chemical wastes for special handling and appropriate treatment	^ ^ ^ ^
	Waste Reduction Measures Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include: ● Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals ● Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal ● Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force ● Any unused chemicals or those with remaining functional capacity should be recycled ● Proper storage and site practices to minimise the potential for damage or contamination of construction materials ● Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste ● Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.	 ^ ^ ^ ^ ^ ^

EIA Ref.	Mitigation Measures	Status
S3.5 (AEIAR-130/2009)	Construction and Demolition Materials Mitigation measures and good site practices should be incorporated in the contract document to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include: ● Where it is unavoidable to have transient stockpiles of C&D material within the Project work site pending collection for disposal, the transient stockpiles shall be located away from waterfront or storm drains as far as possible. ● Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric. ● Skip hoist for material transport should be totally enclosed by impervious sheeting. ● Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site. ● The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores. ● The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle. ● All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet. ● The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading. When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 “Trip Ticket	^ ^ ^ ^ ^ ^ ^ ^

EIA Ref.	Mitigation Measures	Status
	System for Disposal of Construction and Demolition Materials" should be included as one of the contractual requirement sand implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.	
S3.5 (AEIAR-130/2009)	General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem	^
Construction Landscape and Visual		
S3.8.12 (AEIAR-130/2009) and S7.9 (AEIAR-170/2013)	● Minimized construction area and contractor's temporary works areas. ● All existing trees should be carefully protected during construction. ● 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. ● Control of night-time lighting. ● Erection of decorative screen hoarding. ● Reduction of construction period to practical minimum. ● Limitation of / Ensuring no run-off into surrounding landscape and adjacent seawater areas. ● Temporary or advance landscape should be provided along the temporary access roads to the Cruise Terminal until such time as road D3 is open.	^ ^ ^ ^ ^ ^ ^ N/A

Remarks:	EIA Report (AEIAR-130/2009) – Kai Tak Development EIA Report (AEIAR-170/2013) – Kai Tak Development – Roads D3A & D4A	
	^ 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 F
SUMMARIES OF ENVIRONMENTAL COMPLAINT, WARNING, SUMMON AND NOTIFICATION OF SUCCESSFUL PROSECUTION

Contract No. KL/2014/01

Kai Tak Development –Stage 2 Infrastructure Works for Developments at the Southern Part of the Former Runway

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

Reporting Month: July 2018

Contract No. KL/2014/01

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

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

APPENDIX G
WASTE GENERATED QUANTITY

Name of Department: CEDD

Contract No. KL/2014/01

Waste Flow Table for Year 2018

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in tonne)	(in tonne)	(in tonne)	(in tonne)	(in tonne)	(in tonne)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in tonne)
Jan	5,821.15	0	0	0	5821.15	0	0	0.02	0	0	121.57
Feb	2,270.11	0	0	0	2270.11	0	0	0	0	0	85.98
Mar	2,914.70	0	0	0	2914.70	0	0	0.25	0	0	81.4
Apr	2,248.44	0	0	0	2248.44	0	0	0	0	0	75.27
May	2,022.25	0	0	0	2022.25	0	0	0.3	0	0	50.92
June	5748.34	0	0	0	5748.34	0	0	0	0	0	111.04
Sub-total	21,024.99	0	0	0	21,024.99	0	0	0.570	0	0	526.18
July	4,442.16	0	0	0	4442.16	0	0	0.400	0	0	198.8
Aug											
Sept											
Oct											
Nov											
Dec											
Total	25,467.15	0.00	0.00	0.00	25,467.15	0.00	0.00	0.970	0.000	0.00	724.98

FUGRO TECHNICAL SERVICES LIMITED

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

Appendix D

Monthly EM&A Report
For
Contract No. KL/2014/03
Kai Tak Development - Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

MONTHLY EM&A REPORT

July 2018

Client	**:**	Civil Engineering and Development Department, HKSAR
Contract No.	**:**	KLN/2015/07
Contract Name	**:**	Environmental Monitoring Works for Contract KL/2014/03 – Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway
Report No.	**:**	0405/15/ED/1080A
EP-337/2009		New Distributor Roads Serving the Planned Kai Tak Development Area
EP-339/2009/A		Decommissioning of the Remaining Parts (Ex-GFS Building, Radar Station and Hong Kong Aviation Club) of the former Kai Tak Airport
EP-451/2013		Trunk Road T2

Prepared by : Janet W. T. Yu

Reviewed by : Alfred Y. S. Lam

Certified by :

Colin K. L. Yung
Environmental Team Leader
MateriaLab Consultants Limited

RAMBOLL

Ref.: CEDKTDS3EM00_0_0315L.18

10 August 2018

Hyder-Meinhardt Joint Venture
17/F, Two Harbour Square,
180 Wai Yip Street, Kwun Tong
Kowloon, Hong Kong

By Post and Email

Attention: Mr. Wong W. K., Chris

Dear Mr. Wong,

Re: Contract No. KL/2014/03 – Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway
Monthly EM&A Report for July 2018

Reference is made to the Environmental Team's submission of the Monthly EM&A Report for July 2018 (Report No. 0405/15/ED/1080A) we received by e-mail on 10 August 2018.

Please be informed that we have no adverse comment on the captioned report. We hereby verify the captioned submission according to Condition 3.3 of EP-337/2009, Condition 3.3 of EP-339/2009/A and Condition 3.4 of EP-451/2013.

Thank you for your attention. Please do not hesitate to contact us should you have any queries.

Yours sincerely,
For and on behalf of
Ramboll Hong Kong Limited

F. C. Tsang
Independent Environmental Checker

c.c.	CEDD	Attn.: Ms. Amy Chu	Fax: 2369 4980
	MateriaLab	Attn.: Mr. Colin K. L. Yung	Fax: 3565 4160
	CRBC	Attn.: Mr. Dickey Yau	Fax: 2283 1689

Q:\Projects\CEDKTDS3EM00\02_Proj_Mgt\02_Corr\CEDKTDS3EM00_0_0315L.18.docx

Ramboll Hong Kong Limited 英環香港有限公司
21/F, BEA Harbour View Centre, 56 Gloucester Road, Wan Chai, Hong Kong Tel: 852.3465 2888 Fax: 852.3465 2899
www.ramboll.com

TABLE OF CONTENTS

FIGURES

LIST OF APPENDICES

EXECUTIVE SUMMARY

i. The Civil Engineering and Development Department HKSAR has appointed MateriaLab Consultants Limited (MCL) to undertake the Environmental Team services for the Project and implement the EM&A works.

ii. This Monthly EM&A report presents the environmental monitoring and audit works for the period between 1 July 2018 and 31 July 2018. As informed by the Contractor, major activities in the reporting month were:

- Excavation and laying of drainage pipe and manhole;
- Seawall modification works;
- Construction of tunnel box structure;
- D-wall construction works;
- Pumping test; and
- Excavation and ELS construction.

Breaches of the Action and Limit Levels

iii. No Action / Limit Level exceedance was recorded for 24-hr TSP and construction noise at KTD1a, KTD2a and KER1b in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

iv. No environmental complaint, notification of summons and successful prosecution were received in the reporting month.

Reporting Changes

v. There was no reporting change in the reporting month.

Future Key Issues

vi. The key issues to be considered in the coming reporting month include:

Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, water quality, waste management and landscape and visual impact.

1. INTRODUCTION

1.1 Background

1.1.1 The Kai Tak Development is located in the south-eastern part of Kowloon Peninsula of the HKSAR, 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.

1.1.2 Contract No. KL/2014/03 is the works package to construct an approximately 420m long supporting underground structure (SUS) underneath Shing Cheong Road and Cheung Yip Street. The EM&A programme under this Contract is governed by three EPs (EP-337/2009, EP-339/2009/A and EP-451/2013) and two EM&A Manuals (AEIAR-130/2009 and AEIAR-174/2013). The Works to be executed under this Contract and corresponding EPs include but not be limited to the following main items:

EP-451/2013 – Trunk Road T2

(i) Construction of approximately 420m long supporting underground structure (SUS) including diaphragm walls, barrettes, piled foundation, top and bottom slabs, end wall and adits underneath Shing Cheong Road and Cheung Yip Street;

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

(ii) Widening and re-alignment of Cheung Yip Street of approximately 330m long and associated footpaths;
(iii) Demolition, reconstruction and widening of Shing Cheong Road of approximately 410m long and associated footpaths;
(iv) Construction of drainage outfall and modification of existing seawall;
(v) Construction of ancillary works including surface drainage, sewerage, water, fire fighting, street lighting, street furniture, road marking, road signage, utilities and services, irrigation and landscape works.

EP-339/2009/A – Decommissioning of the Remaining Parts (Ex-GFS Building, Radar Station and Hong Kong Aviation Club) of the former Kai Tak Airport

(vi) Demolition of RADAR Tower and guard house;

Other works not covered by any EP

(vii) Construction of two subways between Phase II of New Acute Hospital (Site A) and Hong Kong Children's Hospital (Site C), and between Phase I of New Acute Hospital (Site B) and Site C;
(viii) Construction of District Cooling System (DCS) along Cheung Yip Street and Shing Cheong Road

1.1.3 The location and boundary of the site is shown in **Figure 1**.

1.1.4 This Monthly EM&A report is required under EP-337/2009 Condition 3.3, EP-339/2009/A Condition 3.3 and EP-451/2013 Condition 3.4. It is to report the results and findings of the EM&A programme required in the EM&A Manuals.

1.1.5 This is the twenty ninth monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project within the period between 1 July 2018 and 31 July 2018.

1.2 Project Organization

1.2.1 The project proponent was the Civil Engineering and Development Department, HKSAR (CEDD). Hyder Meinhardt Joint Venture (HMJV) was commissioned by CEDD as the Engineer for the Project. Ramboll Hong Kong Limited was commissioned as the Independent Environmental Checker (IEC). China Road and Bridge Corporation (Hong Kong) (CRBC) was appointed as the main contractor for the construction works under the contract KL/2014/03. MateriaLab Consultants Limited (MCL) was appointed as the Environmental Team (ET) by CEDD to implement the EM&A programme for the Project.

1.2.2 The organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarized in **Table 1.1**.

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
Project Proponent (CEDD)	Co-ordinator	Ms. Amy Chu	3106 3172	2369 4980
Engineer's Representative (HMJV)	Chief Resident Engineer	Mr. W. K., Chris Wong	3742 3803	3742 3899
IEC (Ramboll Hong Kong Limited)	Independent Environmental Checker	Mr. F. C. Tsang	3465 2851	3465 2899
Main Contractor (CRBC)	Site Agent	Mr. Chan See Wai, Arnold	9380 4110	2283 1689
		Mr. Yau Kwok Kiu, Dickey	5699 4503	2283 1689
	Environmental Officer	Mr. Calvin So	9724 6254	2283 1689
ET (MCL)	Environmental Team Leader	Mr. Colin Yung	3565 4114	3565 4160

Remark: Mr. Chan See Wai, Arnold had been replaced by Mr. YAU Kwok Kiu, Dickey as the Site Agent since 26 July 2018.

1.3 Construction Programme and Activities

1.3.1 The construction of the Project commenced in February 2016 and is expected to complete in 2020. The construction programme is shown in **Appendix A**.

1.3.2 A summary of the major construction activities undertaken in the reporting month were:

- Excavation and laying of drainage pipe and manhole;
- Seawall modification works;
- Construction of tunnel box structure;
- D-wall construction works;
- Pumping test; and
- Excavation and ELS construction.

1.4 Inter-relationship with the environmental protection/ mitigation measures with the construction programme

1.4.1 According to the construction activities in the construction programme mentioned in Section 1.3.2, the following environmental protection/ mitigation measures including Air Quality Impact, Construction Noise Impact, Water Quality Impact, Chemical and Waste Management, Landscape and Visual Impact shall be implemented:

- Sufficient watering of the works site with the active dust emitting activities;
- Limitation of the speed for vehicles on unpaved site roads;
- Properly cover or enclosure of the stockpiles and dusty materials;
- Good site practices on loading dusty materials;
- Providing sufficient vehicles washing facilities at every vehicle exit point;
- Good maintenance to the plant and equipment;
- Use of quieter plant and Quality Powered Mechanical Equipment (QPME);
- Use of acoustic fabric and noise barrier;
- Using the approved Non-road Mobile Machineries (NRMMs);
- Proper storage and handling of chemical;
- Appropriate desilting, oil interceptors or sedimentation devices provided on site for treatment before discharge;
- Onsite waste sorting and implementation of trip ticket system;
- Training of the site personnel in proper waste management and chemical waste handling procedures;
- Proper storage of the construction materials;
- Erection of decorative screen hoarding;
- Strictly following the Environmental Permits and Licenses;
- Provide sufficient mitigation measures as recommended in Approved EIA Reports

1.5 Status of Environmental Licences, Notifications and Permits

1.5.1 A summary of the relevant environmental licenses, permits and/or notifications on environmental protection for this Contract is presented in **Table 1.2**.

Table 1.2 Relevant Environmental Licenses, Permits and/or Notifications

Environmental License / Permit / Notification	Reference Number	Valid From	Valid Till
Environmental Permit	EP-337/2009 EP-339/2009/A EP-451/2013	23 April 2009 18 June 2009 19 September 2013	Not Applicable Not Applicable Not Applicable
Notification pursuant to Air Pollution (Construction Dust) Regulation	395601	4 December 2015	Not Applicable
Billing Account for Waste Disposal	A/C No.: 7023814	22 December 2015	Not Applicable
Billing Account for Waste Disposal (Vessel)	A/C No.: 7027469	25 April 2018	18 August 2018

Environmental License / Permit / Notification	Reference Number	Valid From	Valid Till
Construction Noise Permit	GW-RE0395-18	5 June 2018	4 December 2018
Construction Noise Permit	GW-RE0006-18	12 January 2018	11 July 2018
Construction Noise Permit	GW-RE0489-18	14 July 2018	11 January 2019
Wastewater Discharge License	WT00023125-2015	6 January 2016	31 January 2021
Chemical Waste Producer License	5213-247-C1232-12	23 November 2015	Not Applicable

2. AIR QUALITY

2.1 Monitoring Requirement

In accordance with the approved EM&A Manuals, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required. Impact 24-hour TSP monitoring should be carried out at least once every 6 days. In case of complaints, 1-hour TSP monitoring should be carried out at least 3 times per 6 days when the highest dust impacts are likely to occur. The Action and Limit Levels of the air quality monitoring are given in **Appendix C**.

2.2 Monitoring Equipment

The 24-hour TSP air quality monitoring was performed using High Volume Air Samplers (HVS) located at each of the designated monitoring station. Portable TSP Monitors would be used in case of complaints for 1-hour TSP monitoring.

Table 2.1 summarizes the equipment used in air quality monitoring.

Table 2.1 Air Quality Monitoring Equipment

Item	Location	Brand	Model	Equipment	Serial Number
1	KER1b	Tisch	TE-5170 (TSP)	High Volume Sampler	
			TE-300-310X	- Mass Flow Controller	2037
			TE-5005X	- Blower Motor Assembly	3482
			TE-5007X	- Mechanical Timer	4488
			TE-5009X	- Continuous Flow Recorder	4371
2	KTD1a	Tisch	TE-5170 (TSP)	High Volume Sampler	
			TE-300-310X	- Mass Flow Controller	2524
			TE-5005X	- Blower Motor Assembly	4037
			TE-5007X	- Mechanical Timer	5160
			TE-5009X	- Continuous Flow Recorder	4377
3	KTD2a	Tisch	TE-5170 (TSP)	High Volume Sampler	
			TE-300-310X	- Mass Flow Controller	2618
			TE-5005X	- Blower Motor Assembly	3838
			G3031	- Mechanical Timer	2251
			G1051	- Continuous Flow Recorder	2307
4		Tisch	TE-5025A	HVS Sampler Calibrator	438320/2456
5		*Sibata	Model LD-3B	Sibata Portable TSP Monitors	NA

Note:
No complaint of air quality was received. Therefore, no impact 1-hour TSP monitoring was conducted.

2.3 Monitoring Methodology

2.3.1 24-hour TSP air quality monitoring

HVS Installation

The following guidelines were adopted during the installation of HVS:

- Sufficient support is provided to secure the samplers against gusty wind.
- No two samplers are placed less than 2 meters apart.

- The distance between the sampler and an obstacle, such as buildings, is at least twice the height that the obstacle protrudes above the sampler.
- A minimum of 2 meters of separation from walls, parapets and penthouses is required for rooftop samples.
- A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
- No furnaces or incineration flues are nearby.
- Airflow around the samplers is unrestricted.
- The samplers are more than 20 meters from the drip line.
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

Filters Preparation

Fiberglass filters (provided by the HOKLAS accredited laboratory) shall be used (Note: these filters have a collection efficiency of larger than 99% for particles of 0.3 μm diameter). A HOKLAS accredited laboratory (ALS Technichem (HK) Pty Ltd.) is responsible for the preparation of 24-hr conditioned and pre-weighed filter papers for monitoring team.

All filters are equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature is around 25°C and not variable by more than ±3°C; the relative humidity (RH) is < 50% and not variable by more than ±5%. A convenient working RH is 40%.

Operating / Analytical Procedures

Operating / analytical procedures for the air quality monitoring are highlighted as follows:

- Prior to the commencement of the dust sampling, the flow rate of the HVS are properly set (between 0.6 m^3/min and 1.7 m^3/min) in accordance with the EM&A manual. The flow rate shall be indicated on the flow rate chart.
- The power supply shall be checked to ensure the samplers worked properly.
- On sampling, the samplers shall be operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air quality monitoring station.
- The filter holding frame is then removed by loosening the four nuts and carefully a weighted and conditioned filter is centered with the stamped number upwards, on a supporting screen.
- The filter shall be aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame is tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The shelter lid shall be closed and secured with the aluminum strip.
- The timer is then programmed. Information shall be 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).
- After sampling, the filter shall be removed and sent to laboratory for weighing. The elapsed time is also recorded.
- Before weighing, all filters are equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%. Weighing results are returned to MCL for further analysis of TSP concentrations collected by each filter.

2.3.2 1-hour TSP air quality monitoring

Operating / Analytical Procedures

The measuring procedures of the 1-hr dust meter are in accordance with the Manufacturer's instruction Manual as follows:

- Pull up the air sampling inlet cover
- Change the Mode 0 to BG once
- Push Start/Stop switch once
- Turn the knob to SENSI.ADJ and press it
- Push Start/Stop switch once
- Return the knob to the position MEASURE slowly
- Push the timer set switch to set measuring time
- Remove the cap and make a measurement

2.4 Maintenance / Calibration

2.4.1 24-hour TSP air quality monitoring

The following maintenance / calibration are required for the HVS:

- The high volume motors and their accessories are properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking are made to ensure that the equipments and necessary power supply are in good working condition.
- All HVS shall be calibrated (five point calibration) using Calibration Kit upon installation and thereafter in every 3 months.
- A copy of the calibration certificates for the HVS and calibrator are provided in **Appendix D**.

2.4.2 1-hour TSP air quality monitoring

The portable TSP monitor should be calibrated at 1 year intervals

2.5 Monitoring Locations

2.5.1 According to the EM&A Manual, three air quality monitoring locations, namely KTD1, KTD2 and KER1, are covered by this Contract within the South Apron Area of Former Kai Tak Airport. The other two air quality monitoring locations, which are identified in Cha Kwo Ling area, are farther than 500m away from the site boundary and thus not covered by this Contract. The monitoring works in Cha Kwo Ling area are covered by other Contract(s) respectively.

2.5.2 According to the approved alternative baseline air quality and noise monitoring locations (EPD reference: EP2/K19/A/21 Pt.5), the original monitoring locations (KTD1, KTD2 and KER1) are proposed to be replaced by alternative monitoring locations (KTD1a, KTD2a and KER1b) for air quality monitoring, they are summarized in **Table 2.2** and shown in **Figure 2**.

Table 2.2 Location of Air Quality Monitoring Station

Monitoring Station	Location
KTD1a	Centre of Excellence in Paediatrics (Children's Hospital)
KTD2a	G/IC Zone next to Kwun Tong Bypass (Future Hospital at Site 3C1)
KER1b	Site Boundary at Cheung Yip Street

2.6 Results and Observations

2.6.1 The schedule of air quality monitoring in reporting month is provided in **Appendix E**.

2.6.2 No Action / Limit Level exceedance was recorded for 24-hr TSP at KTD1a, KTD2a and KER1b in the reporting month.

2.6.3 No complaint of air quality was received. Therefore, no impact 1-hour TSP monitoring was conducted in the reporting month.

2.6.4 During the reporting month, major dust sources including loading and unloading of C&D wastes, vehicles movement were observed in the site. Non-project related construction activities at the nearby construction site and road traffic along Shing Cheong Road, Cheung Yip Street and the Kwun Tong By-pass were observed. The above factors may affect the monitoring results.

2.6.5 The weather conditions during the monitoring are provided in **Appendix K**.

2.6.6 The monitoring data of 24-hr TSP are summarized in **Table 2.3**. Detailed monitoring data are presented in **Appendix F**.

Table 2.3 Summary of 24-hr TSP Monitoring Results

Parameter	Monitoring Station	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
24-hr TSP in $\mu g/m^3$	KTD1a	29	19 - 46	177	260
	KTD2a	34	23 - 43	157	
	KER1b	33	23 - 55	172	

2.6.7 The Event and Action Plan for air quality is given in **Appendix H**.

2.7 Comparison of 24-hr TSP Monitoring Results with EIA Predictions

2.7.1 The monitoring data of 24-hr TSP was compared with the EIA predictions as summarized in **Table 2.4**.

Table 2.4 Comparison of 24-hr TSP data with EIA predictions

Monitoring Station	Receiver Reference	Predicted Maximum 24-hour TSP Concentration (μg/m^3)	24-hour TSP concentration in July 2018 (μg/m^3)	Average 24-hour TSP concentration in July 2018 (μg/m^3)
KTD1a	KTD3	126	19 - 46	29
KTD2a	-	-	23 - 43	34
KER1b	KTD6	169	23 - 55	33

Note:
For KTD2a, there was no receiver reference in the EIA report, EIAR-174/2013.
Predicted Maximum TSP Concentration extracted from Table 4.14 of EIA Report, EIAR-174/2013.

2.7.2 The 24-hour TSP monitoring results at KTD1a, KTD2a and KER1b were below the Predicted Maximum 24-hr TSP concentration in the approved Environmental Impact Assessment (EIA) Report and no Action / Limit Level exceedance was recorded in the reporting period.

3. NOISE

3.1 Monitoring Requirement

3.1.1 In accordance with the approved EM&A Manuals, Leq (30min) monitoring is conducted for at least once a week during the construction phase between 0700 and 1900 on normal weekdays at the designated monitoring locations.

3.2 Monitoring Equipment

3.2.1 The sound level meter used in noise monitoring will comply with the International Electrotechnical Commission Publication (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications as referred to in the Technical Memorandum issued under the Noise Control Ordinance (NCO).

3.2.2 Sound level calibrator will be used for the on-site calibration of the meter. This calibrator complies with the IEC Publication 942 (1988) Class 1 and ANSI S1.40 - 1984. Noise measurements were only accepted to be valid if the calibration levels from before and after the measurement agree to within 1.0dB.

3.2.3 Measurements shall be recorded to the nearest 0.1dB. Sound level meters are programmed to measure A-weighted equivalent continuous sound pressure level at 30-minute intervals between 0700 and 1900 on normal weekdays at least once a week when construction activities are underway.

Table 3.1 summarizes the noise monitoring equipment model being used for this project.

Table 3.1 Noise Monitoring Equipment

Item	Brand	Model	Equipment	Serial Number
1	Casella	CEL-63X Series	Integrating Sound Level Meter	3148029
2	Casella	CL63X Series	Integrating Sound Level Meter	1057055
3	Casella	CL63X Series	Integrating Sound Level Meter	4637931
4	Casella	CEL-120/1	Calibrator	5230742
5	Casella	CEL-120/1	Calibrator	5230758
6	Benetech	GM816	Wind Speed Anemometer	13372555

3.3 Monitoring Parameters and Frequency

Table 3.2 presents the noise monitoring parameters and frequencies.

Table 3.2 Monitoring Parameters and Frequencies of Noise Monitoring

Parameter	Frequency and Period
LAeq **(30min)** L10 and L90 will be recorded for reference	At each station at 0700-1900 hours on normal weekdays at a frequency of once a week

3.4 Monitoring Methodology

3.4.1 The monitoring procedures are as follows:

- The monitoring station is set at a point 1m from the exterior of the sensitive receivers building façade and set at a position 1.2m above the ground.
- The battery condition is checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time are set as follows:
  - frequency weighting : A
  - time weighting : Fast
  - measurement time : Weekly 30 minutes between 0700-1900 on normal weekdays
- Prior to and after noise measurement, the meter shall be calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement will be considered invalid and repeat of noise measurement is required after re-calibration or repair of the equipment.
- Noise monitoring should be cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
- Noise measurement should be paused during periods of high intrusive noise if possible and observation shall be recorded when intrusive noise is not avoided.
- At the end of the monitoring period, the Leq, L10 and L90 are recorded. In addition, site conditions and noise sources are recorded on a standard record sheet.

3.5 Maintenance / Calibration

3.5.1 Maintenance and Calibration procedures are as follows:

- The microphone head of the sound level meter and calibrator should be cleaned with a soft cloth at quarterly intervals.
- The sound level meter and calibrator should be calibrated annually by a HOKLAS laboratory.
- Relevant calibration certificates are provided in **Appendix D**.

3.6 Monitoring Locations

3.6.1 According to the EM&A Manual, three noise monitoring locations, namely KTD1, KTD2 and KER1, are covered by this Contract within the South Apron Area of Former Kai Tak Airport. The other two noise quality monitoring locations, which are identified in Cha Kwo Ling area, are farther than 300m away from the site boundary and thus not covered by this Contract. The monitoring works in Cha Kwo Ling area are covered by other Contract(s) respectively.

3.6.2 According to the approved alternative baseline air quality and noise monitoring locations (EPD reference: EP2/K19/A/21 Pt.5), the original monitoring locations (KTD1, KTD2 and KER1) are proposed to be replaced by alternative monitoring locations (KTD1a, KTD2a and KER1b) for noise monitoring, they are summarized in **Table 3.3** and shown in **Figure 2**.

Table 3.3 Location of Noise Monitoring Station

Monitoring Station	Location
KTD1a	Centre of Excellence in Paediatrics (Children's Hospital)
KTD2a	G/IC Zone next to Kwun Tong Bypass (Future Hospital at Site 3C1)
KER1b	Site Boundary at Cheung Yip Street

3.7 Results and Observations

3.7.1 The schedule of noise monitoring in reporting month is provided in **Appendix E**.

3.7.2 During the monitoring month, at KTD1a, non-project related construction activities at the nearby construction site and road traffic along Shing Cheong Road were observed in the surroundings. At KTD2a, road traffic along the Kwun Tong By-pass was observed. At KER1b, road traffic along Cheung Yip Street was observed. Major noise sources including noise emission from plant & PME and some other construction activities, travel of vehicles, loading and unloading of C&D waste were observed in the site. The above factors may affect the monitoring results.

3.7.3 No raining and wind with speed over 5 m/s was observed during noise monitoring according to the onsite observation. The weather conditions during the monitoring month are provided in **Appendix K**.

3.7.4 The noise monitoring data are summarized in **Table 3.4**. Detailed monitoring data are presented in **Appendix G**.

Table 3.4 Summary of Noise Impact Monitoring Results

Time Period	Leq $_{(30min)}$ dB(A) (Range)			Action Level	Limit Level
	Noise Monitoring Stations				
	KTD1a	KTD2a	KER1b		
0700-1900 hrs on normal weekdays	65 - 72	59 - 64	63 - 67	When one documented complaint is received	75 dB(A)

Note:
KTD1a: Façade Measurement
KTD2a & KER1b: Free-field measurement (+3dB(A) correction has been applied)

3.7.5 No Action / Limit Level exceedance of location KTD1a, KTD2a and KER1b was recorded for construction noise in the reporting month.

3.7.6 The Action and Limit Levels for noise impact monitoring have been set and are presented in **Appendix C**.

3.7.7 The Event and Action Plan for noise is given in **Appendix H**.

3.8 Comparison of Noise Monitoring Results with EIA Predictions

3.8.1 The noise monitoring data was compared with the EIA predictions as summarized in **Table 3.5**.

Table 3.5 Comparison of Noise Monitoring data with EIA predictions

Monitoring Station	Receiver Reference	Maximum Predicted Mitigated Construction Noise Level, dB(A)	Maximum Leq $_{(30min)}$ dB(A) In July 2018
KTD1a	KTD1	74	72
KTD2a	KTD2	75	64
KER1b	KER1	75	67

Note:
Maximum Predicted Mitigated Construction Noise Level extracted from Table 5.13 of EIA Report, EIAR-174/2013.

3.8.2 The impact noise monitoring results of location KTD1a, KTD2a and KER1b in the reporting month did not exceed the Maximum Predicted Mitigated Construction Noise Level in the approved Environmental Impact Assessment (EIA) Report and no Action / Limit Level exceedance was recorded in the reporting period.

4. LANDSCAPE AND VISUAL

4.1 Audit Requirements

4.1.1 As per the Trunk Road T2 EM&A Manual, the landscape and visual mitigation measures during the construction phase shall be audited by a Registered Landscape Architect, as a member of the Environmental Team, at least once every two weeks to ensure compliance with the intended aims of the measures.

4.1.2 According to the Kai Tak Development EM&A Manual, measures to mitigate landscape and visual impacts during construction should be checked to ensure compliance with the intended aims of the measures. The progress of the engineering works shall be regularly reviewed onsite to identify the earliest practical opportunities for the landscape works to be undertaken. The ET shall report on the Contractor's compliance on a weekly basis.

4.2 Results and Observations

4.2.1 To monitor and audit the implementation of landscape and visual mitigation measures, four weekly Landscape and Visual Site audits were carried out on 4, 11, 18 and 25 July 2018 and two of them 4 and 18 July 2018 were carried out by a Registered Landscape Architect. The weekly Landscape and Visual Impact reports were counter-signed by IEC as according to the requirement of EM&A Manual (AEIAR-130/2009).

4.2.2 Should non-compliance of the landscape and visual impact occur, action in accordance to the event action plan presented in **Appendix H** shall be carried out.

5. WASTE MANAGEMENT

5.1 Audit Requirements

5.1.1 The effective management of waste arising during the construction phase will be monitored through the site audit programme. Regular audits and site inspections should be carried out to ensure that the recommended good site practices and other mitigation measures are implemented by the Contractor.

5.1.2 The audit should look at all aspects of on-site waste management practices including the waste generation, storage, recycling, transport and disposal. The aims of waste audit are:

- to ensure the waste arising from the works are handled, stored, collected, transferred and disposed of in an environmentally acceptable manner;
- verify the implementation status and evaluate the effectiveness of the mitigation measures; and
- to encourage the reuse and recycling of material.

5.2 Results and Observations

5.2.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.

5.2.2 The amount of wastes generated by the site activities in the reporting month is shown in **Appendix I**.

6. SITE INSPECTION

6.1 Site Inspection

6.1.1 Site inspections were carried out weekly to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix J**.

6.1.2 In the reporting month, four site inspections were carried out on 4, 11, 18 and 25 July 2018. One of them, held on 11 July 2018 was the joint inspections with the IEC, ER, the Contractor and the ET.

6.1.3 No outstanding issues were reported during the reporting month. Details of observations recorded during the site inspections are summarized in **Appendix M**.

6.1.4 All the follow-up actions requested by Contractor's ET and IEC during the site inspections were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting month.

7. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

7.1 Environmental Exceedance

7.1.1 No Action / Limit Level exceedance was recorded for 24-hr TSP and construction noise at KTD1a, KTD2a and KER1b in the reporting month.

7.2 Complaints, Notification of Summons and Prosecution

7.2.1 No environmental complaint, notification of summons and successful prosecution were received in the reporting month.

7.2.2 Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in **Appendix L.**

8. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

8.1 Implementation Status

8.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and the EM&A Manuals. The implementation status of the mitigation measures during the reporting month is summarized in **Appendix J**. Status of required submission under the EP during the reporting period is summarized in **Table 8.1**.

Table 8.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
EP-337/2009		
Condition 2.3	Management Organization of Main Construction Companies	18/12/2015
Condition 2.4	Design Drawing of the Project	18/12/2015
Condition 2.11	Landscape Mitigation Plan(s)	18/12/2015
Condition 3.3	Monthly EM&A Report (June 2018)	13/7/2018
EP-339/2009/A		
Condition 2.4	Management Organization of Main Construction Companies	18/12/2015
Condition 2.5	Design Drawing of the Project	18/12/2015
Condition 3.3	Monthly EM&A Report (June 2018)	13/7/2018
EP-451/2013		
Condition 2.3	Management Organization of Main Construction Companies	18/12/2015
Condition 2.4	Design Drawing of the Project	18/12/2015
Condition 2.5	Landscape Mitigation Plan(s)	18/12/2015
Condition 2.10	Supplementary Contamination Assessment Report	18/12/2015
Condition 3.3	Baseline Monitoring Report	12/02/2016
Condition 3.4	Monthly EM&A Report (June 2018)	13/7/2018

9. FUTURE KEY ISSUES

9.1 Construction Programme for the Next Two Months

- Installation of sheet pile for drainage works;
- Excavation and laying of drainage pipe and manhole;
- Construction of road base and road pavement;
- Seawall modification works;
- Construction of tunnel box structure;
- D-wall construction works;
- Construction of socketed H-Pile;
- Pumping test; and
- Excavation and ELS construction.

9.2 Key Issues for the Coming Month

9.2.1 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, water quality, waste management and landscape and visual impact.

9.3 Monitoring Schedules for the Next Three Months

9.3.1 The tentative schedules for environmental monitoring in the coming three months are provided in **Appendix E**.

10. CONCLUSIONS

10.1.1 24-hour TSP impact monitoring and construction noise monitoring were carried out in the reporting month, no Action / Limit Level exceedance was recorded during the period.

10.1.2 No complaint of air quality was received. Therefore, no impact 1-hour TSP monitoring was conducted in the reporting month.

10.1.3 Four environmental site inspections were carried out in the reporting month. Recommendations on mitigation measures on water quality were given to the Contractor for remediating the deficiencies identified during the site inspections.

10.1.4 Four weekly Landscape and Visual Site audits were carried out on 4, 11, 18 and 25 July 2018 and two of them, 4 and 18 July 2018 were carried out by a Registered Landscape Architect in the reporting month. The weekly Landscape and Visual Impact reports were counter-signed by IEC as according to the requirement of EM&A Manual (AEIAR-130/2009).

10.1.5 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

10.2 Comment and Recommendations

10.2.1 The recommended environmental mitigation measures, as proposed in the EIA reports and EM&A Manuals shall be effectively implemented to minimize the potential environmental impacts from the Project. The EM&A programme would effectively monitor the environmental impacts generated from the construction activities and ensure the proper implementation of mitigation measures.

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

<u>Air Quality Impact</u>
- No specific observation was identified in the reporting month.

<u>Construction Noise Impact</u>
- No specific observation was identified in the reporting month.

<u>Water Quality Impact</u>
- Chemical should be added to the sedimentation tank to facilitate the sedimentation of muddy water.
- Sediments in the sedimentation tank should be cleared regularly.
- Stagnant water should be removed regularly.

<u>Chemical and Waste Management</u>
- No specific observation was identified in the reporting month.

<u>Land Contamination</u>
- No specific observation was identified in the reporting month.

<u>Landscape and Visual Impact</u>
- No specific observation was identified in the reporting month.

General Condition

- No specific observation was identified in the reporting month.

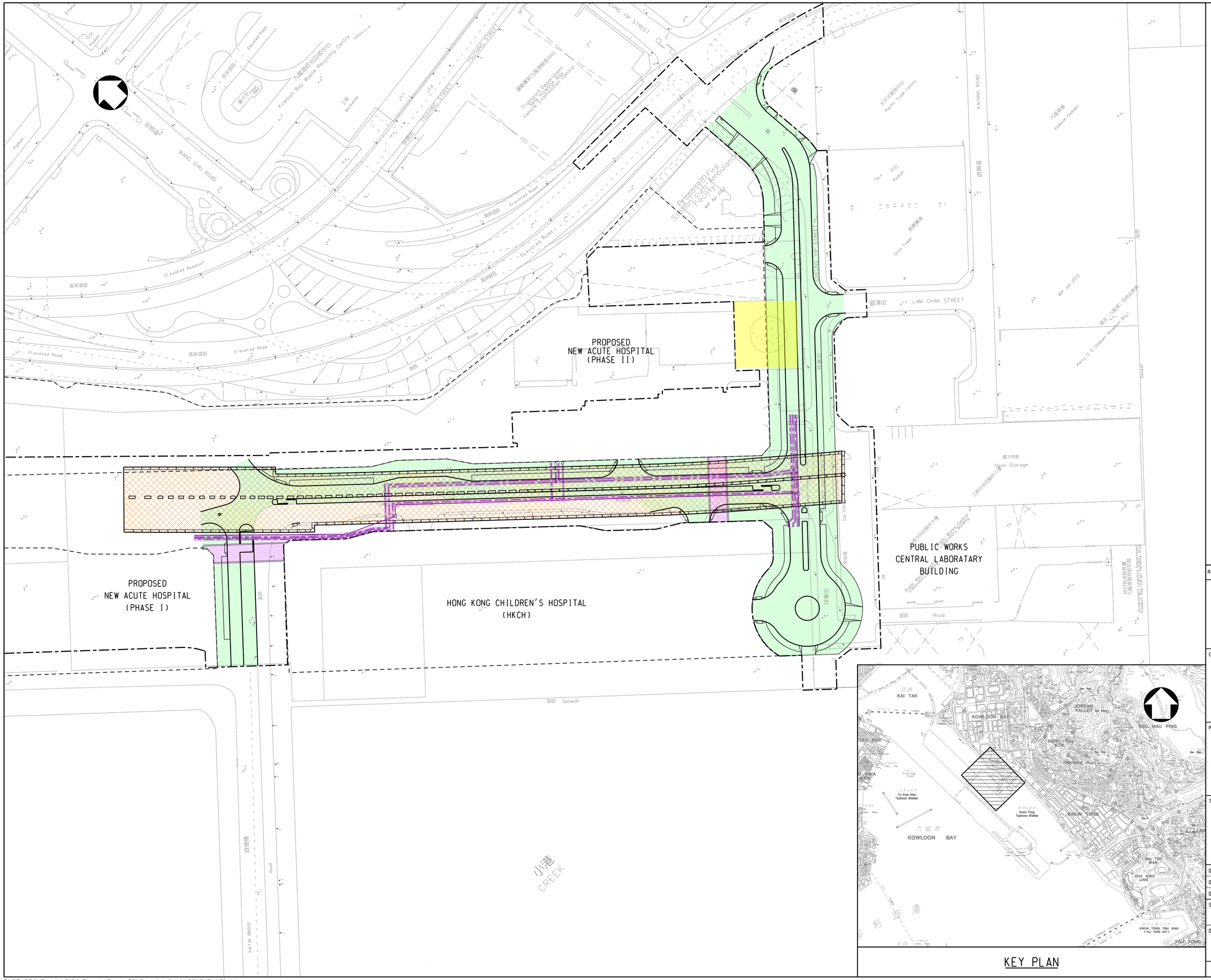
Permit / Licenses

- No specific observation was identified in the reporting month.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Figure 1

Project General Layout



LEGENDS:

- SITE BOUNDARY
- HOSPITAL SITE BOUNDARY
- PROPOSED SUPPORTING UNDERGROUND STRUCTURE
- PROPOSED SUBWAYS
- PROPOSED ROADWORKS
- PROPOSED DISTRICT COOLING SYSTEM
- DEMOLITION OF RADAR TOWER

Rev.	Date	Drawn	Description	Checked	Approved

Hyder MEINHARDT
Hyder-Meinhardt JV

CLIENT

土木工程拓展署
Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

PROJECT

CONTRACT NO. KL/2014/03
KAI TAK DEVELOPMENT - STAGE 3
INFRASTRUCTURE WORKS FOR DEVELOPMENTS AT THE SOUTHERN PART OF THE FORMER RUNWAY

TITLE

GENERAL LAYOUT PLAN

DESIGNED			ENG. CHECK		
DRAWN			COORDINATION		
DWG. CHECK			APPROVED		

SCALE AT A1	STATUS	REV
1 : 1000		A

Drawing No.

FIGURE 1.0

KEY PLAN

PRINTED BY: kitchan 18/2/2015 13:00:43
FILENAME: K:\9164 Trunk Road T2\Tender Drawing (Contract II\Figure 1.dgn
PLOT DRIVE: K:\9164 Trunk Road T2\Cad Admin\AI_COLOUR V8I.plt

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

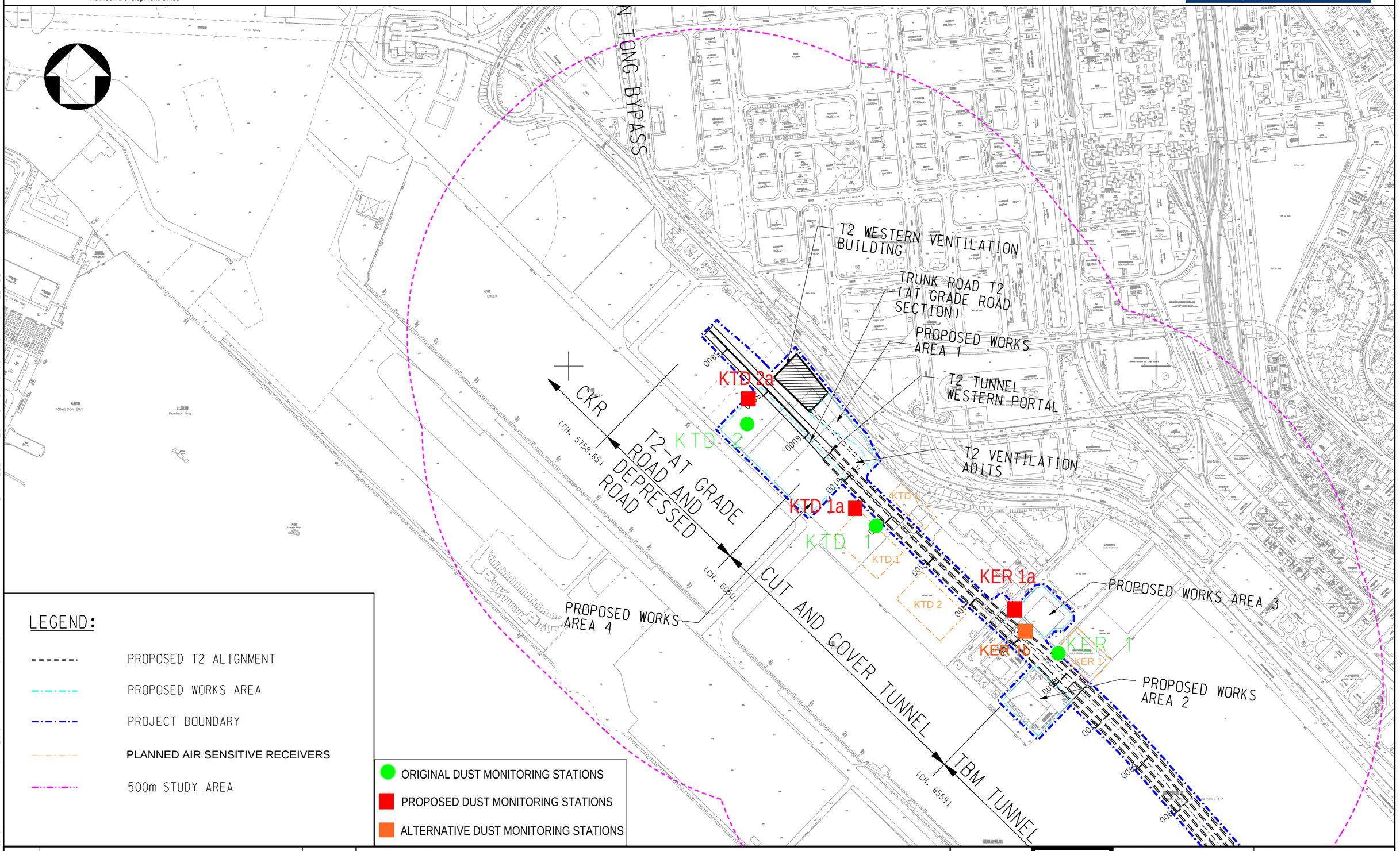
Figure 2

Air and Noise Monitoring Locations

土木工程拓展署
Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

AGREEMENT NO. CE 38/2008(HY)
KAI TAK DEVELOPMENT - TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH APRON - INVESTIGATION, DESIGN AND CONSTRUCTION

Hyder-Meinhardt JV



LEGEND:

- PROPOSED T2 ALIGNMENT
- PROPOSED WORKS AREA
- PROJECT BOUNDARY
- PLANNED AIR SENSITIVE RECEIVERS
- 500m STUDY AREA

- ORIGINAL DUST MONITORING STATIONS
- PROPOSED DUST MONITORING STATIONS
- ALTERNATIVE DUST MONITORING STATIONS

Rev.	Description	Date

Drawing title

IDENTIFIED DUST MONITORING STATIONS AT SOUTH APRON OF FORMER KAI TAK AIRPORT

Original Size: A3

Scale: 1 : 6000 | Date: 30/01/2012

File name

Drawing No.: FIGURE 2.1a (revised)

Rev.: --

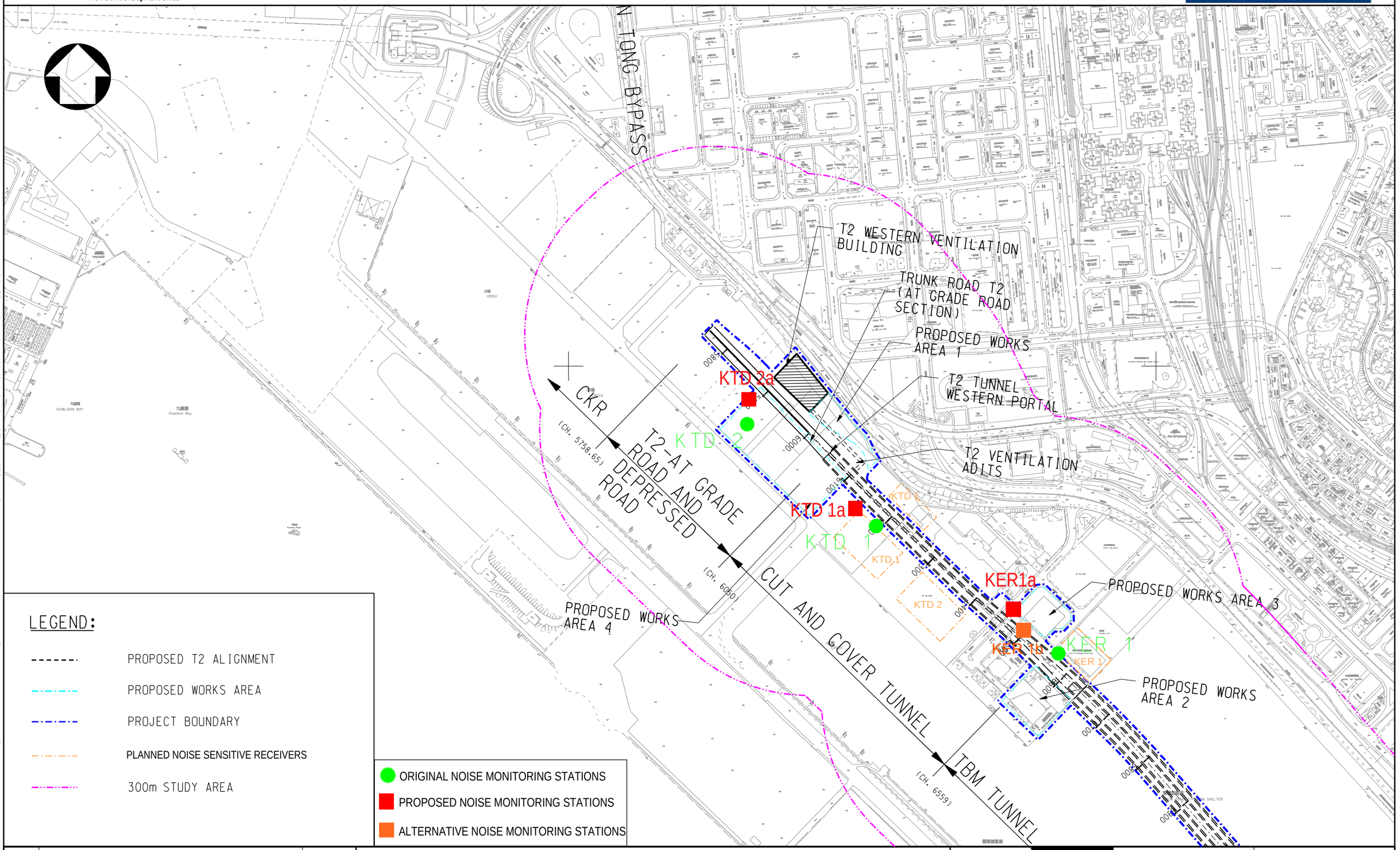
PRINTER NAME: PDFCreator
PLOT DRV: K:\91164 Trunk Road T2\Cad Admin\A3_colour.plt
PRINTED BY: kitchan
6/11/2013 6:14:49 PM
PEN TABLE: K:_STANDARD\MICROSTATION\Plot\MIEL.TBL

CAD FILE : k:\91164 trunk road t2\report\final emna report\Figure 2.1a.dgn

土木工程拓展署
Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

AGREEMENT NO. CE 38/2008(HY)
KAI TAK DEVELOPMENT - TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH APRON - INVESTIGATION, DESIGN AND CONSTRUCTION

Hyder-Meinhardt JV



LEGEND:

- PROPOSED T2 ALIGNMENT
- PROPOSED WORKS AREA
- PROJECT BOUNDARY
- PLANNED NOISE SENSITIVE RECEIVERS
- 300m STUDY AREA

- ORIGINAL NOISE MONITORING STATIONS
- PROPOSED NOISE MONITORING STATIONS
- ALTERNATIVE NOISE MONITORING STATIONS

Rev.	Description	Date

Drawing title

IDENTIFIED NOISE MONITORING STATIONS AT SOUTH APRON OF FORMER KAI TAK AIRPORT

Original Size: A3

Scale: 1 : 6000 | Date: 30/01/2012

File name

Drawing No.: FIGURE 3.1a (revised)

Rev.: --

PRINTER NAME: PDFCreator
PLOT DRV: K:\91164 Trunk Road T2\Cad Admin\A3_colour.plt
PRINTED BY: kitchan
6/11/2013 6:15:29 PM
PEN TABLE: K:_STANDARD\MICROSTATION\Plot\MIEL.TBL

CAD FILE : k:\91164 trunk road t2\report\final emna report\Figure 3.1a.dgn

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

MateriaLab

Appendix A

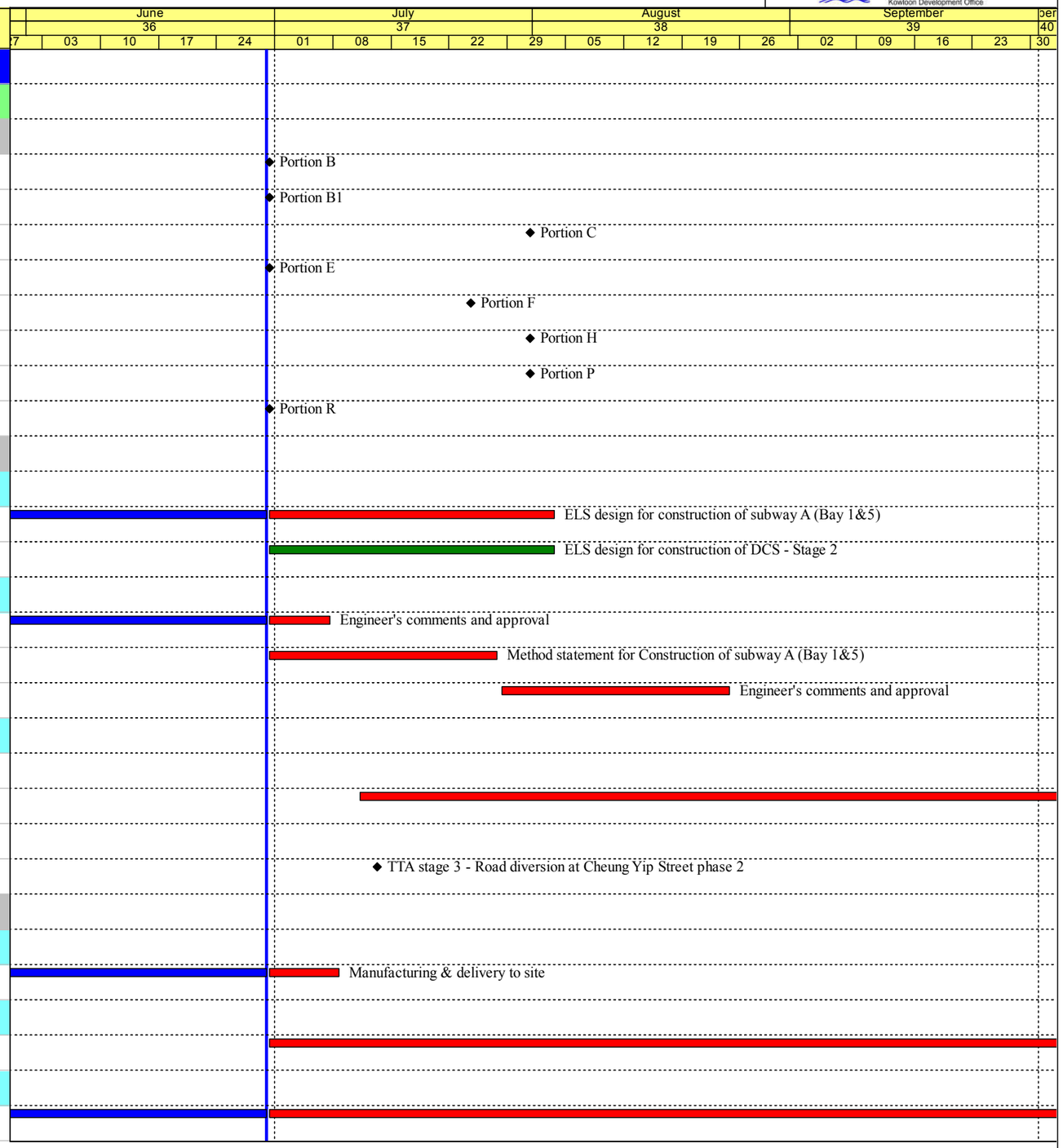
Construction Programme

Hyder - Meinhardt JV

KL/2014/03 Kai Tak Development - Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway

CEDD 土木工程拓展署 Civil Engineering and Development Department 九龍拓展處 Kowloon Development Office

Activity ID	Activity Name	Rem Dur	Start	Finish
KL/2014/03-Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runwa				
Project Key Dates				
Site Handover Date				
K-PK-SHD-1100	Portion B	0		30-Jun-18*
K-PK-SHD-1200	Portion B1	0		30-Jun-18*
K-PK-SHD-1300	Portion C	0		31-Jul-18*
K-PK-SHD-1500	Portion E	0		30-Jun-18*
K-PK-SHD-1600	Portion F	0		24-Jul-18*
K-PK-SHD-1700	Portion H	0		31-Jul-18*
K-PK-SHD-2300	Portion P	0		31-Jul-18*
K-PK-SHD-2500	Portion R	0		30-Jun-18*
General Submission				
Major Temporary Works Design				
K-PA-GSP-6840	ELS design for construction of subway A (Bay 1&5)	35	28-Feb-18 A	03-Aug-18
K-PA-GSP-7010	ELS design for construction of DCS - Stage 2	35	30-Jun-18	03-Aug-18
Major Construction Works Method Statement				
K-PA-GSP-7455	Engineer's comments and approval	8	23-Oct-17 A	07-Jul-18
K-PA-GSP-7460	Method statement for Construction of subway A (Bay 1&5)	28	30-Jun-18	27-Jul-18
K-PA-GSP-7465	Engineer's comments and approval	28	28-Jul-18	24-Aug-18
Temporary Traffic Management				
Temp Traffic Arrangement Schemes				
K-PA-TTA-8950	Submission and approval of TTA schemes-TTA stage 4 for re-construction of Shing Cheong Road	90	11-Jul-18	08-Oct-18
Implementation of Temporary Traffic Arrangement				
K-PA-TTA-4100	TTA stage 3 - Road diversion at Cheung Yip Street phase 2	0	13-Jul-18	
Materials Procurement (Major Materials)				
ELS struct / waling				
K-PA-MP-1150	Manufacturing & delivery to site	9	10-Jun-16 A	08-Jul-18
Water Works				
K-PA-MP-1050	Manufacturing & delivery to site	150	30-Jun-18	26-Nov-18
Chilled Water Pipes - DCS				
K-PA-MP-1350	Manufacturing & delivery to site	200	06-Feb-17 A	15-Jan-19



中國路橋工程有限責任公司 CHINA ROAD AND BRIDGE CORPORATION

◆ Milestone
Critical Activity
Non-Critical Activity
Remaining Level of Effort
Actual Work

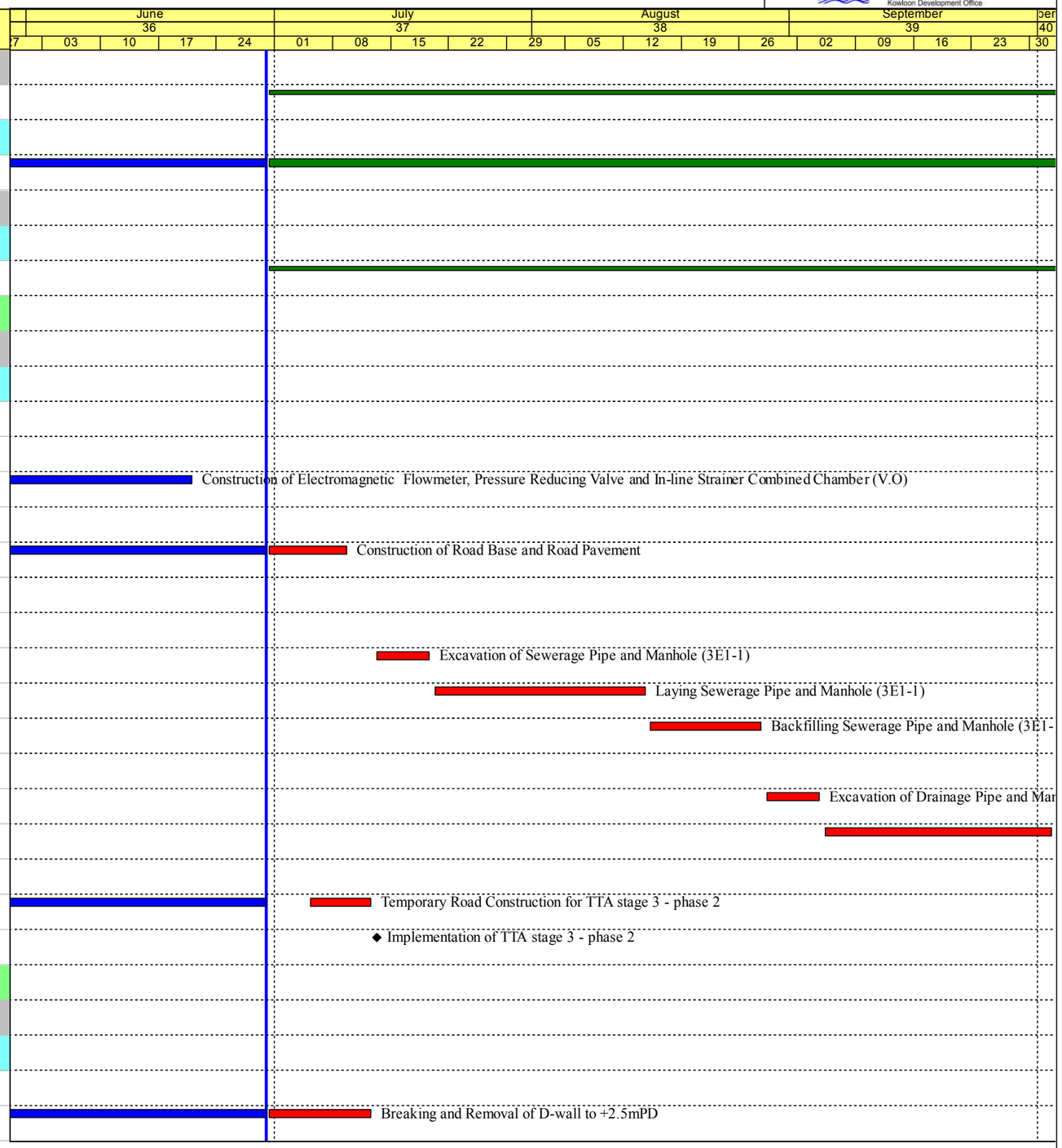
3 MRP Jul 2018 - Sep 2018

Project ID :31 3MRP Jul - Sep 18
Layout : KL201403 3MRP

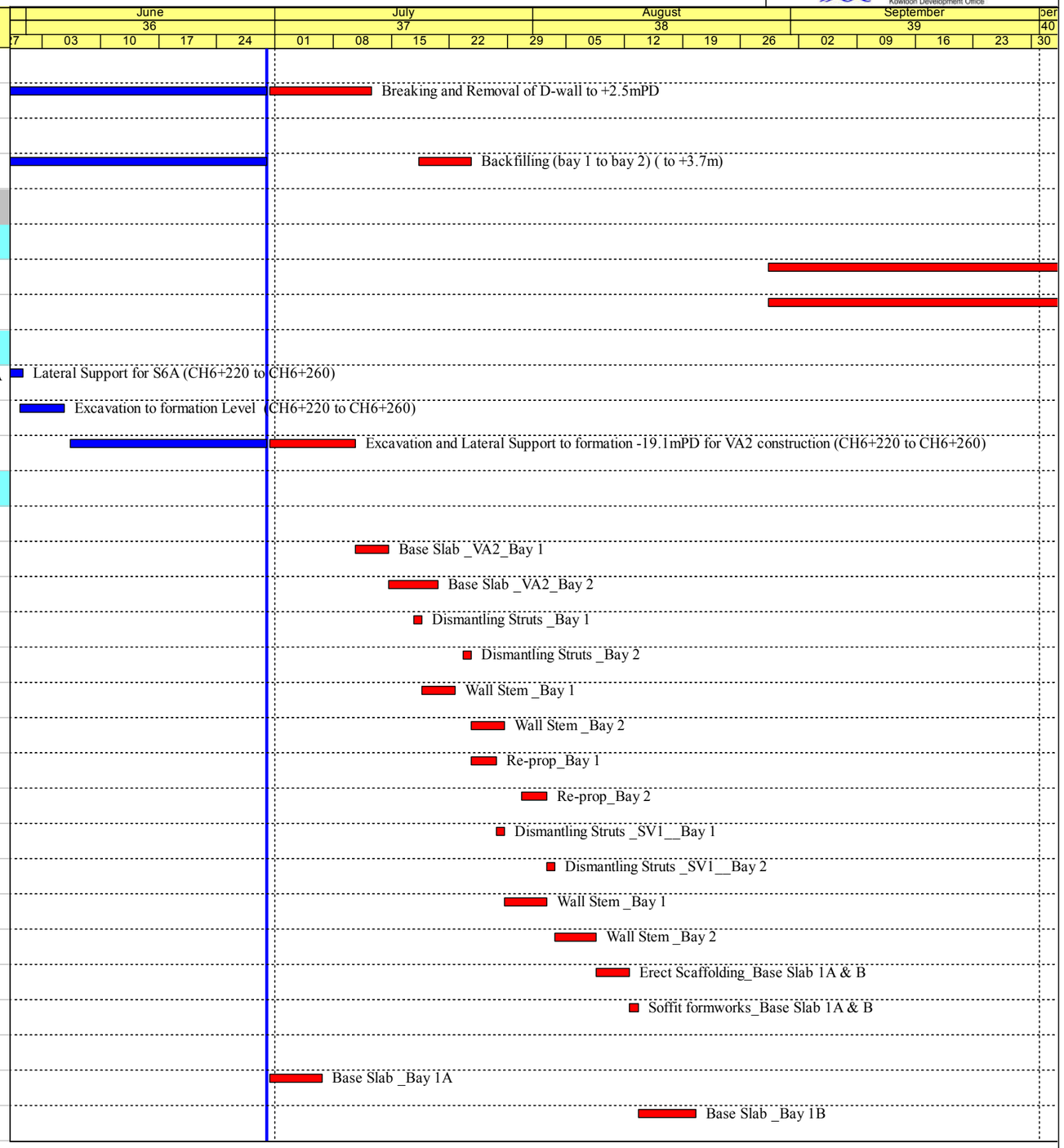
3 Months Rolling Programme

Date	Revision	Checked	Approved
30-Jun-18	Jul 18 - Sep 18		

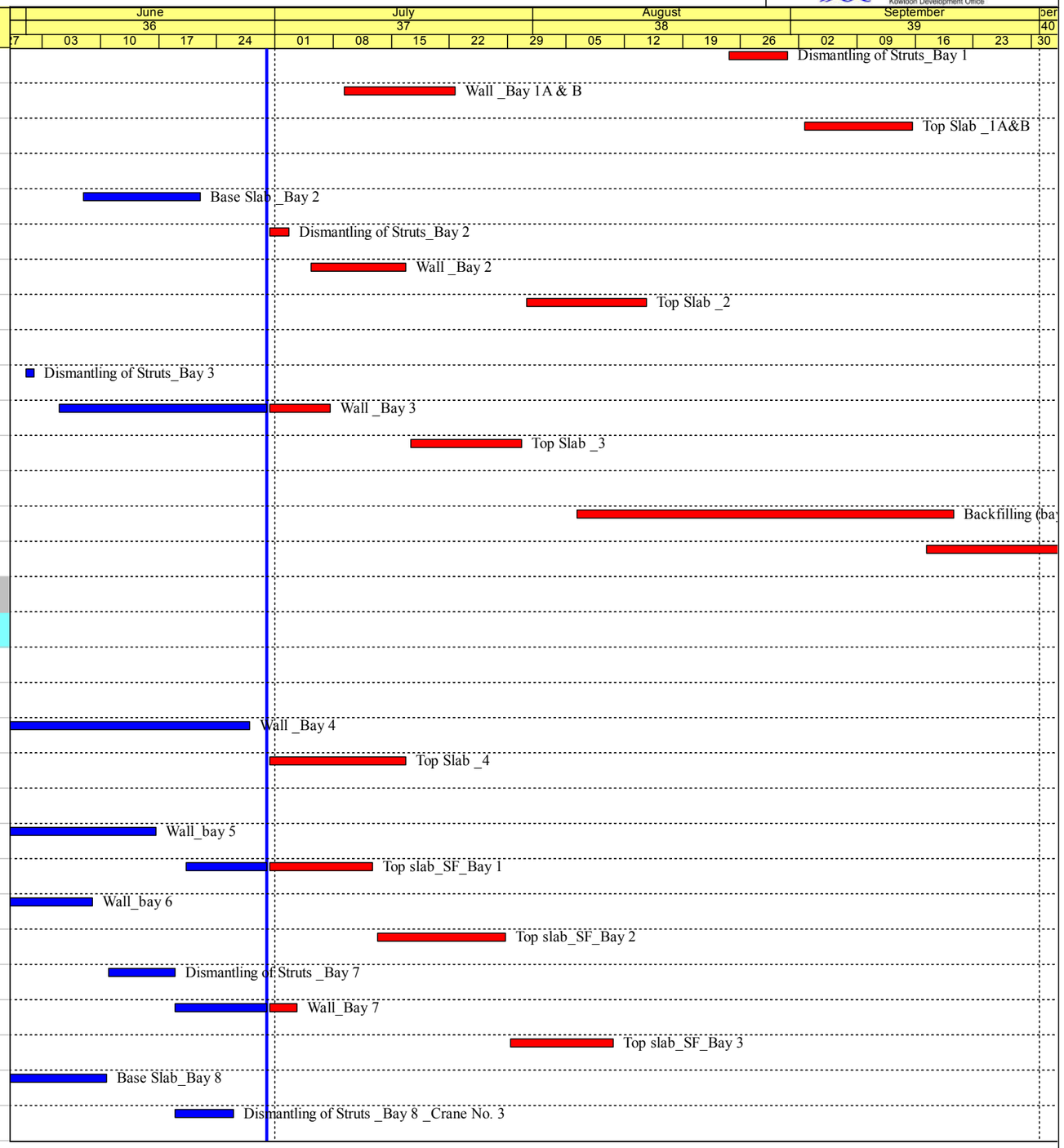
Activity ID	Activity Name	Rem Dur	Start	Finish
Prelimiaries				
K-DR-PRE-1800	Submission of time-lapsed photographs and video	467	20-Feb-16 A	09-Oct-19
Barge Loading Facilities				
K-DR-PRE-1480	Operation of temporary barging point	85	21-Jun-17 A	10-Oct-18
Instrumentation and Monitoring				
Tilt Monitoring Tile Plates				
K-IM-TMT-1000	Tilt Monitoring near PWCL	131	25-Apr-16 A	07-Nov-18
Section 1 of the Works-Remainder of the Works				
Roadwork and Drainage Works				
Road D4-4 (Cheung Yip Street)				
CH240 - CH400 Northbound				
Laying of Drainage Pipe and Construction of Manhole (M206 to M213)				
K-01-RWS-9420	Construction of Electromagnetic Flowmeter, Pressure Reducing Valve and In-line Strainer Combined Chamber (V.O)	0	17-Apr-18 A	21-Jun-18 A
Road Works				
K-01-RWS-9440	Construction of Road Base and Road Pavement	7	14-Mar-18 A	09-Jul-18
CH240 - CH400 Southbound				
Sewerage Works				
K-01-RWS-9387	Excavation of Sewerage Pipe and Manhole (3E1-1)	6	13-Jul-18	19-Jul-18
K-01-RWS-9460	Laying Sewerage Pipe and Manhole (3E1-1)	22	20-Jul-18	14-Aug-18
K-01-RWS-9470	Backfilling Sewerage Pipe and Manhole (3E1-1)	12	15-Aug-18	28-Aug-18
Laying of Drainage Pipe and Construction of Manhole (M214, M301 to M306)				
K-01-RWS-9485	Excavation of Drainage Pipe and Manhole (M214, M301 to M306)	6	29-Aug-18	04-Sep-18
K-01-RWS-9490	Laying Drainage Pipe and Construction Manhole (M214, M301 to M306)	22	05-Sep-18	02-Oct-18
Temporary Traffic Arrangement				
K-01-RWS-9445	Temporary Road Construction for TTA stage 3 - phase 2	7	26-May-18 A	12-Jul-18
K-01-RWS-9450	Implementation of TTA stage 3 - phase 2	0	13-Jul-18	
Section 1A of the Works -Construction of Supporting Underground Structure (Alternative Design)				
SUS and Ventilation Adits from CH6+150 to CH6+220 in Zone 1				
Construction of Tunnel Box Structure				
SUS Bay 1 (Ch6150-Ch6167.5)				
K-1A-SV1-8420	Breaking and Removal of D-wall to +2.5mPD	10	22-May-18 A	12-Jul-18



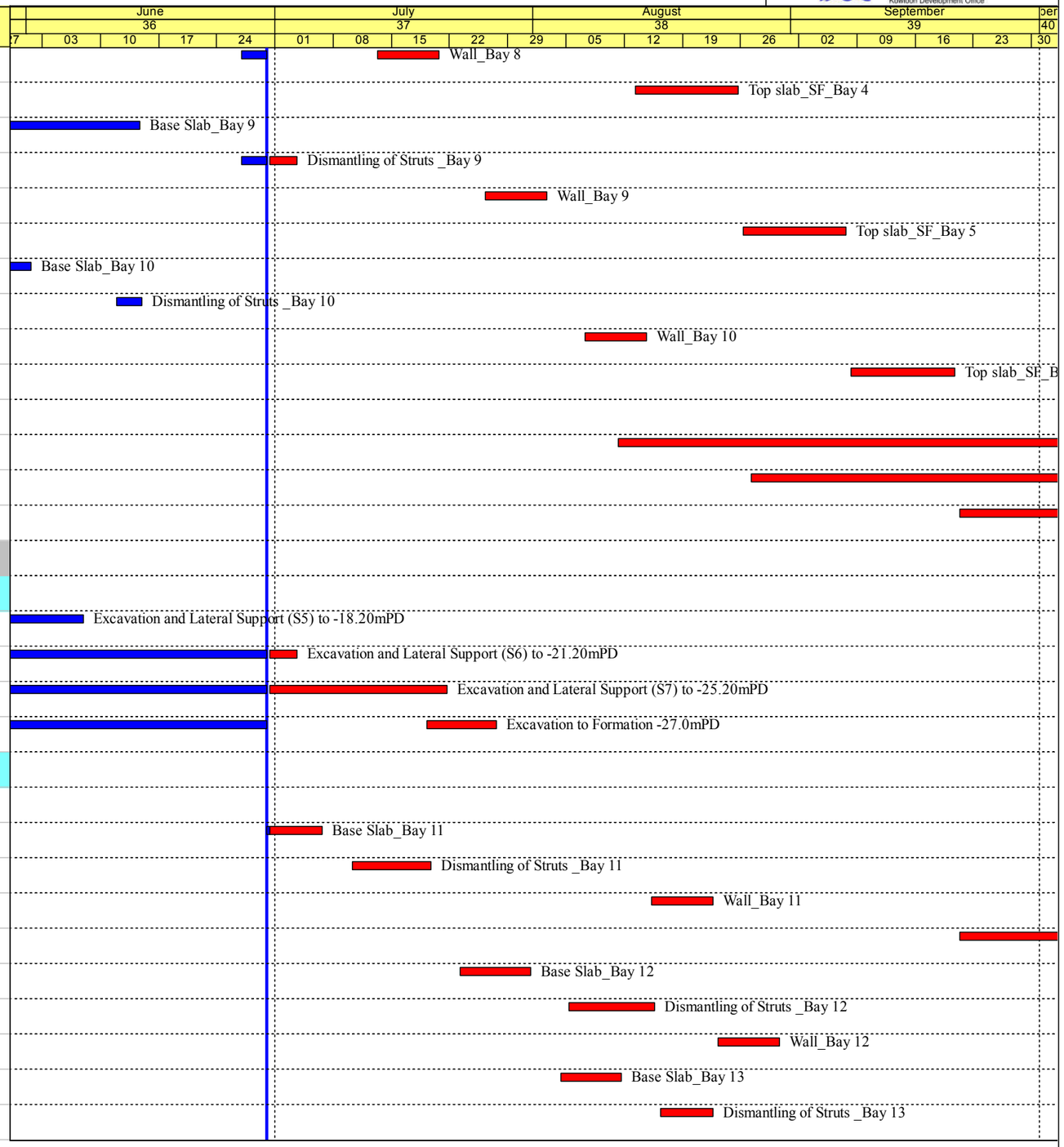
Activity ID	Activity Name	Rem Dur	Start	Finish
	SUS Bay 2 (Ch6167.5-Ch6185)			
K-1A-SV1-9020	Breaking and Removal of D-wall to +2.5mPD	10	04-May-18 A	12-Jul-18
	Backfilling Works			
K-1A-SV1-6900	Backfilling (bay 1 to bay 2) (to +3.7m)	6	23-Apr-18 A	24-Jul-18
	SUS and Ventilation Adits from CH6+220 to CH6+291 in Zone 2			
	W/B Construction of D-Wall in TTA Stage 2			
K-1A-SV2-4800	Trimming D-wall at Cut-off Level	30	29-Aug-18	04-Oct-18
K-1A-SV2-4810	Open through D-walls for DCS mains	30	29-Aug-18	04-Oct-18
	Excavation and ELS Construction			
K-1A-SV2-9050	Lateral Support for S6A (CH6+220 to CH6+260)	0	21-May-18 A	31-May-18 A
K-1A-SV2-9060	Excavation to formation Level (CH6+220 to CH6+260)	0	31-May-18 A	05-Jun-18 A
K-1A-SV2-9730	Excavation and Lateral Support to formation -19.1mPD for VA2 construction (CH6+220 to CH6+260)	8	06-Jun-18 A	10-Jul-18
	Construction of SUS Structure at Zone 2			
	VA2			
001	Base Slab _VA2_Bay 1	4	10-Jul-18	14-Jul-18
002	Base Slab _VA2_Bay 2	6	14-Jul-18	20-Jul-18
003	Dismantling Struts _Bay 1	1	17-Jul-18	18-Jul-18
004	Dismantling Struts _Bay 2	1	23-Jul-18	24-Jul-18
005	Wall Stem _Bay 1	4	18-Jul-18	22-Jul-18
006	Wall Stem _Bay 2	4	24-Jul-18	28-Jul-18
007	Re-prop_Bay 1	3	24-Jul-18	27-Jul-18
008	Re-prop_Bay 2	3	30-Jul-18	02-Aug-18
009	Dismantling Struts _SV1__Bay 1	1	27-Jul-18	28-Jul-18
010	Dismantling Struts _SV1__Bay 2	1	02-Aug-18	03-Aug-18
011	Wall Stem _Bay 1	5	28-Jul-18	02-Aug-18
012	Wall Stem _Bay 2	5	03-Aug-18	08-Aug-18
013	Erect Scaffolding_Base Slab 1A & B	4	08-Aug-18	12-Aug-18
014	Soffit formworks_Base Slab 1A & B	1	12-Aug-18	13-Aug-18
	Bay 1			
018	Base Slab _Bay 1A	7	30-Jun-18	06-Jul-18
019	Base Slab _Bay 1B	7	13-Aug-18	20-Aug-18



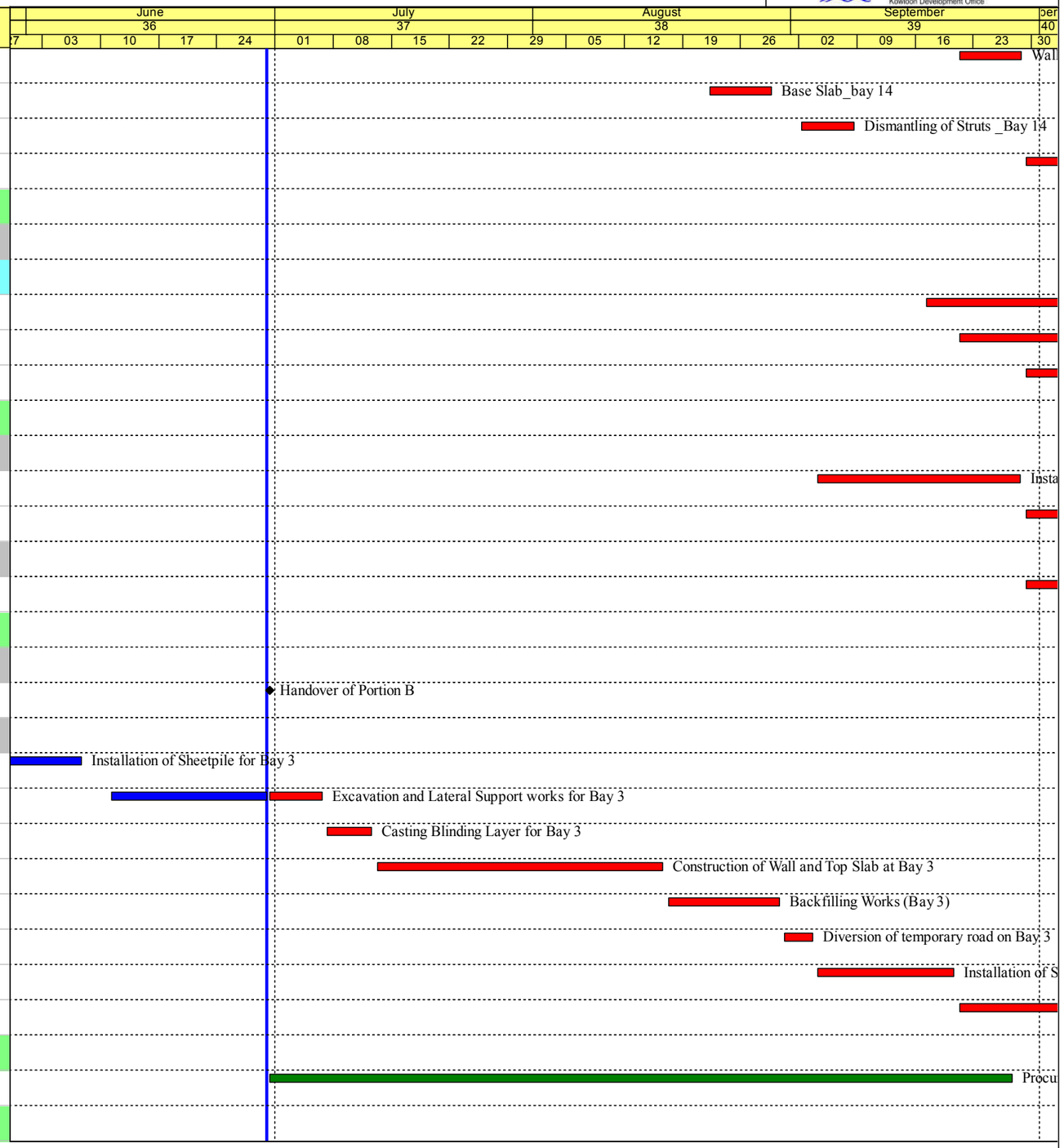
Activity ID	Activity Name	Rem Dur	Start	Finish
020	Dismantling of Struts_Bay 1	7	24-Aug-18	31-Aug-18
021	Wall _Bay 1A & B	14	09-Jul-18	22-Jul-18
022	Top Slab _1A&B	13	02-Sep-18	15-Sep-18
	Bay 2			
024	Base Slab _Bay 2	0	08-Jun-18 A	22-Jun-18 A
025	Dismantling of Struts_Bay 2	3	30-Jun-18	02-Jul-18
026	Wall _Bay 2	12	05-Jul-18	16-Jul-18
027	Top Slab _2	15	31-Jul-18	14-Aug-18
	Bay 3			
030	Dismantling of Struts_Bay 3	0	01-Jun-18 A	02-Jun-18 A
031	Wall _Bay 3	8	05-Jun-18 A	07-Jul-18
032	Top Slab _3	14	17-Jul-18	30-Jul-18
	Backfilling Works			
K-1A-SV2-9840	Backfilling (bay 3) (to +3.7mPD)	40	06-Aug-18	20-Sep-18
K-1A-SV2-9850	Backfilling (bay 1 to bay 2) (to +3.6mPD)	30	17-Sep-18	24-Oct-18
	SUS Structure from CH6+291 to 6+467 in Zone 3			
	Construction of SUS Structure at Zone 3			
	SUS Construction Works at Zone 3			
	Bay 4			
036	Wall _Bay 4	0	18-May-18 A	28-Jun-18 A
037	Top Slab _4	17	30-Jun-18	16-Jul-18
	System Formworks			
041	Wall_bay 5	0	18-May-18 A	16-Jun-18 A
042	Top slab_SF_Bay 1	13	20-Jun-18 A	12-Jul-18
045	Wall_bay 6	0	14-May-18 A	09-Jun-18 A
046	Top slab_SF_Bay 2	16	13-Jul-18	28-Jul-18
048	Dismantling of Struts _Bay 7	0	11-Jun-18 A	19-Jun-18 A
049	Wall_Bay 7	4	19-Jun-18 A	03-Jul-18
050	Top slab_SF_Bay 3	13	29-Jul-18	10-Aug-18
051	Base Slab_Bay 8	0	22-May-18 A	10-Jun-18 A
052	Dismantling of Struts _Bay 8 _Crane No. 3	0	19-Jun-18 A	26-Jun-18 A



Activity ID	Activity Name	Rem Dur	Start	Finish
052.1	Wall_Bay 8	8	27-Jun-18 A	20-Jul-18
054	Top slab_SF_Bay 4	13	13-Aug-18	25-Aug-18
055	Base Slab_Bay 9	0	22-May-18 A	14-Jun-18 A
056	Dismantling of Struts _Bay 9	4	27-Jun-18 A	03-Jul-18
056.1	Wall_Bay 9	8	26-Jul-18	02-Aug-18
058	Top slab_SF_Bay 5	13	26-Aug-18	07-Sep-18
059	Base Slab_Bay 10	0	23-May-18 A	01-Jun-18 A
060	Dismantling of Struts _Bay 10	0	12-Jun-18 A	15-Jun-18 A
061	Wall_Bay 10	8	07-Aug-18	14-Aug-18
062	Top slab_SF_Bay 6	13	08-Sep-18	20-Sep-18
Backfilling Works				
K-1A-SV3-9020	Backfilling (CH6+291 to CH6+347 +0.65mPD)	50	11-Aug-18	10-Oct-18
K-1A-SV3-9030	Backfilling (CH6+347 to CH6+387 +0.65mPD)	68	27-Aug-18	16-Nov-18
K-1A-SV3-9040	Backfilling (CH6+387 to CH6+467 +0.65mPD)	80	21-Sep-18	28-Dec-18
SUS Structure from CH6+467 to 6+568 in Zone 4				
Excavation and ELS Construction				
K-1A-SV4-5800	Excavation and Lateral Support (S5) to -18.20mPD	0	05-Mar-18 A	08-Jun-18 A
K-1A-SV4-5850	Excavation and Lateral Support (S6) to -21.20mPD	2	29-Mar-18 A	03-Jul-18
K-1A-SV4-5900	Excavation and Lateral Support (S7) to -25.20mPD	18	07-May-18 A	21-Jul-18
K-1A-SV4-5950	Excavation to Formation -27.0mPD	8	19-May-18 A	27-Jul-18
Construction of SUS Structure at Zone 4				
System Works				
063	Base Slab_Bay 11	7	30-Jun-18 A	06-Jul-18
064	Dismantling of Struts _Bay 11	10	10-Jul-18	19-Jul-18
065	Wall_Bay 11	8	15-Aug-18	22-Aug-18
066	Top slab_SF_Bay 7	13	21-Sep-18	03-Oct-18
067	Base Slab_Bay 12	9	23-Jul-18	31-Jul-18
068	Dismantling of Struts _Bay 12	11	05-Aug-18	15-Aug-18
069	Wall_Bay 12	8	23-Aug-18	30-Aug-18
071	Base Slab_Bay 13	8	04-Aug-18	11-Aug-18
072	Dismantling of Struts _Bay 13	7	16-Aug-18	22-Aug-18



Activity ID	Activity Name	Rem Dur	Start	Finish
073	Wall_Bay 13	8	21-Sep-18	28-Sep-18
074	Base Slab_bay 14	8	22-Aug-18	29-Aug-18
075	Dismantling of Struts _Bay 14	7	02-Sep-18	08-Sep-18
076	Wall_Bay 14	8	29-Sep-18	06-Oct-18
Section 3 of the Works- Construction of District Cooling System (Subject to Excision)				
Construction of District Cooling System				
Construction of DCS Works at Zone 2				
K-03-DCS-2000	Installation of sheetpile	25	17-Sep-18	18-Oct-18
K-03-DCS-2500	Construction Working Shaft (Jacking Pit) from CHR5-077.43 to CHR5-103	12	21-Sep-18	06-Oct-18
K-03-DCS-2510	Construction Working Shaft (Receiving Pit) from CHR5-077.43 to CHR5-103	12	29-Sep-18	13-Oct-18
Section 4A of the Works-Construction of Subway A (Subject to Excision)				
Bay 1				
K-4A-BAY-1100	Installation of Sheetpile for Bay 1	21	04-Sep-18	28-Sep-18
K-4A-BAY-1150	Excavation and Lateral Support works for Bay 1	28	29-Sep-18	02-Nov-18
Bay 5				
K-4A-BAY-1500	Installation of sheetpile for Bay 5	21	29-Sep-18	25-Oct-18
Section 4B of the Works- Construction of Subway B (Subject to Excision)				
Bay 1 & 2				
K-4B-BAY-3100	Handover of Portion B	0		30-Jun-18*
Bay 3 & 4				
K-4B-BAY-6000	Installation of Sheetpile for Bay 3	0	25-Apr-18 A	07-Jun-18 A
K-4B-BAY-6010	Excavation and Lateral Support works for Bay 3	5	11-Jun-18 A	06-Jul-18
K-4B-BAY-6020	Casting Blinding Layer for Bay 3	5	07-Jul-18	12-Jul-18
K-4B-BAY-6040	Construction of Wall and Top Slab at Bay 3	30	13-Jul-18	16-Aug-18
K-4B-BAY-6050	Backfilling Works (Bay 3)	12	17-Aug-18	30-Aug-18
K-4B-BAY-6055	Diversion of temporary road on Bay 3	3	31-Aug-18	03-Sep-18
K-4B-BAY-6060	Installation of Sheetpipe for Bay 4	15	04-Sep-18	20-Sep-18
K-4B-BAY-6070	Excavation and Lateral Support works for Bay 4	21	21-Sep-18	18-Oct-18
Section 5 of the Works-Completion of All Landscape Softworks				
K-05-LCS-1000	Procurement of plant species	90	30-Jun-18	27-Sep-18
Section 7 of the Works-Preservation and Protection of Existing Trees				

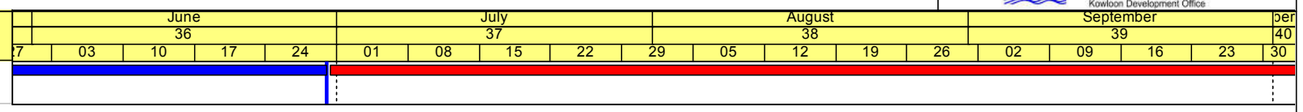


Hyder - Meinhardt JV

KL/2014/03 Kai Tak Development - Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway

CEDD 土木工程拓展署 Civil Engineering and Development Department 九龍拓展處 Kowloon Development Office

Activity ID	Activity Name	Rem Dur	Start	Finish
K-07-001-1000	Section 7 of the Works-Preservation and Protection of Existing Trees	420	04-Jan-16 A	23-Aug-19



中國路橋工程有限責任公司 CHINA ROAD AND BRIDGE CORPORATION

- Milestone
- Critical Activity
- Non-Critical Activity
- Remaining Level of Effort
- Actual Work

3 MRP Jul 2018 - Sep 2018

Project ID :31 3MRP Jul - Sep 18
Layout : KL201403 3MRP
Page 7 of 7

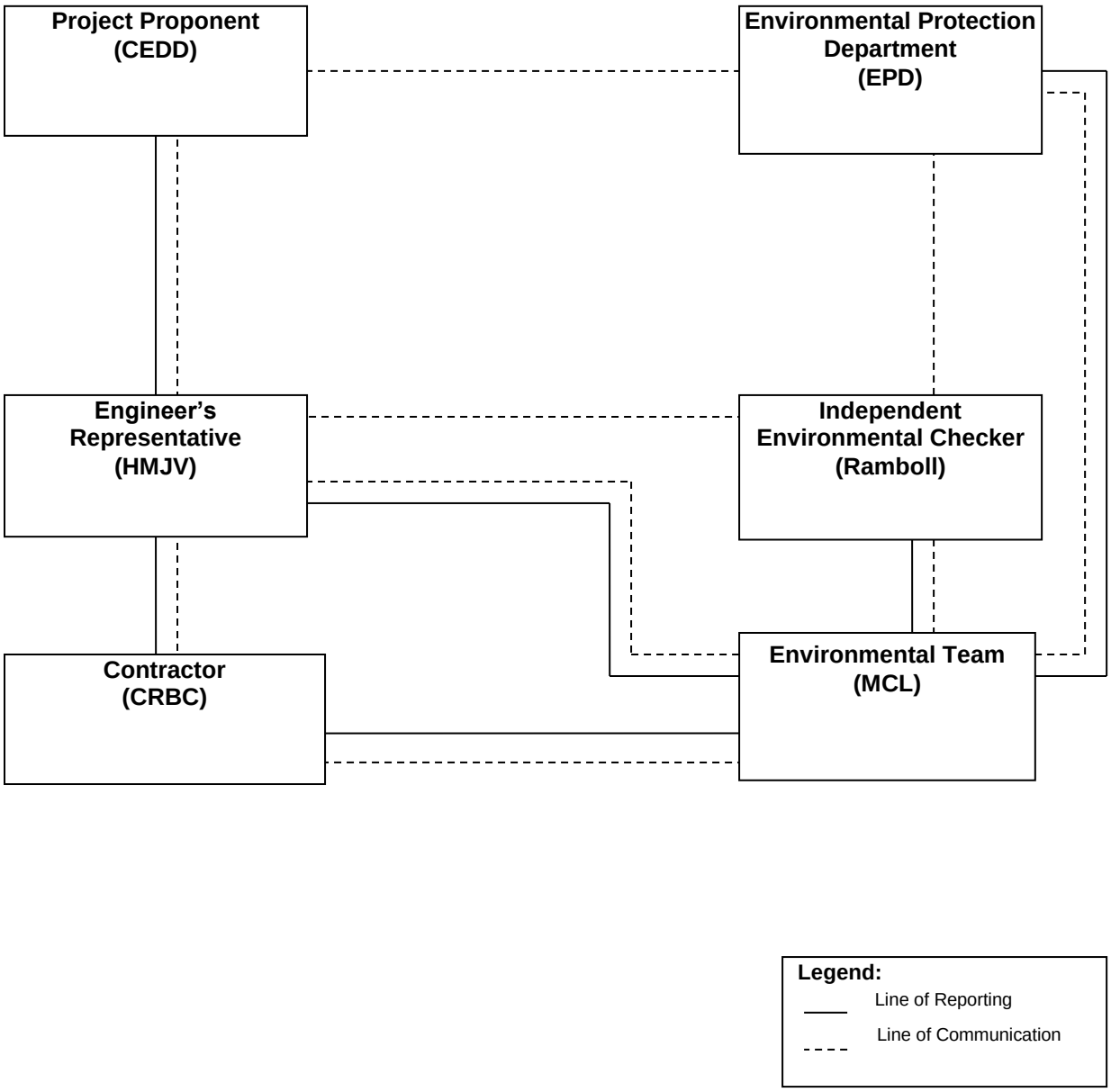
3 Months Rolling Programme			
Date	Revision	Checked	Approved
30-Jun-18	Jul 18 - Sep 18		

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix B

Project Organization Chart

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com



MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix C

Action and Limit Levels for Air Quality and Noise

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Action and Limit Levels for 24-hr TSP and 1-hr TSP

Parameter	Monitoring Station	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/ m^3$)
24-hr TSP ($\mu g/m^3$)	KTD1a	177	260
	KTD2a	157	
	KER1b	172	
*1-hr TSP ($\mu g/m^3$)	KTD1a	285	500
	KTD2a	279	
	KER1b	295	

Note:
1-hr TSP monitoring should be required in case of complaints.

Action and Limit Levels for Construction Noise, Leq (30min), dB(A)

Time Period	Location	Action	Limit
0700-1900 hrs on normal weekdays	KTD1a KTD2a KER1b	When one documented complaint is received	75 dB(A)

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix D

Calibration Certificates of Monitoring Equipment

TISCH Environmental

RECALIBRATION DUE DATE:
November 20, 2018

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	November 20, 2017	**Rootsmeter S/N:** 438320	**Ta:** 294	°K
Operator:	Jim Tisch		**Pa:** 756.9	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **2456**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4440	3.2	2.00
2	3	4	1	1.0260	6.4	4.00
3	5	6	1	0.9130	7.8	5.00
4	7	8	1	0.8680	8.8	5.50
5	9	10	1	0.7190	12.7	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0052	0.6961	1.4209	0.9958	0.6896	0.8814
1.0010	0.9756	2.0095	0.9915	0.9664	1.2465
0.9991	1.0943	2.2467	0.9897	1.0840	1.3936
0.9978	1.1495	2.3563	0.9884	1.1387	1.4616
0.9926	1.3805	2.8418	0.9832	1.3675	1.7628
QSTD	**m=**	**2.07133**	**QA**	**m=**	**1.29703**
	b=	**-0.01892**		**b=**	**-0.01173**
	r=	**0.99995**		**r=**	**0.99995**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

Key
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION
US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

sch Environmental, Inc.
45 South Miami Avenue
illage of Cleves, OH 45002

www.tisch-env.com
TOLL FREE: (877)263-7610
FAX: (513)467-9009

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

MaterialLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Location : KER1b
Brand: Tisch
Model: TE-5170 S/N: 3482

Date of Calibration: 3-Jul-18
Next Calibration Date: 2-Oct-18
Technician: Toby Wan

CONDITIONS

Sea Level Pressure (hPa):	1002.5	Corrected Pressure (mm Hg):	752
Temperature (°C):	30	Temperature (K):	303

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.07013
Model:	TE-5025A	Qstd Intercept:	-0.01892
Calibration Date:	20-Nov-17	Expiry Date:	20-Nov-18
S/N:	2456		

CALIBRATIONS

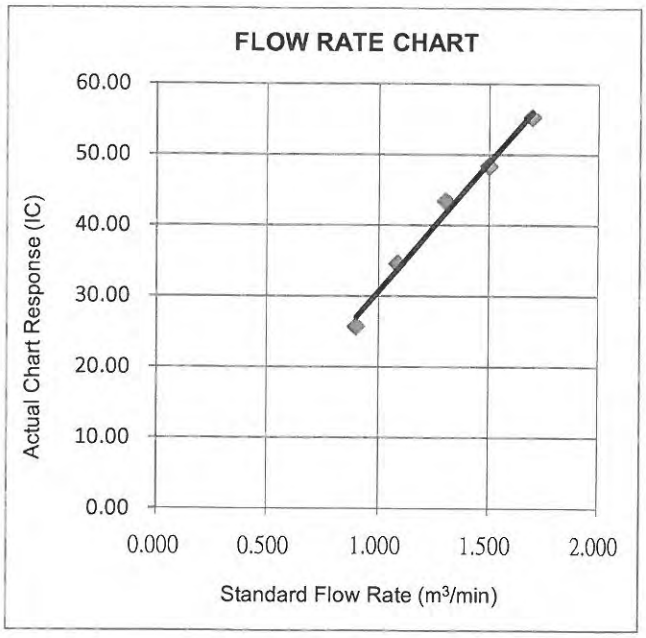
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	4.10	-8.40	12.500	1.694	56.00	55.24	Slope =	36.4591
13	2.80	-7.00	9.800	1.501	49.00	48.34	Intercept =	-5.8642
10	1.20	-6.20	7.400	1.305	44.00	43.41	Corr. coeff.=	0.9945
7	0.50	-4.60	5.100	1.085	35.00	34.53		
5	-0.10	-3.60	3.500	0.901	26.00	25.65		

Calculations:

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]
Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)
m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



CHOI KAM HO
Project Consultant

Report Date: 3rd July, 2018

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

MaterialLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Location : KTD1a
Brand: Tisch
Model: TE-5170 S/N: 4037

Date of Calibration: 3-Jul-18
Next Calibration Date: 2-Oct-18
Technician: Toby Wan

CONDITIONS

Sea Level Pressure (hPa):	1002.5	Corrected Pressure (mm Hg):	752
Temperature (°C):	30	Temperature (K):	303

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.07013
Model:	TE-5025A	Qstd Intercept:	-0.01892
Calibration Date:	20-Nov-17	Expiry Date:	20-Nov-18
S/N:	2456		

CALIBRATIONS

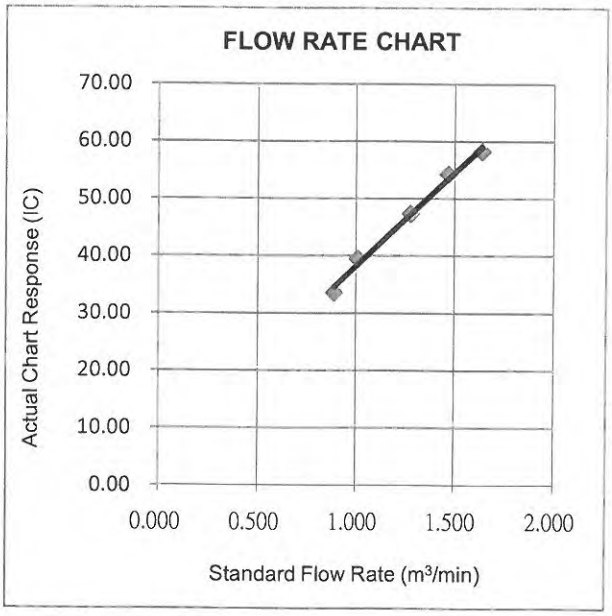
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	3.80	-7.90	11.700	1.639	59.00	58.20	Slope =	32.5139
13	2.60	-6.80	9.400	1.470	55.00	54.26	Intercept =	5.6937
10	1.50	-5.60	7.100	1.279	48.00	47.35	Corr. coeff.=	0.9962
7	0.20	-4.20	4.400	1.009	40.00	39.46		
5	-0.30	-3.70	3.400	0.888	34.00	33.54		

Calculations:

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]
Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)
m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



CHOI KAM HO
Project Consultant

Report Date: 3rd July, 2018

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

MateriaLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Location : KTD2a
Brand: Tisch
Model: TE-5170 S/N: 3838

Date of Calibration: 3-Jul-18
Next Calibration Date: 2-Oct-18
Technician: Toby Wan

CONDITIONS

Sea Level Pressure (hPa):	1002.5	Corrected Pressure (mm Hg):	752
Temperature (°C):	30	Temperature (K):	303

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.07013
Model:	TE-5025A	Qstd Intercept:	-0.01892
Calibration Date:	20-Nov-17	Expiry Date:	20-Nov-18
S/N:	2456		

CALIBRATIONS

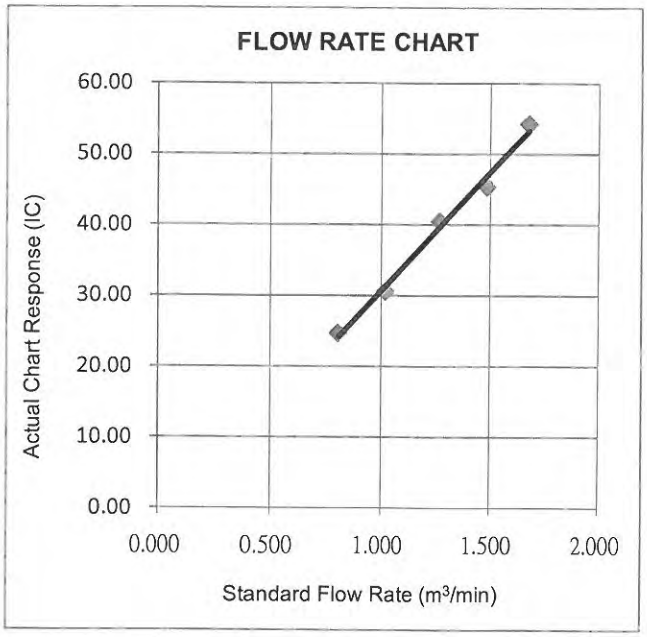
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	4.00	-8.20	12.200	1.674	55.00	54.26	Slope =	33.5918
13	2.70	-6.90	9.600	1.486	46.00	45.38	Intercept =	-2.9631
10	1.10	-5.90	7.000	1.270	41.00	40.45	Corr. coeff.=	0.9956
7	0.10	-4.40	4.500	1.020	31.00	30.58		
5	-0.60	-3.40	2.800	0.807	25.00	24.66		

Calculations:

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]
Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)
m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



CHOI KAM HO
Project Consultant

Report Date: 3rd July, 2018

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

MateriaLab

Report no.: 172379CA185011A

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : MateriaLab Consultants Ltd.

Address : Room 723 & 725, 7/F., Block B, Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Chung, N.T.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Level Meter

Manufacturer : Casella

	Meter	Microphone	Preamplifier
Model No. :	CEL-63X	CE-251	CEL-495
Serial No. :	3148029	01910	003318

Next Calibration Date : 12-Apr-2019

Specification Limit : EN 61672: 2003 Type 1

Laboratory Information

Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)

Equipment ID. : R-108-1

Date of Calibration : 13-Apr-2018 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : By direct comparison

Calibration Results :

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weighing frequency response	4000Hz	1.7	2.6 to -0.6
	2000Hz	1.4	2.8 to -0.4
	1000Hz	0.0	1.1 to -1.1
	500Hz	-3.4	-1.8 to -4.6
	250Hz	-8.8	-7.2 to -10.0
	125Hz	-16.2	-14.6 to -17.6
	63Hz	-26.2	-24.7 to -27.7
	31.5Hz	-39.1	-37.4 to -41.4
Differential level linearity	94dB-104dB	0.0	± 0.6
	104dB-114dB	0.0	± 0.6

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighing is fast
4. The equipment does comply with EN 61672: 2003 Type 1 sound level meter for the above measurement.
5. This is to supersede the previous report no. 172379CA185011.

Checked by : _____ Date : 5-7-2018 Certified by : _____ Date : 7-7-2018

Leung Kwok Tai (Assistant Manager)

CA-R-297 (22/07/2009)

** End of Report **

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

MateriaLab

Report no.: 172379CA180329

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : MateriaLab Consultants Ltd.

Address : Room 723 & 725, 7/F., Block B Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Chung, N.T.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Level Meter

Manufacturer : Casella

	Meter	Microphone	Preamplifier
Model No.	CL63X	CE-251	CEL-495
Serial No. :	1057055	00995	002317

Next Calibration Date : 12-Feb-2019

Specification Limit : EN 61672: 2003 Type 1

Laboratory Information

Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)

Equipment ID. : R-108-1

Date of Calibration : 13-Feb-2018 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : By direct comparison

Calibration Results :

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weighing frequency response	4000Hz	0.4	2.6 to -0.6
	2000Hz	1.0	2.8 to -0.4
	1000Hz	0.2	1.1 to -1.1
	500Hz	-3.0	-1.8 to -4.6
	250Hz	-8.3	-7.2 to -10.0
	125Hz	-15.7	-14.6 to -17.6
	63Hz	-25.7	-24.7 to -27.7
	31.5Hz	-38.7	-37.4 to -41.4
Differential level linearity	94dB-104dB	0.1	± 0.6
	104dB-114dB	0.0	± 0.6

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighing is fast
4. The equipment does comply with EN 61672: 2003 Type 1 sound level meter for the above measurement.

Checked by : _____ Date : 14-2-2018 Certified by : _____ Date : 16.2.2018

CA-R-297 (22/07/2009)

Chan Chun Wai (Manager)

** End of Report **

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

MateriaLab

Report no.: 172379CA172109

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : MateriaLab Consultants Ltd.

Address : Room 723 & 725, 7/F., Block B Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Chung, N.T.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Level Meter

Manufacturer : Casella

	Meter	Microphone	Preamplifier
Model No. :	CL63X	CE-251	CEL-495
Serial No. :	4637931	01993	003538

Equipment ID : N-13

Next Calibration Date : 17-Sep-2018

Specification Limit : EN 61672: 2003 Type 1

Laboratory Information

Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)

Equipment ID. : R-108-1

Date of Calibration : 18-Sep-2017 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of MateriaLab

Method Used : By direct comparison

Calibration Results :

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weighing frequency response	4000Hz	1.4	2.6 to -0.6
	2000Hz	1.3	2.8 to -0.4
	1000Hz	0.0	1.1 to -1.1
	500Hz	-3.2	-1.8 to -4.6
	250Hz	-8.8	-7.2 to -10.0
	125Hz	-16.3	-14.6 to -17.6
	63Hz	-26.3	-24.7 to -27.7
	31.5Hz	-39.3	-37.4 to -41.4
Differential level linearity	94dB-104dB	0.0	± 0.6
	104dB-114dB	0.0	± 0.6

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. For calibration: Reference range is 30-130dB, reference SPL is 94,104 & 114dB, frequency weighing is A,
4. The equipment does comply with EN 61672: 2003 Type 1 sound level meter for the above measurement.

Checked by : _____ Date : 19-9-2017 Certified by : _____ Date : 20.9.2017

Chan Chun Wai (Manager)

CA-R-297 (22/07/2009)

** End of Report **

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

MateriaLab

Report no.: 172379CA180671(1)

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client Supplied Information

Client : MateriaLab Consultants Ltd.

Address : Room 723 & 725, 7/F., Block B Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Chung, N.T.

Project : Calibration Services

Details of Unit Under Test, UUT

Description	:	Sound Calibrator
Manufacturer	:	Casella (Model no. CEL-120/1)
Serial No.	:	5230742
Next Calibration Date	:	10-Apr-2019
Specification Limit	:	EN 60942: 2003 Type 1

Laboratory Information

Description : Reference Sound Level Meter

Equipment ID. : R-119-1

Date of Calibration : 11-Apr-2018 Ambient Temperature : 21 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : By direct comparison

Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit (dB)
94dB	-0.4 dB	±0.4dB
114dB	0.0 dB	

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. The equipment does comply with the specification limit.

Checked by : _____ Date : 16.4.2018 Certified by : _____ Date : 16.4.2018

Chan Chun Wai (Manager)

CA-R-297 (22/07/2009)

** End of Report **

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

MateriaLab

Report no.: 172379CA180517(1)

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client Supplied Information

Client : MateriaLab Consultants Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description	:	Sound Calibrator
Manufacturer	:	Casella (Model no. CEL-120/1)
Serial No.	:	5230758
Equipment ID	:	FY-SLC-01
Next Calibration Date	:	11-Mar-2019
Specification Limit	:	EN 60942: 2003 Type 1

Laboratory Information

Description	:	Reference Sound level meter
Equipment ID.	:	R-119-1
Date of Calibration :	12-Mar-2018	Ambient Temperature : 22 °C
Calibration Location :	Calibration Laboratory of FTS	
Method Used	:	By direct comparison

Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)
94dB	-0.4 dB	±0.4dB
114dB	-0.3 dB	

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. The equipment does comply with the specification limit.

Checked by : _____ Date : 13.3.2018 Certified by : _____ Date : 13.3.2018.

CA-R-297 (22/07/2009)

Chan Chun Wai (Manager)

** End of Report **

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

MateriaLab

Report No. : 183057CA185180(1)

CALIBRATION CERTIFICATE OF ANEMOMETER

Client Supplied Information

Client : MateriaLab Consultants Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Anemometer

Manufacturer : Benetech

Model No. : GM816

Serial No. : 13372555

Equipment ID. : N/A

Next Calibration Date : 08-Jun-2019

Laboratory Information

Details of Reference Equipment –

Description : Reference Anemometer

Equipment ID. : R-101-4

Date of Calibration : 09-Jun-2018 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : By direct Comparison

Calibration Results :

Reference Reading (m/s)	UUT Reading (m/s)	Error (m/s)
1.96	2.2	0.2
4.04	4.1	0.1
6.05	6.2	0.2
8.02	7.9	-0.1
10.06	9.7	-0.4

Remark :

1. The equipment being used in this calibration is traceable to recognized National Standards.

Checked by : William Date : 12-6-2018 Certified by : Date : 13.6.2018

CA-R-297 (22/07/2009)

Chan Chun Wai (Manager)

** End of Report **

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix E

Environmental Monitoring Schedule

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Project: **KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway**

Impact Monitoring Schedule (July 2018)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
1	2	3	4	5	6 TSP Monitoring Noise Monitoring	7
8	9	10	11	12 TSP Monitoring Noise Monitoring	13	14
15	16	17	18 TSP Monitoring Noise Monitoring	19	20	21
22	23	24 TSP Monitoring Noise Monitoring	25	26	27	28
29	30 TSP Monitoring Noise Monitoring	31				

Remarks

1. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2a: G/IC Zone next to Kwun Tong Bypass (Future at Site 3C1), KER1b: Site Boundary at Cheung Yip Street
2. TSP Monitoring: 24-hours TSP Monitoring per 6 days, and 3 x 1-hour TSP Monitoring per 6 days (as required in case of complaints)
3. Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Project: **KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway**

Impact Monitoring Schedule (August 2018)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
			1	2	3	4 TSP Monitoring Noise Monitoring
5	6	7	8	9	10 TSP Monitoring Noise Monitoring	11
12	13	14	15	16 TSP Monitoring Noise Monitoring	17	18
19	20	21	22 TSP Monitoring Noise Monitoring	23	24	25
26	27	28 TSP Monitoring Noise Monitoring	29	30	31	

Remarks

1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition
2. Monitoring Location KTD2a was relocated to KTD2b on 9 August 2018. TSP Monitoring and Noise Monitoring will be conducted at KTD2b from 9 August 2018 onward.
3. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2a: G/IC Zone next to Kwun Tong Bypass (Future at Site 3C1), KTD2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital), KER1b: Site Boundary at Cheung Yip Street
4. TSP Monitoring: 24-hours TSP Monitoring per 6 days, and 3 x 1-hour TSP Monitoring per 6 days (as required in case of complaints)
5. Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Project: **KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway**

Impact Monitoring Schedule (September 2018)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
						1
2	3 TSP Monitoring Noise Monitoring	4	5	6	7	8 TSP Monitoring Noise Monitoring
9	10	11	12	13	14 TSP Monitoring Noise Monitoring	15
16	17	18	19	20 TSP Monitoring Noise Monitoring	21	22
23	24	25	26 TSP Monitoring Noise Monitoring	27	28	29
30						

Remarks

1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition
2. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital), KER1b: Site Boundary at Cheung Yip Street
3. TSP Monitoring: 24-hours TSP Monitoring per 6 days, and 3 x 1-hour TSP Monitoring per 6 days (as required in case of complaints)
4. Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Project: **KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway**

Impact Monitoring Schedule (October 2018)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
	1	2 TSP Monitoring Noise Monitoring	3	4	5	6
7	8 TSP Monitoring Noise Monitoring	9	10	11	12	13 TSP Monitoring Noise Monitoring
14	15	16	17	18	19 TSP Monitoring Noise Monitoring	20
21	22	23	24	25 TSP Monitoring Noise Monitoring	26	27
28	29	30	31 TSP Monitoring Noise Monitoring			

Remarks

1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition
2. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital), KER1b: Site Boundary at Cheung Yip Street
3. TSP Monitoring: 24-hours TSP Monitoring per 6 days, and 3 x 1-hour TSP Monitoring per 6 days (as required in case of complaints)
4. Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix F

Air Quality Monitoring Data

24-hour TSP Monitoring Result for
Kai Tak Development - Stage 3 Infrastructure Works for
Developments at the Southern Part of the Former Runway

KTD1a - Centre of Excellence in Paediatrics (Children's Hospital)

Start Date	Weather Condition	Air Temperature (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Sampling Time(hrs)	Flow Rate (m^3/min.)		Average flow (m^3/min.)	Total volume ($m^{3)}$	Conc. (ug/m^3)	Action Level	Limit Level
				Initial	Final			Initial	Final				(ug/m^3)	(ug/m^3)
6-Jul-18	Fine	303.1	752.0	2.7025	2.7442	0.0417	24	1.23	1.25	1.24	1783.5	23		
12-Jul-18	Fine	303.0	752.5	2.6940	2.7583	0.0643	24	1.29	1.31	1.30	1876.4	34		
18-Jul-18	Cloudy	300.7	753.0	2.6973	2.7330	0.0357	24	1.30	1.31	1.31	1880.6	19	177	260
24-Jul-18	Fine	302.8	752.8	2.6802	2.7670	0.0868	24	1.29	1.31	1.30	1876.9	46		
30-Jul-18	Fine	303.2	754.2	2.6650	2.7082	0.0432	24	1.29	1.31	1.30	1877.2	23		
											Min	19		
											Max	46		
											Average	29		

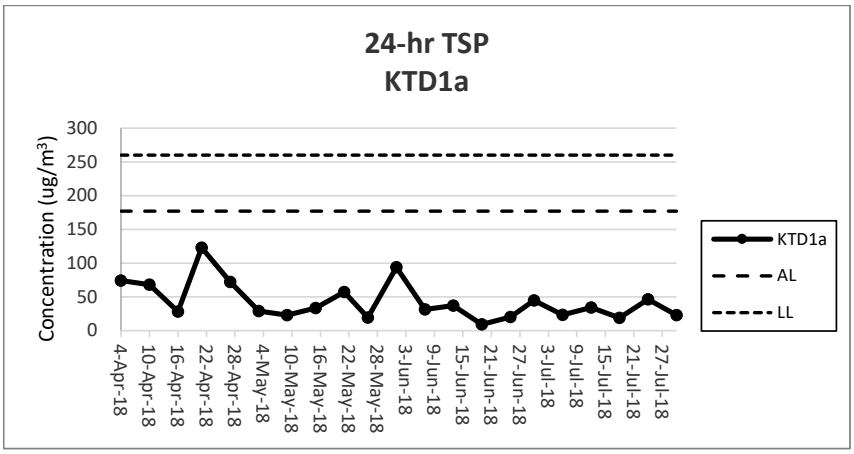
KTD2a - G/IC Zone next to Kwun Tong Bypass (Future Hospital at Site 3C1)

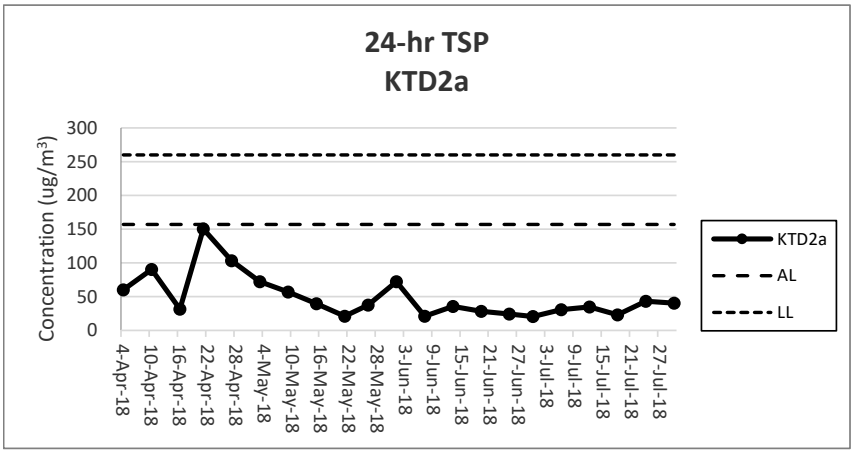
Start Date	Weather Condition	Air Temperature (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Sampling Time(hrs)	Flow Rate (m^3/min.)		Average flow (m^3/min.)	Total volume ($m^{3)}$	Conc. (ug/m^3)	Action Level	Limit Level
				Initial	Final			Initial	Final				(ug/m^3)	(ug/m^3)
6-Jul-18	Fine	303.1	752.0	2.7116	2.7807	0.0691	24	1.54	1.57	1.56	2240.0	31		
12-Jul-18	Fine	303.0	752.5	2.7075	2.7742	0.0667	24	1.33	1.35	1.34	1925.6	35		
18-Jul-18	Cloudy	300.7	753.0	2.6937	2.7382	0.0445	24	1.33	1.35	1.34	1930.4	23	157	260
24-Jul-18	Fine	302.8	752.8	2.6920	2.7707	0.0787	24	1.25	1.27	1.26	1821.2	43		
30-Jul-18	Fine	303.2	754.2	2.6724	2.7627	0.0903	24	1.55	1.57	1.56	2241.7	40		
											Min	23		
											Max	43		
											Average	34		

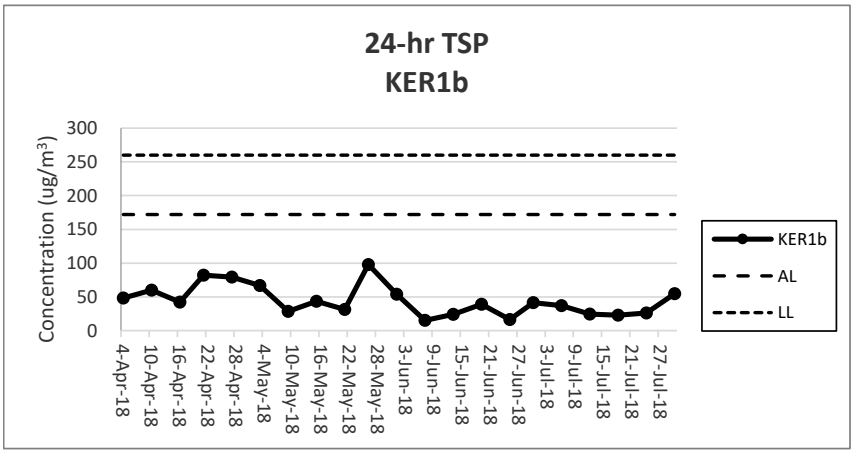
KER1b - Site Boundary at Cheung Yip Street

Start Date	Weather Condition	Air Temperature (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Sampling Time(hrs)	Flow Rate (m^3/min.)		Average flow (m^3/min.)	Total volume ($m^{3)}$	Conc. (ug/m^3)	Action Level	Limit Level
				Initial	Final			Initial	Final				(ug/m^3)	(ug/m^3)
6-Jul-18	Fine	303.1	752.0	2.7253	2.7801	0.0548	24	1.02	1.04	1.03	1484.9	37		
12-Jul-18	Fine	303.0	752.5	2.6926	2.7355	0.0429	24	1.21	1.23	1.22	1750.6	25		
18-Jul-18	Cloudy	300.7	753.0	2.6937	2.7382	0.0445	24	1.33	1.35	1.34	1930.4	23	172	260
24-Jul-18	Fine	302.8	752.8	2.6754	2.7214	0.0460	24	1.21	1.23	1.22	1751.1	26		
30-Jul-18	Fine	303.2	754.2	2.6797	2.7758	0.0961	24	1.21	1.23	1.22	1751.4	55		
											Min	23		
											Max	55		
											Average	33		

Note:
Underline: Exceedance of Action Level
Underline and Bold: Exceedance of Limit Level







Note:

1) The major activities being carried out on site during the reporting period can be referred to Section 1.3.2.
2) The weather conditions during the reporting period can be referred to Appendix K.
3) Any other factors which might affect the monitoing results can be referred to Section 2.6.4.
4) QA/QC results, calibration results and detection limits can be referred to Appendix D.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix G

Noise Monitoring Data

Noise Impact Monitoring Result for
Kai Tak Development - Stage 3 Infrastructure Works for
Developments at the Southern Part of the Former Runway

KTD 1a: Centre of Excellence in Paediatrics (Children's Hospital)

Date	Start Time	Leq 30min dB(A)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather
6-Jul-18	9:55	67	68	66	0.0	Fine
12-Jul-18	10:22	72	74	68	0.0	Fine
18-Jul-18	9:53	72	75	65	0.8	Cloudy
24-Jul-18	10:29	65	67	63	0.2	Fine
30-Jul-18	15:39	66	67	64	0.0	Fine
	Max	72				
	Min	65				
	Limit Level	**75**				

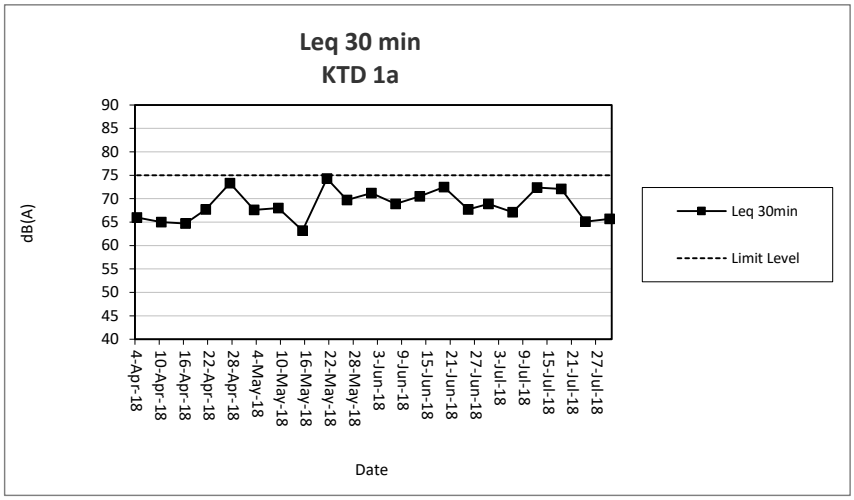
KTD 2a: G/IC Zone next to Kwun Tong Bypass (Future Hospital at Site 3C1)

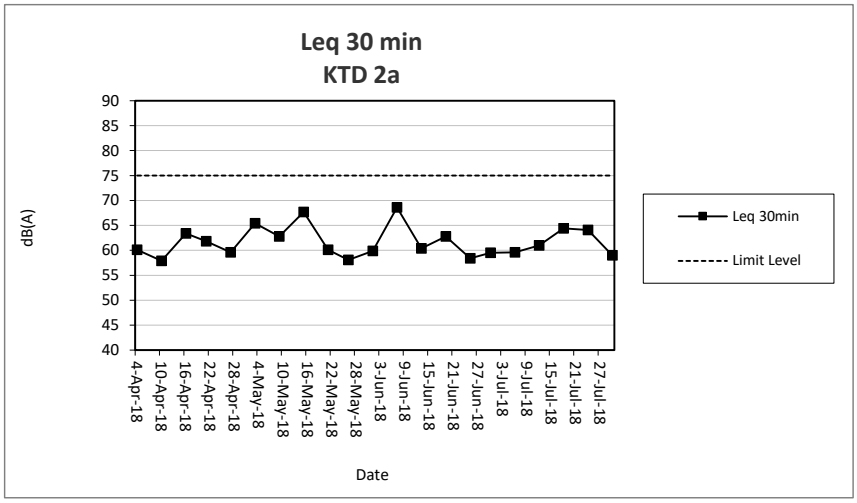
Date	Start Time	Leq 30min dB(A)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather
6-Jul-18	9:12	60	62	58	0.4	Fine
12-Jul-18	10:55	61	62	59	0.0	Fine
18-Jul-18	9:18	64	64	60	1.1	Cloudy
24-Jul-18	11:10	64	65	63	0.2	Fine
30-Jul-18	14:53	59	63	55	0.4	Fine
	Max	64				
	Min	59				
	Limit Level	**75**				

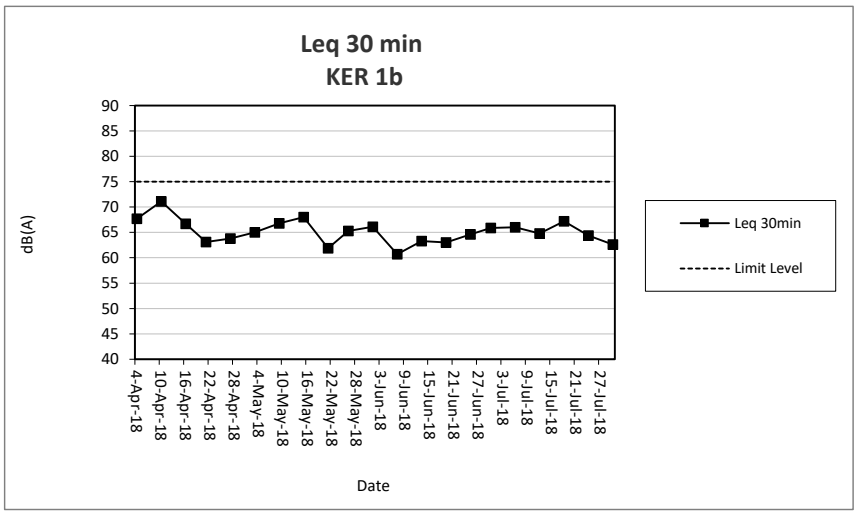
KER 1b: Site Boundary at Cheung Yip Street

Date	Start Time	Leq 30min dB(A)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather
6-Jul-18	10:35	66	67	63	0.2	Fine
12-Jul-18	9:13	65	67	62	1.0	Fine
18-Jul-18	10:36	67	70	63	1.3	Cloudy
24-Jul-18	9:45	64	67	61	0.3	Fine
30-Jul-18	16:21	63	64	61	0.2	Fine
	Max	67				
	Min	63				
	Limit Level	**75**				

Note:
KTD1a: Façade Measurement
KTD2a & KER1b: Free-field measurement (+3dB(A) correction has been applied)
No raining or wind with speed over 5 m/s was observed during noise monitoring according to the onsite observation.







Note:
1) The major activities being carried out on site during the reporting period can be referred to Section 1.3.2.
2) The weather conditions during the reporting period can be referred to Appendix K.
3) Any other factors which might affect the monitoing results can be referred to Section 3.7.2.
4) QA/QC results, calibration results and detection limits can be referred to Appendix D.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

MateriaLab

Appendix H

Events and Action Plan

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Event and Action Plan for Construction Dust Monitoring

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

EVENT	ACTION			
	ET	IEC	ER	Contractor
	discuss the remedial action to be taken. 7. Assess the effectiveness of the Contractor's remedial action and keep the IEC, EPD and ER informed of the results. 8. If exceedance stops, cease additional monitoring		continues, consider what portion of works is responsible and instruct the Contractor to stop that portion of works until the exceedance is abated.	determined by the ER until the exceedance is abated.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Event and Action Plan for Noise Impact

EVENT	ACTION			
	ET	IEC	ER	Contractor
Action Level	1. Notify the IEC, ER and Contractor. 2. Carry out investigation. 3. Report the results of investigation to the IEC and Contractor. 4. Discuss jointly with the ER and Contractor and formulate remedial measures. 5. Increase the monitoring frequency to check the mitigation effectiveness	1. Review the monitoring data submitted by the ET. 2. Review the construction methods and proposed redial measures by the Contractor, and advise the ET and ER if the proposed remedial measures would be sufficient	1. Notify the Contractor. 2. Require the Contractor to propose remedial measures for implementation if required.	1. Submit noise mitigation proposals to the ER and copy to the IEC and ET. 2. Implement noise mitigation proposals.
Limit Level	1. Notify the IEC, ER and Contractor. 2. Identify sources. 3. Repeat measurements to confirm findings. 4. Carry out analysis of the Contractor's working procedures with the ER and Contractor to determine possible mitigations to be implemented. 5. Record the causes and action taken for the exceedances. 6. Increase the monitoring frequency. 7. Assess the effectiveness of the Contractor's remedial action with the ER and keep the IEC informed of the results. **8.** If exceedance stops, cease additional monitoring	1. Discuss amongst the ER, ET and Contractor on the potential remedial action. 2. Review the Contractor's remedial action whenever necessary to assure their effectiveness and advise the ER accordingly. **3.** Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problems. 4. Ensure remedial measures are properly implemented. **5.** If exceedance continues, consider what portion of work is responsible and instruct the Contractor to stop that portion of works until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial action to the ER and copy to the ET and IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problems still not under control. **5.** Stop the relevant portion of works as determined by the ER until the exceedance is abated.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Event and Action Plan for Landscape and Visual Impact

EVENT	ACTION			
	ET	IEC	ER	Contractor
Non-conformity on one occasion	1. Identify Source 2. Inform the IEC and the ER 3. Discuss remedial actions with the IEC, the ER and the Contractor 4. Monitor remedial actions until rectification has been completed	1. Check report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the 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 2. Inform the IEC and the ER 3. Increase monitoring frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If exceedance stops, cease additional monitoring	1. Check monitoring report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures.	1. Notify the Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake any necessary replacement

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix I

Waste Flow Table

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

MaterialLab

Waste Flow Table for Year 2016

Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (Inert C&D)	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
2016 Jan	0.159	0.101	0.058	Nil	Nil	Nil	Nil	0.023	0.00002	0.0158	0.0335
2016 Feb	0.291	0.050	0.241	Nil	Nil	Nil	1.34	0.023	0.00002	0.0158	0.0335
2016 Mar	2.7389	0.0407	0.0662	Nil	2.632	Nil	5.92	0.023	0.00002	0.0158	0.0571
2016 Apr	4.1718	0.0578	0.462	Nil	3.652	Nil	12.5	0.023	0.00002	0.0158	0.0426
2016 May	3.592	Nil	0.299	Nil	3.293	Nil	5.23	0.023	0.00002	0.0158	0.0621
2016 June	4.6035	Nil	0.8555	Nil	3.748	Nil	Nil	0.023	0.00002	0.0158	0.0619
2016 July	6.155	0.153	0.015	Nil	5.987	Nil	7.84	0.023	0.00002	0.0158	0.0433
2016 Aug	5.1155	Nil	Nil	Nil	5.1155	Nil	19.93	0.023	Nil	Nil	0.0147
2016 Sept	7.2267	Nil	Nil	Nil	7.2267	Nil	33.65	0.023	Nil	Nil	0.0103
2016 Oct	4.6448	Nil	Nil	Nil	4.6448	Nil	13.30	0.023	Nil	Nil	0.0385
2016 Nov	6.1626	Nil	Nil	Nil	6.1626	Nil	27.06	0.023	Nil	Nil	0.0192
2016 Dec	6.3522	Nil	Nil	Nil	6.3522	Nil	13.30	0.023	Nil	Nil	0.0121
Total	51.213	0.4025	1.9967	Nil	48.8138	Nil	140.07	0.276	0.00014	0.1106	0.4288

Note:
1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

MaterialLab

Waste Flow Table for Year 2017

Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (Inert C&D)	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
2017 Jan	4.2300	Nil	Nil	Nil	4.2300	Nil	0.015	0.023	Nil	Nil	0.0109
2017 Feb	3.2128	Nil	Nil	Nil	3.2128	Nil	0.015	0.023	Nil	Nil	0.0096
2017 Mar	9.4759	Nil	Nil	Nil	9.4759	Nil	0.034	0.023	Nil	Nil	0.0162
2017 Apr	4.8827	Nil	Nil	Nil	4.8827	Nil	0.016	0.023	Nil	Nil	0.0062
2017 May	3.0366	Nil	Nil	Nil	3.0366	Nil	0.022	0.023	Nil	Nil	0.0282
2017 Jun	2.5656	Nil	Nil	Nil	2.5656	Nil	41.25	Nil	Nil	Nil	0.0357
2017 Jul	5.5267	Nil	0.7851	Nil	4.7416	Nil	4.01	0.4515	Nil	0.25	0.0364
2017 Aug	11.4734	Nil	0.0276	Nil	11.4458	Nil	7.4	Nil	Nil	Nil	0.0196
2017 Sep	23.9373	Nil	2.6167	Nil	21.3206	Nil	3.52	Nil	Nil	Nil	0.0333
2017 Oct	17.8261	Nil	0.4069	Nil	17.4192	Nil	Nil	Nil	Nil	Nil	0.0156
2017 Nov	5.8834	Nil	0.6664	Nil	5.217	Nil	Nil	Nil	Nil	Nil	0.023
2017 Dec	21.3554	Nil	0.4763	Nil	20.8791	Nil	29.13	Nil	Nil	Nil	0.022
Total	113.4059	Nil	4.9790	Nil	108.4269	Nil	85.412	0.5665	Nil	0.25	0.2567

Note:
1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Waste Flow Table for Year 2018

Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (Inert C&D)	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
2018 Jan	10.2340	Nil	Nil	Nil	10.2340	Nil	32.39	Nil	Nil	Nil	0.0161
2018 Feb	6.5256	Nil	Nil	Nil	6.5256	Nil	Nil	Nil	Nil	Nil	0.0235
2018 Mar	28.1995	Nil	Nil	Nil	28.1995	Nil	54.54	Nil	Nil	Nil	0.0190
2018 Apr	11.2165	Nil	Nil	Nil	11.2165	Nil	Nil	Nil	Nil	Nil	0.0270
2018 May	5.6011	Nil	Nil	Nil	5.6011	Nil	Nil	Nil	Nil	Nil	0.0140
2018 Jun	5.8072	Nil	Nil	Nil	5.8072	Nil	93.3	Nil	Nil	Nil	0.0235
2018 Jul	7.4206	Nil	Nil	Nil	7.4206	Nil	Nil	Nil	Nil	Nil	0.0383
2018 Aug											
2018 Sep											
2018 Oct											
2018 Nov											
2018 Dec											
Total	75.0045	Nil	Nil	Nil	75.0045	Nil	180.23	Nil	Nil	Nil	0.1614

Note:
1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

MateriaLab

Appendix J

Environmental Mitigation Implementation Schedule (EMIS)

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
Air Quality Measures					
New Distributor Roads Serving the Planned KTD					
AEIAR-130/2009 S3.2	AEIAR 130/2009 EM&A Manual S2.2	8 times daily watering of the work site with active dust emitting activities.	Contractor	All relevant worksites	Implemented
Decommissioning of the Radar Station of the former Kai Tak Airport					
AEIAR-130/2009 S5.2.19	AEIAR 130/2009 EM&A Manual S4.2.4	The excavation area should be limited to as small in size as possible and backfilled with clean and/or treated soil shortly after excavation work. The exposed excavated area should be covered by the tarpaulin during night time. The top layer soils should be sprayed with fine misting of water immediately before the excavation.	Contractor	All relevant worksites	Not Applicable
Trunk Road T2					
AEIAR-174/2013 S4.9.2.1	AEIAR-174/2013 EM&A Manual S2.3.1.1	Watering of the construction areas 12 times per day to reduce dust emissions by 91.7%, with reference to the “Control of Open Fugitive Dust Sources” (USEPA AP-42). The amount of water to be applied would be 0.91L/m2 for the respective watering frequency.	Contractor	All relevant worksites	Implemented
		Dust enclosures with watering would be provided along the loading ramps and conveyor belts for unloading the C&D materials to the barge for dust suppression.	Contractor	All relevant worksites	Not Applicable
		8 km per hour is the recommended limit of the speed for vehicles on unpaved site roads.	Contractor	All relevant worksites	Implemented
		Good Site Practices			
AEIAR-130/2009	AEIAR 130/2009	Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should	Contractor	All relevant	Implemented

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
S3.2, S5.2.19, AEIAR-174/2013 S4.9.2.2	EM&A Manual S2.2, S4.2, AEIAR-174/2013 EM&A Manual S2.3.1.2	be fully covered by impermeable sheeting to reduce dust emission.		worksites	
		Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. Use of frequent watering for particularly dusty construction areas and areas close to ASRs.	Contractor	All relevant worksites	Implemented
		Misting for the dusty material should be carried out before being loaded into the vehicle. Any vehicle with an open load carrying area should have properly fitted side and tail boards.	Contractor	All relevant worksites	Implemented
		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.	Contractor	All relevant worksites	Implemented
		Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation.	Contractor	All relevant worksites	Implemented
		The vehicles should be restricted to maximum speed of 10 km per hour. Confined haulage and delivery vehicle to designated roadways insider the site. Onsite unpaved roads should be compacted and kept free of lose materials.	Contractor	All relevant worksites	Implemented
		Vehicle washing facilities should be provided at every vehicle exit point. Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites. 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.	Contractor	All relevant worksites	Implemented
		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.	Contractor	All relevant worksites	Implemented
		Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.	Contractor	All relevant worksites	Implemented

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed.	Contractor	All relevant worksites	Implemented
		Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system.	Contractor	All relevant worksites	Implemented
		Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.	Contractor	All relevant worksites	Implemented
		Open stockpiles shall be avoided or covered. Prevent placing dusty material storage piles near ASRs.	Contractor	All relevant worksites	Implemented
		Routing of vehicles and position of construction plant should be at the maximum possible distance from ASRs.	Contractor	All relevant worksites	Implemented
		<u>Dark smoke</u>			
		Dark smoke emission shall be control in accordance with the Air Pollution Control (Smoke) Regulation and ETWB TCW 19/2005.	Contractor	All relevant worksites	Implemented
		Plant and equipment should be well maintained to prevent dark smoke emission.	Contractor	All relevant worksites	Implemented
<u>Noise Measures</u>					
Trunk Road T2					
AEIAR-174/2013 S5.9.2.1	AEIAR-174/2013 EM&A Manual S3.4.1.1	The use of quieter plant, including Quality Powered Mechanical Equipment (QPME) is specified for the list of equipment: • Concrete lorry mixer • Dump Truck, 5.5 tonne < gross vehicle weight <= 38 tonne • Generator, Super Silenced, 70 dB(A) at 7m	Contractor	All relevant worksites	Implemented

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		• Poker, vibratory, Hand-held (electric) • Water Pump, Submersible (Electric) • Mobile Crane - KOBELCO CKS900 • Excavator, wheeled/tracked - HYUNDAI R80CR-9			
		Use of temporary or fixed noise barriers with a surface density of at least 10kg/m^2 to screen noise from movable and stationary plant.	Contractor	All relevant worksites	Implemented
		Use of enclosures with covers at top and three sides and a surface density of at least 10kg/m^2 to screen noise from generally static noisy plant such as air compressors.	Contractor	All relevant worksites	Implemented
		Use of acoustic fabric for the silent piling system, drill rigs, rock drills etc.	Contractor	All relevant worksites	Implemented
		<u>Good Site Practices</u>			
AEIAR-130/2009 S3.3, S5.3.10, AEIAR-174/2013 S5.9.2.1	AEIAR 130/2009 EM&A Manual S2.3, S4.3.2, AEIAR-174/2013 EM&A Manual S3.4.1.1	Only well-maintained plant should be operated on-site and plant shall be serviced regularly during the construction/ decommissioning program.	Contractor	All relevant worksites	Implemented
		Silencers or mufflers on construction equipment should be utilized and shall be properly maintained during the construction/ decommissioning program.	Contractor	All relevant worksites	Implemented
		Mobile plant, if any, should be sited as far away from NSRs as possible.	Contractor	All relevant worksites	Implemented
		Machines and plant (such as trucks) that may be in intermittent use shall be shut down between works periods or should be throttled down to a minimum.	Contractor	All relevant worksites	Implemented
		Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.	Contractor	All relevant worksites	Implemented
		Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction/ decommissioning activities.	Contractor	All relevant worksites	Implemented

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		Use of site hoarding as a noise barrier to screen noise at low level NSRs.	Contractor	All relevant worksites	Implemented
		For the use of hand held percussive breakers (with mass of above 10kg) and portable air compressors (supply air at 500 kPa or above), the noise level of such PME shall comply with a stringent noise emission standard and a noise emission label shall be obtained from the DEP before use at any time in construction site.	Contractor	All relevant worksites	Implemented
		Quiet powered mechanical equipment (PME) shall be used for the construction of the Project.	Contractor	All relevant worksites	Implemented
		Full enclosures shall be used to screen noise from relatively static PMEs (including air compressor, bar bender, concrete pump, generator and water pump) from sensitive receiver(s).	Contractor	All relevant worksites	Implemented
		Movable cantilevered noise barriers shall be used to screen noise from mobile PMEs (including asphalt paver, breaker, excavator and hand-held breaker) from sensitive receiver(s). These movable cantilevered noise barriers shall be located close to the mobile PMEs and shall be moved/adjusted iteratively in step with each movement of the corresponding mobile PMEs in order to maximize their noise reduction effects.	Contractor	All relevant worksites	Implemented
		Only approved or exempted Non-road Mobile Machineries (NRMMs) including regulated machines and non-road vechicles with proper labels are allowed to be used in specified activities on-site.	Contractor	All relevant worksites	Implemented
Water Quality Measures					
Trunk Road T2					
		Accidental Spillage			
AEIAR-174/2013 S6.4.8.5	AEIAR-174/2013 EM&A Manual S4.2.1.1	All bentonite slurry should be stored in a container that resistant to corrosion, maintained in good conditions and securely closed; The container should be labelled in English and Chinese and note that the container is for storage of bentonite slurry only.	Contractor	All relevant worksites	Implemented

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		The storage container should be placed on an area of impermeable flooring and bunded with capacity to accommodate 110% of the volume of the container size or 20% by volume stored in the area and enclosed with at least 3 sides.	Contractor	All relevant worksites	Implemented
		The storage container should be sufficiently covered to prevent rainfall entering the container or bunded area (water collected within the bund must be tested and disposed of as chemical waste, if necessary). An emergency clean up kit shall be readily available where bentonite fluid will be stored or used.	Contractor	All relevant worksites	Implemented
		The handling and disposal of bentonite slurries should be undertaken in accordance within ProPECC PN 1/94. Surplus bentonite slurries used in construction works shall be reconditioned and reused wherever practicable. Residual bentonite slurry shall be disposed of from the site as soon as possible as stipulated in Clause 8.56 of the General Specification for Civil Engineering Works. The Contractor should explore alternative disposal outlets for the residual bentonite slurry (dewatered bentonite slurry to be disposed to a public filling area and liquid bentonite slurry, if mixed with inert fill material, to be disposed to a public filling area) and disposal at landfill should be the last resort.	Contractor	All relevant worksites	Implemented
AEIAR-174/2013 S6.4.8.8	AEIAR-174/2013 EM&A Manual S4.2.1.1	In order to protect against impacts to the surrounding marine waters of the KTTS and Victoria Harbour in the event of an accidental spillage of fuel or oil, the Contractor will be required to prepare a spill response plan to the satisfaction of AFCD, EPD, FSD, Police, TD and WSD to define procedures for the control, containment and clean-up of any spillage that could occur on the construction site.	Contractor	All relevant worksites	Implemented
		<u>Dredging, Reclamation and Filling</u>			
		No dredging, reclamation or filling in the marine environment shall be carried out.	Contractor	All relevant worksites	Implemented
Decommissioning of the Radar Station of the former Kai Tak Airport					
		<u>Building Demolition</u>			

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
AEIAR-130/2009 S5.4	AEIAR 130/2009 EM&A Manual S4.4	The site practices outlined in ProPECC PN 1/94 “Construction Site Drainage” should be followed as far as practicable in order to minimise surface runoff and the chance of erosion.	Contractor	All relevant worksites	Not Applicable
		There is a need to apply to EPD for a discharge licence under the WPCO for discharging effluent from the construction site. The discharge quality is required to meet the requirements specified in the discharge licence. All the runoff, wastewater or extracted groundwater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. It is anticipated that the wastewater generated from the works areas would be of small quantity. Monitoring of the treated effluent quality from the works areas should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD.	Contractor	All relevant worksites	Not Applicable
		<u>General Construction Works</u>			
		<u>Construction Runoff</u>			
AEIAR-130/2009 S3.4, S5.4/ AEIAR-174/2013 S6.4.8.1	AEIAR 130/2009 EM&A Manual S2.4, S4.4/ AEIAR-174/2013 EM&A Manual S4.2.1.1	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 the use of sediment traps and adequate maintenance of drainage systems to prevent flooding and overflow.	Contractor	All relevant worksites	Partially Implemented
		Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	Contractor	All relevant worksites	Implemented
		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	Contractor	All relevant worksites	Implemented

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.			
		Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 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.	Contractor	All relevant worksites	Partially Implemented
		Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	Contractor	All relevant worksites	Implemented
		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.	Contractor	All relevant worksites	Implemented
		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.	Contractor	All relevant worksites	Implemented
		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.	Contractor	All relevant worksites	Implemented
		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.	Contractor	All relevant worksites	Implemented

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		<u>Drainage</u>			
		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.	Contractor	All relevant worksites	Implemented
		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.	Contractor	All relevant worksites	Implemented
		<u>Stormwater Discharges</u>			
		Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes.	Contractor	All relevant worksites	Implemented
		<u>Sewage Effluent</u>			
		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.	Contractor	All relevant worksites	Implemented
		<u>Debris and Litter</u>			
		In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised and that disposal of any solid materials, litter or wastes to marine waters does not occur. Debris and refuse generated on-site should be collected, handled and disposed of	Contractor	All relevant worksites	Implemented

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		properly to avoid entering into the adjacent harbour waters. Stockpiles of cement and other construction materials should be kept covered when not being used.			
		<u>Accidental Spillage</u>			
		Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to the nearby harbour waters, all fuel tanks and storage areas should be provided with locks and be sited 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. The bund should be drained of rainwater after a rain event.	Contractor	All relevant worksites	Implemented
<u>Waste Management Measures</u>					
		<u>Waste Management Plan</u>			
AEIAR-174/2013 S11.4.8.1	AEIAR-174/2013 EM&A Manual S9.2.1.2	Contractor should be requested to submit an outline Waste Management Plan (WMP) prior to the commencement of construction work, in accordance with the ETWB TC(W) No.19/2005 so as to provide an overall framework of waste management and reduction.	Contractor	All relevant worksites	Implemented
		<u>Good Site Practices</u>			
AEIAR-130/2009 S3.5, S5.5	AEIAR 130/2009 EM&A Manual S2.5, S4.5	Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.	Contractor	All relevant worksites	Implemented
		Training of site personnel in proper waste management and chemical waste handling procedures.	Contractor	All relevant worksites	Implemented
		Provision of sufficient waste disposal points and regular collection for disposal.	Contractor	All relevant worksites	Implemented
		Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	Contractor	All relevant worksites	Implemented

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).	Contractor	All relevant worksites	Implemented
		<u>Waste Reduction Measures</u>			
		Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals.	Contractor	All relevant worksites	Implemented
		Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.	Contractor	All relevant worksites	Implemented
		Encourage collection of aluminum cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force.	Contractor	All relevant worksites	Implemented
		Any unused chemicals or those with remaining functional capacity should be recycled.	Contractor	All relevant worksites	Implemented
		Proper storage and site practices to minimize the potential for damage or contamination of construction materials.	Contractor	All relevant worksites	Implemented
		<u>Construction and Demolition Materials</u>			
		Where it is unavoidable to have transient stockpiles of C&D material within the work site pending collection for disposal, the transient stockpiles shall be located away from waterfront or storm drains as far as possible.	Contractor	All relevant worksites	Implemented
		Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric.	Contractor	All relevant worksites	Implemented
		Skip hoist for material transport should be totally enclosed by impervious sheeting.	Contractor	All relevant worksites	Implemented

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site.	Contractor	All relevant worksites	Implemented
		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.	Contractor	All relevant worksites	Implemented
		The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle.	Contractor	All relevant worksites	Implemented
		All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet.	Contractor	All relevant worksites	Implemented
		The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading.	Contractor	All relevant worksites	Implemented
		When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 “Trip Ticket System for Disposal of Construction and Demolition Materials” should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.	Contractor	All relevant worksites	Implemented
		<u>Chemical Waste</u>			
		After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Contractor	All relevant worksites	Implemented

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		General Refuse			
		General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem.	Contractor	All relevant worksites	Implemented
Land Contamination Measures					
		For any excavation works conducted at Radar Station			
		As the risk due to dermal contact with groundwater by site workers is uncertain, it is recommended that personnel protective equipment (PPE) be used by site workers as a mitigation measure.	Contractor	All relevant worksites	Not Applicable
Landscape and Visual Impact					
		New Distributor Roads Serving the Planned KTD			
		Construction Phase			
		All existing trees should be carefully protected during construction.	Contractor	All relevant worksites	Not Applicable
		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.	Contractor	All relevant worksites	Not Applicable
		Control of night-time lighting.	Contractor	All relevant worksites	Not Applicable

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		Erection of decorative screen hoarding.	Contractor	All relevant worksites	Implemented
		Trunk Road T2			
		Construction Phase			
AEIAR-174/2013 S9.9.1.1	AEIAR-174/2013 EM&A Manual S7.2.1.2	All works shall be carefully designed to minimize impacts on existing landscape resources and visually sensitive receivers. Existing trees within works area shall be retained and protected.	Contractor	All relevant worksites	Not Applicable
		Existing trees of good quality and condition that are unavoidably affected by the works should be transplanted.	Contractor	All relevant worksites	Not Applicable
		Large temporary stockpiles of excavated material shall be covered with unobtrusive sheeting to prevent dust and dirt spreading to adjacent landscape areas and vegetation, and to create a neat and tidy visual appearance.	Contractor	All relevant worksites	Implemented
		Construction plant and building material shall be orderly and carefully stored in order to create a neat and tidy visual appearance.	Contractor	All relevant worksites	Implemented
		Erection of decorative screen hoarding should be designed to be compatible with the existing urban context.	Contractor	All relevant worksites	Implemented
		All lighting in construction site shall be carefully controlled to minimize light pollution and night-time glare to nearby residences and GIC user. The contractor shall consider other security measures, which shall minimize the visual impacts.	Contractor	All relevant worksites	Not Applicable
General Condition					
		The Permit Holder shall display conspicuously a copy of this Permit on the Project site(s) at all vehicular site entrances/exits or at a convenient location for public's information at all times. The Permit Holder shall ensure that the most updated information about the Permit, including any amended Permit, is displayed at such locations. If the Permit Holder surrenders a part or the whole of the Permit, the notice he sends to the Director shall also be displayed at the same	Contractor	All relevant worksites	Implemented

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		locations as the original Permit. The suspended, varied or cancelled Permit shall be removed from display at the Project site(s).			

Implementation status: Implemented / Partially Implemented / Not Implemented / Not Applicable

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix K

Weather and Meteorological Conditions during Reporting Month

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Date	Mean Pressure (hPa)	Air Temperature			Mean Relative Humidity (%)	Total Rainfall (mm)
		Maximum (deg. C)	Mean (deg. C)	Minimum (deg. C)		
July 2018						
01	1004.1	32.9	30.2	28	77	4.1
02	1003.4	30.6	29.5	25.6	81	2.1
03	1002.5	30.5	29.7	27	81	15.4
04	1002.2	32.6	30.3	28.4	78	3.4
05	1002.3	31.6	30	28.4	78	1.5
06	1002.6	32.1	30.1	27.6	80	5
07	1003.3	30	29	26.4	84	5.2
08	1004.4	30.6	28.2	26.7	88	14.4
09	1005.7	31.8	28.2	25.9	85	11.3
10	1005.1	32.6	29	26.8	80	1.3
11	1001.8	32.8	29.6	27.2	74	0
12	1003.3	33.4	30	28.3	77	Trace
13	1003.9	28.7	26.7	25.9	93	50.4
14	1004	29.5	27	25.3	91	52.7
15	1004	28.3	26.6	25	89	67.4
16	1003.8	31.4	28.2	25.7	81	5.8
17	1002.4	34.3	30	26.9	78	6.5
18	1003.9	29.5	27.7	26.4	88	29.6
19	1004.6	29.7	27.9	26.6	87	17.3
20	1003.8	31.6	28.2	26	87	7.1
21	1002.6	33.1	29.5	27.4	75	0
22	1002.3	32.4	29	27.9	76	Trace
23	1001.8	31.2	28.4	26.3	87	30.8
24	1003.6	32	29.8	28	80	0.1
25	1005.8	31.7	29.4	27	83	2.7
26	1006.5	32.3	29.6	27.3	82	3.4
27	1006.7	33	29.8	27.7	78	0.3
28	1006.7	33.7	30.2	28.2	75	0
29	1005.8	34.3	30.2	27.9	73	0
30	1005.6	33.7	30.4	28.1	74	0
31	1004.1	32.9	30.2	28	77	4.1

Source: Hong Kong Observatory – Hong Kong Observatory

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix L

Cumulative statistics on Environmental Complaints, Notifications of Summons and Successful Prosecution

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

MateriaLab

Environmental Complaints Log

Reference No.	Date of Complaint Received	Received From	Received By	Nature of Complaint	Date of Investigation	Outcome	Date of Reply
20161207_complaint_c	7 Dec 2016	EPD	Andy Choy (CRBC)	Air	13 Feb 2017	Project-related	13 Feb 2017
20170209_complaint_c	9 Feb 2017	EPD	Andy Choy (CRBC)	Air	22 Feb2017	Not Project-related	7 Mar 2017
20170502_complaint_c	2 May 2017	CEDD	Andy Choy (CRBC)	Noise	4 May 2017	Not Valid	22 May 2017
20170716_complaint_a	16 July 2017	CEDD	HMJV	Water Quality	4 Aug 2017	Not Project-related	4 Aug 2017
20180530_complaint	30 May 2018	EPD	CRBC	Air	9 June 2018	Not Valid	20 June 2018

Cumulative Statistics on Complaints

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Month	Cumulative Project-to-Date
Air	3	0	3
Noise	1	0	1
Water	1	0	1
Waste	0	0	0
Total	0	0	0

Cumulative Statistics on Notification of Summons and Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Notification of Summons and Prosecutions This Month	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

MateriaLab

Appendix M

Summary of Site Audit in the Reporting Month

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Summary of Site Audit in the Reporting Month

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	NA		
Noise	NA		
Water Quality	4 July 2018	Chemical should be added to the sedimentation tank to facilitate the sedimentation of muddy water (Zone 1).	The item was rectified by the Contractor and inspected on 18 July 2018. Emulsified polymer and coagulant agent (PAFC) have been added to enhance solid removal efficiency of WetSep.
	11 July 2018	Chemical should be added to the sedimentation tank to facilitate the sedimentation (Zone 1).	The item was rectified by the Contractor and inspected on 18 July 2018. Emulsified polymer and coagulant agent (PAFC) have been added to enhance solid removal efficiency of WetSep.
	11 July 2018	Sediment in the sedimentation tank should be cleared regularly (Zone 4).	As informed by contractor, the item will be rectified before 15 August 2018.
	25 July 2018	Stagnant water was observed (Zone 2). Contractor should remove the stagnant water and treat the waste water properly before discharge.	The item was rectified by the Contractor and inspected on 1 August 2018.
Chemical and Waste Management	NA		
Land Contamination	NA		
Landscape and Visual Impact	NA		
General Condition	NA		

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Appendix N

Outstanding Issues and Deficiencies

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong..
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com

Summary of Outstanding Issues and Deficiencies in the Reporting Month

Parameters	Outstanding Issues	Deficiencies
Air Quality	NA	Any items of deficiencies can be referred to **Appendix M**.
Noise	NA	
Water Quality	NA	
Chemical and Waste Management	NA	
Land Contamination	NA	
Landscape and Visual Impact	NA	
General Condition	NA	
Others	NA	

FUGRO TECHNICAL SERVICES LIMITED

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

Appendix E

Monthly EM&A Report
For
Contract No. KL/2015/02
Kai Tak Development - Stage 5A Infrastructure at Former North Apron Area

Civil Engineering and Development Department

EP-337/2009 – New Distributor Roads Serving the Planned KTD

Contract No. KLN/2016/04
Environmental Monitoring Works for
Contract No. KL/2015/02
Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area

Monthly EM&A Report

July 2018

(version 1.0)

Approved By

(Environmental Team Leader)

REMARKS:

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

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

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

FUGRO TECHNICAL SERVICES LIMITED

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T., Hong Kong.
Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com
Website : www.fugro.com

Date 10 August 2018
Our Ref. MCL/ED/0389/2018/C

Cinotech Consultants Limited
Rm 1710, Technology Park,
18 On Lai Street, Shatin,
New Territories,
Hong Kong

BY EMAIL

Attn.: Dr. Priscilla Choy

Dear Madam,

Contract No. KL/2015/02
Kai Tak Development –Stage 5A Infrastructure at Former North Apron
Verification of Monthly EM&A Report for July 2018

We refer to your emails dated 6 and 9 August 2018 regarding the Monthly EM&A Report for July 2018 for the captioned project prepared by the ET.

We have no further comment and hereby verify the Report in accordance with Clause 3.3 of Environmental Permit no. EP-337/2009.

Should you require further information, please do not hesitate to contact Mr. Wingo So at 3565 4374 or the undersigned on 3565 4114.

Assuring you of our best attention at all times.

Yours faithfully,
For and on behalf of
FUGRO TECHNICAL SERVICES LIMITED

Colin K. L. Yung
Independent Environmental Checker

CY/ws

c.c. CEDD – Attn.: Ms. K. Pong
Attn.: Mr. Jeremy Yuen
AECOM – Attn.: Mr. Vincent Lee
Attn.: Mr. Teddy Shih

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

EXECUTIVE SUMMARY

Introduction

1. This is the 19th Monthly Environmental Monitoring and Audit Report prepared by Cinotech Consultants Ltd. for "Contract No. KL/2015/02 - Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area" (Hereafter referred to as "the Project"). This contract comprises one Schedule 2 designated project (DP), namely the new distributor road D1 serving the planned KTD. The DP is part of the designated project under Environmental Permit (EP) No.: EP-337/2009 ("New distributor roads serving the planned Kai Tak Development") respectively. This report documents the findings of EM&A Works conducted during July 2018.

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

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

Locations	Monitoring Stations In accordance with EM&A Manual	Alternative Monitoring Stations
Air Quality Monitoring Stations		
AM2 - Lee Kau Yan Memorial School	Yes (1-hour TSP)	N/A
	No (24-hour TSP)	AM2(A) – Ng Wah Catholic Secondary School
Noise Monitoring Stations		
M3 - Cognitio College	Yes	N/A
M4 - Lee Kau Yan Memorial School	Yes	N/A
M5 – Nam Yuen	No	M5(C) – Mercy Grace's Home

3. The major site activities undertaken in the reporting month included:
   - Excavate with ELS works for subway construction
   - Steel fixing for the base slab of subway SW6
   - Cut the existing DN800 salt water main for sheet piling works at PERE (Stage 1)
   - Installing sheet piles for subway SW6 at PERE (Stage 1)
   - Carry out trial pits at SKLR Playground and Ramp K73
   - Formwork erection for pile caps at the existing bridge K72
   - Remedial works and application of joint sealant in box culverts
   - ELS works for box culvert B5 connection
   - Backfilling works at box culvert B1
   - DCS valve chamber construction works in Road L7 Portion 6
   - Water mains, drainage, sewerage and DCS works in Road L7
   - Sewerage works in Portion 4
   - Drainage and sewerage works in Portion 2 & 3

Environmental Monitoring Works

4. 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.

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

Table II Non-compliance Recorded 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

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

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

Construction Noise Monitoring

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

Environmental Licenses and Permits

9. Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Project, EP-337/2009 issued on 23 April 2009.

10. Construction Noise Permit (License No.: GW-RE1011-17).

11. Billing Account for Construction Waste Disposal (A/C# 7026164).

12. Effluent Discharge License (WT00027495-2017).

13. Registration of Chemical Waste Producer (WPN5213-286-P3271-01).

Key Information in the Reporting Month

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

Table III Summary Table for Key Information in the Reporting Month

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

Future Key Issues

15. The future key environmental issues in the coming month include:
    - Dust generation from stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
    - Water spraying for dust generating activity and on haul road;
    - Proper storage of construction materials on site;
    - Storage of chemicals/fuel and chemical waste/waste oil on site;
    - Accumulation of general and construction waste on site;
    - Noise from operation of the equipment, especially for rock-breaking activities, piling works and machinery on-site;
    - Wastewater and runoff discharge from site;
    - Regular removal of silt, mud and sand along u-channels and sedimentation tanks; and
    - Review and implementation of temporary drainage system for the surface runoff.

1. INTRODUCTION

Background

1.1 The Kai Tak Development (KTD) is located in the south-eastern part of Kowloon Peninsula, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling. It covers a land area of about 328 hectares. Stage 5A Infrastructure at Former North Apron Area is one of the construction stages of KTD. It contains one Schedule 2 DP including new distributor roads serving the planned KTD. The general layout of the Project is shown in **Figure 1.**

1.2 An Environmental Permit (EP) No. EP-337/2009 was issued on 23 April 2009 for new distributor roads serving the planned KTD to Civil Engineering and Development Department as the Permit Holder.

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

1.4 Cinotech Consultants Limited (Cinotech) was commissioned by Civil Engineering and Development Department (CEDD) to undertake the role of the Environmental Team (ET) for the Contract No. KL/2015/02 – Stage 5A Infrastructure at Former North Apron Area. The construction work under KL/2015/02 comprises the construction of part of the Road D1 under the EP (EP-337/2009).

1.5 Cinotech Consultants Limited was commissioned by Civil Engineering and Development Department (CEDD) to undertake the Environmental Monitoring and Audit (EM&A) works for the Project. The commencement date of construction of Road D1 (part) under this Contract was on 16 January 2017.

1.6 This is the 19th Monthly EM&A report summarizing the EM&A works for the Project during July 2018.

Project Organizations

1.7 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 Asia Co. Ltd (AECOM).
- Environmental Team (ET) – Cinotech Consultants Limited (Cinotech).
- Independent Environmental Checker (IEC) – Fugro Technical Services Limited (FTS).
- Contractor – Peako - Wo Hing Joint Venture (PWHJV).

1.8 The key contacts of the Project are shown in **Table 1.1**.

Table 1.1 Key Project Contacts

Party	Role	Contact Person	Position	Phone No.	Fax No.
CEDD	Project Proponent	Ms. K. Pong	Senior Engineer	2301 1466	2369 4980
AECOM	Engineer's Representative	Mr. Vincent Lee	SRE	2798 0771	2210 6110
Cinotech	Environmental Team	Dr. Priscilla Choy	Environmental Team Leader	2151 2089	3107 1388
		Ms. Ivy Tam	Audit Team Leader	2151 2090	
FTS	Independent Environmental Checker	Mr. Colin Yung	Independent Environmental Checker	3565 4114	2450 8032
PWHJV	Contractor	Mr. W.M. Wong	Site Agent	6386 3535	2398 8301

Construction Activities undertaken during the Reporting Month

1.9 The site activities undertaken in the reporting month included:

- Excavate with ELS works for subway construction
- Steel fixing for the base slab of subway SW6
- Cut the existing DN800 salt water main for sheet piling works at PERE (Stage 1)
- Installing sheet piles for subway SW6 at PERE (Stage 1)
- Carry out trial pits at SKLR Playground and Ramp K73
- Formwork erection for pile caps at the existing bridge K72
- Remedial works and application of joint sealant in box culverts
- ELS works for box culvert B5 connection
- Backfilling works at box culvert B1
- DCS valve chamber construction works in Road L7 Portion 6
- Water mains, drainage, sewerage and DCS works in Road L7
- Sewerage works in Portion 4
- Drainage and sewerage works in Portion 2 & 3

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

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

Construction Works	Major Environmental Impact	Control Measures
As mentioned in Section 1.9	Noise, dust impact, water quality and waste generation	• Sufficient watering of the works site with active dust emitting activities; • Properly cover the stockpiles; • On-site waste sorting and implementation of trip ticket system • Appropriate desilting/sedimentation devices provided on site for treatment before discharge; • Use of quiet plant and well-maintained construction plant; • Provide movable noise barrier; • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall; • Provide sufficient mitigation measures as recommended in Approved EIA Report/Lease requirement.

Summary of EM&A Requirements

1.11 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.

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

1.13 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely air quality and noise levels and audit works for the Project during July 2018.

2. AIR QUALITY

Monitoring Requirements

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

Monitoring Locations

2.2 1-hour TSP impact dust monitoring was conducted at the air quality monitoring station, AM2 - Lee Kau Yan Memorial School and 24-hour TSP impact dust monitoring were conducted at the air quality monitoring station, AM2(A) - Ng Wah Catholic Secondary School in the reporting month.

2.3 **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 (1-hour TSP)	Lee Kau Yan Memorial School	Rooftop (about 8/F) Area
AM2(A) (24-hour TSP)	Ng Wah Catholic Secondary School	Rooftop (about 8/F) Area

Monitoring Equipment

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

Table 2.2 Air Quality Monitoring Equipment

Equipment	Model and Make	Quantity
Calibrator	TISCH TE-5025A	1
1-hour TSP Dust Meter	Hal Technology Hal-HPC301	3
HVS Sampler	GMWS 2310 c/w of TSP sampling inlet	1
Wind Anemometer	Davis Instruments 7440	1

Monitoring Parameters, Frequency and Duration

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

Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration

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

Monitoring Methodology and QA/QC Procedure

1-hour TSP Monitoring

(Equipment: Sibata; Model no. LD-3, LD-3B)

Measuring Procedures

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

- Pull up the air sampling inlet cover
- Change the Mode 0 to BG with once
- Push Start/Stop switch once
- Turn the knob to SENSI.ADJ and press it
- Push Start/Stop switch once
- Return the knob to the position MEASURE slowly
- Push the timer set switch to set measuring time
- Remove the cap and make a measurement

(Equipment: Hal Technology; Model no. Hal-HPC300)

Measuring Procedures

2.6 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

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

Check the meter at a 3-month interval and calibrate the meter at a 1-year interval throughout all stages of the air quality monitoring.

24-hour TSP Monitoring

Instrumentation

2.7 High volume (HVS) samplers (Model GMWS-2310 Accu-Vol) completed with appropriate sampling inlets were employed for 24-hour TSP monitoring. The sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50). Moreover, the HVS also met all the requirements in section 2.5 of the updated EM&A Manual.

Operating/Analytical Procedures

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

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

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

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

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

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

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

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

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

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

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

Maintenance/Calibration

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

- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
- High volume samplers were calibrated at bi-monthly intervals using TE-5025A Calibration Kit throughout all stages of the air quality monitoring.

Results and Observations

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

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

2.21 The weather information for the reporting month is summarized in **Appendix C.**

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

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

2.24 According to our field observations during the monitoring, the major dust source identified at the two designated air quality monitoring stations are road traffic dust, exposed site area and open stockpiles, excavation works and site vehicle movements.

2.25 The summary of 1-hour and 24-hour TSP air quality monitoring results during the reporting month are shown in **Appendix E** and **Appendix F** respectively.

3. NOISE

Monitoring Requirements

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

Monitoring Locations

3.2 Three designated monitoring stations were selected for noise monitoring programme. Noise monitoring was conducted at three designated monitoring stations (M3, M4, M5(C)). **Figure 3** shows the locations of these stations.

Table 3.1 Noise Monitoring Stations

Monitoring Stations	Locations	Location of Measurement
M3	Cognitio College	Rooftop (about 6/F) Area
M4	Lee Kau Yan Memorial School	Rooftop (about 7/F) Area
M5(C)	Mercy Grace's Home	Rooftop (about 5/F) Area

Monitoring Equipment

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

Table 3.2 Noise Monitoring Equipment

Equipment	Model and Make	Qty.
Integrating Sound Level Meter	• SVANTEK SVAN 955 & 957 & 977 • BSWA 801	5
Calibrator	• SVANTEK SV30A	2

Monitoring Parameters, Frequency and Duration

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

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency	Measurement
M3 M4 M5(C)	L_{10}(30 min.) dB(A) L_{90}(30 min.) dB(A) L_{eq}(30 min.) dB(A)	0700-1900 hrs on normal weekdays	Once per week	Façade

Monitoring Methodology and QA/QC Procedures

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

Maintenance and Calibration

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

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

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

Results and Observations

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

3.9 The baseline noise level and the Noise Limit Level at each designated noise monitoring station are presented in **Table 3.5**.

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

3.11 The major noise source identified at the designated noise monitoring stations are shown in **Table 3.4**.

Table 3.4 Major Noise Source identified at the Designated Noise Monitoring Stations

Monitoring Stations	Locations	Major Noise Source
M3	Cognitio College	Traffic Noise Daily school activities
M4	Lee Kau Yan Memorial School	Traffic Noise Site vehicle movement Excavation works Piling works Daily school activities
M5(C)	Mercy Grace's Home	Traffic Noise Site vehicle movement

Table 3.5 Baseline Noise Level and Noise Limit Level for Monitoring Stations

Station	Baseline Noise Level, dB (A)	Noise Limit Level, dB (A)
M3	76.3/78.6(1) (at 0700 – 1900 hrs on normal weekdays)	70* (at 0700 – 1900 hrs on normal weekdays)
M4	76.7 (at 0700 – 1900 hrs on normal weekdays)	
M5(C)	N/A(2) (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.

Note (1): The baseline noise review report submitted for M3 was approved by EPD on 23rd August 2013. (Baseline Level was found to be 78.6 dB(A) at Rooftop of Cognitio College)

Note (2): The background Noise Level was recorded during the Lunch Hour of Construction Site (i.e. 12:00-13:00) and to be used as the referencing value for compliance checking for Noise Action and Limit Level.

Note (3): The noise level due to the construction work (CNL) was calculated by the following formula:

$$CNL = 10 \log (10^{MNL/10} - 10^{BNL/10})$$

Remarks: MNL = Measured Noise Level, BNL = Baseline Noise Level

4. COMPARISON OF EM&A RESULTS WITH EIA PREDICTIONS

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

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

Station	Predicted 1-hr TSP conc.		Measured 1-hr TSP conc.	
	Scenario1 (Mid 2009 to Mid-2013), µg/m³	Scenario2 (Mid 2013 to Late 2016), µg/m³	Reporting Month (July 18), µg/m³	
			Average	Range
AM2 – Lee Kau Yan Memorial School	290	312	149.7	105.6 – 211.2

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

Station	Predicted 24-hr TSP conc.		Measured 24-hr TSP conc.	
	Scenario1 (Mid 2009 to Mid-2013), µg/m³	Scenario2 (Mid 2013 to Late 2016), µg/m³	Reporting Month (July 18), µg/m³	
			Average	Range
AM2(A) – Ng Wah Catholic Secondary School	145	169	36.9	30.4 – 47.6

Table 4.3 Comparison of Noise Monitoring Data with EIA predictions

Stations	Predicted Mitigated Construction Noise Levels during Normal Working Hour ($L_{eq\ (30min)}$ dB(A))	Reporting Month (July 18), $L_{eq\ (30min)}$ dB(A)
M3 – Cognitio College	47 – 75	65.6 – 77.8(1)
M4 – Lee Kau Yan Memorial School	47 – 74	75.1 – 76.5(2)
M5(C) – Mercy Grace's Home	Not predicted in EIA Report	66.3 – 75.6(1)

Remarks:
(1) Since the background noise level recorded during 12:00 to 13:00 was higher than those recorded during the construction period, the recorded noise levels were considered non-valid exceedance of Noise Limit Level.
(2) Since the baseline noise level was higher than those recorded during the construction period, the recorded noise levels were considered non-valid exceedance of Noise Limit Level.

4.2 The average 1-hour TSP concentrations at AM2 in the reporting month were below the prediction in the approved Environmental Impact Assessment (EIA) Report.

4.3 The average 24-hour TSP concentrations at AM2(A) in the reporting month were below the prediction in the approved EIA Report.

4.4 The noise monitoring results in the reporting month at M3 and M4 were outside of the range of the predicted mitigated constriction noise levels in the EIA Report.

4.5 Construction noise levels at M5(C) were not predicted in 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 operation during the construction period on a weekly basis, and to report on the contractor's compliance.

Results and Observations

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

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

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

6. ENVIRONMENTAL AUDIT

Site Audits

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

6.2 Site audits were conducted on 3, 11, 16, 23 and 30 July 2018 in the reporting month. A joint site audit with the representative of IEC, ER, the Contractor and the ET was conducted on 11 July 2018. The details of the observations during site audit are summarized in **Table 6.2**.

Review of Environmental Monitoring Procedures

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

Air Quality Monitoring

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

Noise Monitoring

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

Status of Environmental Licensing and Permitting

6.4 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		Status
	From	To	
Environmental Permit (EP)			
EP-337/2009	23/04/09	N/A	Valid
Effluent Discharge License			
WT00027495-2017	28/03/17	31/03/22	Valid
Billing Account for Construction Waste Disposal			
A/C# 7026164	20/10/16	N/A	Valid
Registration of Chemical Waste Producer			
WPN5213-229-P3271-01	14/08/17	N/A	Valid
Construction Noise Permit (CNP)			
-	-	-	-

Status of Waste Management

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

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

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	25 June 2018	The Contractor is reminded to desilt the sedimentation tank before discharging (B1)	Rectification/improvement was observed during the follow-up audit session on 23 July 2018
	16 July 2018	Silty water should be diverted to sedimentation tank before discharging (B5)	Rectification/improvement was observed during the follow-up audit session on 23 July 2018
Air Quality	11 July 2018	Reminder: Stockpile should be covered to avoid dust generation (Portion 1)	Rectification/improvement was observed during the follow-up audit session on 16 July 2018
Noise	N/A	--	--
Waste/ Chemical Management	N/A	--	--
Landscape and Visual	N/A	--	--
Permits/ Licenses	N/A	--	--

Summary of Mitigation Measures Implemented

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

Implementation Status of Event Action Plans

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

1-hr TSP Monitoring

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

24-hr TSP Monitoring

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

Construction Noise

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

Landscape and visual

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

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

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

7. FUTURE KEY ISSUES

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

- Excavate with ELS works for subway construction at PERE
- Structural works for the base slab of subway SW6
- Steel fixing for pile cap at the existing Bridge K72
- Installing sheet piles for subway SW6 at layby of PERE (Stage 4)
- Remedial works and application of joint sealant in box culverts
- Construction of platform under access manhole
- Construction of the connection between existing box culvert and B5
- Preparation works for temporary flow diversion at upstream, i.e. B6 connection.
- DCS valve chamber construction works in Road L7 Portion 6
- Water mains, drainage, sewerage and DCS works in Road L7
- Water mains & sewerage works in Portion 4
- Drainage and sewerage works in Portion 2 & 3

7.2 Key environmental issues in the coming month include:

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

7.3 The tentative major site activities is mentioned in Section 7.1 of this report. The impact prediction and control measures for the coming two months are summarized as follows:

<u>Air quality impact (dust)</u>

- Frequent watering of haul road and unpaved/exposed areas;
- Frequent watering or covering stockpiles with tarpaulin or similar means; and
- Watering of any earth moving activities.

<u>Water quality impact (surface run-off)</u>

- Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains;
- Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge;
- Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and
- Provision of measures to prevent discharge into the stream.

<u>Noise Impact</u>

- Scheduling of noisy construction activities if necessary to avoid persistent noisy operation;

- Controlling the number of plants use on site;
- Regular maintenance of machines; and
- Use of acoustic barriers if necessary.

Monitoring Schedule for the Next Month

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

8. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

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

1-hr TSP Monitoring

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

24-hr TSP Monitoring

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

Construction Noise Monitoring

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

Landscape and visual

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

Complaint and Prosecution

8.6 No environmental complaint and environmental prosecution was received in the reporting month.

Recommendations

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

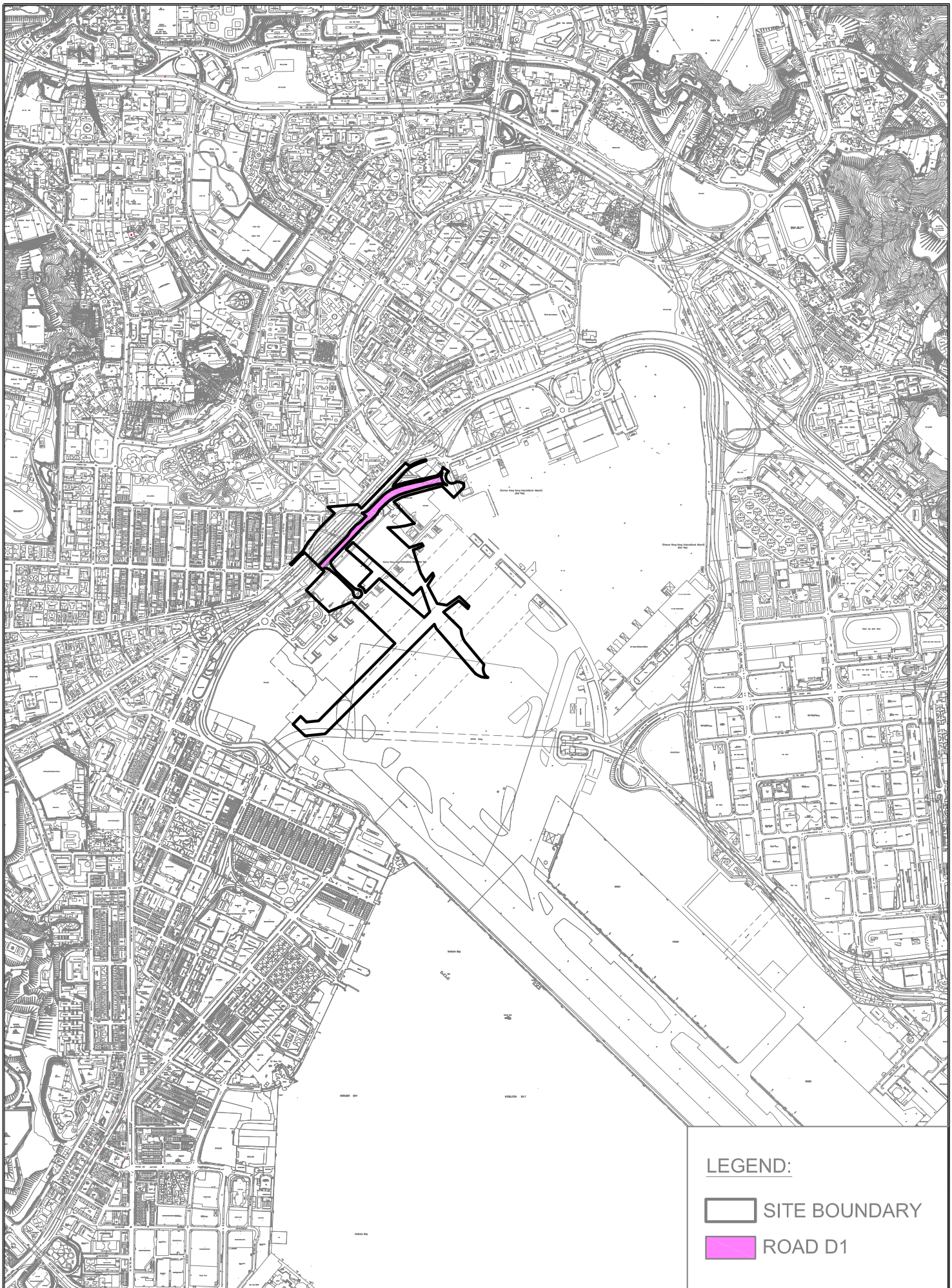
Air Quality

- Exposed stockpile and slope should be properly covered by impervious sheeting for dust suppression.
- Water spraying should be provided to the haul roads and unpaved areas frequently to minimize the dust impact.

Waste/Chemical Management

- Drip tray should be provided underneath for chemical container to avoid chemical leakage.
- The chemical container should be temporary stored at the chemical waste storage area before disposal

FIGURES

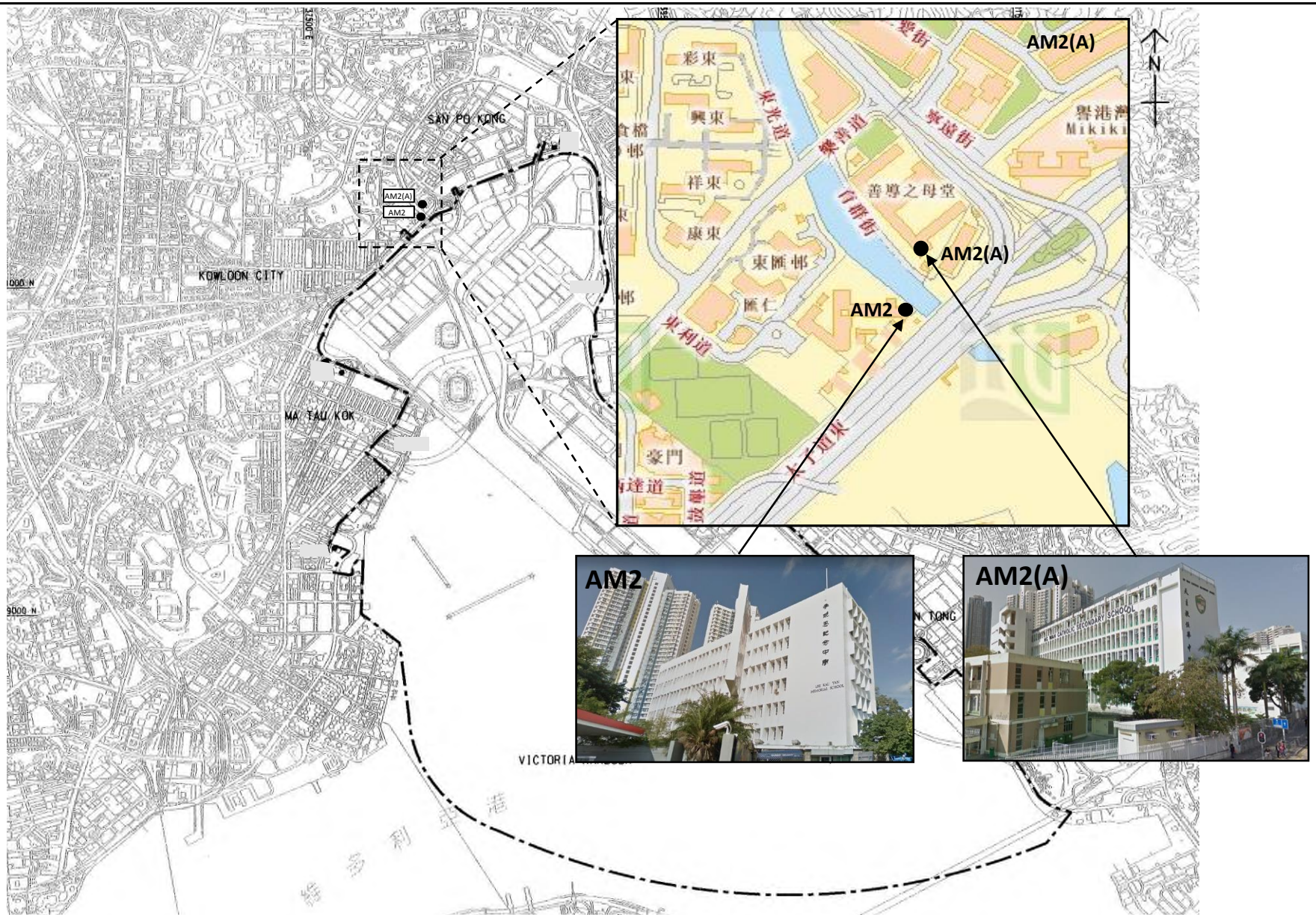


CINOTECH
Cinotech Consultants Limited

KL/2015/02 KAI TAK - STAGE 5A INFRASTRUCTURE AT FORMER NORTH APRON AREA

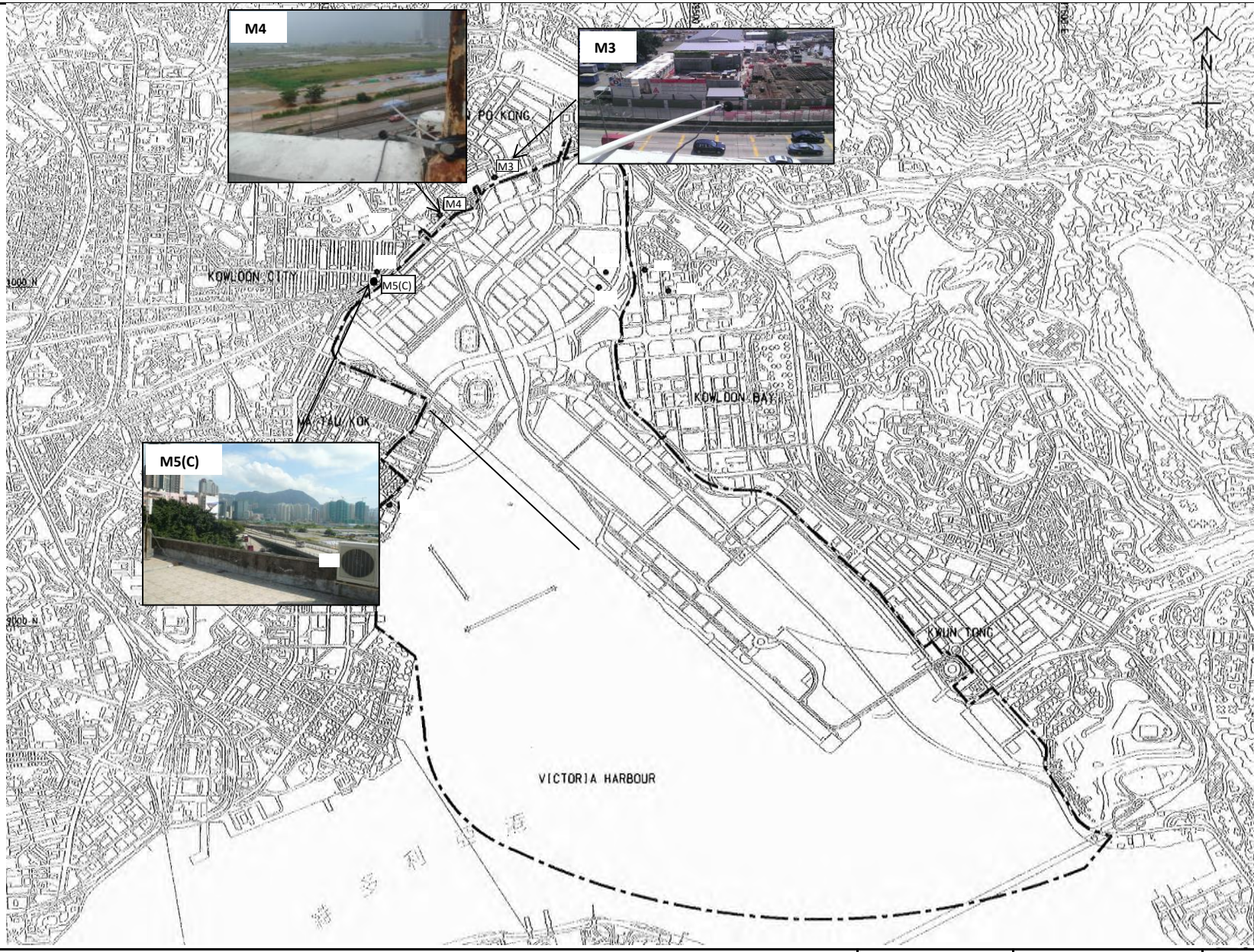
SITE LAYOUT PLAN

SCALE	1:1500@A4	DATE	DEC 2016
CHECK	KC	DRAWN	JW
JOB No.	MA16043	FIGURE NO. 1	REV -



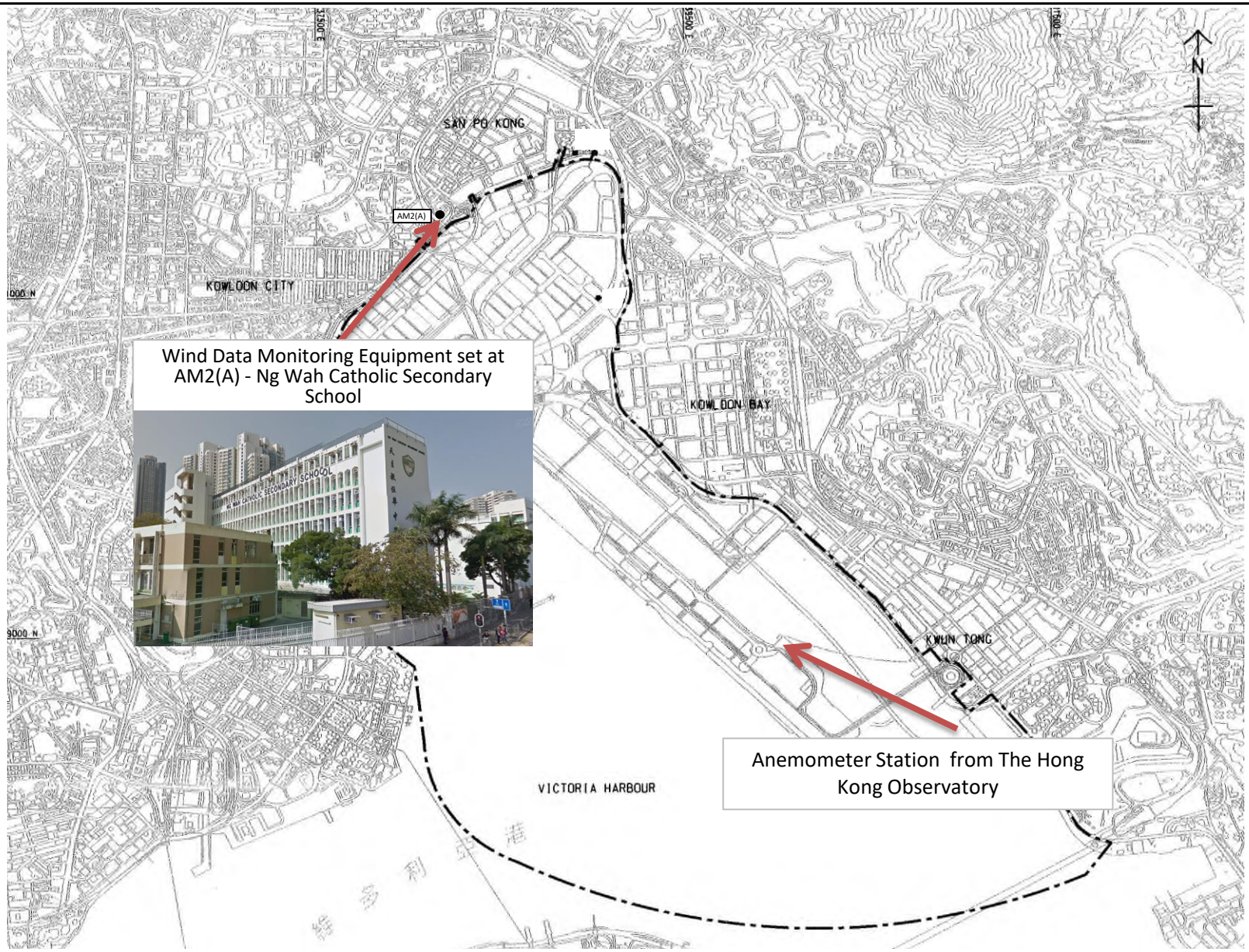
Title	Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area Location of Air Quality Monitoring Stations	Scale: N.T.S Date: Aug-17	Project No.: MA16043 Figure: 2

CINOTECH



Title	Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area Location of Noise Monitoring Stations	Scale: N.T.S Date: Apr-17	Project No.: MA16043 Figure: 3

CINOTECH



Title	Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area Location of Wind Data Monitoring Equipment	Scale: N.T.S Date: Aug-17	Project No.: MA16043 Figure: 4

CINOTECH

APPENDIX A
ACTION AND LIMIT LEVELS FOR AIR QUALITY AND NOISE

Appendix A - Action and Limit Levels

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

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM2	346	500

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

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM2(A)	157	260

Table A-3 Action and Limit Levels for Construction Noise

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

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

APPENDIX B
COPIES OF CALIBRATION CERTIFCATES

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13056/13/0006

Station: AM2(A) - Ng Wah Catholic Secondary School

Date: 17-May-18 Next Due Date: 16-Jul-18 Operator: MH

Equipment No.: A-01-13 Model No.: TE-5170 Serial No.: 1352

Ambient Condition			
Temperature, Ta (K)	305.2	Pressure, Pa (mmHg)	759.3

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	12.6	3.51	59.91	8.0	2.79
2	10.8	3.25	55.46	6.8	2.58
3	8.0	2.79	47.74	4.9	2.19
4	5.4	2.30	39.22	3.3	1.79
5	3.4	1.82	31.12	2.3	1.50

By Linear Regression of Y on X

Slope , mw = 0.0455 **Intercept, bw =** 0.0433

Correlation coefficient* = 0.9982

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

mw x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

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

Remarks:

Conducted by: LEE MAN HEI Signature: hei Date: 17/5/2018

Checked by: W K Tang Signature: Kwai Date: 17/5/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13056/13/0007

Station: AM2(A) - Ng Wah Catholic Secondary School

Date: 14-Jul-18 Next Due Date: 13-Sep-18 Operator: MH

Equipment No.: A-01-13 Model No.: TE-5170 Serial No.: 1352

Ambient Condition			
Temperature, Ta (K)	299.3	Pressure, Pa (mmHg)	755.8

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	13-Feb-19	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	12.5	3.52	60.12	7.9	2.80
2	10.9	3.29	56.14	6.8	2.59
3	7.8	2.78	47.49	5.2	2.27
4	5.5	2.33	39.88	3.4	1.83
5	3.3	1.81	30.89	2.1	1.44

By Linear Regression of Y on X

Slope , mw = 0.0464 **Intercept, bw =** 0.0099

Correlation coefficient* = 0.9983

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.07**

Remarks:

Conducted by: Lee Man Hei Signature: Date: 14/7/2018

Checked by: Wk. Tang Signature: Date: 14/7/2018

TISCH Environmental

RECALIBRATION DUE DATE:
February 13, 2019

Certificate of Calibration

Calibration Certification Information					
Cal. Date:	February 13, 2018	**Rootsmeter S/N:** 438320	**Ta:** 293	°K	
Operator:	Jim Tisch		**Pa:** 763.3	mm Hg	
Calibration Model #:	TE-5025A	**Calibrator S/N:** **2896**			

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4670	3.2	2.00
2	3	4	1	1.0380	6.4	4.00
3	5	6	1	0.9220	8.0	5.00
4	7	8	1	0.8840	8.8	5.50
5	9	10	1	0.7250	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0172	0.6934	1.4293	0.9958	0.6788	0.8762
1.0129	0.9758	2.0213	0.9916	0.9553	1.2392
1.0107	1.0962	2.2599	0.9895	1.0732	1.3854
1.0097	1.1422	2.3702	0.9885	1.1182	1.4530
1.0043	1.3853	2.8586	0.9832	1.3562	1.7524
QSTD	**m=**	**2.06726**	**QA**	**m=**	**1.29448**
	b=	**-0.00045**		**b=**	**-0.00028**
	r=	**0.99992**		**r=**	**0.99992**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

Key
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION
US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

Tisch Environmental, Inc.
145 South Miami Avenue
Village of Cleves, OH 45002

www.tisch-env.com
TOLL FREE: (877)263-7610
FAX: (513)467-9009

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	28394E
Date of Issue:	2018-02-25
Date Received:	2018-02-24
Date Tested:	2018-02-24
Date Completed:	2018-02-25
Next Due Date:	2018-08-24

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

Certificate of Calibration

Item for calibration:

Description	: Weather Stations, Vantage Pro2
Manufacturer	: Davis Instruments
Model No.	: 6152CUK
Serial No.	: AK130520006

Test conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70 %

Test Specifications:

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

Methodology:

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

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

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

Test Report No.:	28394E
Date of Issue:	2018-02-25
Date Received:	2018-02-24
Date Tested:	2018-02-24
Date Completed:	2018-02-25
Next Due Date:	2018-08-24
Page:	2 of 2

Results:

1. Performance check of anemometer

Air Velocity, m/s		Difference D (m/s)
Instrument Reading (V1)	Reference Value (V1)	D = V1 – V2
2.00	2.00	0.00

2. Performance check of wind direction sensor

Wind Direction (°)		Difference D (°)
Instrument Reading (W1)	Reference Value (W2)	D = W1 - W2
0	0	0
45.1	45	0.1
90	90	0
135.2	135	0.2
180.3	180	0.3
224.8	225	-0.2
270	270	0
315.1	315	0.1
360	360	0

**********END OF REPORT**********

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

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

Test Report No.:	29026A
Date of Issue:	2018-06-11
Date Received:	2018-06-08
Date Tested:	2018-06-08
Date Completed:	2018-06-11
Next Due Date:	2018-08-10
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC301
Serial No.	: 3011701016
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-03

Test Conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

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)	1.239

****

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

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	29026B
Date of Issue:	2018-06-11
Date Received:	2018-06-08
Date Tested:	2018-06-08
Date Completed:	2018-06-11
Next Due Date:	2018-08-10

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	: 17-22 degree Celsius
Relative Humidity	: 40-70%

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)	1.204

****

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

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	29026C
Date of Issue:	2018-06-11
Date Received:	2018-06-08
Date Tested:	2018-06-08
Date Completed:	2018-06-11
Next Due Date:	2018-08-10

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	: 17-22 degree Celsius
Relative Humidity	: 40-70%

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)	1.239

****

PREPARED AND CHECKED BY:

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

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 1516, 1701 & 1716, Technology Park,
18 On Lai Street, Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/N/170915A
Date of Issue:	2017-09-18
Date Received:	2017-09-15
Date Tested:	2017-09-15
Date Completed:	2017-09-18
Next Due Date:	2018-09-17
Page:	1 of 1

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

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 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

PATRICK TSE
Laboratory Manager

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

TEST REPORT

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

Test Report No.:	C/N/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 Temperatre	: 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

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 1516, 1701 & 1716, Technology Park,
18 On Lai Street, Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/N/170915C
Date of Issue:	2017-09-18
Date Received:	2017-09-15
Date Tested:	2017-09-15
Date Completed:	2017-09-18
Next Due Date:	2018-09-17

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 977
Serial No.	: 45482
Microphone No.	: 63626
Equipment No.	: N-08-14

Test conditions:

Room Temperatre	: 22 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

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/N/171215
Date of Issue:	2017-12-18
Date Received:	2017-12-15
Date Tested:	2017-12-15
Date Completed:	2017-12-18
Next Due Date:	2018-12-17

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

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35924
Equipment No.	: N-13-01

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

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

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

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

Test Report No.:	C/N/171215B
Date of Issue:	2017-12-18
Date Received:	2017-12-15
Date Tested:	2017-12-15
Date Completed:	2017-12-18
Next Due Date:	2018-12-17
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35927
Equipment No.	: N-13-03

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

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

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/N/170929
Date of Issue:	2017-09-30
Date Received:	2017-09-29
Date Tested:	2017-09-29
Date Completed:	2017-09-30
Next Due Date:	2018-09-29

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 Temperatre	: 21 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
PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/N/170929B
Date of Issue:	2017-09-30
Date Received:	2017-09-29
Date Tested:	2017-09-29
Date Completed:	2017-09-30
Next Due Date:	2018-09-29
Page:	1 of 1

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

Item for calibration:

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

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 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

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 July 2018	30.2	77	4.1
2 July 2018	29.5	81	2.1
3 July 2018	29.7	81	15.4
4 July 2018	30.3	78	3.4
5 July 2018	30	78	1.5
6 July 2018	30.1	80	5
7 July 2018	29	84	5.2
8 July 2018	28.2	88	14.4
9 July 2018	28.2	85	11.3
10 July 2018	29	80	1.3
11 July 2018	29.6	74	-
12 July 2018	30	77	Trace
13 July 2018	26.7	93	50.4
14 July 2018	27	91	52.7
15 July 2018	26.6	89	67.4
16 July 2018	28.2	81	5.8
17 July 2018	30	78	6.5
18 July 2018	27.7	88	29.6
19 July 2018	27.9	87	17.3

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
20 July 2018	28.2	87	7.1
21 July 2018	29.5	75	-
22 July 2018	29	76	Trace
23 July 2018	28.4	87	30.8
24 July 2018	29.8	80	0.1
25 July 2018	29.4	83	2.7
26 July 2018	29.6	82	3.4
27 July 2018	29.8	78	0.3
28 July 2018	30.2	75	-
29 July 2018	30.2	73	-
30 July 2018	30.4	74	-
31 July 2018	30.2	76	3.3

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

** Trace means rainfall less than 0.05 mm

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
1-Jul-2018	00:00	2	NE
1-Jul-2018	01:00	2	NNE
1-Jul-2018	02:00	2	NNE
1-Jul-2018	03:00	2	NE
1-Jul-2018	04:00	1.9	ENE
1-Jul-2018	05:00	1.9	ESE
1-Jul-2018	06:00	1.9	ESE
1-Jul-2018	07:00	1.5	E
1-Jul-2018	08:00	1.2	ENE
1-Jul-2018	09:00	1.5	SSE
1-Jul-2018	10:00	1.2	S
1-Jul-2018	11:00	1.8	ESE
1-Jul-2018	12:00	2.2	E
1-Jul-2018	13:00	1.8	NNE
1-Jul-2018	14:00	1.9	ENE
1-Jul-2018	15:00	1.7	ENE
1-Jul-2018	16:00	1.7	SSW
1-Jul-2018	17:00	1.2	N
1-Jul-2018	18:00	1	N
1-Jul-2018	19:00	0.9	ENE
1-Jul-2018	20:00	0.6	NE
1-Jul-2018	21:00	0.7	WNW
1-Jul-2018	22:00	0.9	WNW
1-Jul-2018	23:00	0.7	W
2-Jul-2018	00:00	1.1	W
2-Jul-2018	01:00	0.9	W
2-Jul-2018	02:00	0.9	WNW
2-Jul-2018	03:00	1	W
2-Jul-2018	04:00	0.9	WSW
2-Jul-2018	05:00	0.7	WNW
2-Jul-2018	06:00	0.5	WNW
2-Jul-2018	07:00	0.5	W
2-Jul-2018	08:00	0.7	W
2-Jul-2018	09:00	1.3	WSW
2-Jul-2018	10:00	1.4	W
2-Jul-2018	11:00	1.4	W
2-Jul-2018	12:00	1.8	W

II. Mean Wind Speed and Wind Direction

2-Jul-2018	13:00	1.6	W
2-Jul-2018	14:00	1.3	W
2-Jul-2018	15:00	1.2	SW
2-Jul-2018	16:00	1.1	W
2-Jul-2018	17:00	1	W
2-Jul-2018	18:00	0.7	W
2-Jul-2018	19:00	0.5	SW
2-Jul-2018	20:00	0.8	E
2-Jul-2018	21:00	0.6	W
2-Jul-2018	22:00	0.8	W
2-Jul-2018	23:00	0.6	N
3-Jul-2018	00:00	0.6	ENE
3-Jul-2018	01:00	0.6	N
3-Jul-2018	02:00	0.9	N
3-Jul-2018	03:00	1.1	ESE
3-Jul-2018	04:00	1.3	NNE
3-Jul-2018	05:00	1.1	NE
3-Jul-2018	06:00	0.9	NNE
3-Jul-2018	07:00	0.8	E
3-Jul-2018	08:00	1.1	ENE
3-Jul-2018	09:00	1.6	NNE
3-Jul-2018	10:00	1.8	N
3-Jul-2018	11:00	1.9	NE
3-Jul-2018	12:00	1.8	NNE
3-Jul-2018	13:00	1.8	NNE
3-Jul-2018	14:00	1.7	NNE
3-Jul-2018	15:00	1.8	NNE
3-Jul-2018	16:00	1.6	ENE
3-Jul-2018	17:00	1.5	ENE
3-Jul-2018	18:00	1.3	ENE
3-Jul-2018	19:00	1	E
3-Jul-2018	20:00	0.6	N
3-Jul-2018	21:00	0.5	ENE
3-Jul-2018	22:00	0.9	ENE
3-Jul-2018	23:00	1	ENE
4-Jul-2018	00:00	1.1	ESE
4-Jul-2018	01:00	0.9	NNE
4-Jul-2018	02:00	1	NE

II. Mean Wind Speed and Wind Direction

4-Jul-2018	03:00	1	NE
4-Jul-2018	04:00	1	SSE
4-Jul-2018	05:00	1	NNE
4-Jul-2018	06:00	1.3	ENE
4-Jul-2018	07:00	1.1	NE
4-Jul-2018	08:00	1.2	NE
4-Jul-2018	09:00	1.6	E
4-Jul-2018	10:00	2.8	ENE
4-Jul-2018	11:00	2.7	ENE
4-Jul-2018	12:00	2.9	ENE
4-Jul-2018	13:00	2.8	ENE
4-Jul-2018	14:00	2.7	NNE
4-Jul-2018	15:00	2.6	ENE
4-Jul-2018	16:00	2.2	NE
4-Jul-2018	17:00	2.2	NE
4-Jul-2018	18:00	1.8	ENE
4-Jul-2018	19:00	1.4	ENE
4-Jul-2018	20:00	1.2	N
4-Jul-2018	21:00	1.5	NE
4-Jul-2018	22:00	1.6	NNE
4-Jul-2018	23:00	1.4	SSW
5-Jul-2018	00:00	1.5	N
5-Jul-2018	01:00	1.6	E
5-Jul-2018	02:00	1.3	WSW
5-Jul-2018	03:00	1.5	WNW
5-Jul-2018	04:00	1.7	SW
5-Jul-2018	05:00	1.9	SW
5-Jul-2018	06:00	1.7	WSW
5-Jul-2018	07:00	2	SW
5-Jul-2018	08:00	2.3	SW
5-Jul-2018	09:00	2.7	WSW
5-Jul-2018	10:00	2.7	WSW
5-Jul-2018	11:00	3.2	SW
5-Jul-2018	12:00	3.1	WNW
5-Jul-2018	13:00	3.1	SE
5-Jul-2018	14:00	3.1	SE
5-Jul-2018	15:00	3.2	ESE
5-Jul-2018	16:00	3.1	ESE

II. Mean Wind Speed and Wind Direction

5-Jul-2018	17:00	2.8	W
5-Jul-2018	18:00	2.5	SSW
5-Jul-2018	19:00	1.9	SSW
5-Jul-2018	20:00	1.9	SSW
5-Jul-2018	21:00	1.9	SW
5-Jul-2018	22:00	2.1	SSW
5-Jul-2018	23:00	2	SW
6-Jul-2018	00:00	1.7	SW
6-Jul-2018	01:00	1.8	SW
6-Jul-2018	02:00	1.9	WNW
6-Jul-2018	03:00	2.1	WNW
6-Jul-2018	04:00	1.9	E
6-Jul-2018	05:00	1.8	ENE
6-Jul-2018	06:00	2	WSW
6-Jul-2018	07:00	1.8	WNW
6-Jul-2018	08:00	2	SW
6-Jul-2018	09:00	2.5	WSW
6-Jul-2018	10:00	2.6	SW
6-Jul-2018	11:00	2.8	WSW
6-Jul-2018	12:00	2.6	WNW
6-Jul-2018	13:00	2.7	N
6-Jul-2018	14:00	2.8	SSW
6-Jul-2018	15:00	2.7	S
6-Jul-2018	16:00	2.7	SW
6-Jul-2018	17:00	2.6	WSW
6-Jul-2018	18:00	2.3	SW
6-Jul-2018	19:00	2.2	WNW
6-Jul-2018	20:00	2	WNW
6-Jul-2018	21:00	1.8	WSW
6-Jul-2018	22:00	1.9	SW
6-Jul-2018	23:00	1.9	SW
7-Jul-2018	00:00	2.2	WNW
7-Jul-2018	01:00	2.2	WNW
7-Jul-2018	02:00	2	WNW
7-Jul-2018	03:00	2.2	WNW
7-Jul-2018	04:00	2.3	WNW
7-Jul-2018	05:00	2.1	W
7-Jul-2018	06:00	2	WNW

II. Mean Wind Speed and Wind Direction

7-Jul-2018	07:00	1.7	WNW
7-Jul-2018	08:00	2.1	W
7-Jul-2018	09:00	2.3	W
7-Jul-2018	10:00	2.3	W
7-Jul-2018	11:00	2.2	SSW
7-Jul-2018	12:00	2.5	W
7-Jul-2018	13:00	2.5	W
7-Jul-2018	14:00	1.9	W
7-Jul-2018	15:00	2.1	WNW
7-Jul-2018	16:00	1.9	W
7-Jul-2018	17:00	1.9	W
7-Jul-2018	18:00	2	WNW
7-Jul-2018	19:00	2	WNW
7-Jul-2018	20:00	1.7	SSW
7-Jul-2018	21:00	1.6	SW
7-Jul-2018	22:00	1.8	N
7-Jul-2018	23:00	1.4	N
8-Jul-2018	00:00	1.4	N
8-Jul-2018	01:00	1.4	NNW
8-Jul-2018	02:00	1.4	NNW
8-Jul-2018	03:00	1.4	NW
8-Jul-2018	04:00	1.5	W
8-Jul-2018	05:00	1.4	W
8-Jul-2018	06:00	1.4	SSW
8-Jul-2018	07:00	1.5	W
8-Jul-2018	08:00	1.7	ENE
8-Jul-2018	09:00	2.2	NE
8-Jul-2018	10:00	2.1	NE
8-Jul-2018	11:00	2.5	NE
8-Jul-2018	12:00	2.6	ENE
8-Jul-2018	13:00	2.7	ENE
8-Jul-2018	14:00	2.7	ENE
8-Jul-2018	15:00	2.4	E
8-Jul-2018	16:00	2.4	SE
8-Jul-2018	17:00	2	SSE
8-Jul-2018	18:00	1.6	SSE
8-Jul-2018	19:00	1.5	WSW
8-Jul-2018	20:00	1.3	S

II. Mean Wind Speed and Wind Direction

8-Jul-2018	21:00	1.4	SSW
8-Jul-2018	22:00	1.4	W
8-Jul-2018	23:00	1.3	SSE
9-Jul-2018	00:00	1.3	SSE
9-Jul-2018	01:00	1.2	ENE
9-Jul-2018	02:00	1.3	N
9-Jul-2018	03:00	1.5	NNE
9-Jul-2018	04:00	1.6	NNE
9-Jul-2018	05:00	1.5	ESE
9-Jul-2018	06:00	1.3	ESE
9-Jul-2018	07:00	1.4	ESE
9-Jul-2018	08:00	1.5	ENE
9-Jul-2018	09:00	1.8	E
9-Jul-2018	10:00	1.9	NNE
9-Jul-2018	11:00	1.9	SSE
9-Jul-2018	12:00	2	NNE
9-Jul-2018	13:00	2	NE
9-Jul-2018	14:00	2	ENE
9-Jul-2018	15:00	1.6	ENE
9-Jul-2018	16:00	1.7	N
9-Jul-2018	17:00	1.2	ENE
9-Jul-2018	18:00	1	ENE
9-Jul-2018	19:00	0.7	NE
9-Jul-2018	20:00	0.7	NNE
9-Jul-2018	21:00	0.9	ENE
9-Jul-2018	22:00	0.8	NE
9-Jul-2018	23:00	0.6	ENE
10-Jul-2018	00:00	0.6	E
10-Jul-2018	01:00	0.7	NE
10-Jul-2018	02:00	0.6	NNE
10-Jul-2018	03:00	0.6	NE
10-Jul-2018	04:00	0.5	NNE
10-Jul-2018	05:00	0.5	NNE
10-Jul-2018	06:00	0.6	NNE
10-Jul-2018	07:00	0.5	NNE
10-Jul-2018	08:00	0.5	NNE
10-Jul-2018	09:00	1.2	NNE
10-Jul-2018	10:00	1.5	NNE

II. Mean Wind Speed and Wind Direction

10-Jul-2018	11:00	2.2	NNE
10-Jul-2018	12:00	2	NE
10-Jul-2018	13:00	2.2	NNE
10-Jul-2018	14:00	2	NE
10-Jul-2018	15:00	1.8	NE
10-Jul-2018	16:00	1.8	NE
10-Jul-2018	17:00	1.7	NE
10-Jul-2018	18:00	1.4	NE
10-Jul-2018	19:00	1.3	ENE
10-Jul-2018	20:00	1.5	ENE
10-Jul-2018	21:00	1.4	ENE
10-Jul-2018	22:00	1.4	SE
10-Jul-2018	23:00	1.6	NE
11-Jul-2018	00:00	1.4	ENE
11-Jul-2018	01:00	1.5	SSE
11-Jul-2018	02:00	1.4	SSE
11-Jul-2018	03:00	1.4	ENE
11-Jul-2018	04:00	1.3	ENE
11-Jul-2018	05:00	1.2	ESE
11-Jul-2018	06:00	1.5	SSE
11-Jul-2018	07:00	1.4	ESE
11-Jul-2018	08:00	1.4	ESE
11-Jul-2018	09:00	1.8	S
11-Jul-2018	10:00	1.7	S
11-Jul-2018	11:00	1.8	W
11-Jul-2018	12:00	2	WSW
11-Jul-2018	13:00	1.9	ESE
11-Jul-2018	14:00	2	ENE
11-Jul-2018	15:00	2.1	E
11-Jul-2018	16:00	2	SSE
11-Jul-2018	17:00	1.8	NNE
11-Jul-2018	18:00	1.8	ESE
11-Jul-2018	19:00	1.8	ENE
11-Jul-2018	20:00	1.8	SSE
11-Jul-2018	21:00	1.6	ESE
11-Jul-2018	22:00	2	E
11-Jul-2018	23:00	1.8	SSE
12-Jul-2018	00:00	1.8	S

II. Mean Wind Speed and Wind Direction

12-Jul-2018	01:00	1.4	ESE
12-Jul-2018	02:00	1.1	SW
12-Jul-2018	03:00	1.2	SW
12-Jul-2018	04:00	1.1	WNW
12-Jul-2018	05:00	0.9	W
12-Jul-2018	06:00	1	WNW
12-Jul-2018	07:00	1.1	N
12-Jul-2018	08:00	1	NNE
12-Jul-2018	09:00	1.2	WSW
12-Jul-2018	10:00	1.6	WSW
12-Jul-2018	11:00	1.8	W
12-Jul-2018	12:00	1.7	W
12-Jul-2018	13:00	1.4	W
12-Jul-2018	14:00	1.5	W
12-Jul-2018	15:00	1.7	WSW
12-Jul-2018	16:00	1.9	NE
12-Jul-2018	17:00	1.7	NE
12-Jul-2018	18:00	1.4	NE
12-Jul-2018	19:00	1.2	WNW
12-Jul-2018	20:00	1.1	NE
12-Jul-2018	21:00	0.9	NE
12-Jul-2018	22:00	1.1	NE
12-Jul-2018	23:00	1.2	W
13-Jul-2018	00:00	1	WSW
13-Jul-2018	01:00	0.9	WNW
13-Jul-2018	02:00	0.6	WNW
13-Jul-2018	03:00	0.9	NE
13-Jul-2018	04:00	1.1	NNE
13-Jul-2018	05:00	0.9	ENE
13-Jul-2018	06:00	0.7	SE
13-Jul-2018	07:00	0.7	NE
13-Jul-2018	08:00	0.8	ENE
13-Jul-2018	09:00	1.6	ENE
13-Jul-2018	10:00	2.1	NE
13-Jul-2018	11:00	2.8	ESE
13-Jul-2018	12:00	2.7	ESE
13-Jul-2018	13:00	2.8	E
13-Jul-2018	14:00	2.5	S

II. Mean Wind Speed and Wind Direction

13-Jul-2018	15:00	2.4	E
13-Jul-2018	16:00	2	SE
13-Jul-2018	17:00	1.9	E
13-Jul-2018	18:00	1.7	SE
13-Jul-2018	19:00	1.3	SE
13-Jul-2018	20:00	1	W
13-Jul-2018	21:00	0.8	SW
13-Jul-2018	22:00	1	WSW
13-Jul-2018	23:00	0.8	SW
14-Jul-2018	00:00	0.9	NNE
14-Jul-2018	01:00	1.2	SSW
14-Jul-2018	02:00	1.2	ESE
14-Jul-2018	03:00	1.4	WNW
14-Jul-2018	04:00	1.7	SE
14-Jul-2018	05:00	1.7	SSE
14-Jul-2018	06:00	1.7	ESE
14-Jul-2018	07:00	1.7	WNW
14-Jul-2018	08:00	1.8	ENE
14-Jul-2018	09:00	2	ENE
14-Jul-2018	10:00	2.4	N
14-Jul-2018	11:00	2.5	NNE
14-Jul-2018	12:00	2.8	NE
14-Jul-2018	13:00	2.7	NE
14-Jul-2018	14:00	2.3	WNW
14-Jul-2018	15:00	2.4	WNW
14-Jul-2018	16:00	2.7	WNW
14-Jul-2018	17:00	2.5	N
14-Jul-2018	18:00	1.8	N
14-Jul-2018	19:00	1.9	SW
14-Jul-2018	20:00	1.7	W
14-Jul-2018	21:00	1.6	W
14-Jul-2018	22:00	1.6	W
14-Jul-2018	23:00	1.6	WNW
15-Jul-2018	00:00	1.6	WSW
15-Jul-2018	01:00	1.7	N
15-Jul-2018	02:00	1.6	E
15-Jul-2018	03:00	1.4	ENE
15-Jul-2018	04:00	1.7	W

II. Mean Wind Speed and Wind Direction

15-Jul-2018	05:00	1.9	W
15-Jul-2018	06:00	1.8	WSW
15-Jul-2018	07:00	1.9	NNE
15-Jul-2018	08:00	1.8	NE
15-Jul-2018	09:00	2	NE
15-Jul-2018	10:00	2.2	WNW
15-Jul-2018	11:00	2.1	W
15-Jul-2018	12:00	2.1	W
15-Jul-2018	13:00	2.2	SSW
15-Jul-2018	14:00	2.3	SSW
15-Jul-2018	15:00	2.5	SSE
15-Jul-2018	16:00	2.2	NNW
15-Jul-2018	17:00	1.7	WNW
15-Jul-2018	18:00	1.6	NNW
15-Jul-2018	19:00	1.2	NE
15-Jul-2018	20:00	1.2	NE
15-Jul-2018	21:00	1.2	WNW
15-Jul-2018	22:00	1.2	WNW
15-Jul-2018	23:00	1.4	W
16-Jul-2018	00:00	1.2	NW
16-Jul-2018	01:00	1.3	SSW
16-Jul-2018	02:00	1.3	W
16-Jul-2018	03:00	1.3	WSW
16-Jul-2018	04:00	1.4	NNE
16-Jul-2018	05:00	1.5	W
16-Jul-2018	06:00	1.4	W
16-Jul-2018	07:00	1.5	W
16-Jul-2018	08:00	1.4	W
16-Jul-2018	09:00	1.7	W
16-Jul-2018	10:00	2	W
16-Jul-2018	11:00	1.9	WNW
16-Jul-2018	12:00	2.3	W
16-Jul-2018	13:00	2.2	ESE
16-Jul-2018	14:00	2	WNW
16-Jul-2018	15:00	2.5	WSW
16-Jul-2018	16:00	2.3	ESE
16-Jul-2018	17:00	1.9	NNW
16-Jul-2018	18:00	1.9	WSW

II. Mean Wind Speed and Wind Direction

16-Jul-2018	19:00	1.2	SE
16-Jul-2018	20:00	1	SE
16-Jul-2018	21:00	1.1	WNW
16-Jul-2018	22:00	0.8	NNE
16-Jul-2018	23:00	0.9	NNW
17-Jul-2018	00:00	0.9	NW
17-Jul-2018	01:00	0.9	NW
17-Jul-2018	02:00	1.3	S
17-Jul-2018	03:00	1.3	SW
17-Jul-2018	04:00	1.3	WNW
17-Jul-2018	05:00	1	WNW
17-Jul-2018	06:00	0.9	NW
17-Jul-2018	07:00	1.1	NNW
17-Jul-2018	08:00	1.2	NW
17-Jul-2018	09:00	1.4	ESE
17-Jul-2018	10:00	1.9	ESE
17-Jul-2018	11:00	2.2	S
17-Jul-2018	12:00	2.2	SE
17-Jul-2018	13:00	2.3	S
17-Jul-2018	14:00	2.3	SW
17-Jul-2018	15:00	2.5	S
17-Jul-2018	16:00	2.5	NNW
17-Jul-2018	17:00	2	S
17-Jul-2018	18:00	2	ENE
17-Jul-2018	19:00	1.9	NNE
17-Jul-2018	20:00	1.9	NNE
17-Jul-2018	21:00	1.7	WNW
17-Jul-2018	22:00	1.6	WNW
17-Jul-2018	23:00	1.5	W
18-Jul-2018	00:00	1.5	WNW
18-Jul-2018	01:00	1.5	WNW
18-Jul-2018	02:00	1.7	WNW
18-Jul-2018	03:00	1.5	NW
18-Jul-2018	04:00	1.6	NE
18-Jul-2018	05:00	1.4	NE
18-Jul-2018	06:00	1.6	NNE
18-Jul-2018	07:00	1.5	NNE
18-Jul-2018	08:00	1.6	NNE

II. Mean Wind Speed and Wind Direction

18-Jul-2018	09:00	2	NNE
18-Jul-2018	10:00	2.4	ENE
18-Jul-2018	11:00	2.6	ENE
18-Jul-2018	12:00	2.4	ENE
18-Jul-2018	13:00	2.6	NNE
18-Jul-2018	14:00	2.6	NNE
18-Jul-2018	15:00	2.5	ENE
18-Jul-2018	16:00	2.2	NNE
18-Jul-2018	17:00	1.8	NNE
18-Jul-2018	18:00	1.4	ENE
18-Jul-2018	19:00	1.4	ESE
18-Jul-2018	20:00	1.2	E
18-Jul-2018	21:00	0.9	SSW
18-Jul-2018	22:00	0.9	SSE
18-Jul-2018	23:00	1.1	SSW
19-Jul-2018	00:00	1.2	SSW
19-Jul-2018	01:00	0.9	E
19-Jul-2018	02:00	1.3	ESE
19-Jul-2018	03:00	1.3	SW
19-Jul-2018	04:00	1.4	N
19-Jul-2018	05:00	1.4	ESE
19-Jul-2018	06:00	1.4	S
19-Jul-2018	07:00	1.4	SE
19-Jul-2018	08:00	1.8	WNW
19-Jul-2018	09:00	1.8	E
19-Jul-2018	10:00	2	SSW
19-Jul-2018	11:00	2	W
19-Jul-2018	12:00	2.2	ENE
19-Jul-2018	13:00	1.9	WSW
19-Jul-2018	14:00	1.9	SW
19-Jul-2018	15:00	2.3	ENE
19-Jul-2018	16:00	2.2	ESE
19-Jul-2018	17:00	2.1	ENE
19-Jul-2018	18:00	1.5	ENE
19-Jul-2018	19:00	1.4	NE
19-Jul-2018	20:00	1	N
19-Jul-2018	21:00	1	W
19-Jul-2018	22:00	1.4	SSW

II. Mean Wind Speed and Wind Direction

19-Jul-2018	23:00	1.2	NE
20-Jul-2018	00:00	1.3	SW
20-Jul-2018	01:00	1.2	SW
20-Jul-2018	02:00	1.3	W
20-Jul-2018	03:00	1.2	SE
20-Jul-2018	04:00	1.4	WNW
20-Jul-2018	05:00	1.4	WNW
20-Jul-2018	06:00	1.5	WNW
20-Jul-2018	07:00	1.3	W
20-Jul-2018	08:00	1.7	W
20-Jul-2018	09:00	1.9	SSE
20-Jul-2018	10:00	2.5	S
20-Jul-2018	11:00	2.6	SSE
20-Jul-2018	12:00	2.5	SW
20-Jul-2018	13:00	2.4	E
20-Jul-2018	14:00	2.5	NE
20-Jul-2018	15:00	2.2	SSW
20-Jul-2018	16:00	2	E
20-Jul-2018	17:00	1.6	SW
20-Jul-2018	18:00	1.4	W
20-Jul-2018	19:00	1.4	WSW
20-Jul-2018	20:00	1.2	WSW
20-Jul-2018	21:00	1.2	SSW
20-Jul-2018	22:00	1.3	S
20-Jul-2018	23:00	1.3	W
21-Jul-2018	00:00	1.2	W
21-Jul-2018	01:00	1.1	SW
21-Jul-2018	02:00	1.3	S
21-Jul-2018	03:00	1.4	W
21-Jul-2018	04:00	1.2	W
21-Jul-2018	05:00	1.4	W
21-Jul-2018	06:00	1.8	W
21-Jul-2018	07:00	1.7	WNW
21-Jul-2018	08:00	1.7	WNW
21-Jul-2018	09:00	1.7	WNW
21-Jul-2018	10:00	2.1	WNW
21-Jul-2018	11:00	2.3	WNW
21-Jul-2018	12:00	2.4	N

II. Mean Wind Speed and Wind Direction

21-Jul-2018	13:00	2.5	W
21-Jul-2018	14:00	2.6	WNW
21-Jul-2018	15:00	2.8	WNW
21-Jul-2018	16:00	2.4	WNW
21-Jul-2018	17:00	2.1	W
21-Jul-2018	18:00	1.7	N
21-Jul-2018	19:00	1.6	WNW
21-Jul-2018	20:00	1.4	ENE
21-Jul-2018	21:00	1.3	WSW
21-Jul-2018	22:00	1.3	SW
21-Jul-2018	23:00	1.4	SW
22-Jul-2018	00:00	1.4	WNW
22-Jul-2018	01:00	1.5	WNW
22-Jul-2018	02:00	1.5	S
22-Jul-2018	03:00	1.6	S
22-Jul-2018	04:00	1.4	S
22-Jul-2018	05:00	1.4	WSW
22-Jul-2018	06:00	1.4	W
22-Jul-2018	07:00	1.5	SW
22-Jul-2018	08:00	1.8	WNW
22-Jul-2018	09:00	1.7	SW
22-Jul-2018	10:00	2	SW
22-Jul-2018	11:00	2.3	SSW
22-Jul-2018	12:00	2.1	SW
22-Jul-2018	13:00	2	W
22-Jul-2018	14:00	2.1	ENE
22-Jul-2018	15:00	2.2	ENE
22-Jul-2018	16:00	2	NW
22-Jul-2018	17:00	1.7	NE
22-Jul-2018	18:00	1.6	E
22-Jul-2018	19:00	1.1	N
22-Jul-2018	20:00	1.4	N
22-Jul-2018	21:00	1.5	N
22-Jul-2018	22:00	1.7	ENE
22-Jul-2018	23:00	1.9	SSE
23-Jul-2018	00:00	1.8	NE
23-Jul-2018	01:00	1.7	NE
23-Jul-2018	02:00	1.5	E

II. Mean Wind Speed and Wind Direction

23-Jul-2018	03:00	1.5	ENE
23-Jul-2018	04:00	1.5	ENE
23-Jul-2018	05:00	1.4	ENE
23-Jul-2018	06:00	1.5	ENE
23-Jul-2018	07:00	1.5	ENE
23-Jul-2018	08:00	1.7	NNE
23-Jul-2018	09:00	1.9	NNE
23-Jul-2018	10:00	2.4	N
23-Jul-2018	11:00	2.7	N
23-Jul-2018	12:00	2.5	NNE
23-Jul-2018	13:00	2.4	NNE
23-Jul-2018	14:00	2.6	NE
23-Jul-2018	15:00	2.6	N
23-Jul-2018	16:00	2.5	NE
23-Jul-2018	17:00	2.5	NNE
23-Jul-2018	18:00	2	NNE
23-Jul-2018	19:00	1.7	NNE
23-Jul-2018	20:00	1.6	S
23-Jul-2018	21:00	1.4	WNW
23-Jul-2018	22:00	1.4	W
23-Jul-2018	23:00	1.4	WNW
24-Jul-2018	00:00	1.4	WNW
24-Jul-2018	01:00	1.5	NW
24-Jul-2018	02:00	1.6	E
24-Jul-2018	03:00	1.8	NE
24-Jul-2018	04:00	1.9	NNE
24-Jul-2018	05:00	2	NE
24-Jul-2018	06:00	1.6	S
24-Jul-2018	07:00	1.5	S
24-Jul-2018	08:00	1.9	WNW
24-Jul-2018	09:00	2	WSW
24-Jul-2018	10:00	2.6	WSW
24-Jul-2018	11:00	2.6	WNW
24-Jul-2018	12:00	2.6	W
24-Jul-2018	13:00	2.7	W
24-Jul-2018	14:00	2.4	WNW
24-Jul-2018	15:00	2.5	E
24-Jul-2018	16:00	2.3	WNW

II. Mean Wind Speed and Wind Direction

24-Jul-2018	17:00	2	W
24-Jul-2018	18:00	1.6	W
24-Jul-2018	19:00	1.3	W
24-Jul-2018	20:00	1.4	W
24-Jul-2018	21:00	1.4	SW
24-Jul-2018	22:00	1.5	SSW
24-Jul-2018	23:00	1.4	SSW
25-Jul-2018	00:00	1.4	SSW
25-Jul-2018	01:00	1.4	N
25-Jul-2018	02:00	1.2	WNW
25-Jul-2018	03:00	1.1	WNW
25-Jul-2018	04:00	1.2	WNW
25-Jul-2018	05:00	0.9	WSW
25-Jul-2018	06:00	1	WSW
25-Jul-2018	07:00	1	WSW
25-Jul-2018	08:00	1.4	W
25-Jul-2018	09:00	1.9	W
25-Jul-2018	10:00	2.3	WSW
25-Jul-2018	11:00	2.6	SW
25-Jul-2018	12:00	2.6	NNE
25-Jul-2018	13:00	2.3	N
25-Jul-2018	14:00	2.6	SW
25-Jul-2018	15:00	2.5	NNE
25-Jul-2018	16:00	2.2	W
25-Jul-2018	17:00	1.8	W
25-Jul-2018	18:00	1.5	WNW
25-Jul-2018	19:00	1.4	WSW
25-Jul-2018	20:00	1.4	W
25-Jul-2018	21:00	1.3	WSW
25-Jul-2018	22:00	1.6	W
25-Jul-2018	23:00	1.8	WSW
26-Jul-2018	00:00	1.3	W
26-Jul-2018	01:00	1.4	E
26-Jul-2018	02:00	1.4	SW
26-Jul-2018	03:00	1.4	WSW
26-Jul-2018	04:00	1.3	SW
26-Jul-2018	05:00	1.5	SW
26-Jul-2018	06:00	1.4	W

II. Mean Wind Speed and Wind Direction

26-Jul-2018	07:00	1.6	W
26-Jul-2018	08:00	1.6	W
26-Jul-2018	09:00	1.8	W
26-Jul-2018	10:00	1.9	NNE
26-Jul-2018	11:00	2.4	NNE
26-Jul-2018	12:00	2.7	NE
26-Jul-2018	13:00	2.8	W
26-Jul-2018	14:00	2.5	W
26-Jul-2018	15:00	2.6	SW
26-Jul-2018	16:00	2.6	SW
26-Jul-2018	17:00	2.3	SW
26-Jul-2018	18:00	1.9	WSW
26-Jul-2018	19:00	1.7	W
26-Jul-2018	20:00	1.4	WNW
26-Jul-2018	21:00	1.4	W
26-Jul-2018	22:00	1.3	WNW
26-Jul-2018	23:00	1.6	W
27-Jul-2018	00:00	1.6	ESE
27-Jul-2018	01:00	1.4	W
27-Jul-2018	02:00	1.4	WSW
27-Jul-2018	03:00	1.5	WSW
27-Jul-2018	04:00	1.4	W
27-Jul-2018	05:00	1.5	SW
27-Jul-2018	06:00	1.3	SW
27-Jul-2018	07:00	1.7	SW
27-Jul-2018	08:00	1.7	SW
27-Jul-2018	09:00	1.9	SW
27-Jul-2018	10:00	2	W
27-Jul-2018	11:00	2.5	W
27-Jul-2018	12:00	2.7	W
27-Jul-2018	13:00	2.7	W
27-Jul-2018	14:00	2.6	WSW
27-Jul-2018	15:00	2.5	WSW
27-Jul-2018	16:00	2.5	SSW
27-Jul-2018	17:00	2.2	NE
27-Jul-2018	18:00	1.8	SE
27-Jul-2018	19:00	1.5	SSE
27-Jul-2018	20:00	1.6	SW

II. Mean Wind Speed and Wind Direction

27-Jul-2018	21:00	1.7	ENE
27-Jul-2018	22:00	1.5	NNW
27-Jul-2018	23:00	1.6	SSE
28-Jul-2018	00:00	1.8	SSE
28-Jul-2018	01:00	1.8	SE
28-Jul-2018	02:00	1.9	N
28-Jul-2018	03:00	1.7	WNW
28-Jul-2018	04:00	1.6	ENE
28-Jul-2018	05:00	1.5	ENE
28-Jul-2018	06:00	1.6	ESE
28-Jul-2018	07:00	1.7	E
28-Jul-2018	08:00	1.9	SW
28-Jul-2018	09:00	2.2	SSE
28-Jul-2018	10:00	2.2	SW
28-Jul-2018	11:00	2.6	SW
28-Jul-2018	12:00	2.6	NNE
28-Jul-2018	13:00	2.3	SSW
28-Jul-2018	14:00	2.3	W
28-Jul-2018	15:00	2.3	W
28-Jul-2018	16:00	2.4	ENE
28-Jul-2018	17:00	2.2	WNW
28-Jul-2018	18:00	1.9	ENE
28-Jul-2018	19:00	1.5	N
28-Jul-2018	20:00	1.5	N
28-Jul-2018	21:00	1.6	N
28-Jul-2018	22:00	1.5	NNE
28-Jul-2018	23:00	1.8	SSW
29-Jul-2018	00:00	1.7	NE
29-Jul-2018	01:00	2	W
29-Jul-2018	02:00	2	WNW
29-Jul-2018	03:00	2.2	ESE
29-Jul-2018	04:00	1.7	SE
29-Jul-2018	05:00	1.8	SSW
29-Jul-2018	06:00	1.6	ESE
29-Jul-2018	07:00	1.4	SW
29-Jul-2018	08:00	1.4	WSW
29-Jul-2018	09:00	1.6	SSW
29-Jul-2018	10:00	2.1	WSW

II. Mean Wind Speed and Wind Direction

29-Jul-2018	11:00	2.2	WSW
29-Jul-2018	12:00	2.1	SW
29-Jul-2018	13:00	2.3	W
29-Jul-2018	14:00	2.3	WSW
29-Jul-2018	15:00	2.2	W
29-Jul-2018	16:00	2.2	SW
29-Jul-2018	17:00	2.2	SSW
29-Jul-2018	18:00	1.8	W
29-Jul-2018	19:00	1.4	NNE
29-Jul-2018	20:00	1.1	N
29-Jul-2018	21:00	1.2	WNW
29-Jul-2018	22:00	1.4	NE
29-Jul-2018	23:00	1.3	ESE
30-Jul-2018	00:00	1.3	E
30-Jul-2018	01:00	1.4	SSE
30-Jul-2018	02:00	1.4	ENE
30-Jul-2018	03:00	1.5	NE
30-Jul-2018	04:00	1.5	ENE
30-Jul-2018	05:00	1.5	SW
30-Jul-2018	06:00	1.4	SW
30-Jul-2018	07:00	1.3	NNE
30-Jul-2018	08:00	1.7	NNE
30-Jul-2018	09:00	2.1	W
30-Jul-2018	10:00	2.3	WNW
30-Jul-2018	11:00	2.8	WNW
30-Jul-2018	12:00	3.2	WSW
30-Jul-2018	13:00	2.6	WNW
30-Jul-2018	14:00	2.8	N
30-Jul-2018	15:00	2.9	SW
30-Jul-2018	16:00	2.5	NNE
30-Jul-2018	17:00	2.2	WSW
30-Jul-2018	18:00	2	N
30-Jul-2018	19:00	1.6	N
30-Jul-2018	20:00	1.6	NNE
30-Jul-2018	21:00	1.5	NE
30-Jul-2018	22:00	1.8	NE
30-Jul-2018	23:00	1.8	SE
31-Jul-2018	00:00	1.9	NE

II. Mean Wind Speed and Wind Direction

31-Jul-2018	01:00	1.8	N
31-Jul-2018	02:00	1.7	N
31-Jul-2018	03:00	1.9	SE
31-Jul-2018	04:00	1.6	SE
31-Jul-2018	05:00	1.5	NE
31-Jul-2018	06:00	1.7	NE
31-Jul-2018	07:00	1.5	ESE
31-Jul-2018	08:00	1.4	ESE
31-Jul-2018	09:00	1.9	SSE
31-Jul-2018	10:00	1.9	SSE
31-Jul-2018	11:00	1.8	NE
31-Jul-2018	12:00	2	ENE
31-Jul-2018	13:00	2	E
31-Jul-2018	14:00	2	ENE
31-Jul-2018	15:00	2.1	ESE
31-Jul-2018	16:00	1.8	NE
31-Jul-2018	17:00	1.8	ENE
31-Jul-2018	18:00	2	NE
31-Jul-2018	19:00	1.9	NE
31-Jul-2018	20:00	1.9	NNE
31-Jul-2018	21:00	2	ENE
31-Jul-2018	22:00	1.9	NE
31-Jul-2018	23:00	1.9	ESE

APPENDIX D
ENVIRONMENTAL MONITORING SCHEDULES

Contract No. KLN/2016/04
Environmental Monitoring Works for Contract No. KL/2015/02
Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area
Impact Air and Noise Monitoring Schedule for July 2018

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Jul	**2-Jul**	3-Jul	4-Jul	5-Jul	6-Jul	7-Jul
		1 hr TSP X3 [AM2] **Noise** [M4]	**Noise** [M3, M5(C)] **24hr TSP** AM2(A)			
8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul
	1 hr TSP X3 [AM2] **Noise** [M4]	**Noise** [M3, M5(C)] **24hr TSP** AM2(A)				**1 hr TSP X3** [AM2]
15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul
	24hr TSP AM2(A)	**Noise** [M3, M5(C)]			**1 hr TSP X3** [AM2] **Noise** [M4] **24hr TSP** AM2(A)	
22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul
	Noise [M3, M5(C)]			**1 hr TSP X3** [AM2] **Noise** [M4] **24hr TSP** AM2(A)		
29-Jul	30-Jul	31-Jul				

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

Air Quality Monitoring Statio

AM2 - Lee Kau Yan Memorial School
AM2(A) - Ng Wah Catholic Secondary School

Noise Monitoring Statio

M3 - Cognitio College
M4 - Lee Kau Yan Memorial School
M5(C) - Mercy Grace's Home

Contract No. KLN/2016/04
Environmental Monitoring Works for Contract No. KL/2015/02
Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area
Tentative Impact Air and Noise Monitoring Schedule for August 2018

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Aug	2-Aug	3-Aug	4-Aug
			1 hr TSP X3 [AM2] **Noise** [M4] **24hr TSP** AM2(A)	**Noise** [M3, M5(C)]		
5-Aug	6-Aug	7-Aug	8-Aug	9-Aug	10-Aug	11-Aug
		1 hr TSP X3 [AM2] **Noise** [M4] **24hr TSP** AM2(A)	**Noise** [M3, M5(C)]			
12-Aug	13-Aug	14-Aug	15-Aug	16-Aug	17-Aug	18-Aug
	1 hr TSP X3 [AM2] **Noise** [M4] **24hr TSP** AM2(A)	**Noise** [M3, M5(C)]				**1 hr TSP X3** [AM2] **24hr TSP** AM2(A)
19-Aug	20-Aug	21-Aug	22-Aug	23-Aug	24-Aug	25-Aug
	Noise [M3, M5(C)]				**1 hr TSP X3** [AM2] **Noise** [M4] **24hr TSP** AM2(A)	
26-Aug	27-Aug	28-Aug	29-Aug	30-Aug	31-Aug	
				1 hr TSP X3 [AM2] **Noise** [M3, M4, M5(C)] **24hr TSP** AM2(A)		

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

Air Quality Monitoring Statio

AM2 - Lee Kau Yan Memorial School
AM2(A) - Ng Wah Catholic Secondary School

Noise Monitoring Statio

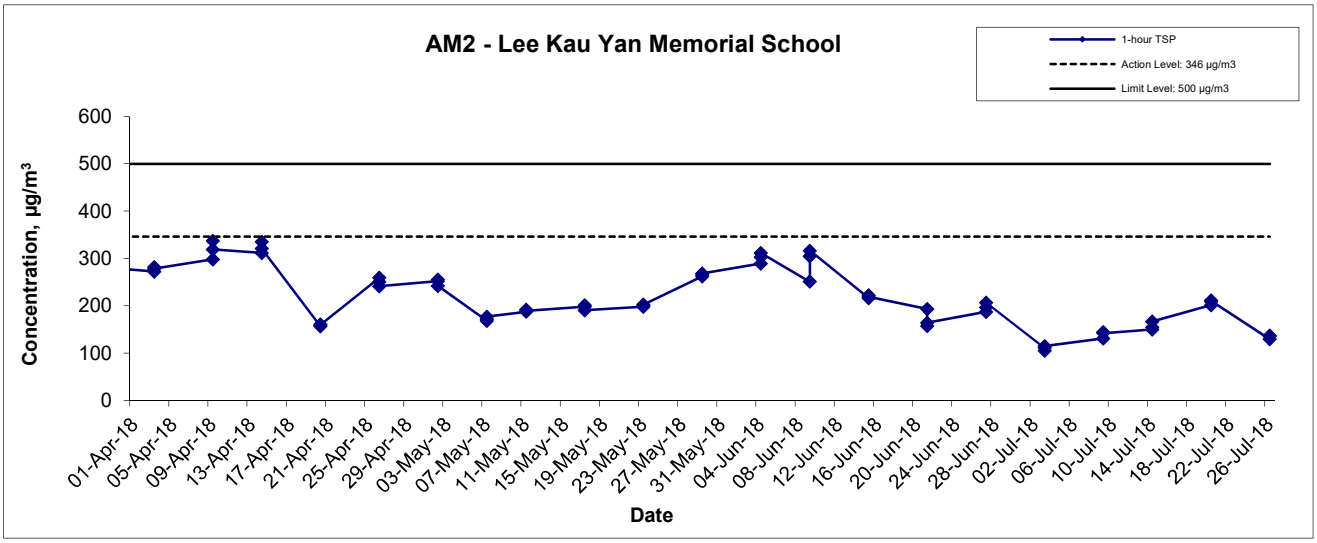
M3 - Cognitio College
M4 - Lee Kau Yan Memorial School
M5(C) - Mercy Grace's Home

APPENDIX E
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix E - 1-hour TSP Monitoring Results

Location AM2 - Lee Kau Yan Memorial School			
Date	Time	Weather	Particulate Concentration (µg/m3)
3-Jul-18	8:55	Cloudy	111.2
3-Jul-18	9:55	Cloudy	105.6
3-Jul-18	10:55	Cloudy	114.8
9-Jul-18	13:10	Sunny	131.1
9-Jul-18	14:10	Sunny	144.7
9-Jul-18	15:10	Sunny	142.3
14-Jul-18	13:10	Cloudy	150.0
14-Jul-18	14:10	Cloudy	154.6
14-Jul-18	15:10	Cloudy	167.0
20-Jul-18	13:05	Sunny	201.5
20-Jul-18	14:05	Sunny	208.9
20-Jul-18	15:05	Sunny	211.2
26-Jul-18	13:05	Sunny	129.6
26-Jul-18	14:05	Sunny	137.2
26-Jul-18	15:05	Sunny	136.1
		Average	149.7
		Maximum	211.2
		Minimum	105.6

1-hr TSP Concentration Levels



Title	Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S Date Jul 18	Project No. MA16043 Appendix E	CINOTECH

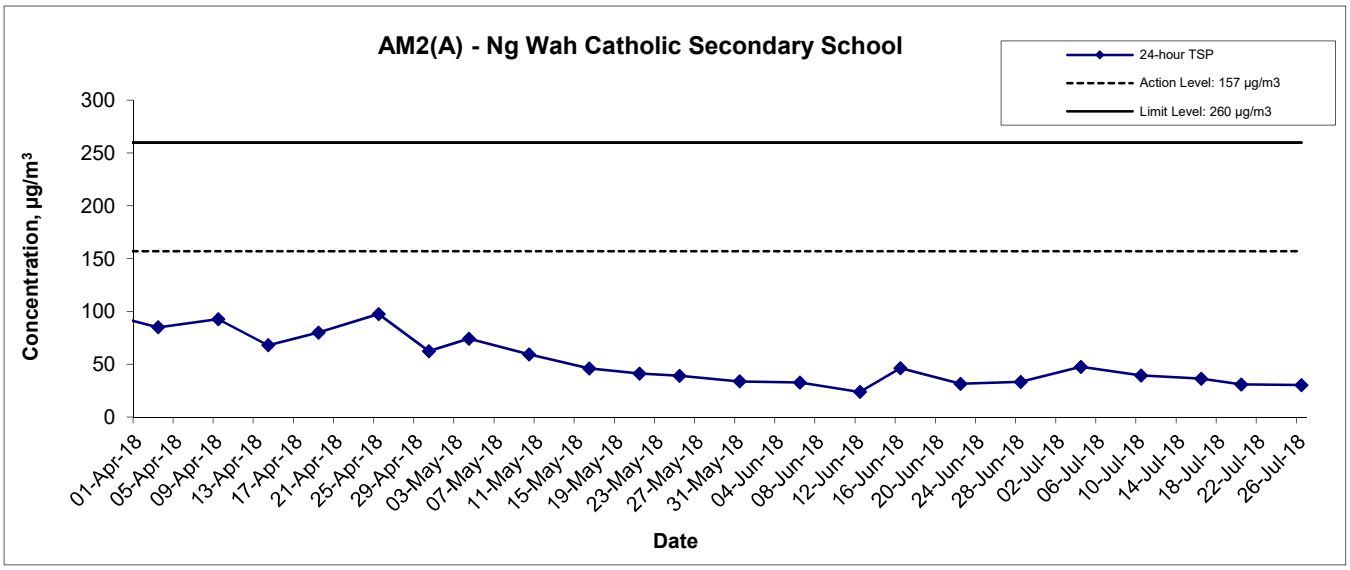
APPENDIX F
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

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			
4-Jul-18	Cloudy	302.4	754.9	3.2364	3.3199	0.0835	1944.2	1968.2	24.0	1.22	1.22	1.22	1755.5	47.6
10-Jul-18	Sunny	302.3	757.2	2.9863	3.0554	0.0691	1992.2	2016.2	24.0	1.22	1.22	1.22	1758.5	39.3
16-Jul-18	Cloudy	300.1	756.2	3.2951	3.3589	0.0638	2040.2	2064.2	24.0	1.22	1.22	1.22	1759.0	36.3
20-Jul-18	Cloudy	302.5	759.8	2.9890	3.0434	0.0544	2088.2	2112.2	24.0	1.22	1.22	1.22	1756.1	31.0
26-Jul-18	Sunny	303.4	757.5	3.2945	3.3477	0.0532	2136.2	2160.2	24.0	1.22	1.22	1.22	1750.9	30.4
													Min	30.4
													Max	47.6
													Average	36.9

24-hr TSP Concentration Levels



Title	Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S Date Jul 18	Project No. MA16043 Appendix F	CINOTECH

APPENDIX G
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

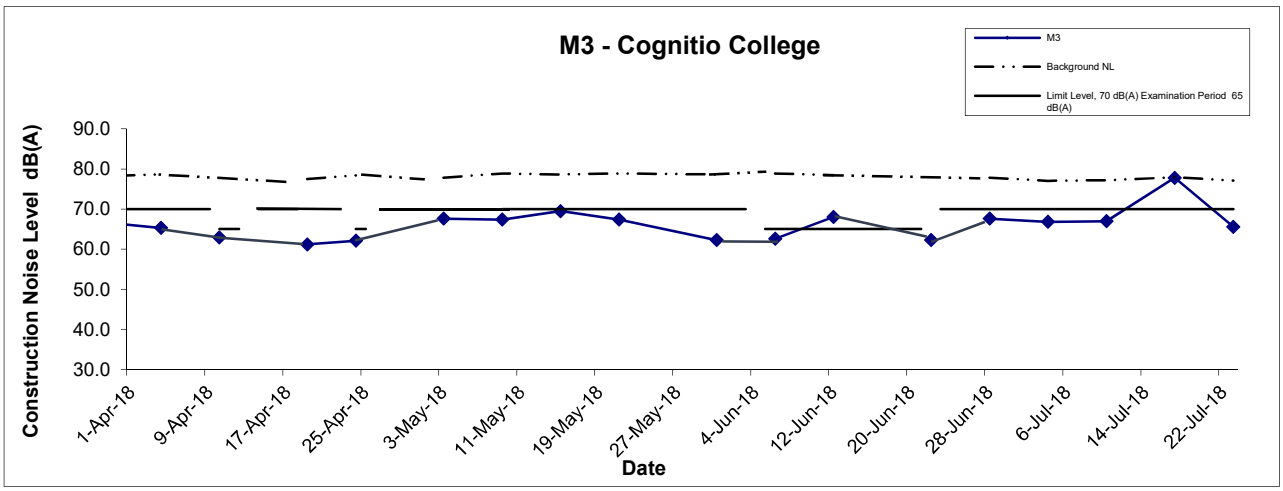
Appendix G - Noise Monitoring Results

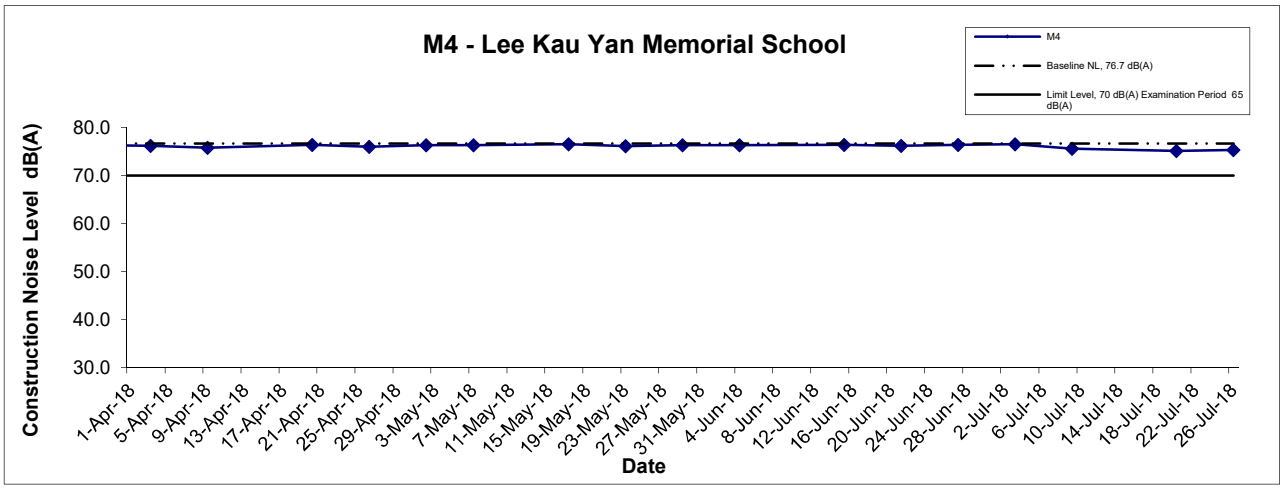
Location M3 - Cognitio College							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Background Noise	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
4-Jul-18	13:00	Sunny	77.4	78.4	75.0	77.0	66.8
10-Jul-18	13:00	Sunny	77.6	78.4	76.4	77.2	67.0
17-Jul-18	13:00	Sunny	77.8	82.9	70.3	77.9	77.8 Measured ≦ Background
23-Jul-18	13:00	Cloudy	77.4	78.8	75.1	77.1	65.6

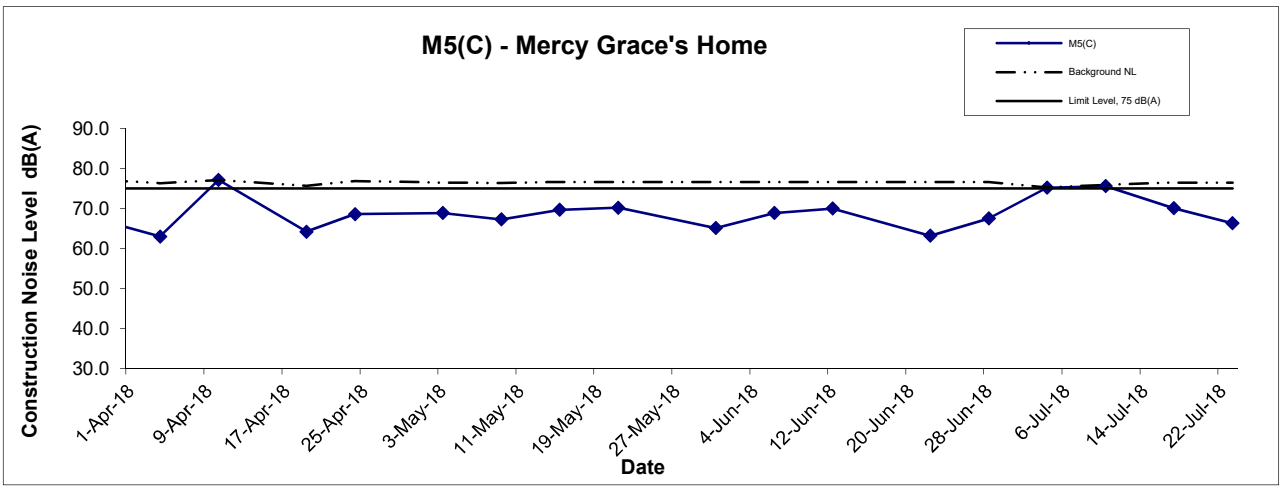
Location M4 - Lee Kau Yan Memorial School							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
3-Jul-18	13:45	Cloudy	76.5	77.7	74.2	76.7	76.5 Measured ≦ Baseline
9-Jul-18	14:15	Sunny	75.6	76.9	74.0		75.6 Measured ≦ Baseline
20-Jul-18	13:15	Sunny	75.1	76.8	70.2		75.1 Measured ≦ Baseline
26-Jul-18	13:15	Sunny	75.3	76.6	73.8		75.3 Measured ≦ Baseline

Location M5(C) - Mercy Grace's Home							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Background Noise	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
4-Jul-18	11:00	Rainy	75.2	77.0	74.9	75.3	75.2 Measured ≦ Background
10-Jul-18	11:30	Sunny	75.6	77.2	73.1	75.9	75.6 Measured ≦ Background
17-Jul-18	11:30	Sunny	77.4	79.0	76.0	76.5	70.1 Measured ≦ Background
23-Jul-18	12:00	Cloudy	76.9	78.1	73.0	76.5	66.3

Noise Levels







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

Title: Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Jul 18	Project No.: MA16043 Appendix: G	CINOTECH

APPENDIX H
SUMMARY OF EXCEEDANCE

Contract No. KLN/2016/04
Environmental Monitoring Works for Contract No. KL/2015/02
Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area

Appendix H – Summary of Exceedance

Exceedance Report for Contract No. KL/2015/02

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

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

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

APPENDIX I
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180703
Date	3 July 2018
Time	14:00-16:00

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

Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	- Following up on previous audit sections, the deficiencies were improved/rectified by the Contractor	

	Name	Signature	Date
Recorded by	Victor Wong		3 July 2018
Checked by	Dr. Priscilla Choy		3 July 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180711
Date	11 July 2018
Time	09:30-11:30

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	
180711-R01	• Stockpile should be covered to avoid dust generation (Portion 1)	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	
	- Following up on previous audit sections, the deficiencies were improved/rectified by the Contractor	

	Name	Signature	Date
Recorded by	Victor Wong		11 July 2018
Checked by	Dr. Priscilla Choy		11 July 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180716
Date	16 July 2018
Time	14:00-16:00

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

Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
180716-O01	• Silty water should be diverted to sedimentation tank before discharging (B5).	B 3
	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	
	- Following up on previous audit sections, the deficiencies were improved/rectified by the Contractor	

	Name	Signature	Date
Recorded by	Victor Wong		16 July 2018
Checked by	Dr. Priscilla Choy		16 July 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180723
Date	23 July 2018
Time	14:00-16:00

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

Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	- Following up on previous audit sections, the deficiencies were improved/rectified by the Contractor	

	Name	Signature	Date
Recorded by	Andy Chan		23 July 2018
Checked by	Dr. Priscilla Choy		24 July 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	180730
Date	30 July 2018
Time	14:00-15:00

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	
	- Following up on previous audit sections, the deficiencies were improved/rectified by the Contractor	

	Name	Signature	Date
Recorded by	Victor Wong		30 July 2018
Checked by	Dr. Priscilla Choy		30 July 2018

APPENDIX J
EVENT ACTION PLANS

Appendix J - Event Action Plans

Event/Action Plan for Air Quality

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

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

Appendix J - Event Action Plans

Event/Action Plan for Construction Noise

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

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

Appendix J - Event Action Plans

Event/Action Plan for Landscape and Visual

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

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

APPENDIX K
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)

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

EIA Ref.	Recommended Mitigation Measures	Implementation Status
Construction Air Quality		
S6.5	8 times daily watering of the work site with active dust emitting activities.	^
S6.8	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.	
	• Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.	*
	• Misting for the dusty material should be carried out before being loaded into the vehicle. Any vehicle with an open load carrying area should have properly fitted side and tail boards.	^
	• Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.	^
	• The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation.	^
	• The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways insider the site. Onsite unpaved roads should be compacted and kept free of lose materials.	^
	• Vehicle washing facilities should be provided at every vehicle exit point.	
	• The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	^ ^
	• Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	^
	• Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides.	^
	• Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	^

S6.8	• DWFI compound for JVBC: A DWFI compound is proposed at the downstream of JVC to contain pollution in drainage systems entering the KTAC and KTTS by interception facilities until the ultimate removal of the pollution sources. Tidal barriers and desiliting facilities will form part of the compounds to prevent any accumulation of sediment within the downstream section of JVBC and hence fully mitigate the potential odour emissions from the headspace of JVBC near the existing discharge locations. The odour generating operations within the proposed desilting compound will be fully enclosed and the odorous air will be collected and treated by high efficiency deodorizers before discharge to the atmosphere.	N/A
	• Desilting compound for KTN: Two desilting compounds are proposed for KTN (at Site 1D6 and Site 1P1) to contain pollution in drainage systems entering the KTAC and KTTS by interception facilities until the ultimate removal of the pollution sources. Tidal barriers and desiliting facilities will form part of the compounds to prevent any accumulation of sediment within the downstream section of KTN and hence fully mitigate the potential odour emissions from the headspace of KTN near the existing discharge locations. The odour generating operations within the proposed desilting compound will be fully enclosed and the odorous air will be collected and treated by high efficiency deodorizers before discharge to the atmosphere.	N/A
	• Decking or reconstruction of KTN within apron area: It is proposed to deck the KTN or reconstruct the KTN within the former Apron area into Kai Tak River from the south of Road D1 to the north of Road D2 along the existing alignment of KTN. The Kai Tak River will compose of a number of channels flowing with nonodorous fresh water and THEES effluent. The channel flowing with THEES effluent will be designed with the width of water surface of not more than 16m.	N/A
	• Localised maintenance dredging: Localised maintenance dredging should be conducted to provide water depth of not less than 3.5m over the whole of KTAC and KTTS. With reference to the water depth data recorded during the odour survey, only some of the areas in the northern part of KTAC (i.e. to the north of taxiway bridge) including the area near the northern edge of KTAC, the area near western bank of KTAC, and the area near the JVC discharge have water depths shallower than 3.5m. The area involved would be about 40% of the northern KTAC and the dredging depth required would be from about 2.7m to less than 1m. The maintenance dredging to be carried out prior to the occupation of any new development in the immediate vicinity of KTAC to avoid potential localized odour impacts at the future ASRs during the maintenance	N/A

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

	dredging operation. • Improvement of water circulation in KTAC and KTTS: 600m gap opening at the northern part of the former Kai Tak runway, the water circulation in KTAC and KTTS would be substantially improved. Together with the improvement in water circulation, the DO level in KTAC and KTTS would also be increased. • In-situ sediment treatment by bioremediation: Bioremediation would be applied to the entire KTAC and KTTS.	N/A N/A
Construction Noise		
S7.8	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.	^
S7.9	Good Site Practice: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. • Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. • Mobile plant, if any, should be sited as far away from NSRs as possible. • Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. • Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	 ^ ^ ^ ^ ^ ^
S7.9	Scheduling of Construction Works during School Examination Period	^
S7.8	(i) Provision of low noise surfacing in a section of Road L2; and (ii) Provision of structural fins	N/A N/A
S7.8	(i) Avoid the sensitive façade of class room facing Road L2 and L4; and (ii) Provision of low noise surfacing in a section of Road L2 & L4	N/A N/A

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

S7.8	(i) Provision of low noise surfacing in a section of Road L4 before occupation of Site 1I1; and	N/A
	(ii) Setback of building about 5m from site boundary.	N/A
S7.8	Setback of building about 35m to the northwest direction at 1L3 and 5m at Site 1L2.	N/A
S7.8	(i) avoid any sensitive façades with openable window facing the existing Kowloon City Road network; and Avoid the sensitive façade of class room facing Road L2 and L4; 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
S7.8	(i) avoid any sensitive facades with openable window facing the existing To Kwa Wan Road or	N/A
	(ii) provision of 17.5m high noise tolerant building fronting To Kwa Wan Road and restrict the height of the residential block(s) located at less than 55m away from To Kwa Wan Road to no more than 25m above ground	N/A
S7.8	(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	^
S7.8	All the ventilation fans installed in the below will be provided with silencers or acoustics treatment.	
	(i) SPS	N/A
	(ii) ESS	N/A
	(iii) Tunnel Ventilation Shaft	N/A
	(iv) EFTS depot	N/A
S7.8	Installation of retractable roof or other equivalent measures	N/A
Construction Water Quality		
S8.8	The following mitigation measures are proposed to be incorporated in the design of the SPS at KTD, including:	
	• Dual power supply or emergency generator should be provided at all the SPSs to secure electrical power supply;	N/A
	• Standby pumps should be provided at all SPSs to ensure smooth operation of the SPS during maintenance of the duty pumps;	N/A
	• An alarm should be installed to signal emergency high water level in the wet well at all SPSs; and	
	• For all unmanned SPSs, a remote monitor system connecting SPSs with the control station through telemetry system should be provided so that swift actions could be taken in case of malfunction of unmanned facilities	N/A N/A

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

S8.8	**Construction Phase** Marine-based Construction *Capital and Maintenance Dredging for Cruise Terminal* Mitigation measures for construction of the proposed cruise terminal should follow those recommended in the approved EIA for CT Dredging.	N/A
S8.8	*Fireboat Berth, Runway Opening and Road T2* Silt curtains should be deployed around the close grab dredger to minimize release of sediment and other contaminants for any dredging and filling activities in open water.	N/A
S8.8	Dredging at and near the seawall area for construction of the public landing steps cum fireboat berth should be carried out at a maximum production rate of 1,000m^3 per day using one grab dredger.	N/A
S8.8	The proposed construction method for runway opening should adopt an approach where the existing seawall at the runway will not be removed until completion of all excavation and dredging works for demolition of the runway. Thus, excavation of bulk fill and majority of the dredging works will be carried out behind the existing seawall, and the sediment plume can be effectively contained within the works area. As there is likely some accumulation of sediments alongside the runway, there will be a need to dredge the existing seabed after completion of all the demolition works. Dredging alongside the 600m opening should be carried out at a maximum production rate of 2,000m^3 per day using one grab dredger.	N/A
8.8	Dredging for Road T2 should be conducted at a maximum rate of 8,000m^3 per day (using four grab dredgers) whereas the sand filling should be conducted at a maximum rate of 2,000m3 per day (using two grab dredgers).	N/A
8.8	Silt screens shall be applied to seawater intakes at WSD seawater intake.	N/A

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

S8.8	Land-based Construction *Construction Runoff* Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: • use of sediment traps • adequate maintenance of drainage systems to prevent flooding and overflow	 ^ ^
S8.8	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.	^
S8.8	Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	*
S8.8	Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	*
S8.8	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	^
S8.8	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.	^
S8.8	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.	
S8.8	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.	N/A(1)
S8.8	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.	^
S8.8	*Drainage* It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea	^
S8.8	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.	^
S8.8	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.	^
S8.8	*Sewage Effluent* Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	^

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

S8.8	*Stormwater Discharges* Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes	^
S8.8	*Debris and Litter* In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised and that disposal of any solid materials, litter or wastes to marine waters does not occur	^
S8.8	*Construction Works at or in Close Proximity of Storm Culvert or Seafront* The proposed works should preferably be carried out within the dry season where the flow in the drainage channel /storm culvert/ nullah is low.	^
S8.8	The use of less or smaller construction plants may be specified to reduce the disturbance to the bottom sediment at the drainage channel /storm culvert / nullah.	^
S8.8	Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works	^
S8.8	Stockpiling of construction materials and dusty materials should be covered and located away from any water courses.	^
S8.8	Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers.	^
S8.8	Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.	^
S8.8	Mitigation measures to control site runoff from entering the nearby water environment should be implemented to minimize water quality impacts. Surface channels should be provided along the edge of the waterfront within the work sites to intercept the runoff.	^
S8.8	Construction effluent, site run-off and sewage should be properly collected and/or treated.	^
S8.8	Any works site inside the storm water courses should be temporarily isolated, such as by placing of sandbags or silt curtains with lead edge at bottom and properly supported props to prevent adverse impact on the storm water quality.	N/A
S8.8	Silt curtain may be installed around the construction activities at the seafront to minimize the potential impacts due to accidental spillage of construction materials.	N/A
S8.8	Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert/drainage channel/sea.	N/A

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

S8.8	Supervisory staff should be assigned to station on site to closely supervise and monitor the works	^
S8.8	Marine water quality monitoring and audit programme shall be implemented for the proposed sediment treatment operation.	N/A
Construction Waste Management		
S9.5	Good Site Practices It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. Recommendations for good site practices during the dredging activities include: • Nomination of an approved person, such as a site manager, be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site. • Training of site personnel in proper waste management and chemical waste handling procedures. • Provision of sufficient waste disposal points and regular collection for disposal. • Appropriate measure to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. • A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).	^ ^ ^ ^
S9.5	Waste Reduction Measures Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include: • Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal • Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force • Any unused chemicals or those with remaining functional capacity should be recycled • Proper storage and site practices to minimise the potential for damage or contamination of construction materials	^ ^ ^ ^

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

S9.5	Dredged Marine Sediment The basic requirements and procedures for dredged mud disposal are specified under the ETWB TCW No. 34/2002. The management of the dredging, use and disposal of marine mud is monitored by the MFC, while the licensing of marine dumping is required under the Dumping at Sea Ordinance and is the responsibility of the Director of Environmental Protection (DEP)	N/A
S9.5	The dredged marine sediments would be loaded onto barges and transported to the designated disposal sites allocated by the MFC depending on their level of contamination. Sediment classified as Category L would be suitable for Type 1 - Open Sea Disposal. Contaminated sediment would require either Type 1 – Open Sea Disposal (Dedicated Sites), Type 2 - Confined Marine Disposal, or Type 3 – Special Treatment / Disposal and must be dredged and transported with great care in accordance with ETWB TCW No. 34/2002. Subject to the final allocation of the disposal sites by MFC, the dredged contaminated sediment must be effectively isolated from the environment and disposed properly at the designated disposal site	N/A
S9.5	It will be the responsibility of the contractor to satisfy the appropriate authorities that the contamination levels of the marine sediment to be dredged have been analysed and recorded. According to the ETWB TCW No. 34/2002, this will involve the submission of a formal Sediment Quality Report to the DEP, prior to the dredging contract being tendered. The contractor for the dredging works should apply for allocation of marine disposal sites and all necessary permits from relevant authorities for the disposal of dredged sediment. During transportation and disposal of the dredged marine sediments requiring Type 1, Type 2, or Type 3 disposal, the following measures should be taken to minimise potential impacts on water quality: • Bottom opening of barges should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved • Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic selfmonitoring devices as required under the Dumping at Sea Ordinance and as specified by the DEP • Barges or hopper barges should not be filled to a level that would cause the overflow of materials or sediment laden water during loading or transportation	N/A N/A N/A
S9.5	Construction and Demolition Material Mitigation measures and good site practices should be incorporated into contract document to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include: • Where it is unavoidable to have transient stockpiles of C&D material within the Project work site pending collection for disposal, the	^

	transient stockpiles should be located away from waterfront or storm drains as far as possible	
	• Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric	^
	• Skip hoist for material transport should be totally enclosed by impervious sheeting	^
	• Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site	^
	• The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores	^
	• The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle	^
	• All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet	^
	• The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading	^
	When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 “Trip Ticket System for Disposal of Construction and Demolition Materials” should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.	^
S9.5	Chemical Waste After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*	^

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

S9.5	General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem		^
Construction Landscape and Visual			
S13.9	CM1	All existing trees should be carefully protected during construction.	^
	CM2	Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work.	^
	CM3	Control of night-time lighting.	N/A(1)
	CM4	Erection of decorative screen hoarding.	^

Remarks:

^	Compliance of mitigation measure
*	Recommendations were made during site audits but improved/rectified by the Contractor
#	Recommendations were made during site audits but has not yet been improved/rectified by the Contractor
●	Non-compliance but rectified by the Contractor
X	Non-compliance of mitigation measure
N/A	Not Applicable at this stage
N/A(1)	Not observed

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

Contract No. KLN/2016/04
Environmental Monitoring Works for Contract No. KL/2015/02
Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area

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

Complaint Log

EPD Complaint Ref No.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
17-34438	Dakota Drive and Olympic Avenue	23 October 2017	The complainant concerned about the dust emission when vehicle running on the dry surface outside Dakota Drive and Olympic Avenue. In addition, vehicles were not clear enough before leaving the construction site.	In accordance with the information gathered in the investigation, construction activities were conducted with proper mitigation measures to minimize the dust impact arise from the construction site to the vicinity of this Project. Regular water spraying was provided to haul roads and unpaved areas within the site areas to reduce the dust impact arise from the construction site to the vicinity of this Project. The Contractor had also ensured vehicles and plants were wheel washed to be cleaned of mud and debris before leaving the construction site area. Therefore, the complaint is considered as non-project related. The following recommendations were made to further enhance the mitigation measures: ● Where practicable, to provide sheltered area on the top and three sides for stockpiles of dusty materials, or perform frequent water spraying so as to maintain the entire surface wet; ● Frequent checking and repair the gaps or broken tarpaulin sheets; and ● To provide a hard-surfaced road between any cleaning facility and the public Road	Closed

Remarks: No complaint was received in the reporting month.

Contract No. KLN/2016/04
Environmental Monitoring Works for Contract No. KL/2015/02
Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area

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

Warnings / Summons and Successful Prosecutions received

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 was received in the reporting month.

APPENDIX M
SUMMARY OF WASTE GENERATION AND DISPOSAL RECORDS

Department: CEDD
Contract No.: KL/2015/02
Project : Kai Tak Development - Stage 5A Infrastructure at Former North Apron Area

Peako - Wo Hing Joint Venture

Monthly Summary Waste Flow Table for 2018

As at 1 August 2018

Month	Actual Quantities of Inert C & D Materials Generated Monthly						Actual Quantities of C & D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ Cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m³)
Jan	0	0	0	0	0	0	0	0	0	0	63
Feb	0	0	0	0	0	0	0	0	0	0	56
Mar	0	0	0	0	0	0	0	0	0	0	21
Apr	0	0	0	0	0	0	0	0	0	0	14
May	0	0	0	0	0	0	0	0	0	0	28
June	0	0	0	0	0	0	0	0	0	0	56
Sub-total	61614	0	0	0	61614	0	0	0	0	0	735
July	0	0	0	0	0	0	0	0	0	0	56
Aug											
Sept											
Oct											
Nov											
Dec											
Total	61614	0	0	0	61614	0	0	0	0	0	791

Forecast of Total Quantities of C&D Materials to be Generated from the Contract*										
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ Cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m³)
63000	0	0	0	63000	0	0	0	0	0	2000

Notes:
(1) The performance targets are given in PS clause 6(14).
(2) The waste flow table shall also include C & D materials that are specified in the Contract to be imported for use at the Site.
(3) Plastics refer to plastic bottles/ containers, plastic sheets/ foam from packaging material.
(4) The Contractor shall also submit the latest forcast of the total amount of C&D materials exected to be generated from the Works, together with a braskdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or excreeding 50,00 m³. (PS Cleuse 25.02A(7) refers).