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13th CONSOLIDATED MONTHLY EM&A REPORT

November 2017

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/0599

Prepared by : Wingo So

Reviewed by : Calvin Leung

Certified by : 
Colin Yung
Independent Environmental Checker
Fugro Technical Services Limited

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**EXECUTIVE SUMMARY**

- i. This is the 13th Consolidated Monthly EM&A Report which summaries the EM&A works undertaken by respective contract under EP-337/2009 within the period between 1 November and 30 November 2017.
- 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:

- Road works at King Fuk Street
- Drainage works at SW3 (Kai Tak side)
- Road works and drainage at Concorde Road (opposite to KTOB)

Contract No. KL/2012/03:

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

Contract No. KL/2014/01:

- Watermain works;
- TTA implementation, tree felling and junction improvement works at Shing Fung Road and Wang Chiu Road / Sheung Yee Road;
- Open excavation and construction of box culvert and underpass;
- ELS installation for box culvert and underpass;
- Construction of utilities trough at Kai Tak Bridge; and
- Construction of pile caps, noise barrier footings, outfalls, deck structure, columns, sewer and manholes.

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;

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- Pumping test; and
- Excavation and ELS construction.

Contract No. KL/2015/02:

- Construction works for retaining wall at slip road S15
- Bored piling works for the relocated Pile P32
- Excavation with installation of ELS and utilities support at Subway SW6
- Construction of Box Culvert B2 and B5 (Wall and Topslab)
- Excavation and construction works for Box Culvert B4 and B2
- Backfilling works for Box Culvert B4 and B3
- DCS Pipe laying works in Road D1, Portion 6 and Road L7
- Drainage laying works in Road L7 and Portion 3
- Fresh water main laying works in Road L7
- Sewerage laying works in Portion 2

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/2012/02:	
Air quality impact (dust)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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/2012/03:	
Air quality impact (dust)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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



Major Impact Prediction	Control Measures
	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; • 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.

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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:
- Road D1 – a dual 2-lane carriageway of approximately 1.3 km long.
 - Road D2 – a dual 3-lane carriageway of approximately 1.1 km long.
 - Road D3 – a dual 2-lane carriageway of approximately 2.3 km long.
 - 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 13th Consolidated Monthly EM&A Report which summaries the EM&A works undertaken by respective contract under EP-337/2009 within the period between 1 November and 30 November 2017.

1.2 Summary of relevant Contract Information of Key Personnel

Party	Position	Name	Telephone	Fax
Contract No. KL/2012/02:				
Project Proponent CEDD)	Engineer	Mr. Mike Cho	3579 2450	2369 4980
		Mr. Kelvin Chow	3579 2453	
Engineer's Representative (ARUP)	SRE	Mr. Gary Cheung	2210 6100	2210 6110
	RE	Ms. Edith Fung		
IEC (ANewR)	IEC	Mr. Adi Lee	2618 2836	3007 8648
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)	SRE	Mr. John Yam	2798 0771	3013 8864
	RE	Mr. Jacky Pun		
IEC (Arcadis)	IEC	Mr. Wong Fu Nam	2911 2744	2805 5028
ET (Cinotech)	ET Leader	Dr. Priscilla Choy	2151 2089	3107 1388

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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 6146 6761 (Hotline)	3689 7726
Contract No. KL/2014/01:				
Project Proponent (CEDD)	Senior Engineer	Mr. Sunny Lo	2301 1421	2301 1277
	Engineer	Ms. Keith Chu	2301 1607	
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 Environ)	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
	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	2798 0783
IEC (MCL)	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.)

Contract No. KL/2012/02:

- Road works at King Fuk Street
- Drainage works at SW3 (Kai Tak side)
- Road works and drainage at Concorde Road (opposite to KTOB)

**Contract No. KL/2012/03:**

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

Contract No. KL/2014/01:

- Watermain works;
- TTA implementation, tree felling and junction improvement works at Shing Fung Road and Wang Chiu Road / Sheung Yee Road;
- Open excavation and construction of box culvert and underpass;
- ELS installation for box culvert and underpass;
- Construction of utilities trough at Kai Tak Bridge; and
- Construction of pile caps, noise barrier footings, outfalls, deck structure, columns, sewer and manholes.

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:

- Construction works for retaining wall at slip road S15
- Bored piling works for the relocated Pile P32
- Excavation with installation of ELS and utilities support at Subway SW6
- Construction of Box Culvert B2 and B5 (Wall and Topslab)
- Excavation and construction works for Box Culvert B4 and B2
- Backfilling works for Box Culvert B4 and B3
- DCS Pipe laying works in Road D1, Portion 6 and Road L7
- Drainage laying works in Road L7 and Portion 3
- Fresh water main laying works in Road L7
- Sewerage laying works in Portion 2



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/2012/02:	
Noise, dust impact, water quality and waste generation	<ul style="list-style-type: none"> • 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.
Contract No. KL/2012/03:	
Dust, Water Quality, Waste Management (Construction of superstructure of Pumping Station PS2 and NPS)	<ul style="list-style-type: none"> • Sufficient watering of the works site with active dust emitting activities; • Properly cover the stockpiles; • Appropriate desilting/sedimentation devices provided on site for treatment before discharge; • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall; and • On-site waste sorting and implementation of trip ticket system.
Dust, Noise (Backfilling between sewerage manholes 1K1_1 and FMH10_340 and construction of manhole FMH10_370a at L6)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • Use of quiet plant and well-maintained construction plant; and • Provide hoarding. • Good management and control on construction waste reduction
Noise (Construction of sewerage manhole FMH 10 at Bailey Street; Widening works of Sung Wong Toi Road.)	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Use of quiet plant and well-maintained construction plant; and • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall.

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Major Environmental Impact	Control Measures
manholes SMH1953 and SMH1963 at L6; Installation of DCS)	
Contract No. KL/2014/01:	
Noise, dust impact, water quality and waste generation	<ul style="list-style-type: none"> • 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.
Contract No. KL/2014/03:	
Air Quality Impact, Construction Noise Impact, Water Quality Impact, Chemical and Waste Management, Landscape and Visual Impact	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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

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Major Environmental Impact	Control Measures
	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
<u>Contract No. KL/2012/02:</u>			
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-RE0680-17	10/09/2017	05/11/2017
<u>Contract No. KL/2012/03:</u>			
Environmental Permit	EP-337/2009	23/04/2009	N/A
	EP-344/2009	23/04/2009	N/A
Effluent Discharge License	WT00020971-2015	22/04/2015	21/04/2020
Registration of Chemical Waste Producer	5213-286-K2958-05	-	N/A
<u>Contract No. KL/2014/01:</u>			
Environmental Permit	EP-337/2009	23/04/2009	N/A
	EP-445/2013/A	13/08/2009	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-RE0649-17	20/08/2017	19/11/2017
	GW-RE0815-17	14/10/2017	11/04/2018
<u>Contract No. KL/2014/03:</u>			
Environmental Permit	EP-337/2009	23/04/2009	N/A
	EP-339/2009/A	18/06/2009	N/A
	EP-451/2013	19/09/2013	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-RE0442-17	07/06/2017	06/12/2017
	GW-RE0560-17	15/07/2017	11/01/2018
	PP-RE0010-17	16/05/2017	15/11/2017
Wastewater Discharge License	WT00023125-2015	06/01/2016	31/01/2021
Chemical Waste Producer License	5213-247-C1232-12	23/11/2015	N/A
<u>Contract No. KL/2015/02:</u>			
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	GW-RE0588-17	29/07/2017	28/12/2017
	GW-RE0595-17	02/08/2017	13/01/2018



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 ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
Contract No. KL/2012/02:					
1-hr TSP	AM1(C)	135.6	15.8 – 207.8	342	500
	AM2	220.5	59.7 – 320.4	346	
24-hr TSP	AM1(C)	69.8	50.4 – 86.3	159	260
	AM2(A)	103.7	80.0 – 128.36	157	
Contract No. KL/2012/03:					
1-hr TSP	AM2	258.2	167.2 – 341.3	346	500
	AM3(A)	247.2	165.0 – 341.7	351	
	AM4(C)	185.2	118.6 – 222.5	371	
	AM5	142.5	94.4 – 206.3	345	
24-hr TSP	AM2(A)	97.0	66.5 – 142.4	157	260
	AM3(A)	104.0	57.0 – 142.0	167	
	AM4(C)	119.1	80.1 – 156.7	187	
	AM5	46.0	30.7 – 59.1	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	97	66 -134	177	260
	KTD2a	48	7 - 81	157	
	KER1b	66	26 - 78	172	
Contract No. KL/2015/02:					
1-hr TSP	AM2	239.1	175.0 – 320.4	346	500
24-hr TSP	AM2(A)	103.7	80.0 – 128.3	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:				
M3	64.4 – 77.9 [#]	When one documented complaint is received	70*	
M4	75.3 – 76.7 [#]		70*	
M9	61.4 – 65.2		75	
Contract No. KL/2012/03:				
M6(A)	59.3 – 68.4		70*	
M7	62.4 – 68.6		70*	
M8	65.1 – 66.2		70*	
M9	61.5 – 63.7		75	
Contract No. KL/2014/01:				
NA (No Construction noise monitoring is required for the Project.)				NA
Contract No. KL/2014/03:				
KTD1a	61 - 72		75	
KTD2a	61 - 70		75	
KER1b	64 - 70		75	
Contract No. KL/2015/02:				
M3	64.3 – 66.3	70*		
M4	75.5 – 76.4 [#]	70*		
M5(C)	66.4 – 73.3	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.

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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 observations are presented in the appendices of the corresponding Monthly EM&A.



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 1, 8, 14, 22 and 29 November 2017 in the reporting month. IEC site inspection was conducted on 14 November 2017.

Contract No. KL/2012/03:

Site audits were conducted on 3, 10, 17 and 22 November 2017 in the reporting month. IEC site inspection was conducted on 22 November 2017.

Contract No. KL/2014/01:

Site audits were conducted by representatives of the Contractor, Supervising Officer and ET on 1, 8, 15, 22 and 29 November 2017 in the reporting month. IEC joint site inspection was conducted on 22 November 2017.

Contract No. KL/2014/03:

In the reporting month, five site inspections were carried out on 2, 9, 15, 23 and 30 November 2017. Two of them, held on 2 and 15 November 2017 were the joint inspections with the IEC, ER, the Contractor and the ET.

Contract No. KL/2015/02:

Site audits were conducted on 8, 17, 21 and 27 November 2017 in the reporting month. A joint site audit with the representative of IEC, ER, the Contractor and the ET was carried out on 8 November 2017.

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

Table 4.1 Summary of Complaints, Notification of Summons and Prosecution

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

4.1.2 **Contract No. KL/2015/02:**

A complaint received on 23 October 2017 (Log Ref. 17-34438) 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 also 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.

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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.



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:

- Reinstatement of temp slip road beside T1 tower
- Road works at King Fuk Street
- Drainage works at SW3 (Kai Tak side)
- Road works and drainage at Concorde Road (opposite to KTOB)
- Road works at Luk Hop Street

Contract No. KL/2012/03:

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

Contract No. KL/2014/01:

- Watermain works;
- TTA implementation, Tree Transplant, Tree Felling and Junction Improvement Works at Shing Fung Road and Wang Chiu Road / Sheung Yee Road;
- Open excavation and construction of box culvert and underpass;
- ELS installation for box culvert and underpass;
- Construction of utilities trough at Kai Tak Bridge; and
- Construction of pile caps, noise barrier footings, outfalls, deck structure, columns, sewer and manholes.

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:

- Construction works for retaining wall at slip road S15
- Bored piling works for the relocated Pile P32
- Excavation with installation of ELS and utilities support at Subway SW6
- Construction of Box Culvert B2 and B5 (Wall and Topslab)
- Excavation and construction works for Box Culvert B4 and B2
- Backfilling works for Box Culvert B4 and B3
- DCS Pipe laying works in Road D1, Portion 6 and Road L7
- Drainage laying works in Road L7 and Portion 3
- Fresh water main laying works in Road L7
- Sewerage laying works in Portion 2

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
<u>Contract No. KL/2012/02:</u>	
Air quality impact (dust)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.
<u>Contract No. KL/2012/03:</u>	
Air quality impact (dust)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.
<u>Contract No. KL/2014/01:</u>	

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Major Impact Prediction	Control Measures
Air quality impact (dust)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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:	
Air quality impact (dust)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; • Controlling the number of plants use on site;

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Major Impact Prediction	Control Measures
	<ul style="list-style-type: none">• 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.

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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**

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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

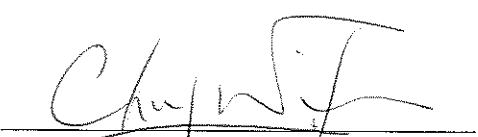
**EP-337/2009 – New Distributor Roads Serving the
Planned KTD**

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

Monthly EM&A Report

November 2017

(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

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

Your reference:

Our reference: HKCEDD04/50/104744

Date: 19 December 2017

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 November 2017

We refer to emails of 6 and 15 December 2017 attaching a Monthly EM&A Report for November 2017 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/lhnh

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EXECUTIVE SUMMARY

Introduction

1. This is the 50th 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 – 30 November 2017.
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. The major site activities undertaken in the reporting month included:
 - Road works at King Fuk Street
 - Drainage works at SW3 (Kai Tak side)
 - Road works and drainage at Concorde Road (opposite to KTOB)

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 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 (License No.: GW-RE0680-17).

Key Information in the Reporting Month

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

Table III Summary Table for Key Information in the Reporting Month

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

Future Key Issues

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

- Dust generation from stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
- Water spraying for dust generating activity and on haul road;
- Proper storage of construction materials on site;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Accumulation of general and construction waste on site;
- Noise from operation of the equipment, especially for rock-breaking activities, piling works and machinery on-site;
- 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 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 50th Monthly EM&A report summarizing the EM&A works for the Project from 1 – 30 November 2017.

Project Organizations

- 1.6 Different parties with different levels of involvement in the project organization include:
 - Project Proponent – Civil Engineering and Development Department (CEDD).
 - The Engineer and the Engineer's Representative (ER) – 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 / Mr. Kelvin Chow	Engineer	3579 2450 / 3579 2453	2369 4980
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. Adi Lee	Independent Environmental Checker	2618 2836	3007 8648
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 The site activities undertaken in the reporting month included:

- Road works at King Fuk Street
- Drainage works at SW3 (Kai Tak side)
- Road works and drainage at Concorde Road (opposite to KTOB)

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

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

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

Summary of EM&A Requirements

- 1.10 The EM&A programme requires construction noise monitoring, air quality monitoring, landscape and visual monitoring and environmental site audit. The EM&A requirements for each parameter are described in the following sections, including:
- All monitoring parameters;
 - Action and Limit levels for all environmental parameters;
 - Event Action Plans;
 - Environmental requirements and mitigation measures, as recommended in the EM&A Manual under the EP.
- 1.11 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in **Section 6** of this report.
- 1.12 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely air quality and noise levels and audit works for the Project from 1 – 30 November 2017.

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-HPC300 & Hal-HPC301	4
HVS Sampler	GMWS 2310 c/w of TSP sampling inlet	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 (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 m³/min. and 1.4 m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.
- 2.10 For 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 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, 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
AM2(A) – Ng Wah Catholic Secondary School	Excavation works Site vehicle movement

- 2.25 **Table 2.4** shows the summary of air quality monitoring results during the reporting month.

Table 2.4 Summary Table of Air Quality Monitoring Results during the reporting month

Parameter	Date	Concentration (µg/m ³)	Action Level, µg/m ³	Limit Level, µg/m ³
AM1(C) – Contractor Site Office (SCL 1107)				
1-hr TSP	1-Nov-17	201.1	342	500
	1-Nov-17	207.8		
	1-Nov-17	203.4		
	7-Nov-17	47.9		
	7-Nov-17	57.9		
	7-Nov-17	54.6		
	13-Nov-17	169.1		
	13-Nov-17	175.9		
	13-Nov-17	166.2		
	17-Nov-17	198.8		
	17-Nov-17	207.0		
	17-Nov-17	182.5		
	23-Nov-17	162.2		
	23-Nov-17	175.4		
	23-Nov-17	180.7		
	29-Nov-17	15.8		
29-Nov-17	18.0			
29-Nov-17	16.7			
24-hr TSP	6-Nov-17	50.4	159	260
	10-Nov-17	86.3		
	16-Nov-17	61.9		
	22-Nov-17	78.7		
	28-Nov-17	71.6		
AM2 – Lee Kau Yan Memorial School				
1-hr TSP	6-Nov-17	175.7	346	500
	6-Nov-17	187.8		
	6-Nov-17	196.6		
	11-Nov-17	236.3		
	11-Nov-17	243.0		
	11-Nov-17	228.0		
	17-Nov-17	287.4		
	17-Nov-17	299.8		
	17-Nov-17	312.7		
	23-Nov-17	319.4		
	23-Nov-17	320.4		
	23-Nov-17	311.4		
	29-Nov-17	68.5		
	29-Nov-17	59.7		
29-Nov-17	60.4			
AM2(A) – Ng Wah Catholic Secondary School				
24-hr TSP	6-Nov-17	101.6	157	260
	11-Nov-17	127.4		
	17-Nov-17	128.3		
	23-Nov-17	80.9		
	29-Nov-17	80.0		

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	● SVANTEK 955 & 957	3
Calibrator	● SVANTEK SV30A	3

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}, L₉₀ and L₁₀ were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused temporarily during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.

Maintenance and Calibration

- 3.5 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.
- 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* (at 0700 – 1900 hrs on normal weekdays)
M4	76.7 (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.

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)

Table 3.5 Summary Table of Noise Monitoring Results during the Reporting Month

Date	Measured Noise Level, Leq(30min) dB (A)	Baseline Level dB (A)	Construction Noise Level ⁽¹⁾ : Leq(30min) dB (A)
M3 – Cognitio College			
--	--	Background Noise ⁽²⁾	--
1-Nov-17	77.9	77.7	64.4
7-Nov-17	79.8	79.5	68.0
13-Nov-17	78.9	78.6	67.1
23-Nov-17	77.8	79.0	77.8 Measured ≤ Background
29-Nov-17	77.9	79.3	77.9 Measured ≤ Background
M4 – Lee Kau Yan Memorial School			
6-Nov-17	75.3	76.7	75.3 Measured ≤ Baseline
17-Nov-17	76.1		76.1 Measured ≤ Baseline
23-Nov-17	76.2		76.2 Measured ≤ Baseline
29-Nov-17	76.7		76.7 Measured ≤ Baseline
M9 – Tak Long Estate			
9-Nov-17	66.3	59.9	65.2
15-Nov-17	63.7		61.4
21-Nov-17	64.9		63.2
27-Nov-17	63.9		61.7

Note (1): 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

(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.

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.		
	Scenario 1 (Mid 2009 to Mid 2013), $\mu\text{g}/\text{m}^3$	Scenario 2 (Mid 2013 to Late 2016), $\mu\text{g}/\text{m}^3$	Reporting Month (November 17), $\mu\text{g}/\text{m}^3$
AM1(C) – Contractor Site Office of SCL 1107	192	298	135.6
AM2 – Lee Kau Yan Memorial School	290	312	220.5

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

Station	Predicted 24-hr TSP conc.		
	Scenario 1 (Mid 2009 to Mid 2013), $\mu\text{g}/\text{m}^3$	Scenario 2 (Mid 2013 to Late 2016), $\mu\text{g}/\text{m}^3$	Reporting Month (November 17), $\mu\text{g}/\text{m}^3$
AM1(C) – Contractor Site Office of SCL 1107	121	156	69.8
AM2(A) – Ng Wah Catholic Secondary School	145	169	103.7

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 (November 17), L_{eq} (30min) dB(A)
M3 – Cognitio College	47 – 75	64.4 – 77.9 ⁽¹⁾
M4 – Lee Kau Yan Memorial School	47 – 74	75.3 – 76.7 ⁽²⁾
M9 – Tak Long Estate	Not Predicted in EIA Report	61.4 – 65.2

Remark:

(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 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 and M4 were out of the range of predicted mitigated construction noise

level in the EIA Report. 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 1, 8, 14, 22 and 29 November 2017 in the reporting month. IEC site inspection was conducted on 14 November 2017. 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, Spent solvent, Spent alkali and acid	Valid
Construction Noise Permit (CNP)				
GW-RE0680-17	10/09/17	05/11/17	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work other than percussive piling 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
<i>Water Quality</i>	14 November 2017	<u>Reminder:</u> Ponding water on Concorde Road should be cleared.	Rectification/improvement was observed during the follow-up audit session on 22 November 2017
	22 November 2017	<u>Observation:</u> Wastewater should be diverted to wastewater treatment facilities.	This item was remarked on 29 November 2017 for follow up action.
	29 November 2017	<u>Observation:</u> Maintenance should be provided to Aquased for proper function.	Follow up action will be reported in the next reporting month.
	29 November 2017	<u>Reminder:</u> Wastes accumulated near the gully outside the site entrance of SW3 should be removed.	Follow up action will be reported in the next reporting month.
<i>Air Quality</i>	27 October 2017	<u>Reminder:</u> Dusty trail near the site entrance at Concorde Road should be cleared.	Rectification/improvement was observed during the follow-up audit session on 1 November 2017
	22 November 2017	<u>Reminder:</u> Dusty stockpile should be properly covered. (site entrance near Concorde Road)	Rectification/improvement was observed during the follow-up audit session on 29 November 2017
<i>Noise</i>	--	--	--
<i>Waste/ Chemical Management</i>	8 November 2017	<u>Reminder:</u> Clear the debris at Concorde Road near CLP substation.	Rectification/improvement was observed during the follow-up audit session on 14 November 2017
	22 November 2017	<u>Reminder:</u> Accumulated waste disposed near former KTOB should be removed.	Rectification/improvement was observed during the follow-up audit session on 29 November 2017
	29 November 2017	<u>Reminder:</u> Wastes accumulated near the gully outside the site entrance of SW3 should be removed.	Follow up action will be reported in the next reporting month.
<i>Landscape and Visual</i>	--	--	--
<i>Permits/ Licenses</i>	--	--	--

Summary of Mitigation Measures Implemented

6.8 The monthly IEC audit was carried out on 14th November 2017, the observations were recorded and they are presented as follows:

Reminder:

- The Contractor was reminded to remove turbid water at Concorde Road.

Follow up of last observation:

- Dusty materials at the road system at the site exit were removed.

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

Implementation Status of Event Action Plans

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

1-hr TSP Monitoring

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

24-hr TSP Monitoring

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

Construction Noise

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

Landscape and visual

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

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

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

7. FUTURE KEY ISSUES

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

- Reinstatement of temp slip road beside TI tower
- Road works at King Fuk Street
- Drainage works at SW3 (Kai Tak side)
- Road works and drainage at Concorde Road (opposite to KTOB)
- Road works at Luk Hop Street

Key Issues for the Coming Month

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 program of major site activities and the impact prediction and control measures for the coming two months, i.e. December 2017 and January 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.
	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.

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 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 All 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 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:

Water Quality

- To clear the standing water regularly to avoid accumulation within the site area.
- To ensure the wastewater to properly treatment prior to discharge.

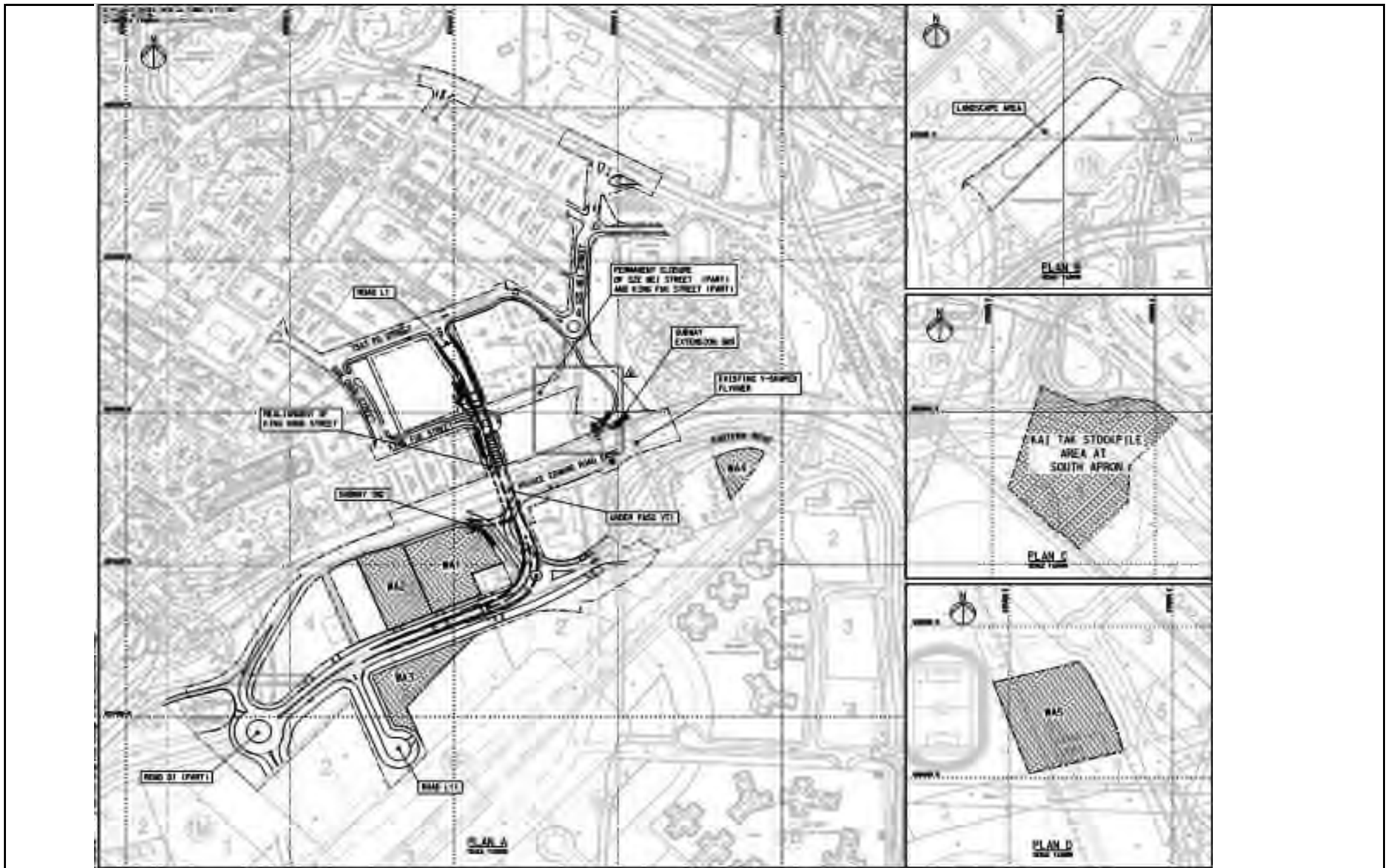
Air quality

- To properly cover the stockpile stored within the site area to prevent dust generation.

Waste/Chemical Management

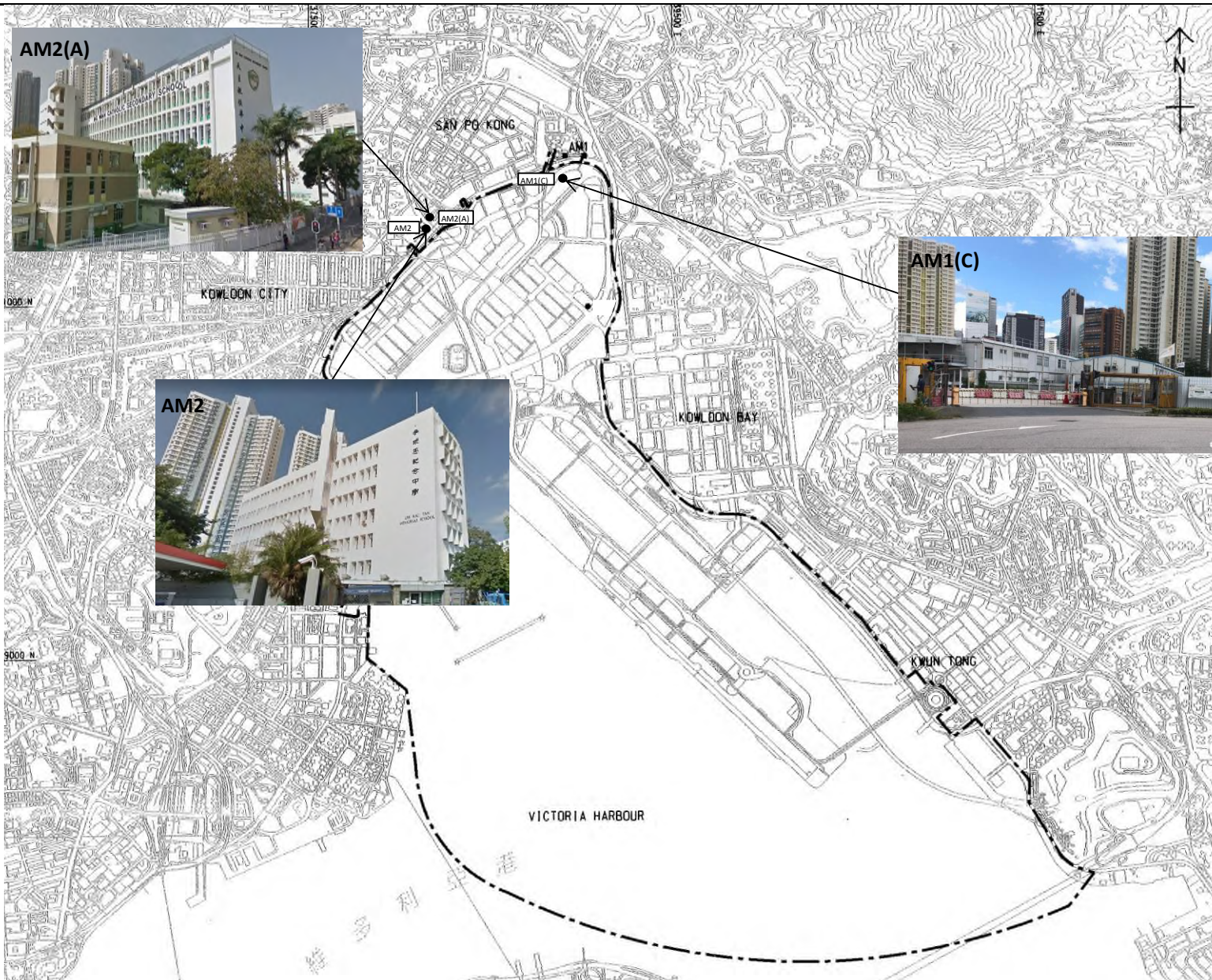
- To ensure the waste/debris are properly collected and disposed of.

FIGURES

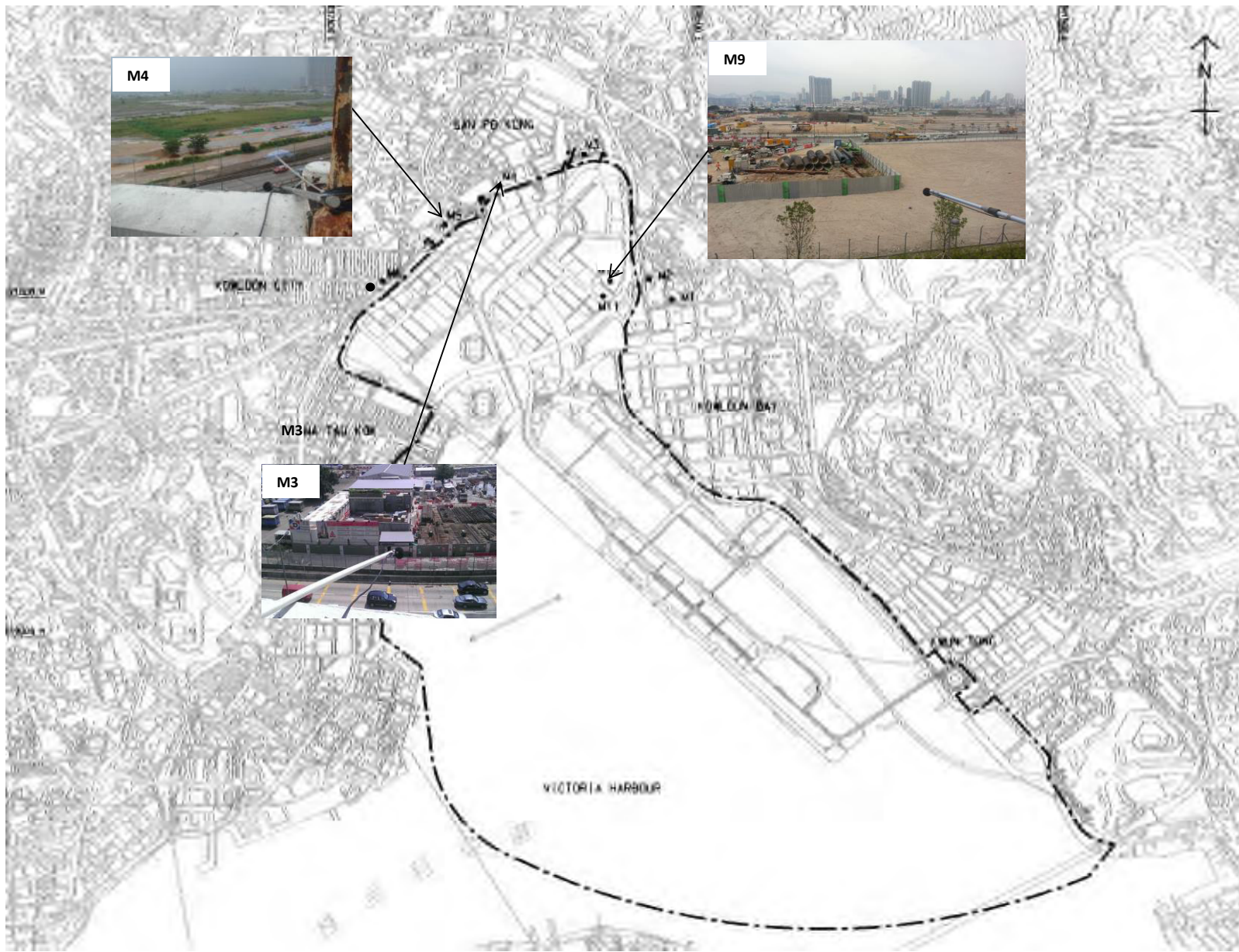



Title	Contract No. KL/2012/02		Scale	Project
	Kai Tak Development –Stage 3A Infrastructure at Former North Apron Area		N.T.S	No. MA13043
	Site Layout Plan		Date	Figure
			Aug-13	1

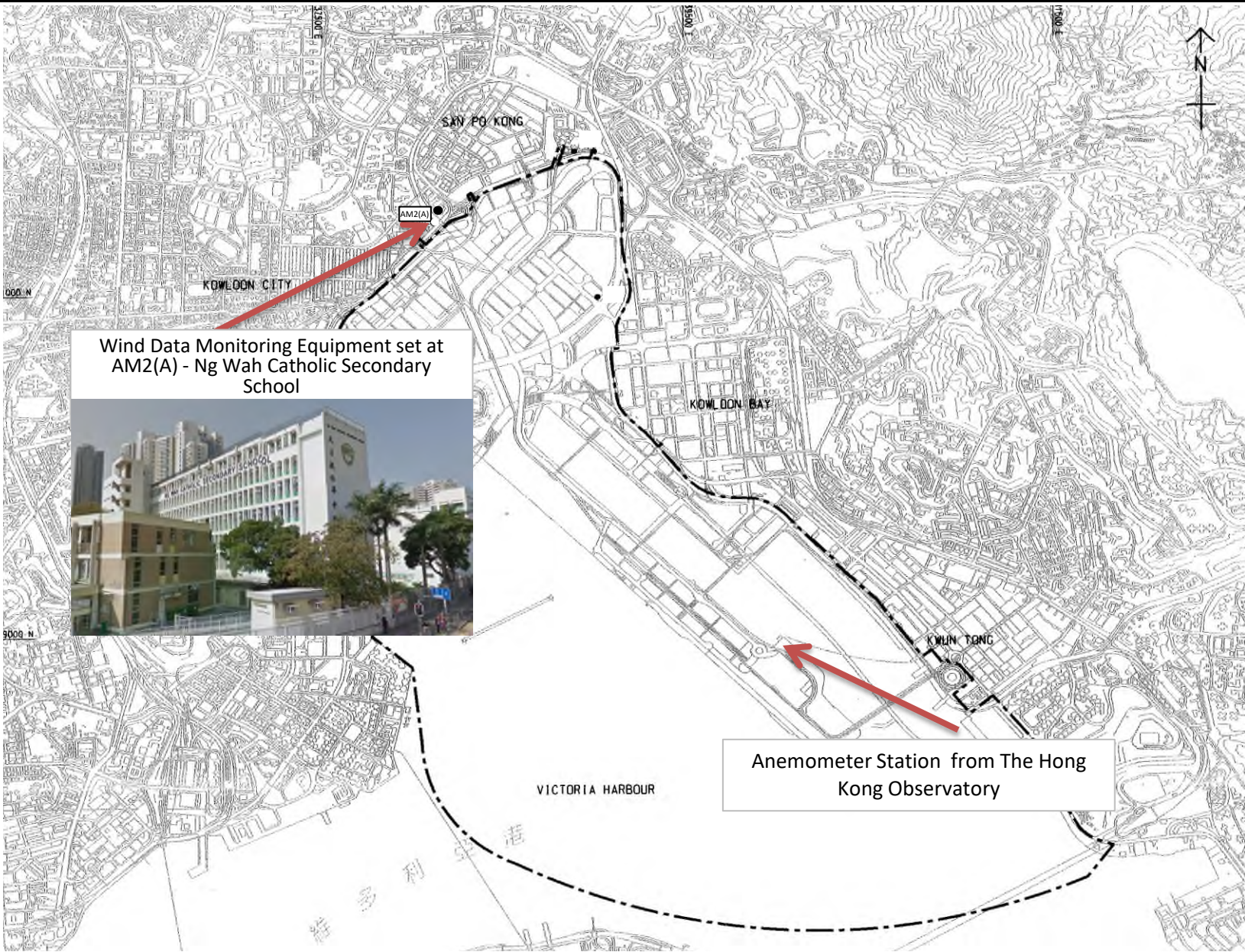
CINOTECH



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



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



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



Anemometer Station from The Hong Kong Observatory

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

Scale	N.T.S	Project No.	MA13043
Date	Aug-17	Figure	4



**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, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM1(C)	342	500
AM2	346	

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

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
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
CERTIFICATES**

TEST REPORT

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

Test Report No.:	C/171020
Date of Issue:	2017-10-23
Date Received:	2017-10-20
Date Tested:	2017-10-20
Date Completed:	2017-10-23
Next Due Date:	2017-12-22

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

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

Test Conditions:

Room Temperature : 20 degree Celsius
 Relative Humidity : 65 %

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The 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)	1.117
-------------------------	-------

PREPARED AND CHECKED BY:

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


PATRICK TSE
 Laboratory Manager

TEST REPORT

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

Test Report No.:	C/171013C
Date of Issue:	2017-10-16
Date Received:	2017-10-13
Date Tested:	2017-10-13
Date Completed:	2017-10-16
Next Due Date:	2017-12-15

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	: 21 degree Celsius
Relative Humidity	: 60 %

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The 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)	1.155
-------------------------	-------

PREPARED AND CHECKED BY:

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



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/171013F
Date of Issue:	2017-10-16
Date Received:	2017-10-13
Date Tested:	2017-10-13
Date Completed:	2017-10-16
Next Due Date:	2017-12-15

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 : 21 degree Celsius
 Relative Humidity : 60 %

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The 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)	1.152
-------------------------	-------

PREPARED AND CHECKED BY:

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


PATRICK TSE
 Laboratory Manager

TEST REPORT

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

Test Report No.:	C/171013H
Date of Issue:	2017-10-16
Date Received:	2017-10-13
Date Tested:	2017-10-13
Date Completed:	2017-10-16
Next Due Date:	2017-12-15

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

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

Test Conditions:

Room Temperature : 21 degree Celsius
Relative Humidity : 60 %

Test Specifications & Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/170915
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 955
Serial No.	: 12553
Microphone No.	: 35222
Equipment No.	: N-08-02

Test conditions:

Room Temperature	: 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

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

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 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

TEST REPORT

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

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

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 60 %

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/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 Temperature	: 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

TEST REPORT

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

Test Report No.:	C/N/170929A
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

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Item for calibration:

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

Test conditions:

Room Temperature	: 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

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 Temperature	: 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

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

Station AM1(C) -Boundary of KTD / File No. MA13043/53/0002
Outside Contractor's site office of Contract SCL 1107 Operator: MH
 Date: 12-Sep-17 Next Due Date: 11-Nov-17
 Equipment No.: A-01-59 Serial No. 1535

Ambient Condition			
Temperature, Ta (K)	303.1	Pressure, Pa (mmHg)	758.7

Orifice Transfer Standard Information					
Serial No.:	0993	Slope, mc (CFM)	0.0578	Intercept, bc	-0.04890
Last Calibration Date:	28-Feb-17	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	27-Feb-18				

Calibration of TSP Sampler					
Calibration Point	Orifice			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	16.7	4.05	70.92	10.2	3.16
2	14.3	3.75	65.69	8.7	2.92
3	10.5	3.21	56.41	6.4	2.51
4	7.0	2.62	46.22	4.2	2.03
5	4.5	2.10	37.22	2.9	1.69

By Linear Regression of Y on X

Slope, mw = 0.0442 Intercept, bw = 0.0165
 Correlation coefficient* = 0.9994

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.75

Remarks: _____

Conducted by: LEE MAN HEZ Signature: Lee Date: 12/9/17
 Checked by: wib. Tang Signature: Kwion Date: 12/9/2017

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13043/53/0003

Project No. AM1(C) -Boundary of KTD/
Outside Contractor's site office of Contract SCL 1107 Operator: MH
 Date: 13-Nov-17 Next Due Date: 12-Jan-18
 Equipment No.: A-01-53 Serial No. 1536

Ambient Condition			
Temperature, Ta (K)	297.6	Pressure, Pa (mmHg)	764.2

Orifice Transfer Standard Information					
Serial No.	0993	Slope, mc	0.0578	Intercept, bc	-0.04890
Last Calibration Date:	28-Feb-17	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Feb-18	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			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	16.3	4.05	70.97	9.8	3.14
2	14.0	3.75	65.83	8.4	2.91
3	10.7	3.28	57.66	6.6	2.58
4	7.0	2.65	46.80	4.3	2.08
5	4.2	2.06	36.44	2.8	1.68

By Linear Regression of Y on X

Slope, mw = 0.0426 Intercept, bw : 0.1139
 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 = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.75

Remarks: _____

Conducted by: Lee Man Yee Signature: Lee Man Yee Date: 13/11/2017
 Checked by: Wk Tang Signature: Wk Tang Date: 13/11/2017

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16043/13/0002

Project No. AM2(A) - Ng Wah Catholic Secondary School Operator: WK
 Date: 25-Sep-17 Next Due Date: 24-Nov-17
 Equipment No.: A-01-13 Serial No. 1352

Ambient Condition			
Temperature, Ta (K)	301.6	Pressure, Pa (mmHg)	759.7

Orifice Transfer Standard Information					
Serial No.:	0993	Slope, mc (CFM)	0.0578	Intercept, bc	-0.04890
Last Calibration Date:	28-Feb-17	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Feb-18	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			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	12.4	3.50	61.42	7.9	2.79
2	10.4	3.20	56.32	6.8	2.59
3	7.8	2.78	48.89	5.2	2.27
4	5.3	2.29	40.45	3.4	1.83
5	3.2	1.78	31.62	2.2	1.47

By Linear Regression of Y on X

Slope, mw = 0.0451 Intercept, bw : 0.0389
 Correlation coefficient* = 0.9992

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

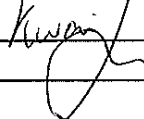
From the TSP Field Calibration Curve, take Qstd = 43 CFM

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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.96

Remarks: _____

Conducted by: WK Tang Signature:  Date: 25/9/2017
 Checked by: LA Signature: _____ Date: 25 September 2017

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/13/0003

Station AM2(A) - Ng Wah Catholic Secondary School Operator: WK
 Date: 23-Nov-17 Next Due Date: 22-Jan-18
 Equipment No.: A-01-13 Serial No. 1352

Ambient Condition			
Temperature, Ta (K)	289	Pressure, Pa (mmHg)	769.1

Orifice Transfer Standard Information					
Serial No.	0993	Slope, mc	0.0578	Intercept, bc	-0.04890
Last Calibration Date:	28-Feb-17	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Feb-18	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			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	3.63	63.61	8.2	2.93
2	10.8	3.36	58.95	6.9	2.68
3	7.7	2.83	49.91	5.0	2.28
4	5.1	2.31	40.78	3.4	1.88
5	3.2	1.83	32.48	2.1	1.48

By Linear Regression of Y on X

Slope, mw = 0.0458 Intercept, bw : 0.0012

Correlation coefficient* = 0.9997

*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 x Qstd + bw)² x (760 / Pa) x (Ta / 298) = 3.72

Remarks: _____

Conducted by: Wk Tang Signature: _____
 Checked by: [Signature] Signature: _____

Date: 23/11/2017
 Date: 23 November 2017



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE
 VILLAGE OF CLEVELAND, OH
 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Feb 28, 2017 Rootsmeter S/N 0438320 Ta (K) - 294
 Operator Tisch Orifice I.D. - 0993 Pa (mm) - 750.57

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.3860	3.2	2.00
2	NA	NA	1.00	0.9910	6.4	4.00
3	NA	NA	1.00	0.8840	7.9	5.00
4	NA	NA	1.00	0.8430	8.7	5.50
5	NA	NA	1.00	0.6970	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9967	0.7191	1.4149	0.9957	0.7184	0.8851
0.9925	1.0015	2.0010	0.9915	1.0005	1.2517
0.9904	1.1204	2.2372	0.9894	1.1192	1.3995
0.9894	1.1737	2.3464	0.9884	1.1725	1.4678
0.9842	1.4120	2.8299	0.9832	1.4106	1.7702
Qstd slope (m) = 2.04055			Qa slope (m) = 1.27776		
intercept (b) = -0.04890			intercept (b) = -0.03059		
coefficient (r) = 0.99995			coefficient (r) = 0.99995		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

For subsequent flow rate calculations:

Qstd = 1/m{ [SQRT(H2O(Pa/760) (298/Ta))] - b}
 Qa = 1/m{ [SQRT H2O(Ta/Pa)] - b}

TEST REPORT

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

Test Report No.:	C/W/160727
Date of Issue:	2017-07-28
Date Received:	2017-07-27
Date Tested:	2017-07-27
Date Completed:	2017-07-28
Next Due Date:	2018-01-27

ATTN: Mr. W.K. Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

Description	: Weather Stations, Vantage Pro2
Manufacturer	: Davis Instruments
Model No.	: 6152
Serial No.	: AR160809018

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 55 %

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

TEST REPORT

Test Report No.:	C/W/160727
Date of Issue:	2017-07-28
Date Received:	2017-07-27
Date Tested:	2017-07-27
Date Completed:	2017-07-28
Next Due Date:	2018-01-27

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
135.1	135	0.1
180	180	0
225	225	0
270.2	270	0.2
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 November 2017	20.5 - 26.4	66	0
2 November 2017	20.9 - 27.8	67	0
3 November 2017	22.0 - 27.6	63	0
4 November 2017	20.7 - 25.8	58	0.3
5 November 2017	20.3 - 25.6	64	Trace
6 November 2017	21.3 - 25.8	68	Trace
7 November 2017	21.8 - 26.0	75	0.3
8 November 2017	23.1 - 27.3	78	Trace
9 November 2017	22.8 - 26.8	74	Trace
10 November 2017	22.9 - 28.4	74	0
11 November 2017	23.4 - 26.5	78	0
12 November 2017	21.1 - 23.5	87	14.7
13 November 2017	21.5 - 22.7	91	12.5
14 November 2017	22.0 - 24.0	88	0.2
15 November 2017	22.6 - 23.9	84	0
16 November 2017	22.2 - 26.2	81	0
17 November 2017	22.9 - 26.2	84	0
18 November 2017	20.1 - 26.5	83	1.9
19 November 2017	19.4 - 20.2	84	1

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

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
20 November 2017	17.9 - 20.3	78	0
21 November 2017	17.5 - 21.4	77	0
22 November 2017	17.3 - 22.9	70	0
23 November 2017	15.5 - 20.3	64	0
24 November 2017	16.5 - 20.8	65	0
25 November 2017	16.9 - 19.1	73	0
26 November 2017	18.1 - 22.4	73	0
27 November 2017	18.5 - 22.1	78	Trace
28 November 2017	20.6 - 24.6	79	Trace
29 November 2017	21.6 - 26.4	82	0
30 November 2017	21.8 - 23.2	90	0.3

* 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-Nov-2017	00:00	1.9	W
1-Nov-2017	01:00	1.8	W
1-Nov-2017	02:00	1.6	W
1-Nov-2017	03:00	1.6	W
1-Nov-2017	04:00	1.8	W
1-Nov-2017	05:00	1.4	S
1-Nov-2017	06:00	1.4	S
1-Nov-2017	07:00	1.5	S
1-Nov-2017	08:00	1.6	W
1-Nov-2017	09:00	1.9	SW
1-Nov-2017	10:00	2.2	S
1-Nov-2017	11:00	2.6	SW
1-Nov-2017	12:00	3	WSW
1-Nov-2017	13:00	2.9	SSW
1-Nov-2017	14:00	2.9	SSW
1-Nov-2017	15:00	2.9	WNW
1-Nov-2017	16:00	2.7	S
1-Nov-2017	17:00	2.5	W
1-Nov-2017	18:00	2	WNW
1-Nov-2017	19:00	1.9	N
1-Nov-2017	20:00	1.8	NE
1-Nov-2017	21:00	1.8	NNE
1-Nov-2017	22:00	1.9	NE
1-Nov-2017	23:00	1.8	ENE
2-Nov-2017	00:00	1.7	ENE
2-Nov-2017	01:00	1.7	SW
2-Nov-2017	02:00	1.8	SW
2-Nov-2017	03:00	1.6	S
2-Nov-2017	04:00	1.7	SSE
2-Nov-2017	05:00	1.7	ESE
2-Nov-2017	06:00	1.5	SW
2-Nov-2017	07:00	1.5	SW
2-Nov-2017	08:00	1.4	WSW
2-Nov-2017	09:00	1.7	W
2-Nov-2017	10:00	2	WSW
2-Nov-2017	11:00	2.6	SW
2-Nov-2017	12:00	2.7	E

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

II. Mean Wind Speed and Wind Direction

2-Nov-2017	13:00	2.6	SE
2-Nov-2017	14:00	2.8	SSE
2-Nov-2017	15:00	2.6	N
2-Nov-2017	16:00	2.5	ENE
2-Nov-2017	17:00	2.1	NE
2-Nov-2017	18:00	2.2	NE
2-Nov-2017	19:00	1.9	NE
2-Nov-2017	20:00	1.8	ENE
2-Nov-2017	21:00	2.2	ENE
2-Nov-2017	22:00	2.2	ENE
2-Nov-2017	23:00	2.2	SSW
3-Nov-2017	00:00	2.1	WSW
3-Nov-2017	01:00	2.2	SW
3-Nov-2017	02:00	2.1	SW
3-Nov-2017	03:00	2.1	SSW
3-Nov-2017	04:00	2.3	SSW
3-Nov-2017	05:00	2.1	SSW
3-Nov-2017	06:00	1.8	SSW
3-Nov-2017	07:00	2	NE
3-Nov-2017	08:00	1.8	ENE
3-Nov-2017	09:00	1.8	ENE
3-Nov-2017	10:00	2.2	NNE
3-Nov-2017	11:00	2.1	N
3-Nov-2017	12:00	2.3	NE
3-Nov-2017	13:00	2.6	ENE
3-Nov-2017	14:00	2.5	N
3-Nov-2017	15:00	2.7	ENE
3-Nov-2017	16:00	2.6	NE
3-Nov-2017	17:00	2.2	NNE
3-Nov-2017	18:00	2.3	NNE
3-Nov-2017	19:00	2.1	NNE
3-Nov-2017	20:00	1.7	ENE
3-Nov-2017	21:00	1.7	NE
3-Nov-2017	22:00	1.8	NNE
3-Nov-2017	23:00	1.7	NNE
4-Nov-2017	00:00	2.1	N
4-Nov-2017	01:00	2.3	NNE
4-Nov-2017	02:00	1.9	N

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

II. Mean Wind Speed and Wind Direction

4-Nov-2017	03:00	1.9	NNE
4-Nov-2017	04:00	1.9	NNE
4-Nov-2017	05:00	1.9	NNE
4-Nov-2017	06:00	1.9	NNE
4-Nov-2017	07:00	1.9	NNE
4-Nov-2017	08:00	2.5	NE
4-Nov-2017	09:00	2.6	NNE
4-Nov-2017	10:00	2.7	ENE
4-Nov-2017	11:00	3.2	WNW
4-Nov-2017	12:00	3.2	NE
4-Nov-2017	13:00	3.5	NE
4-Nov-2017	14:00	3.3	NE
4-Nov-2017	15:00	3.5	ENE
4-Nov-2017	16:00	2.9	ENE
4-Nov-2017	17:00	2.6	ENE
4-Nov-2017	18:00	2.3	NE
4-Nov-2017	19:00	1.8	NE
4-Nov-2017	20:00	1.8	NE
4-Nov-2017	21:00	1.5	NNE
4-Nov-2017	22:00	2.1	NNE
4-Nov-2017	23:00	2	NE
5-Nov-2017	00:00	2	NNE
5-Nov-2017	01:00	2.1	NE
5-Nov-2017	02:00	2.1	NNE
5-Nov-2017	03:00	2.2	NE
5-Nov-2017	04:00	2.4	NNE
5-Nov-2017	05:00	2.1	NNE
5-Nov-2017	06:00	1.9	NNE
5-Nov-2017	07:00	2	NNE
5-Nov-2017	08:00	2.1	NNE
5-Nov-2017	09:00	2.7	NNE
5-Nov-2017	10:00	2.9	ENE
5-Nov-2017	11:00	2.8	NE
5-Nov-2017	12:00	3	ENE
5-Nov-2017	13:00	3.2	NE
5-Nov-2017	14:00	3.2	NE
5-Nov-2017	15:00	3.2	NE
5-Nov-2017	16:00	3.2	ENE

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

II. Mean Wind Speed and Wind Direction

5-Nov-2017	17:00	3	ENE
5-Nov-2017	18:00	2.8	E
5-Nov-2017	19:00	2.5	NE
5-Nov-2017	20:00	2.7	ENE
5-Nov-2017	21:00	2.6	NE
5-Nov-2017	22:00	2.5	NE
5-Nov-2017	23:00	2.3	N
6-Nov-2017	00:00	2.4	ENE
6-Nov-2017	01:00	2.3	ENE
6-Nov-2017	02:00	2.2	ESE
6-Nov-2017	03:00	2.4	SSE
6-Nov-2017	04:00	2.4	ESE
6-Nov-2017	05:00	2.1	E
6-Nov-2017	06:00	2.1	E
6-Nov-2017	07:00	2.1	ESE
6-Nov-2017	08:00	2.2	E
6-Nov-2017	09:00	2.3	E
6-Nov-2017	10:00	2.3	NNE
6-Nov-2017	11:00	2.9	NE
6-Nov-2017	12:00	2.9	ENE
6-Nov-2017	13:00	3.1	E
6-Nov-2017	14:00	2.7	ENE
6-Nov-2017	15:00	2.6	ENE
6-Nov-2017	16:00	2.8	E
6-Nov-2017	17:00	2.6	NNE
6-Nov-2017	18:00	2.3	SSE
6-Nov-2017	19:00	2.2	SSE
6-Nov-2017	20:00	2.3	NE
6-Nov-2017	21:00	1.9	ENE
6-Nov-2017	22:00	2.1	ENE
6-Nov-2017	23:00	2	NE
7-Nov-2017	00:00	2	ENE
7-Nov-2017	01:00	2.2	ENE
7-Nov-2017	02:00	2	SSE
7-Nov-2017	03:00	1.9	ESE
7-Nov-2017	04:00	1.7	ENE
7-Nov-2017	05:00	1.7	ENE
7-Nov-2017	06:00	1.6	ENE

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

II. Mean Wind Speed and Wind Direction

7-Nov-2017	07:00	1.7	ENE
7-Nov-2017	08:00	1.8	ENE
7-Nov-2017	09:00	2.3	ENE
7-Nov-2017	10:00	2.2	NE
7-Nov-2017	11:00	2.2	ENE
7-Nov-2017	12:00	2.3	ENE
7-Nov-2017	13:00	2.1	ENE
7-Nov-2017	14:00	2	ENE
7-Nov-2017	15:00	2.1	ENE
7-Nov-2017	16:00	2	ENE
7-Nov-2017	17:00	2	SSW
7-Nov-2017	18:00	2	SSW
7-Nov-2017	19:00	1.9	SSW
7-Nov-2017	20:00	1.5	SSW
7-Nov-2017	21:00	1.4	N
7-Nov-2017	22:00	1.3	N
7-Nov-2017	23:00	1.3	SW
8-Nov-2017	00:00	1.2	W
8-Nov-2017	01:00	1.3	WSW
8-Nov-2017	02:00	1.4	NNW
8-Nov-2017	03:00	1.4	NW
8-Nov-2017	04:00	1.4	N
8-Nov-2017	05:00	1.5	SW
8-Nov-2017	06:00	1.6	SW
8-Nov-2017	07:00	1.8	SW
8-Nov-2017	08:00	1.9	SW
8-Nov-2017	09:00	2.1	NE
8-Nov-2017	10:00	2.7	SW
8-Nov-2017	11:00	2.8	SW
8-Nov-2017	12:00	2.7	SE
8-Nov-2017	13:00	2.7	SSE
8-Nov-2017	14:00	2.7	E
8-Nov-2017	15:00	2.9	SSW
8-Nov-2017	16:00	2.5	NE
8-Nov-2017	17:00	2.5	WSW
8-Nov-2017	18:00	2.1	WNW
8-Nov-2017	19:00	1.9	W
8-Nov-2017	20:00	1.9	NNE

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

II. Mean Wind Speed and Wind Direction

8-Nov-2017	21:00	2	SSW
8-Nov-2017	22:00	1.7	WNW
8-Nov-2017	23:00	1.5	ENE
9-Nov-2017	00:00	1.5	N
9-Nov-2017	01:00	1.7	ENE
9-Nov-2017	02:00	1.6	ENE
9-Nov-2017	03:00	1.6	SSE
9-Nov-2017	04:00	1.4	WNW
9-Nov-2017	05:00	1.4	NNE
9-Nov-2017	06:00	1.3	WNW
9-Nov-2017	07:00	1.4	N
9-Nov-2017	08:00	1.8	WNW
9-Nov-2017	09:00	2.3	SW
9-Nov-2017	10:00	2.7	SW
9-Nov-2017	11:00	2.9	WNW
9-Nov-2017	12:00	2.9	WNW
9-Nov-2017	13:00	2.7	N
9-Nov-2017	14:00	2.3	NNE
9-Nov-2017	15:00	2.4	SE
9-Nov-2017	16:00	2.3	SE
9-Nov-2017	17:00	2.3	SSW
9-Nov-2017	18:00	1.9	ESE
9-Nov-2017	19:00	1.5	SW
9-Nov-2017	20:00	1.2	SSW
9-Nov-2017	21:00	1.2	ENE
9-Nov-2017	22:00	1.2	E
9-Nov-2017	23:00	1.2	NW
10-Nov-2017	00:00	1.1	E
10-Nov-2017	01:00	1.2	WSW
10-Nov-2017	02:00	1.1	WNW
10-Nov-2017	03:00	1.2	WNW
10-Nov-2017	04:00	1.1	SSE
10-Nov-2017	05:00	1	WSW
10-Nov-2017	06:00	1.1	NE
10-Nov-2017	07:00	1.1	WNW
10-Nov-2017	08:00	1.1	ENE
10-Nov-2017	09:00	1.7	SW
10-Nov-2017	10:00	2.1	SSE

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

II. Mean Wind Speed and Wind Direction

10-Nov-2017	11:00	2.6	WNW
10-Nov-2017	12:00	2.9	ENE
10-Nov-2017	13:00	3.1	ENE
10-Nov-2017	14:00	2.8	ENE
10-Nov-2017	15:00	2.7	NE
10-Nov-2017	16:00	2.8	NNE
10-Nov-2017	17:00	3	NE
10-Nov-2017	18:00	2	ENE
10-Nov-2017	19:00	1.7	ENE
10-Nov-2017	20:00	2	ENE
10-Nov-2017	21:00	1.8	ENE
10-Nov-2017	22:00	2.5	NE
10-Nov-2017	23:00	1.7	NE
11-Nov-2017	00:00	2.4	NNE
11-Nov-2017	01:00	1.6	ENE
11-Nov-2017	02:00	1.9	NNE
11-Nov-2017	03:00	1.8	NNE
11-Nov-2017	04:00	1.7	NNE
11-Nov-2017	05:00	1.7	S
11-Nov-2017	06:00	1.8	SSW
11-Nov-2017	07:00	1.5	NW
11-Nov-2017	08:00	1.5	SSE
11-Nov-2017	09:00	1.9	N
11-Nov-2017	10:00	2.4	W
11-Nov-2017	11:00	2.6	NNE
11-Nov-2017	12:00	2.9	SSW
11-Nov-2017	13:00	2.9	SSW
11-Nov-2017	14:00	2.7	WNW
11-Nov-2017	15:00	2.7	N
11-Nov-2017	16:00	2.6	ENE
11-Nov-2017	17:00	2.2	SW
11-Nov-2017	18:00	1.6	WNW
11-Nov-2017	19:00	1.4	ENE
11-Nov-2017	20:00	1.6	ENE
11-Nov-2017	21:00	1.5	E
11-Nov-2017	22:00	1.6	SSE
11-Nov-2017	23:00	1.5	ENE
12-Nov-2017	00:00	1.5	ENE

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

II. Mean Wind Speed and Wind Direction

12-Nov-2017	01:00	1.3	NE
12-Nov-2017	02:00	1.4	S
12-Nov-2017	03:00	1.5	SE
12-Nov-2017	04:00	1.6	SW
12-Nov-2017	05:00	1.6	N
12-Nov-2017	06:00	1.4	SW
12-Nov-2017	07:00	1.6	W
12-Nov-2017	08:00	1.9	WSW
12-Nov-2017	09:00	2.3	SSE
12-Nov-2017	10:00	2.5	W
12-Nov-2017	11:00	2.7	WSW
12-Nov-2017	12:00	3.1	W
12-Nov-2017	13:00	3	WNW
12-Nov-2017	14:00	3.2	SW
12-Nov-2017	15:00	3	SW
12-Nov-2017	16:00	3	W
12-Nov-2017	17:00	2.5	W
12-Nov-2017	18:00	2.3	ENE
12-Nov-2017	19:00	2.1	ENE
12-Nov-2017	20:00	1.7	ENE
12-Nov-2017	21:00	1.5	ENE
12-Nov-2017	22:00	1.7	W
12-Nov-2017	23:00	1.9	W
13-Nov-2017	00:00	1.6	ENE
13-Nov-2017	01:00	1.7	ENE
13-Nov-2017	02:00	1.5	SW
13-Nov-2017	03:00	1.5	ESE
13-Nov-2017	04:00	1.7	SSW
13-Nov-2017	05:00	1.4	WSW
13-Nov-2017	06:00	1.6	W
13-Nov-2017	07:00	1.6	ENE
13-Nov-2017	08:00	1.7	WSW
13-Nov-2017	09:00	1.9	WSW
13-Nov-2017	10:00	2.3	W
13-Nov-2017	11:00	2.4	WSW
13-Nov-2017	12:00	2.9	WSW
13-Nov-2017	13:00	3	SW
13-Nov-2017	14:00	2.8	W

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

II. Mean Wind Speed and Wind Direction

13-Nov-2017	15:00	2.7	W
13-Nov-2017	16:00	2.4	W
13-Nov-2017	17:00	2.4	NE
13-Nov-2017	18:00	2.1	ENE
13-Nov-2017	19:00	1.7	WNW
13-Nov-2017	20:00	1.5	SE
13-Nov-2017	21:00	1.4	SE
13-Nov-2017	22:00	1.3	ESE
13-Nov-2017	23:00	1.7	S
14-Nov-2017	00:00	1.5	SSW
14-Nov-2017	01:00	1.6	W
14-Nov-2017	02:00	1.6	W
14-Nov-2017	03:00	1.8	WNW
14-Nov-2017	04:00	1.4	SW
14-Nov-2017	05:00	1.3	SW
14-Nov-2017	06:00	1.5	WSW
14-Nov-2017	07:00	1.4	SW
14-Nov-2017	08:00	1.7	SW
14-Nov-2017	09:00	2.1	W
14-Nov-2017	10:00	2.4	WSW
14-Nov-2017	11:00	2.7	WNW
14-Nov-2017	12:00	2.7	WNW
14-Nov-2017	13:00	2.9	WSW
14-Nov-2017	14:00	2.6	SW
14-Nov-2017	15:00	2.5	SW
14-Nov-2017	16:00	2.3	SW
14-Nov-2017	17:00	2.2	WSW
14-Nov-2017	18:00	2.3	WSW
14-Nov-2017	19:00	2.4	SW
14-Nov-2017	20:00	2.2	SSE
14-Nov-2017	21:00	2.3	SSE
14-Nov-2017	22:00	2.2	NNE
14-Nov-2017	23:00	2	NNE
15-Nov-2017	00:00	2	NNE
15-Nov-2017	01:00	1.9	ENE
15-Nov-2017	02:00	1.9	ENE
15-Nov-2017	03:00	1.9	ENE
15-Nov-2017	04:00	2	E

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

II. Mean Wind Speed and Wind Direction

15-Nov-2017	05:00	2.1	NE
15-Nov-2017	06:00	2.2	NE
15-Nov-2017	07:00	2.3	ENE
15-Nov-2017	08:00	2.4	ENE
15-Nov-2017	09:00	2.6	ENE
15-Nov-2017	10:00	2.4	NNE
15-Nov-2017	11:00	2.5	ESE
15-Nov-2017	12:00	2.4	ENE
15-Nov-2017	13:00	2.6	NE
15-Nov-2017	14:00	2.5	ENE
15-Nov-2017	15:00	2.5	ENE
15-Nov-2017	16:00	2.2	SW
15-Nov-2017	17:00	2.1	WSW
15-Nov-2017	18:00	2.3	SW
15-Nov-2017	19:00	2	SE
15-Nov-2017	20:00	2	ESE
15-Nov-2017	21:00	2	ESE
15-Nov-2017	22:00	1.9	ESE
15-Nov-2017	23:00	1.9	ENE
16-Nov-2017	00:00	2.1	NE
16-Nov-2017	01:00	2	N
16-Nov-2017	02:00	2	ENE
16-Nov-2017	03:00	1.7	ENE
16-Nov-2017	04:00	1.8	ENE
16-Nov-2017	05:00	1.9	NE
16-Nov-2017	06:00	1.4	NE
16-Nov-2017	07:00	1.8	NE
16-Nov-2017	08:00	1.8	ENE
16-Nov-2017	09:00	1.9	NNE
16-Nov-2017	10:00	2.1	NNE
16-Nov-2017	11:00	2.5	NNE
16-Nov-2017	12:00	2.8	NNE
16-Nov-2017	13:00	2.9	NE
16-Nov-2017	14:00	2.6	NE
16-Nov-2017	15:00	2.9	NE
16-Nov-2017	16:00	2.4	ENE
16-Nov-2017	17:00	2.3	ENE
16-Nov-2017	18:00	2.5	ENE

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

II. Mean Wind Speed and Wind Direction

16-Nov-2017	19:00	2.3	SE
16-Nov-2017	20:00	1.6	NE
16-Nov-2017	21:00	1.8	NE
16-Nov-2017	22:00	1.5	ESE
16-Nov-2017	23:00	1.4	S
17-Nov-2017	00:00	1.7	NE
17-Nov-2017	01:00	1.7	N
17-Nov-2017	02:00	1.6	SSE
17-Nov-2017	03:00	1.8	NNE
17-Nov-2017	04:00	1.2	ENE
17-Nov-2017	05:00	1.4	NNE
17-Nov-2017	06:00	2.1	SSE
17-Nov-2017	07:00	1.5	NE
17-Nov-2017	08:00	1.4	NW
17-Nov-2017	09:00	1.7	WNW
17-Nov-2017	10:00	1.9	WNW
17-Nov-2017	11:00	2.6	W
17-Nov-2017	12:00	2.7	ESE
17-Nov-2017	13:00	2.5	ESE
17-Nov-2017	14:00	2.5	SE
17-Nov-2017	15:00	2.4	SSE
17-Nov-2017	16:00	3	WNW
17-Nov-2017	17:00	2	WSW
17-Nov-2017	18:00	2.1	SW
17-Nov-2017	19:00	1.9	SW
17-Nov-2017	20:00	1.5	WSW
17-Nov-2017	21:00	1.4	WNW
17-Nov-2017	22:00	1.4	WNW
17-Nov-2017	23:00	1.4	ENE
18-Nov-2017	00:00	1.3	SSW
18-Nov-2017	01:00	1.6	W
18-Nov-2017	02:00	1.4	SSE
18-Nov-2017	03:00	1.4	SSE
18-Nov-2017	04:00	1.5	WNW
18-Nov-2017	05:00	1.8	NNW
18-Nov-2017	06:00	1.5	NNW
18-Nov-2017	07:00	1.5	SSE
18-Nov-2017	08:00	1.9	SSE

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

II. Mean Wind Speed and Wind Direction

18-Nov-2017	09:00	2.5	SE
18-Nov-2017	10:00	3.2	NNE
18-Nov-2017	11:00	3.2	NNE
18-Nov-2017	12:00	3.3	NNE
18-Nov-2017	13:00	3.5	NNE
18-Nov-2017	14:00	3.4	SE
18-Nov-2017	15:00	3.6	SE
18-Nov-2017	16:00	3.4	SE
18-Nov-2017	17:00	2.9	SSE
18-Nov-2017	18:00	2.7	SSE
18-Nov-2017	19:00	2.6	ESE
18-Nov-2017	20:00	2.4	E
18-Nov-2017	21:00	2.3	ENE
18-Nov-2017	22:00	2.5	NE
18-Nov-2017	23:00	2.4	ENE
19-Nov-2017	00:00	2.6	SW
19-Nov-2017	01:00	2.5	SW
19-Nov-2017	02:00	2.6	WNW
19-Nov-2017	03:00	2.4	W
19-Nov-2017	04:00	2	NNE
19-Nov-2017	05:00	2.3	NE
19-Nov-2017	06:00	2	NE
19-Nov-2017	07:00	1.8	N
19-Nov-2017	08:00	2.3	NE
19-Nov-2017	09:00	2.6	SSE
19-Nov-2017	10:00	2.6	ENE
19-Nov-2017	11:00	2.9	NNE
19-Nov-2017	12:00	3.1	NNE
19-Nov-2017	13:00	2.9	ESE
19-Nov-2017	14:00	2.6	ESE
19-Nov-2017	15:00	3.1	N
19-Nov-2017	16:00	2.9	N
19-Nov-2017	17:00	2.6	E
19-Nov-2017	18:00	2.2	SE
19-Nov-2017	19:00	1.6	SE
19-Nov-2017	20:00	1.5	SE
19-Nov-2017	21:00	1.1	ESE
19-Nov-2017	22:00	1.8	ESE

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

II. Mean Wind Speed and Wind Direction

19-Nov-2017	23:00	1.6	ESE
20-Nov-2017	00:00	1.6	ESE
20-Nov-2017	01:00	1.5	ESE
20-Nov-2017	02:00	1.5	ESE
20-Nov-2017	03:00	1.5	ESE
20-Nov-2017	04:00	1.5	NE
20-Nov-2017	05:00	1.6	SE
20-Nov-2017	06:00	1.7	ESE
20-Nov-2017	07:00	1.4	NNE
20-Nov-2017	08:00	1.3	NNE
20-Nov-2017	09:00	1.9	ENE
20-Nov-2017	10:00	1.9	W
20-Nov-2017	11:00	2	SSW
20-Nov-2017	12:00	2.1	SW
20-Nov-2017	13:00	2.3	NW
20-Nov-2017	14:00	2.3	S
20-Nov-2017	15:00	2.4	S
20-Nov-2017	16:00	2.3	WSW
20-Nov-2017	17:00	2.2	NNW
20-Nov-2017	18:00	1.5	ESE
20-Nov-2017	19:00	1.5	SSW
20-Nov-2017	20:00	1.5	NE
20-Nov-2017	21:00	1.7	NE
20-Nov-2017	22:00	1.7	NE
20-Nov-2017	23:00	2.1	NE
21-Nov-2017	00:00	1.4	SE
21-Nov-2017	01:00	1.3	ENE
21-Nov-2017	02:00	1.4	SW
21-Nov-2017	03:00	1.6	SW
21-Nov-2017	04:00	1.4	NNE
21-Nov-2017	05:00	1.9	NNE
21-Nov-2017	06:00	1.5	SE
21-Nov-2017	07:00	1.3	E
21-Nov-2017	08:00	1.3	ESE
21-Nov-2017	09:00	1.6	ESE
21-Nov-2017	10:00	2	NE
21-Nov-2017	11:00	2.2	E
21-Nov-2017	12:00	2.2	ESE

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

II. Mean Wind Speed and Wind Direction

21-Nov-2017	13:00	2.4	NE
21-Nov-2017	14:00	2.3	E
21-Nov-2017	15:00	1.8	E
21-Nov-2017	16:00	2	E
21-Nov-2017	17:00	2.1	ESE
21-Nov-2017	18:00	2.1	SE
21-Nov-2017	19:00	1.9	ENE
21-Nov-2017	20:00	1.8	E
21-Nov-2017	21:00	2	NE
21-Nov-2017	22:00	1.8	NE
21-Nov-2017	23:00	2	ENE
22-Nov-2017	00:00	1.9	N
22-Nov-2017	01:00	1.4	ESE
22-Nov-2017	02:00	1.4	SSE
22-Nov-2017	03:00	1.4	SSE
22-Nov-2017	04:00	1.5	SE
22-Nov-2017	05:00	1.2	SE
22-Nov-2017	06:00	1.5	SE
22-Nov-2017	07:00	1.4	SE
22-Nov-2017	08:00	2	ESE
22-Nov-2017	09:00	1.9	ESE
22-Nov-2017	10:00	2.1	SE
22-Nov-2017	11:00	2.3	SE
22-Nov-2017	12:00	2.4	ESE
22-Nov-2017	13:00	2.4	ESE
22-Nov-2017	14:00	2.3	ESE
22-Nov-2017	15:00	2.5	ESE
22-Nov-2017	16:00	2.5	SSE
22-Nov-2017	17:00	2.4	SSE
22-Nov-2017	18:00	2.1	SSE
22-Nov-2017	19:00	2	E
22-Nov-2017	20:00	1.9	ENE
22-Nov-2017	21:00	1.9	ESE
22-Nov-2017	22:00	1.4	SSE
22-Nov-2017	23:00	1.6	ESE
23-Nov-2017	00:00	1.6	ESE
23-Nov-2017	01:00	1.3	ESE
23-Nov-2017	02:00	1.3	ESE

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

II. Mean Wind Speed and Wind Direction

23-Nov-2017	03:00	1.4	NE
23-Nov-2017	04:00	1.1	E
23-Nov-2017	05:00	1.1	NNE
23-Nov-2017	06:00	1.2	NNE
23-Nov-2017	07:00	1.2	NE
23-Nov-2017	08:00	1.4	NE
23-Nov-2017	09:00	1.7	ENE
23-Nov-2017	10:00	2.1	SSE
23-Nov-2017	11:00	2.3	ENE
23-Nov-2017	12:00	2.3	ESE
23-Nov-2017	13:00	2.4	SE
23-Nov-2017	14:00	2.3	ENE
23-Nov-2017	15:00	2.5	ENE
23-Nov-2017	16:00	2.5	NNE
23-Nov-2017	17:00	2.1	W
23-Nov-2017	18:00	1.9	NE
23-Nov-2017	19:00	1.9	SSW
23-Nov-2017	20:00	1.7	W
23-Nov-2017	21:00	1.5	NNE
23-Nov-2017	22:00	1.5	SSE
23-Nov-2017	23:00	1.4	NNE
24-Nov-2017	00:00	1.3	NNE
24-Nov-2017	01:00	1.4	NE
24-Nov-2017	02:00	1.5	NNE
24-Nov-2017	03:00	1.5	ENE
24-Nov-2017	04:00	1.5	ENE
24-Nov-2017	05:00	1.7	SE
24-Nov-2017	06:00	1.6	W
24-Nov-2017	07:00	1.4	NE
24-Nov-2017	08:00	1.8	NE
24-Nov-2017	09:00	2.1	NE
24-Nov-2017	10:00	2.4	NE
24-Nov-2017	11:00	2.5	ENE
24-Nov-2017	12:00	2.3	N
24-Nov-2017	13:00	2.6	ESE
24-Nov-2017	14:00	2.5	ESE
24-Nov-2017	15:00	2.5	SSE
24-Nov-2017	16:00	2.5	W

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

II. Mean Wind Speed and Wind Direction

24-Nov-2017	17:00	2.5	ENE
24-Nov-2017	18:00	2	ENE
24-Nov-2017	19:00	1.7	SSE
24-Nov-2017	20:00	1.6	ENE
24-Nov-2017	21:00	2	ENE
24-Nov-2017	22:00	1.9	NE
24-Nov-2017	23:00	1.8	ESE
25-Nov-2017	00:00	1.8	ENE
25-Nov-2017	01:00	1.7	E
25-Nov-2017	02:00	1.5	E
25-Nov-2017	03:00	1.6	SE
25-Nov-2017	04:00	1.5	SSE
25-Nov-2017	05:00	1.5	E
25-Nov-2017	06:00	1.6	ESE
25-Nov-2017	07:00	1.5	SE
25-Nov-2017	08:00	1.5	ENE
25-Nov-2017	09:00	1.8	SSE
25-Nov-2017	10:00	1.9	SSE
25-Nov-2017	11:00	2.3	ENE
25-Nov-2017	12:00	2.1	SSE
25-Nov-2017	13:00	2.2	SE
25-Nov-2017	14:00	2.4	S
25-Nov-2017	15:00	2.3	SE
25-Nov-2017	16:00	2.3	SSE
25-Nov-2017	17:00	1.9	S
25-Nov-2017	18:00	1.7	ESE
25-Nov-2017	19:00	1.7	ENE
25-Nov-2017	20:00	1.5	SE
25-Nov-2017	21:00	1.5	SSE
25-Nov-2017	22:00	1.5	ESE
25-Nov-2017	23:00	1.5	E
26-Nov-2017	00:00	1.4	SSE
26-Nov-2017	01:00	1.4	SE
26-Nov-2017	02:00	1.6	ESE
26-Nov-2017	03:00	1.7	ENE
26-Nov-2017	04:00	1.1	S
26-Nov-2017	05:00	1	ESE
26-Nov-2017	06:00	1.1	SE

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

II. Mean Wind Speed and Wind Direction

26-Nov-2017	07:00	1.5	SE
26-Nov-2017	08:00	1.5	SSE
26-Nov-2017	09:00	1.7	SE
26-Nov-2017	10:00	1.7	SSE
26-Nov-2017	11:00	2.3	ENE
26-Nov-2017	12:00	2.4	NNE
26-Nov-2017	13:00	2.5	ESE
26-Nov-2017	14:00	2.4	S
26-Nov-2017	15:00	2.2	NNW
26-Nov-2017	16:00	2.2	NNW
26-Nov-2017	17:00	1.9	SE
26-Nov-2017	18:00	1.5	NNE
26-Nov-2017	19:00	1.5	ENE
26-Nov-2017	20:00	1.3	ENE
26-Nov-2017	21:00	1.7	NE
26-Nov-2017	22:00	1.4	NE
26-Nov-2017	23:00	1.5	SSE
27-Nov-2017	00:00	1.7	SSE
27-Nov-2017	01:00	1.4	SE
27-Nov-2017	02:00	1.4	SSE
27-Nov-2017	03:00	1.2	NNE
27-Nov-2017	04:00	1	ENE
27-Nov-2017	05:00	1.1	ENE
27-Nov-2017	06:00	0.9	E
27-Nov-2017	07:00	1	E
27-Nov-2017	08:00	1.1	NNE
27-Nov-2017	09:00	1.4	NNE
27-Nov-2017	10:00	1.7	NE
27-Nov-2017	11:00	1.6	SE
27-Nov-2017	12:00	1.9	SE
27-Nov-2017	13:00	1.8	ENE
27-Nov-2017	14:00	1.8	NE
27-Nov-2017	15:00	1.7	ENE
27-Nov-2017	16:00	1.4	SE
27-Nov-2017	17:00	1.5	SE
27-Nov-2017	18:00	1.2	N
27-Nov-2017	19:00	1	SW
27-Nov-2017	20:00	1	WSW

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

II. Mean Wind Speed and Wind Direction

27-Nov-2017	21:00	1	E
27-Nov-2017	22:00	0.8	E
27-Nov-2017	23:00	1.2	E
28-Nov-2017	00:00	1.2	ESE
28-Nov-2017	01:00	1.1	SSW
28-Nov-2017	02:00	1.1	SSW
28-Nov-2017	03:00	1	SSW
28-Nov-2017	04:00	1.1	ENE
28-Nov-2017	05:00	1.1	ENE
28-Nov-2017	06:00	1	NE
28-Nov-2017	07:00	1.1	WNW
28-Nov-2017	08:00	1.1	WNW
28-Nov-2017	09:00	1.3	WNW
28-Nov-2017	10:00	1.6	NW
28-Nov-2017	11:00	1.7	SSE
28-Nov-2017	12:00	1.7	ENE
28-Nov-2017	13:00	2.1	SE
28-Nov-2017	14:00	1.6	SE
28-Nov-2017	15:00	2.7	ENE
28-Nov-2017	16:00	2.5	SE
28-Nov-2017	17:00	2.9	ESE
28-Nov-2017	18:00	2.5	SSE
28-Nov-2017	19:00	2	NE
28-Nov-2017	20:00	2.2	ESE
28-Nov-2017	21:00	2.5	SSE
28-Nov-2017	22:00	2.3	WNW
28-Nov-2017	23:00	2.3	SW
29-Nov-2017	00:00	2.4	SW
29-Nov-2017	01:00	2.5	W
29-Nov-2017	02:00	2.5	SSW
29-Nov-2017	03:00	2.4	SW
29-Nov-2017	04:00	2.2	ENE
29-Nov-2017	05:00	3.2	ENE
29-Nov-2017	06:00	2.3	ENE
29-Nov-2017	07:00	2.3	SW
29-Nov-2017	08:00	2.1	W
29-Nov-2017	09:00	2.2	WSW
29-Nov-2017	10:00	3.2	ENE

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

II. Mean Wind Speed and Wind Direction

29-Nov-2017	11:00	3.7	NNE
29-Nov-2017	12:00	2.5	ENE
29-Nov-2017	13:00	2.5	S
29-Nov-2017	14:00	2.4	W
29-Nov-2017	15:00	2.7	NE
29-Nov-2017	16:00	2.6	N
29-Nov-2017	17:00	2.4	WNW
29-Nov-2017	18:00	2.2	WNW
29-Nov-2017	19:00	2.5	WNW
29-Nov-2017	20:00	2.2	S
29-Nov-2017	21:00	2.4	N
29-Nov-2017	22:00	2.7	NNE
29-Nov-2017	23:00	2.1	NE
30-Nov-2017	00:00	2.1	E
30-Nov-2017	01:00	2.2	SSE
30-Nov-2017	02:00	2.3	WNW
30-Nov-2017	03:00	2.1	SW
30-Nov-2017	04:00	2.1	SW
30-Nov-2017	05:00	1.6	W
30-Nov-2017	06:00	1.2	SSW
30-Nov-2017	07:00	1	WSW
30-Nov-2017	08:00	1.4	W
30-Nov-2017	09:00	1.4	SW
30-Nov-2017	10:00	1.5	W
30-Nov-2017	11:00	1.4	WSW
30-Nov-2017	12:00	1.6	WSW
30-Nov-2017	13:00	2.2	NE
30-Nov-2017	14:00	1.4	W
30-Nov-2017	15:00	1.6	ENE
30-Nov-2017	16:00	1.6	SE
30-Nov-2017	17:00	1.6	ESE
30-Nov-2017	18:00	1.2	ESE
30-Nov-2017	19:00	1.8	NE
30-Nov-2017	20:00	2.4	SE
30-Nov-2017	21:00	1	NE
30-Nov-2017	22:00	1.4	SSE
30-Nov-2017	23:00	1.5	SSE

**APPENDIX D
ENVIRONMENTAL MONITORING
SCHEDULES**

Contract No. KL/2012/02
Kai Tak Development - Stage 3A Infrastructure at Former North Apron Area
Tentative Impact Air and Noise Monitoring Schedule for November 2017

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

Noise Monitoring Station

M3 - Cognito 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 December 2017

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

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

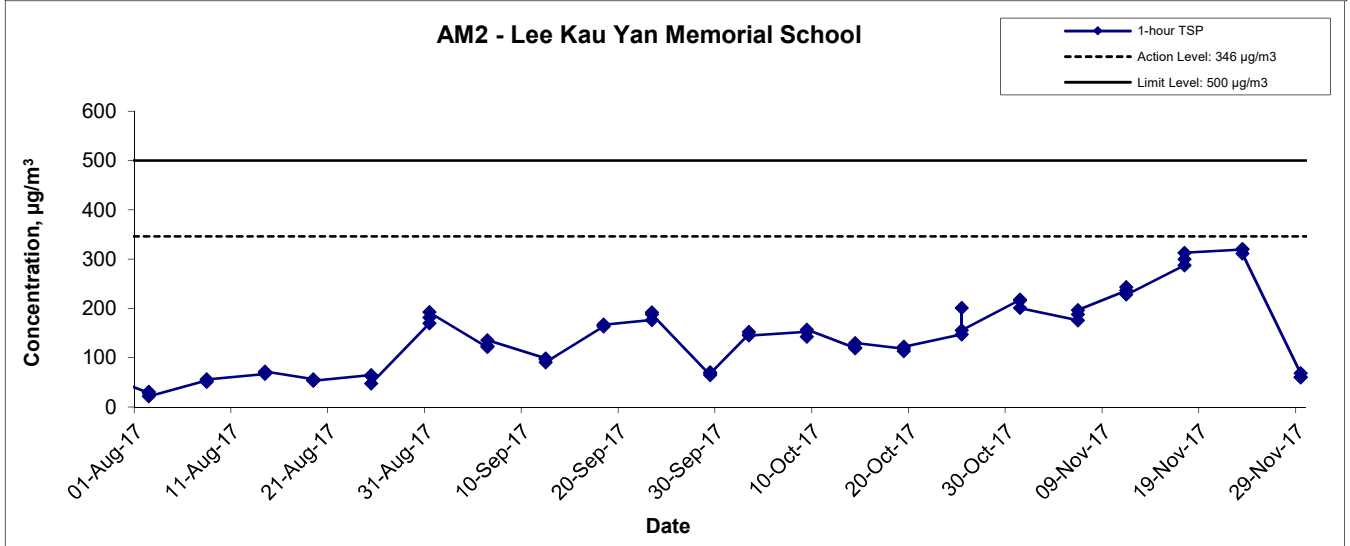
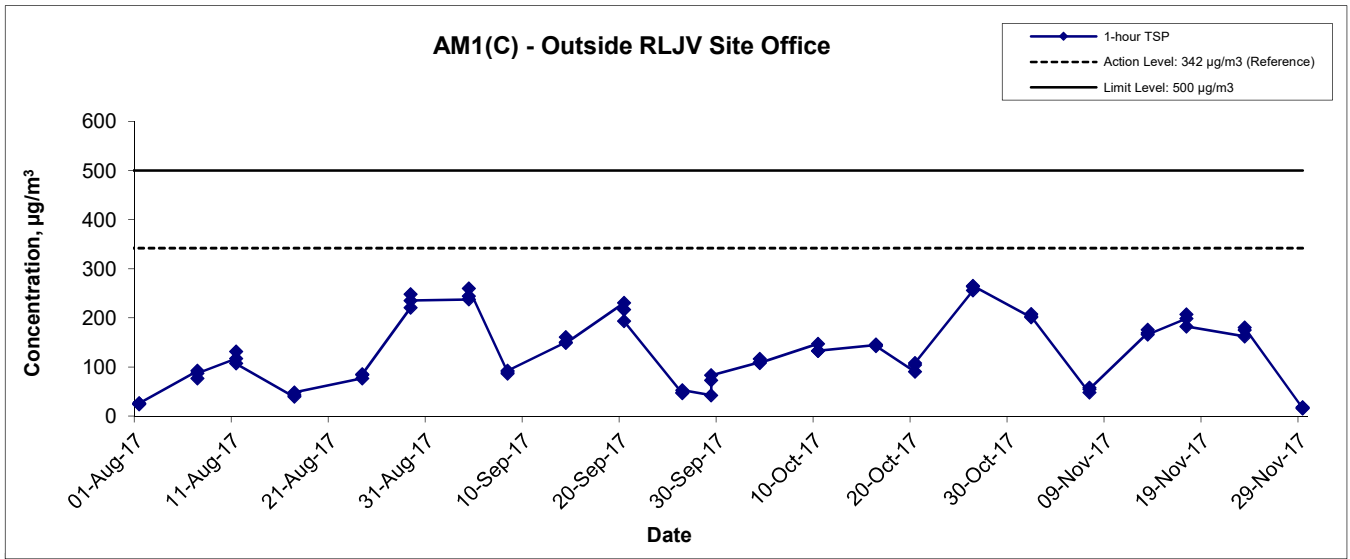
**APPENDIX E
1-HOUR TSP MONITORING RESULTS
AND GRAPHICAL PRESENTATION**

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)
1-Nov-17	9:00	Sunny	201.1
1-Nov-17	10:00	Sunny	207.8
1-Nov-17	11:00	Sunny	203.4
7-Nov-17	9:00	Cloudy	47.9
7-Nov-17	10:00	Cloudy	57.9
7-Nov-17	11:00	Cloudy	54.6
13-Nov-17	9:00	Cloudy	169.1
13-Nov-17	10:00	Cloudy	175.9
13-Nov-17	11:00	Cloudy	166.2
17-Nov-17	9:00	Cloudy	198.8
17-Nov-17	10:00	Cloudy	207.0
17-Nov-17	11:00	Cloudy	182.5
23-Nov-17	10:00	Sunny	162.2
23-Nov-17	11:00	Sunny	175.4
23-Nov-17	12:00	Sunny	180.7
29-Nov-17	9:00	Sunny	15.8
29-Nov-17	10:00	Sunny	18.0
29-Nov-17	11:00	Sunny	16.7
		Average	135.6
		Maximum	207.8
		Minimum	15.8

Location AM2 - Lee Kau Yan Memorial School			
Date	Time	Weather	Particulate Concentration (µg/m3)
6-Nov-17	13:10	Cloudy	175.7
6-Nov-17	14:10	Cloudy	187.8
6-Nov-17	15:10	Cloudy	196.6
11-Nov-17	13:10	Cloudy	236.3
11-Nov-17	14:10	Cloudy	243.0
11-Nov-17	15:10	Cloudy	228.0
17-Nov-17	8:50	Sunny	287.4
17-Nov-17	9:50	Sunny	299.8
17-Nov-17	10:50	Sunny	312.7
23-Nov-17	13:05	Sunny	319.4
23-Nov-17	14:05	Sunny	320.4
23-Nov-17	15:05	Sunny	311.4
29-Nov-17	13:00	Fine	68.5
29-Nov-17	14:00	Fine	59.7
29-Nov-17	15:00	Fine	60.4
		Average	220.5
		Maximum	320.4
		Minimum	59.7

1-hr TSP Concentration Levels



Title Kai Tak Development - Stage 3A Infrastructure at Former North Apron Area Graphical Presentation of 1-hour TSP Monitoring Results	Contract No. KL/2012/02	Scale N.T.S	Project No. MA13043	
		Date Nov 17	Appendix E	

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

Appendix F - 24-hour TSP Monitoring Results

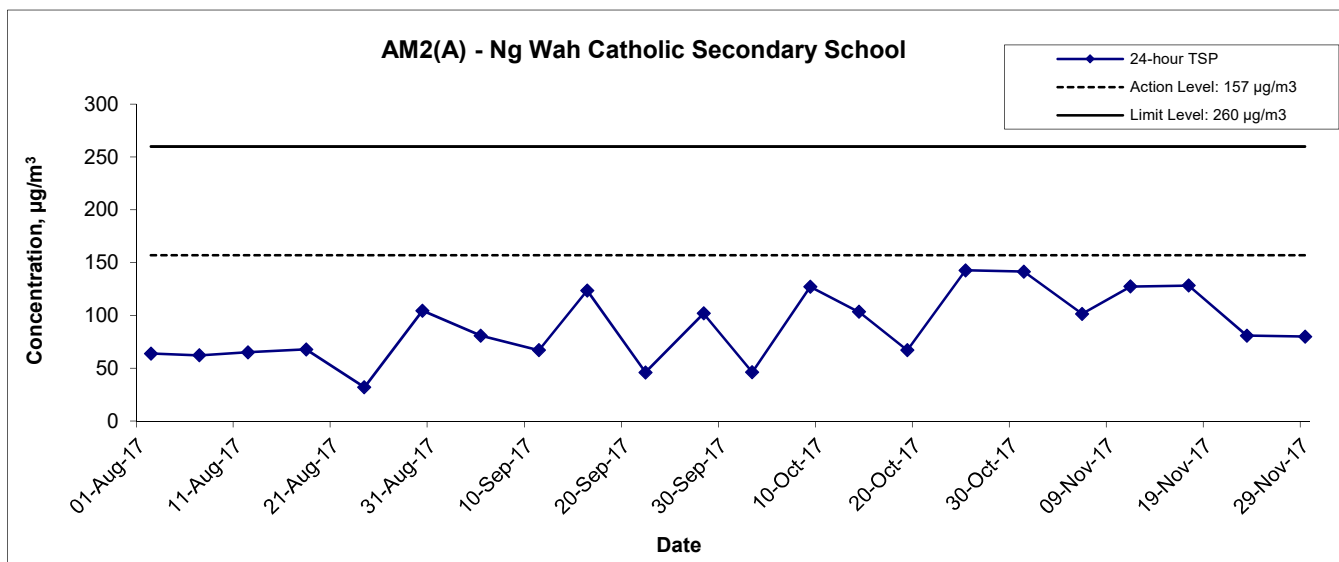
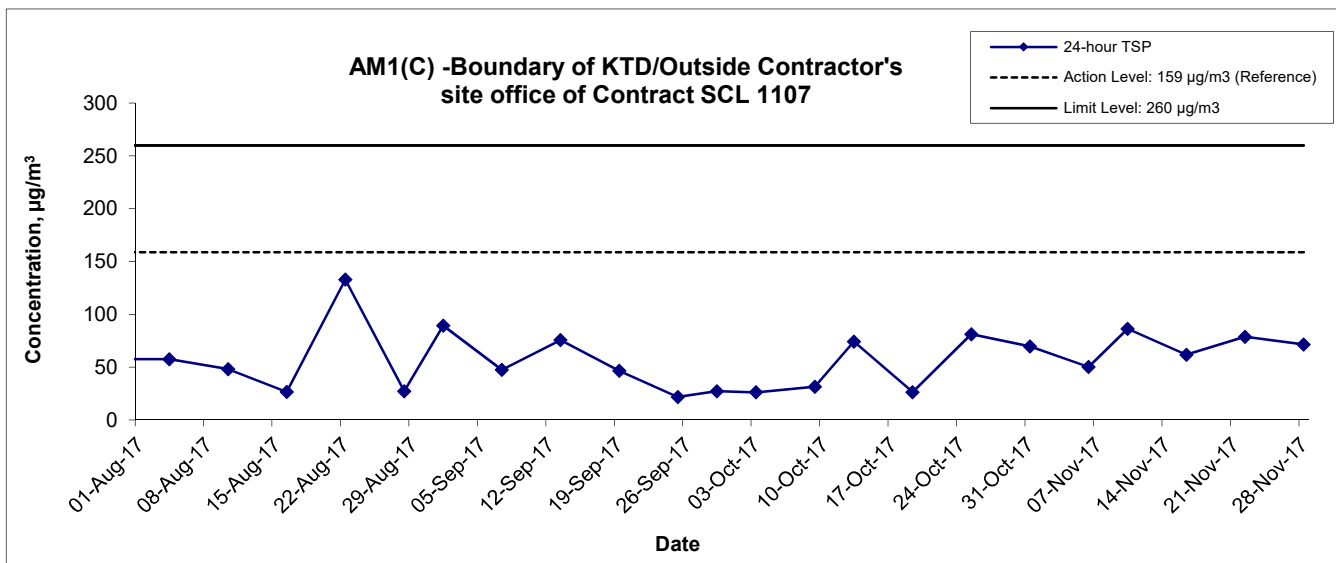
AM1(C) -Boundary of KTD/Outside Contractor's site office of Contract SCL 1107

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			
6-Nov-17	Cloudy	295.8	766.5	2.8925	2.9831	0.0906	7128.9	7152.9	24.0	1.25	1.25	1.25	1796.4	50.4
10-Nov-17	Cloudy	298.1	764.7	2.8390	2.9933	0.1543	7152.9	7176.9	24.0	1.24	1.24	1.24	1787.3	86.3
16-Nov-17	Cloudy	297.7	765.4	2.8650	2.9742	0.1092	7176.9	7200.9	24.0	1.22	1.22	1.22	1763.4	61.9
22-Nov-17	Sunny	291.7	766.6	2.8814	3.0218	0.1404	7200.9	7224.9	24.0	1.24	1.24	1.24	1784.0	78.7
28-Nov-17	Sunny	294.4	766.2	2.7910	2.9180	0.1270	7224.9	7248.9	24.0	1.23	1.23	1.23	1774.8	71.6
													Min	50.4
													Max	86.3
													Average	69.8

Location AM2(A) - Ng Wah Catholic Secondary School

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
6-Nov-17	Cloudy	295.3	766.3	2.8926	3.0742	0.1816	16051.2	16075.2	24.0	1.24	1.24	1.24	1787.8	101.6
11-Nov-17	Cloudy	298.9	764.2	2.8565	3.0826	0.2261	16099.2	16123.2	24.0	1.23	1.23	1.23	1774.3	127.4
17-Nov-17	Cloudy	298.4	762.1	2.8443	3.0719	0.2276	16147.2	16171.2	24.0	1.23	1.23	1.23	1773.3	128.3
23-Nov-17	Cloudy	289.7	767.8	2.8728	3.0190	0.1462	16195.2	16219.2	24.0	1.26	1.25	1.25	1807.1	80.9
29-Nov-17	Sunny	298.7	766.7	2.8540	2.9913	0.1373	16243.2	16267.2	24.0	1.19	1.19	1.19	1716.0	80.0
													Min	80.0
													Max	128.3
													Average	103.7

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	Project No. MA13043	
	Date Nov 17	Appendix F	

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

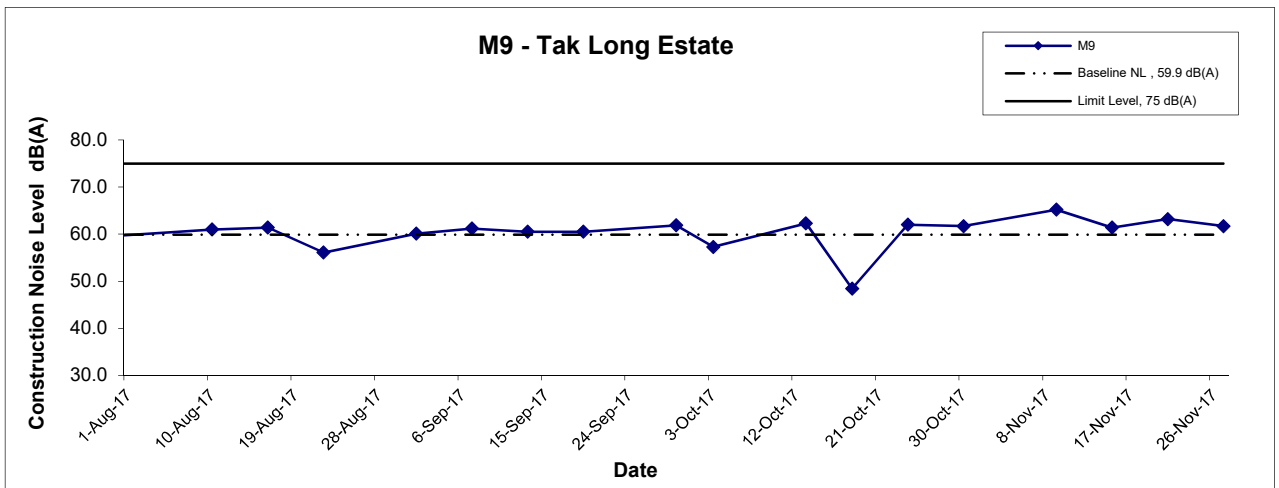
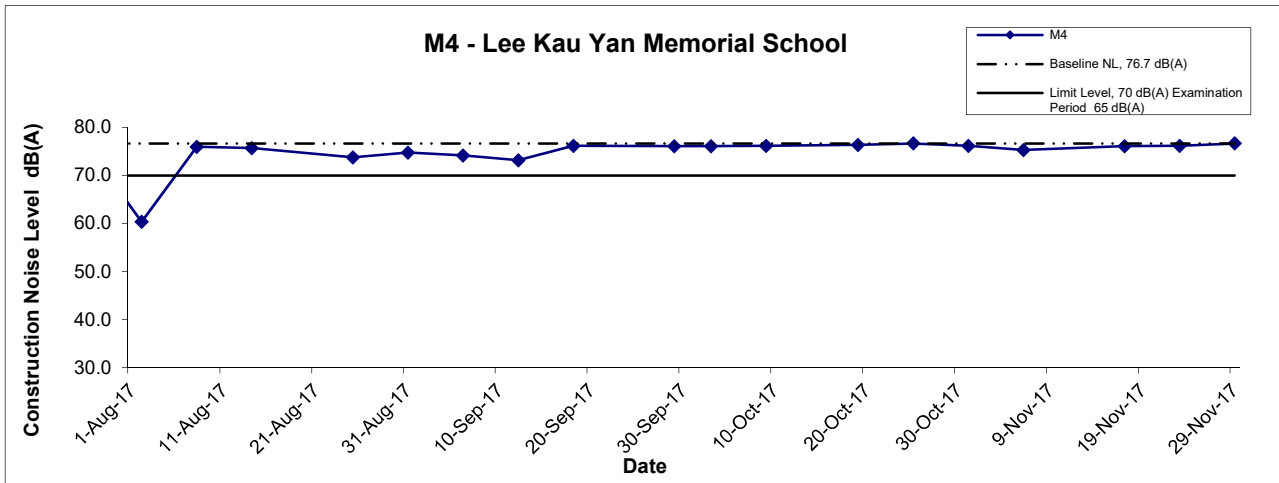
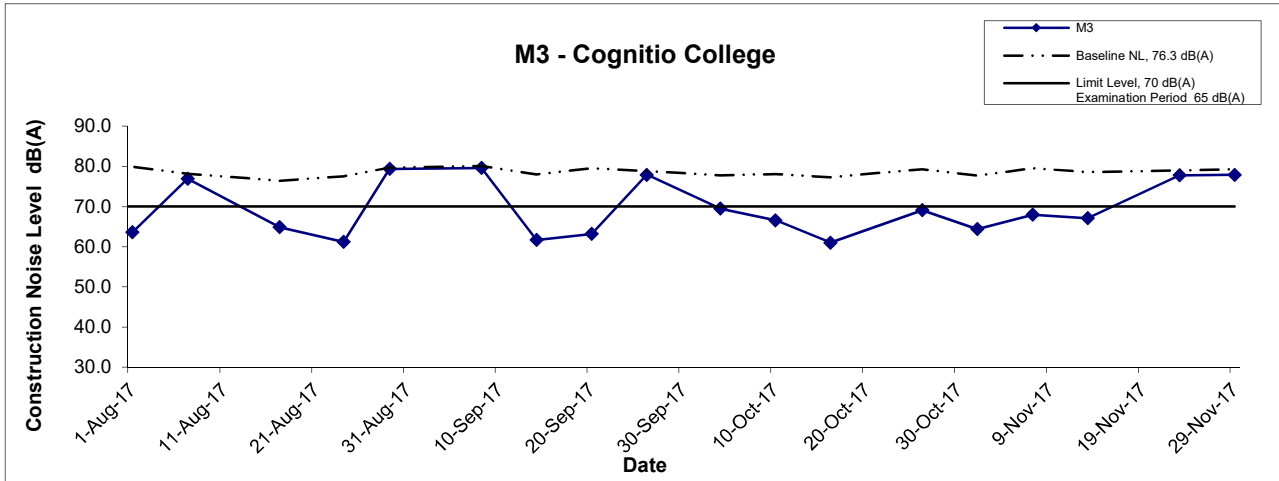
Appendix G - Noise Monitoring Results

Location M3 - Cognito 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}
1-Nov-17	13:00	Sunny	77.9	78.5	74.3	77.7	64.4
7-Nov-17	11:30	Cloudy	79.8	82.3	77.0	79.5	68.0
13-Nov-17	11:30	Cloudy	78.9	80.9	77.0	78.6	67.1
23-Nov-17	13:00	Sunny	77.8	80.6	76.9	79.0	77.8 Measured ≤ Background
29-Nov-17	13:00	Sunny	77.9	81.3	77.8	79.3	77.9 Measured ≤ Background

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}
6-Nov-17	13:35	Cloudy	79.8	76.7	73.7	76.7	75.3 Measured ≤ Baseline
17-Nov-17	9:45	Sunny	76.1	77.6	74.5		76.1 Measured ≤ Baseline
23-Nov-17	13:45	Sunny	76.2	78.2	75.6		76.2 Measured ≤ Baseline
29-Nov-17	13:35	Cloudy	76.7	78.8	75.2		76.7 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}
9-Nov-17	16:30	Sunny	66.3	67.4	62.4	59.9	65.2
15-Nov-17	13:25	Cloudy	63.7	65.4	61.1		61.4
21-Nov-17	10:00	Cloudy	64.9	65.7	61.6		63.2
27-Nov-17	9:30	Sunny	63.9	66.4	60.2		61.7

Noise Levels



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

Title Kai Tak Development - Stage 3A Infrastructure at Former North Apron Area Graphical Presentation of Construction Noise Monitoring Results	Contract No. KL/2012/02	Scale N.T.S	Project No. MA13043	CINOTECH
	Date Nov 17	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)**


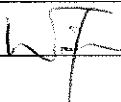
**APPENDIX I
SITE AUDIT SUMMARY**

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

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	171101
Date	1 November 2017
Time	14:00 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Visual and Landscape</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Others</i>	
	• Follow-up on previous audit section (Ref. No.: 171027), all environmental deficiencies were rectified/improved by the Contractor.	



	Name	Signature	Date
Recorded by	KC Chung		1 November 2017
Checked by	Dr. Priscilla Choy		1 November 2017

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

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	171108
Date	8 November 2017
Time	14:00 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Visual and Landscape</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Others</i>	
	• Follow-up on previous audit section (Ref. No.: 171101), no major environmental deficiency was identified during the site inspection.	



	Name	Signature	Date
Recorded by	KC Chung		8 November 2017
Checked by	Dr. Priscilla Choy		8 November 2017

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

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	171114
Date	14 November 2017
Time	14:00 – 17:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
171114-R01	• Ponding water on Concord Road should be cleared.	B 8
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Visual and Landscape</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Others</i>	
	• Follow-up on previous audit section (Ref. No.: 171108), no major environmental deficiency was identified during the site inspection.	

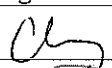
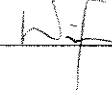
	Name	Signature	Date
Recorded by	Kelvin Koo		14 November 2017
Checked by	Dr. Priscilla Choy		14 November 2017

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

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	171122
Date	22 November 2017
Time	14:00 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
171122-O01	• Wastewater should be diverted to wastewater treatment facility prior to discharge.	B 1
	C. Air Quality	
171122-R02	• Dusty stockpile should be properly covered. (site entrance near Concorde Road)	C 7
	D. Noise	
	• No environmental deficiency was identified during the site inspection.	
	E. Waste / Chemical Management	
171122-R03	• Accumulated waste disposed near former KTOB should be removed.	E 1i, E 1iii
	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 section (Ref. No.: 171114), no major environmental deficiency was identified during the site inspection.	



	Name	Signature	Date
Recorded by	KC Choy		22 November 2017
Checked by	Dr. Priscilla Choy		22 November 2017

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

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	171129
Date	29 November 2017
Time	14:00 -- 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
171129-O01	• Maintenance should be provided to Aquased for proper function.	B 4
171129-R02	• Wastes accumulated near the gully outside the site entrance of SW3 should be removed.	B 15
	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	
171129-R02	• Wastes accumulated near the gully outside the site entrance of SW3 should be removed.	E 1iii
	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 section (Ref. No.: 171122), follow up action is required for item 171122-001.	

	Name	Signature	Date
Recorded by	KC Chung		29 November 2017
Checked by	Dr. Priscilla Choy		29 November 2017

APPENDIX J
EVENT ACTION PLANS

Appendix J - Event Action Plans

Event/Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded by one sampling	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Inform Contactor, IEC and ER; 3. Repeat measurement to confirm finding. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action Level being exceeded by two or more consecutive sampling	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC and ER; 3. Increase monitoring frequency to daily; 4. Discuss with IEC and Contractor on remedial actions required; 5. Assess the effectiveness of Contractor's remedial actions; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; 5. Conduct meeting with ET and IEC if exceedance continues. 	<ol style="list-style-type: none"> 1. Discuss with ET and IEC on proper remedial actions; 2. Submit proposals for remedial actions to ER and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Limit Level being exceeded by one sampling	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Assess effectiveness of Contractor's remedial actions and keep 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Discuss with ET and IEC on proper remedial actions; 3. Submit proposals for remedial actions to ER and IEC within three

Appendix J - Event Action Plans

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

Appendix J - Event Action Plans

Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded	<ol style="list-style-type: none"> 1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>
Limit Level being exceeded	<ol style="list-style-type: none"> 1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals;

Appendix J - Event Action Plans

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

Event/Action Plan for Landscape and Visual

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

Appendix J - Event Action Plans

	<p>ER</p> <p>2. Increase monitoring frequency</p> <p>3. Discuss remedial actions with IEC, ER and Contractor</p> <p>4. Monitor remedial actions until rectification has been completed</p> <p>5. If non-conformity stops, cease additional monitoring</p>	<p>2. Check Contractor's working method</p> <p>3. Discuss with ET and Contractor on possible remedial measures</p> <p>4. Advise ER on effectiveness of proposed remedial measures</p> <p>5. Supervise implementation of remedial measures.</p>	<p>implemented</p>	<p>undertake any necessary replacement</p>
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**APPENDIX K
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)**

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

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	<p>Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.</p> <ul style="list-style-type: none"> • Stockpiling site(s) should be lined with impermeable sheeting and 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 extend 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. 	<p>*</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

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

<p>S6.8</p>	<ul style="list-style-type: none"> • <u>DWFI compound for JVBC:</u> 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 desilting 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. • <u>Desilting compound for KTN:</u> 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 desilting 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. • <u>Decking or reconstruction of KTN within apron area:</u> 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. • <u>Localised maintenance dredging:</u> 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 	<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>
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Appendix K – Summary of Implementation Schedule of Mitigation Measures for Construction Phase

	<p>impacts at the future ASRs during the maintenance dredging operation.</p> <ul style="list-style-type: none"> • <u>Improvement of water circulation in KTAC and KTTS:</u> 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. • <u>In-situ sediment treatment by bioremediation:</u> Bioremediation would be applied to the entire KTAC and KTTS. 	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	<p>Good Site Practice:</p> <ul style="list-style-type: none"> • 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	N/A
	(ii) Provision of structural fins	N/A
S7.8	(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

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 111; 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: <ul style="list-style-type: none"> • Dual power supply or emergency generator should be provided at all the SPSs to secure electrical power supply; • Standby pumps should be provided at all SPSs to ensure smooth operation of the SPS during maintenance of the duty pumps; • An alarm should be installed to signal emergency high water level in the wet well at all SPSs; and 	N/A N/A N/A

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

	<ul style="list-style-type: none"> 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	<p>Construction Phase</p> <p><u>Marine-based Construction</u></p> <p><i>Capital and Maintenance Dredging for Cruise Terminal</i></p> <p>Mitigation measures for construction of the proposed cruise terminal should follow those recommended in the approved EIA for CT Dredging.</p>	N/A
S8.8	<p><i>Fireboat Berth, Runway Opening and Road T2</i></p> <p>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.</p>	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 2,000m ³ 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	<p><u>Land-based Construction</u></p> <p><i>Construction Runoff</i></p> <p>Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion.</p> <p>Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include:</p> <ul style="list-style-type: none"> • use of sediment traps • adequate maintenance of drainage systems to prevent flooding and overflow 	^ ^
S8.8	<p>Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September).</p> <p>All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.</p>	^
S8.8	<p>Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance.</p> <p>The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection.</p> <p>Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond.</p> <p>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.</p>	^
S8.8	<p>Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m³ capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.</p>	^
S8.8	<p>Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.</p>	^
S8.8	<p>Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.</p>	^
S8.8	<p>Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid</p>	*

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

	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	<i>Drainage</i> 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	<i>Sewage Effluent</i> 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	<p><i>Stormwater Discharges</i></p> <p>Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes</p>	^
S8.8	<p><i>Debris and Litter</i></p> <p>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</p>	*
S8.8	<p><i>Construction Works at or in Close Proximity of Storm Culvert or Seafront</i></p> <p>The proposed works should preferably be carried out within the dry season where the flow in the drainage channel /storm culvert/ nullah is low.</p>	^
S8.8	<p>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.</p>	^
S8.8	<p>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</p>	^
S8.8	<p>Stockpiling of construction materials and dusty materials should be covered and located away from any water courses.</p>	^
S8.8	<p>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.</p>	^
S8.8	<p>Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.</p>	^
S8.8	<p>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.</p>	^
S8.8	<p>Construction effluent, site run-off and sewage should be properly collected and/or treated.</p>	*
S8.8	<p>Any works site inside the storm water courses should be temporarily isolated, such as by placing of sandbags or silt curtains with lead</p>	N/A

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

	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	<p>Good Site Practices</p> <p>It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to.</p> <p>Recommendations for good site practices during the dredging activities include:</p> <ul style="list-style-type: none"> • 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). 	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
S9.5	<p>Waste Reduction Measures</p> <p>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:</p> <ul style="list-style-type: none"> • 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 	<p>^</p> <p>^</p> <p>^</p>

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

	<ul style="list-style-type: none"> 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 	<p>^</p> <p>^</p>
S9.5	<p>Dredged Marine Sediment</p> <p>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)</p>	N/A
S9.5	<p>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</p>	N/A
S9.5	<p>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:</p> <ul style="list-style-type: none"> 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 	<p>N/A</p> <p>N/A</p> <p>N/A</p>

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

S9.5	<p>Construction and Demolition Material</p> <p>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:</p> <ul style="list-style-type: none"> • 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 <p>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.</p>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
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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 <i>Waste Disposal (Chemical Waste) (General) Regulation</i>	^
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	*
<i>Construction Landscape and Visual</i>		
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: November 2017

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**

Appendix M : MONTHLY SUMMARY WASTE FLOW TABLE FOR 2017 (YEAR)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Borken Concrete	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Import Fill	Metals	Paper / Cardboard Packaging	Plastics ⁽²⁾	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	3.72310	0	0	0.15500	3.40455	0	0	0	0	0	0.16355
FEB	5.14235	0	0	0	4.92240	0	0	0	0	0	0.21995
MAR	17.63202	0	0	0	17.21112	0	0	0	0	0	0.42090
APR	0.44095	0	0	0	0	0	0	0	0	0	0.44095
MAY	0.00719	0	0	0	0.00719	0	0	0	0	0	0.00000
JUNE	0.69634	0	0	0	0.19429	0	0	0	0	0	0.50205
SUB-TOTAL	27.64195	0	0	0.15500	25.73955	0	0	0	0	0	1.74740
JULY	0.64610	0	0	0	0	0	0	0	0	0	0.64610
AUG	3.14785	0	0	0	2.54245	0	0	0	0	0	0.60540
SEPT	0.48418	0	0	0	0.24538	0	0	0	0	0	0.23880
OCT	0.25502	0	0	0	0.06327	0	0	0	0	0	0.19175
NOV	0.40616	0	0	0	0.23991	0	0	0	0	0	0.16625
DEC											
TOTAL	32.58126	0	0	0.15500	28.83056	0	0	0	0	0	3.59570

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]
27.972	26.472	0	0	0	0	0	0.9	0	1.8	1.5

- 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 quantities of C&D materials to be generated from the contracts

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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

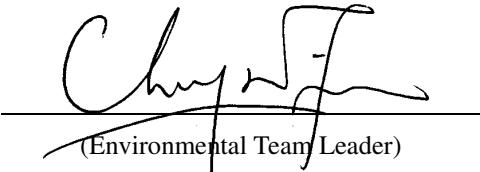
**EP-344/2009 – New Sewage Pumping Stations
Serving KTD**
**EP-337/2009 – New Distributor Roads Serving the
Planned KTD**

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

Monthly EM&A Report

November 2017

(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

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Cinotech Consultants Limited
Room 1710, Technology Park,
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For the attention of: Dr. Priscilla Choy

Subject: Contract No. KL/2012/03 Kai Tak Development – Stage 4
Infrastructure at Former North Apron Area
Verification for Monthly EM&A Report (November 2017)
(Mrpt1711 v1.0 updated)

Our ref: EB001399-320/THW18-36324

Your ref:

Date: 11 January 2018

Dear Dr. Choy,

We do not have adverse comments on the captioned report, which was received via e-mail dated Wed 1/10/2018 8:43 PM and hereby verify the report.

Should you have any queries, please feel free to contact the undersigned on 2911 2744.

Yours faithfully,
For and on behalf of
Arcadis Design & Engineering Limited



F N Wong
Independent Environmental Checker

cc. Mr. John Yam (AECOM) (By-email)

FN/my

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By Email

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EXECUTIVE SUMMARY

Introduction

1. This is the 48th Monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Ltd. for “Contract No. KL/2012/03 - Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area” (Hereafter referred to as “the Project”). This contract comprises the construction of Schedule 2 Designated Projects (DP) Road D2 & Sewage Pumping Station PS2 and PS NPS which forms a part of the works under two Environmental Permits (EP), EP-337/2009 and EP-344/2009. The title of the designated projects under Environmental Permit No.: EP-344/2009 is “New sewage pumping stations serving Kai Tak Development” and under Environmental Permit No.: EP-337/2009 is “New distributor roads serving the planned Kai Tak Development”. This report documents the findings of EM&A Works conducted from 1 to 30 November 2017.
2. The major site activities undertaken in the reporting month included:
 - Daily Cleaning
 - Finishing works, E&M work in PS2
 - Water test, backfill and sheet-pile removal in Heading 7A,
 - Chamber construction, DCS pipe installation, backfill and sheet-pile removal, water test, grouting in Heading 7B
 - Backfill and sheet-pile removal, installation of valve in 1L4
 - Road widening work (excavation and UU works) in (Portion 1) Sung Wong Toi Road
 - Maintenance & Servicing Engineer’s office in Portion 9
 - Rising Main installation in Pit2
 - Rising Main installation in Pit 4
 - Install fitting inside chamber in Pit 5
 - Install fitting inside chamber in Pit9
 - Install fitting inside chamber in Pit10
 - Installation of drainage , UU laying works and Road works in Road D2
 - Finishing works and E&M works in NPS
 - UU works and Road Works in Road L19 and Bailey Street
 - Refer construction works of NPS in portion 4 sewerage; and
 - Removal of excavated material in Portion 6

Environmental Monitoring Works

3. Environmental monitoring for the Project was performed in accordance with the EM&A Manual and the monitoring results were checked and reviewed. Site Inspections/Audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.
4. Summary of the breaches of action and limit levels in the reporting month for the Project is tabulated in **Table I**.

Table I Breaches of Action and Limit Levels for the Project in the Reporting Month

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

24-hr TSP	0	0	N/A
Noise	0	0	N/A

1-hour & 24-hour TSP Monitoring

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

Construction Noise Monitoring

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

Environmental Licenses and Permits

9. Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Project, Environmental Permits No. EP-344/2009 and EP-337/2009 were issued on 23 April 2009.
10. Registration of Chemical Waste Producer (Waste Producer Number: 5213-286-K2958-05).
11. Water Discharge License (WT00020971-2015).

Key Information in the Reporting Month

12. 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

13. The future key environmental issues in the coming month include:
 - Daily Cleaning
 - Finishing works, E&M work in PS2
 - Water test, backfill and sheet-pile removal in Heading 7A
 - Chamber construction, DCS pipe installation, backfill and sheet-pile removal, water test, grouting in Heading 7B
 - Backfill and sheet-pile removal, installation of valve in 1L4
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- Road works in Road D2
- Finishing works and E&M works in NPS
- UU works and Road Works in Road L19 and Bailey Street
- Refer construction works of NPS in portion 4 sewerage; and
- Removal of excavated material in Portion 6

INTRODUCTION

Background

- 1.1 The Kai Tak Development (KTD) is located in the south-eastern part of Kowloon Peninsula, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling. It covers a land area of about 328 hectares. Stage 4 Infrastructure at Former North Apron Area is one of the construction stages of KTD. Schedule 2 DPs in this Project include new distributor roads serving the planned KTD and new sewage pumping stations serving the planned KTD. The general layout of the Project is shown in **Figure 1**.
- 1.2 Two Environmental Permits (EPs) No. EP-344/2009 and EP-337/2009 were also issued to the Permit Holder Civil Engineering and Development Department on 23 April 2009 for new sewage pumping stations serving the planned KTD and new distributor roads serving the planned KTD respectively.
- 1.3 A study of environmental impact assessment (EIA) was undertaken to identify the key issues of air quality, noise, water quality, waste, land contamination, cultural heritage and landscape and visual impact, and recommend possible mitigation measures associated with the works. The EIA Report (Register No. AEIAR-130/2009) was approved by the Environmental Protection Department (EPD) on 4 April 2009.
- 1.4 Cinotech Consultants Limited (Cinotech) is commissioned by Kwan On Construction Co., Ltd. (the Contractor) to undertake the role of the Environmental Team (ET) for the Contract No. KL/2012/03 - Stage 4 Infrastructure at Former North Apron Area. The construction work under KL/2012/03 comprises the construction of Road D2 & Sewage Pumping Station PS2 and PS NPS which forms a part of the works under two EPs (EP-337/2009 and EP-344/2009).
- 1.5 The construction commencement of this Contract was on 1st December 2013 for Road D2, Sewage Pumping Station PS2 and PS NPS. This is the 48th Monthly EM&A report summarizing the EM&A works for the Project from 1 to 30 November 2017.

Project Organizations

- 1.6 Different parties with different levels of involvement in the project organization include:
 - Project Proponent – Civil Engineering and Development Department (CEDD).
 - The Engineer and the Engineer’s Representative (ER) – AECOM.
 - Environmental Team (ET) – Cinotech Consultants Limited (CCL).
 - Independent Environmental Checker (IEC) – Arcadis Design & Engineering Limited. (Arcadis).
 - Contractor –Kwan On Construction Co., Ltd. (Kwan On).

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

Table 1.1 Key Project Contacts

Party	Role	Contact Person	Position	Phone No.	Fax No.
CEDD	Project Proponent	Mr. C. K. Choi	Senior Engineer	2301 1174	2301 1277
AECOM	Engineer's Representative	Mr. John Yam	SRE	2798 0771	3013 8864
		Mr. Jacky Pun	RE		
Cinotech	Environmental Team	Dr. Priscilla Choy	Environmental Team Leader	2151 2089	3107 1388
		Ms. Ivy Tam	Project Coordinator and Audit Team Leader	2151 2090	
Arcadis	Independent Environmental Checker	Mr. Wong Fu Nam	Independent Environmental Checker	2911 2744	2805 5028
Kwan On	Contractor	Mr. Albert Ng	Site Agent	3689 7752	3689 7726
				6146 6761 (Hotline telephone number)	

Construction Activities undertaken during the Reporting Month

1.8 The site activities undertaken in the reporting month included:

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

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

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

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

Summary of EM&A Requirements

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

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

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

1.12 This report presents the implementation of the EM&A programme for the Project from 1 to 30 November 2017.

- 1.13 Air quality monitoring stations within 500m and noise monitoring stations within 300m from the boundary of this Project are considered as relevant monitoring locations. In such regard, the relevant air quality and noise monitoring locations are tabulated in **Table 1.3** (see **Figure 2 and 3** for their locations).

Table 1.3 Air Quality and Noise Monitoring Stations for this Project

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

Remarks:

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

- 1.14 According to the Environmental Monitoring and Audit Manual (EM&A Manual) of the Kai Tak Development (KTD) Schedule 3 Environmental Impact Assessment (EIA) Report, the impact monitoring at the designated monitoring stations as required in KTD EM&A Manual under the EP, has been conducted in Environmental Monitoring Works for Kai Tak Development under Schedule 3 of KTD, which is on-going starting from December 2010, when the impact monitoring data under Schedule 3 of KTD were adopted for the Project.
- 1.15 Although Contract no. KLN/2013/16 under Schedule 3 of KTD has been superseded by KLN/2016/09 since early March 2017, the ET continued to adopt the impact monitoring data under Schedule 3 of KTD until appropriate new arrangement is agreed. The KLN/2016/09 impact environmental monitoring schedule is shown in **Appendix D**.

Status of Compliance with Environmental Permits Conditions

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

Table 1.4 Summary Table for Required Submission under EP No. EP-337/2009

EP Conditions	Submission	Submission Date	Remark
1.11	Notification of Commencement Date of Construction of Project	31 October 2013	For Road D2
2.3	Management Organization of Main Construction Companies	31 October 2013	For Contract No. KL/2012/03
2.4	Design Drawing(s) of the Project	28 October 2013	For Road D2
2.11	Landscape Mitigation Plan(s) for distributors road(s)	7 January 2014	For Road D2
2.12	As-built drawing(s) for the distributor road(s)	To be submitted at least one week before the commencement of operation of distributor road(s)	
3.2	Baseline Monitoring Report	26 November 2010 (Part I) 24 December 2010 (Part II)	/
3.3	Four hard copies and one electronic copy of the Monthly EM&A Report No. 44 (July 2017)	14 August 2017	Monthly EM&A Report for Contract No. KL/2012/03

Table 1.5 Summary Table for Required Submission under EP No. EP-344/2009

EP Conditions	Submission	Submission Date	Remark
1.11	Notification of Commencement Date of Construction of Project	31 October 2013	For Pumping Station PS2 and PS NPS
2.3	Management Organization of Main Construction Companies	31 October 2013	For Contract No. KL/2012/03
2.4	Design Drawing(s) of the Project	28 October 2013	For Pumping Station PS2 and PS NPS
2.11	Landscape Mitigation Plan(s) for sewage pumping station(s)	7 January 2014	For Pumping Station PS2 and PS NPS
2.12	As-built drawing(s) for the sewage pumping station (s)	To be submitted at least one week before the commencement of operation of distributor road(s)	
3.2	Baseline Monitoring Report	26 November 2010 (Part I) 24 December 2010 (Part II)	/
3.3	Four hard copies and one electronic copy of the Monthly EM&A Report No. 44 (July 2017)	14 August 2017	Monthly EM&A Report for Contract No. KL/2012/03

1. AIR QUALITY

Monitoring Requirements

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

Monitoring Locations

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

Table 2.1 Locations for Air Quality Monitoring

Monitoring Stations	Locations	Location of Measurement
AM2	Lee Kau Yan Memorial School	Rooftop (about 8/F) Area
AM2(A)	Ng Wah Catholic Secondary School	Rooftop (about 8/F) Area
AM3(A)	Holy Trinity Bradbury Centre	Rooftop (about 8/F) Area
AM4(C)	New Pumping Station	Rooftop (about 6/F) Area
AM5	CCC Kei To Secondary School	Rooftop (about 10/F) Area
#AM6	PA 15	Site 1B4 (Planned)

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

Monitoring Equipment

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

Table 2.2 Air Quality Monitoring Equipment

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

	Hal-HPC300/ 301	
HVS Sampler	GMWS 2310 c/w of TSP sampling inlet	3
	TE-5170X	7
Wind Anemometer	Davis Weather Monitor, Vantage Pro2	1

Monitoring Parameters, Frequency and Duration

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

Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration

Parameters	Frequency
1-hr TSP	At least three times every 6 days
24-hr TSP	At least once every 6 days

Monitoring Methodology and Quality Assurance and Quality Control (QA/QC) Procedure

1-hour TSP Monitoring

Measuring Procedures

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

Maintenance/Calibration

- 2.6 The following maintenance/calibration was required for the direct dust meters:
- Check and calibrate the meter by High-Volume Sampler (HVS) to check the validity and accuracy of the results measured by direct reading method at 2-month intervals throughout all stages of the air quality monitoring.

24-hour TSP Monitoring

Instrumentation

- 2.7 High volume samplers (HVS) (Model GMWS-2310 Accu-Vol) completed with appropriate sampling inlets were employed for 24-hour TSP monitoring. The sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50). Moreover, the HVS also met all the requirements in section 2.5 of the updated EM&A Manual.

Operating/Analytical Procedures

- 2.8 Operating/analytical procedures for the operation of HVS were as follows:
- A horizontal platform was provided with appropriate support to secure the samplers against gusty wind.
 - No two samplers were placed less than 2 meters apart.
 - The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
 - A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
 - A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
 - No furnaces or incineration flues were nearby.
 - Airflow around the sampler was unrestricted.
 - The sampler was more than 20 meters from the drip line.
 - Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.
- 2.9 Prior to the commencement of the 24-hour TSP sampling, the flow rate of the high volume sampler was properly set (between 1.1 m³/min. and 1.4 m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.
- 2.10 For 24-hour TSP sampling, fiberglass filters having a collection efficiency of $\geq 99\%$ for particles of 0.3 μ m (DOP) diameter were used.
- 2.11 The power supply was checked to ensure the sampler worked properly. On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.
- 2.12 The filter holding frame was then removed by loosening the four nuts and a weighted and conditioned filter was carefully centered with the stamped number upwards, on a supporting screen.
- 2.13 The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.

- 2.14 The shelter lid was closed and secured with the aluminum strip.
- 2.15 The timer was then programmed so that the TSP will be sampled for 24 hours. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- 2.16 After completion of sampling, the filter was removed and sent to Wellab Ltd., which is accredited under HOKLAS for laboratory analysis. The elapsed time was also recorded.
- 2.17 Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning temperature should be between 25°C and 30°C and not vary by more than $\pm 3^\circ\text{C}$; the relative humidity (RH) should be $< 50\%$ and not vary by more than $\pm 5\%$. A convenient working RH is 40%.

Maintenance/Calibration

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

Results, Observations and Action/Limit Level Exceedance

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

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

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

2. NOISE

Monitoring Requirements

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

Monitoring Locations

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

Table 3.1 Noise Monitoring Stations

Monitoring Stations	Locations	Location of Measurement
*M6(A)	Oblate Primary School	Rooftop (about 7/F) Area
M7	CCC Kei To Secondary School	Rooftop (about 8/F) Area
M8	Po Leung Kuk Ngan Po Ling College	Staircase Area (about 9/F)
M9	Tak Long Estate	Car Park Building (about 2/F)
#M10	Site 1B4 (Planned)	-

Remarks:

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

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

Monitoring Equipment

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

Table 3.2 Noise Monitoring Equipment

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

Monitoring Parameters, Frequency and Duration

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

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency	Type of Measurement
M7 M8 M9	L ₁₀ (30 min.) dB(A) L ₉₀ (30 min.) dB(A) L _{eq} (30 min.) dB(A)	0700-1900 hrs on normal weekdays	Once per week	Façade (*)
M6(A)	L ₁₀ (30 min.) dB(A) L ₉₀ (30 min.) dB(A) L _{eq} (30 min.) dB(A)	0700-1900 hrs on normal weekdays	Once per week	Free Field (*)

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

Monitoring Methodology and QA/QC Procedures

- The Sound Level Meter was set on a tripod at a point 1m from the exterior of the sensitive receivers building façade and be at a position 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces. All records for free field noise levels was adjusted with a correction of +3 dB(A).
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - frequency weighting : A
 - time weighting : Fast
 - time measurement : 30 minutes
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with the portable wind meter.
- At the end of the monitoring period, the L_{eq}, L₉₀ and L₁₀ were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused temporarily during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.

Maintenance and Calibration

- 3.6 The microphone head of the sound level meter and calibrator was cleaned with a soft cloth at quarterly intervals.
- 3.7 The sound level meter and calibrator were checked and calibrated at yearly intervals.
- 3.8 Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Results, Observations and Action/Limit Level Exceedance

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

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

Monitoring Stations	Locations	Major Noise Source
M6(A)	Oblate Primary School	Road and marine traffic Noise
M7	CCC Kei To Secondary School	Road and marine traffic Noise
M8	Po Leung Kuk Ngan Po Ling College	Excavation works at the site (Contract No.: 1/WSD/14(K)) facing Po Leung Kuk Ngan Po Ling College
M9	Tak Long Estate	Road paving and asphalt paving works

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

Monitoring Stations	Baseline Noise Level, dB (A)	Noise Limit Level, dB (A)
M6(A)	63.9 (at 0700 – 1900 hrs on normal weekdays)	70* (at 0700 – 1900 hrs on normal weekdays)
M7	68.7 (at 0700 – 1900 hrs on normal weekdays)	
M8	61.9 (at 0700 – 1900 hrs on normal weekdays)	
M9	59.0 (at 0700 – 1900 hrs on normal weekdays)	75 (at 0700 – 1900 hrs on normal weekdays)

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

4. COMPARISON OF EM&A RESULTS WITH EIA PREDICTIONS

4.1 According to Section 16.1.6 (vi) of the EM&A Manual, the EM&A data were compared with the EIA predictions as summarized in **Table 4.1** to **4.3** below.

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

Station	Predicted 1-hr TSP conc.			
	Scenario1 (Mid 2009 to Mid 2013), µg/m3	Scenario2 (Mid 2013 to Late 2016), µg/m3	Reporting Month (November 2017), µg/m3	
			Average	Range
AM2 – Lee Kau Yan Memorial School	290	312	258.2	167.2 – 341.3
AM3(A) - Holy Trinity Bradbury Centre (Alternative station for Sky Tower)	217	247	247.2	165.0 – 341.7
AM4(C) – New Pumping Station	N/A	N/A	185.2	118.6 – 222.5
AM5– CCC Kei To Secondary School	159	221	142.5	94.4 – 206.3

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

Station	Predicted 24-hr TSP conc.			
	Scenario1 (Mid 2009 to Mid 2013), µg/m3	Scenario2 (Mid 2013 to Late 2016), µg/m3	Reporting Month (November 2017), µg/m3	
			Average	Range
AM2(A) – Ng Wah Catholic Secondary School (Alternative station for Lee Kau Yan Memorial School)	145	169	97.0	66.5 – 142.4
AM3(A) - Holy Trinity Bradbury Centre (Alternative station for Sky Tower)	106	138	92.0	69.0 – 125.0
AM4(C) – New Pumping Station	N/A	N/A	119.1	80.1 – 156.7
AM5 – CCC Kei To Secondary School	103	128	46.0	30.7 – 59.1

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 (November 2017), $L_{eq(30min)}$ dB(A)
M6(A) - Oblate Primary School ^	N/A	59.3 – 68.4
M7 - CCC Kei To Secondary School	45 – 68	62.4 – 68.6
M8 - Po Leung Kuk Ngan Po Ling College	44 – 70	65.1 – 66.2
M9 – Tak Long Estate	Not predicted in EIA Report	61.5 – 63.7

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

- 4.2 The averages of 1-hour TSP concentrations in all stations in the reporting month were below the prediction in the approved Environmental Impact Assessment (EIA) Report.
- 4.3 The averages of 24-hour TSP concentrations in all stations in the reporting month were below the prediction in the approved Environmental Impact Assessment (EIA) Report.

5. LANDSCAPE AND VISUAL

Monitoring Requirements

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

Results and Observations

- 5.2 Site audits were carried out on a weekly basis to monitor and audit the timely implementation of landscape and visual mitigation measures within the site boundaries of this Project. The summaries of site audits are attached in **Appendix I**.
- 5.3 No non-compliance of the landscape and visual impact was recorded in the reporting month.
- 5.4 In accordance with the Action Plan presented in **Appendix J**, no corrective actions were required in the reporting month.

6. ENVIRONMENTAL AUDIT

Site Audits

- 6.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix I**.
- 6.2 Site audits were conducted on 3, 10, 17 and 22 November 2017 in the reporting month. IEC site inspection was conducted on 22 November 2017. No non-compliance was observed during the site audits.

Status of Environmental Licensing and Permitting

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

Table 6.1 Summary of Environmental Licensing and Permit Status

Permit No.	Valid Period		Details	Status
	From	To		
Environmental Permit (EP)				
EP-337/2009	23/04/09	N/A	Construction of new distributor roads serving the planned Kai Tak development.	Valid
EP-344/2009	23/04/09	N/A	Construction of a new sewage pumping station serving the planned Kai Tak development with installed capacity of more than 2,000 m ³ per day and a boundary of which is less than 150m from an existing or planned residential area or educational institution.	Valid
Effluent Discharge License				
WT00020971-2015	22/04/15	21/04/20	Discharge 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
<i>Water Quality</i>	27 October 2017	<u>Reminder:</u> Ponding water near Site Office should be cleared.	Ponding water was observed removed on 3 Nov 2017.
<i>Air Quality</i>	27 October and 3 November 2017	<u>Reminder:</u> Water spraying should be provided to haul roads more frequently to avoid dust generation.	Haul roads were observed wet on 10 Nov 2017.
	17 November 2017	<u>Reminder:</u> Water spraying should be provided more frequently to haul roads prevent dust generation.	Haul roads were observed wet on 22 Nov 2017.
<i>Noise</i>	--	--	--
<i>Waste/Chemical Management</i>	--	--	--
<i>Landscape and Visual</i>	--	--	--
<i>Permits /Licences</i>	--	--	--

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

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	10 November 2017	<u>Reminder:</u> Ponding water should be cleared.	Ponding water was observed cleared on 17 Nov 2017.

Parameters	Date	Observations and Recommendations	Follow-up
<i>Air Quality</i>	--	--	--
<i>Noise</i>	--	--	--
<i>Waste/Chemical Management</i>	10 November 2017	<u>Reminder:</u> Drip tray should be provided to chemical containers at NPS.	Chemical containers were removed on 17 Nov 2017.
<i>Landscape and Visual</i>	--	--	--
<i>Permits /Licences</i>	--	--	--

Summary of Mitigation Measures Implemented

6.7 The monthly IEC audit was carried out on 22 November 2017, the observations were recorded and they are presented as follows:

Follow up of last monthly audit:

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

Observation(s) in the reporting month:

- No observations are made for the monthly audit.

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

Implementation Status of Event Action Plans

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

1-hr TSP Monitoring

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

24-hr TSP Monitoring

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

Construction Noise

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

Landscape and visual

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

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

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

7. FUTURE KEY ISSUES

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

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

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

Key Issues for the Coming Month

7.3 Key environmental issues in the coming month include:

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

7.4 The tentative program of major site activities and the impact prediction and environmental mitigation measures for the coming two months, i.e. December 2017 and January 2018 are summarized as follows:

Table 7.1 Summary of the tentative program of major site activities, the impact prediction and control measures for December 2017 and January 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. No Action and Limit Level exceedance was recorded. The construction noise levels in all stations in the reporting month were within the range of predicted mitigated construction noise levels in the approved Environmental Impact Assessment (EIA) report.

Complaints, Notification of any Summons and Prosecution Received

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

Recommendations

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

Air Quality Impact

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

Noise Impact

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

Water Impact

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

Waste/Chemical Management

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

Landscape and Visual

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

Effectiveness of Environmental Management

- 8.7 The above recommendations and the recommended mitigation measures in the EM&A Manual were carried out by the Contractor during construction. No non-compliance was recorded during the environmental site inspections as shown in **Appendix I**.
- 8.8 The effectiveness of environmental management is satisfactory as the above recommendations are met. Some of the examples of mitigation measures for the following recommendations are given in **Table 8.1** below.
- Surface runoff discharge into any stream course is prevented;
 - Provision of sedimentation facilities after identification of wastewater discharges from site;
 - Discharge or accidental spillage of chemical waste or oil directly from the site is avoided;
 - Improper handling or storage of oil drum on site is avoided;
 - The existing trees to be retained are protected; and
 - Night-time lighting is controlled.

Table 8.1 Examples of Mitigation Measures for Environmental Recommendations

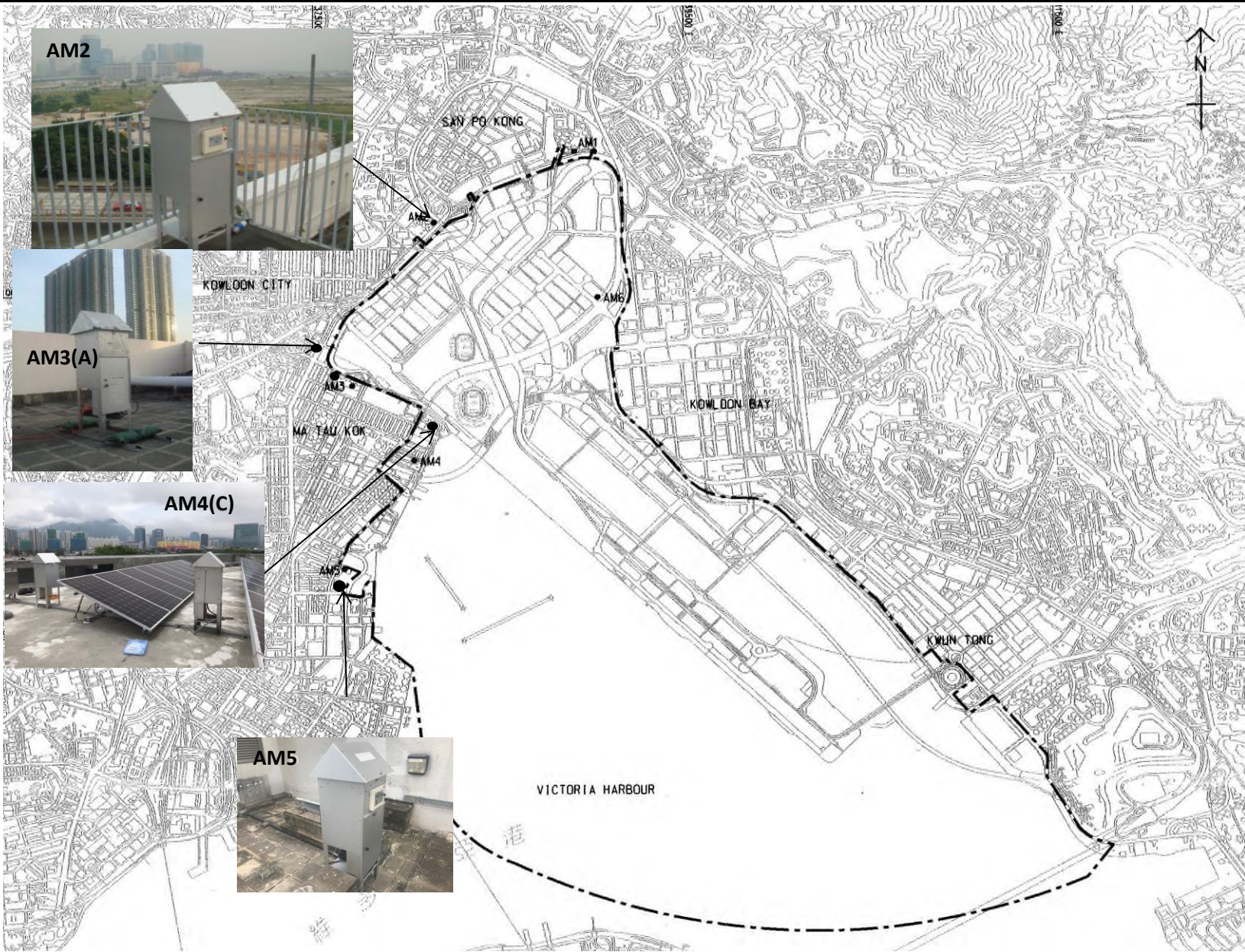
	
<p>To prevent any surface runoff discharge into any stream course.</p>	<p>Follow-up measure(s) after identification of wastewater discharges from site.</p>
	
<p>To avoid any discharge or accidental spillage of chemical waste or oil directly from the site</p>	<p>To avoid improper handling or storage of oil drum on site</p>
	 <p style="text-align: right; color: red;">22/11/2017</p>
<p>To protect the existing trees to be retained</p>	<p>To control of night-time lighting</p>

FIGURES



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

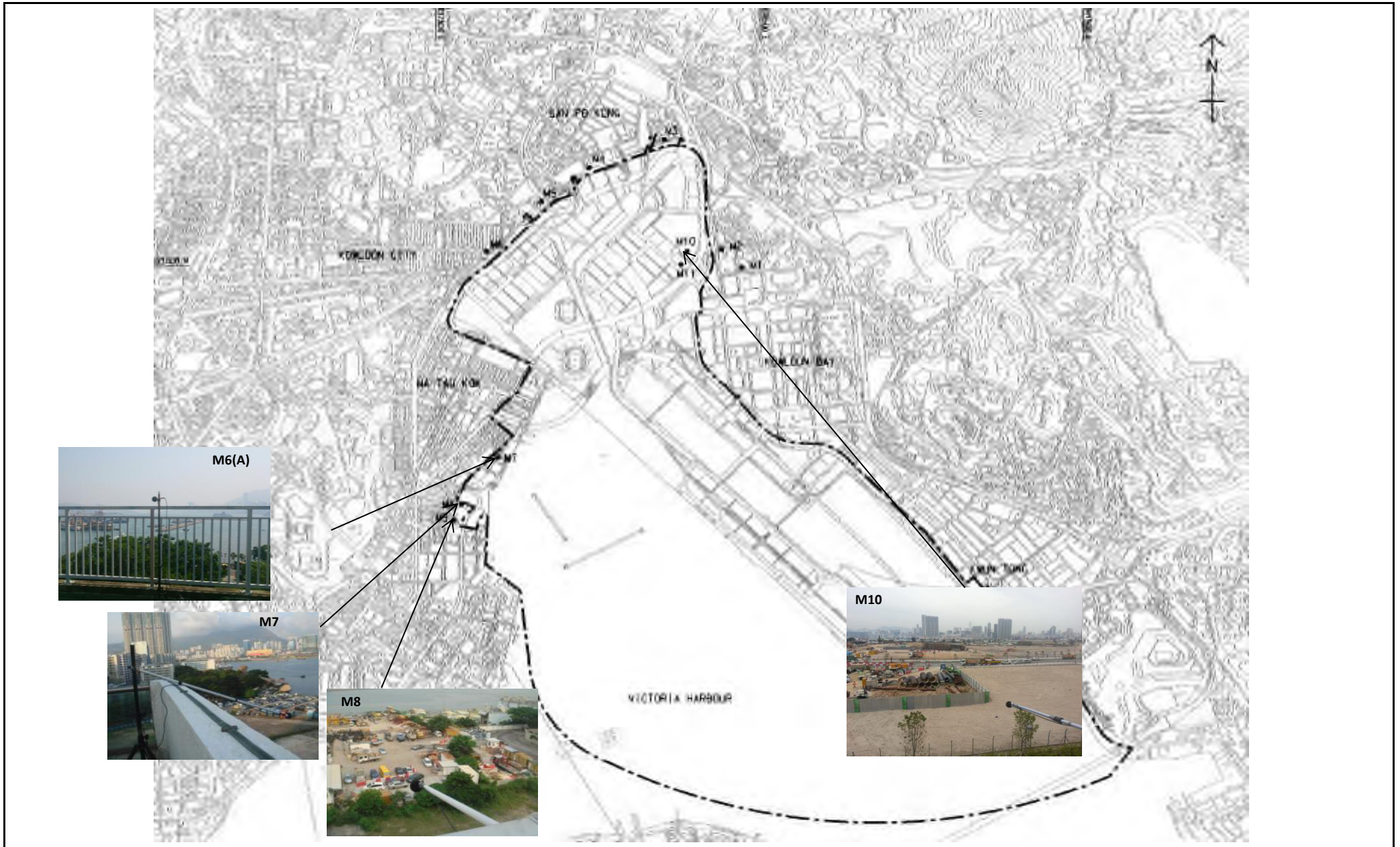




Title Contract No. KL/2012/03
 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area
 Air Quality Monitoring Stations under this Project

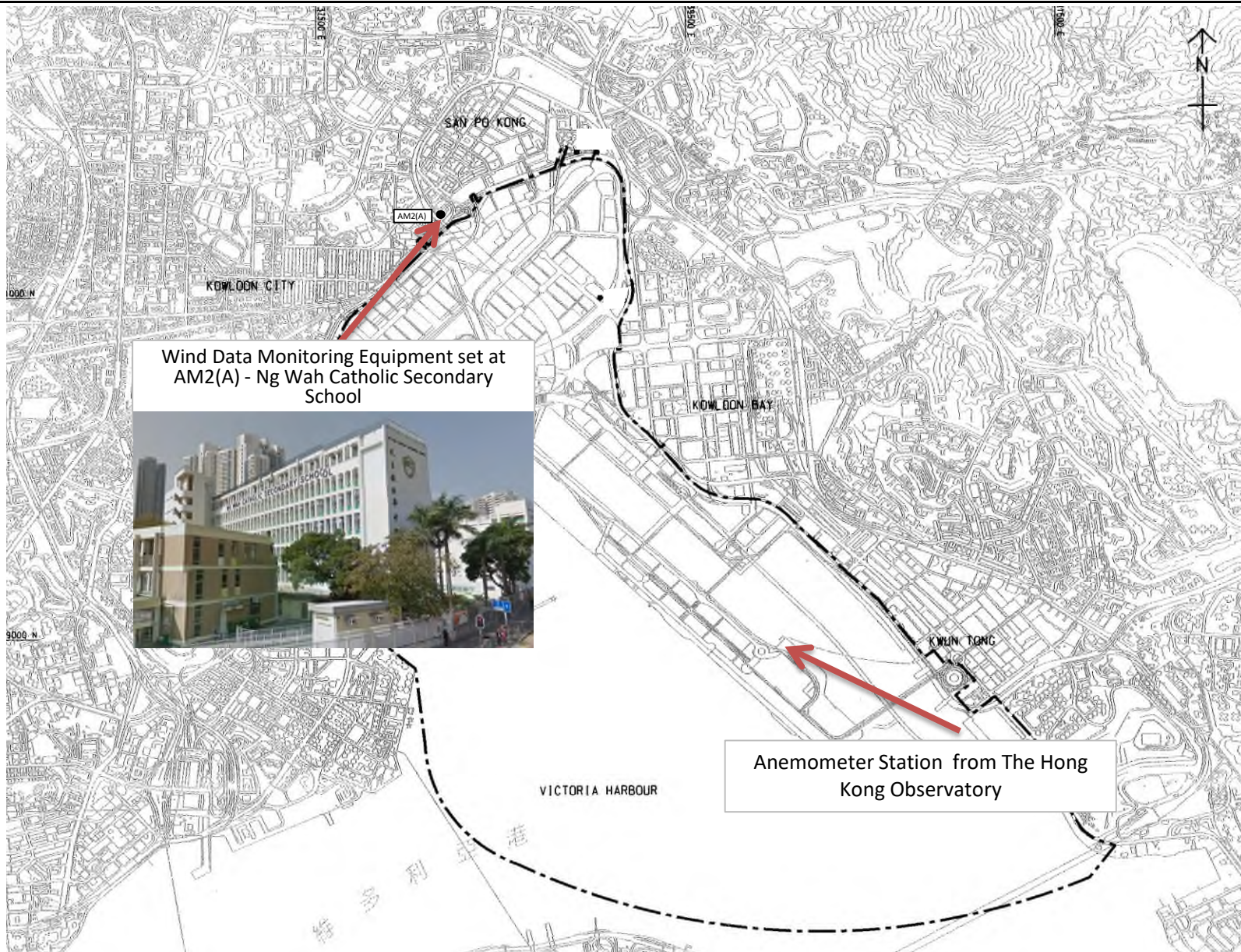
Scale	N.T.S	Project No.	MA13056
Date	Apr-17	Figure	2





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

CINOTECH



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



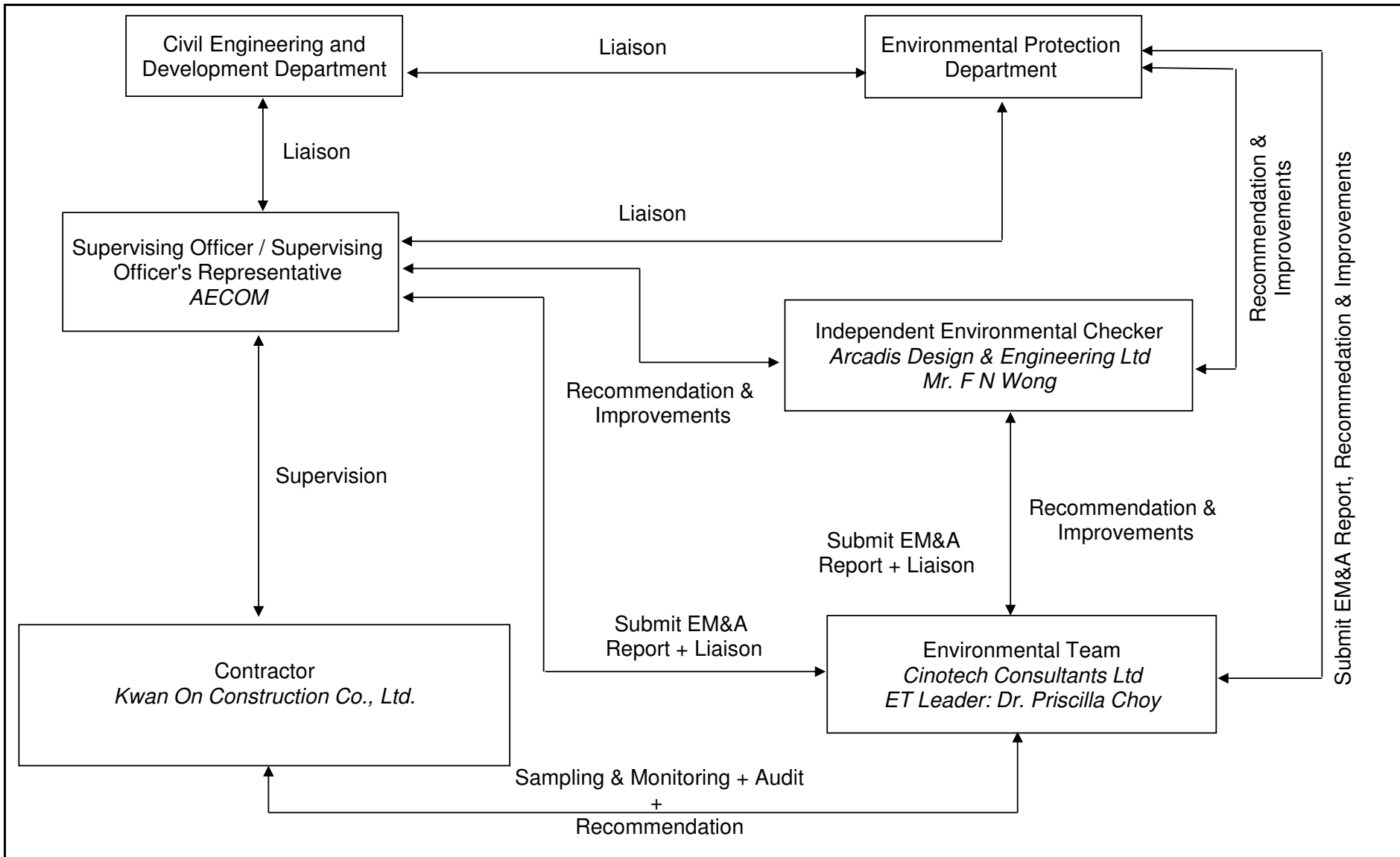
Anemometer Station from The Hong Kong Observatory

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

Location of Wind Data Monitoring Equipment

Scale	N.T.S	Project No.	MA13056
Date	Aug-17	Figure	4





Title	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Management Structure	Scale	N.T.S	Project No.	MA13056
		Date	Dec-16	Figure	5



**APPENDIX A
ACTION AND LIMIT LEVELS**

Appendix A - Action and Limit Levels

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

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM2	346	500
AM3(A)	351	
AM4(A)	371	
AM5(A)	345	

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

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM2	157	260
AM3(A)	167	
AM4(A)	187	
AM5(A)	156	

Table A-3 Action and Limit Levels for Construction Noise

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

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

**APPENDIX B
COPIES OF CALIBRATION
CERTIFICATES**

TEST REPORT

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

Test Report No.:	C/171027
Date of Issue:	2017-10-30
Date Received:	2017-10-27
Date Tested:	2017-10-27
Date Completed:	2017-10-30
Next Due Date:	2017-12-29

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

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

Test Conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 67 %

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)	0.0037
-------------------------	--------

PREPARED AND CHECKED BY:

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



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/171013C
Date of Issue:	2017-10-16
Date Received:	2017-10-13
Date Tested:	2017-10-13
Date Completed:	2017-10-16
Next Due Date:	2017-12-15

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	: 21 degree Celsius
Relative Humidity	: 60 %

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The 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)	1.155
-------------------------	-------

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/171013F
Date of Issue:	2017-10-16
Date Received:	2017-10-13
Date Tested:	2017-10-13
Date Completed:	2017-10-16
Next Due Date:	2017-12-15

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	: 21 degree Celsius
Relative Humidity	: 60 %

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The 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)	1.152
-------------------------	-------

PREPARED AND CHECKED BY:

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



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/170915
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 955
Serial No.	: 12553
Microphone No.	: 35222
Equipment No.	: N-08-02

Test conditions:

Room Temperature	: 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

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

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature : 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

TEST REPORT

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

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

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 60 %

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/161216
Date of Issue:	2016-12-19
Date Received:	2016-12-16
Date Tested:	2016-12-16
Date Completed:	2016-12-19
Next Due Date:	2017-12-15

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 Temperature	: 21 degree Celsius
Relative Humidity	: 60 %

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/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 Temperature	: 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

TEST REPORT

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

Test Report No.:	C/N/170929A
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.	: 24791
Equipment No.	: N-09-04

Test conditions:

Room Temperature	: 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

Calibration Certificate for High Volume Sampler (HVS)

CASTCO CASTCO TESTING CENTRE LTD.

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

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

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

Calibration Data

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

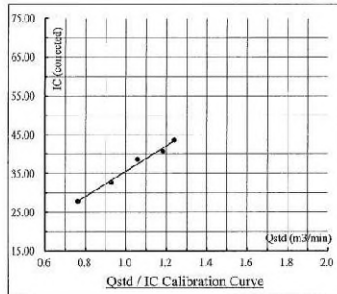
Qstd Slope, m = 2.0736 Qstd Intercept, b = -0.042800

Calibration Curve

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

Subsequent calculation of sampler flow

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



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

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

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

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

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

Checked by: [Signature]
Name: (Leung Miu Teng)

Form No. ENV CAL SAMPLER CCI 01/2/12203

Next Calibration Date: 07-Mar-2018

CASTCO CASTCO TESTING CENTRE LTD.

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

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

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

Calibration Data

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

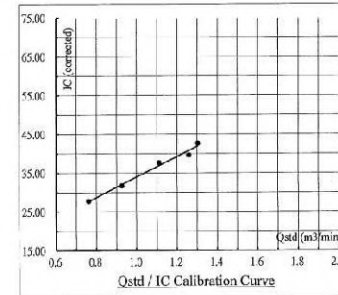
Qstd Slope, m = 2.0736 Qstd Intercept, b = -0.042800

Calibration Curve

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

Subsequent calculation of sampler flow

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



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

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

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

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

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

Checked by: [Signature]
Name: (Leung Miu Teng)

Form No. ENV CAL SAMPLER CCI 01/2/12203

Next Calibration Date: 07-Mar-2018

Calibration Certificate for High Volume Sampler (HVS)

CASTCO CASTCO TESTING CENTRE LTD.

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

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

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

Calibration Data

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

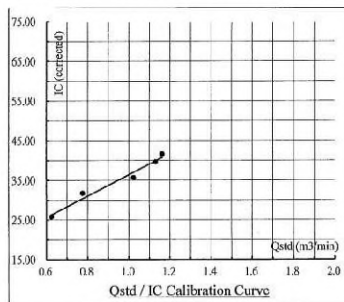
Qstd Slope, m = 2.0736 Qstd Intercept, b = -0.042800

Calibration Curve

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

Subsequent calculation of sampler flow

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



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

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

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

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

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

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

Form No. ENV CAL SAMPLER CCI 4412/22903

Next Calibration Date: 07-Mar-2018

CASTCO CASTCO TESTING CENTRE LTD.

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

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

Location: NFS Pump Room Sampler: TE-5170 X

Calibration Data

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

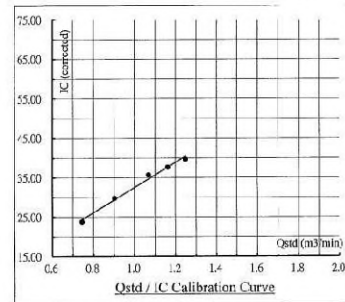
Qstd Slope, m = 2.0736 Qstd Intercept, b = -0.042800

Calibration Curve

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

Subsequent calculation of sampler flow

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



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

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

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

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

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

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

Form No. ENV CAL SAMPLER CCI 4412/22903

Next Calibration Date: 07-Mar-2018

Calibration Certificate for High Volume Sampler (HVS)

CASTCO CASTCO TESTING CENTRE LTD.

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

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

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

Calibration Data

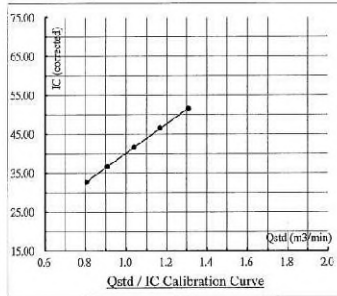
Ambient barometric pressure, Pa = 759 (mmHg) Ambient temperature, Ta = 303 (deg K)
Qstd Slope, m = 2.0736 Qstd Intercept, b = -0.042800

Calibration Curve

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

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Q_{std} = 1/m [I \{ \sqrt{(Pa/760)(298/Ta)} \}] - b$	27.639	2.4612	0.9998



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

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

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

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

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

Checked by : Leng Mio Tony
Name : (Leng Mio Tony)

Form No. ENV CAL-SAMPLER CCI 01/21/2009

Next Calibration Date: 07-Mar-2018

CASTCO CASTCO TESTING CENTRE LTD.

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

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

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

Calibration Data

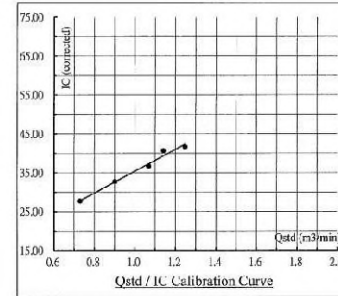
Ambient barometric pressure, Pa = 759 (mmHg) Ambient temperature, Ta = 303 (deg K)
Qstd Slope, m = 2.0736 Qstd Intercept, b = -0.042800

Calibration Curve

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

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Q_{std} = 1/m [I \{ \sqrt{(Pa/750)(298/Ta)} \}] - b$	27.875	7.5050	0.9902



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

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

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

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

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

Checked by : Leng Mio Tony
Name : (Leng Mio Tony)

Form No. ENV CAL-SAMPLER CCI 01/21/2009

Next Calibration Date: 07-Mar-2018

Calibration Certificate for High Volume Sampler (HVS)

CASTCO CASTCO TESTING CENTRE LTD.

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

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

Location: Tek Long Estate Sampler: TE-5170 X

Calibration Data

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

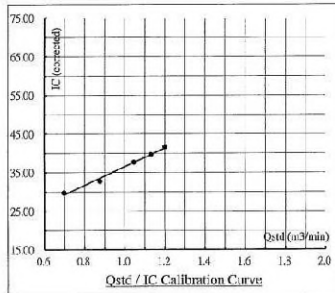
Qstd Slope, m = 2.0735 Qstd Intercept, b = -0.042800

Calibration Curve

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

Subsequent calculation of sampler flow

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



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

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

$IC (corrected) = 1 \{ \sqrt{1 + (Pa/760) (298/Ta)} \}$

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

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

Checked by: [Signature]
Name: (Jing Mio Teng)

Form No. ENV-CAL-SAMPLER-001 461202000



TISCH ENVIRONMENTAL, INC.
148 SOUTH MIAMI AVE
VILLAGE OF CLEVELAND, OH
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ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

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

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

DATA TABULATION

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

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

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

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

Next Calibration Date: 07-Mar-2018

APPENDIX C
WEATHER INFORMATION

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

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
1 November 2017	20.5 - 26.4	66	0
2 November 2017	20.9 - 27.8	67	0
3 November 2017	22.0 - 27.6	63	0
4 November 2017	20.7 - 25.8	58	0.3
5 November 2017	20.3 - 25.6	64	Trace
6 November 2017	21.3 - 25.8	68	Trace
7 November 2017	21.8 – 26.0	75	0.3
8 November 2017	23.1 - 27.3	78	Trace
9 November 2017	22.8 - 26.8	74	Trace
10 November 2017	22.9 - 28.4	74	0
11 November 2017	23.4 - 26.5	78	0
12 November 2017	21.1 - 23.5	87	14.7
13 November 2017	21.5 - 22.7	91	12.5
14 November 2017	22.0 – 24.0	88	0.2
15 November 2017	22.6 - 23.9	84	0
16 November 2017	22.2 - 26.2	81	0
17 November 2017	22.9 - 26.2	84	0
18 November 2017	20.1 - 26.5	83	1.9
19 November 2017	19.4 - 20.2	84	1

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

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
20 November 2017	17.9 - 20.3	78	0
21 November 2017	17.5 - 21.4	77	0
22 November 2017	17.3 - 22.9	70	0
23 November 2017	15.5 - 20.3	64	0
24 November 2017	16.5 - 20.8	65	0
25 November 2017	16.9 - 19.1	73	0
26 November 2017	18.1 - 22.4	73	0
27 November 2017	18.5 - 22.1	78	Trace
28 November 2017	20.6 - 24.6	79	Trace
29 November 2017	21.6 - 26.4	82	0
30 November 2017	21.8 - 23.2	90	0.3

* 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-Nov-2017	00:00	1.9	W
1-Nov-2017	01:00	1.8	W
1-Nov-2017	02:00	1.6	W
1-Nov-2017	03:00	1.6	W
1-Nov-2017	04:00	1.8	W
1-Nov-2017	05:00	1.4	S
1-Nov-2017	06:00	1.4	S
1-Nov-2017	07:00	1.5	S
1-Nov-2017	08:00	1.6	W
1-Nov-2017	09:00	1.9	SW
1-Nov-2017	10:00	2.2	S
1-Nov-2017	11:00	2.6	SW
1-Nov-2017	12:00	3	WSW
1-Nov-2017	13:00	2.9	SSW
1-Nov-2017	14:00	2.9	SSW
1-Nov-2017	15:00	2.9	WNW
1-Nov-2017	16:00	2.7	S
1-Nov-2017	17:00	2.5	W
1-Nov-2017	18:00	2	WNW
1-Nov-2017	19:00	1.9	N
1-Nov-2017	20:00	1.8	NE
1-Nov-2017	21:00	1.8	NNE
1-Nov-2017	22:00	1.9	NE
1-Nov-2017	23:00	1.8	ENE
2-Nov-2017	00:00	1.7	ENE
2-Nov-2017	01:00	1.7	SW
2-Nov-2017	02:00	1.8	SW
2-Nov-2017	03:00	1.6	S
2-Nov-2017	04:00	1.7	SSE
2-Nov-2017	05:00	1.7	ESE
2-Nov-2017	06:00	1.5	SW
2-Nov-2017	07:00	1.5	SW
2-Nov-2017	08:00	1.4	WSW
2-Nov-2017	09:00	1.7	W
2-Nov-2017	10:00	2	WSW
2-Nov-2017	11:00	2.6	SW
2-Nov-2017	12:00	2.7	E

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

II. Mean Wind Speed and Wind Direction

2-Nov-2017	13:00	2.6	SE
2-Nov-2017	14:00	2.8	SSE
2-Nov-2017	15:00	2.6	N
2-Nov-2017	16:00	2.5	ENE
2-Nov-2017	17:00	2.1	NE
2-Nov-2017	18:00	2.2	NE
2-Nov-2017	19:00	1.9	NE
2-Nov-2017	20:00	1.8	ENE
2-Nov-2017	21:00	2.2	ENE
2-Nov-2017	22:00	2.2	ENE
2-Nov-2017	23:00	2.2	SSW
3-Nov-2017	00:00	2.1	WSW
3-Nov-2017	01:00	2.2	SW
3-Nov-2017	02:00	2.1	SW
3-Nov-2017	03:00	2.1	SSW
3-Nov-2017	04:00	2.3	SSW
3-Nov-2017	05:00	2.1	SSW
3-Nov-2017	06:00	1.8	SSW
3-Nov-2017	07:00	2	NE
3-Nov-2017	08:00	1.8	ENE
3-Nov-2017	09:00	1.8	ENE
3-Nov-2017	10:00	2.2	NNE
3-Nov-2017	11:00	2.1	N
3-Nov-2017	12:00	2.3	NE
3-Nov-2017	13:00	2.6	ENE
3-Nov-2017	14:00	2.5	N
3-Nov-2017	15:00	2.7	ENE
3-Nov-2017	16:00	2.6	NE
3-Nov-2017	17:00	2.2	NNE
3-Nov-2017	18:00	2.3	NNE
3-Nov-2017	19:00	2.1	NNE
3-Nov-2017	20:00	1.7	ENE
3-Nov-2017	21:00	1.7	NE
3-Nov-2017	22:00	1.8	NNE
3-Nov-2017	23:00	1.7	NNE
4-Nov-2017	00:00	2.1	N
4-Nov-2017	01:00	2.3	NNE
4-Nov-2017	02:00	1.9	N

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

II. Mean Wind Speed and Wind Direction

4-Nov-2017	03:00	1.9	NNE
4-Nov-2017	04:00	1.9	NNE
4-Nov-2017	05:00	1.9	NNE
4-Nov-2017	06:00	1.9	NNE
4-Nov-2017	07:00	1.9	NNE
4-Nov-2017	08:00	2.5	NE
4-Nov-2017	09:00	2.6	NNE
4-Nov-2017	10:00	2.7	ENE
4-Nov-2017	11:00	3.2	WNW
4-Nov-2017	12:00	3.2	NE
4-Nov-2017	13:00	3.5	NE
4-Nov-2017	14:00	3.3	NE
4-Nov-2017	15:00	3.5	ENE
4-Nov-2017	16:00	2.9	ENE
4-Nov-2017	17:00	2.6	ENE
4-Nov-2017	18:00	2.3	NE
4-Nov-2017	19:00	1.8	NE
4-Nov-2017	20:00	1.8	NE
4-Nov-2017	21:00	1.5	NNE
4-Nov-2017	22:00	2.1	NNE
4-Nov-2017	23:00	2	NE
5-Nov-2017	00:00	2	NNE
5-Nov-2017	01:00	2.1	NE
5-Nov-2017	02:00	2.1	NNE
5-Nov-2017	03:00	2.2	NE
5-Nov-2017	04:00	2.4	NNE
5-Nov-2017	05:00	2.1	NNE
5-Nov-2017	06:00	1.9	NNE
5-Nov-2017	07:00	2	NNE
5-Nov-2017	08:00	2.1	NNE
5-Nov-2017	09:00	2.7	NNE
5-Nov-2017	10:00	2.9	ENE
5-Nov-2017	11:00	2.8	NE
5-Nov-2017	12:00	3	ENE
5-Nov-2017	13:00	3.2	NE
5-Nov-2017	14:00	3.2	NE
5-Nov-2017	15:00	3.2	NE
5-Nov-2017	16:00	3.2	ENE

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

II. Mean Wind Speed and Wind Direction

5-Nov-2017	17:00	3	ENE
5-Nov-2017	18:00	2.8	E
5-Nov-2017	19:00	2.5	NE
5-Nov-2017	20:00	2.7	ENE
5-Nov-2017	21:00	2.6	NE
5-Nov-2017	22:00	2.5	NE
5-Nov-2017	23:00	2.3	N
6-Nov-2017	00:00	2.4	ENE
6-Nov-2017	01:00	2.3	ENE
6-Nov-2017	02:00	2.2	ESE
6-Nov-2017	03:00	2.4	SSE
6-Nov-2017	04:00	2.4	ESE
6-Nov-2017	05:00	2.1	E
6-Nov-2017	06:00	2.1	E
6-Nov-2017	07:00	2.1	ESE
6-Nov-2017	08:00	2.2	E
6-Nov-2017	09:00	2.3	E
6-Nov-2017	10:00	2.3	NNE
6-Nov-2017	11:00	2.9	NE
6-Nov-2017	12:00	2.9	ENE
6-Nov-2017	13:00	3.1	E
6-Nov-2017	14:00	2.7	ENE
6-Nov-2017	15:00	2.6	ENE
6-Nov-2017	16:00	2.8	E
6-Nov-2017	17:00	2.6	NNE
6-Nov-2017	18:00	2.3	SSE
6-Nov-2017	19:00	2.2	SSE
6-Nov-2017	20:00	2.3	NE
6-Nov-2017	21:00	1.9	ENE
6-Nov-2017	22:00	2.1	ENE
6-Nov-2017	23:00	2	NE
7-Nov-2017	00:00	2	ENE
7-Nov-2017	01:00	2.2	ENE
7-Nov-2017	02:00	2	SSE
7-Nov-2017	03:00	1.9	ESE
7-Nov-2017	04:00	1.7	ENE
7-Nov-2017	05:00	1.7	ENE
7-Nov-2017	06:00	1.6	ENE

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

II. Mean Wind Speed and Wind Direction

7-Nov-2017	07:00	1.7	ENE
7-Nov-2017	08:00	1.8	ENE
7-Nov-2017	09:00	2.3	ENE
7-Nov-2017	10:00	2.2	NE
7-Nov-2017	11:00	2.2	ENE
7-Nov-2017	12:00	2.3	ENE
7-Nov-2017	13:00	2.1	ENE
7-Nov-2017	14:00	2	ENE
7-Nov-2017	15:00	2.1	ENE
7-Nov-2017	16:00	2	ENE
7-Nov-2017	17:00	2	SSW
7-Nov-2017	18:00	2	SSW
7-Nov-2017	19:00	1.9	SSW
7-Nov-2017	20:00	1.5	SSW
7-Nov-2017	21:00	1.4	N
7-Nov-2017	22:00	1.3	N
7-Nov-2017	23:00	1.3	SW
8-Nov-2017	00:00	1.2	W
8-Nov-2017	01:00	1.3	WSW
8-Nov-2017	02:00	1.4	NNW
8-Nov-2017	03:00	1.4	NW
8-Nov-2017	04:00	1.4	N
8-Nov-2017	05:00	1.5	SW
8-Nov-2017	06:00	1.6	SW
8-Nov-2017	07:00	1.8	SW
8-Nov-2017	08:00	1.9	SW
8-Nov-2017	09:00	2.1	NE
8-Nov-2017	10:00	2.7	SW
8-Nov-2017	11:00	2.8	SW
8-Nov-2017	12:00	2.7	SE
8-Nov-2017	13:00	2.7	SSE
8-Nov-2017	14:00	2.7	E
8-Nov-2017	15:00	2.9	SSW
8-Nov-2017	16:00	2.5	NE
8-Nov-2017	17:00	2.5	WSW
8-Nov-2017	18:00	2.1	WNW
8-Nov-2017	19:00	1.9	W
8-Nov-2017	20:00	1.9	NNE

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

II. Mean Wind Speed and Wind Direction

8-Nov-2017	21:00	2	SSW
8-Nov-2017	22:00	1.7	WNW
8-Nov-2017	23:00	1.5	ENE
9-Nov-2017	00:00	1.5	N
9-Nov-2017	01:00	1.7	ENE
9-Nov-2017	02:00	1.6	ENE
9-Nov-2017	03:00	1.6	SSE
9-Nov-2017	04:00	1.4	WNW
9-Nov-2017	05:00	1.4	NNE
9-Nov-2017	06:00	1.3	WNW
9-Nov-2017	07:00	1.4	N
9-Nov-2017	08:00	1.8	WNW
9-Nov-2017	09:00	2.3	SW
9-Nov-2017	10:00	2.7	SW
9-Nov-2017	11:00	2.9	WNW
9-Nov-2017	12:00	2.9	WNW
9-Nov-2017	13:00	2.7	N
9-Nov-2017	14:00	2.3	NNE
9-Nov-2017	15:00	2.4	SE
9-Nov-2017	16:00	2.3	SE
9-Nov-2017	17:00	2.3	SSW
9-Nov-2017	18:00	1.9	ESE
9-Nov-2017	19:00	1.5	SW
9-Nov-2017	20:00	1.2	SSW
9-Nov-2017	21:00	1.2	ENE
9-Nov-2017	22:00	1.2	E
9-Nov-2017	23:00	1.2	NW
10-Nov-2017	00:00	1.1	E
10-Nov-2017	01:00	1.2	WSW
10-Nov-2017	02:00	1.1	WNW
10-Nov-2017	03:00	1.2	WNW
10-Nov-2017	04:00	1.1	SSE
10-Nov-2017	05:00	1	WSW
10-Nov-2017	06:00	1.1	NE
10-Nov-2017	07:00	1.1	WNW
10-Nov-2017	08:00	1.1	ENE
10-Nov-2017	09:00	1.7	SW
10-Nov-2017	10:00	2.1	SSE

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

II. Mean Wind Speed and Wind Direction

10-Nov-2017	11:00	2.6	WNW
10-Nov-2017	12:00	2.9	ENE
10-Nov-2017	13:00	3.1	ENE
10-Nov-2017	14:00	2.8	ENE
10-Nov-2017	15:00	2.7	NE
10-Nov-2017	16:00	2.8	NNE
10-Nov-2017	17:00	3	NE
10-Nov-2017	18:00	2	ENE
10-Nov-2017	19:00	1.7	ENE
10-Nov-2017	20:00	2	ENE
10-Nov-2017	21:00	1.8	ENE
10-Nov-2017	22:00	2.5	NE
10-Nov-2017	23:00	1.7	NE
11-Nov-2017	00:00	2.4	NNE
11-Nov-2017	01:00	1.6	ENE
11-Nov-2017	02:00	1.9	NNE
11-Nov-2017	03:00	1.8	NNE
11-Nov-2017	04:00	1.7	NNE
11-Nov-2017	05:00	1.7	S
11-Nov-2017	06:00	1.8	SSW
11-Nov-2017	07:00	1.5	NW
11-Nov-2017	08:00	1.5	SSE
11-Nov-2017	09:00	1.9	N
11-Nov-2017	10:00	2.4	W
11-Nov-2017	11:00	2.6	NNE
11-Nov-2017	12:00	2.9	SSW
11-Nov-2017	13:00	2.9	SSW
11-Nov-2017	14:00	2.7	WNW
11-Nov-2017	15:00	2.7	N
11-Nov-2017	16:00	2.6	ENE
11-Nov-2017	17:00	2.2	SW
11-Nov-2017	18:00	1.6	WNW
11-Nov-2017	19:00	1.4	ENE
11-Nov-2017	20:00	1.6	ENE
11-Nov-2017	21:00	1.5	E
11-Nov-2017	22:00	1.6	SSE
11-Nov-2017	23:00	1.5	ENE
12-Nov-2017	00:00	1.5	ENE

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

II. Mean Wind Speed and Wind Direction

12-Nov-2017	01:00	1.3	NE
12-Nov-2017	02:00	1.4	S
12-Nov-2017	03:00	1.5	SE
12-Nov-2017	04:00	1.6	SW
12-Nov-2017	05:00	1.6	N
12-Nov-2017	06:00	1.4	SW
12-Nov-2017	07:00	1.6	W
12-Nov-2017	08:00	1.9	WSW
12-Nov-2017	09:00	2.3	SSE
12-Nov-2017	10:00	2.5	W
12-Nov-2017	11:00	2.7	WSW
12-Nov-2017	12:00	3.1	W
12-Nov-2017	13:00	3	WNW
12-Nov-2017	14:00	3.2	SW
12-Nov-2017	15:00	3	SW
12-Nov-2017	16:00	3	W
12-Nov-2017	17:00	2.5	W
12-Nov-2017	18:00	2.3	ENE
12-Nov-2017	19:00	2.1	ENE
12-Nov-2017	20:00	1.7	ENE
12-Nov-2017	21:00	1.5	ENE
12-Nov-2017	22:00	1.7	W
12-Nov-2017	23:00	1.9	W
13-Nov-2017	00:00	1.6	ENE
13-Nov-2017	01:00	1.7	ENE
13-Nov-2017	02:00	1.5	SW
13-Nov-2017	03:00	1.5	ESE
13-Nov-2017	04:00	1.7	SSW
13-Nov-2017	05:00	1.4	WSW
13-Nov-2017	06:00	1.6	W
13-Nov-2017	07:00	1.6	ENE
13-Nov-2017	08:00	1.7	WSW
13-Nov-2017	09:00	1.9	WSW
13-Nov-2017	10:00	2.3	W
13-Nov-2017	11:00	2.4	WSW
13-Nov-2017	12:00	2.9	WSW
13-Nov-2017	13:00	3	SW
13-Nov-2017	14:00	2.8	W

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

II. Mean Wind Speed and Wind Direction

13-Nov-2017	15:00	2.7	W
13-Nov-2017	16:00	2.4	W
13-Nov-2017	17:00	2.4	NE
13-Nov-2017	18:00	2.1	ENE
13-Nov-2017	19:00	1.7	WNW
13-Nov-2017	20:00	1.5	SE
13-Nov-2017	21:00	1.4	SE
13-Nov-2017	22:00	1.3	ESE
13-Nov-2017	23:00	1.7	S
14-Nov-2017	00:00	1.5	SSW
14-Nov-2017	01:00	1.6	W
14-Nov-2017	02:00	1.6	W
14-Nov-2017	03:00	1.8	WNW
14-Nov-2017	04:00	1.4	SW
14-Nov-2017	05:00	1.3	SW
14-Nov-2017	06:00	1.5	WSW
14-Nov-2017	07:00	1.4	SW
14-Nov-2017	08:00	1.7	SW
14-Nov-2017	09:00	2.1	W
14-Nov-2017	10:00	2.4	WSW
14-Nov-2017	11:00	2.7	WNW
14-Nov-2017	12:00	2.7	WNW
14-Nov-2017	13:00	2.9	WSW
14-Nov-2017	14:00	2.6	SW
14-Nov-2017	15:00	2.5	SW
14-Nov-2017	16:00	2.3	SW
14-Nov-2017	17:00	2.2	WSW
14-Nov-2017	18:00	2.3	WSW
14-Nov-2017	19:00	2.4	SW
14-Nov-2017	20:00	2.2	SSE
14-Nov-2017	21:00	2.3	SSE
14-Nov-2017	22:00	2.2	NNE
14-Nov-2017	23:00	2	NNE
15-Nov-2017	00:00	2	NNE
15-Nov-2017	01:00	1.9	ENE
15-Nov-2017	02:00	1.9	ENE
15-Nov-2017	03:00	1.9	ENE
15-Nov-2017	04:00	2	E

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

II. Mean Wind Speed and Wind Direction

15-Nov-2017	05:00	2.1	NE
15-Nov-2017	06:00	2.2	NE
15-Nov-2017	07:00	2.3	ENE
15-Nov-2017	08:00	2.4	ENE
15-Nov-2017	09:00	2.6	ENE
15-Nov-2017	10:00	2.4	NNE
15-Nov-2017	11:00	2.5	ESE
15-Nov-2017	12:00	2.4	ENE
15-Nov-2017	13:00	2.6	NE
15-Nov-2017	14:00	2.5	ENE
15-Nov-2017	15:00	2.5	ENE
15-Nov-2017	16:00	2.2	SW
15-Nov-2017	17:00	2.1	WSW
15-Nov-2017	18:00	2.3	SW
15-Nov-2017	19:00	2	SE
15-Nov-2017	20:00	2	ESE
15-Nov-2017	21:00	2	ESE
15-Nov-2017	22:00	1.9	ESE
15-Nov-2017	23:00	1.9	ENE
16-Nov-2017	00:00	2.1	NE
16-Nov-2017	01:00	2	N
16-Nov-2017	02:00	2	ENE
16-Nov-2017	03:00	1.7	ENE
16-Nov-2017	04:00	1.8	ENE
16-Nov-2017	05:00	1.9	NE
16-Nov-2017	06:00	1.4	NE
16-Nov-2017	07:00	1.8	NE
16-Nov-2017	08:00	1.8	ENE
16-Nov-2017	09:00	1.9	NNE
16-Nov-2017	10:00	2.1	NNE
16-Nov-2017	11:00	2.5	NNE
16-Nov-2017	12:00	2.8	NNE
16-Nov-2017	13:00	2.9	NE
16-Nov-2017	14:00	2.6	NE
16-Nov-2017	15:00	2.9	NE
16-Nov-2017	16:00	2.4	ENE
16-Nov-2017	17:00	2.3	ENE
16-Nov-2017	18:00	2.5	ENE

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

II. Mean Wind Speed and Wind Direction

16-Nov-2017	19:00	2.3	SE
16-Nov-2017	20:00	1.6	NE
16-Nov-2017	21:00	1.8	NE
16-Nov-2017	22:00	1.5	ESE
16-Nov-2017	23:00	1.4	S
17-Nov-2017	00:00	1.7	NE
17-Nov-2017	01:00	1.7	N
17-Nov-2017	02:00	1.6	SSE
17-Nov-2017	03:00	1.8	NNE
17-Nov-2017	04:00	1.2	ENE
17-Nov-2017	05:00	1.4	NNE
17-Nov-2017	06:00	2.1	SSE
17-Nov-2017	07:00	1.5	NE
17-Nov-2017	08:00	1.4	NW
17-Nov-2017	09:00	1.7	WNW
17-Nov-2017	10:00	1.9	WNW
17-Nov-2017	11:00	2.6	W
17-Nov-2017	12:00	2.7	ESE
17-Nov-2017	13:00	2.5	ESE
17-Nov-2017	14:00	2.5	SE
17-Nov-2017	15:00	2.4	SSE
17-Nov-2017	16:00	3	WNW
17-Nov-2017	17:00	2	WSW
17-Nov-2017	18:00	2.1	SW
17-Nov-2017	19:00	1.9	SW
17-Nov-2017	20:00	1.5	WSW
17-Nov-2017	21:00	1.4	WNW
17-Nov-2017	22:00	1.4	WNW
17-Nov-2017	23:00	1.4	ENE
18-Nov-2017	00:00	1.3	SSW
18-Nov-2017	01:00	1.6	W
18-Nov-2017	02:00	1.4	SSE
18-Nov-2017	03:00	1.4	SSE
18-Nov-2017	04:00	1.5	WNW
18-Nov-2017	05:00	1.8	NNW
18-Nov-2017	06:00	1.5	NNW
18-Nov-2017	07:00	1.5	SSE
18-Nov-2017	08:00	1.9	SSE

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

II. Mean Wind Speed and Wind Direction

18-Nov-2017	09:00	2.5	SE
18-Nov-2017	10:00	3.2	NNE
18-Nov-2017	11:00	3.2	NNE
18-Nov-2017	12:00	3.3	NNE
18-Nov-2017	13:00	3.5	NNE
18-Nov-2017	14:00	3.4	SE
18-Nov-2017	15:00	3.6	SE
18-Nov-2017	16:00	3.4	SE
18-Nov-2017	17:00	2.9	SSE
18-Nov-2017	18:00	2.7	SSE
18-Nov-2017	19:00	2.6	ESE
18-Nov-2017	20:00	2.4	E
18-Nov-2017	21:00	2.3	ENE
18-Nov-2017	22:00	2.5	NE
18-Nov-2017	23:00	2.4	ENE
19-Nov-2017	00:00	2.6	SW
19-Nov-2017	01:00	2.5	SW
19-Nov-2017	02:00	2.6	WNW
19-Nov-2017	03:00	2.4	W
19-Nov-2017	04:00	2	NNE
19-Nov-2017	05:00	2.3	NE
19-Nov-2017	06:00	2	NE
19-Nov-2017	07:00	1.8	N
19-Nov-2017	08:00	2.3	NE
19-Nov-2017	09:00	2.6	SSE
19-Nov-2017	10:00	2.6	ENE
19-Nov-2017	11:00	2.9	NNE
19-Nov-2017	12:00	3.1	NNE
19-Nov-2017	13:00	2.9	ESE
19-Nov-2017	14:00	2.6	ESE
19-Nov-2017	15:00	3.1	N
19-Nov-2017	16:00	2.9	N
19-Nov-2017	17:00	2.6	E
19-Nov-2017	18:00	2.2	SE
19-Nov-2017	19:00	1.6	SE
19-Nov-2017	20:00	1.5	SE
19-Nov-2017	21:00	1.1	ESE
19-Nov-2017	22:00	1.8	ESE

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

II. Mean Wind Speed and Wind Direction

19-Nov-2017	23:00	1.6	ESE
20-Nov-2017	00:00	1.6	ESE
20-Nov-2017	01:00	1.5	ESE
20-Nov-2017	02:00	1.5	ESE
20-Nov-2017	03:00	1.5	ESE
20-Nov-2017	04:00	1.5	NE
20-Nov-2017	05:00	1.6	SE
20-Nov-2017	06:00	1.7	ESE
20-Nov-2017	07:00	1.4	NNE
20-Nov-2017	08:00	1.3	NNE
20-Nov-2017	09:00	1.9	ENE
20-Nov-2017	10:00	1.9	W
20-Nov-2017	11:00	2	SSW
20-Nov-2017	12:00	2.1	SW
20-Nov-2017	13:00	2.3	NW
20-Nov-2017	14:00	2.3	S
20-Nov-2017	15:00	2.4	S
20-Nov-2017	16:00	2.3	WSW
20-Nov-2017	17:00	2.2	NNW
20-Nov-2017	18:00	1.5	ESE
20-Nov-2017	19:00	1.5	SSW
20-Nov-2017	20:00	1.5	NE
20-Nov-2017	21:00	1.7	NE
20-Nov-2017	22:00	1.7	NE
20-Nov-2017	23:00	2.1	NE
21-Nov-2017	00:00	1.4	SE
21-Nov-2017	01:00	1.3	ENE
21-Nov-2017	02:00	1.4	SW
21-Nov-2017	03:00	1.6	SW
21-Nov-2017	04:00	1.4	NNE
21-Nov-2017	05:00	1.9	NNE
21-Nov-2017	06:00	1.5	SE
21-Nov-2017	07:00	1.3	E
21-Nov-2017	08:00	1.3	ESE
21-Nov-2017	09:00	1.6	ESE
21-Nov-2017	10:00	2	NE
21-Nov-2017	11:00	2.2	E
21-Nov-2017	12:00	2.2	ESE

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

II. Mean Wind Speed and Wind Direction

21-Nov-2017	13:00	2.4	NE
21-Nov-2017	14:00	2.3	E
21-Nov-2017	15:00	1.8	E
21-Nov-2017	16:00	2	E
21-Nov-2017	17:00	2.1	ESE
21-Nov-2017	18:00	2.1	SE
21-Nov-2017	19:00	1.9	ENE
21-Nov-2017	20:00	1.8	E
21-Nov-2017	21:00	2	NE
21-Nov-2017	22:00	1.8	NE
21-Nov-2017	23:00	2	ENE
22-Nov-2017	00:00	1.9	N
22-Nov-2017	01:00	1.4	ESE
22-Nov-2017	02:00	1.4	SSE
22-Nov-2017	03:00	1.4	SSE
22-Nov-2017	04:00	1.5	SE
22-Nov-2017	05:00	1.2	SE
22-Nov-2017	06:00	1.5	SE
22-Nov-2017	07:00	1.4	SE
22-Nov-2017	08:00	2	ESE
22-Nov-2017	09:00	1.9	ESE
22-Nov-2017	10:00	2.1	SE
22-Nov-2017	11:00	2.3	SE
22-Nov-2017	12:00	2.4	ESE
22-Nov-2017	13:00	2.4	ESE
22-Nov-2017	14:00	2.3	ESE
22-Nov-2017	15:00	2.5	ESE
22-Nov-2017	16:00	2.5	SSE
22-Nov-2017	17:00	2.4	SSE
22-Nov-2017	18:00	2.1	SSE
22-Nov-2017	19:00	2	E
22-Nov-2017	20:00	1.9	ENE
22-Nov-2017	21:00	1.9	ESE
22-Nov-2017	22:00	1.4	SSE
22-Nov-2017	23:00	1.6	ESE
23-Nov-2017	00:00	1.6	ESE
23-Nov-2017	01:00	1.3	ESE
23-Nov-2017	02:00	1.3	ESE

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

II. Mean Wind Speed and Wind Direction

23-Nov-2017	03:00	1.4	NE
23-Nov-2017	04:00	1.1	E
23-Nov-2017	05:00	1.1	NNE
23-Nov-2017	06:00	1.2	NNE
23-Nov-2017	07:00	1.2	NE
23-Nov-2017	08:00	1.4	NE
23-Nov-2017	09:00	1.7	ENE
23-Nov-2017	10:00	2.1	SSE
23-Nov-2017	11:00	2.3	ENE
23-Nov-2017	12:00	2.3	ESE
23-Nov-2017	13:00	2.4	SE
23-Nov-2017	14:00	2.3	ENE
23-Nov-2017	15:00	2.5	ENE
23-Nov-2017	16:00	2.5	NNE
23-Nov-2017	17:00	2.1	W
23-Nov-2017	18:00	1.9	NE
23-Nov-2017	19:00	1.9	SSW
23-Nov-2017	20:00	1.7	W
23-Nov-2017	21:00	1.5	NNE
23-Nov-2017	22:00	1.5	SSE
23-Nov-2017	23:00	1.4	NNE
24-Nov-2017	00:00	1.3	NNE
24-Nov-2017	01:00	1.4	NE
24-Nov-2017	02:00	1.5	NNE
24-Nov-2017	03:00	1.5	ENE
24-Nov-2017	04:00	1.5	ENE
24-Nov-2017	05:00	1.7	SE
24-Nov-2017	06:00	1.6	W
24-Nov-2017	07:00	1.4	NE
24-Nov-2017	08:00	1.8	NE
24-Nov-2017	09:00	2.1	NE
24-Nov-2017	10:00	2.4	NE
24-Nov-2017	11:00	2.5	ENE
24-Nov-2017	12:00	2.3	N
24-Nov-2017	13:00	2.6	ESE
24-Nov-2017	14:00	2.5	ESE
24-Nov-2017	15:00	2.5	SSE
24-Nov-2017	16:00	2.5	W

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

II. Mean Wind Speed and Wind Direction

24-Nov-2017	17:00	2.5	ENE
24-Nov-2017	18:00	2	ENE
24-Nov-2017	19:00	1.7	SSE
24-Nov-2017	20:00	1.6	ENE
24-Nov-2017	21:00	2	ENE
24-Nov-2017	22:00	1.9	NE
24-Nov-2017	23:00	1.8	ESE
25-Nov-2017	00:00	1.8	ENE
25-Nov-2017	01:00	1.7	E
25-Nov-2017	02:00	1.5	E
25-Nov-2017	03:00	1.6	SE
25-Nov-2017	04:00	1.5	SSE
25-Nov-2017	05:00	1.5	E
25-Nov-2017	06:00	1.6	ESE
25-Nov-2017	07:00	1.5	SE
25-Nov-2017	08:00	1.5	ENE
25-Nov-2017	09:00	1.8	SSE
25-Nov-2017	10:00	1.9	SSE
25-Nov-2017	11:00	2.3	ENE
25-Nov-2017	12:00	2.1	SSE
25-Nov-2017	13:00	2.2	SE
25-Nov-2017	14:00	2.4	S
25-Nov-2017	15:00	2.3	SE
25-Nov-2017	16:00	2.3	SSE
25-Nov-2017	17:00	1.9	S
25-Nov-2017	18:00	1.7	ESE
25-Nov-2017	19:00	1.7	ENE
25-Nov-2017	20:00	1.5	SE
25-Nov-2017	21:00	1.5	SSE
25-Nov-2017	22:00	1.5	ESE
25-Nov-2017	23:00	1.5	E
26-Nov-2017	00:00	1.4	SSE
26-Nov-2017	01:00	1.4	SE
26-Nov-2017	02:00	1.6	ESE
26-Nov-2017	03:00	1.7	ENE
26-Nov-2017	04:00	1.1	S
26-Nov-2017	05:00	1	ESE
26-Nov-2017	06:00	1.1	SE

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

II. Mean Wind Speed and Wind Direction

26-Nov-2017	07:00	1.5	SE
26-Nov-2017	08:00	1.5	SSE
26-Nov-2017	09:00	1.7	SE
26-Nov-2017	10:00	1.7	SSE
26-Nov-2017	11:00	2.3	ENE
26-Nov-2017	12:00	2.4	NNE
26-Nov-2017	13:00	2.5	ESE
26-Nov-2017	14:00	2.4	S
26-Nov-2017	15:00	2.2	NNW
26-Nov-2017	16:00	2.2	NNW
26-Nov-2017	17:00	1.9	SE
26-Nov-2017	18:00	1.5	NNE
26-Nov-2017	19:00	1.5	ENE
26-Nov-2017	20:00	1.3	ENE
26-Nov-2017	21:00	1.7	NE
26-Nov-2017	22:00	1.4	NE
26-Nov-2017	23:00	1.5	SSE
27-Nov-2017	00:00	1.7	SSE
27-Nov-2017	01:00	1.4	SE
27-Nov-2017	02:00	1.4	SSE
27-Nov-2017	03:00	1.2	NNE
27-Nov-2017	04:00	1	ENE
27-Nov-2017	05:00	1.1	ENE
27-Nov-2017	06:00	0.9	E
27-Nov-2017	07:00	1	E
27-Nov-2017	08:00	1.1	NNE
27-Nov-2017	09:00	1.4	NNE
27-Nov-2017	10:00	1.7	NE
27-Nov-2017	11:00	1.6	SE
27-Nov-2017	12:00	1.9	SE
27-Nov-2017	13:00	1.8	ENE
27-Nov-2017	14:00	1.8	NE
27-Nov-2017	15:00	1.7	ENE
27-Nov-2017	16:00	1.4	SE
27-Nov-2017	17:00	1.5	SE
27-Nov-2017	18:00	1.2	N
27-Nov-2017	19:00	1	SW
27-Nov-2017	20:00	1	WSW

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

II. Mean Wind Speed and Wind Direction

27-Nov-2017	21:00	1	E
27-Nov-2017	22:00	0.8	E
27-Nov-2017	23:00	1.2	E
28-Nov-2017	00:00	1.2	ESE
28-Nov-2017	01:00	1.1	SSW
28-Nov-2017	02:00	1.1	SSW
28-Nov-2017	03:00	1	SSW
28-Nov-2017	04:00	1.1	ENE
28-Nov-2017	05:00	1.1	ENE
28-Nov-2017	06:00	1	NE
28-Nov-2017	07:00	1.1	WNW
28-Nov-2017	08:00	1.1	WNW
28-Nov-2017	09:00	1.3	WNW
28-Nov-2017	10:00	1.6	NW
28-Nov-2017	11:00	1.7	SSE
28-Nov-2017	12:00	1.7	ENE
28-Nov-2017	13:00	2.1	SE
28-Nov-2017	14:00	1.6	SE
28-Nov-2017	15:00	2.7	ENE
28-Nov-2017	16:00	2.5	SE
28-Nov-2017	17:00	2.9	ESE
28-Nov-2017	18:00	2.5	SSE
28-Nov-2017	19:00	2	NE
28-Nov-2017	20:00	2.2	ESE
28-Nov-2017	21:00	2.5	SSE
28-Nov-2017	22:00	2.3	WNW
28-Nov-2017	23:00	2.3	SW
29-Nov-2017	00:00	2.4	SW
29-Nov-2017	01:00	2.5	W
29-Nov-2017	02:00	2.5	SSW
29-Nov-2017	03:00	2.4	SW
29-Nov-2017	04:00	2.2	ENE
29-Nov-2017	05:00	3.2	ENE
29-Nov-2017	06:00	2.3	ENE
29-Nov-2017	07:00	2.3	SW
29-Nov-2017	08:00	2.1	W
29-Nov-2017	09:00	2.2	WSW
29-Nov-2017	10:00	3.2	ENE

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

II. Mean Wind Speed and Wind Direction

29-Nov-2017	11:00	3.7	NNE
29-Nov-2017	12:00	2.5	ENE
29-Nov-2017	13:00	2.5	S
29-Nov-2017	14:00	2.4	W
29-Nov-2017	15:00	2.7	NE
29-Nov-2017	16:00	2.6	N
29-Nov-2017	17:00	2.4	WNW
29-Nov-2017	18:00	2.2	WNW
29-Nov-2017	19:00	2.5	WNW
29-Nov-2017	20:00	2.2	S
29-Nov-2017	21:00	2.4	N
29-Nov-2017	22:00	2.7	NNE
29-Nov-2017	23:00	2.1	NE
30-Nov-2017	00:00	2.1	E
30-Nov-2017	01:00	2.2	SSE
30-Nov-2017	02:00	2.3	WNW
30-Nov-2017	03:00	2.1	SW
30-Nov-2017	04:00	2.1	SW
30-Nov-2017	05:00	1.6	W
30-Nov-2017	06:00	1.2	SSW
30-Nov-2017	07:00	1	WSW
30-Nov-2017	08:00	1.4	W
30-Nov-2017	09:00	1.4	SW
30-Nov-2017	10:00	1.5	W
30-Nov-2017	11:00	1.4	WSW
30-Nov-2017	12:00	1.6	WSW
30-Nov-2017	13:00	2.2	NE
30-Nov-2017	14:00	1.4	W
30-Nov-2017	15:00	1.6	ENE
30-Nov-2017	16:00	1.6	SE
30-Nov-2017	17:00	1.6	ESE
30-Nov-2017	18:00	1.2	ESE
30-Nov-2017	19:00	1.8	NE
30-Nov-2017	20:00	2.4	SE
30-Nov-2017	21:00	1	NE
30-Nov-2017	22:00	1.4	SSE
30-Nov-2017	23:00	1.5	SSE

**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 November 2017

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

Monitoring work conducted by Castco is highlighted in blue

Air Quality Monitoring Station

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

Noise Monitoring Station

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

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

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

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 ($\mu\text{g}/\text{m}^3$)
6-Nov-17	13:00	Cloudy	197.7
6-Nov-17	14:00	Cloudy	205.7
6-Nov-17	15:00	Cloudy	201.8
11-Nov-17	13:00	Cloudy	250.4
11-Nov-17	14:00	Cloudy	241.5
11-Nov-17	15:00	Cloudy	246.9
17-Nov-17	9:00	Sunny	341.3
17-Nov-17	10:00	Sunny	325.3
17-Nov-17	11:00	Sunny	335.7
23-Nov-17	13:00	Sunny	340.2
23-Nov-17	14:00	Sunny	334.9
23-Nov-17	15:00	Sunny	318.7
29-Nov-17	13:10	Fine	195.8
29-Nov-17	14:10	Fine	170.3
29-Nov-17	15:10	Fine	167.2
		Average	258.2
		Maximum	341.3
		Minimum	167.2

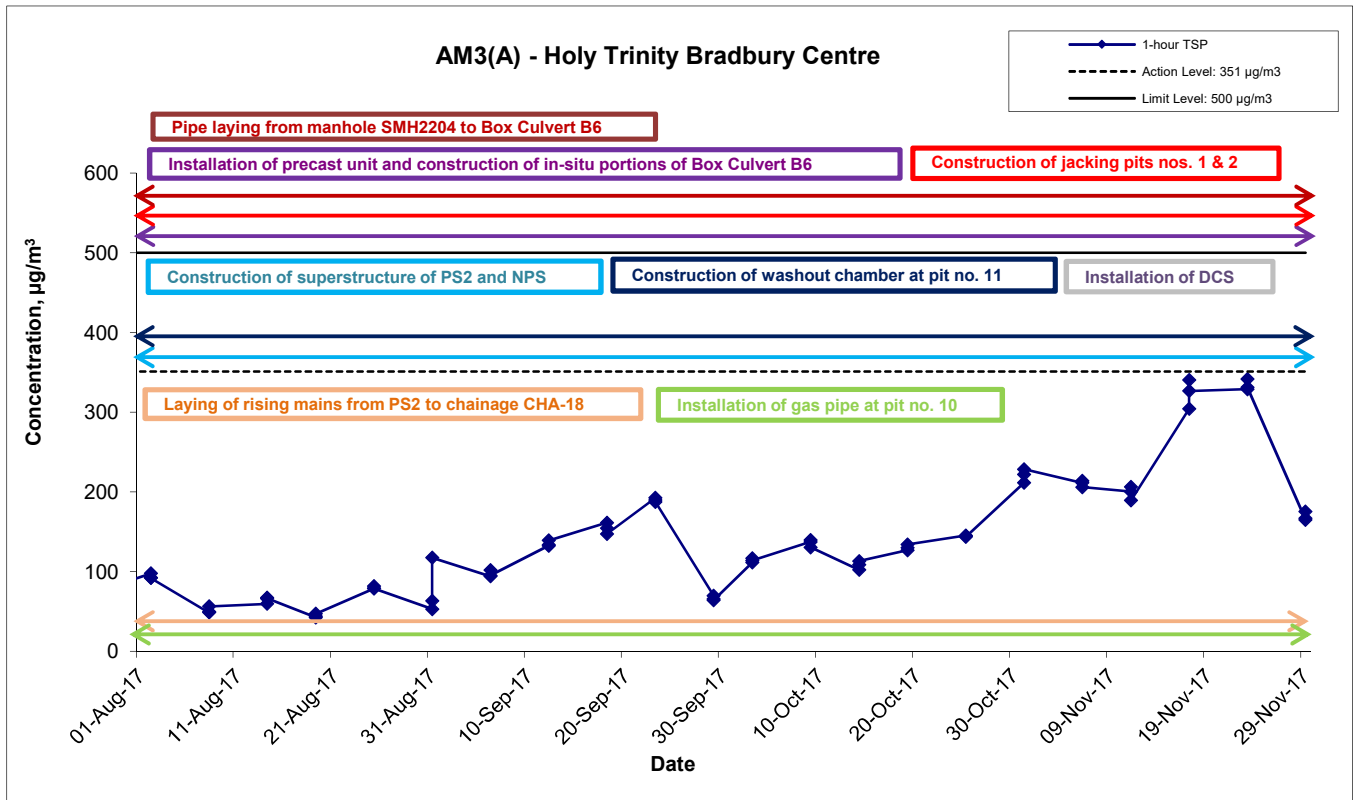
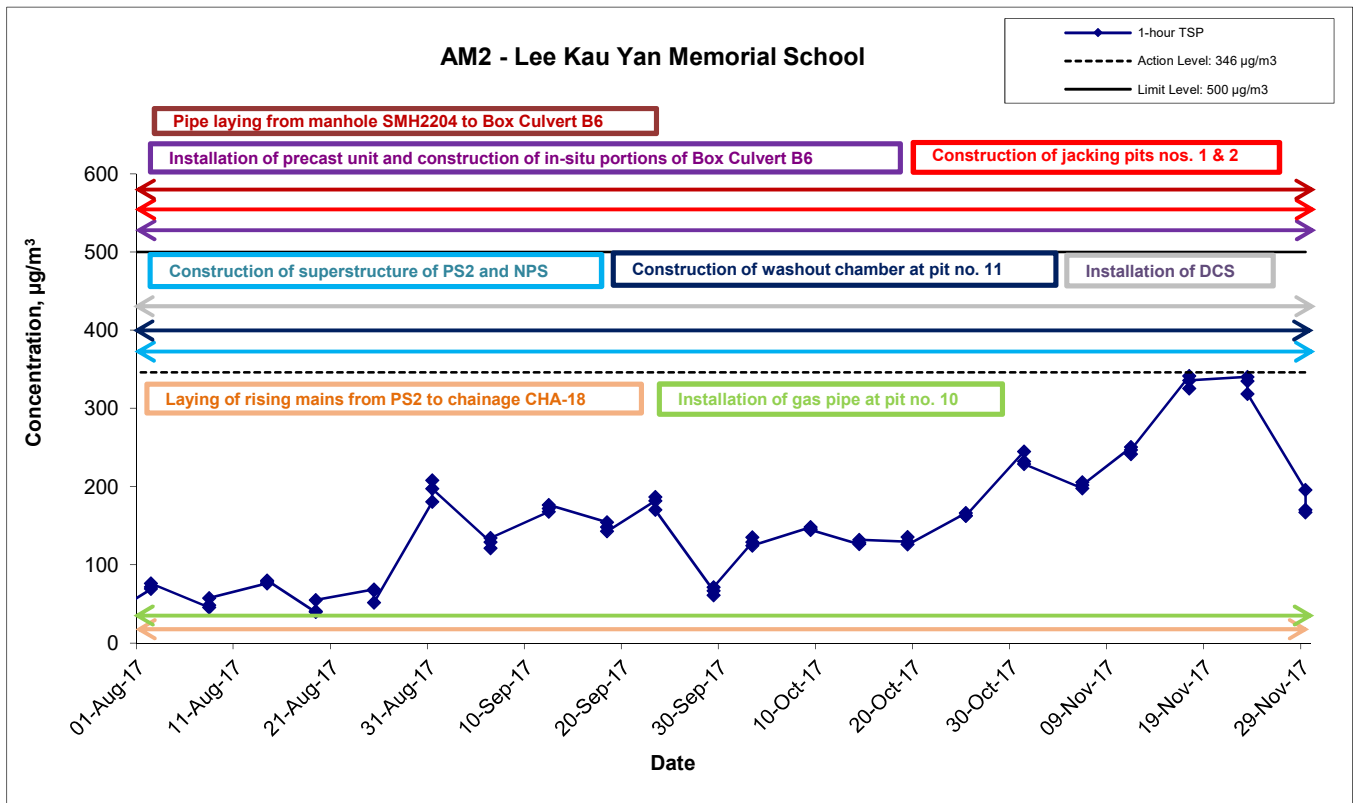
Location AM3(A) - Holy Trinity Bradury Centre			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
6-Nov-17	9:00	Cloudy	211.5
6-Nov-17	10:00	Cloudy	214.1
6-Nov-17	11:00	Cloudy	205.9
11-Nov-17	9:00	Cloudy	200.3
11-Nov-17	10:00	Cloudy	206.5
11-Nov-17	11:00	Cloudy	189.4
17-Nov-17	13:00	Sunny	304.4
17-Nov-17	14:00	Sunny	340.3
17-Nov-17	15:00	Sunny	326.6
23-Nov-17	9:00	Sunny	328.8
23-Nov-17	10:00	Sunny	341.7
23-Nov-17	11:00	Sunny	331.4
29-Nov-17	9:00	Sunny	165.0
29-Nov-17	10:00	Sunny	166.9
29-Nov-17	11:00	Sunny	175.5
		Average	247.2
		Maximum	341.7
		Minimum	165.0

Appendix E - 1-hour TSP Monitoring Results

Location AM4(C) - New Pumping Station			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
3-Nov-17	13:00	Sunny	190.5
3-Nov-17	14:00	Sunny	204.9
3-Nov-17	15:00	Sunny	206.9
9-Nov-17	13:00	Sunny	206.9
9-Nov-17	14:00	Sunny	218.3
9-Nov-17	15:00	Sunny	210.2
15-Nov-17	14:00	Cloudy	134.2
15-Nov-17	15:00	Cloudy	161.4
15-Nov-17	16:00	Cloudy	179.8
21-Nov-17	13:00	Cloudy	222.5
21-Nov-17	14:00	Cloudy	215.5
21-Nov-17	15:00	Cloudy	221.9
27-Nov-17	9:00	Sunny	118.6
27-Nov-17	10:00	Sunny	139.6
27-Nov-17	11:00	Sunny	146.8
		Average	185.2
		Maximum	222.5
		Minimum	118.6

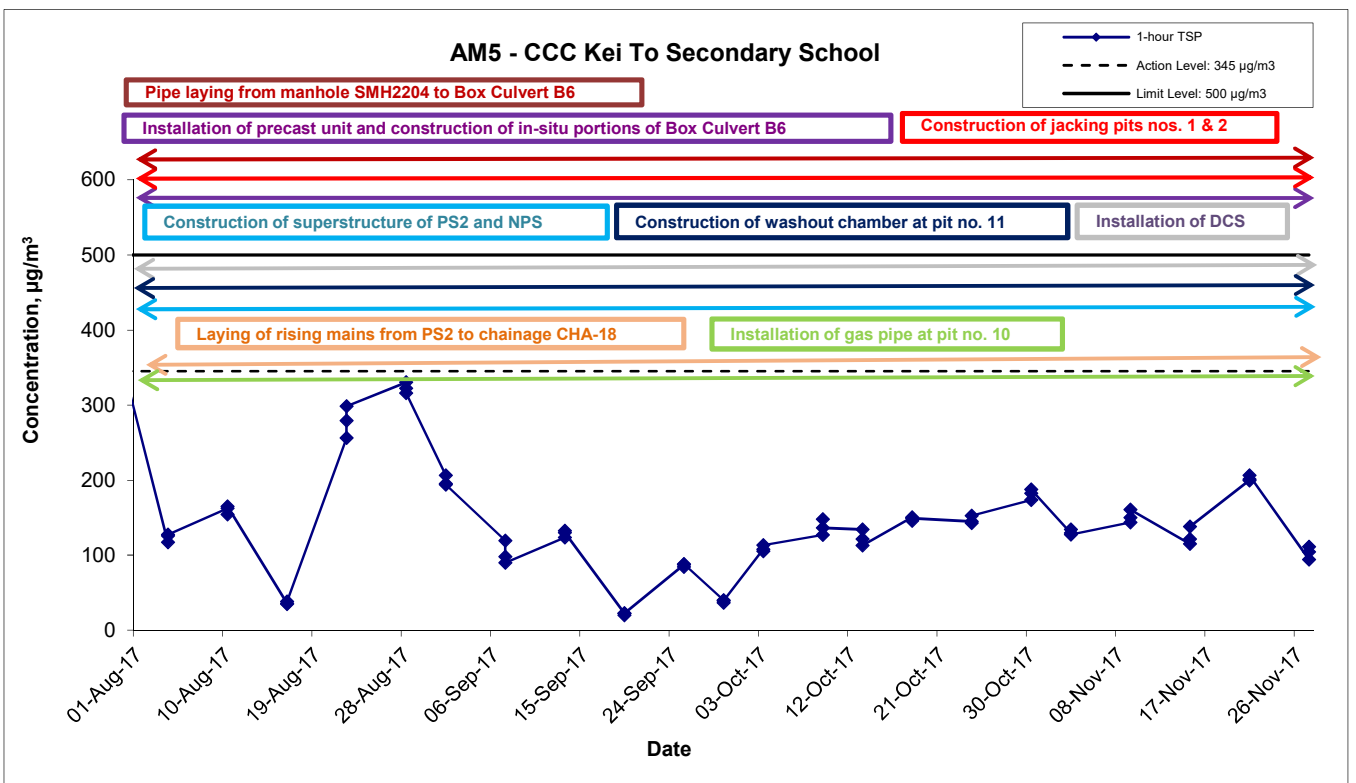
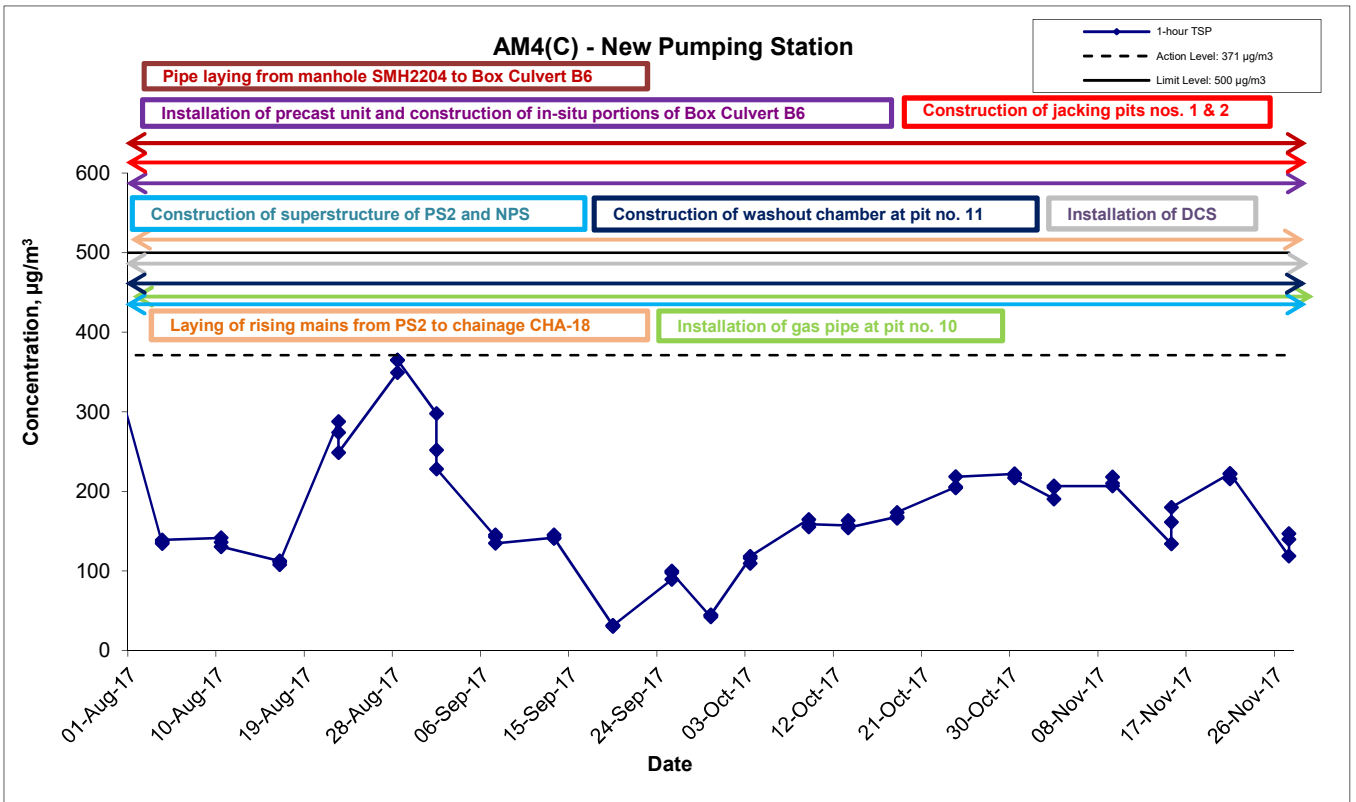
Location AM5 - CCC Kei To Secondary School			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
3-Nov-17	9:00	Sunny	129.7
3-Nov-17	10:00	Sunny	134.4
3-Nov-17	11:00	Sunny	127.6
9-Nov-17	9:00	Sunny	143.6
9-Nov-17	10:00	Sunny	150.2
9-Nov-17	11:00	Sunny	160.8
15-Nov-17	9:00	Cloudy	114.9
15-Nov-17	10:00	Cloudy	121.5
15-Nov-17	11:00	Cloudy	138.0
21-Nov-17	9:00	Cloudy	199.7
21-Nov-17	10:00	Cloudy	201.1
21-Nov-17	11:00	Cloudy	206.3
27-Nov-17	13:00	Sunny	94.4
27-Nov-17	14:00	Sunny	111.1
27-Nov-17	15:00	Sunny	104.3
		Average	142.5
		Maximum	206.3
		Minimum	94.4

1-hr TSP Concentration Levels



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

1-hr TSP Concentration Levels



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

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

Appendix F - 24-hour TSP Monitoring Results

Location AM2(A) - Ng Wah Catholic Secondary School

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
2-Nov-17	Sunny	297.9	764.4	2.8815	3.1347	0.2532	16027.2	16051.2	24.0	1.23	1.23	1.23	1777.6	142.4
8-Nov-17	Cloudy	296.3	765.8	2.8652	3.0385	0.1733	16075.2	16099.2	24.0	1.24	1.24	1.24	1784.1	97.1
14-Nov-17	Cloudy	296.1	764.6	2.8778	3.0087	0.1309	16123.2	16147.2	24.0	1.24	1.24	1.24	1783.3	73.4
20-Nov-17	Cloudy	291.9	767.3	2.8721	2.9918	0.1197	16171.2	16195.2	24.0	1.25	1.25	1.25	1799.6	66.5
24-Nov-17	Cloudy	290.2	770.3	2.8934	3.0656	0.1722	16219.2	16243.2	24.0	1.21	1.21	1.21	1745.0	98.7
30-Nov-17	Cloudy	295.3	766.3	2.8178	2.9972	0.1794	16267.2	16291.2	24.0	1.20	1.20	1.20	1725.4	104.0
													Min	66.5
													Max	142.4
													Average	97.0

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

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
2-Nov-17	Sunny	298.3	763.9	2.9081	3.1058	0.1977	209.1	233.1	24.0	1.23	1.23	1.23	1772.8	111.5
8-Nov-17	Cloudy	297.4	765.3	2.8606	3.1329	0.2723	233.1	257.1	24.0	1.23	1.23	1.23	1777.4	153.2
14-Nov-17	Cloudy	296.8	764.0	2.8317	2.9722	0.1405	257.1	281.1	24.0	1.22	1.22	1.22	1754.5	80.1
20-Nov-17	Cloudy	291.4	767.7	2.8391	3.0257	0.1866	281.1	305.1	24.0	1.23	1.23	1.23	1775.6	105.1
24-Nov-17	Cloudy	291.5	770.1	2.8744	3.1530	0.2786	305.1	329.1	24.0	1.24	1.23	1.23	1778.2	156.7
30-Nov-17	Sunny	295.1	766.6	2.8632	3.0538	0.1906	329.1	353.1	24.0	1.22	1.22	1.22	1762.8	108.1
													Min	80.1
													Max	156.7
													Average	119.1

Location AM5 - CCC Kei To Secondary School

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
2-Nov-17	Sunny	297.8	764.6	2.8350	2.9292	0.0942	312.4	336.4	24.0	1.23	1.23	1.23	1772.1	53.2
8-Nov-17	Cloudy	298.4	765.1	2.8619	2.9521	0.0902	336.4	360.4	24.0	1.23	1.23	1.23	1770.9	50.9
14-Nov-17	Cloudy	295.7	764.3	2.8544	2.9090	0.0546	360.4	384.4	24.0	1.24	1.23	1.23	1778.4	30.7
20-Nov-17	Cloudy	292.4	767.8	2.8557	2.9195	0.0638	384.4	408.4	24.0	1.25	1.25	1.25	1793.3	35.6
24-Nov-17	Cloudy	291.8	769.4	2.8424	2.9487	0.1063	408.4	432.4	24.0	1.25	1.25	1.25	1797.2	59.1
30-Nov-17	Sunny	294.7	767.2	2.8584	2.9410	0.0826	432.4	456.4	24.0	1.24	1.24	1.24	1785.1	46.3
													Min	30.7
													Max	59.1
													Average	46.0

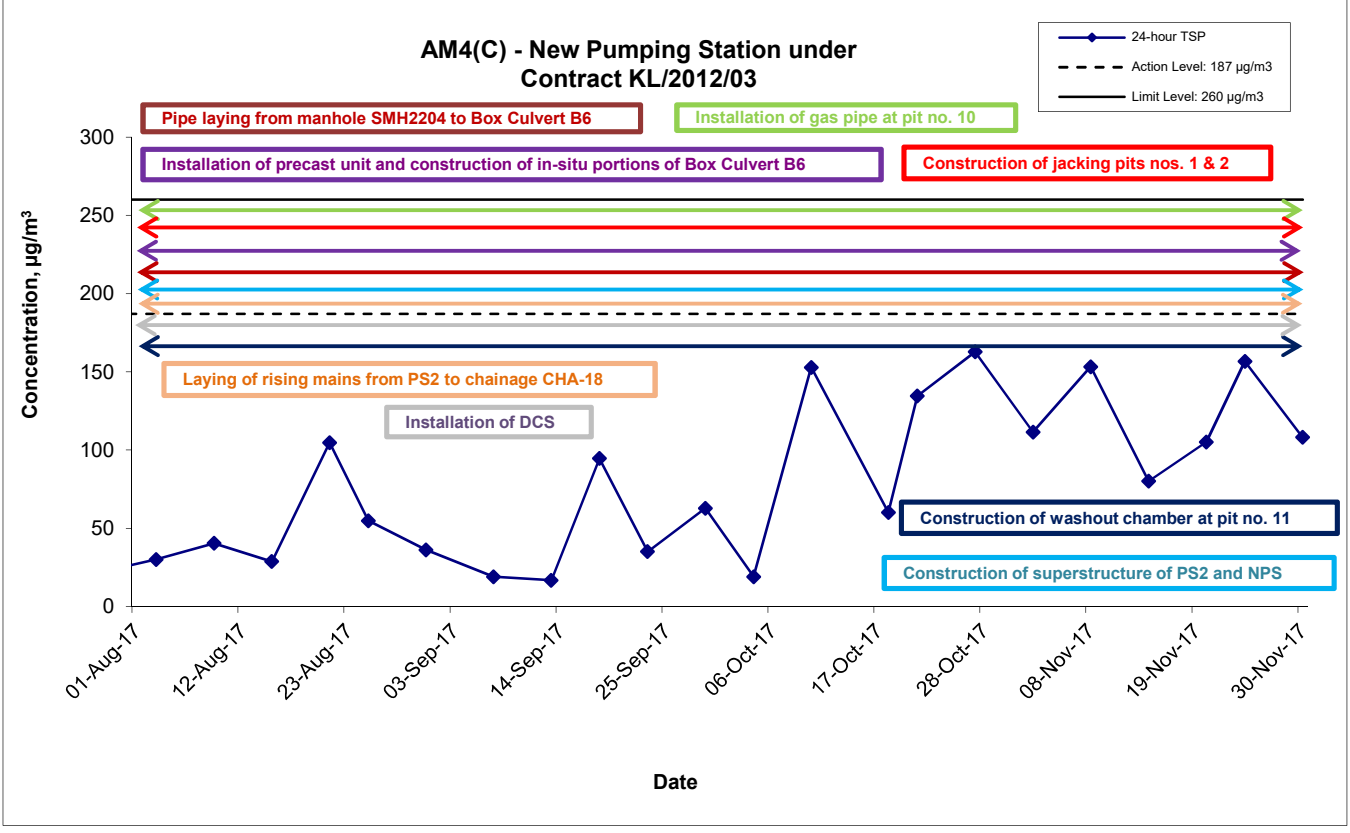
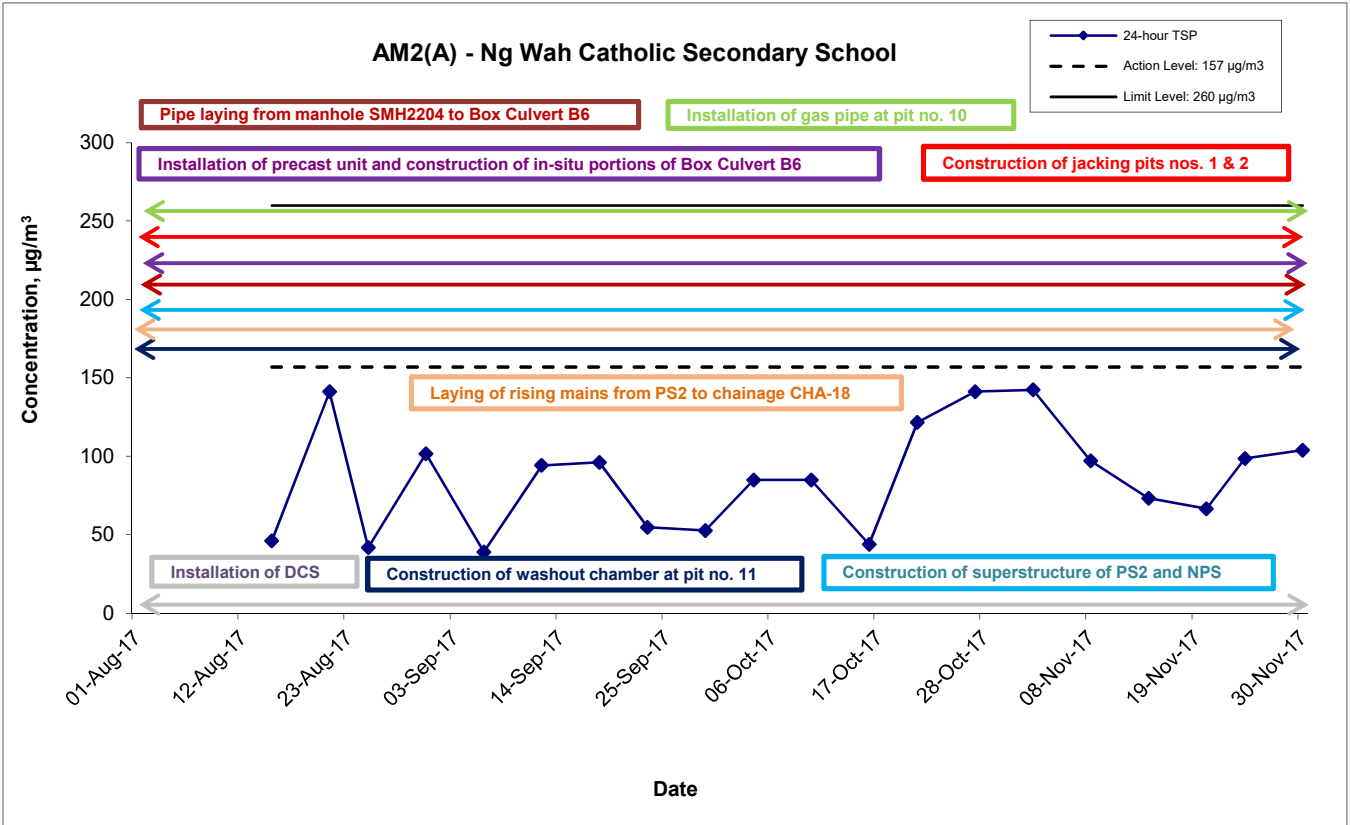
Appendix F - 24-hour TSP Monitoring Results

Monitoring work at AM3(A) was conducted by Castco

Location AM3(A) - Holy Trinity Bradbury Centre

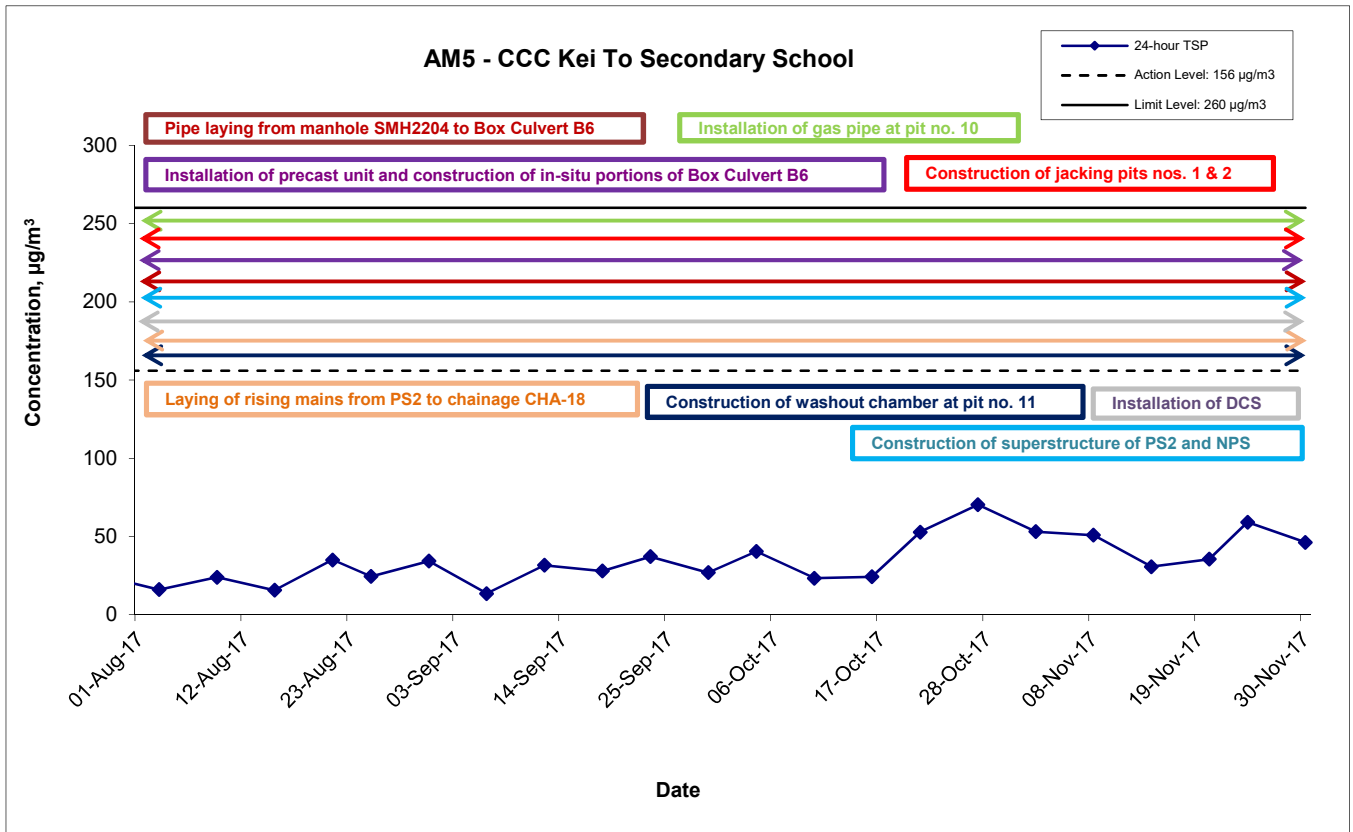
Start Date	Weather Condition	Conc. ($\mu\text{g}/\text{m}^3$)
6-Nov-17	Sunny	102
11-Nov-17	Sunny	117
17-Nov-17	Sunny	142
23-Nov-17	Sunny	101
29-Nov-17	Sunny	57
	Min	57
	Max	142
	Average	104

24-hr TSP Concentration Levels



Title Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA13056	CINOTECH
	Date Nov 17	Appendix F	

24-hr TSP Concentration Levels



Title Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA13056	CINOTECH
	Date Nov 17	Appendix F	

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

Appendix G - Noise Monitoring Results

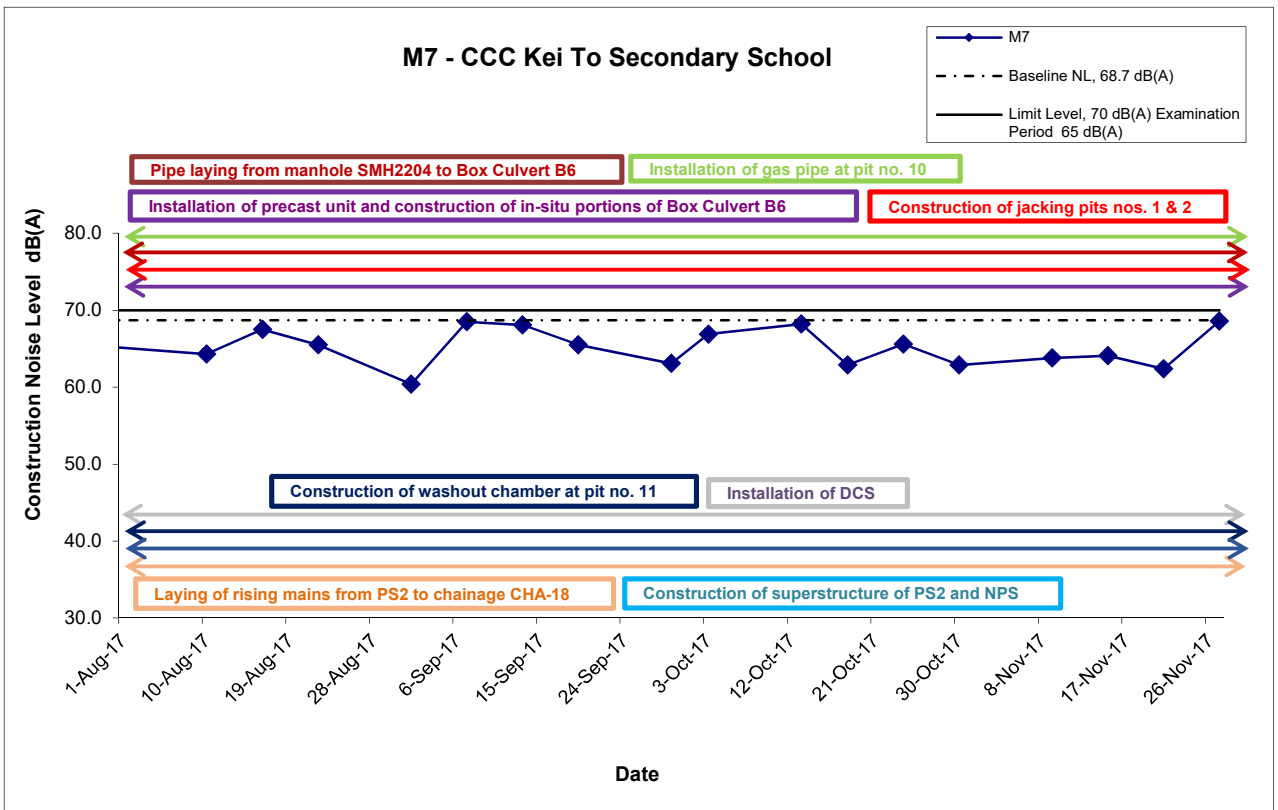
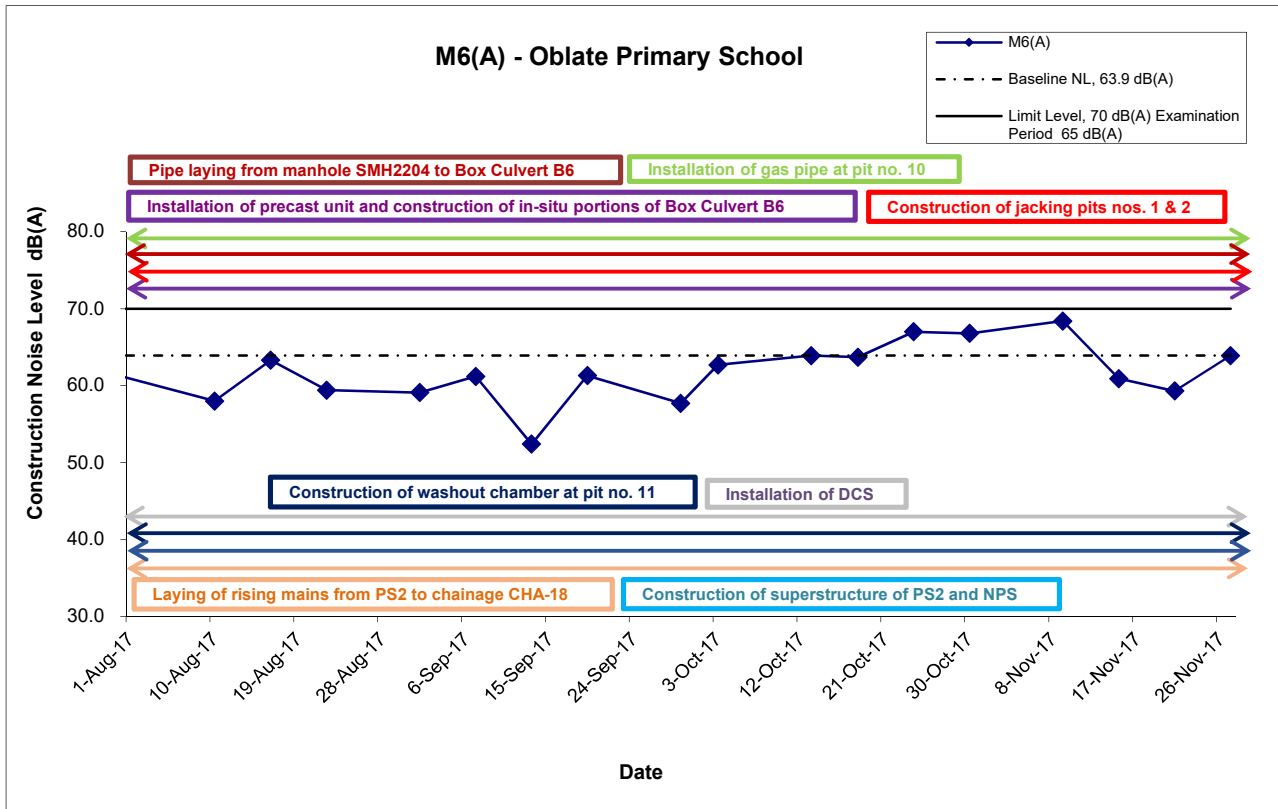
Location M6(A) - Oblate Primary School							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
9-Nov-17	14:00	Sunny	69.7	70.1	65.2	63.9	68.4
15-Nov-17	11:30	Cloudy	60.9	62.3	58.4		60.9 Measured ≤ Baseline
21-Nov-17	10:30	Cloudy	65.2	66.3	61.2		59.3
27-Nov-17	11:30	Sunny	66.9	67.5	64.0		63.9

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}
9-Nov-17	13:15	Sunny	63.8	66.2	61.4	68.7	63.8 Measured ≤ Baseline
15-Nov-17	14:00	Cloudy	64.1	66.7	59.2		64.1 Measured ≤ Baseline
21-Nov-17	13:05	Cloudy	62.4	65.2	58.8		62.4 Measured ≤ Baseline
27-Nov-17	13:10	Sunny	68.6	68.4	62.1		68.6 Measured ≤ Baseline

Location M8 - Po Leung Kuk Ngan Po Ling College							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
9-Nov-17	14:45	Sunny	66.8	68.2	64.2	61.9	65.1
15-Nov-17	15:00	Cloudy	67.4	69.3	63.9		66.0
21-Nov-17	11:15	Cloudy	67.6	69.5	64.4		66.2
27-Nov-17	16:15	Sunny	67.2	69.4	63.5		65.7

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}
9-Nov-17	16:00	Sunny	65.2	66.3	61.9	59.9	63.7
15-Nov-17	13:20	Cloudy	64.9	66.5	62.2		63.2
21-Nov-17	10:30	Cloudy	64.8	65.6	61.2		63.1
27-Nov-17	9:00	Sunny	63.8	66.0	60.6		61.5

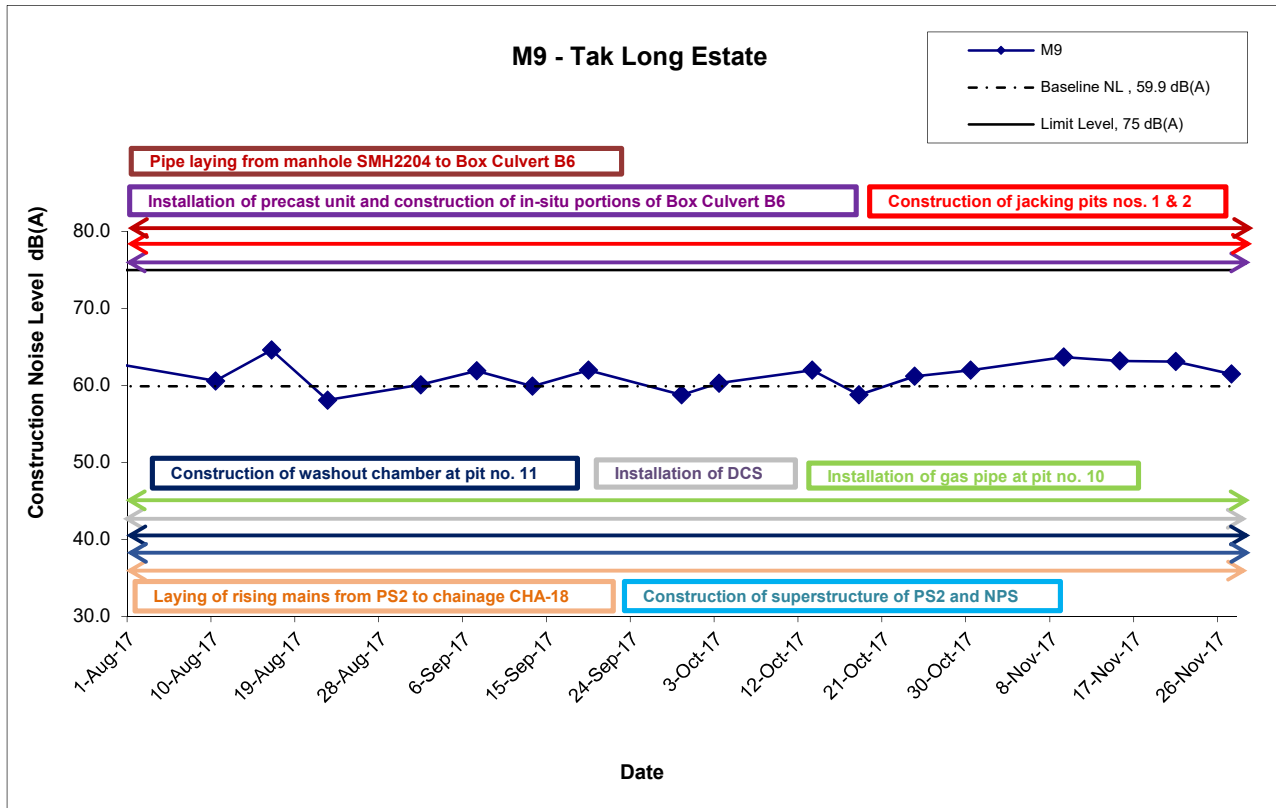
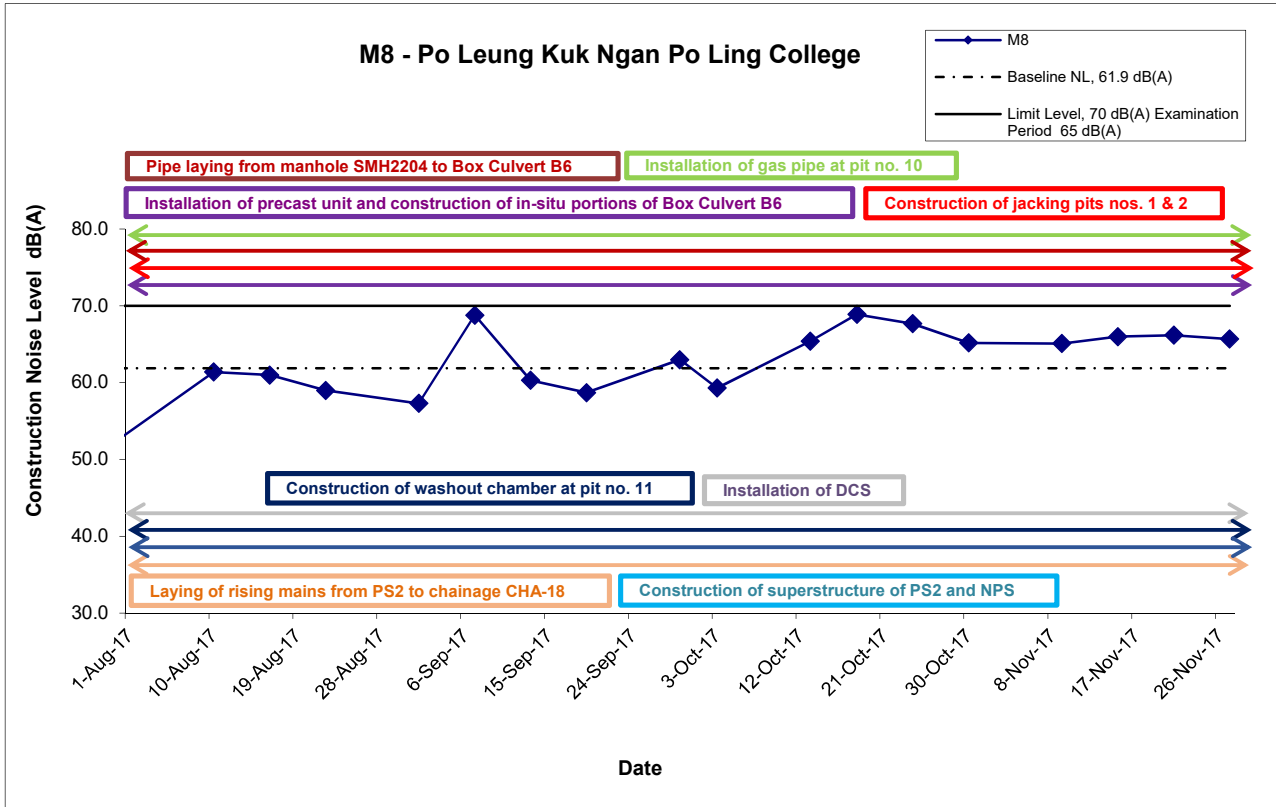
Noise Levels



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	Project No. MA13056	CINOTECH
	Date Nov 17	Appendix G	

Noise Levels



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

Title Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA13056	CINOTECH
	Date Nov 17	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
(NIL in the reporting month)**

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

**APPENDIX I
SITE AUDIT SUMMARY**

Contract No. KL/2012/03

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



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

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	171103
Date	3 November 2017
Time	10:00-11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	C. Air Quality	
171103-R01	<ul style="list-style-type: none">Water spraying should be provided more frequently to prevent dust generation.	C 5
	D. Noise	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	H. Others	
	<ul style="list-style-type: none">Follow-up on previous audit session (Ref. No.: 171027), no environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Kelvin Koo		3 November 2017
Checked by	Dr. Priscilla Choy		3 November 2017

Contract No. KL/2012/03

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



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

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	171110
Date	10 November 2017
Time	10:00-11:30

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	
	• 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.: 171103), no environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Kelvin Koo		10 November 2017
Checked by	Dr. Priscilla Choy		10 November 2017


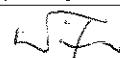
Contract No. KL/2012/03

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

**Weekly Site Inspection Record Summary
Inspection Information**

Checklist Reference Number	171110
Date	10 November 2017
Time	10:00-11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
171110-R01	• Ponding water should be cleared.	B 8
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
171110-R02	• Drip tray should be provided to chemical containers at NPS.	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.: 171103), all identified environmental deficiencies were observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kelvin Koo		10 November 2017
Checked by	Dr. Priscilla Choy		10 November 2017

Contract No. KL/2012/03

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



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

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	171117
Date	17 November 2017
Time	14:00-15:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	C. Air Quality	
171117-R01	<ul style="list-style-type: none">Water spraying should be provided more frequently on haul roads for dust suppression.	C 5
	D. Noise	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	H. Others	
	<ul style="list-style-type: none">Follow-up on previous audit session (Ref. No.: 171110), no environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Kelvin Koo		17 November 2017
Checked by	Dr. Priscilla Choy		17 November 2017

Contract No. KL/2012/03

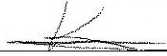

Kai Tak Development - Stage 4 Infrastructure at Former North Apron Area

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

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	171122
Date	22 November 2017
Time	14:00-17:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits / Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 171117), all identified environmental deficiencies were observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kelvin Koo		22 November 2017
Checked by	Dr. Priscilla Choy		22 November 2017



Contract No. KL/2012/03

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

**Weekly Site Inspection Record Summary
Inspection Information**

Checklist Reference Number	171103
Date	3 November 2017
Time	10:00-11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	D. Noise	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	H. Others	
	<ul style="list-style-type: none">Follow-up on previous audit session (Ref. No.: 171027), all identified environmental deficiencies were observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kelvin Koo		3 November 2017
Checked by	Dr. Priscilla Choy		3 November 2017

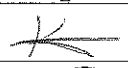

Contract No. KL/2012/03

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

**Weekly Site Inspection Record Summary
Inspection Information**

Checklist Reference Number	171110
Date	10 November 2017
Time	10:00-11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
171110-R01	• Ponding water should be cleared.	B 8
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
171110-R02	• Drip tray should be provided to chemical containers at NPS.	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.: 171103), all identified environmental deficiencies were observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kelvin Koo		10 November 2017
Checked by	Dr. Priscilla Choy		10 November 2017



Contract No. KL/2012/03

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

**Weekly Site Inspection Record Summary
Inspection Information**

Checklist Reference Number	171117
Date	17 November 2017
Time	14:00-15:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 171110), all identified environmental deficiencies were observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kelvin Koo		17 November 2017
Checked by	Dr. Priscilla Choy		17 November 2017

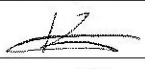

Contract No. KL/2012/03

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

**Weekly Site Inspection Record Summary
Inspection Information**

Checklist Reference Number	171122
Date	22 November 2017
Time	14:00-17:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 171117), no major environmental deficiencies were observed during site inspection.	

	Name	Signature	Date
Recorded by	Kelvin Koo		22 November 2017
Checked by	Dr. Priscilla Choy		22 November 2017

APPENDIX J
EVENT ACTION PLANS

Appendix J - Event Action Plans

Event/Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded by one sampling	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Inform Contactor, IEC and ER; 3. Repeat measurement to confirm finding. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action Level being exceeded by two or more consecutive sampling	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC and ER; 3. Increase monitoring frequency to daily; 4. Discuss with IEC and Contractor on remedial actions required; 5. Assess the effectiveness of Contractor's remedial actions; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; 5. Conduct meeting with ET and IEC if exceedance continues. 	<ol style="list-style-type: none"> 1. Discuss with ET and IEC on proper remedial actions; 2. Submit proposals for remedial actions to ER and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Limit Level being exceeded by one sampling	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Assess effectiveness of Contractor's remedial actions and keep 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Discuss with ET and IEC on proper remedial actions; 3. Submit proposals for remedial actions to ER and IEC within three

Appendix J - Event Action Plans

	<p>EPD, IEC and ER informed of the results.</p>	<p>4. Advise the ER on the effectiveness of the proposed remedial measures.</p>	<p>implemented; 4. Supervise implementation of remedial measures; 5. Conduct meeting with ET and IEC if exceedance continues.</p>	<p>working days of notification; 4. Implement the agreed proposals.</p>
<p>Limit Level being exceeded by two or more consecutive sampling</p>	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>
Limit Level being exceeded	<ol style="list-style-type: none"> 1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals;

Appendix J - Event Action Plans

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

Event/Action Plan for Landscape and Visual

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

Appendix J - Event Action Plans

	<p>ER</p> <p>2. Increase monitoring frequency</p> <p>3. Discuss remedial actions with IEC, ER and Contractor</p> <p>4. Monitor remedial actions until rectification has been completed</p> <p>5. If non-conformity stops, cease additional monitoring</p>	<p>2. Check Contractor's working method</p> <p>3. Discuss with ET and Contractor on possible remedial measures</p> <p>4. Advise ER on effectiveness of proposed remedial measures</p> <p>5. Supervise implementation of remedial measures.</p>	<p>implemented</p>	<p>undertake any necessary replacement</p>
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**APPENDIX K
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)**

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

Types of Impacts	Mitigation Measures	Status
<p align="center">Construction Dust</p>	<p>8 times daily watering of the work site with active dust emitting activities.</p>	<p align="center">^</p>
	<p>Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.</p>	
	<ul style="list-style-type: none"> • Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission. 	<p align="center">*</p>
	<ul style="list-style-type: none"> • Misting for the dusty material should be carried out before being loaded into the vehicle. 	<p align="center">^</p>
	<ul style="list-style-type: none"> • Any vehicle with an open load carrying area should have properly fitted side and tail boards. 	<p align="center">^</p>
	<ul style="list-style-type: none"> • Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin. 	<p align="center">^</p>
	<ul style="list-style-type: none"> • The tarpaulin should be properly secured and should extend at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation. 	<p align="center">^</p>
	<ul style="list-style-type: none"> • The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways insider the site. On-site unpaved roads should be compacted and kept free of lose materials. 	<p align="center">^</p>
	<ul style="list-style-type: none"> • Vehicle washing facilities should be provided at every vehicle exit point. 	<p align="center">^</p>
	<ul style="list-style-type: none"> • The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores. 	<p align="center">^</p>
	<ul style="list-style-type: none"> • Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet. 	<p align="center">^</p>
	<ul style="list-style-type: none"> • Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides. 	<p align="center">^</p>
	<ul style="list-style-type: none"> • Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites. 	<p align="center">^</p>

Construction Noise	Use of quiet PME, movable barriers barrier for Asphalt Paver, Breaker, Excavator and Hand-held breaker and full enclosure for Air Compressor, Bar Bender, Concrete Pump, Generator and Water Pump	^
	Good Site Practice:	^
	• Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.	N/A(1)
	• Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program.	^
	• Mobile plant, if any, should be sited as far away from NSRs as possible.	^
	• Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.	^
	• Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.	^
	• Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	^
	Scheduling of Construction Works during School Examination Period	^
	(i) Provision of low noise surfacing in a section of Road L2; and	N/A
	(ii) Provision of structural fins	N/A
	(i) Avoid the sensitive façade of class room facing Road L2 and L4; and	N/A
	(ii) Provision of low noise surfacing in a section of Road L2 & L4	N/A
	(i) Provision of low noise surfacing in a section of Road L4 before occupation of Site 111; and	N/A
(ii) Setback of building about 5m from site boundary.	N/A	
Setback of building about 35m to the northwest direction at 1L3 and 5m at Site 1L2.	N/A	
(i) avoid any sensitive façades with openable window facing the existing Kowloon City Road network; and	N/A	
(ii) for the sensitive facades facing the To Kwa Wan direction, either setback the facades by about 5m to the northeast direction or do not provide the facades with openable window.	N/A	

	<p>(i) avoid any sensitive facades with openable window facing the existing To Kwa Wan Road or</p> <p>(ii) provision of 17.5m high noise tolerant building fronting To Kwa Wan Road and restrict the height of the residential block(s) located at less than 55m away from To Kwa Wan Road to no more than 25m above ground.</p> <p>(i) avoid any sensitive facades with openable window facing the slip road connecting Prince Edward Road East and San Po Kong or other alternative mitigation measures and at-source mitigation measures for the surrounding new local roads to minimise the potential traffic noise impacts from the slip road</p> <hr/> <p>All the ventilation fans installed in the below will be provided with silencers or acoustics treatment.</p> <p>(i) SPS (ii) ESS (iii) Tunnel Ventilation Shaft (iv) EFTS depot</p> <p>Installation of retractable roof or other equivalent measures</p>	<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>
<p>Construction Water Quality</p>	<p>The following mitigation measures are proposed to be incorporated in the design of the SPS at KTD, including:</p> <ul style="list-style-type: none"> • Dual power supply or emergency generator should be provided at all the SPSs to secure electrical power supply; • Standby pumps should be provided at all SPSs to ensure smooth operation of the SPS during maintenance of the duty pumps; • An alarm should be installed to signal emergency high water level in the wet well at all SPSs; and • For all unmanned SPSs, a remote monitor system connecting SPSs with the control station through telemetry system should be provided so that swift actions could be taken in case of malfunction of unmanned facilities. <p><u>Land-based Construction</u></p> <p><i>Construction Runoff</i></p> <p>Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include:</p> <ul style="list-style-type: none"> • use of sediment traps • adequate maintenance of drainage systems to prevent flooding and overflow 	<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>^</p> <p>^</p> <p>^</p>

	<p>Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.</p> <p>Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.</p> <p>Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m³ capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.</p> <p>Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.</p> <p>Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.</p> <p>Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events.</p> <p>Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.</p>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
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	<p>All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.</p> <p><i>Drainage</i></p> <p>It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea.</p> <p>All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.</p> <p>All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour WCZ.</p> <p><i>Sewage Effluent</i></p> <p>Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.</p> <p><i>Stormwater Discharges</i></p> <p>Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes</p>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>N/A</p>
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	<p>General Refuse</p> <p>General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem.</p>	*
Landscape and Visual	<p>CM1 All existing trees should be carefully protected during construction.</p>	^
	<p>CM2 Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work.</p>	N/A
	<p>CM3 Control of night-time lighting.</p>	^
	<p>CM4 Erection of decorative screen hoarding.</p>	^

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

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

Contract No. KL/2012/03

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

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

Reporting Month: November 2017

Warnings / Summons and Successful Prosecutions received in the reporting month

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

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

Complaint Log

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

**APPENDIX M
GENERATED WASTE QUANTITY**

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

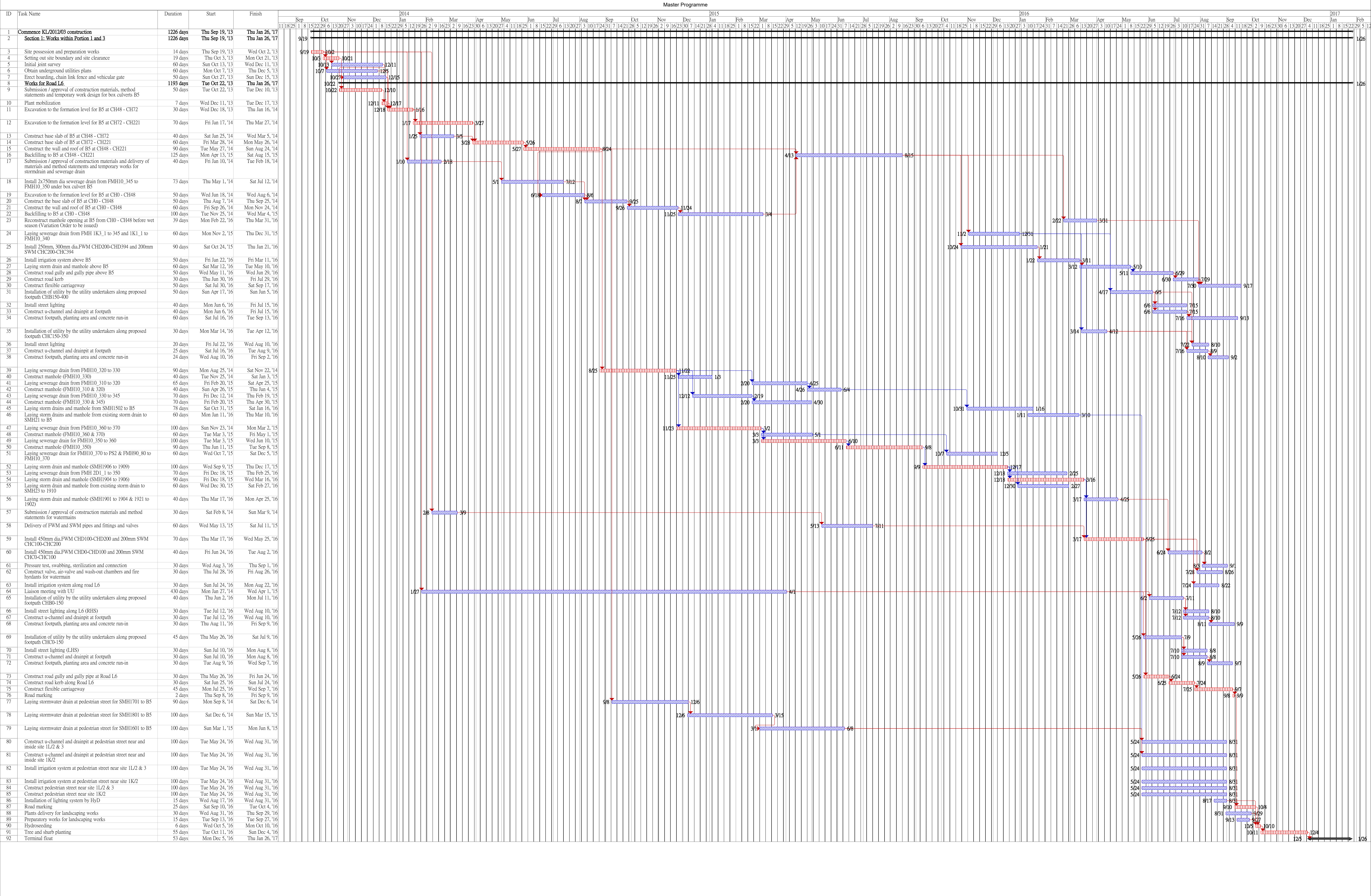
Name of Department: CEDD

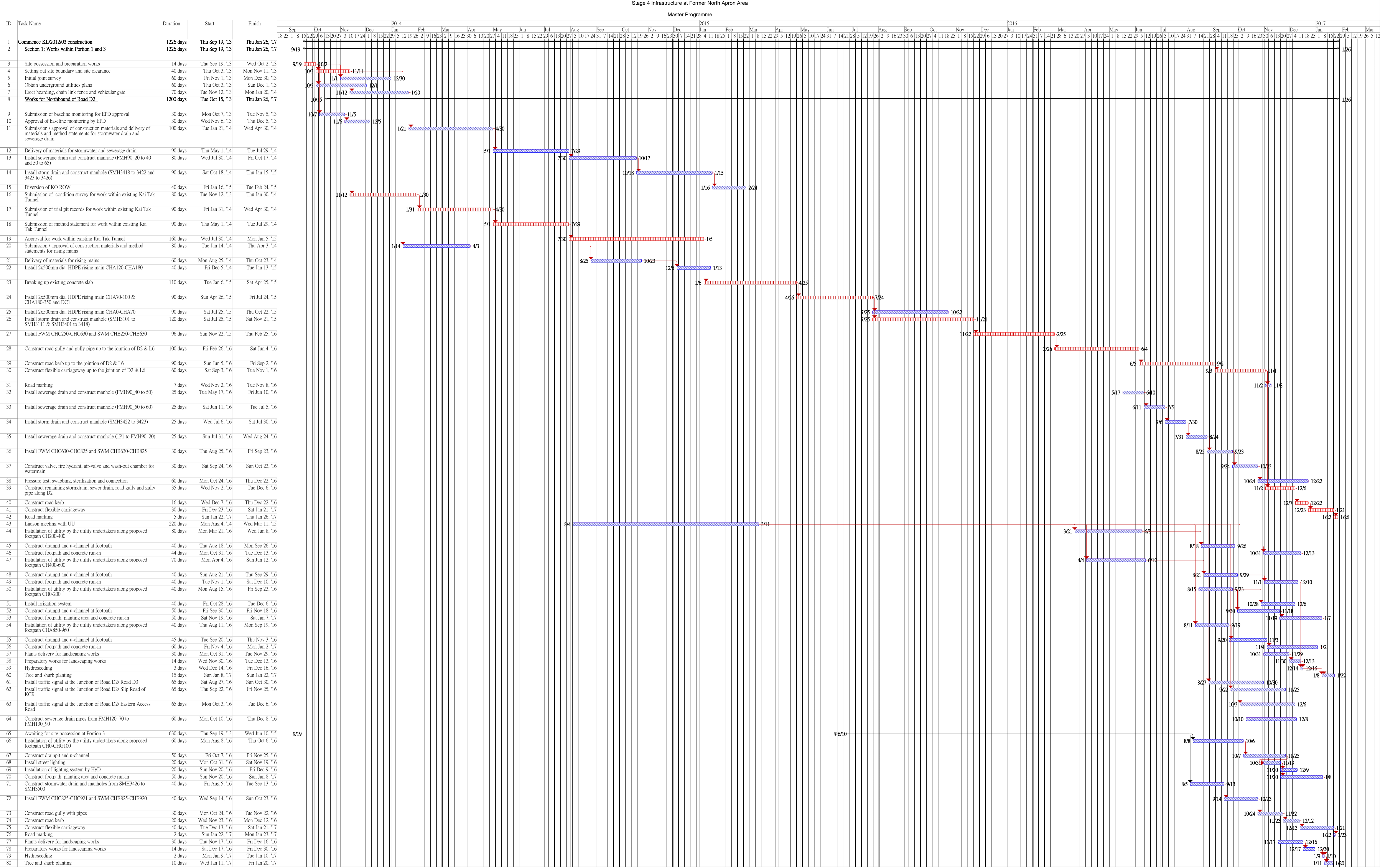
Contract No. : KL/2012/03

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

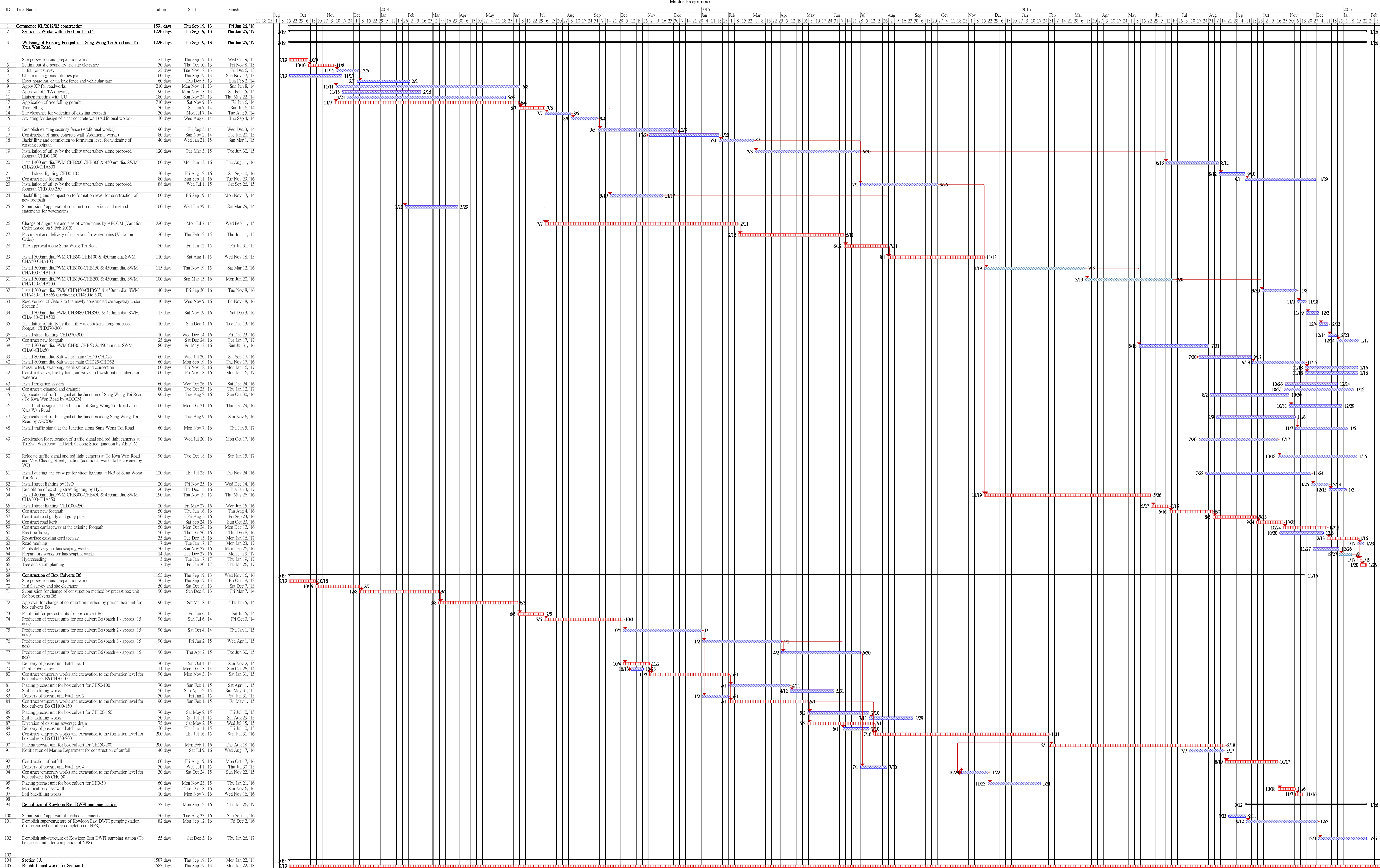
Month	Total Disposal Loads	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
	(No.s)	(in tons)	Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse
			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
2015 (Jan – Dec) Sub-Total	3369	50762.64	0	0	0	49894.67	4020	0	0	0	0	867.95
Jan-17	23	107.63	0	0	0	58.53	0	0	0	0	0	39.1
Feb-17	1227	18948.76	0	0	0	18898.13	0	0	0	0	0	50.63
Mar-17	307	4426.51	0	0	0	4379.15	0	0	0	0	0	47.36
Apr-17	124	1741.5	0	0	0	1703.61	0	0	0	0	0	37.89
May-17	111	1608.02	0	0	0	1590.33	0	0	0	0	0	17.69
Jun-17	176	2649.19	0	0	0	2631.73	0	0	0	0	0	17.46
Jul-17	123	1732.3	0	0	0	1688.75	0	0	0	0	0	43.55
Aug-17	93	1229.67	0	0	0	1188.3	0	0	0	0	0	41.37
Sep-17	22	131.66	0	0	0	80.2	0	0	0	0	0	51.46
Oct-17	91	942.02	0	0	0	837.14	0	0	0	0	0	104.88
Nov-17	158	2138.95	0	0	0	2079.42	0	0	0	0	0	59.53
Dec-17												
Total	6240	185668.21	0	0	55090.84	128570.8	25744.27	0	0	0	0	2195.93

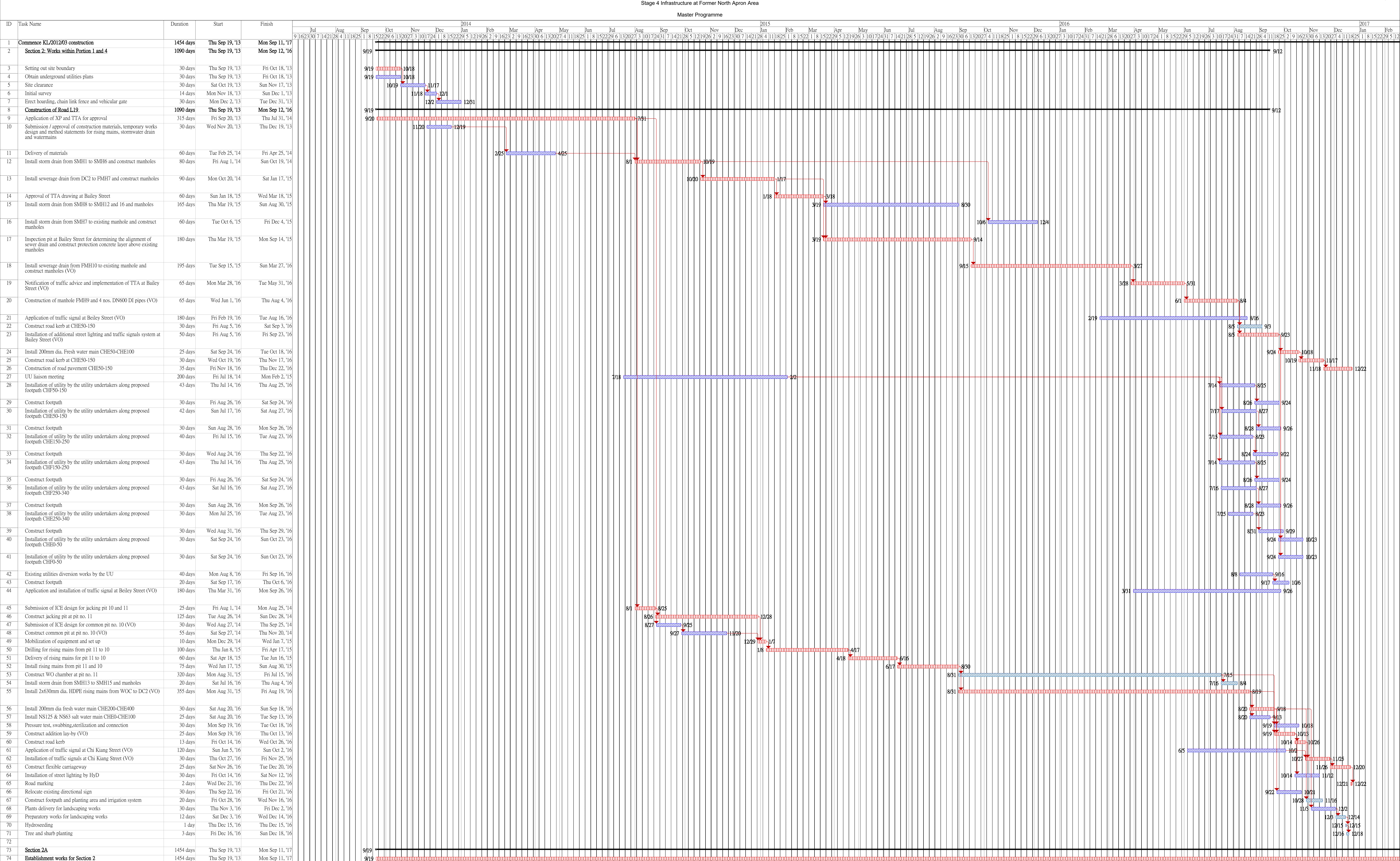
APPENDIX N
CONSTRUCTION PROGRAMME

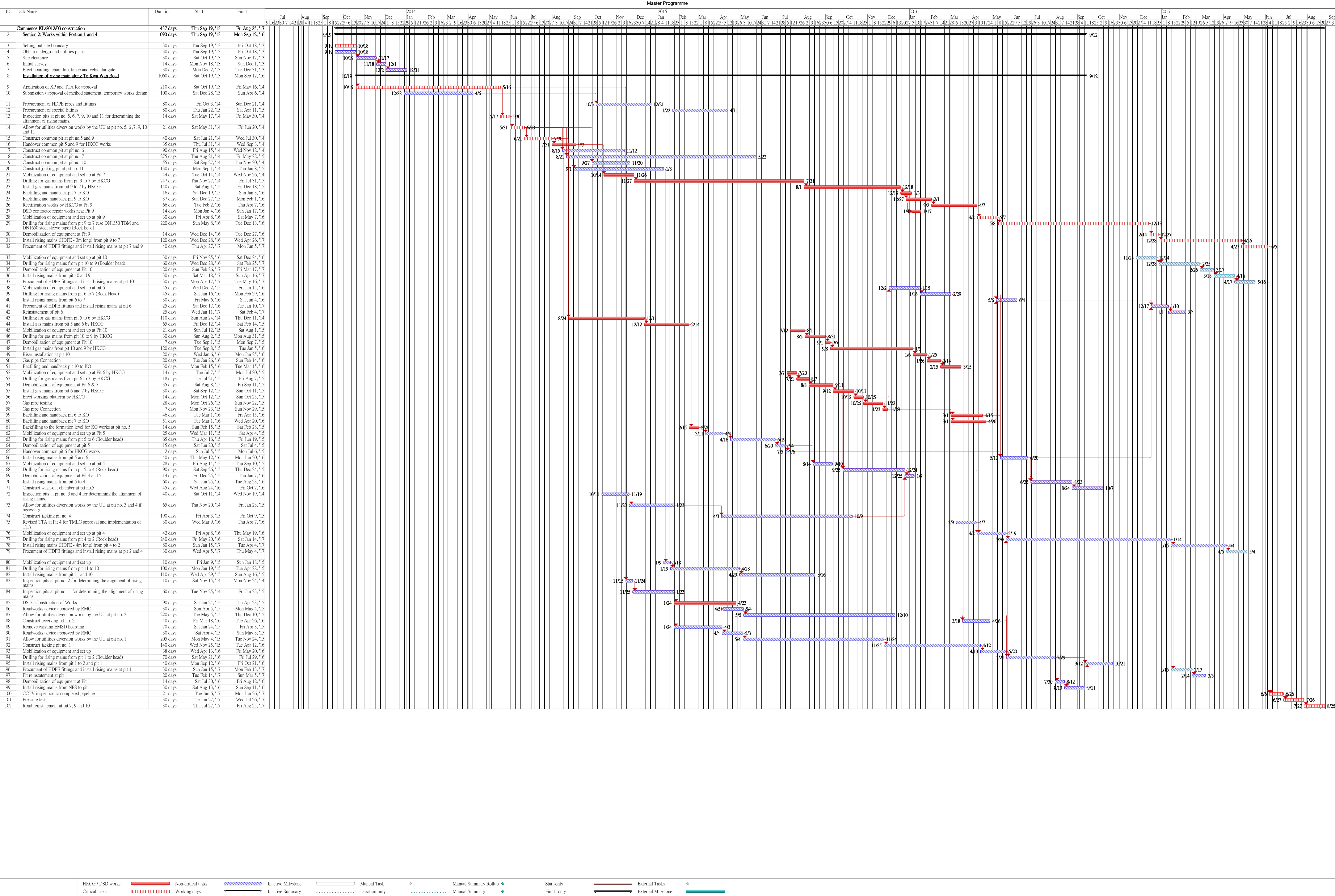


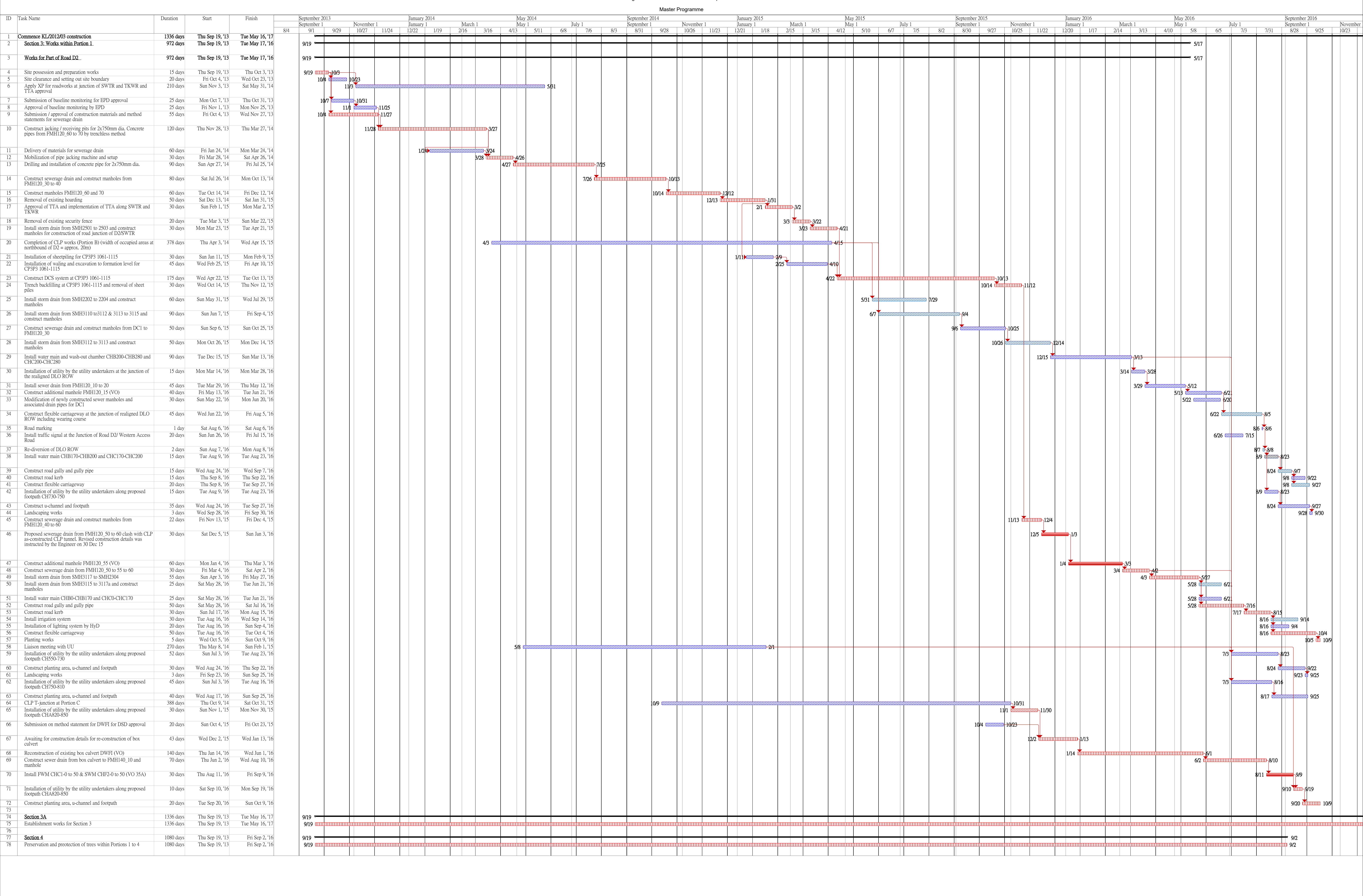


Critical tasks	Working days	Inactive Summary	Duration-only	Manual Summary	Finish-only	External Milestone
Non-critical tasks	Inactive Milestone	Manual Task	Manual Summary Rollup	Start-only	External Tasks	

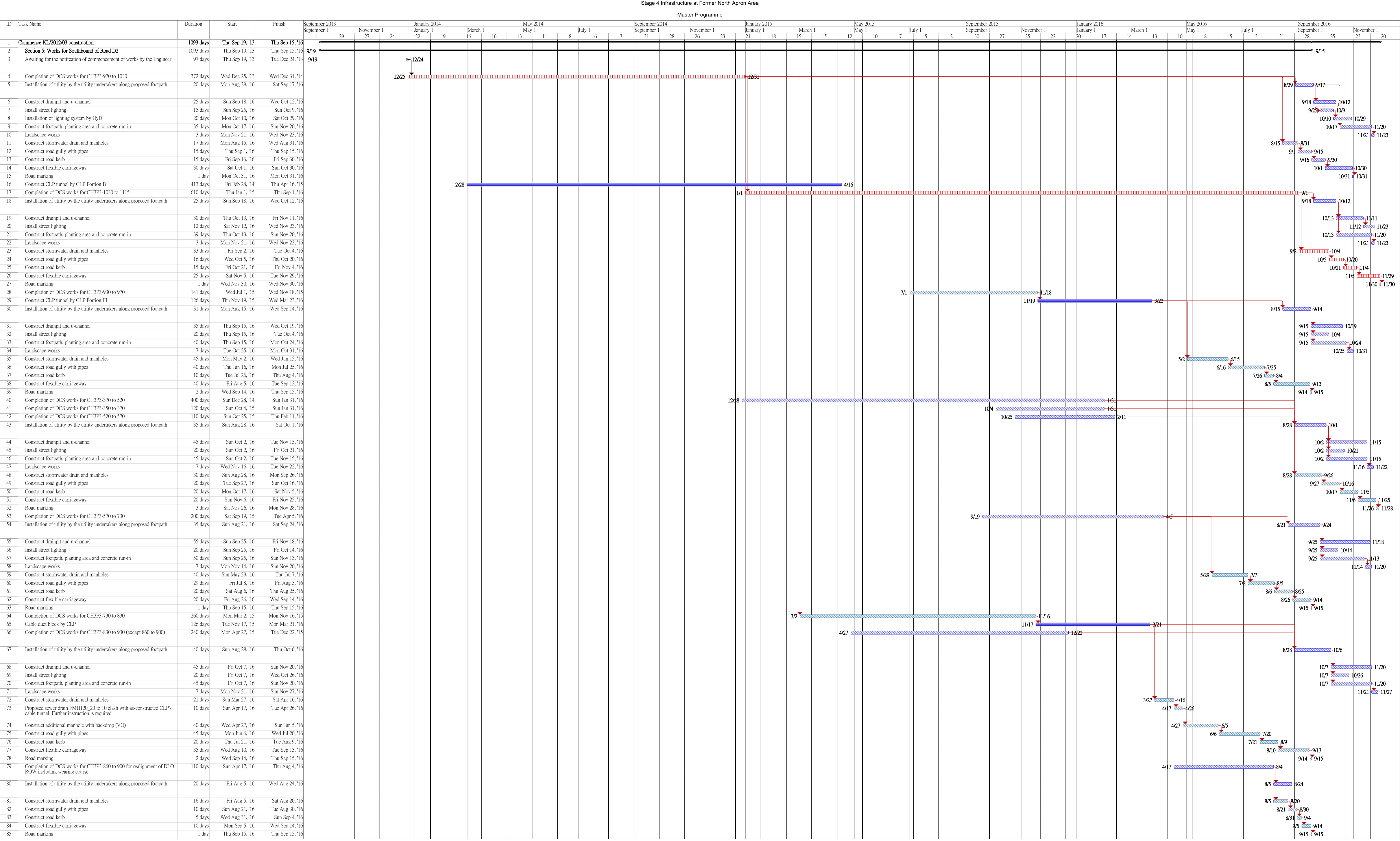




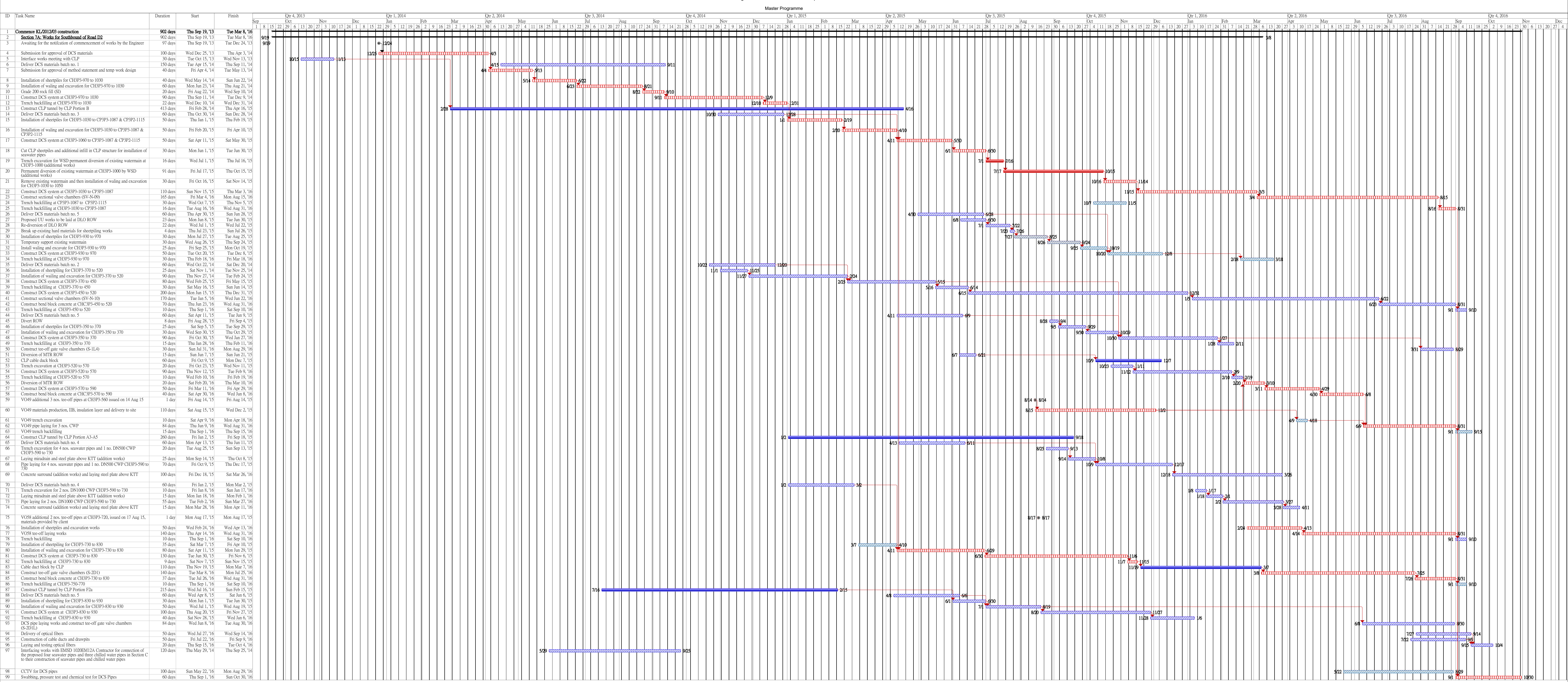




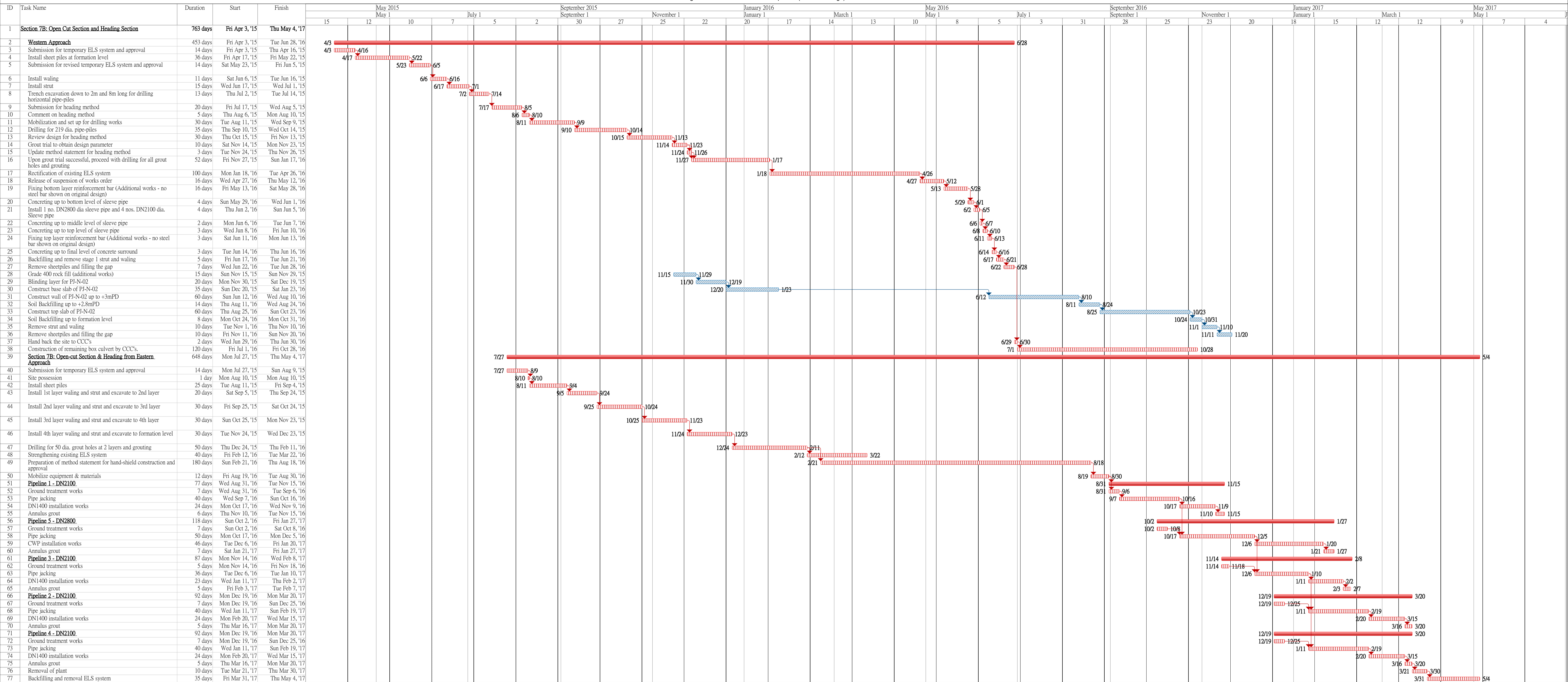
Legend: Critical tasks (red hatched), Non-critical tasks (blue hatched), Working days (solid black), Inactive Milestone (dashed black), Inactive Summary (solid black), Manual Task (solid black), Duration-only (dotted), Manual Summary Rollup (dotted), Manual Summary (dotted), Start-only (dotted), Finish-only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

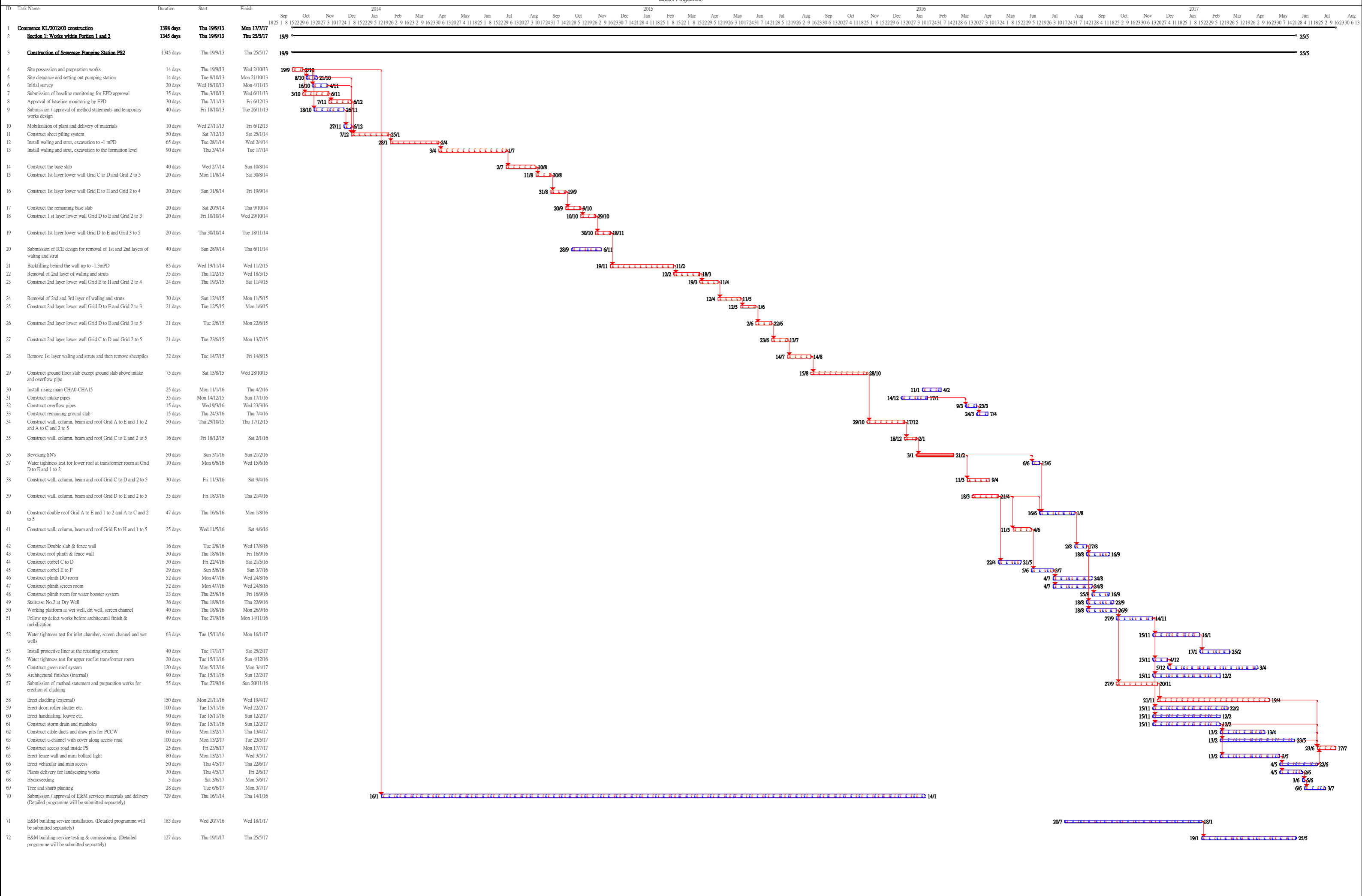


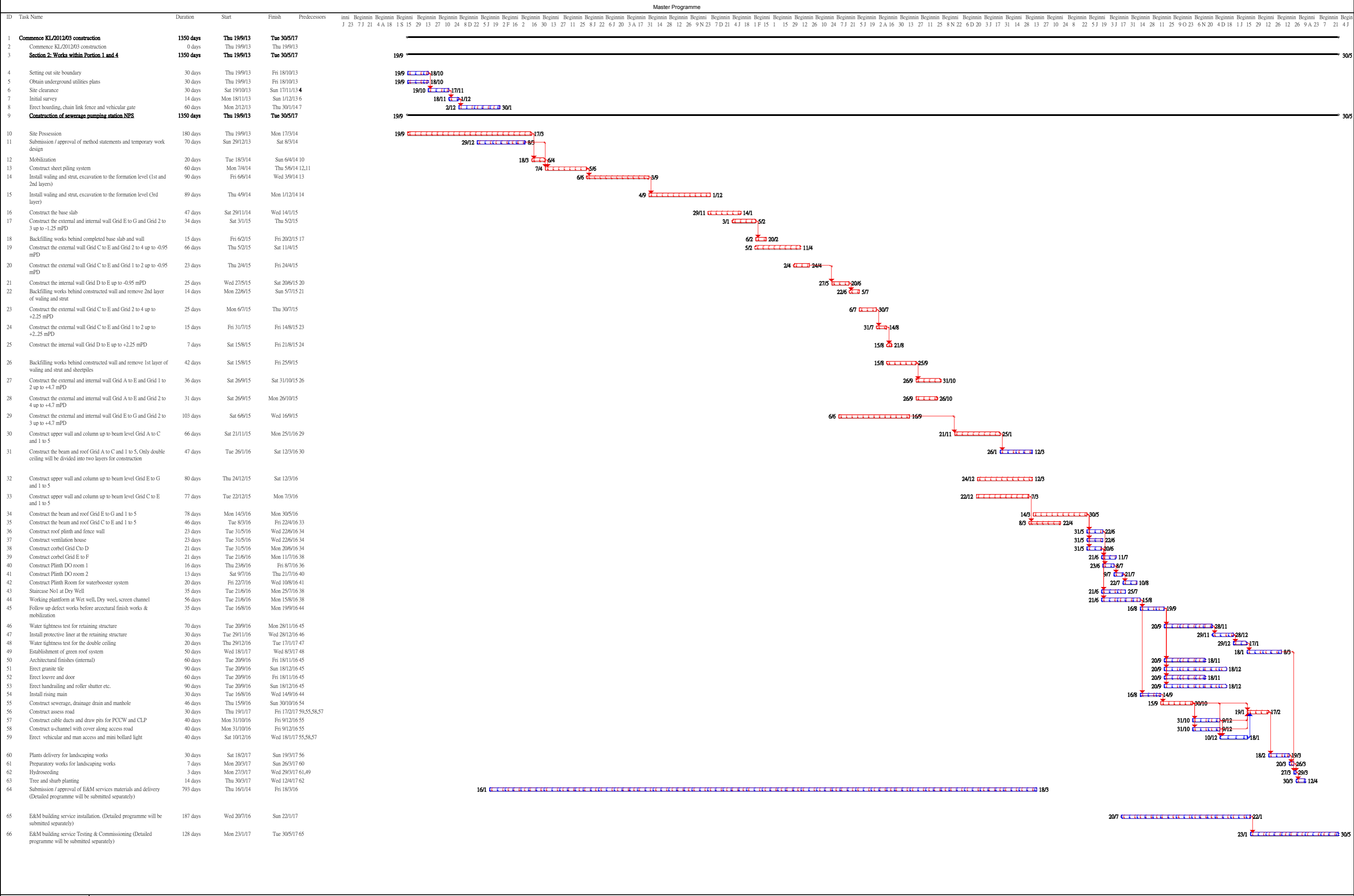
Critical tasks: ▬ Working days: ▬ Inactive Summary: ▬ Duration-only: ▬ Manual Summary: ▬ Finish-only: ▬ External Milestone: ▬
 Non-critical tasks: ▬ Inactive Milestone: ▬ Manual Task: ▬ Manual Summary Rollup: ▬ Start-only: ▬ External Tasks: ▬



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







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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

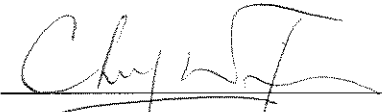
EP-337/2009 & EP-445/2013/A

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
November 2017

(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

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嘉誠管理顧問有限公司

Ka Shing management consultant Limited



Our ref: 8-12-2017

8 th December 2017

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

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 November 2017

Reference is made to the Environmental Team's submission of the draft Monthly EM&A Report (version 1.0) for November 2017 provided to Independent Environmental Checker (IEC) via email dated on 5 th December 2017 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)
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EXECUTIVE SUMMARY

Introduction

1. This is the 20th 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 – 30 November 2017.
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:
 - Watermain works;
 - TTA implementation, tree felling and junction improvement works at Shing Fung Road and Wang Chiu Road / Sheung Yee Road;
 - Open excavation and construction of box culvert and underpass;
 - ELS installation for box culvert and underpass;
 - Construction of utilities trough at Kai Tak Bridge; and
 - Construction of pile caps, noise barrier footings, outfalls, deck structure, columns, sewer and manholes.

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 (Permits: GW-RE0649-17 and GW-RE0815-17)

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 Permits (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 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 20th Monthly EM&A report summarizing the EM&A works for the Project from 1 – 31 November 2017.
- 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	2301 1421	2301 1277
		Mr. Keith Chu	Engineer	2301 1607	
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:
- Watermain works;
 - TTA implementation, tree felling and junction improvement works at Shing Fung Road and Wang Chiu Road / Sheung Yee Road;
 - Open excavation and construction of box culvert and underpass;
 - ELS installation for box culvert and underpass;
 - Construction of utilities trough at Kai Tak Bridge; and
 - Construction of pile caps, noise barrier footings, outfalls, deck structure, columns, sewer and manholes.
- 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 1.8	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 air quality 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 1, 8, 15, 22 and 29 November 2017 in the reporting month. IEC joint site inspection was conducted on 22 November 2017. 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-RE0649-17	20/08/17	19/11/17	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work other than percussive piling and performing prescribed construction work.	Expired
GW-RE0815-17	14/10/17	11/04/18		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
<i>Water Quality</i>	25 October 2017	<u>Reminder:</u> Standing water near Cruise Terminal should be avoided.	Rectification/improvement was observed during the follow-up audit session.
<i>Air Quality</i>	1 November 2017	<u>Reminder:</u> Stockpiles in Section 2 should be covered with impervious sheets to prevent dust generation.	Rectification/improvement was observed during the follow-up audit session.
	22 November 2017	<u>Reminder:</u> Stockpile of dusty material should be covered by the impervious material at Urban Room C.	Rectification/improvement was observed during the follow-up audit session.
<i>Noise</i>	--	--	--
<i>Waste/ Chemical Management</i>	22 November 2017	<u>Reminder:</u> To clean the stagnant water found inside the drip tray of the generator-set and remove the general refuse found on the ground at Outfall D.	Rectification/improvement was observed during the follow-up audit session.
<i>Landscape and Visual</i>	25 October 2017	<u>Reminder:</u> Screen hoarding or banners along access road near Cruise Terminal should be erected.	Rectification/improvement was observed during the follow-up audit session.
<i>Permits/ Licences</i>	--	--	--

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:

- Watermain works;
- TTA implementation, Tree Transplant, Tree Felling and Junction Improvement Works at Shing Fung Road and Wang Chiu Road / Sheung Yee Road;
- Open excavation and construction of box culvert and underpass;
- ELS installation for box culvert and underpass;
- Construction of utilities trough at Kai Tak Bridge; and
- Construction of pile caps, noise barrier footings, outfalls, deck structure, columns, sewer and manholes.

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. December 2017 and January 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)	d) Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; e) Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; f) Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and g) Provision of measures to prevent discharge into the stream.

Construction Works	Major Impact Prediction	Control Measures
	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.

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 30 November 2017.

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 Impact

- To avoid standing or stagnant water as far as practicable.

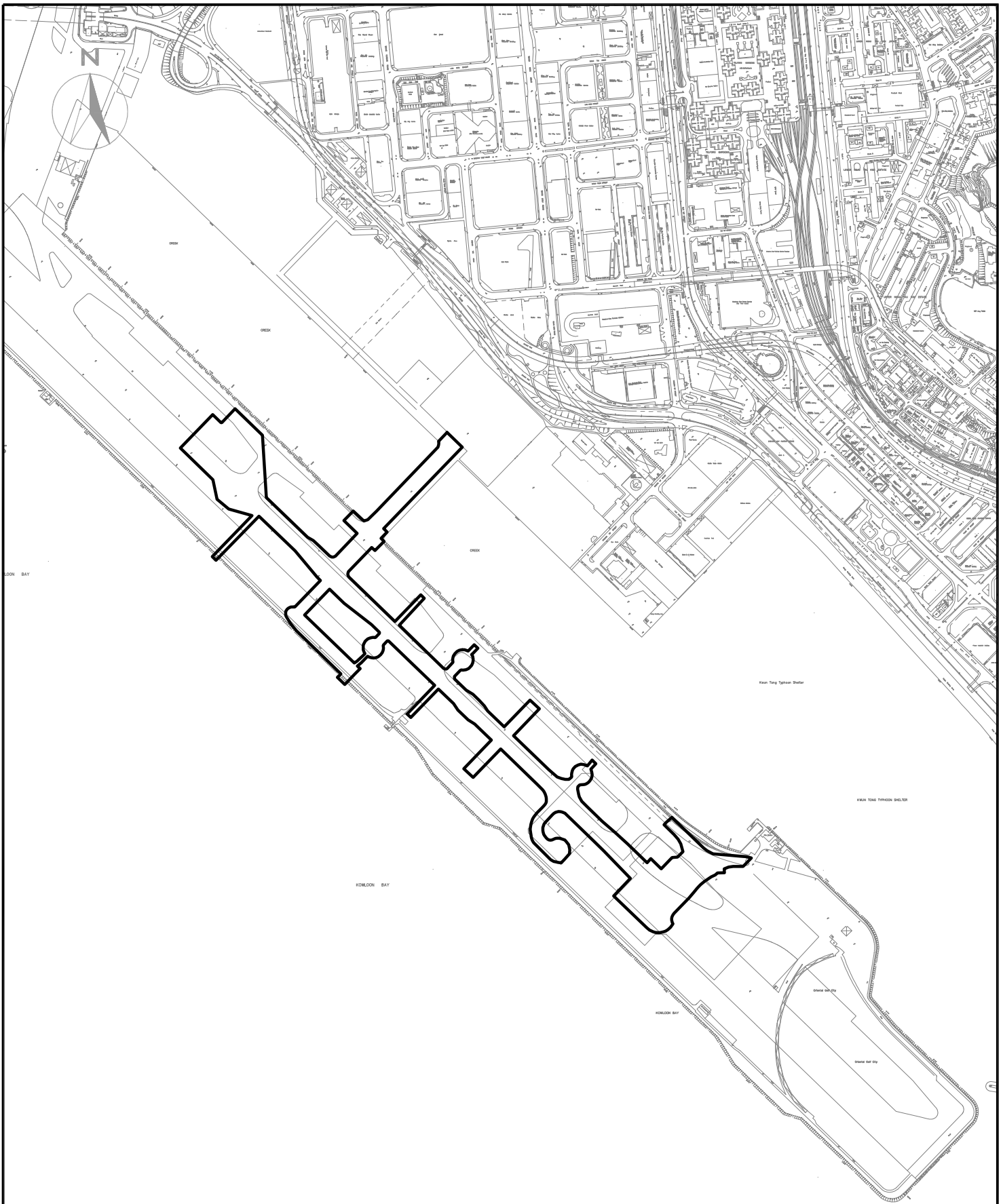
Air Quality

- To cover stockpiles of dusty materials with impervious materials to prevent dust generation.
-

Waste/Chemical Management

- To provide secondary containment to all chemical containers within the site to prevent any potential chemical 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: November 2017

(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

Contract No. KL/2014/01

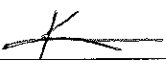

Kai Tak Development - Stage 2 Infrastructure Works for Developments at the Southern Part of the Former Runway

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

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	171101
Date	1 November 2017 (Wednesday)
Time	14:00 – 17:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
171101-R01	• Stockpiles in Section 2 should be covered with impervious sheets to prevent dust generation.	C7
	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.:171025), all identified environmental deficiencies were improved/rectified by the Contractor.	

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

Contract No. KL/2014/01

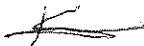

Kai Tak Development - Stage 2 Infrastructure Works for Developments at the Southern Part of the Former Runway

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

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	171108
Date	8 November 2017 (Wednesday)
Time	14:00 – 17:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.:171101), all identified environmental deficiencies were improved/rectified by the Contractor.	

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

Contract No. KL/2014/01



Kai Tak Development - Stage 2 Infrastructure Works for Developments at the Southern Part of the Former Runway

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

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	171115
Date	15 November 2017 (Wednesday)
Time	14:00 – 17:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.:171108), no environmental deficiency was identified during site inspection.	

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

Contract No. KL/2014/01

Kai Tak Development - Stage 2 Infrastructure Works for Developments at the Southern Part of the Former Runway



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

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	171122
Date	22 November 2017 (Wednesday)
Time	14:30 – 17:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
171122-R02	• Stockpile of dusty material should be covered by the impervious material at Urban Room C.	C7
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
171122-R01	• To clean the stagnant water found inside the drip tray of the generator-set and remove the general refuse found on the ground at Outfall D.	E1 iii / E9
	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.:171115), no environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Andy Chan		22 November 2017
Checked by	Dr. Priscilla Choy		22 November 2017

Contract No. KL/2014/01


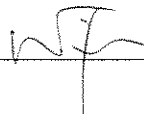
Kai Tak Development - Stage 2 Infrastructure Works for Developments at the Southern Part of the Former Runway

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

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	171129
Date	29 November 2017 (Wednesday)
Time	14:00 – 16:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.:171122), no environmental deficiency was identified during site inspection.	

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

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	<ol style="list-style-type: none"> 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. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>
Limit Level being exceeded	<ol style="list-style-type: none"> 1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 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. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals; 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. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>

Appendix D - Event Action Plans

Event/Action Plan for Landscape and Visual

EVENT ACTION LEVEL	ACTION			
	ET	IEC	ER	CONTRACTOR
Design Check	<ul style="list-style-type: none"> Check final design conforms to the requirements of EP and prepare report. 	<ul style="list-style-type: none"> Check report. Recommend remedial design if necessary 	<ul style="list-style-type: none"> Undertake remedial design if necessary 	
Non-conformity on one occasion	<ul style="list-style-type: none"> Identify Source Inform IEC and ER Discuss remedial actions with IEC, ER and Contractor Monitor remedial actions until rectification has been completed 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Notify Contractor Ensure remedial measures are properly implemented 	<ul style="list-style-type: none"> Amend working methods Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Notify Contractor Ensure remedial measures are properly implemented 	<ul style="list-style-type: none"> 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)	<p>Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.</p> <ul style="list-style-type: none"> ● Stockpiling site(s) should be lined with impermeable sheeting and 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. 	<p>*</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

EIA Ref.	Mitigation Measures	Status
	<ul style="list-style-type: none"> ● The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores. ● 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. 	<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>
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)	<p>Good Site Practice:</p> <ul style="list-style-type: none"> ● 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 	<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

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)	<ul style="list-style-type: none"> ● 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 <p>It should be noted that the exact length of the mitigation measures would be subject to minor refinement during the detailed design stage.</p>	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)	<p><u>Construction Runoff</u></p> <p>Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include:</p> <ul style="list-style-type: none"> ● use of sediment traps ● adequate maintenance of drainage systems to prevent flooding and overflow 	^ ^

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)	<p><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.</p>	^
	<p><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</p>	^
S3.4 (AEIAR-130/2009)	<p><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.</p>	^
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
	<p>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:</p> <ul style="list-style-type: none"> ● Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. ● Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. ● Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 	<p>^</p> <p>^</p> <p>^</p> <p>^</p>
Construction Waste Management		
<p>S6.7 (AEIAR-170/2013)</p>	<p>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.</p>	<p>^</p>
<p>S3.5 (AEIAR-130/2009) and S6.7 (AEIAR-170/2013)</p>	<p>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:</p> <ul style="list-style-type: none"> ● Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site ● Training of site personnel in proper waste management and chemical waste handling procedures ● Provision of sufficient waste disposal points and regular collection for disposal 	<p>^</p> <p>^</p>

EIA Ref.	Mitigation Measures	Status
	<ul style="list-style-type: none"> ● 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 	<p>^</p> <p>^</p> <p>^</p> <p>^</p>
	<p>Waste Reduction Measures</p> <p>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:</p> <ul style="list-style-type: none"> ● 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. 	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

EIA Ref.	Mitigation Measures	Status
<p>S3.5 (AEIAR-130/2009)</p>	<p>Construction and Demolition Materials</p> <p>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:</p> <ul style="list-style-type: none"> ● 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. <p>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</p>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

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)	<p>General Refuse</p> <p>General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem</p>	^
Construction Landscape and Visual		
S3.8.12 (AEIAR-130/2009) and S7.9 (AEIAR-170/2013)	<ul style="list-style-type: none"> ● 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. 	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>N/A</p>

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: November 2017

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

Waste Flow Table for Year 2017

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	15,470.22	0	0	0	15470.22	0	0.301	0.019	0	53.3	
Feb	23,173.51	0	0	0	23173.51	0	0	0	0	9.2	
Mar	27,261.03	0	0	0	27261.03	0	0	0	0	69.65	
Apr	5,637.28	0	0	0	5637.28	0	0	0	0	23.62	
May	12,030.39	0	0	0	10778.01	0	0.0035	0.394	0.006	29.98	
June	2733.74	0	0	0	2733.74	0	3.8000	0	0	47.08	
Sub-total	86,306.17	0.00	0.00	0.00	85,053.79	0.00	3.80	0.695	0.025	0.00	232.83
July	4,929.19	0	0	0	4929.19	0	0	0	0	33.3	
Aug	3,696.53	0	0	0	3696.53	0	0	0	0	77.89	
Sept	3102.44	0	0	0	3102.44	0	0	0	0	110.45	
Oct	1419.90	0	0	0	1419.90	0	0	0	0	25.26	
Nov	7329.85	0	0	0	7329.85	0	0	0	0	70.9	
Dec											
Total	106,784.08	0.00	0.00	0.00	105,531.70	0.00	3.80	0.695	0.025	0.00	550.60

FUGRO TECHNICAL SERVICES LIMITED

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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**

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MaterialLab

MONTHLY EM&A REPORT

November 2017

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/0953A


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 Yu

Reviewed by : Alfred Y. S. Lam

Certified by : 
Colin K. L. Yung
Environmental Team Leader
MaterialLab Consultants Limited

Ref.: CEDKTDS3EM00_0_0252L.17

12 December 2017

Hyder-Meinhardt Joint Venture
20/F., AXA Tower,
Landmark East,
100 How Ming Street,
Kwun Tong,
Kowloon, Hong Kong

By Post and Email

Attention: Mr. Wong W K, Chris

Dear Mr. Wong,

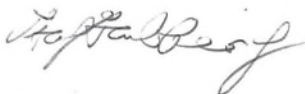
**Re: Contract No. KL/2014/03 – Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway
Monthly EM&A Report for November 2017**

Reference is made to the Environmental Team's submission of the Monthly EM&A Report for November 2017 (Report No. 0405_15_0953A) we received by e-mail on 12 December 2017.

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 Environ 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: 2450 8032
	CRBC	Attn.: Mr. Arnold Chan	Fax: 2283 1689

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EXECUTIVE SUMMARY

- i. The Civil Engineering and Development Department HKSAR has appointed MaterialLab 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 November 2017 and 30 November 2017. 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 first monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project within the period between 1 November 2017 and 30 November 2017.

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 Environ 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. MaterialLab 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 Environ 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
	Environmental Officer	Mr. Calvin So	9724 6254	2283 1689
ET (MCL)	Environmental Team Leader	Mr. Colin Yung	3565 4114	3565 4160

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 August 2017	18 November 2017
		22 November 2017	18 February 2018
Construction Noise Permit	GW-RE0442-17	7 June 2017	6 December 2017

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The logo for MaterialLab, featuring the word "Material" in a bold, sans-serif font and "Lab" in a larger, bolder, sans-serif font, both in black. The text is centered between two thick horizontal black bars.

Construction Noise Permit	GW-RE0560-17	15 July 2017	11 January 2018
Construction Noise Permit	PP-RE0010-17	16 May 2017	15 November 2017
Construction Noise Permit	GW-RE0946-17	6 December 2017	5 June 2018
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	Brand	Model	Equipment	Serial Number
1	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	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	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	0438320 / 2154
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 $\pm 3^\circ\text{C}$; the relative humidity (RH) is < 50% and not variable by more than $\pm 5\%$. 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 $\pm 3^\circ\text{C}$; the relative humidity (RH) should be < 50% and not vary by more than $\pm 5\%$. A convenient working RH is 40%. 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 (µg/m ³)	Range (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)
24-hr TSP in µg/m ³	KTD1a	97	66 -134	177	260
	KTD2a	48	7 - 81	157	
	KER1b	66	26 - 78	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 ($\mu\text{g}/\text{m}^3$)	24-hour TSP concentration in November 2017 ($\mu\text{g}/\text{m}^3$)	Average 24-hour TSP concentration in November 2017 ($\mu\text{g}/\text{m}^3$)
KTD1a	KTD3	126	66 -134	97
KTD2a	-	-	7 - 81	48
KER1b	KTD6	169	26 - 78	66

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 KER1b was 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.
- 2.7.3 The 24-hour TSP monitoring result of KTD1a on 14 November 2017 exceeded the prediction in the approved EIA report. No project related dust source was observed during the site monitoring. The discrepancy between the 24-hour TSP concentration and EIA Prediction in KTD1a is considered due to dust source from the non-project related construction activities near the monitoring station and the road travel along Shing Fung Road.

3. NOISE

3.1 Monitoring Requirement

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

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).

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.

Measurements shall be recorded to the nearest 0.1dB. This noise monitors 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	3756072
2	Casella	CEL-63X Series	Integrating Sound Level Meter	3756127
3	Casella	CEL-63X Series	Integrating Sound Level Meter	3756036
4	Casella	CEL-120/1	Calibrator	0255083
5	Casella	CEL-120/1	Calibrator	1677438
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

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

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	61 - 72	61 - 70	64 - 70	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 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 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 November 2017
KTD1a	KTD1	74	72
KTD2a	KTD2	75	70
KER1b	KER1	75	70

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 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, five weekly Landscape and Visual Site audits were carried out on 2, 9, 15, 23 and 30 November 2017 and two of them 9 and 23 November 2017 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**.
- 5.2.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.
- 5.2.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

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, five site inspections were carried out on 2, 9, 15, 23 and 30 November 2017. Two of them, held on 2 and 15 November 2017 were 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
<u>EP-337/2009</u>		
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 (October 2017)	13/11/2017
<u>EP-339/2009/A</u>		
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 (October 2017)	13/11/2017
<u>EP-451/2013</u>		
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 (October 2017)	13/11/2017

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 Five environmental site inspections were carried out in the reporting month. Recommendations on mitigation measures on air quality, water quality, noise, waste management and landscape and visual impact were given to the Contractor for remediating the deficiencies identified during the site inspections.
- 10.1.4 Five weekly Landscape and Visual Site audits were carried out on 2, 9, 15, 23 and 30 November 2017 and two of them, 9 and 23 November 2017 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:

Air Quality Impact

- Plants and equipment should be well-maintain to prevent dark smoke emission. Contractor should maintain plant and equipment to prevent dark smoke emission.

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- No specific observation was identified in the reporting month.

Chemical and Waste Management

- Contractor was reminded to store chemicals in drip tray. Drip tray shall be provided.

Land Contamination

- No specific observation was identified in the reporting month.

Landscape and Visual Impact

- No specific observation was identified in the reporting month.

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General Condition

- No specific observation was identified in the reporting month.

Permit / Licenses

- No specific observation was identified in the reporting month.

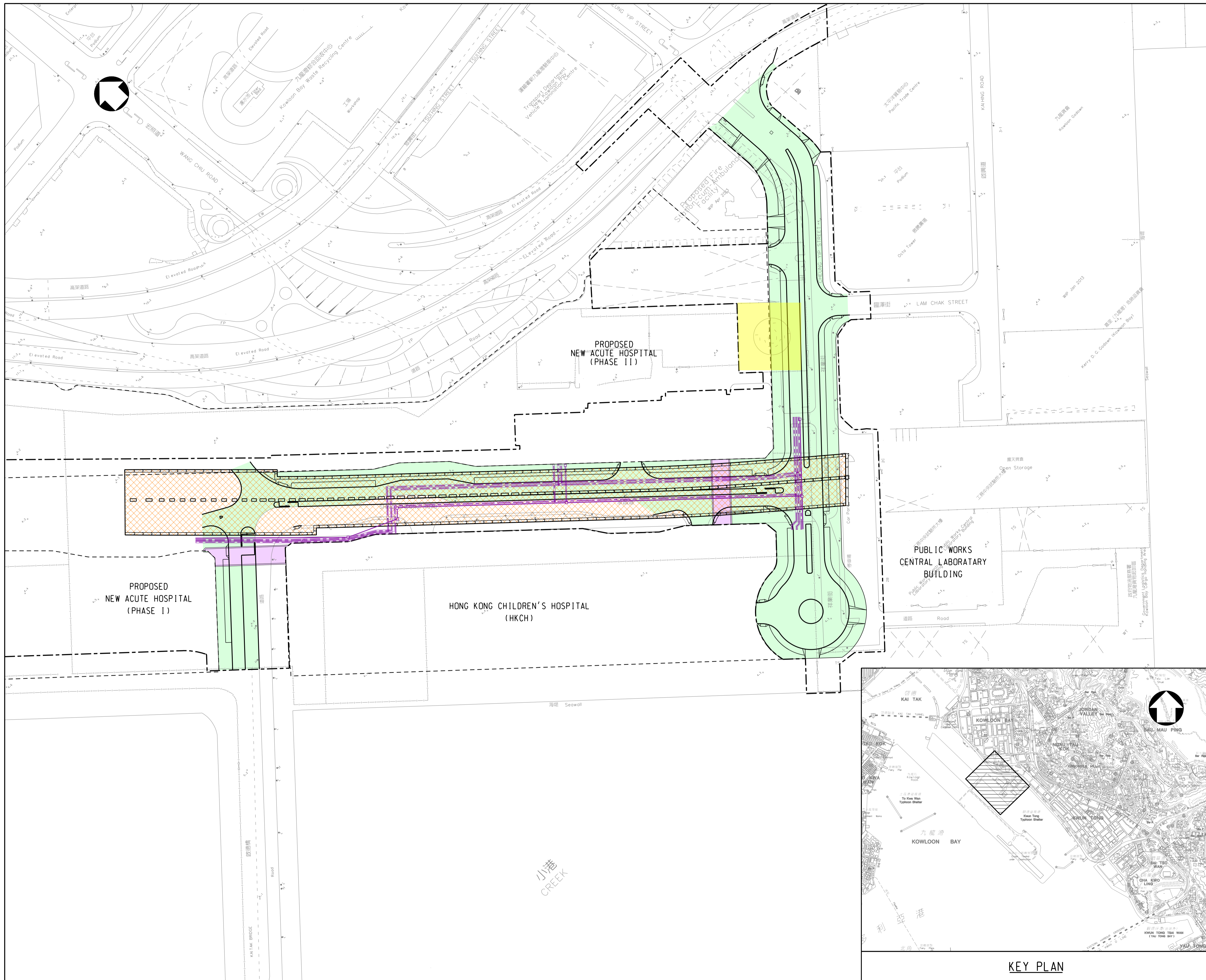
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Figure 1
Project General Layout



- 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

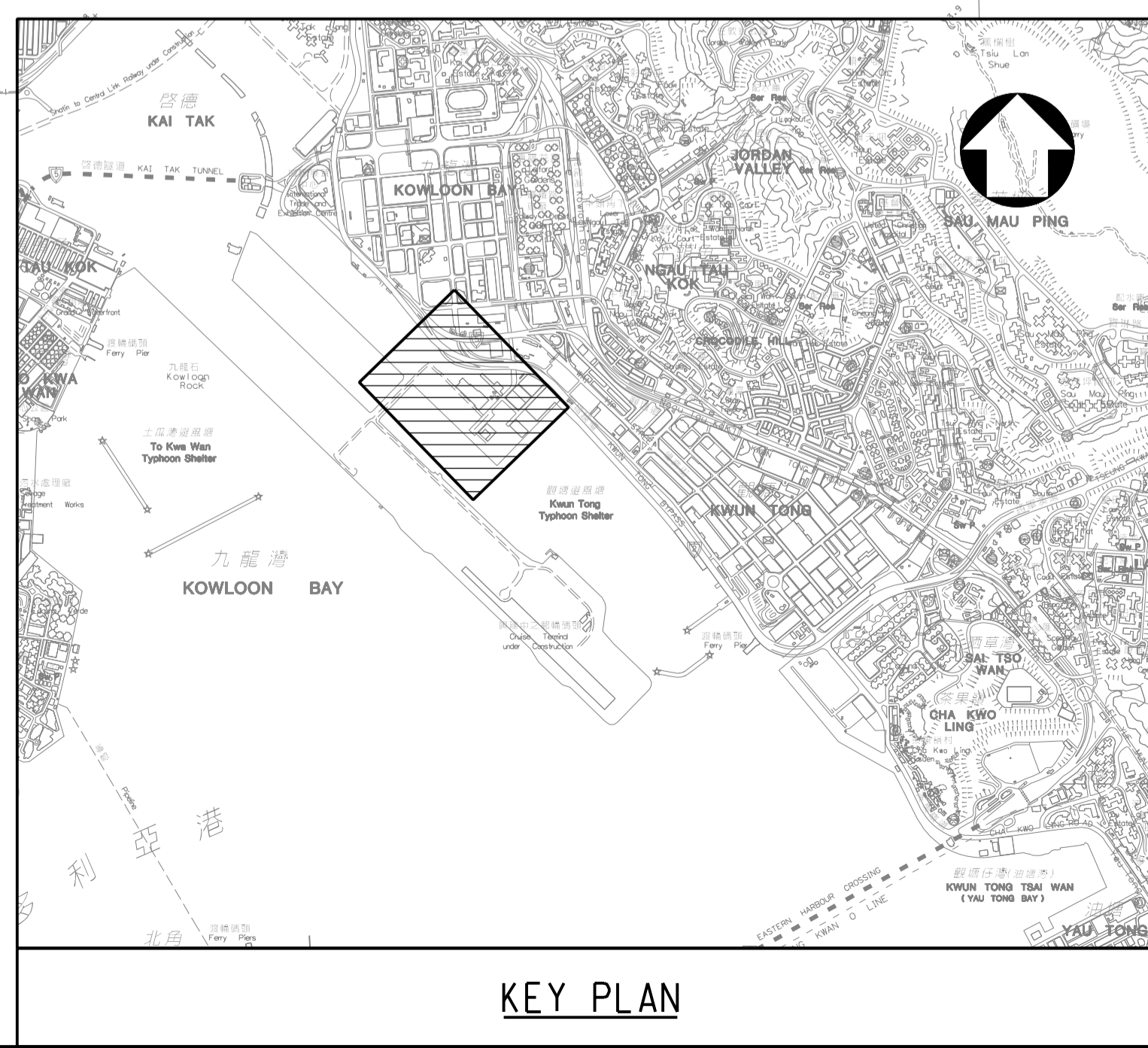


PROJECT
 CONTRACT NO. KL/2014/03
 KAI TAK DEVELOPMENT - STAGE 3
 INFRASTRUCTURE WORKS FOR
 DEVELOPMENTS AT THE SOUTHERN PART OF
 THE FORMER RUNWAY

TITLE
GENERAL LAYOUT PLAN

DESIGNED	ENG. CHECK
DRAWN	COORDINATION
DWG. CHECK	APPROVED
SCALE AT A1 1 : 1000	STATUS REV A

Drawing No. **FIGURE 1.0**
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KEY PLAN

PRINTED BY: kitchan 18/2/2015 13:00:43
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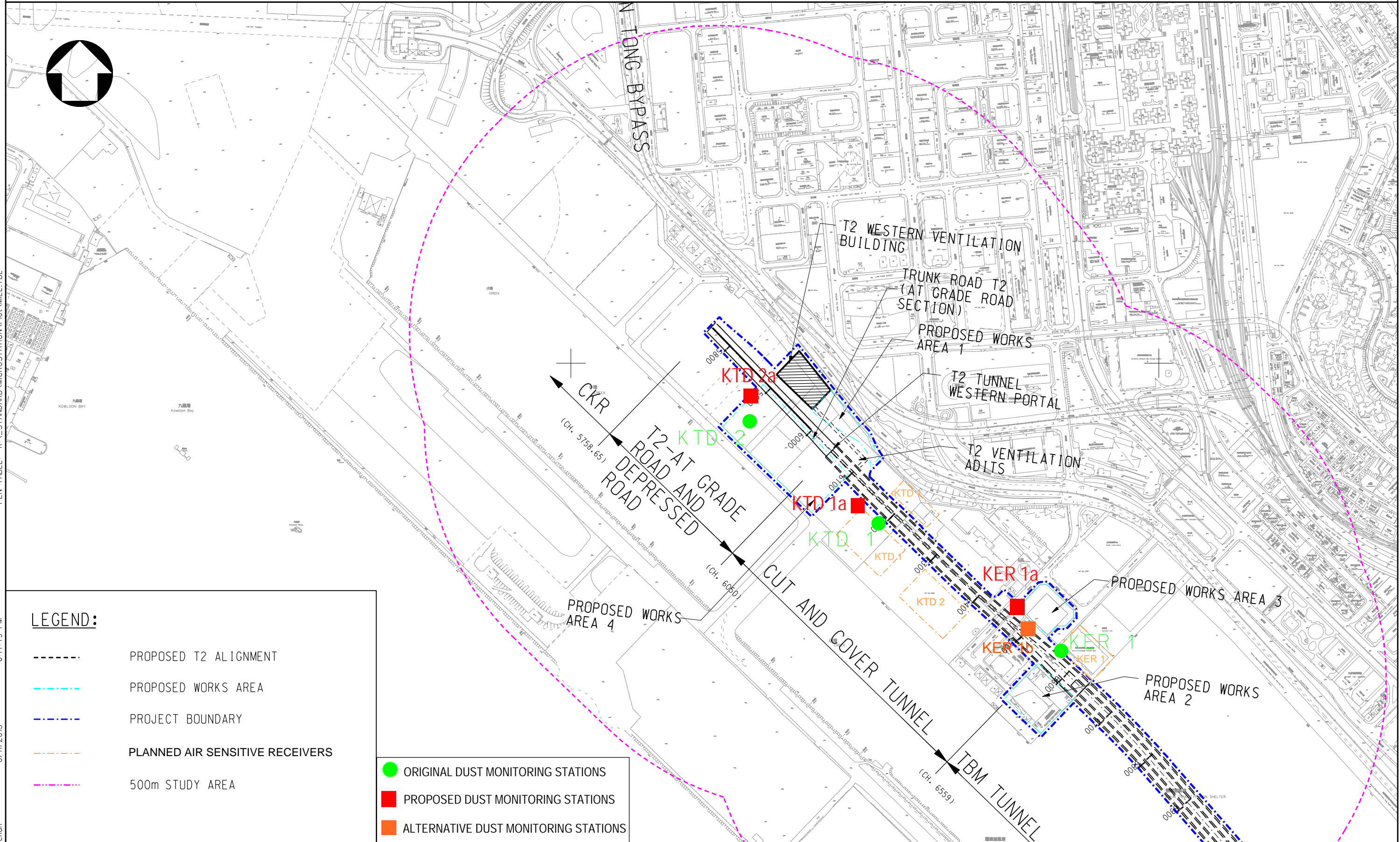
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Figure 2

Air and Noise Monitoring Locations



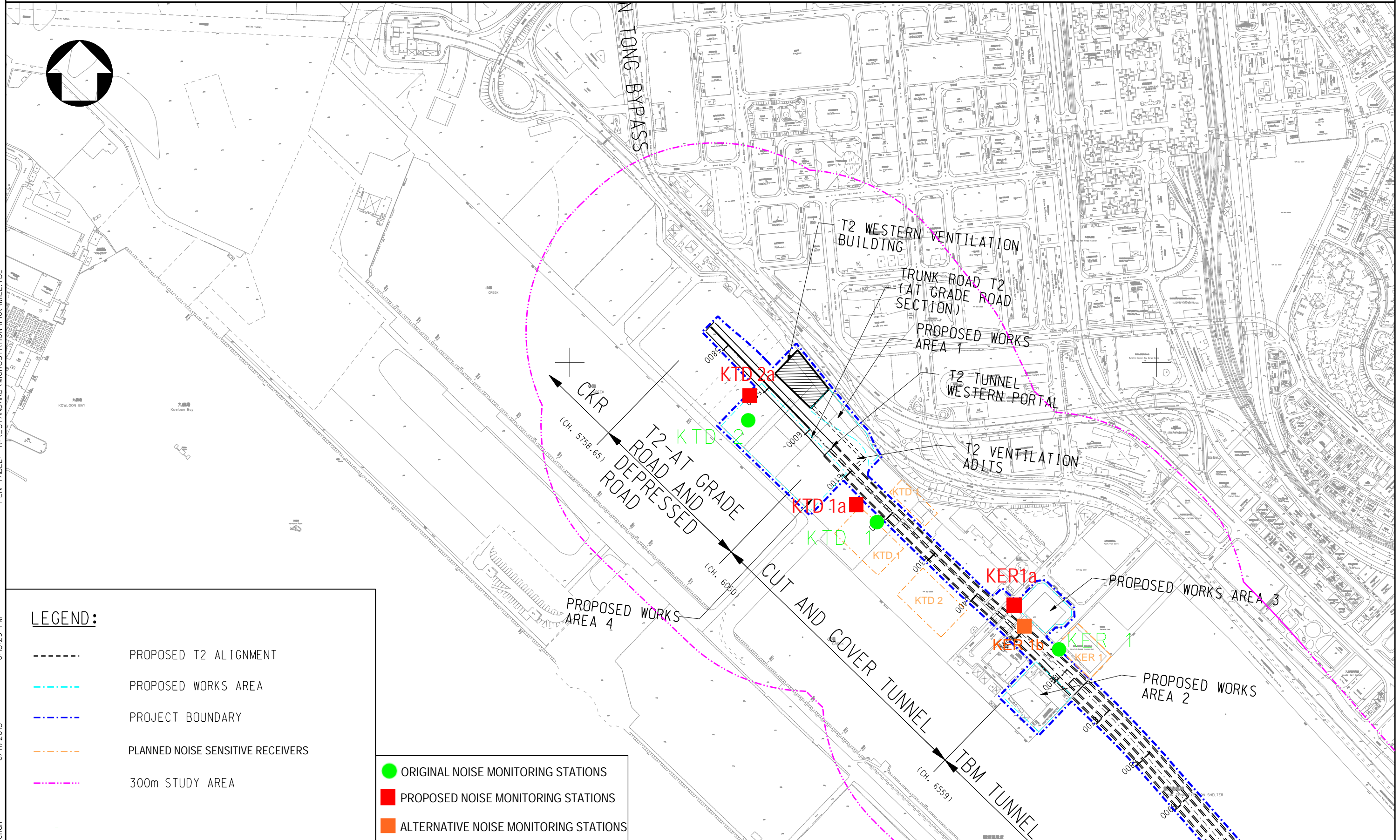
LEGEND:

- - - - 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

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		IDENTIFIED DUST MONITORING STATIONS AT SOUTH APRON OF FORMER KAI TAK AIRPORT			
		© Copyright reserved		File name	Date
Rev.	Description	Date	Drawing No.	FIGURE 2.1a(revised)	
					Rev. --



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

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Drawing title

IDENTIFIED NOISE MONITORING STATIONS AT SOUTH APRON OF FORMER KAI TAK AIRPORT

Original Size

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Date 30/01/2012

File name

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Drawing No.

FIGURE 3.1a (revised)

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Appendix A

Construction Programme

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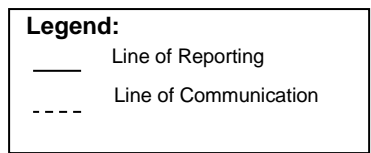
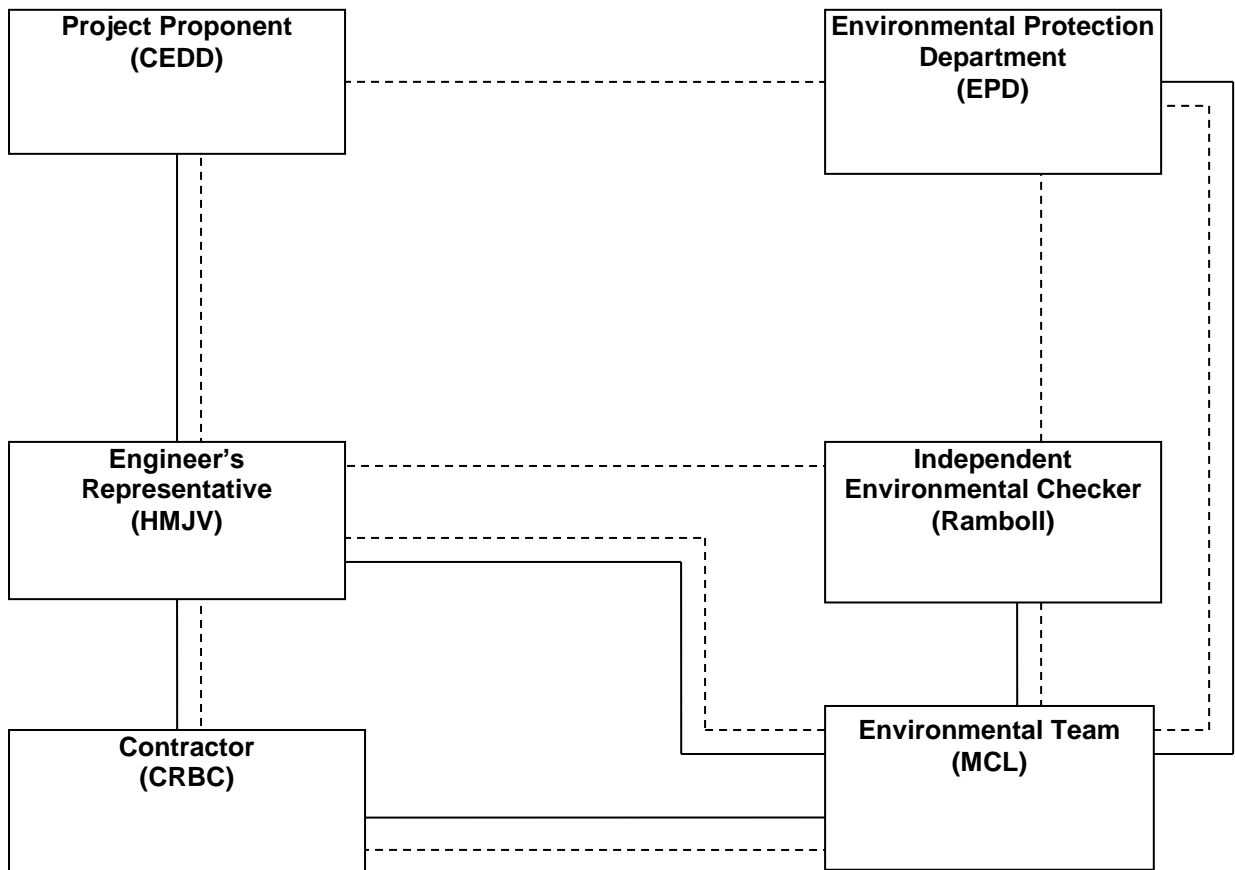
Appendix B

Project Organization Chart

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Appendix C

Action and Limit Levels for Air Quality and Noise

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Action and Limit Levels for 24-hr TSP and 1-hr TSP

Parameter	Monitoring Station	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
24-hr TSP ($\mu\text{g}/\text{m}^3$)	KTD1a	177	260
	KTD2a	157	
	KER1b	172	
*1-hr TSP ($\mu\text{g}/\text{m}^3$)	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)

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Appendix D

Calibration Certificates of Monitoring Equipment



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE
 VILLAGE OF CLEVELS, OH
 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jan 18, 2017 Rootsmeter S/N 0438320 Ta (K) - 294
 Operator Tisch Orifice I.D. - 2154 Pa (mm) - 755.65

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4530	3.2	2.00
2	NA	NA	1.00	1.0420	6.4	4.00
3	NA	NA	1.00	0.9290	7.9	5.00
4	NA	NA	1.00	0.8840	8.8	5.50
5	NA	NA	1.00	0.7300	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0035	0.6906	1.4197	0.9957	0.6853	0.8821
0.9993	0.9590	2.0078	0.9915	0.9516	1.2475
0.9972	1.0734	2.2448	0.9894	1.0651	1.3948
0.9960	1.1268	2.3543	0.9883	1.1180	1.4628
0.9907	1.3571	2.8394	0.9830	1.3466	1.7642
Qstd slope (m) = 2.12779			Qa slope (m) = 1.33238		
intercept (b) = -0.04273			intercept (b) = -0.02655		
coefficient (r) = 0.99982			coefficient (r) = 0.99982		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

Va = Diff Vol [(Pa-Diff Hg)/Pa]
 Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{ [SQRT(H2O(Pa/760) (298/Ta))] - b}
 Qa = 1/m{ [SQRT H2O(Ta/Pa)] - b}

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Email : mcl@fugro.com.hk



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmental Monitoring Works For Contract No. KLN/2015/07				Date of Calibration: 5-Oct-17	
Location : KTD1a				Next Calibration Date: 4-Jan-18	
Brand:	Tisch		Technician: Toby Wan		
Model:	TE-5170	S/N:	4037		

CONDITIONS					
Sea Level Pressure (hPa):	1013.3	Corrected Pressure (mm Hg):	760		
Temperature (°C):	29	Temperature (K):	302		

CALIBRATION ORIFICE					
Make:	Tisch	Qstd Slope:	2.12779		
Model:	TE-5025A	Qstd Intercept:	-0.04273		
Calibration Date:	18-Jan-17	Expiry Date:	18-Jan-18		
S/N:	2154				

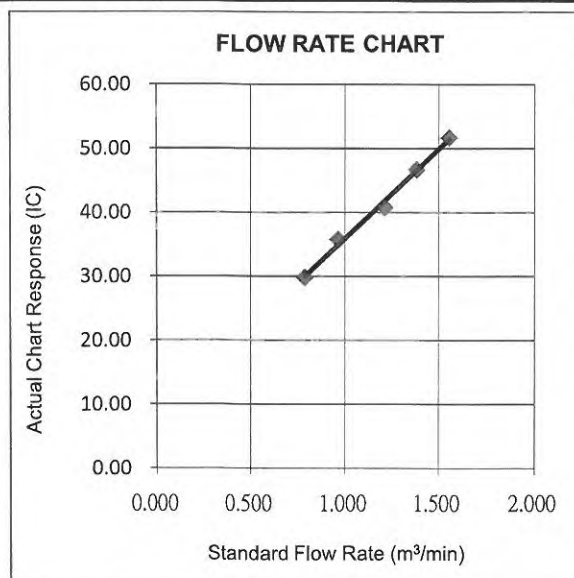
CALIBRATIONS							
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m ³ /min)	I (chart)	IC (corrected)	LINEAR REGRESSION
18	5.00	-5.80	10.800	1.554	52.00	51.65	Slope = 27.8838 Intercept = 8.0325 Corr. coeff.: 0.9968
13	3.90	-4.60	8.500	1.381	47.00	46.69	
10	2.90	-3.60	6.500	1.210	41.00	40.73	
7	1.70	-2.40	4.100	0.965	36.00	35.76	
5	1.00	-1.70	2.700	0.787	30.00	29.80	

Calculations:

$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$
 $IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$
 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:

$1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$
 m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure



CHOI KAM HO
Project Consultant

Report Date: 5th October, 2017

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TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmental Monitoring Works For Contract No. KLN/2015/07			Date of Calibration: 5-Oct-17		
Location : KTD2a			Next Calibration Date: 4-Jan-18		
Brand:	Tisch		Technician: Toby Wan		
Model:	TE-5170	S/N:	3838		

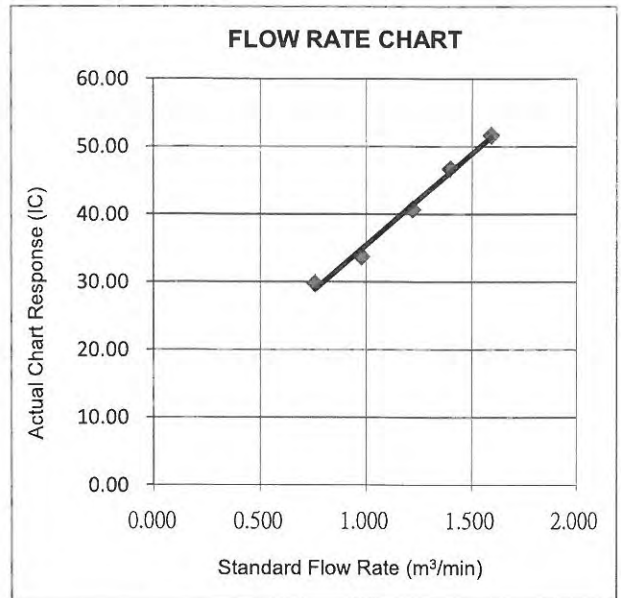
CONDITIONS					
Sea Level Pressure (hPa):	1013.3	Corrected Pressure (mm Hg):	760		
Temperature (°C):	29	Temperature (K):	302		

CALIBRATION ORIFICE					
Make:	Tisch	Qstd Slope:	2.12779		
Model:	TE-5025A	Qstd Intercept:	-0.04273		
Calibration Date:	18-Jan-17	Expiry Date:	18-Jan-18		
S/N:	2154				

CALIBRATIONS							
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m³/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
18	6.70	-4.60	11.300	1.589	52.00	51.65	Slope = 27.1114 Intercept = 8.3150 Corr. coeff.: 0.9959
13	5.60	-3.10	8.700	1.397	47.00	46.69	
10	4.40	-2.20	6.600	1.219	41.00	40.73	
7	3.10	-1.10	4.200	0.977	34.00	33.77	
5	2.30	-0.20	2.500	0.758	30.00	29.80	

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: 5th October, 2017

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TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmental Monitoring Works For Contract No. KLN/2015/07			Date of Calibration: 5-Oct-17		
Location : KER1b			Next Calibration Date: 4-Jan-18		
Brand:	Tisch		Technician: Toby Wan		
Model:	TE-5170	S/N:	3482		

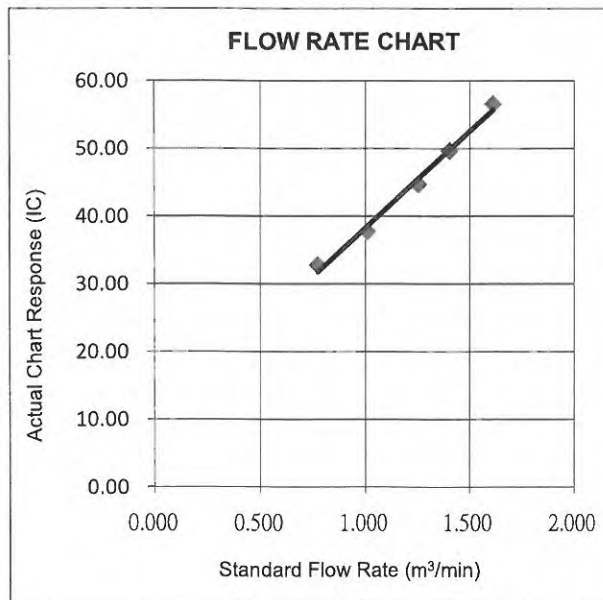
CONDITIONS			
Sea Level Pressure (hPa):	1013.3	Corrected Pressure (mm Hg):	760
Temperature (°C):	29	Temperature (K):	302

CALIBRATION ORIFICE			
Make:	Tisch	Qstd Slope:	2.12779
Model:	TE-5025A	Qstd Intercept:	-0.04273
Calibration Date:	18-Jan-17	Expiry Date:	18-Jan-18
S/N:	2154		

CALIBRATIONS							
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m ³ /min)	I (chart)	IC (corrected)	LINEAR REGRESSION
18	7.50	-4.10	11.600	1.610	57.00	56.62	Slope = 28.6210 Intercept = 9.6516 Corr. coeff.: 0.9954
13	6.00	-2.80	8.800	1.405	50.00	49.67	
10	5.30	-1.70	7.000	1.255	45.00	44.70	
7	4.00	-0.50	4.500	1.010	38.00	37.75	
5	3.10	0.50	2.600	0.773	33.00	32.78	

Calculations:

$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$
 $IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$
 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:
 $1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$
 m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure



CHOI KAM HO
Project Consultant

Report Date: 5th October, 2017

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MaterialLab

Report no.: 172379CA171223

Page 1 of 1

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : MaterialLab Consultants Ltd.

Address : Room 723 & 725, 7F., 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
Serial No. : 3756072(meter), 01456 (microphone), 003527(Preamplifier)
Next Calibration Date : 05-Jun-2018
Specification Limit : EN 61672: 2003 Type 2

Laboratory Information


Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)
Equipment ID. : R-108-1
Date of Calibration : 06-Jun-2017 Ambient Temperature : 22 °C
Calibration Location : Calibration Laboratory of MaterialLab
Method Used : By direct comparison

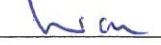
Calibration Results :

Parameters	Mean Value (dB)	Specification Limit(dB)
A-weighting frequency response	4000Hz	3.7
	2000Hz	1.8
	1000Hz	-1.0
	500Hz	-7.7
	250Hz	-18.1
	125Hz	-31.0
	63Hz	-46.4
31.5Hz	-58.2	
Differential level linearity	94dB-104dB	0.1
	104dB-114dB	0.2

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 not comply with EN 61672: 2003 Type 2 sound level meter for the above measurement.

Checked by :  Date : 7/6/2017
CA-R-297 (22/07/2009)

Certified by :  Date : 7/6/2017
Chan Chun Wai (Manager)

** End of Report **

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MaterialLab

Report no.: 161966CA170482

Page 1 of 1

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : MaterialLab 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
Model No. : Casella (Model no. CEL-63X(meter), CEL-251(microphone), CEL-495(Preamplifier))
Serial No. : 3756127 (meter), 00937 (microphone), 002712 (Preamplifier))
Next Calibration Date : 28-Feb-2018
Specification Limit : EN 61672: 2003 Type 1

Laboratory Information

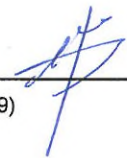

Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)
Equipment ID. : R-108-1
Date of Calibration : 01-Mar-2017 Ambient Temperature : 22 °C
Calibration Location : Calibration Laboratory of MaterialLab
Method Used : By direct comparison

Calibration Results :

Parameters	Mean Value (dB)	Specification Limit(dB)
A-weighting frequency response	4000Hz	-0.2
	2000Hz	0.8
	1000Hz	0.1
	500Hz	-3.0
	250Hz	-8.4
	125Hz	-15.8
	63Hz	-25.9
	31.5Hz	-38.3
Differential level linearity	94dB-104dB	± 0.6
	104dB-114dB	± 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 : 3-3-2017 Certified by :  Date : 3.3.2017
CA-R-297 (22/07/2009) Chan Chun Wai (Manager)

** End of Report **

FUGRO TECHNICAL SERVICES LIMITED

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MaterialLab

Report no.: 161966CA170279

Page 1 of 1

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : MaterialLab 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 (N-29)
Manufacturer : Casella
Model No. : Casella (Model no. CEL-63X(meter), CEL-251(microphone), CEL-495(Preamplifier))
Serial No. : 3756036 (meter), 01308 (microphone), 003048(Preamplifier)
Next Calibration Date : 06-Feb-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 : 07-Feb-2017 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of MaterialLab

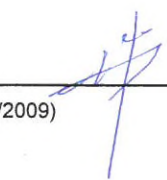
Method Used : By direct comparison

Calibration Results :

Parameters	Mean Value (dB)	Specification Limit(dB)	
A-weighting frequency response	4000Hz	1.5	2.6 to -0.6
	2000Hz	0.9	2.8 to -0.4
	1000Hz	-0.5	1.1 to -1.1
	500Hz	-3.9	-1.8 to -4.6
	250Hz	-9.3	-7.2 to -10.0
	125Hz	-16.7	-14.6 to -17.6
	63Hz	-26.8	-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 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 : 
CA-R-297 (22/07/2009)

Date : 9-2-2017

Certified by : 

Chan Chun Wai (Manager)

Date : 9-2-2017

** End of Report **

FUGRO TECHNICAL SERVICES LIMITED

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MaterialLab

Report no.: 172379CA171674(1)

Page 1 of 1

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client Supplied Information

Client : MaterialLab Consultants Ltd.

Address : Room 723 & 725, 7F., 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 : Caselia (Model no. CEL-120/1)
Serial No. : 0255083
Next Calibration Date : 30-Jul-2018
Specification Limit : ± 0.5 dB

Laboratory Information



Description : Reference Sound Level Meter
Equipment ID. : R-119-1
Date of Calibration : 31-Jul-2017 Ambient Temperature : 21 °C
Calibration Location : Calibration Laboratory of MaterialLab
Method Used : By direct comparison

Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit (dB)
94dB	0.1 dB	± 0.5 dB
114dB	0.1 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 : 28-2017 Certified by :  Date : 4-8-2017
CA-R-297 (22/07/2009) Kwok Chi Wa (Assistant Manager)

** End of Report **

FUGRO TECHNICAL SERVICES LIMITED

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MaterialLab

Report No. : 161966CA171055

Page 1 of 1

CALIBRATION CERTIFICATE OF ANEMOMETER

Client Supplied Information

Client : MaterialLab 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 : 09-May-2018

Laboratory Information

Details of Reference Equipment –

Description : Reference Anemometer

Equipment ID. : R-101-4

Date of Calibration : 10-May-2017 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of MaterialLab

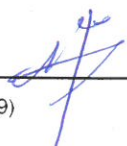

Method Used : By direct Comparison

Calibration Results :

Reference Reading (m/s)	UUT Reading (m/s)	Error (m/s)
2.00	2.0	0.0
3.98	3.9	-0.1
5.98	5.4	-0.6
8.01	7.0	-1.0
10.01	8.8	-1.2

Remark :

1. The equipment being used in this calibration is traceable to recognized National Standards.

Checked by :  Date : 12-5-2017 Certified by :  Date : 12-5-2017
CA-R-297 (22/07/2009) Chan Chun Wai (Manager)

** End of Report **

Certificate of
Conformance and Calibration for

CEL-120 Acoustic Calibrator

Applicable Standards :-IEC 60942: 2003 & ANSI S1.40: 2006

CEL-120/1 Class 1

CEL-120/2 Class 2

Serial No: 1677438

Firmware: 04

Temperature: 22.9 °C Pressure: 1010.8 mb %RH 51.7

Frequency = 1.00kHz ± 2Hz T.H.D. = < 1%	Calibration Level
SPL @ 114.0dB Setting	<u>114.01</u> dB
SPL @ 94.0dB Setting (CEL-120/1 only)	<u>93.97</u> dB/N.A

Engineer :- [Signature] Date :- 14 JUN 2017

Company test equipment and acoustic working standards, used for conformance testing, are subject to periodic calibration, traceable to UK national standards, in accordance with the company's ISO9001 Quality System.

DECLARATION OF CONFORMITY

This certificate confirms that the instrument specified above has been produced and tested to comply with the manufacturer's published specifications and the relevant European Community CE directives.

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E-mail: info@casellacel.com
Web: www.casellameasurement.com

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The logo for MaterialLab, featuring the word "MaterialLab" in a bold, sans-serif font. The text is centered between two thick, horizontal black bars.

Appendix E

Environmental Monitoring Schedule

MATERIALAB CONSULTANTS LIMITED

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Project: KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway

Impact Monitoring Schedule (November 2017)

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	14 TSP Monitoring Noise Monitoring	15	16	17	18
19	20 TSP Monitoring Noise Monitoring	21	22	23	24	25 TSP Monitoring Noise Monitoring
26	27	28	29	30		

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.

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Project: KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway

Impact Monitoring Schedule (December 2017)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
					1 TSP Monitoring Noise Monitoring	2
3	4	5	6	7 TSP Monitoring Noise Monitoring	8	9
10	11	12	13 TSP Monitoring Noise Monitoring	14	15	16
17	18	19 TSP Monitoring Noise Monitoring	20	21	22	23 TSP Monitoring Noise Monitoring
24	25	26	27	28	29 TSP Monitoring Noise Monitoring	30
31						

Remarks

- Actual monitoring may be subjected to change due to any safety concern or adverse weather condition
- 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
- 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)
- Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.

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MaterialLab

Project: KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway

Impact Monitoring Schedule (January 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 TSP Monitoring Noise Monitoring
28	29	30	31			

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), KTD2a: G/IC Zone next to Kwun Tong Bypass (Future at Site 3C1), 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

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Project: KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway

Impact Monitoring Schedule (February 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	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			

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), KTD2a: G/IC Zone next to Kwun Tong Bypass (Future at Site 3C1), 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.

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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 (ug/m ³)	Limit Level (ug/m ³)	
				Initial	Final			Initial	Final						
2-Nov-17	Fine	297.5	760.8	2.7243	3.0028	0.2785	24	1.54	1.54	1.54	2217.0	126	177	260	
8-Nov-17	Fine	297.4	761.9	2.6759	2.8289	0.1530	24	1.45	1.44	1.44	2078.4	74			
14-Nov-17	Cloudy	296.0	761.0	2.5620	2.8793	0.3173	24	1.64	1.64	1.64	2360.0	134			
20-Nov-17	Fine	292.3	764.2	2.5917	2.7484	0.1567	24	1.66	1.64	1.65	2370.6	66			
25-Nov-17	Fine	291	766.2	2.5706	2.7541	0.1835	24	1.53	1.51	1.52	2187.6	84			
												Min	66		
												Max	134		
												Average	97		

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 (ug/m ³)	Limit Level (ug/m ³)	
				Initial	Final			Initial	Final						
2-Nov-17	Fine	297.5	760.8	2.5723	2.5883	0.0160	24	1.57	1.57	1.57	2259.9	7	157	260	
8-Nov-17	Fine	297.4	761.9	2.6720	2.7634	0.0914	24	1.28	1.27	1.28	1837.7	50			
14-Nov-17	Cloudy	296.0	761.0	2.5716	2.6465	0.0749	24	1.50	1.49	1.50	2157.5	35			
20-Nov-17	Fine	292.3	764.2	2.6182	2.8023	0.1841	24	1.59	1.57	1.58	2274.6	81			
25-Nov-17	Fine	291	766.2	2.5632	2.7191	0.1559	24	1.67	1.64	1.66	2385.9	65			
												Min	7		
												Max	81		
												Average	48		

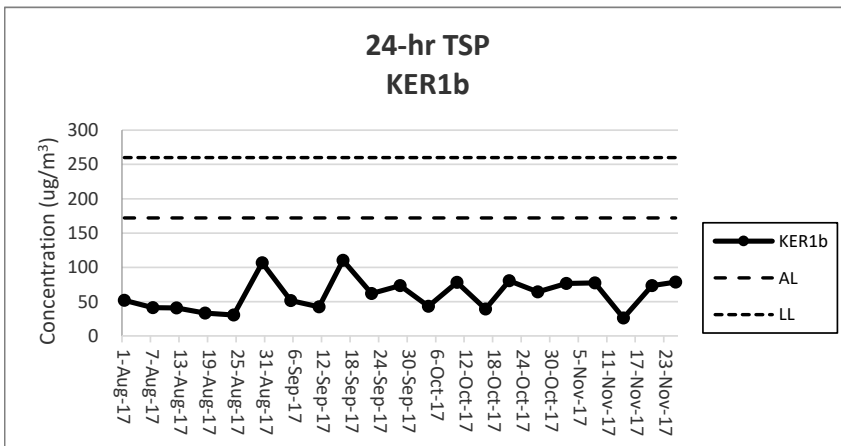
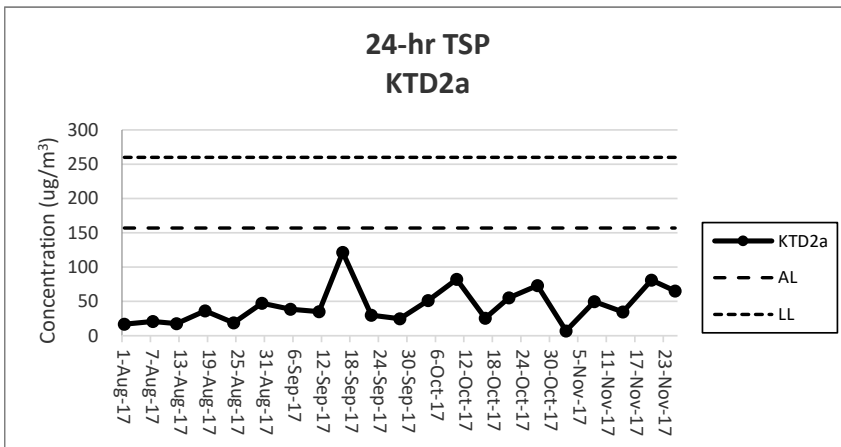
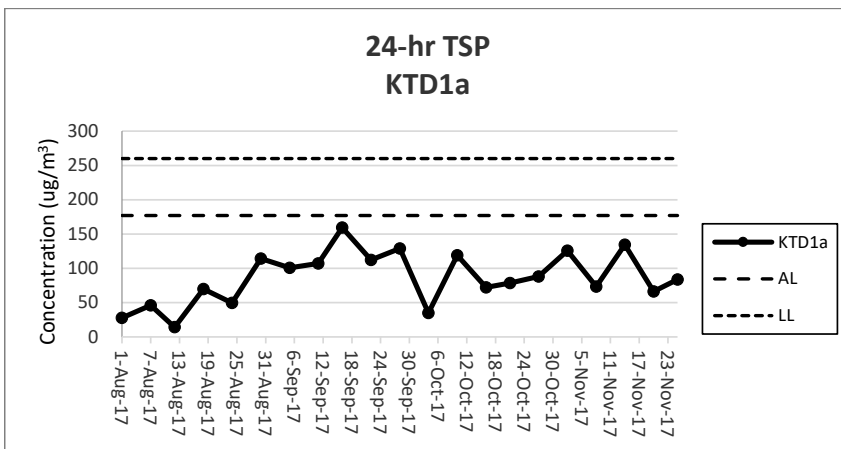
KER1b - Site Boundary at Cheung Yip Street

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 (ug/m ³)	Limit Level (ug/m ³)	
				Initial	Final			Initial	Final						
2-Nov-17	Fine	297.5	760.8	2.5611	2.6965	0.1354	24	1.23	1.23	1.23	1766.1	77	172	260	
8-Nov-17	Fine	297.4	761.9	2.6760	2.8060	0.1300	24	1.17	1.16	1.17	1678.0	77			
14-Nov-17	Cloudy	296.0	761.0	2.5490	2.5975	0.0485	24	1.29	1.29	1.29	1858.1	26			
20-Nov-17	Fine	292.3	764.2	2.6023	2.7326	0.1303	24	1.24	1.23	1.23	1778.0	73			
25-Nov-17	Fine	291	766.2	2.5724	2.7189	0.1465	24	1.31	1.29	1.30	1871.5	78			
												Min	26		
												Max	78		
												Average	66		

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 monitoring results can be referred to Section 2.6.4.
- 4) QA/QC results, calibration results and detection limits can be referred to Appendix D.

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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
2-Nov-17	10:16	69	73	59	0.3	Fine
8-Nov-17	11:44	61	63	59	0.3	Fine
14-Nov-17	10:03	71	73	69	0.2	Cloudy
20-Nov-17	11:16	68	71	63	0.6	Fine
25-Nov-17	10:40	72	73	71	0.3	Fine
	Max	72				
	Min	61				
	Limit Level	75				

KTD 2a: G/C 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
2-Nov-17	9:39	66	70	59	0.3	Fine
8-Nov-17	10:05	62	64	60	0.8	Fine
14-Nov-17	9:29	61	63	59	0.6	Cloudy
20-Nov-17	10:26	70	73	64	0.8	Fine
25-Nov-17	11:16	62	64	58	0.6	Fine
	Max	70				
	Min	61				
	Limit Level	75				

KER 1b: Site Boundary at Cheung Yip Street

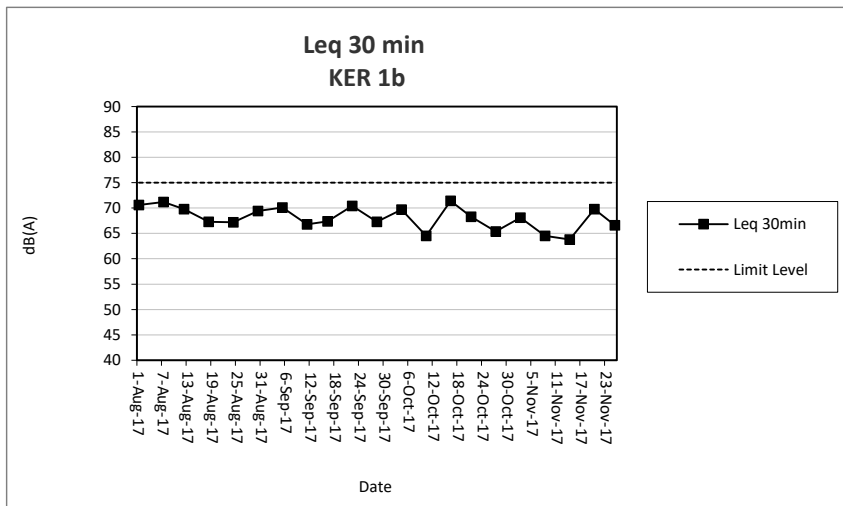
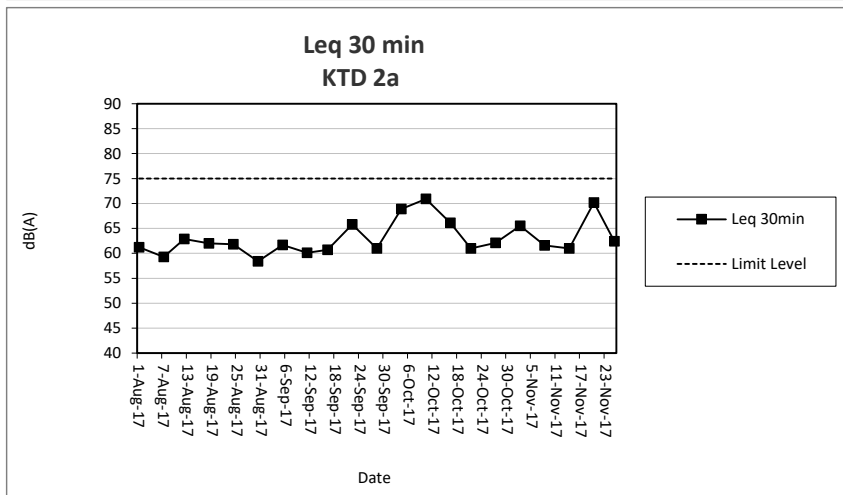
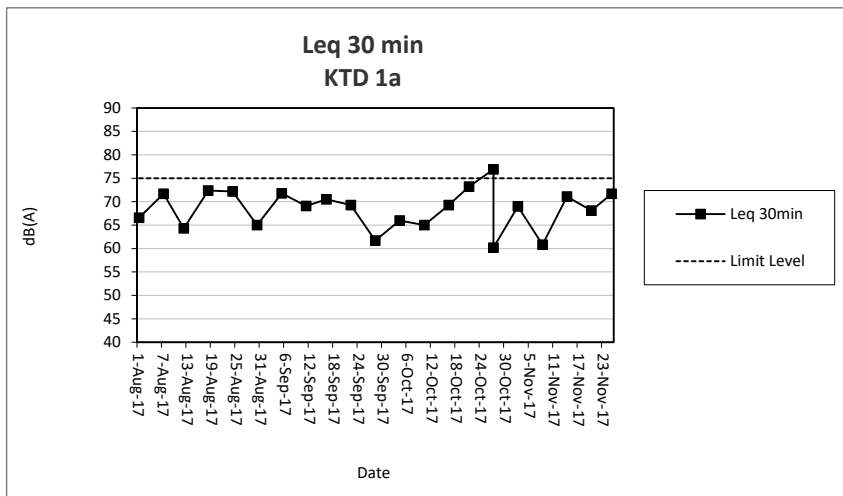
Date	Start Time	Leq 30min dB(A)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather
2-Nov-17	10:55	68	72	50	0.4	Fine
8-Nov-17	11:02	65	67	60	0.0	Fine
14-Nov-17	10:47	64	65	61	0.2	Cloudy
20-Nov-17	9:50	70	72	62	0.2	Fine
25-Nov-17	9:52	67	69	63	0.2	Fine
	Max	70				
	Min	64				
	Limit Level	75				

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 monitoring results can be referred to Section 3.7.2.
- 4) QA/QC results, calibration results and detection limits can be referred to Appendix D.
- 5) For the monitoring location KTD 1a, the measured noise level (77 dB(A)) on 27th October 2017 exceeded the limit level. Piling noise from the Children Hospital was observed by our staff during noise monitoring. Repeat measurement was conducted to confirm the finding and the measured noise level (60 dB(A)) was below the limit level. Only vehicle noise along Shing Fung Road was observed in the second noise monitoring.

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The logo for MaterialLab, featuring the word "MaterialLab" in a bold, sans-serif font. The text is centered between two thick, horizontal black bars.

Appendix H

Events and Action Plan

Event and Action Plan for Construction Dust Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
Action Level				
Exceedance for one sample.	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET. 2. Check the Contractor's working methods. 	<ol style="list-style-type: none"> 1. Notify the Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practices. 2. Amend working methods agreed with the ER as appropriate.
Exceedance for two or more consecutive samples.	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Notify the Contractor. 2. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 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. Increase monitoring frequency to daily. 5. Assess effectiveness of the Contractor's remedial action and keep the IEC and ER informed of the results 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Confirm receipt of the notification of exceedance in writing. 2. Notify the Contractor. 3. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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

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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.



Event and Action Plan for Noise Impact

EVENT	ACTION			
	ET	IEC	ER	Contractor
Action Level	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 1. Review the monitoring data submitted by the ET. 2. Review the construction methods and proposed remedial measures by the Contractor, and advise the ET and ER if the proposed remedial measures would be sufficient 	<ol style="list-style-type: none"> 1. Notify the Contractor. 2. Require the Contractor to propose remedial measures for implementation if required. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to the ER and copy to the IEC and ET. 2. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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.

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Event and Action Plan for Landscape and Visual Impact

EVENT	ACTION			
	ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Notify Contractor 2. Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Amend working methods 2. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Amend working methods 2. Rectify damage and undertake any necessary replacement

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Appendix I

Waste Flow Table

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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.

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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
Total	92.0505	Nil	4.5027	Nil	87.5478	Nil	56.282	0.5665	Nil	0.25	0.2347

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.

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Appendix J

Environmental Mitigation Implementation Schedule (EMIS)

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
<u>Air Quality Measures</u>					
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
		<u>Good Site Practices</u>			
AEIAR-130/2009	AEIAR 130/2009	Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should	Contractor	All relevant	Implemented

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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 extend 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 inside the site. Onsite unpaved roads should be compacted and kept free of loose 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.	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.			
		Every main haul road should be sealed 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		

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		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	Partially 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: <ul style="list-style-type: none"> • 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

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		<ul style="list-style-type: none"> • 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

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		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 vehicles with proper labels are allowed to be used in specified activities on-site.	Contractor	All relevant worksites	Implemented
<u>Water Quality Measures</u>					
Trunk Road T2					
		<u>Accidental Spillage</u>			
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

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		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>			

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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	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

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		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.	Contractor	All relevant worksites	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

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		<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

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		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

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		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	Partially 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

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		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	Partially Implemented

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		<u>General Refuse</u>			
		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
<u>Land Contamination Measures</u>					
		<u>For any excavation works conducted at Radar Station</u>			
		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
<u>Landscape and Visual Impact</u>					
		<u>New Distributor Roads Serving the Planned KTD</u>			
		<u>Construction Phase</u>			
		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

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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
		<u>Trunk Road T2</u>			
		<u>Construction Phase</u>			
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
<u>General Condition</u>					
		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

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The logo for MaterialLab, featuring the word "MaterialLab" in a bold, black, sans-serif font. The text is centered between two thick, horizontal black bars, one above and one below the text.

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

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Appendix K

Weather and Meteorological Conditions during Reporting Month

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Date	Mean Pressure (hPa)	Air Temperature			Mean Relative Humidity (%)	Total Rainfall (mm)
		Maximum (deg. C)	Mean (deg. C)	Minimum (deg. C)		
November 2017						
01	1017.2	26.4	23	20.5	66	0
02	1014.3	27.8	23.8	20.9	67	0
03	1015.5	27.6	24.5	22	63	0
04	1018.9	25.8	23.6	20.7	58	0.3
05	1018.5	25.6	23	20.3	64	Trace
06	1016.4	25.8	23.3	21.3	68	Trace
07	1016	26	23.6	21.8	75	0.3
08	1015.9	27.3	24.6	23.1	78	Trace
09	1015.8	26.8	24.4	22.8	74	Trace
10	1014.9	28.4	25	22.9	74	0
11	1014.1	26.5	24.7	23.4	78	0
12	1013.6	23.5	22.1	21.1	87	14.7
13	1013.2	22.7	21.9	21.5	91	12.5
14	1014.6	24	23	22	88	0.2
15	1016	23.9	23.2	22.6	84	0
16	1015.1	26.2	23.4	22.2	81	0
17	1011.6	26.2	24.2	22.9	84	0
18	1012.2	26.5	23.9	20.1	83	1.9
19	1017.7	20.2	19.9	19.4	84	1
20	1018.8	20.3	19.3	17.9	78	0
21	1018	21.4	19.3	17.5	77	0
22	1016.5	22.9	19.8	17.3	70	0
23	1019.9	20.3	17.8	15.5	64	0
24	1022.1	20.8	18	16.5	65	0
25	1021.5	19.1	18	16.9	73	0
26	1020.2	22.4	19.7	18.1	73	0
27	1018.1	22.1	20.3	18.5	78	Trace
28	1017.4	24.6	22.2	20.6	79	Trace
29	1016.9	26.4	23.8	21.6	82	0
30	1016.9	23.2	22.3	21.8	90	0.3

Source: Hong Kong Observatory – Hong Kong Observatory

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Appendix L

Cumulative statistics on Environmental Complaints, Notifications of Summons and Successful Prosecution

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MaterialLab**Environmental Complaints Log**

Complaint Log No.	Date of Notification	Received From and Received By	Nature of Complaint	Date of Investigation	Outcome	Date of Reply
1	7 December 2016	Andy Choy	Air	13 February 2017	Project-related	13 February 2017
2	9 February 2017	Andy Choy	Air	22 February 2017	Not Project-related	7 March 2017
3	2 May 2017	Andy Choy	Noise	4 May 2017	Not Valid	22 May 2017
4	16 July 2017	HMJV	Water Quality	4 August 2017	Not Project-related	4 August 2017

Cumulative Statistics on Complaints

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Month	Cumulative Project-to-Date
Air	2	0	2
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

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Appendix M

Summary of Site Audit in the Reporting Month

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MaterialLab**Summary of Site Audit in the Reporting Month**

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	30 November 2017	Plants and equipment should be well-maintain to prevent dark smoke emission (Zone 4). Contractor should maintain plant and equipment to prevent dark smoke emission.	The item was rectified by the Contractor and inspected on 6 December 2017.
Noise		NA	
Water Quality		NA	
Chemical and Waste Management	30 November 2017	Contractor was reminded to store chemicals in drip tray (Zone 1). Drip tray shall be provided.	The item was rectified by the Contractor and inspected on 6 December 2017.
Land Contamination		NA	
Landscape and Visual Impact		NA	
General Condition		NA	

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Appendix N

Outstanding Issues and Deficiencies

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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	

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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

November 2017

(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

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Date 15 December 2017
Our Ref. MCL/ED/0641/2017/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 November 2017

We refer to your emails dated 11 and 15 December 2017 regarding the Monthly EM&A Report for November 2017 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 –
AECOM –

Attn.: Ms. K. Pong
Attn.: Mr. Ryan Chak
Attn.: Mr. Vincent Lee
Attn.: Mr. Stanley Chan

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EXECUTIVE SUMMARY

Introduction

1. This is the 11th 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 from 1 – 30 November 2017.
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:
 - Construction works for retaining wall at slip road S15
 - Bored piling works for the relocated Pile P32
 - Excavation with installation of ELS and utilities support at Subway SW6
 - Construction of Box Culvert B2 and B5 (Wall and Topslab)
 - Excavation and construction works for Box Culvert B4 and B2
 - Backfilling works for Box Culvert B4 and B3
 - DCS Pipe laying works in Road D1, Portion 6 and Road L7
 - Drainage laying works in Road L7 and Portion 3
 - Fresh water main laying works in Road L7
 - Sewerage laying works in Portion 2

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 & 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. No Action/Limit Level exceedance was recorded.

Environmental Licenses and Permits

8. Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Project, EP-337/2009 issued on 23 April 2009.
9. Construction Noise Permit (License No.: GW-RE0588-17 & GW-RE0595-17).
10. Billing Account for Construction Waste Disposal (A/C# 7026164).
11. Effluent Discharge License (WT00027495-2017).
12. Registration of Chemical Waste Producer (WPN5213-286-P3271-01).

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	---	---	---	---	---
Reporting Changes	0	---	N/A	N/A	---
Notifications of any summons & prosecutions received	0	---	N/A	N/A	---

Future Key Issues

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

- Dust generation from stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
- Water spraying for dust generating activity and on haul road;
- Proper storage of construction materials on site;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Accumulation of general and construction waste on site;
- Noise from operation of the equipment, especially for rock-breaking activities, piling works and machinery on-site;
- 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 11th Monthly EM&A report summarizing the EM&A works for the Project from 1 – 30 November 2017.

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) – Furgo 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:

- Construction works for retaining wall at slip road S15
- Bored piling works for the relocated Pile P32
- Excavation with installation of ELS and utilities support at Subway SW6
- Construction of Box Culvert B2 and B5 (Wall and Topslab)
- Excavation and construction works for Box Culvert B4 and B2
- Backfilling works for Box Culvert B4 and B3
- DCS Pipe laying works in Road D1, Portion 6 and Road L7
- Drainage laying works in Road L7 and Portion 3
- Fresh water main laying works in Road L7
- Sewerage laying works in Portion 2

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 from 1 – 30 November 2017.

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	2
HVS Sampler	GMWS 2310 c/w of TSP sampling inlet	1
Wind Anemometer	Davis Instruments Weather Station, Vantage Pro2	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 m³/min. and 1.4 m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.
- 2.10 For 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 $\pm 3^\circ\text{C}$; the relative humidity (RH) should be $< 50\%$ and not vary by more than $\pm 5\%$. A convenient working RH is 40%.

Maintenance/Calibration

- 2.18 The following maintenance/calibration was required for the HVS:
- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
 - High volume samplers were calibrated at bi-monthly intervals using 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, the major dust source identified at the designated air quality monitoring stations are as follows:

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

2.25 **Table 2.4** shows the summary of air quality monitoring results during the reporting month.

Table 2.4 Summary Table of Air Quality Monitoring Results during the reporting month

Parameter	Date	Concentration (µg/m ³)	Action Level, µg/m ³	Limit Level, µg/m ³
AM2 – Lee Kau Yan Memorial School				
1-hr TSP	6-Nov-17	196.7	346	500
	6-Nov-17	197.8		
	6-Nov-17	211.2		
	11-Nov-17	196.7		
	11-Nov-17	197.8		
	11-Nov-17	211.2		
	17-Nov-17	283.6		
	17-Nov-17	315.8		
	17-Nov-17	320.4		
	23-Nov-17	280.8		
	23-Nov-17	320.1		
	23-Nov-17	286.4		
	29-Nov-17	212.9		
29-Nov-17	179.7			
29-Nov-17	175.0			
AM2(A) – Ng Wah Catholic Secondary School				
24-hr TSP	6-Nov-17	101.6	157	260
	11-Nov-17	127.4		
	17-Nov-17	128.3		
	23-Nov-17	80.9		
	29-Nov-17	80.0		

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	4
	● BSWA 801	
Calibrator	● SVANTEK SV30A	4

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}, L₉₀ and L₁₀ were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused temporarily during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.

Maintenance and Calibration

- 3.5 The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
- 3.6 The sound level meter and calibrator were checked and calibrated at yearly intervals.
- 3.7 Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Results and Observations

- 3.8 All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. The summary of exceedance record in reporting month is shown in **Appendix H**.
- 3.9 The baseline noise level and the Noise Limit Level at each designated noise monitoring station are presented in **Table 3.4**.

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

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

Monitoring Stations	Locations	Major Noise Source
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 3.4 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* (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.

Table 3.5 Summary Table of Noise Monitoring Results during the Reporting Month

Date	Measured Noise Level, Leq(30min) dB (A)	Baseline Level dB (A)	Construction Noise Level ⁽¹⁾ : Leq(30min) dB (A)
M3 – Cognitio College			
--	--	Background Noise ⁽²⁾	--
1-Nov-17	78.0	77.8	64.5
7-Nov-17	79.8	79.6	66.3
13-Nov-17	78.7	78.5	65.2
20-Nov-17	79.3	79.1	65.8
24-Nov-17	79.2	79.0	65.7
30-Nov-17	80.7	80.6	64.3
M4 – Lee Kau Yan Memorial School			
6-Nov-17	75.5	76.7	75.5 Measured ≤ Baseline
17-Nov-17	76.1		76.1 Measured ≤ Baseline
23-Nov-17	76.0		76.0 Measured ≤ Baseline
29-Nov-17	76.4		76.4 Measured ≤ Baseline
M5(C) – Mercy Grace's Home			
--	--	Background Noise ⁽²⁾	--
1-Nov-17	77.4	77.0	66.8
7-Nov-17	79.5	78.3	73.3
13-Nov-17	78.3	78.0	66.5
20-Nov-17	78.6	78.0	69.7
24-Nov-17	78.9	78.5	68.3
30-Nov-17	77.0	76.6	66.4

Note (1): 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

- (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.

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.		
	Scenario1 (Mid 2009 to Mid 2013), $\mu\text{g}/\text{m}^3$	Scenario2 (Mid 2013 to Late 2016), $\mu\text{g}/\text{m}^3$	Reporting Month (Nov 17), $\mu\text{g}/\text{m}^3$
AM2 – Lee Kau Yan Memorial School	290	312	239.1

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

Station	Predicted 24-hr TSP conc.		
	Scenario1 (Mid 2009 to Mid 2013), $\mu\text{g}/\text{m}^3$	Scenario2 (Mid 2013 to Late 2016), $\mu\text{g}/\text{m}^3$	Reporting Month (Nov 17), $\mu\text{g}/\text{m}^3$
AM2(A) – Ng Wah Catholic Secondary School	145	169	103.7

Table 4.3 Comparison of Noise Monitoring Data with EIA predictions

Stations	Predicted Mitigated Construction Noise Levels during Normal Working Hour ($L_{eq(30min)} \text{ dB(A)}$)	Reporting Month (Nov 17), $L_{eq(30min)} \text{ dB(A)}$
M3 – Cognitio College	47 – 75	64.3 – 66.3
M4 – Lee Kau Yan Memorial School	47 – 74	75.5 – 76.4 ⁽²⁾
M5(C) – Mercy Grace's Home	Not Predicted in EIA Report	66.4 – 73.3

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 1-hour TSP concentrations at AM2 in the reporting month were below to the prediction in the approved Environmental Impact Assessment (EIA) Report.
- 4.3 The 24-hour TSP concentrations at AM2(A) in the reporting month were below to the prediction in the approved Environmental Impact Assessment (EIA) Report.
- 4.4 The noise monitoring results in the reporting month at M3 were within the range of predicted mitigated construction noise levels in the EIA Report while M4 were not within the range. Mitigated 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 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 8, 17, 21 and 27 November 2017 in the reporting month. A joint site audit with the representative of IEC, ER, the Contractor and the ET was carried out on 8 November 2017. The details of 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)			
GW-RE0588-17	29/07/17	28/12/17	Valid
GW-RE0595-17	02/08/17	13/01/18	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**.

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
<i>Water Quality</i>	--	--	--
<i>Air Quality</i>	30 October 2017	<u>Observation:</u> Water spray should be provided for haul roads within the site areas for dust suppression.	Rectification/improvement was observed during the follow-up audit session on 8 November 2017.
	21 November 2017	<u>Reminder:</u> Dusty stockpile should be properly covered with impervious sheeting for dust suppression. (Portion 2)	Rectification/improvement was observed during the follow-up audit session on 27 October 2017.
	27 November 2017	<u>Observation:</u> Air compressor should be properly maintained for exhaust emission control. (Portion 1)	Follow up action will be reported in the next reporting month.
	27 November 2017	<u>Reminder:</u> Exposed slope should be properly covered for dust suppression. (Portion 2)	Follow up action will be reported in the next reporting month.
<i>Noise</i>	--	--	--
<i>Waste/ Chemical Management</i>	8 November 2017	<u>Reminder:</u> Drip tray should be provided to the chemical containers stored on site. (Portion B5)	Rectification/improvement was observed during the follow-up audit session on 17 October 2017.
<i>Landscape and Visual</i>	30 October 2017	<u>Reminder:</u> Materials should be removed from tree protection zone. (Portion B5)	Rectification/improvement was observed during the follow-up audit session on 8

Parameters	Date	Observations and Recommendations	Follow-up
			November 2017.
<i>Permits/ Licenses</i>	--	--	--

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:

- Construction works for retaining wall at slip road S15
- Bored piling works for the relocated Pile P32
- Excavation with installation of ELS and utilities support at Subway SW6
- Construct a temporary pedestrian division road at SKLR Playground
- Construction of the connection between Box Culverts B2, B4 and B5
- Backfilling works for Box Culvert B3, B4 and B5
- Construction of desilting opening and platform
- DCS Pipe laying works in Road D1, Portion 6 and Road L7
- Drainage laying works in Road L7
- Sewerage laying works in Road L7
- Fresh water main laying works in Road L7
- Salt water main laying works in Road L7
- Drainage laying works in Portion 3
- Sewerage laying works in Portion 3
- Drainage laying works in Portion 2
- Sewerage laying works in Portion 2

Key Issues for the Coming Month

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 program of major site activities and the impact prediction and control measures for the coming two months, i.e. December 2017 and January 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.
	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.

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 was received in the reporting month.
- 8.7 No environmental prosecution was received in the reporting month.

Recommendations

- 8.8 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.
- Machinery should be properly maintained in good condition for emission control.

Waste/Chemical Management

- Drip tray should be provided underneath for chemical containers & oil drum to avoid chemical leakage. The chemical leakage should properly cleared as chemical waste.
- Adequate receptacles should be provided for proper disposal of general refuse.

FIGURES

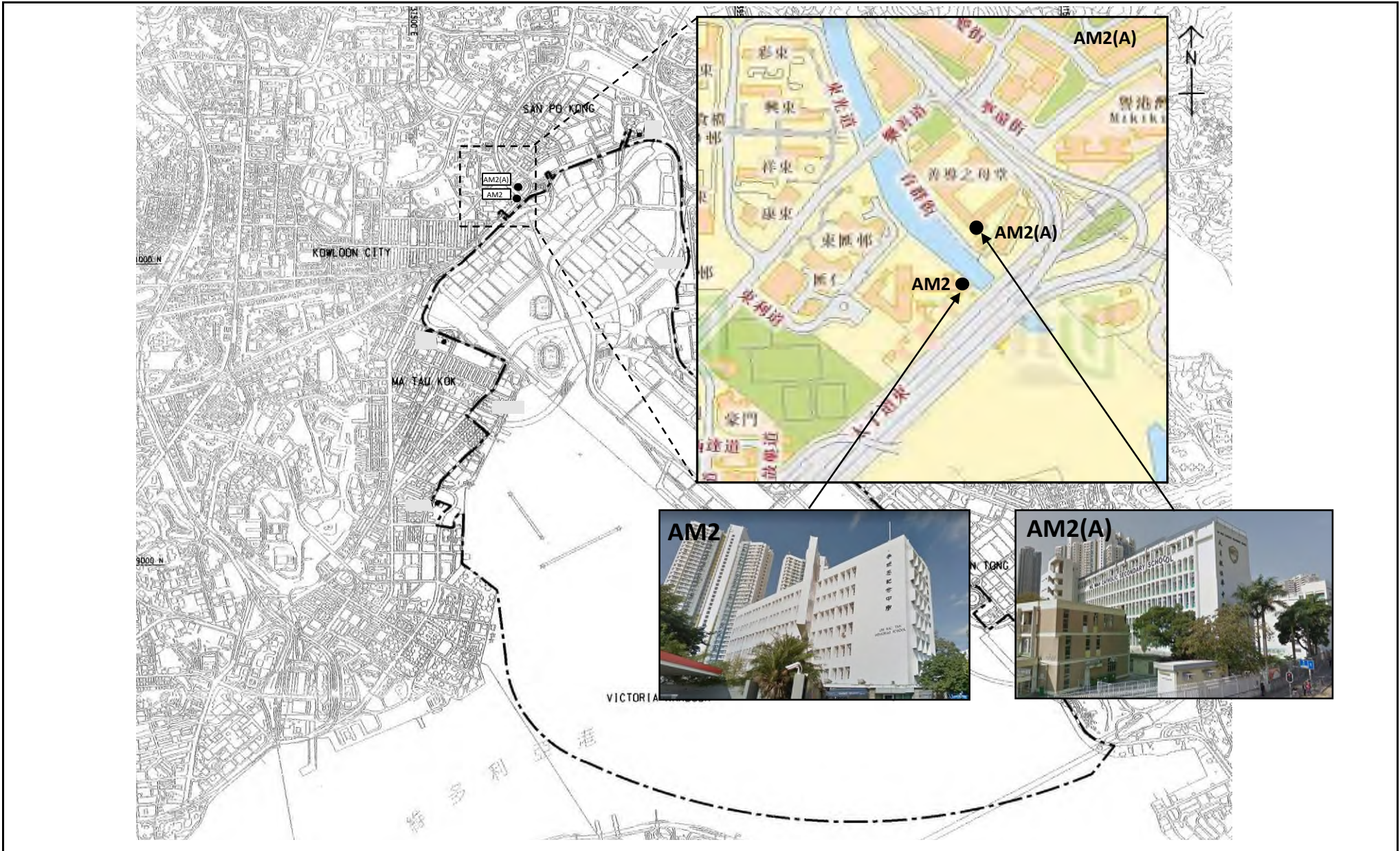


LEGEND:

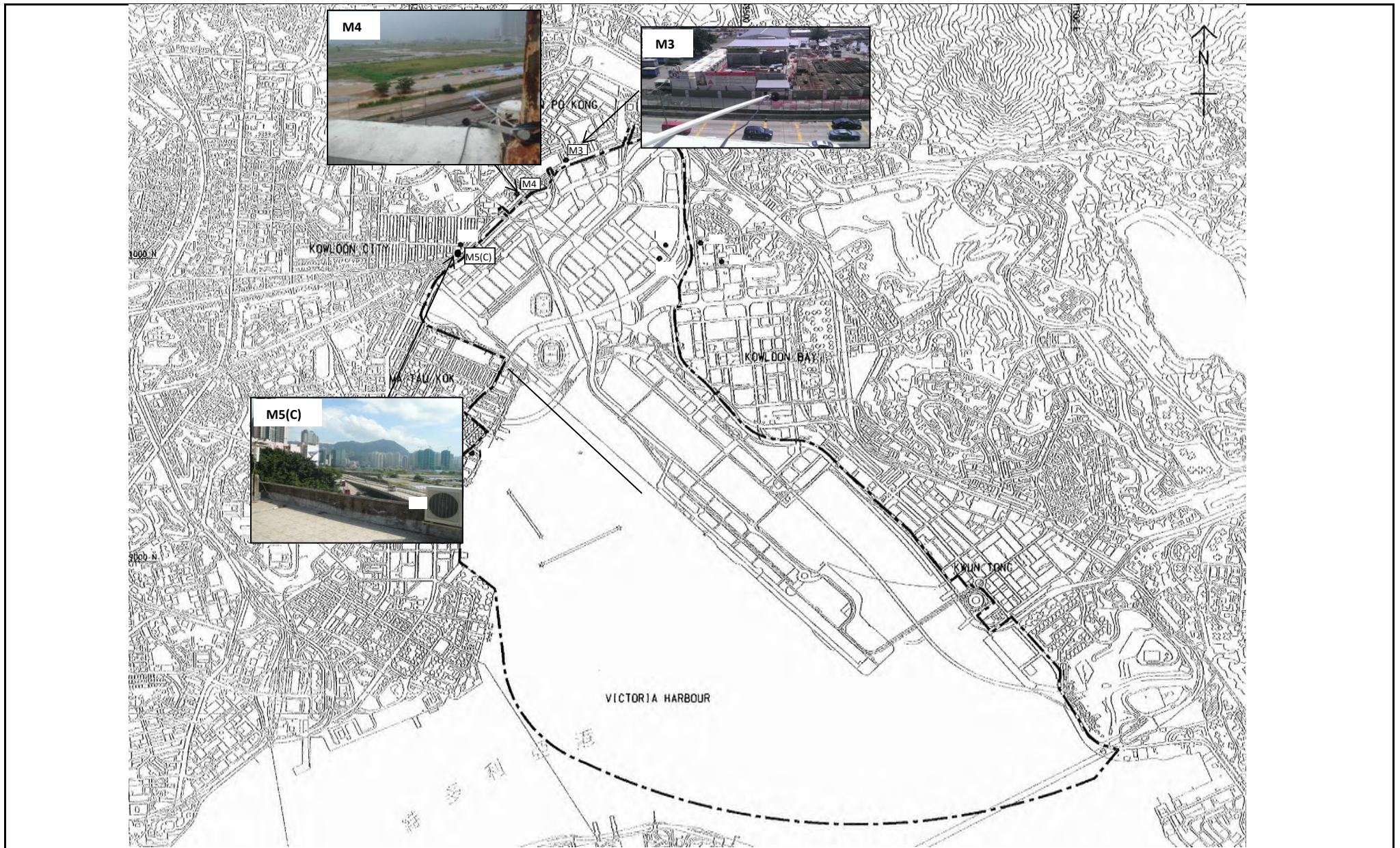
 SITE BOUNDARY

 ROAD D1

SCALE	1:1500@A4	DATE	DEC 2016
CHECK	KC	DRAWN	JW
JOB No.	MA16043	FIGURE NO.	1
		REV	-

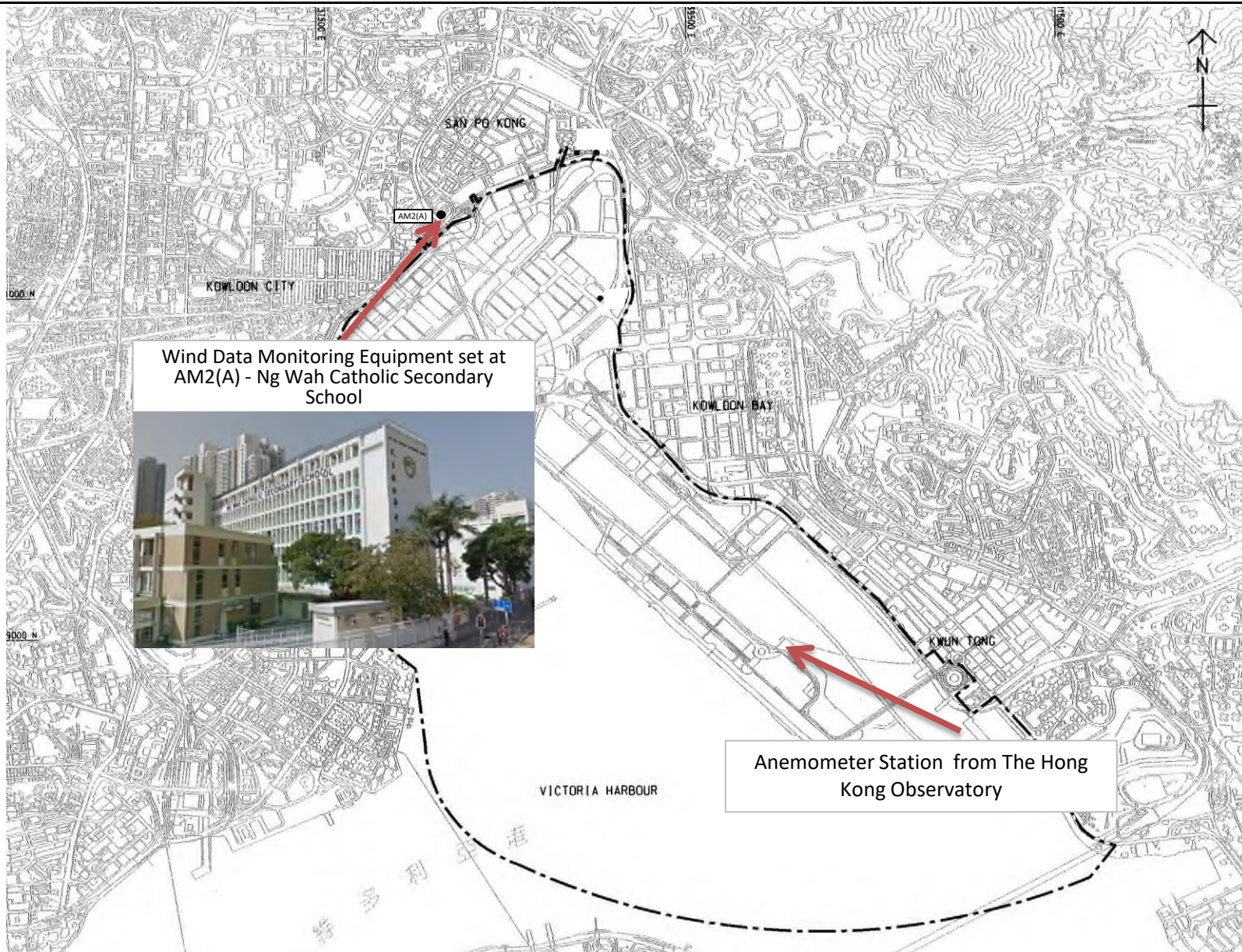


Title	Contract No. KLN/2016/04		Scale	Project	CINOTECH
	Environmental Monitoring Works for Contract No. KL/2015/02		N.T.S	No. MA16043	
Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area			Date	Figure	
Location of Air Quality Monitoring Stations			Aug-17	2	



Title	Contract No. KLN/2016/04		Scale	Project
	Environmental Monitoring Works for Contract No. KL/2015/02		N.T.S	No. MA16043
	Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area		Date	Figure
	Location of Noise Monitoring Stations		Apr-17	3





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



Anemometer Station from The Hong Kong Observatory

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	Project No.	MA16043
Date	Aug-17	Figure	4



**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, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM2	346	500

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

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM2(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
CERTIFICATES**

TEST REPORT

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

Test Report No.:	C/171013C
Date of Issue:	2017-10-16
Date Received:	2017-10-13
Date Tested:	2017-10-13
Date Completed:	2017-10-16
Next Due Date:	2017-12-15

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	: 21 degree Celsius
Relative Humidity	: 60 %

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The 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)	1.155
-------------------------	-------

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/171013H
Date of Issue:	2017-10-16
Date Received:	2017-10-13
Date Tested:	2017-10-13
Date Completed:	2017-10-16
Next Due Date:	2017-12-15

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

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

Test Conditions:

Room Temperature : 21 degree Celsius
 Relative Humidity : 60 %

Test Specifications & Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
 Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/170915
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 955
Serial No.	: 12553
Microphone No.	: 35222
Equipment No.	: N-08-02

Test conditions:

Room Temperature	: 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

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

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 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

TEST REPORT

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

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

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 60 %

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/161216B
Date of Issue:	2016-12-19
Date Received:	2016-12-16
Date Tested:	2016-12-16
Date Completed:	2016-12-19
Next Due Date:	2017-12-15

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.	: 35927
Equipment No.	: N-13-03

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 56%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/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 Temperature	: 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

TEST REPORT

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

Test Report No.:	C/N/170929A
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.	: 24791
Equipment No.	: N-09-04

Test conditions:

Room Temperature	: 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

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 Temperature	: 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

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16043/13/0002

Project No. AM2(A) - Ng Wah Catholic Secondary School Operator: WK
 Date: 25-Sep-17 Next Due Date: 24-Nov-17
 Equipment No.: A-01-13 Serial No. 1352

Ambient Condition			
Temperature, Ta (K)	301.6	Pressure, Pa (mmHg)	759.7

Orifice Transfer Standard Information					
Serial No.:	0993	Slope, mc (CFM)	0.0578	Intercept, bc	-0.04890
Last Calibration Date:	28-Feb-17	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Feb-18	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			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	12.4	3.50	61.42	7.9	2.79
2	10.4	3.20	56.32	6.8	2.59
3	7.8	2.78	48.89	5.2	2.27
4	5.3	2.29	40.45	3.4	1.83
5	3.2	1.78	31.62	2.2	1.47

By Linear Regression of Y on X

Slope, $m_w =$ 0.0451 Intercept, $b_w =$ 0.0389
 Correlation coefficient* = 0.9992

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

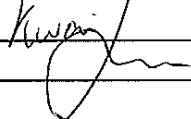
From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

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

Therefore, Set Point; $W = (m_w \times Qstd + b_w)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.96

Remarks: _____

Conducted by: WK Tang Signature:  Date: 25/9/2017
 Checked by: LA Signature: _____ Date: 25 September 2017

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/13/0003

Station AM2(A) - Ng Wah Catholic Secondary School Operator: WK
 Date: 23-Nov-17 Next Due Date: 22-Jan-18
 Equipment No.: A-01-13 Serial No. 1352

Ambient Condition			
Temperature, Ta (K)	289	Pressure, Pa (mmHg)	769.1

Orifice Transfer Standard Information					
Serial No.	0993	Slope, mc	0.0578	Intercept, bc	-0.04890
Last Calibration Date:	28-Feb-17	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Feb-18	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			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	3.63	63.61	8.2	2.93
2	10.8	3.36	58.95	6.9	2.68
3	7.7	2.83	49.91	5.0	2.28
4	5.1	2.31	40.78	3.4	1.88
5	3.2	1.83	32.48	2.1	1.48

By Linear Regression of Y on X

Slope, mw = 0.0458 Intercept, bw : 0.0012

Correlation coefficient* = 0.9997

*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 x Qstd + bw)² x (760 / Pa) x (Ta / 298) = 3.72

Remarks: _____

Conducted by: Wk Tang Signature: _____
 Checked by: [Signature] Signature: _____

Date: 23/11/2017
 Date: 23 November 2017



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE
 VILLAGE OF CLEVELAND, OH
 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Feb 28, 2017 Rootsmeter S/N 0438320 Ta (K) - 294
 Operator Tisch Orifice I.D. - 0993 Pa (mm) - 750.57

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.3860	3.2	2.00
2	NA	NA	1.00	0.9910	6.4	4.00
3	NA	NA	1.00	0.8840	7.9	5.00
4	NA	NA	1.00	0.8430	8.7	5.50
5	NA	NA	1.00	0.6970	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9967	0.7191	1.4149	0.9957	0.7184	0.8851
0.9925	1.0015	2.0010	0.9915	1.0005	1.2517
0.9904	1.1204	2.2372	0.9894	1.1192	1.3995
0.9894	1.1737	2.3464	0.9884	1.1725	1.4678
0.9842	1.4120	2.8299	0.9832	1.4106	1.7702

Qstd slope (m) = 2.04055
 intercept (b) = -0.04890
 coefficient (r) = 0.99995

Qa slope (m) = 1.27776
 intercept (b) = -0.03059
 coefficient (r) = 0.99995

y axis = SQRT[H2O(Pa/760) (298/Ta)] y axis = SQRT[H2O(Ta/Pa)]

CALCULATIONS

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

Va = Diff Vol [(Pa-Diff Hg)/Pa]
 Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{ [SQRT(H2O(Pa/760) (298/Ta))] - b}
 Qa = 1/m{ [SQRT H2O(Ta/Pa)] - b}

TEST REPORT

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

Test Report No.:	C/W/160727
Date of Issue:	2017-07-28
Date Received:	2017-07-27
Date Tested:	2017-07-27
Date Completed:	2017-07-28
Next Due Date:	2018-01-27

ATTN: Mr. W.K. Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

Description	: Weather Stations, Vantage Pro2
Manufacturer	: Davis Instruments
Model No.	: 6152
Serial No.	: AR160809018

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 55 %

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

TEST REPORT

Test Report No.:	C/W/160727
Date of Issue:	2017-07-28
Date Received:	2017-07-27
Date Tested:	2017-07-27
Date Completed:	2017-07-28
Next Due Date:	2018-01-27
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
135.1	135	0.1
180	180	0
225	225	0
270.2	270	0.2
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 November 2017	20.5 - 26.4	66	0
2 November 2017	20.9 - 27.8	67	0
3 November 2017	22.0 - 27.6	63	0
4 November 2017	20.7 - 25.8	58	0.3
5 November 2017	20.3 - 25.6	64	Trace
6 November 2017	21.3 - 25.8	68	Trace
7 November 2017	21.8 - 26.0	75	0.3
8 November 2017	23.1 - 27.3	78	Trace
9 November 2017	22.8 - 26.8	74	Trace
10 November 2017	22.9 - 28.4	74	0
11 November 2017	23.4 - 26.5	78	0
12 November 2017	21.1 - 23.5	87	14.7
13 November 2017	21.5 - 22.7	91	12.5
14 November 2017	22.0 - 24.0	88	0.2
15 November 2017	22.6 - 23.9	84	0
16 November 2017	22.2 - 26.2	81	0
17 November 2017	22.9 - 26.2	84	0
18 November 2017	20.1 - 26.5	83	1.9
19 November 2017	19.4 - 20.2	84	1

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

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
20 November 2017	17.9 - 20.3	78	0
21 November 2017	17.5 - 21.4	77	0
22 November 2017	17.3 - 22.9	70	0
23 November 2017	15.5 - 20.3	64	0
24 November 2017	16.5 - 20.8	65	0
25 November 2017	16.9 - 19.1	73	0
26 November 2017	18.1 - 22.4	73	0
27 November 2017	18.5 - 22.1	78	Trace
28 November 2017	20.6 - 24.6	79	Trace
29 November 2017	21.6 - 26.4	82	0
30 November 2017	21.8 - 23.2	90	0.3

* 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-Nov-2017	00:00	1.9	W
1-Nov-2017	01:00	1.8	W
1-Nov-2017	02:00	1.6	W
1-Nov-2017	03:00	1.6	W
1-Nov-2017	04:00	1.8	W
1-Nov-2017	05:00	1.4	S
1-Nov-2017	06:00	1.4	S
1-Nov-2017	07:00	1.5	S
1-Nov-2017	08:00	1.6	W
1-Nov-2017	09:00	1.9	SW
1-Nov-2017	10:00	2.2	S
1-Nov-2017	11:00	2.6	SW
1-Nov-2017	12:00	3	WSW
1-Nov-2017	13:00	2.9	SSW
1-Nov-2017	14:00	2.9	SSW
1-Nov-2017	15:00	2.9	WNW
1-Nov-2017	16:00	2.7	S
1-Nov-2017	17:00	2.5	W
1-Nov-2017	18:00	2	WNW
1-Nov-2017	19:00	1.9	N
1-Nov-2017	20:00	1.8	NE
1-Nov-2017	21:00	1.8	NNE
1-Nov-2017	22:00	1.9	NE
1-Nov-2017	23:00	1.8	ENE
2-Nov-2017	00:00	1.7	ENE
2-Nov-2017	01:00	1.7	SW
2-Nov-2017	02:00	1.8	SW
2-Nov-2017	03:00	1.6	S
2-Nov-2017	04:00	1.7	SSE
2-Nov-2017	05:00	1.7	ESE
2-Nov-2017	06:00	1.5	SW
2-Nov-2017	07:00	1.5	SW
2-Nov-2017	08:00	1.4	WSW
2-Nov-2017	09:00	1.7	W
2-Nov-2017	10:00	2	WSW
2-Nov-2017	11:00	2.6	SW
2-Nov-2017	12:00	2.7	E

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

II. Mean Wind Speed and Wind Direction

2-Nov-2017	13:00	2.6	SE
2-Nov-2017	14:00	2.8	SSE
2-Nov-2017	15:00	2.6	N
2-Nov-2017	16:00	2.5	ENE
2-Nov-2017	17:00	2.1	NE
2-Nov-2017	18:00	2.2	NE
2-Nov-2017	19:00	1.9	NE
2-Nov-2017	20:00	1.8	ENE
2-Nov-2017	21:00	2.2	ENE
2-Nov-2017	22:00	2.2	ENE
2-Nov-2017	23:00	2.2	SSW
3-Nov-2017	00:00	2.1	WSW
3-Nov-2017	01:00	2.2	SW
3-Nov-2017	02:00	2.1	SW
3-Nov-2017	03:00	2.1	SSW
3-Nov-2017	04:00	2.3	SSW
3-Nov-2017	05:00	2.1	SSW
3-Nov-2017	06:00	1.8	SSW
3-Nov-2017	07:00	2	NE
3-Nov-2017	08:00	1.8	ENE
3-Nov-2017	09:00	1.8	ENE
3-Nov-2017	10:00	2.2	NNE
3-Nov-2017	11:00	2.1	N
3-Nov-2017	12:00	2.3	NE
3-Nov-2017	13:00	2.6	ENE
3-Nov-2017	14:00	2.5	N
3-Nov-2017	15:00	2.7	ENE
3-Nov-2017	16:00	2.6	NE
3-Nov-2017	17:00	2.2	NNE
3-Nov-2017	18:00	2.3	NNE
3-Nov-2017	19:00	2.1	NNE
3-Nov-2017	20:00	1.7	ENE
3-Nov-2017	21:00	1.7	NE
3-Nov-2017	22:00	1.8	NNE
3-Nov-2017	23:00	1.7	NNE
4-Nov-2017	00:00	2.1	N
4-Nov-2017	01:00	2.3	NNE
4-Nov-2017	02:00	1.9	N

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

II. Mean Wind Speed and Wind Direction

4-Nov-2017	03:00	1.9	NNE
4-Nov-2017	04:00	1.9	NNE
4-Nov-2017	05:00	1.9	NNE
4-Nov-2017	06:00	1.9	NNE
4-Nov-2017	07:00	1.9	NNE
4-Nov-2017	08:00	2.5	NE
4-Nov-2017	09:00	2.6	NNE
4-Nov-2017	10:00	2.7	ENE
4-Nov-2017	11:00	3.2	WNW
4-Nov-2017	12:00	3.2	NE
4-Nov-2017	13:00	3.5	NE
4-Nov-2017	14:00	3.3	NE
4-Nov-2017	15:00	3.5	ENE
4-Nov-2017	16:00	2.9	ENE
4-Nov-2017	17:00	2.6	ENE
4-Nov-2017	18:00	2.3	NE
4-Nov-2017	19:00	1.8	NE
4-Nov-2017	20:00	1.8	NE
4-Nov-2017	21:00	1.5	NNE
4-Nov-2017	22:00	2.1	NNE
4-Nov-2017	23:00	2	NE
5-Nov-2017	00:00	2	NNE
5-Nov-2017	01:00	2.1	NE
5-Nov-2017	02:00	2.1	NNE
5-Nov-2017	03:00	2.2	NE
5-Nov-2017	04:00	2.4	NNE
5-Nov-2017	05:00	2.1	NNE
5-Nov-2017	06:00	1.9	NNE
5-Nov-2017	07:00	2	NNE
5-Nov-2017	08:00	2.1	NNE
5-Nov-2017	09:00	2.7	NNE
5-Nov-2017	10:00	2.9	ENE
5-Nov-2017	11:00	2.8	NE
5-Nov-2017	12:00	3	ENE
5-Nov-2017	13:00	3.2	NE
5-Nov-2017	14:00	3.2	NE
5-Nov-2017	15:00	3.2	NE
5-Nov-2017	16:00	3.2	ENE

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

II. Mean Wind Speed and Wind Direction

5-Nov-2017	17:00	3	ENE
5-Nov-2017	18:00	2.8	E
5-Nov-2017	19:00	2.5	NE
5-Nov-2017	20:00	2.7	ENE
5-Nov-2017	21:00	2.6	NE
5-Nov-2017	22:00	2.5	NE
5-Nov-2017	23:00	2.3	N
6-Nov-2017	00:00	2.4	ENE
6-Nov-2017	01:00	2.3	ENE
6-Nov-2017	02:00	2.2	ESE
6-Nov-2017	03:00	2.4	SSE
6-Nov-2017	04:00	2.4	ESE
6-Nov-2017	05:00	2.1	E
6-Nov-2017	06:00	2.1	E
6-Nov-2017	07:00	2.1	ESE
6-Nov-2017	08:00	2.2	E
6-Nov-2017	09:00	2.3	E
6-Nov-2017	10:00	2.3	NNE
6-Nov-2017	11:00	2.9	NE
6-Nov-2017	12:00	2.9	ENE
6-Nov-2017	13:00	3.1	E
6-Nov-2017	14:00	2.7	ENE
6-Nov-2017	15:00	2.6	ENE
6-Nov-2017	16:00	2.8	E
6-Nov-2017	17:00	2.6	NNE
6-Nov-2017	18:00	2.3	SSE
6-Nov-2017	19:00	2.2	SSE
6-Nov-2017	20:00	2.3	NE
6-Nov-2017	21:00	1.9	ENE
6-Nov-2017	22:00	2.1	ENE
6-Nov-2017	23:00	2	NE
7-Nov-2017	00:00	2	ENE
7-Nov-2017	01:00	2.2	ENE
7-Nov-2017	02:00	2	SSE
7-Nov-2017	03:00	1.9	ESE
7-Nov-2017	04:00	1.7	ENE
7-Nov-2017	05:00	1.7	ENE
7-Nov-2017	06:00	1.6	ENE

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

II. Mean Wind Speed and Wind Direction

7-Nov-2017	07:00	1.7	ENE
7-Nov-2017	08:00	1.8	ENE
7-Nov-2017	09:00	2.3	ENE
7-Nov-2017	10:00	2.2	NE
7-Nov-2017	11:00	2.2	ENE
7-Nov-2017	12:00	2.3	ENE
7-Nov-2017	13:00	2.1	ENE
7-Nov-2017	14:00	2	ENE
7-Nov-2017	15:00	2.1	ENE
7-Nov-2017	16:00	2	ENE
7-Nov-2017	17:00	2	SSW
7-Nov-2017	18:00	2	SSW
7-Nov-2017	19:00	1.9	SSW
7-Nov-2017	20:00	1.5	SSW
7-Nov-2017	21:00	1.4	N
7-Nov-2017	22:00	1.3	N
7-Nov-2017	23:00	1.3	SW
8-Nov-2017	00:00	1.2	W
8-Nov-2017	01:00	1.3	WSW
8-Nov-2017	02:00	1.4	NNW
8-Nov-2017	03:00	1.4	NW
8-Nov-2017	04:00	1.4	N
8-Nov-2017	05:00	1.5	SW
8-Nov-2017	06:00	1.6	SW
8-Nov-2017	07:00	1.8	SW
8-Nov-2017	08:00	1.9	SW
8-Nov-2017	09:00	2.1	NE
8-Nov-2017	10:00	2.7	SW
8-Nov-2017	11:00	2.8	SW
8-Nov-2017	12:00	2.7	SE
8-Nov-2017	13:00	2.7	SSE
8-Nov-2017	14:00	2.7	E
8-Nov-2017	15:00	2.9	SSW
8-Nov-2017	16:00	2.5	NE
8-Nov-2017	17:00	2.5	WSW
8-Nov-2017	18:00	2.1	WNW
8-Nov-2017	19:00	1.9	W
8-Nov-2017	20:00	1.9	NNE

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

II. Mean Wind Speed and Wind Direction

8-Nov-2017	21:00	2	SSW
8-Nov-2017	22:00	1.7	WNW
8-Nov-2017	23:00	1.5	ENE
9-Nov-2017	00:00	1.5	N
9-Nov-2017	01:00	1.7	ENE
9-Nov-2017	02:00	1.6	ENE
9-Nov-2017	03:00	1.6	SSE
9-Nov-2017	04:00	1.4	WNW
9-Nov-2017	05:00	1.4	NNE
9-Nov-2017	06:00	1.3	WNW
9-Nov-2017	07:00	1.4	N
9-Nov-2017	08:00	1.8	WNW
9-Nov-2017	09:00	2.3	SW
9-Nov-2017	10:00	2.7	SW
9-Nov-2017	11:00	2.9	WNW
9-Nov-2017	12:00	2.9	WNW
9-Nov-2017	13:00	2.7	N
9-Nov-2017	14:00	2.3	NNE
9-Nov-2017	15:00	2.4	SE
9-Nov-2017	16:00	2.3	SE
9-Nov-2017	17:00	2.3	SSW
9-Nov-2017	18:00	1.9	ESE
9-Nov-2017	19:00	1.5	SW
9-Nov-2017	20:00	1.2	SSW
9-Nov-2017	21:00	1.2	ENE
9-Nov-2017	22:00	1.2	E
9-Nov-2017	23:00	1.2	NW
10-Nov-2017	00:00	1.1	E
10-Nov-2017	01:00	1.2	WSW
10-Nov-2017	02:00	1.1	WNW
10-Nov-2017	03:00	1.2	WNW
10-Nov-2017	04:00	1.1	SSE
10-Nov-2017	05:00	1	WSW
10-Nov-2017	06:00	1.1	NE
10-Nov-2017	07:00	1.1	WNW
10-Nov-2017	08:00	1.1	ENE
10-Nov-2017	09:00	1.7	SW
10-Nov-2017	10:00	2.1	SSE

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

II. Mean Wind Speed and Wind Direction

10-Nov-2017	11:00	2.6	WNW
10-Nov-2017	12:00	2.9	ENE
10-Nov-2017	13:00	3.1	ENE
10-Nov-2017	14:00	2.8	ENE
10-Nov-2017	15:00	2.7	NE
10-Nov-2017	16:00	2.8	NNE
10-Nov-2017	17:00	3	NE
10-Nov-2017	18:00	2	ENE
10-Nov-2017	19:00	1.7	ENE
10-Nov-2017	20:00	2	ENE
10-Nov-2017	21:00	1.8	ENE
10-Nov-2017	22:00	2.5	NE
10-Nov-2017	23:00	1.7	NE
11-Nov-2017	00:00	2.4	NNE
11-Nov-2017	01:00	1.6	ENE
11-Nov-2017	02:00	1.9	NNE
11-Nov-2017	03:00	1.8	NNE
11-Nov-2017	04:00	1.7	NNE
11-Nov-2017	05:00	1.7	S
11-Nov-2017	06:00	1.8	SSW
11-Nov-2017	07:00	1.5	NW
11-Nov-2017	08:00	1.5	SSE
11-Nov-2017	09:00	1.9	N
11-Nov-2017	10:00	2.4	W
11-Nov-2017	11:00	2.6	NNE
11-Nov-2017	12:00	2.9	SSW
11-Nov-2017	13:00	2.9	SSW
11-Nov-2017	14:00	2.7	WNW
11-Nov-2017	15:00	2.7	N
11-Nov-2017	16:00	2.6	ENE
11-Nov-2017	17:00	2.2	SW
11-Nov-2017	18:00	1.6	WNW
11-Nov-2017	19:00	1.4	ENE
11-Nov-2017	20:00	1.6	ENE
11-Nov-2017	21:00	1.5	E
11-Nov-2017	22:00	1.6	SSE
11-Nov-2017	23:00	1.5	ENE
12-Nov-2017	00:00	1.5	ENE

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

II. Mean Wind Speed and Wind Direction

12-Nov-2017	01:00	1.3	NE
12-Nov-2017	02:00	1.4	S
12-Nov-2017	03:00	1.5	SE
12-Nov-2017	04:00	1.6	SW
12-Nov-2017	05:00	1.6	N
12-Nov-2017	06:00	1.4	SW
12-Nov-2017	07:00	1.6	W
12-Nov-2017	08:00	1.9	WSW
12-Nov-2017	09:00	2.3	SSE
12-Nov-2017	10:00	2.5	W
12-Nov-2017	11:00	2.7	WSW
12-Nov-2017	12:00	3.1	W
12-Nov-2017	13:00	3	WNW
12-Nov-2017	14:00	3.2	SW
12-Nov-2017	15:00	3	SW
12-Nov-2017	16:00	3	W
12-Nov-2017	17:00	2.5	W
12-Nov-2017	18:00	2.3	ENE
12-Nov-2017	19:00	2.1	ENE
12-Nov-2017	20:00	1.7	ENE
12-Nov-2017	21:00	1.5	ENE
12-Nov-2017	22:00	1.7	W
12-Nov-2017	23:00	1.9	W
13-Nov-2017	00:00	1.6	ENE
13-Nov-2017	01:00	1.7	ENE
13-Nov-2017	02:00	1.5	SW
13-Nov-2017	03:00	1.5	ESE
13-Nov-2017	04:00	1.7	SSW
13-Nov-2017	05:00	1.4	WSW
13-Nov-2017	06:00	1.6	W
13-Nov-2017	07:00	1.6	ENE
13-Nov-2017	08:00	1.7	WSW
13-Nov-2017	09:00	1.9	WSW
13-Nov-2017	10:00	2.3	W
13-Nov-2017	11:00	2.4	WSW
13-Nov-2017	12:00	2.9	WSW
13-Nov-2017	13:00	3	SW
13-Nov-2017	14:00	2.8	W

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

II. Mean Wind Speed and Wind Direction

13-Nov-2017	15:00	2.7	W
13-Nov-2017	16:00	2.4	W
13-Nov-2017	17:00	2.4	NE
13-Nov-2017	18:00	2.1	ENE
13-Nov-2017	19:00	1.7	WNW
13-Nov-2017	20:00	1.5	SE
13-Nov-2017	21:00	1.4	SE
13-Nov-2017	22:00	1.3	ESE
13-Nov-2017	23:00	1.7	S
14-Nov-2017	00:00	1.5	SSW
14-Nov-2017	01:00	1.6	W
14-Nov-2017	02:00	1.6	W
14-Nov-2017	03:00	1.8	WNW
14-Nov-2017	04:00	1.4	SW
14-Nov-2017	05:00	1.3	SW
14-Nov-2017	06:00	1.5	WSW
14-Nov-2017	07:00	1.4	SW
14-Nov-2017	08:00	1.7	SW
14-Nov-2017	09:00	2.1	W
14-Nov-2017	10:00	2.4	WSW
14-Nov-2017	11:00	2.7	WNW
14-Nov-2017	12:00	2.7	WNW
14-Nov-2017	13:00	2.9	WSW
14-Nov-2017	14:00	2.6	SW
14-Nov-2017	15:00	2.5	SW
14-Nov-2017	16:00	2.3	SW
14-Nov-2017	17:00	2.2	WSW
14-Nov-2017	18:00	2.3	WSW
14-Nov-2017	19:00	2.4	SW
14-Nov-2017	20:00	2.2	SSE
14-Nov-2017	21:00	2.3	SSE
14-Nov-2017	22:00	2.2	NNE
14-Nov-2017	23:00	2	NNE
15-Nov-2017	00:00	2	NNE
15-Nov-2017	01:00	1.9	ENE
15-Nov-2017	02:00	1.9	ENE
15-Nov-2017	03:00	1.9	ENE
15-Nov-2017	04:00	2	E

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

II. Mean Wind Speed and Wind Direction

15-Nov-2017	05:00	2.1	NE
15-Nov-2017	06:00	2.2	NE
15-Nov-2017	07:00	2.3	ENE
15-Nov-2017	08:00	2.4	ENE
15-Nov-2017	09:00	2.6	ENE
15-Nov-2017	10:00	2.4	NNE
15-Nov-2017	11:00	2.5	ESE
15-Nov-2017	12:00	2.4	ENE
15-Nov-2017	13:00	2.6	NE
15-Nov-2017	14:00	2.5	ENE
15-Nov-2017	15:00	2.5	ENE
15-Nov-2017	16:00	2.2	SW
15-Nov-2017	17:00	2.1	WSW
15-Nov-2017	18:00	2.3	SW
15-Nov-2017	19:00	2	SE
15-Nov-2017	20:00	2	ESE
15-Nov-2017	21:00	2	ESE
15-Nov-2017	22:00	1.9	ESE
15-Nov-2017	23:00	1.9	ENE
16-Nov-2017	00:00	2.1	NE
16-Nov-2017	01:00	2	N
16-Nov-2017	02:00	2	ENE
16-Nov-2017	03:00	1.7	ENE
16-Nov-2017	04:00	1.8	ENE
16-Nov-2017	05:00	1.9	NE
16-Nov-2017	06:00	1.4	NE
16-Nov-2017	07:00	1.8	NE
16-Nov-2017	08:00	1.8	ENE
16-Nov-2017	09:00	1.9	NNE
16-Nov-2017	10:00	2.1	NNE
16-Nov-2017	11:00	2.5	NNE
16-Nov-2017	12:00	2.8	NNE
16-Nov-2017	13:00	2.9	NE
16-Nov-2017	14:00	2.6	NE
16-Nov-2017	15:00	2.9	NE
16-Nov-2017	16:00	2.4	ENE
16-Nov-2017	17:00	2.3	ENE
16-Nov-2017	18:00	2.5	ENE

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

II. Mean Wind Speed and Wind Direction

16-Nov-2017	19:00	2.3	SE
16-Nov-2017	20:00	1.6	NE
16-Nov-2017	21:00	1.8	NE
16-Nov-2017	22:00	1.5	ESE
16-Nov-2017	23:00	1.4	S
17-Nov-2017	00:00	1.7	NE
17-Nov-2017	01:00	1.7	N
17-Nov-2017	02:00	1.6	SSE
17-Nov-2017	03:00	1.8	NNE
17-Nov-2017	04:00	1.2	ENE
17-Nov-2017	05:00	1.4	NNE
17-Nov-2017	06:00	2.1	SSE
17-Nov-2017	07:00	1.5	NE
17-Nov-2017	08:00	1.4	NW
17-Nov-2017	09:00	1.7	WNW
17-Nov-2017	10:00	1.9	WNW
17-Nov-2017	11:00	2.6	W
17-Nov-2017	12:00	2.7	ESE
17-Nov-2017	13:00	2.5	ESE
17-Nov-2017	14:00	2.5	SE
17-Nov-2017	15:00	2.4	SSE
17-Nov-2017	16:00	3	WNW
17-Nov-2017	17:00	2	WSW
17-Nov-2017	18:00	2.1	SW
17-Nov-2017	19:00	1.9	SW
17-Nov-2017	20:00	1.5	WSW
17-Nov-2017	21:00	1.4	WNW
17-Nov-2017	22:00	1.4	WNW
17-Nov-2017	23:00	1.4	ENE
18-Nov-2017	00:00	1.3	SSW
18-Nov-2017	01:00	1.6	W
18-Nov-2017	02:00	1.4	SSE
18-Nov-2017	03:00	1.4	SSE
18-Nov-2017	04:00	1.5	WNW
18-Nov-2017	05:00	1.8	NNW
18-Nov-2017	06:00	1.5	NNW
18-Nov-2017	07:00	1.5	SSE
18-Nov-2017	08:00	1.9	SSE

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

II. Mean Wind Speed and Wind Direction

18-Nov-2017	09:00	2.5	SE
18-Nov-2017	10:00	3.2	NNE
18-Nov-2017	11:00	3.2	NNE
18-Nov-2017	12:00	3.3	NNE
18-Nov-2017	13:00	3.5	NNE
18-Nov-2017	14:00	3.4	SE
18-Nov-2017	15:00	3.6	SE
18-Nov-2017	16:00	3.4	SE
18-Nov-2017	17:00	2.9	SSE
18-Nov-2017	18:00	2.7	SSE
18-Nov-2017	19:00	2.6	ESE
18-Nov-2017	20:00	2.4	E
18-Nov-2017	21:00	2.3	ENE
18-Nov-2017	22:00	2.5	NE
18-Nov-2017	23:00	2.4	ENE
19-Nov-2017	00:00	2.6	SW
19-Nov-2017	01:00	2.5	SW
19-Nov-2017	02:00	2.6	WNW
19-Nov-2017	03:00	2.4	W
19-Nov-2017	04:00	2	NNE
19-Nov-2017	05:00	2.3	NE
19-Nov-2017	06:00	2	NE
19-Nov-2017	07:00	1.8	N
19-Nov-2017	08:00	2.3	NE
19-Nov-2017	09:00	2.6	SSE
19-Nov-2017	10:00	2.6	ENE
19-Nov-2017	11:00	2.9	NNE
19-Nov-2017	12:00	3.1	NNE
19-Nov-2017	13:00	2.9	ESE
19-Nov-2017	14:00	2.6	ESE
19-Nov-2017	15:00	3.1	N
19-Nov-2017	16:00	2.9	N
19-Nov-2017	17:00	2.6	E
19-Nov-2017	18:00	2.2	SE
19-Nov-2017	19:00	1.6	SE
19-Nov-2017	20:00	1.5	SE
19-Nov-2017	21:00	1.1	ESE
19-Nov-2017	22:00	1.8	ESE

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

II. Mean Wind Speed and Wind Direction

19-Nov-2017	23:00	1.6	ESE
20-Nov-2017	00:00	1.6	ESE
20-Nov-2017	01:00	1.5	ESE
20-Nov-2017	02:00	1.5	ESE
20-Nov-2017	03:00	1.5	ESE
20-Nov-2017	04:00	1.5	NE
20-Nov-2017	05:00	1.6	SE
20-Nov-2017	06:00	1.7	ESE
20-Nov-2017	07:00	1.4	NNE
20-Nov-2017	08:00	1.3	NNE
20-Nov-2017	09:00	1.9	ENE
20-Nov-2017	10:00	1.9	W
20-Nov-2017	11:00	2	SSW
20-Nov-2017	12:00	2.1	SW
20-Nov-2017	13:00	2.3	NW
20-Nov-2017	14:00	2.3	S
20-Nov-2017	15:00	2.4	S
20-Nov-2017	16:00	2.3	WSW
20-Nov-2017	17:00	2.2	NNW
20-Nov-2017	18:00	1.5	ESE
20-Nov-2017	19:00	1.5	SSW
20-Nov-2017	20:00	1.5	NE
20-Nov-2017	21:00	1.7	NE
20-Nov-2017	22:00	1.7	NE
20-Nov-2017	23:00	2.1	NE
21-Nov-2017	00:00	1.4	SE
21-Nov-2017	01:00	1.3	ENE
21-Nov-2017	02:00	1.4	SW
21-Nov-2017	03:00	1.6	SW
21-Nov-2017	04:00	1.4	NNE
21-Nov-2017	05:00	1.9	NNE
21-Nov-2017	06:00	1.5	SE
21-Nov-2017	07:00	1.3	E
21-Nov-2017	08:00	1.3	ESE
21-Nov-2017	09:00	1.6	ESE
21-Nov-2017	10:00	2	NE
21-Nov-2017	11:00	2.2	E
21-Nov-2017	12:00	2.2	ESE

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

II. Mean Wind Speed and Wind Direction

21-Nov-2017	13:00	2.4	NE
21-Nov-2017	14:00	2.3	E
21-Nov-2017	15:00	1.8	E
21-Nov-2017	16:00	2	E
21-Nov-2017	17:00	2.1	ESE
21-Nov-2017	18:00	2.1	SE
21-Nov-2017	19:00	1.9	ENE
21-Nov-2017	20:00	1.8	E
21-Nov-2017	21:00	2	NE
21-Nov-2017	22:00	1.8	NE
21-Nov-2017	23:00	2	ENE
22-Nov-2017	00:00	1.9	N
22-Nov-2017	01:00	1.4	ESE
22-Nov-2017	02:00	1.4	SSE
22-Nov-2017	03:00	1.4	SSE
22-Nov-2017	04:00	1.5	SE
22-Nov-2017	05:00	1.2	SE
22-Nov-2017	06:00	1.5	SE
22-Nov-2017	07:00	1.4	SE
22-Nov-2017	08:00	2	ESE
22-Nov-2017	09:00	1.9	ESE
22-Nov-2017	10:00	2.1	SE
22-Nov-2017	11:00	2.3	SE
22-Nov-2017	12:00	2.4	ESE
22-Nov-2017	13:00	2.4	ESE
22-Nov-2017	14:00	2.3	ESE
22-Nov-2017	15:00	2.5	ESE
22-Nov-2017	16:00	2.5	SSE
22-Nov-2017	17:00	2.4	SSE
22-Nov-2017	18:00	2.1	SSE
22-Nov-2017	19:00	2	E
22-Nov-2017	20:00	1.9	ENE
22-Nov-2017	21:00	1.9	ESE
22-Nov-2017	22:00	1.4	SSE
22-Nov-2017	23:00	1.6	ESE
23-Nov-2017	00:00	1.6	ESE
23-Nov-2017	01:00	1.3	ESE
23-Nov-2017	02:00	1.3	ESE

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

II. Mean Wind Speed and Wind Direction

23-Nov-2017	03:00	1.4	NE
23-Nov-2017	04:00	1.1	E
23-Nov-2017	05:00	1.1	NNE
23-Nov-2017	06:00	1.2	NNE
23-Nov-2017	07:00	1.2	NE
23-Nov-2017	08:00	1.4	NE
23-Nov-2017	09:00	1.7	ENE
23-Nov-2017	10:00	2.1	SSE
23-Nov-2017	11:00	2.3	ENE
23-Nov-2017	12:00	2.3	ESE
23-Nov-2017	13:00	2.4	SE
23-Nov-2017	14:00	2.3	ENE
23-Nov-2017	15:00	2.5	ENE
23-Nov-2017	16:00	2.5	NNE
23-Nov-2017	17:00	2.1	W
23-Nov-2017	18:00	1.9	NE
23-Nov-2017	19:00	1.9	SSW
23-Nov-2017	20:00	1.7	W
23-Nov-2017	21:00	1.5	NNE
23-Nov-2017	22:00	1.5	SSE
23-Nov-2017	23:00	1.4	NNE
24-Nov-2017	00:00	1.3	NNE
24-Nov-2017	01:00	1.4	NE
24-Nov-2017	02:00	1.5	NNE
24-Nov-2017	03:00	1.5	ENE
24-Nov-2017	04:00	1.5	ENE
24-Nov-2017	05:00	1.7	SE
24-Nov-2017	06:00	1.6	W
24-Nov-2017	07:00	1.4	NE
24-Nov-2017	08:00	1.8	NE
24-Nov-2017	09:00	2.1	NE
24-Nov-2017	10:00	2.4	NE
24-Nov-2017	11:00	2.5	ENE
24-Nov-2017	12:00	2.3	N
24-Nov-2017	13:00	2.6	ESE
24-Nov-2017	14:00	2.5	ESE
24-Nov-2017	15:00	2.5	SSE
24-Nov-2017	16:00	2.5	W

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

II. Mean Wind Speed and Wind Direction

24-Nov-2017	17:00	2.5	ENE
24-Nov-2017	18:00	2	ENE
24-Nov-2017	19:00	1.7	SSE
24-Nov-2017	20:00	1.6	ENE
24-Nov-2017	21:00	2	ENE
24-Nov-2017	22:00	1.9	NE
24-Nov-2017	23:00	1.8	ESE
25-Nov-2017	00:00	1.8	ENE
25-Nov-2017	01:00	1.7	E
25-Nov-2017	02:00	1.5	E
25-Nov-2017	03:00	1.6	SE
25-Nov-2017	04:00	1.5	SSE
25-Nov-2017	05:00	1.5	E
25-Nov-2017	06:00	1.6	ESE
25-Nov-2017	07:00	1.5	SE
25-Nov-2017	08:00	1.5	ENE
25-Nov-2017	09:00	1.8	SSE
25-Nov-2017	10:00	1.9	SSE
25-Nov-2017	11:00	2.3	ENE
25-Nov-2017	12:00	2.1	SSE
25-Nov-2017	13:00	2.2	SE
25-Nov-2017	14:00	2.4	S
25-Nov-2017	15:00	2.3	SE
25-Nov-2017	16:00	2.3	SSE
25-Nov-2017	17:00	1.9	S
25-Nov-2017	18:00	1.7	ESE
25-Nov-2017	19:00	1.7	ENE
25-Nov-2017	20:00	1.5	SE
25-Nov-2017	21:00	1.5	SSE
25-Nov-2017	22:00	1.5	ESE
25-Nov-2017	23:00	1.5	E
26-Nov-2017	00:00	1.4	SSE
26-Nov-2017	01:00	1.4	SE
26-Nov-2017	02:00	1.6	ESE
26-Nov-2017	03:00	1.7	ENE
26-Nov-2017	04:00	1.1	S
26-Nov-2017	05:00	1	ESE
26-Nov-2017	06:00	1.1	SE

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

II. Mean Wind Speed and Wind Direction

26-Nov-2017	07:00	1.5	SE
26-Nov-2017	08:00	1.5	SSE
26-Nov-2017	09:00	1.7	SE
26-Nov-2017	10:00	1.7	SSE
26-Nov-2017	11:00	2.3	ENE
26-Nov-2017	12:00	2.4	NNE
26-Nov-2017	13:00	2.5	ESE
26-Nov-2017	14:00	2.4	S
26-Nov-2017	15:00	2.2	NNW
26-Nov-2017	16:00	2.2	NNW
26-Nov-2017	17:00	1.9	SE
26-Nov-2017	18:00	1.5	NNE
26-Nov-2017	19:00	1.5	ENE
26-Nov-2017	20:00	1.3	ENE
26-Nov-2017	21:00	1.7	NE
26-Nov-2017	22:00	1.4	NE
26-Nov-2017	23:00	1.5	SSE
27-Nov-2017	00:00	1.7	SSE
27-Nov-2017	01:00	1.4	SE
27-Nov-2017	02:00	1.4	SSE
27-Nov-2017	03:00	1.2	NNE
27-Nov-2017	04:00	1	ENE
27-Nov-2017	05:00	1.1	ENE
27-Nov-2017	06:00	0.9	E
27-Nov-2017	07:00	1	E
27-Nov-2017	08:00	1.1	NNE
27-Nov-2017	09:00	1.4	NNE
27-Nov-2017	10:00	1.7	NE
27-Nov-2017	11:00	1.6	SE
27-Nov-2017	12:00	1.9	SE
27-Nov-2017	13:00	1.8	ENE
27-Nov-2017	14:00	1.8	NE
27-Nov-2017	15:00	1.7	ENE
27-Nov-2017	16:00	1.4	SE
27-Nov-2017	17:00	1.5	SE
27-Nov-2017	18:00	1.2	N
27-Nov-2017	19:00	1	SW
27-Nov-2017	20:00	1	WSW

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

II. Mean Wind Speed and Wind Direction

27-Nov-2017	21:00	1	E
27-Nov-2017	22:00	0.8	E
27-Nov-2017	23:00	1.2	E
28-Nov-2017	00:00	1.2	ESE
28-Nov-2017	01:00	1.1	SSW
28-Nov-2017	02:00	1.1	SSW
28-Nov-2017	03:00	1	SSW
28-Nov-2017	04:00	1.1	ENE
28-Nov-2017	05:00	1.1	ENE
28-Nov-2017	06:00	1	NE
28-Nov-2017	07:00	1.1	WNW
28-Nov-2017	08:00	1.1	WNW
28-Nov-2017	09:00	1.3	WNW
28-Nov-2017	10:00	1.6	NW
28-Nov-2017	11:00	1.7	SSE
28-Nov-2017	12:00	1.7	ENE
28-Nov-2017	13:00	2.1	SE
28-Nov-2017	14:00	1.6	SE
28-Nov-2017	15:00	2.7	ENE
28-Nov-2017	16:00	2.5	SE
28-Nov-2017	17:00	2.9	ESE
28-Nov-2017	18:00	2.5	SSE
28-Nov-2017	19:00	2	NE
28-Nov-2017	20:00	2.2	ESE
28-Nov-2017	21:00	2.5	SSE
28-Nov-2017	22:00	2.3	WNW
28-Nov-2017	23:00	2.3	SW
29-Nov-2017	00:00	2.4	SW
29-Nov-2017	01:00	2.5	W
29-Nov-2017	02:00	2.5	SSW
29-Nov-2017	03:00	2.4	SW
29-Nov-2017	04:00	2.2	ENE
29-Nov-2017	05:00	3.2	ENE
29-Nov-2017	06:00	2.3	ENE
29-Nov-2017	07:00	2.3	SW
29-Nov-2017	08:00	2.1	W
29-Nov-2017	09:00	2.2	WSW
29-Nov-2017	10:00	3.2	ENE

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

II. Mean Wind Speed and Wind Direction

29-Nov-2017	11:00	3.7	NNE
29-Nov-2017	12:00	2.5	ENE
29-Nov-2017	13:00	2.5	S
29-Nov-2017	14:00	2.4	W
29-Nov-2017	15:00	2.7	NE
29-Nov-2017	16:00	2.6	N
29-Nov-2017	17:00	2.4	WNW
29-Nov-2017	18:00	2.2	WNW
29-Nov-2017	19:00	2.5	WNW
29-Nov-2017	20:00	2.2	S
29-Nov-2017	21:00	2.4	N
29-Nov-2017	22:00	2.7	NNE
29-Nov-2017	23:00	2.1	NE
30-Nov-2017	00:00	2.1	E
30-Nov-2017	01:00	2.2	SSE
30-Nov-2017	02:00	2.3	WNW
30-Nov-2017	03:00	2.1	SW
30-Nov-2017	04:00	2.1	SW
30-Nov-2017	05:00	1.6	W
30-Nov-2017	06:00	1.2	SSW
30-Nov-2017	07:00	1	WSW
30-Nov-2017	08:00	1.4	W
30-Nov-2017	09:00	1.4	SW
30-Nov-2017	10:00	1.5	W
30-Nov-2017	11:00	1.4	WSW
30-Nov-2017	12:00	1.6	WSW
30-Nov-2017	13:00	2.2	NE
30-Nov-2017	14:00	1.4	W
30-Nov-2017	15:00	1.6	ENE
30-Nov-2017	16:00	1.6	SE
30-Nov-2017	17:00	1.6	ESE
30-Nov-2017	18:00	1.2	ESE
30-Nov-2017	19:00	1.8	NE
30-Nov-2017	20:00	2.4	SE
30-Nov-2017	21:00	1	NE
30-Nov-2017	22:00	1.4	SSE
30-Nov-2017	23:00	1.5	SSE

**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 November 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Nov	2-Nov	3-Nov	4-Nov
			Noise [M3, M5(C)]			
5-Nov	6-Nov	7-Nov	8-Nov	9-Nov	10-Nov	11-Nov
	1 hr TSP X3 [AM2] Noise [M4] 24hr TSP AM2(A)	Noise [M3, M5(C)]				1 hr TSP X3 [AM2] 24hr TSP AM2(A)
12-Nov	13-Nov	14-Nov	15-Nov	16-Nov	17-Nov	18-Nov
	Noise [M3, M5(C)]				1 hr TSP X3 [AM2] Noise [M4] 24hr TSP AM2(A)	
19-Nov	20-Nov	21-Nov	22-Nov	23-Nov	24-Nov	25-Nov
	Noise [M3, M5(C)]			1 hr TSP X3 [AM2] Noise [M4] 24hr TSP AM2(A)	Noise [M3, M5(C)]	
26-Nov	27-Nov	28-Nov	29-Nov	30-Nov		
			1 hr TSP X3 [AM2] Noise [M4] 24hr TSP AM2(A)	Noise [M3, M5(C)]		

Air Quality Monitoring Station

AM2 - Lee Kau Yan Memorial School
AM2(A) - Ng Wah Catholic Secondary School

Noise Monitoring Station

M3 - Cognito 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 December 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Dec	2-Dec
3-Dec	4-Dec	5-Dec	6-Dec	7-Dec	8-Dec	9-Dec
		1 hr TSP X3 [AM2] Noise [M4] 24hr TSP AM2(A)	Noise [M3, M5(C)]			
10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec	16-Dec
	1 hr TSP X3 [AM2] Noise [M4] 24hr TSP AM2(A)	Noise [M3, M5(C)]				1 hr TSP X3 [AM2] 24hr TSP AM2(A)
17-Dec	18-Dec	19-Dec	20-Dec	21-Dec	22-Dec	23-Dec
	Noise [M3, M5(C)]			24hr TSP AM2(A)	1 hr TSP X3 [AM2] Noise [M4]	
24-Dec	25-Dec	26-Dec	27-Dec	28-Dec	29-Dec	30-Dec
			Noise [M3, M5(C)] 24hr TSP AM2(A)	1 hr TSP X3 [AM2] Noise [M4]		
31-Dec						

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

Noise Monitoring Station

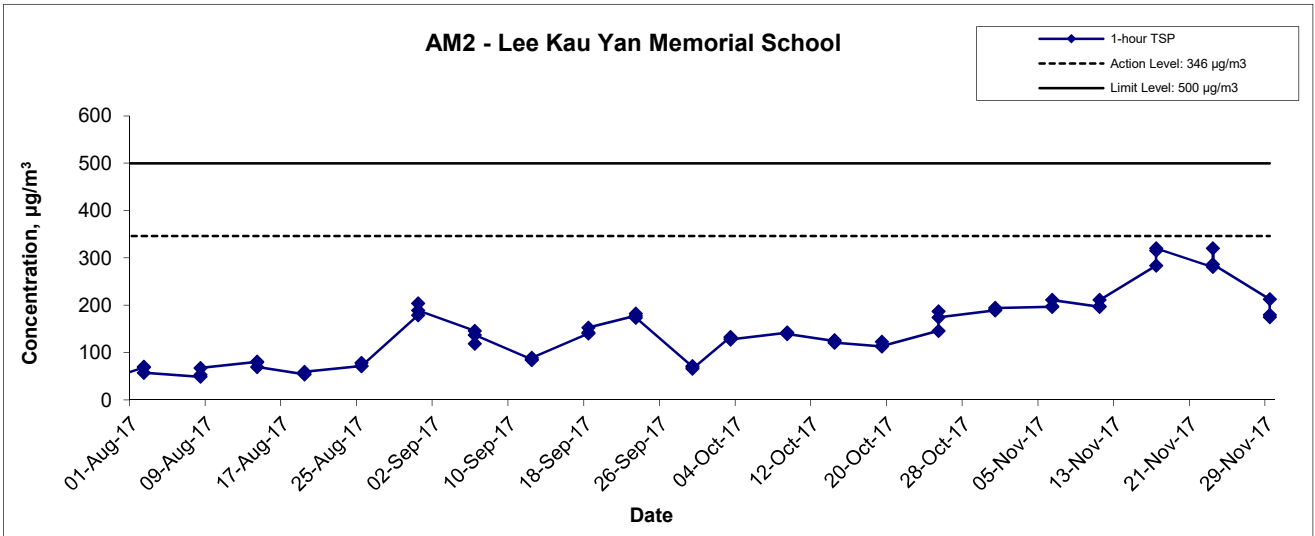
M3 - Cognitio College
M4 - Lee Kau Yan Memorial School
M5(C) - Mercy Grace's Home

**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 ($\mu\text{g}/\text{m}^3$)
6-Nov-17	13:05	Cloudy	196.7
6-Nov-17	14:05	Cloudy	197.8
6-Nov-17	15:05	Cloudy	211.2
11-Nov-17	13:05	Cloudy	196.7
11-Nov-17	14:05	Cloudy	197.8
11-Nov-17	15:05	Cloudy	211.2
17-Nov-17	8:55	Sunny	283.6
17-Nov-17	9:55	Sunny	315.8
17-Nov-17	10:55	Sunny	320.4
23-Nov-17	13:10	Sunny	280.8
23-Nov-17	14:10	Sunny	320.1
23-Nov-17	15:10	Sunny	286.4
29-Nov-17	13:05	Fine	212.9
29-Nov-17	14:05	Fine	179.7
29-Nov-17	15:05	Fine	175.0
Average			239.1
Maximum			320.4
Minimum			175.0

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 Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S	Project No. MA16043	CINOTECH
	Date Nov 17	Appendix E	

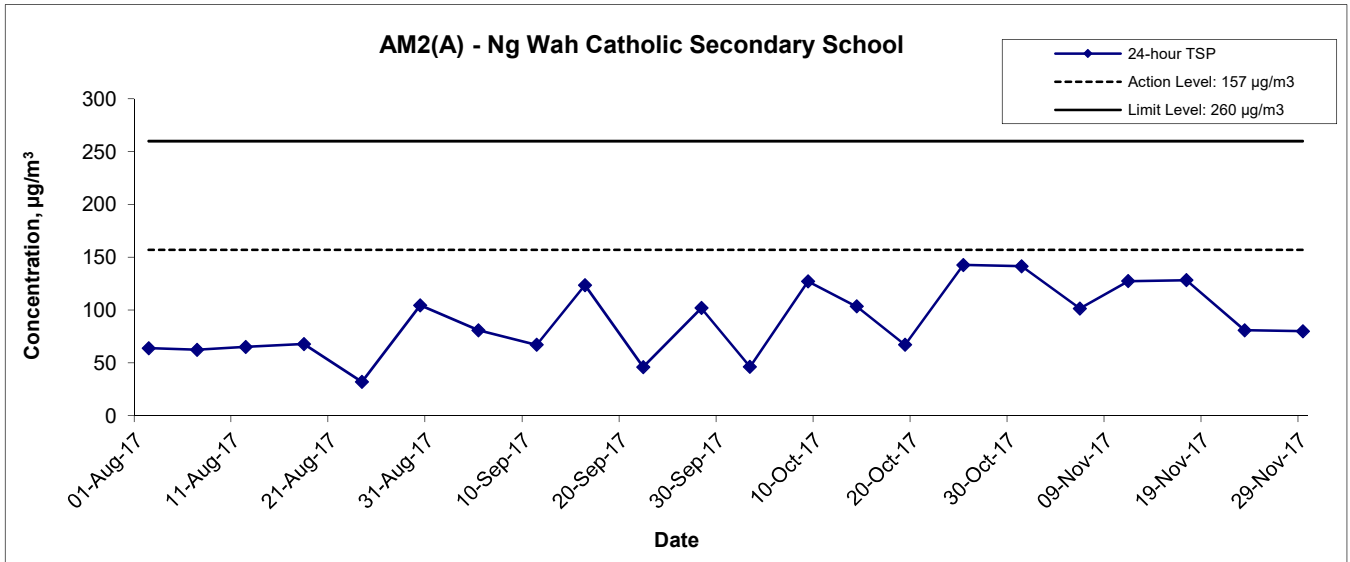
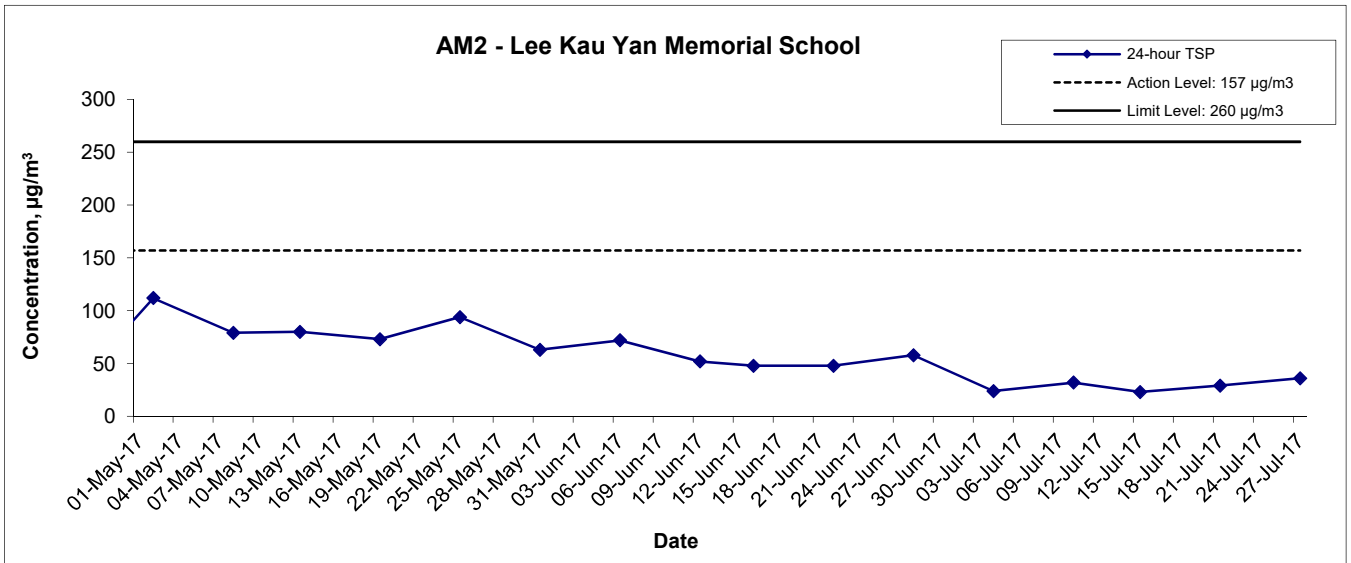
**APPENDIX F
24-HOUR TSP MONITORING RESULTS
AND GRAPHICAL PRESENTATION**

Appendix F - 24-hour TSP Monitoring Results

Location AM2(A) - Ng Wah Catholic Secondary School

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
6-Nov-17	Cloudy	295.3	766.3	2.8926	3.0742	0.1816	16051.2	16075.2	24.0	1.24	1.24	1.24	1787.8	101.6
11-Nov-17	Cloudy	298.9	764.2	2.8565	3.0826	0.2261	16099.2	16123.2	24.0	1.23	1.23	1.23	1774.3	127.4
17-Nov-17	Cloudy	298.4	762.1	2.8443	3.0719	0.2276	16147.2	16171.2	24.0	1.23	1.23	1.23	1773.3	128.3
23-Nov-17	Cloudy	289.7	767.8	2.8728	3.0190	0.1462	16195.2	16219.2	24.0	1.26	1.25	1.25	1807.1	80.9
29-Nov-17	Sunny	298.7	766.7	2.8540	2.9913	0.1373	16243.2	16267.2	24.0	1.19	1.19	1.19	1716.0	80.0
													Min	80.0
													Max	128.3
													Average	103.7

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 Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA16043	CINOTECH
	Date Nov 17	Appendix F	

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

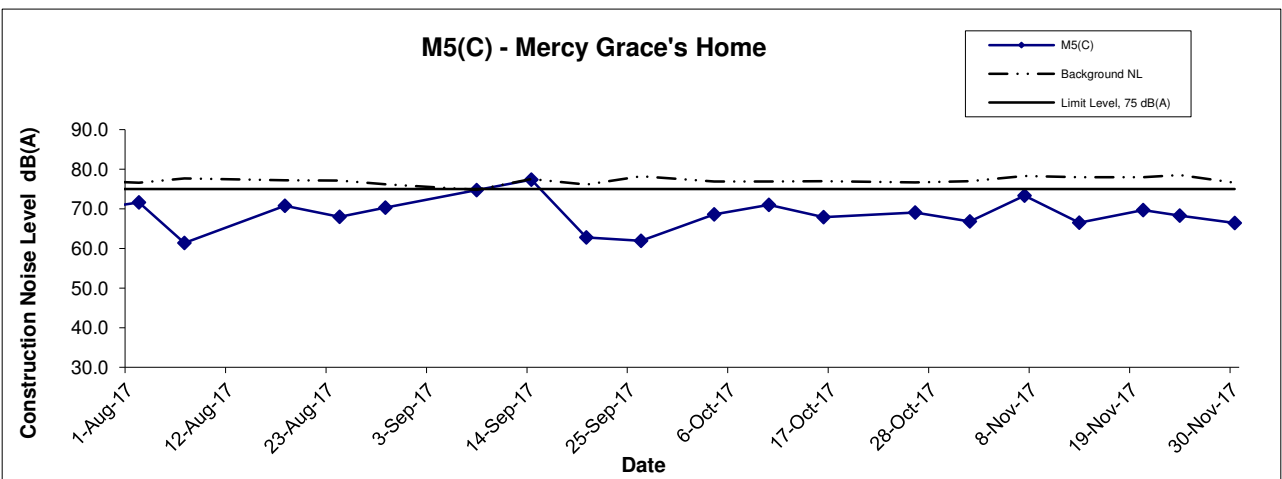
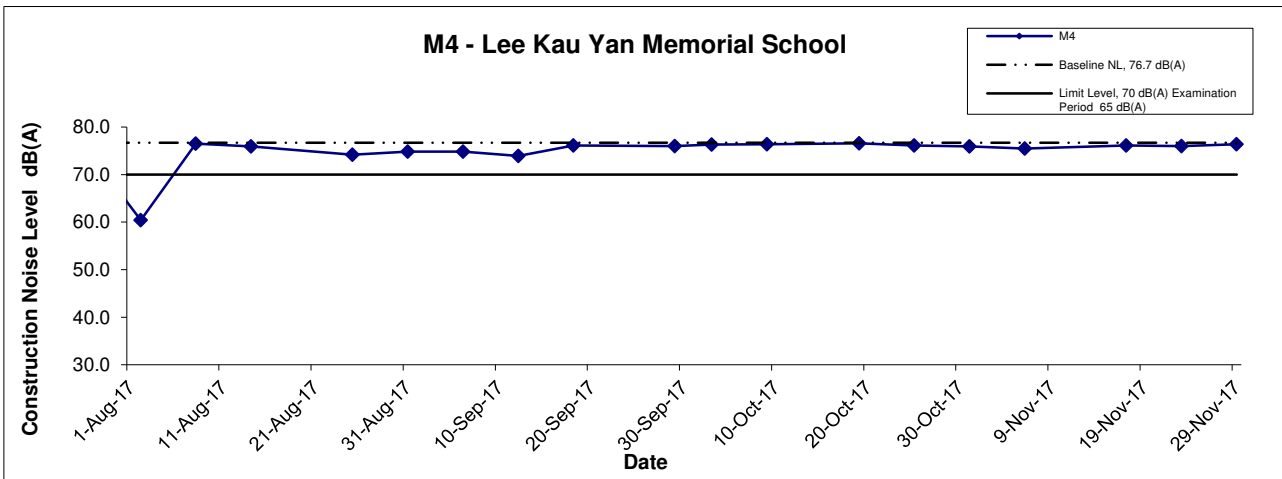
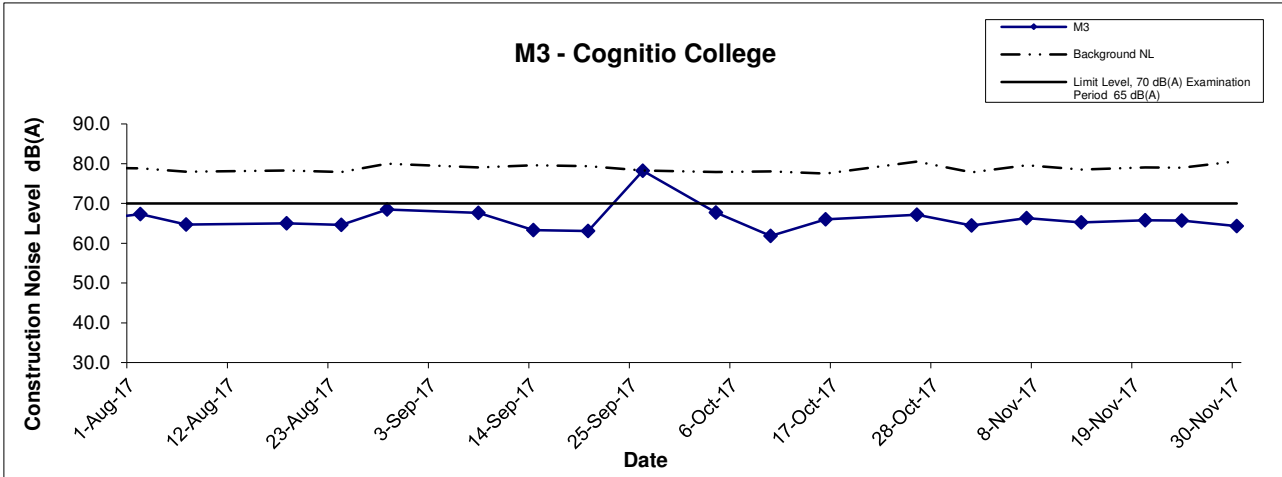
Appendix G - Noise Monitoring Results

Location M3 - Cognito 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}
1-Nov-17	13:30	Sunny	78.0	78.8	75.6	77.8	64.5
7-Nov-17	13:00	Cloudy	79.8	81.2	78.1	79.6	66.3
13-Nov-17	13:00	Cloudy	78.7	79.9	76.2	78.5	65.2
20-Nov-17	13:00	Cloudy	79.3	81.6	77.8	79.1	65.8
24-Nov-17	11:30	Sunny	79.2	80.5	77.5	79.0	65.7
30-Nov-17	11:30	Cloudy	80.7	82.2	78.8	80.6	64.3

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}
6-Nov-17	13:05	Cloudy	75.5	76.7	74.0	76.7	75.5 Measured ≤ Baseline
17-Nov-17	13:15	Sunny	76.1	77.7	74.1		76.1 Measured ≤ Baseline
23-Nov-17	13:15	Sunny	76.0	78.2	75.2		76.0 Measured ≤ Baseline
29-Nov-17	13:30	Cloudy	76.4	77.9	75.3		76.4 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}
1-Nov-17	13:00	Sunny	77.4	78.8	75.2	77.0	66.8
7-Nov-17	13:00	Cloudy	79.5	81.4	77.0	78.3	73.3
13-Nov-17	13:00	Cloudy	78.3	81.9	77.9	78.0	66.5
20-Nov-17	13:00	Cloudy	78.6	80.2	76.1	78.0	69.7
24-Nov-17	11:30	Sunny	78.9	79.4	77.0	78.5	68.3
30-Nov-17	11:30	Sunny	77.0	78.6	75.0	76.6	66.4

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 Graphical Presentation of Construction Noise Monitoring Results	Scale	N.T.S	Project No. MA16043	CINOTECH
	Date	Nov 17	Appendix	

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)


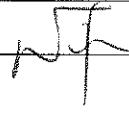
**APPENDIX I
SITE AUDIT SUMMARY**

*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*

**Weekly Site Inspection Record Summary
 Inspection Information**

Checklist Reference Number	171108
Date	8 November 2017
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	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
171108-R01	• Drip tray should be provided to the chemical containers stored on site. (Portion B5)	E 9
	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 sections (Ref. No.: 171030), all environmental deficiency was identified/improved by the Contractor.	

	Name	Signature	Date
Recorded by	KC Chung		8 November 2017
Checked by	Dr. Priscilla Choy		8 November 2017

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

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	171117
Date	17 November 2017
Time	14:30-15:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit sections (Ref. No.: 171108), all environmental deficiency was identified/improved by the Contractor.	



	Name	Signature	Date
Recorded by	KC Chung		17 November 2017
Checked by	Dr. Priscilla Choy		17 November 2017

*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*

**Weekly Site Inspection Record Summary
 Inspection Information**

Checklist Reference Number	171121
Date	21 November 2017
Time	14:00-16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
171121-R01	• Dusty stockpile should be properly covered with impervious sheeting for dust suppression. (Portion 2)	C7
	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 sections (Ref. No.: 171117), no major environmental deficiency was identified during the site inspection.	

	Name	Signature	Date
Recorded by	KC Chung		20 November 2017
Checked by	Dr. Priscilla Choy		20 November 2017

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

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	171127
Date	27 November 2017
Time	14:00-16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
171127-O01	• Air compressor should be properly maintained for exhaust emission control. (Portion 1)	C 17
171127-R02	• Exposed slope should be properly covered 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 sections (Ref. No.: 171120), all environmental deficiency was improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	KC Chung		27 November 2017
Checked by	Dr. Priscilla Choy		27 November 2017

APPENDIX J
EVENT ACTION PLANS

Appendix J - Event Action Plans

Event/Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded by one sampling	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Inform Contactor, IEC and ER; 3. Repeat measurement to confirm finding. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action Level being exceeded by two or more consecutive sampling	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC and ER; 3. Increase monitoring frequency to daily; 4. Discuss with IEC and Contractor on remedial actions required; 5. Assess the effectiveness of Contractor's remedial actions; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; 5. Conduct meeting with ET and IEC if exceedance continues. 	<ol style="list-style-type: none"> 1. Discuss with ET and IEC on proper remedial actions; 2. Submit proposals for remedial actions to ER and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Limit Level being exceeded by one sampling	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Assess effectiveness of Contractor's remedial actions and keep 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Discuss with ET and IEC on proper remedial actions; 3. Submit proposals for remedial actions to ER and IEC within three

Appendix J - Event Action Plans

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

Appendix J - Event Action Plans

Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded	<ol style="list-style-type: none"> 1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>
Limit Level being exceeded	<ol style="list-style-type: none"> 1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals;

Appendix J - Event Action Plans

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

Event/Action Plan for Landscape and Visual

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

Appendix J - Event Action Plans

	<p>ER</p> <p>2. Increase monitoring frequency</p> <p>3. Discuss remedial actions with IEC, ER and Contractor</p> <p>4. Monitor remedial actions until rectification has been completed</p> <p>5. If non-conformity stops, cease additional monitoring</p>	<p>2. Check Contractor's working method</p> <p>3. Discuss with ET and Contractor on possible remedial measures</p> <p>4. Advise ER on effectiveness of proposed remedial measures</p> <p>5. Supervise implementation of remedial measures.</p>	<p>implemented</p>	<p>undertake any necessary replacement</p>
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**APPENDIX K
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)**

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

EIA Ref.	Recommended Mitigation Measures	Implementation Status
<i>Construction Air Quality</i>		
S6.5	8 times daily watering of the work site with active dust emitting activities.	^
S6.8	<p>Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.</p> <ul style="list-style-type: none"> • Stockpiling site(s) should be lined with impermeable sheeting and 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 extend 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. 	<p style="text-align: center;">*</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

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

<p>S6.8</p>	<ul style="list-style-type: none"> • <u>DWFI compound for JVBC:</u> 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 desilting 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. • <u>Desilting compound for KTN:</u> 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 desilting 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. • <u>Decking or reconstruction of KTN within apron area:</u> 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. • <u>Localised maintenance dredging:</u> 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 	<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>
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Appendix K – Summary of Implementation Schedule of Mitigation Measures for Construction Phase

	<p>impacts at the future ASRs during the maintenance dredging operation.</p> <ul style="list-style-type: none"> • <u>Improvement of water circulation in KTAC and KTTS:</u> 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. • <u>In-situ sediment treatment by bioremediation:</u> Bioremediation would be applied to the entire KTAC and KTTS. 	<p>N/A</p> <p>N/A</p>
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	<p>Good Site Practice:</p> <ul style="list-style-type: none"> • 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. 	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
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	N/A
	(ii) Provision of structural fins	N/A
S7.8	(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

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 111; 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: <ul style="list-style-type: none"> • Dual power supply or emergency generator should be provided at all the SPSs to secure electrical power supply; • Standby pumps should be provided at all SPSs to ensure smooth operation of the SPS during maintenance of the duty pumps; • An alarm should be installed to signal emergency high water level in the wet well at all SPSs; and 	N/A N/A N/A

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

	<ul style="list-style-type: none"> 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	<p>Construction Phase</p> <p><u>Marine-based Construction</u></p> <p><i>Capital and Maintenance Dredging for Cruise Terminal</i></p> <p>Mitigation measures for construction of the proposed cruise terminal should follow those recommended in the approved EIA for CT Dredging.</p>	N/A
S8.8	<p><i>Fireboat Berth, Runway Opening and Road T2</i></p> <p>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.</p>	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 2,000m ³ 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	<p><u>Land-based Construction</u></p> <p><i>Construction Runoff</i></p> <p>Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion.</p> <p>Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include:</p> <ul style="list-style-type: none"> • use of sediment traps • adequate maintenance of drainage systems to prevent flooding and overflow 	^ ^
S8.8	<p>Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September).</p> <p>All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.</p>	^
S8.8	<p>Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance.</p> <p>The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection.</p> <p>Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond.</p> <p>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.</p>	^
S8.8	<p>Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m³ capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.</p>	^
S8.8	<p>Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.</p>	^
S8.8	<p>Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.</p>	^
S8.8	<p>Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid</p>	*

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

	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	<i>Drainage</i> 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	<i>Sewage Effluent</i> 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	<p><i>Stormwater Discharges</i></p> <p>Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes</p>	^
S8.8	<p><i>Debris and Litter</i></p> <p>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</p>	^
S8.8	<p><i>Construction Works at or in Close Proximity of Storm Culvert or Seafront</i></p> <p>The proposed works should preferably be carried out within the dry season where the flow in the drainage channel /storm culvert/ nullah is low.</p>	^
S8.8	<p>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.</p>	^
S8.8	<p>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</p>	^
S8.8	<p>Stockpiling of construction materials and dusty materials should be covered and located away from any water courses.</p>	^
S8.8	<p>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.</p>	^
S8.8	<p>Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.</p>	^
S8.8	<p>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.</p>	^
S8.8	<p>Construction effluent, site run-off and sewage should be properly collected and/or treated.</p>	^
S8.8	<p>Any works site inside the storm water courses should be temporarily isolated, such as by placing of sandbags or silt curtains with lead</p>	N/A

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

	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	<p>Good Site Practices</p> <p>It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to.</p> <p>Recommendations for good site practices during the dredging activities include:</p> <ul style="list-style-type: none"> • 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). 	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
S9.5	<p>Waste Reduction Measures</p> <p>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:</p> <ul style="list-style-type: none"> • 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 	<p>^</p> <p>^</p> <p>^</p>

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

	<ul style="list-style-type: none"> 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 	<p>^</p> <p>^</p>
S9.5	<p>Dredged Marine Sediment</p> <p>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)</p>	N/A
S9.5	<p>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</p>	N/A
S9.5	<p>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:</p> <ul style="list-style-type: none"> 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 	<p>N/A</p> <p>N/A</p> <p>N/A</p>

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

<p>S9.5</p>	<p>Construction and Demolition Material</p> <p>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:</p> <ul style="list-style-type: none"> • 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 <p>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.</p>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
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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 <i>Waste Disposal (Chemical Waste) (General) Regulation</i>	*
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	^
<i>Construction Landscape and Visual</i>		
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. 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

Reporting Period: November 2017

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.	<p>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.</p> <p>Regular water spraying was also 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.</p> <p>The following recommendations were made to further enhance the mitigation measures:</p> <ul style="list-style-type: none"> ● 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 2017

As at 4 December 2017

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 '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	6651	0	0	0	6651	0	0	0	0	0	7
Feb	8100	0	0	0	8100	0	0	0	0	0	0
Mar	24534	0	0	0	24534	0	0	0	0	0	21
Apr	5445	0	0	0	5445	0	0	0	0	0	21
May	7470	0	0	0	7470	0	0	0	0	0	49
June	4905	0	0	0	4905	0	0	0	0	0	35
Sub-total	57105	0	0	0	57105	0	0	0	0	0	133
July	342	0	0	0	342	0	0	0	0	0	35
Aug	153	0	0	0	153	0	0	0	0	0	42
Sept	0	0	0	0	0	0	0	0	0	0	105
Oct	0	0	0	0	0	0	0	0	0	0	56
Nov	0	0	0	0	0	0	0	0	0	0	63
Dec	0	0	0	0	0	0	0	0	0	0	63
Total	57600	0	0	0	57600	0	0	0	0	0	434

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 '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)

- 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 forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,00 m³. (PS Clause 25.02A(7) refers).