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

39th CONSOLIDATED MONTHLY EM&A REPORT

January 2020

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/1061

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

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

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

TABLE OF CONTENTS

EXECUTIVE SUMMARY I

1. INTRODUCTION 1

2. ENVIRONMENTAL MONITORING AND AUDIT 7

3. SITE INSPECTION 9

4. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE 10

5. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES 11

6. FUTURE KEY ISSUES 12

7. CONCLUSIONS 15

LIST OF APPENDICES

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

Appendix B — 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

Appendix C — 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

Appendix D — Monthly EM&A Report For Contract No. KL/2015/02
Kai Tak Development - Stage 5A Infrastructure at Former North Apron Area

Appendix E — Monthly EM&A Report For Contract No. ED/2018/01
Kai Tak Development – Stage 4 infrastructure at the former runway and south apron

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

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

EXECUTIVE SUMMARY

i. This is the 39th Consolidated Monthly EM&A Report which summaries the EM&A works undertaken by respective contract under EP-337/2009 within the period between 1 January and 31 January 2020.

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

Contract No. KL/2012/03:

- Daily Cleaning
- Weeding at roadside planting areas
- Painting cladding at PS2
- Installing steel platforms at PS2
- Plumbing works for irrigation system

Contract No. KL/2014/01:

- TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
- Construction of outfalls;
- Laying of paving blocks for footpath;
- Erection of noise barrier panels;
- Planting works along footpath and at deck level;
- Architectural features works at landscaped deck and ground floor open space,
- E&M works, and
- Construction of pedestrian streets.

Contract No. KL/2014/03:

- Excavation and laying of drainage pipe and manhole;
- Construction of SUS structure;
- Construction of District Cooling System;
- Utility laying;
- Removal of temporary decking and temporary road pavement;
- Construction of road base and road pavement.

Contract No. KL/2015/02:

- Implementation of TTA Stage 4-1 at PERE
- Demolition of the exiting ground beam underneath Bridge K72
- Excavation with ELS for subway construction at SKLR playground
- Erection of external formworks for the base slab of subway at PERE stage 2
- Drainage works at Road D1 and Road L7
- Construction of parapet at Retaining Wall S15
- Demolition of existing structure of Bridge K72
- Backfilling works at Road L7
- DCS works in Portion 1; and
- Watermais laying works in Portion 1

Contract No. ED/2018/01:

- Ground investigation works
- Piling works for Bridge D3
- Installation of sheetpile for North Approach Ramp
- Excavation for North Depressed Road

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

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

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

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.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

Future Key Issues

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

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

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

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

Major Impact Prediction	Control Measures
	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.
Contract No. ED/2018/01:	
Air Quality, Construction Noise, Water Quality, Chemical and Waste Management, Landscape and Visual	• Sufficient watering of the works site with the active dust emitting activities, • Limitation of the speed for vehicles on unpaved site roads, • Properly cover the stockpiles, • Good maintenance to the plant and equipment, • Use of quieter plant and Quality Powered Mechanical Equipment (QPME), • Appropriate desilting/ sedimentation devices provided on site for treatment before discharge, • Onsite waste sorting and implementation of trip ticket system, • Erection of decorative screen hoarding, • Strictly following the Environmental Permits and Licenses, and • Provide sufficient mitigation measures as recommended in Approved EIA Reports.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

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

1. INTRODUCTION

1.1 Background

1.1.1 The Kai Tak Development is located in the south-eastern part of Kowloon Peninsula of the HKSAR, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling.

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

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

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

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

1.1.5 This is the 39th Consolidated Monthly EM&A Report which summaries the EM&A works undertaken by respective contract under EP-337/2009 within the period between 1 January and 31 January 2020.

1.2 Summary of relevant Contract Information of Key Personnel

Party	Position	Name	Telephone	Fax
Contract No. KL/2012/03:				
Project Proponent (CEDD)	Senior Engineer	Mr. C. K. Choi	3106 2583	3579 4512
Engineer's Representative (AECOM)	CRE	Mr. W. K. Leung	2798 0771	3013 8864
	RE	Mr. Mickey Lee		
IEC (ANewR)	IEC	Mr. Adi Lee	2618 2831	3007 8648
ET (Wellab)	ET Leader	Dr. Priscilla Choy	2151 2089	3107 1388
	Project Coordinator and Audit Team Leader	Ms. Ivy Tam	2151 2090	
Main Contractor (Kwan On)	Site Agent	Mr. P.H. Ho	2889 8675	2558 6900
			6146 6761 (Hotline)	
Contract No. KL/2014/01:				
Project Proponent (CEDD)	Senior Engineer	Mr. Keith Chu	3579 2450	3579 4516
	Engineer	Ms. Adonia Yung	3579 2124	
Engineer's Representative (AECOM)	CRE	Mr. Clive Cheng	3746 1801	2798 0783
IEC (KSMC)	IEC	Dr. C. F. Ng	2618 2166	2120 7752
ET (Cinotech)	ET Leader	Mr. K.S Lee	2151 2091	3107 1388
	Audit Team	Ms. Betty Choi	2151 2072	

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

Party	Position	Name	Telephone	Fax
	Leader			
Main Contractor (CCJV)	EO	Mr. Jack Lai	2960 1398	2960 1399
Contract No. KL/2014/03:				
Project Proponent (CEDD)	Co-ordinator	Mr. Simon Kwok	3842 7140	2739 0076
Engineer's Representative (HMJV)	CRE	Mr. Chris Wong	3742 3803	3742 3899
IEC (Ramboll Hong Kong Limited)	IEC	Mr. F. C. Tsang	3465 2851	3465 2899
ET (FTS)	ET Leader	Mr. Colin Yung	3565 4114	3565 4160
Main Contractor (CRBC)	Site Agent	Mr. Dickey Yau	5699 4503	2283 1689
	EO	Miss. Elena Lai	6841 3324	
Contract No. KL/2015/02:				
Project Proponent (CEDD)	Senior Engineer	Mr. Ricky Chan	2116 3753	2116 0714
Engineer's Representative (AECOM)	SRE	Mr. Vincent Lee	2798 0771	2210 6110
IEC (FTS)	IEC	Mr. Colin Yung	3565 4114	2450 8032
ET (Cinotech)	ET Leader	Mr. K.S Lee	2151 2091	3107 1388
	Audit Team Leader	Ms. Betty Choy	2151 2072	
Main Contractor (PWHJV)	Site Agent	Mr. W. M. Wong	6386 3535	2398 8301
Contract No. ED/2018/01:				
Project Proponent (CEDD)	Senior Engineer	Mr. Ronald Siu	3579 2452	2739 0076
	Engineer	Mr. Edwin Chan	3579 2458	2739 0076
Engineer's Representative (AECOM)	CRE	Mr. Clive Cheng	3911 4201	3911 4288
IEC (Ramboll Hong Kong Limited)	IEC	Mr. Ray Yan	3465 2836	3465 2899
ET (Ka Shing)	ET Leader	Mr. Chan Pang	6082 2973	2120 7752
Main Contractor (Penta-Ocean)	EO	Mr. Tony Tang	9433 2628	3465 8898

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/2012/03:
- Daily Cleaning
- Weeding at roadside planting areas
- Painting cladding at PS2
- Installing steel platforms at PS2
- Plumbing works for irrigation system

Contract No. KL/2014/01:
- TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

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

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

- Construction of outfalls;
- Laying of paving blocks for footpath;
- Erection of noise barrier panels;
- Planting works along footpath and at deck level;
- Architectural features works at landscaped deck and ground floor open space,
- E&M works, and
- Construction of pedestrian streets.

Contract No. KL/2014/03:

- Excavation and laying of drainage pipe and manhole;
- Construction of SUS structure;
- Construction of District Cooling System;
- Utility laying;
- Removal of temporary decking and temporary road pavement;
- Construction of road base and road pavement.

Contract No. KL/2015/02:

- Implementation of TTA Stage 4-1 at PERE
- Demolition of the exiting ground beam underneath Bridge K72
- Excavation with ELS for subway construction at SKLR playground
- Erection of external formworks for the base slab of subway at PERE stage 2
- Drainage works at Road D1 and Road L7
- Construction of parapet at Retaining Wall S15
- Demolition of existing structure of Bridge K72
- Backfilling works at Road L7
- DCS works in Portion 1; and
- Watermais laying works in Portion 1

Contract No. ED/2018/01:

- Ground investigation works
- Piling works for Bridge D3
- Installation of sheetpile for North Approach Ramp
- Excavation for North Depressed Road

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

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

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

Major Environmental Impact	Control Measures
Contract No. KL/2012/03:	
Dust, Water Quality, Waste Management (Construction of superstructure of Pumping Station PS2 and NPS)	• Sufficient watering of the works site with active dust emitting activities; • Properly cover the stockpiles; • Appropriate desilting/sedimentation devices provided on site for treatment before discharge; • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall; and • On-site waste sorting and implementation of trip ticket system.
Dust, Noise (Backfilling between sewerage manholes 1K1_1 and FMH10_340 and construction of manhole FMH10_370a at L6)	• Use of quiet plant and well-maintained construction plant; and • Properly cover the stockpiles;
Noise, Waste Management (Installation of precast unit and construction of in-situ portions of Box Culvert B6; Construction of jacking pits nos. 1 and 2; Installation of gas pipe at pit no. 10; Construction of washout chamber at pit no. 11)	• Use of quiet plant and well-maintained construction plant; and • Provide hoarding. • Good management and control on construction waste reduction
Noise (Construction of sewerage manhole FMH 10 at Bailey Street; Widening works of Sung Wong Toi Road.)	• Use of quiet plant and well-maintained construction plant; and • Provide hoarding.
Noise, Water Quality (Pipe laying from manhole SMH2204 to Box Culvert B6; Laying of rising mains from PS2 to chainage CHA-18; Pipe laying from stormwater manholes SMH1962 to SMH1963 and construction of manholes SMH1953 and SMH1963 at L6; Installation of DCS;)	• Use of quiet plant and well-maintained construction plant; and • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall.
Contract No. KL/2014/01:	
Noise, dust impact, water quality and waste generation	• Sufficient watering of the works site with active dust emitting activities; • Properly cover the stockpiles; • On-site waste sorting and implementation of trip ticket system • Appropriate desilting/sedimentation devices provided on site for treatment before discharge; • Use of quiet plant and well-maintained construction plant; • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall; • Provide mitigation measure to temporary use of chemicals;

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

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

Major Environmental Impact	Control Measures
	• Provide sufficient mitigation measures as recommended in Approved EIA Report/Lease requirement.
Contract No. KL/2014/03:	
Air Quality Impact, Construction Noise Impact, Water Quality Impact, Chemical and Waste Management, Landscape and Visual Impact	• Sufficient watering of the works site with the active dust emitting activities; • Limitation of the speed for vehicles on unpaved site roads; • Properly cover or enclosure of the stockpiles and dusty materials; • Good site practices on loading dusty materials; • Providing sufficient vehicles washing facilities at every vehicle exit point; • Good maintenance to the plant and equipment; • Use of quieter plant and Quality Powered Mechanical Equipment (QPME); • Use of acoustic fabric and noise barrier; • Using the approved Non-road Mobile Machineries (NRMMs); • Proper storage and handling of chemical; • Appropriate desilting, oil interceptors or sedimentation devices provided on site for treatment before discharge; • Onsite waste sorting and implementation of trip ticket system; • Training of the site personnel in proper waste management and chemical waste handling procedures; • Proper storage of the construction materials; • Erection of decorative screen hoarding; • Strictly following the Environmental Permits and Licenses; • Provide sufficient mitigation measures as recommended in Approved EIA Reports
Contract No. KL/2015/02:	
Noise, dust impact, water quality and waste generation	• Sufficient watering of the works site with active dust emitting activities; • Properly cover the stockpiles; • On-site waste sorting and implementation of trip ticket system • Appropriate desilting/sedimentation devices provided on site for treatment before discharge; • Use of quiet plant and well-maintained construction plant; • Provide movable noise barrier; • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall; • Provide sufficient mitigation measures as recommended in Approved EIA Report/Lease requirement.
Contract No. ED/2018/01:	
• The Contractor has implemented environmental mitigation measures and requires as stated in the EIA reports, the EP and the EM&A Manuals.	

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

1.5 Summary Status of Environmental Licences, Notifications and Permits

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

Table 1.1 Relevant Environmental Licenses, Permits and/or Notifications

Environmental License / Permit / Notification	Reference Number	Valid From	Valid Till
Contract No. KL/2012/03:			
Environmental Permit	EP-337/2009 EP-344/2009	23/04/2009 23/04/2009	N/A N/A
Effluent Discharge License	WT00020971-2015	22/04/2015	21/04/2020
Registration of Chemical Waste Producer	5213-286-K2958-05	-	N/A
Contract No. KL/2014/01:			
Environmental Permit	EP-337/2009 EP-445/2013/A	23/04/2009 13/08/2009	N/A N/A
Effluent Discharge License	WT00023634-2016	-	31/03/2021
Registration of Chemical Waste Producer	5213-247-C4004-01	-	N/A
Construction Noise Permit	GW-RE1024-19	19/12/2019	13/01/2020
Contract No. KL/2014/03:			
Environmental Permit	EP-337/2009 EP-339/2009/A EP-451/2013	23/04/2009 18/06/2009 19/09/2013	N/A N/A N/A
Notification pursuant to Air Pollution (Construction Dust) Regulation	395601	16/11/2015	N/A
Billing Account for Waste Disposal	A/C No.: 7023814	30/11/2015	N/A
Construction Noise Permit	GW-RE0556-19	12/07/2019	11/01/2020
	GW-RE1017-19	16/12/2019	10/06/2020
Wastewater Discharge License	WT00023125-2015	06/01/2016	31/01/2021
Chemical Waste Producer License	5213-247-C1232-12	23/11/2015	N/A
Contract No. KL/2015/02:			
Environmental Permit	EP-337/2009	23/04/2009	N/A
Wastewater Discharge License	WT00027495-2017	28/03/2017	31/03/2022
Billing Account for Waste Disposal	A/C No.: 7026164	20/10/2016	N/A
Registration of Chemical Waste Producer	WPN5213-229-P3271-01	14/08/2017	N/A
Construction Noise Permit	GW-RE0915-19	08/11/2019	04/05/2020
	GW-RE0984-19	15/12/2019	24/02/2020
Contract No. ED/2018/01:			
Environmental Permit	EP-337/2009 EP-445/2013 EP-445/2013/A	23/04/2009 03/05/2013 13/08/2014	N/A N/A N/A
Construction Dust Notification under APCO	445956	06/06/2019	N/A
Wastewater Discharge License	WT00034610-2019	26/09/2019	30/09/2024
Waste Disposal Billing Account	7034450	28/06/2019	N/A
Registration as a Chemical Waste Producer	5218-286-P3182-03	18/07/2019	N/A
Construction Noise Permit	GW-RE0699-19	13/09/2019	12/03/2020
	GW-RE0786-19	05/10/2019	04/04/2020
	GW-RE0880-19	30/10/2019	27/04/2020
	GW-RE0039-20	24/01/2020	23/03/2020

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

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 (μg/m^3)	Range (μg/ m^3)	Action Level (μg/ m^3)	Limit Level (μg/ m^3)
Contract No. KL/2012/03:					
N.A (The impact environmental monitoring has been ceased since 15 April 2019)					
Contract No. KL/2014/01:					
N.A (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	56	13-80	177	260
	KTD2a	86	23-143	157	
	KER1b	59	4-99	172	
Contract No. KL/2015/02:					
1-hr TSP	AM2	112	67-181	346	500
24-hr TSP	AM2(A)	51	40-64	157	260
Contract No. ED/2018/01:					
24-hr TSP	AM3	85	35-125	182	260
	AM4(A)	53	40-70	187	
	AM7	52	31-78	181	
1-hr TSP	AM3	80	68-92	297	500
	AM4(A)	75	64-85	326	
	AM7	74	63-89	315	

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.

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

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/2012/03:		When one documented complaint is received	
N.A (The impact environmental monitoring has been ceased since 15 April 2019.)			
Contract No. KL/2014/01:			
N.A (No Construction noise monitoring is required for the Project.)			NA
Contract No. KL/2014/03:			
KTD1a	63-70		75
KTD2a	64-74		75
KER1b	65-73		75
Contract No. KL/2015/02:			
M3	62 – 67		70*
M4	68 – 77#		70*
M5(C)	62 – 77#		75
Contract No. ED/2018/01:			
M11	64.5 – 68		75
M12	64.3 – 66.2		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.

Landscape and Visual

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

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

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

3. SITE INSPECTION

3.1 Site Inspection

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

Contract No. KL/2012/03:
Site audits were conducted on 3rd, 10th, 15th and 23rd January 2020 in the reporting month. The monthly IEC audit on 31th January 2020 was postponed to 7th February 2020. No non-compliance was observed during the site audits.

Contract No. KL/2014/01:
Site audits were conducted by representatives of the Contractor, Supervising Officer and ET on 3, 8, 16 & 22 January 2020 in the reporting month. IEC joint site inspection was conducted on January 2020. No non-compliance was observed during the site audits.

Contract No. KL/2014/03:
In the reporting month, four site inspections were carried out on 2, 8, 15 and 22 January 2020.
Two of them, held on 8 and 15 January 2020 was the joint inspections with the IEC, ER, the Contractor and the ET.

Contract No. KL/2015/02:
Site audits were conducted on 6, 16 and 20 January 2020 in the reporting month. The proposed site inspection on 30 January 2020 was suspended due to the construction site is closed for prevent spreading of the coronavirus. A joint site inspection with the representative of IEC, ER, the Contractor and the ET was conducted on 16 January 2020.

Contract No. ED/2018/01:
Site inspections were conducted on 22 January 2020 in the reporting month. No site inspection was conducted on week 26 January to 2 February 2020 due to site closure.

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.

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

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

4. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

4.1 Complaints, Notification of Summons and Prosecution

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

Table 4.1 Summary of Complaints, Notification of Summons and Prosecution

Event	No. of Event This Month	Remark
Contract No. KL/2012/03:		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA
Contract No. KL/2014/01:		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA
Contract No. KL/2014/03:		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA
Contract No. KL/2015/02:		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA
Contract No. ED/2018/01:		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA

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

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

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

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

5. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

5.1 Implementation Status

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

5.2 Waste Management

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

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

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/2012/03:

- Daily Cleaning
- Weeding at roadside planting areas
- Painting cladding at PS2
- Installing steel platforms at PS2
- Plumbing works for irrigation system

Contract No. KL/2014/01:

- TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
- Construction of outfalls;
- Laying of paving blocks for footpath;
- Erection of noise barrier panels;
- Planting works along footpath and at deck level;
- Architectural features works at landscaped deck and ground floor open space,
- E&M works, and
- Construction of pedestrian streets.

Contract No. KL/2014/03:

- Excavation and laying of drainage pipe and manhole
- Construction of SUS structure
- Construction of District Cooling System
- Utility laying
- Construction of road base and road pavement

Contract No. KL/2015/02:

- Carry out the structural works for subway at PERE Stage 2
- Excavation with ELS for subway construction at SKLR playground
- Demolition of the exiting ground beam underneath Bridge K72 and construction of new ground beam
- Carry out trial pit at PERE Stage 4-1 and sheet piling works
- Drainage works and road works at Road D1 and Road L7
- Construction of parapet at Retaining Wall S15
- Demolition and reconstruction of existing structure of K72
- UU installation and road works at Road L7
- Refurbishment works for K72
- Preparation and erection of falsework for modifying K72 (Stage 2)
- DCS works in Portion 1; and
- Watermains laying works in Portion 1

Contract No. ED/2018/01 (coming month):

- Ground investigation works
- Piling works for Bridge D3
- Installation of sheetpile for North Approach Ramp
- Excavation for North Depressed Road

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

6.2 Key Issues for the Coming Month

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

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

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

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

Major Impact Prediction	Control Measures
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.
Contract No. ED/2018/01:	
Air Quality, Construction Noise, Water Quality, Chemical and Waste Management, Landscape and Visual	• Sufficient watering of the works site with the active dust emitting activities, • Limitation of the speed for vehicles on unpaved site roads, • Properly cover the stockpiles, • Good maintenance to the plant and equipment, • Use of quieter plant and Quality Powered Mechanical Equipment (QPME), • Appropriate desilting/ sedimentation devices provided on site for treatment before discharge, • Onsite waste sorting and implementation of trip ticket system, • Erection of decorative screen hoarding, • Strictly following the Environmental Permits and Licenses, and • Provide sufficient mitigation measures as recommended in Approved EIA Reports.

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.

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

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

7. CONCLUSIONS

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

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

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

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

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

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

FUGRO TECHNICAL SERVICES LIMITED

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

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

Appendix A

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

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

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

January 2020

(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.

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

WELLAB LIMITED
Room 1701, Technology Park, 18 On Lai Street,
Shatin, NT, Hong Kong
Tel: (852) 2898 7388 Fax: (852) 2898 7076
Website: www.wellab.com.hk

ANEWR

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

Attention: Mr Mickey Lee

Your reference:

Our reference: HKCEDD11/50/106250

Date: 14 February 2020

BY EMAIL & POST
(email: RE3@ktd-5a.com)

Dear Sirs

Agreement No. EDO 08/2018
Independent Environmental Checker (IEC) for CEDD Contract No. KL/2012/03
Kai Tak Development – Stage 4 Infrastructure at Former North Apron Area
Verification of Monthly EM&A Report for January 2020

We refer to emails of 3 and 11 February 2020 attaching a Monthly EM&A Report for January 2020 prepared by the ET.

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

Please do not hesitate to contact the undersigned or our Ms Katherine Chu on 2618 2831 should you have any queries.

Yours faithfully
ANEWR CONSULTING LIMITED

Adi Lee
Independent Environmental Checker

LYMA/CWKK/lhmh

cc CEDD – Mr C K Choi (email: ckchoi@cedd.gov.hk)
Wellab – Dr Priscilla Choy (email: Priscilla.Choy@wellab.com.hk)

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

ISO 9001 : 2015
Certificate No.: CC 3988

TABLE OF CONTENTS

EXECUTIVE SUMMARY **1**

Introduction 1
Environmental Monitoring Works 1
Environmental Licenses and Permits 2
Key Information in the Reporting Month 2
Future Key Issues 2

1. INTRODUCTION **3**

Background 3
Project Organizations 3
Construction Activities undertaken during the Reporting Month 4
Summary of EM&A Requirements 5
Status of Compliance with Environmental Permits Conditions 7

2. AIR QUALITY **9**

Monitoring Requirements 9
Monitoring Locations 9

3. NOISE **10**

Monitoring Requirements 10
Monitoring Locations 10

4. LANDSCAPE AND VISUAL **11**

Monitoring Requirements 11
Results and Observations 11

5. ENVIRONMENTAL AUDIT **12**

Site Audits 12
Status of Environmental Licensing and Permitting 12
Status of Waste Management 13
Implementation Status of Environmental Mitigation Measures 13
Summary of Mitigation Measures Implemented 14
Implementation Status of Event Action Plans 14
Summary of Complaint, Warning, Notification of any Summons and Successful Prosecution 14

6. FUTURE KEY ISSUES **15**

Key Issues for the Coming Month 15

7. CONCLUSIONS AND RECOMMENDATIONS **16**

Conclusions 16
Recommendations 16
Effectiveness of Environmental Management 17

LIST OF TABLES

Table I	Breaches of Action and Limit Levels for the Project in the Reporting Month
Table II	Summary Table for Key Information in the Reporting Month
Table 1.1	Key Project Contacts
Table 1.2	Construction Programme Showing the Inter-Relationship with Environmental Protection/Mitigation Measures
Table 1.3	Air Quality and Noise Monitoring Stations for this Project
Table 1.4	Summary Table for Required Submission under EP No. EP-337/2009
Table 1.5	Summary Table for Required Submission under EP No. EP-344/2009
Table 2.1	Locations for Air Quality Monitoring
Table 3.1	Noise Monitoring Stations
Table 5.1	Summary of Environmental Licensing and Permit Status
Table 5.2	Observations and Recommendations of Site Inspections for EP-344/2009
Table 6.1	Summary of the tentative program of major site activities, the impact prediction and control measures for February 2020 and March 2020
Table 7.1	Examples of Mitigation Measures for Environmental Recommendations

LIST OF FIGURES

Figure 1	Layout Plan of the Project Site
Figure 2	Locations of Air Quality Monitoring Stations
Figure 3	Locations of Construction Noise Monitoring Stations
Figure 4	Locations of Wind Anemometer
Figure 5	Management Structure

LIST OF APPENDICES

A	Action and Limit Levels for Air Quality and Noise
B	Site Audit Summary
C	Event Action Plans
D	Environmental Mitigation Implementation Schedule (EMIS)
E	Summaries of Environmental Complaint, Warning, Summon and Notification of Successful Prosecution
F	Summary of Waste Generation and Disposal Records
G	Construction Programme

EXECUTIVE SUMMARY

Introduction

1. This is the 74th Monthly Environmental Monitoring and Audit (EM&A) Report prepared by Wellab 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 1st to 31st January 2020.

2. All major construction works were completed, the site activities undertaken in the reporting month included:
   - Daily Cleaning
   - Weeding at roadside planting areas
   - Painting cladding at PS2
   - Installing steel platforms at PS2
   - Plumbing works for irrigation system

Environmental Monitoring Works

3. Site Inspections/Audits were conducted once per week. All site activities were suspended from 27th January 2020 to 2nd February 2020 to reduce the risk of the spread of the novel coronavirus. The weekly environmental site inspection for the week 27th January 2020 to 31st January 2020 was cancelled. 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

5. The Proposal for Cessation of Construction Phase EM&A Works at Road D2 for Environmental Permits (EP) No. EP-377/2009 was approved by the EPD on 15th April 2019. The impact environmental monitoring has been ceased since 15th April 2019. The As-built drawing for Road D2 was submitted to EPD on 13 August 2019. Weekly site inspection, Landscape and Visual Monitoring and reporting for Environmental Permits (EP) No. EP-377/2009 have been ceased since 15 August 2019.

Environmental Licenses and Permits

6. 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 23rd April 2009.

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

8. Water Discharge License (WT00020971-2015).

Key Information in the Reporting Month

9. 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

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

- Dust generation from stockpiles of dusty materials, exposed site area and excavation works;
- 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; and
- Noise from operation of the equipment, especially for machinery on-site.

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 Kuk, 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 Wellab Limited (Wellab) is commissioned by Kwan On Construction Co., Ltd. (the Contractor) on 1st January 2019 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 74th Monthly EM&A report summarizing the EM&A works for the Project from 1st to 31st January 2020.

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) – Wellab Limited (WL).
- Independent Environmental Checker (IEC) – ANewR Consulting Limited. (ANewR).
- Contractor – Kwan On Construction Co., Ltd. (Kwan On).

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

Table 1.1 Key Project Contacts

Party	Role	Contact Person	Position	Phone No.	Fax No.
CEDD	Project Proponent	Mr. C. K. Choi	Senior Engineer	3106 2583	3579 4512
AECOM	Engineer's Representative	Mr. W. K. Leung	CRE	2798 0771	3013 8864
		Mr. Mickey Lee	RE		
Wellab	Environmental Team	Dr. Priscilla Choy	Environmental Team Leader	2151 2089	3107 1388
		Ms. Ivy Tam	Project Coordinator and Audit Team Leader	2151 2090	
ANewR	Independent Environmental Checker	Mr. Adi Lee	Independent Environmental Checker	2618 2831	3007 8648
Kwan On	Contractor	Mr. P.H. Ho	Site Agent	2889 8675	2558 6900
				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
- Weeding at roadside planting areas
- Painting cladding at PS2
- Installing steel platforms at PS2
- Plumbing works for irrigation system

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

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

Construction Works	Generated Major Environmental Impact	Control Measures
Construction of superstructure of Pumping Station PS2 and NPS;	Dust, Water Quality, Waste Management	• Sufficient watering of the works site with active dust emitting activities; • Properly cover the stockpiles; • Appropriate desilting/sedimentation devices provided on site for treatment before discharge; • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall; and • On-site waste sorting and implementation of trip ticket system.
Backfilling between sewerage manholes 1K1_1 and FMH10_340 and construction of manhole FMH10_370a at L6;	Dust, Noise	• Use of quiet plant and well-maintained construction plant; and • Properly cover the stockpiles;
Installation of precast unit and construction of in-situ portions of Box Culvert B6; Construction of jacking pits nos. 1 and 2; Installation of gas pipe at pit no. 10; Construction of washout chamber at pit no. 11;	Noise, Waste Management	• Use of quiet plant and well-maintained construction plant; and • Provide hoarding. • Good management and control on construction waste reduction
Construction of sewerage manhole FMH 10 at Bailey Street; Widening works of Sung Wong Toi Road.	Noise	• Use of quiet plant and well-maintained construction plant; and • Provide hoarding.
Pipe laying from manhole SMH2204 to Box Culvert B6; Laying of rising mains from PS2 to chainage CHA-18; Pipe laying from stormwater manholes SMH1962 to SMH1963 and construction of manholes SMH1953 and SMH1963 at L6; Installation of DCS;	Noise, Water Quality	• Use of quiet plant and well-maintained construction plant; and • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall.

Summary of EM&A Requirements

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

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

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

1.12 This report presents the implementation of the EM&A programme for the Project from 1st to 31st January 2020.

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 AM3(B) – Family Planning Association of Hong Kong**
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	No	M8(A) – Po Leung Kuk Ngan Po Ling College (Site Boundary) #
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.
- **AM3(B) – The permission of air quality monitoring works (24-hour TSP) at station AM3(A) was denied in November 2017, the monitoring works were resumed at the alternative station – AM3(B) in December 2017.
- *AM4(A) – EMSD Workshop was cancelled due to unsuccessful accessibility of the facility. 1-hr TSP monitoring was conducted at AM4(B) – Ma Tau Kuk 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.
- # The alternative position of M8 (remark as M8(A)) was adopted on 20th March 2019.

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.

1.16 The Proposal for Cessation of Construction Phase EM&A Works at Road D2 for Environmental Permits (EP) No. EP-377/2009 was approved by the EPD on 15 April 2019. The impact environmental monitoring has been ceased since 15 April 2019. The As-built drawing for Road D2 was submitted to EPD on 13 August 2019. Weekly site inspection, Landscape and Visual Monitoring and reporting for Environmental Permits (EP) No. EP-377/2009 have been ceased since 15 August 2019.

1.17 Weekly site inspection, Landscape and Visual monitoring and reporting will be remained until the completion of landscape works for Environmental Permits (EP) No. EP-344/2009.

Status of Compliance with Environmental Permits Conditions

1.18 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)	13 August 2019	For Road D2
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. 73 (December 2019)	13 January 2020	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

EP Conditions	Submission	Submission Date	Remark
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. 73 (December 2019)	13 January 2020	Monthly EM&A Report for Contract No. KL/2012/03

2. AIR QUALITY

Monitoring Requirements

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

Monitoring Locations

2.2 Seven designated monitoring stations were selected for air quality monitoring programme. Impact dust monitoring was conducted at six of the air quality monitoring stations (AM2, AM2(A), AM3(A), AM3(B), 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
AM3(B)	Hong Kong Family Planning Association	Rooftop (about 4/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)

2.3 The Proposal for Cessation of Construction Phase EM&A Works at Road D2 for Environmental Permits (EP) No. EP-377/2009 was approved by the EPD on 15th April 2019. The impact environmental monitoring has been ceased since 15th April 2019.

2.4 1-hr TSP and 24-hr TSP monitoring were not required for Environmental Permits (EP) No. EP-344/2009.

3. NOISE

Monitoring Requirements

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

Monitoring Locations

3.2 Five designated monitoring stations were selected for noise monitoring programme. Noise monitoring was conducted at four designated monitoring stations (M6, M7, M8 and M9). **Figure 3** shows the locations of these stations.

3.3 Construction noise monitoring at Station M6 – Holy Carpenter Primary School was rejected by the premise owner on 6th October 2014. The monitoring station has been relocated at a proposed alternative noise monitoring station M6(A) – Oblate Primary School since 10th October 2014 to carry out the monitoring works.

3.4 The proposal for alternative position of M8 (remark as M8(A)) was agreed by IEC on 20th March 2019 in accordance with the Section 2.3.9 of EM&A Manual of the Project and the Environmental Protection Department (EPD) has no major objection on the proposal.

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(A)	Po Leung Kuk Ngan Po Ling College (Site Boundary)	Ground Level (at a position 3m above the ground)
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 proposal for alternative position of M8 (remark as M8(A)) was agreed by IEC on 20th March 2019 in accordance with the Section 2.3.9 of EM&A Manual of the Project and the Environmental Protection Department (EPD) has no major objection on the proposal. The Free Field noise measurement was adopted for Station M8(A) and its baseline reference noise level was adjusted with a correction of +3dB(A).

3.5 The Proposal for Cessation of Construction Phase EM&A Works at Road D2 for Environmental Permits (EP) No. EP-377/2009 was approved by the EPD on 15 April 2019. The impact environmental monitoring has been ceased since 15 April 2019.

3.6 Noise monitoring was not required for Environmental Permits (EP) No. EP-344/2009.

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

4.2 The Proposal for Cessation of Construction Phase EM&A Works at Road D2 for Environmental Permits (EP) No. EP-377/2009 was approved by the EPD on 15 April 2019. The impact environmental monitoring has been ceased since 15 April 2019. The As-built drawing for Road D2 was submitted to EPD on 13 August 2019. Weekly site inspection, Landscape and Visual Monitoring and reporting for Environmental Permits (EP) No. EP-377/2009 have been ceased since 15 August 2019.

Results and Observations

4.3 All site activities were suspended from 27th January 2020 to 2nd February 2020 to reduce the risk of the spread of the novel coronavirus. The weekly environmental site inspection for the week 27th January 2020 to 31st January 2020 was cancelled.

4.4 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 B**.

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

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

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 B**.

5.2 The Proposal for Cessation of Construction Phase EM&A Works at Road D2 for Environmental Permits (EP) No. EP-377/2009 was approved by the EPD on 15 April 2019. The impact environmental monitoring has been ceased since 15 April 2019. The As-built drawing for Road D2 was submitted to EPD on 13 August 2019. Weekly site inspection, Landscape and Visual Monitoring and reporting for Environmental Permits (EP) No. EP-377/2009 have been ceased since 15 August 2019.

5.3 All site activities were suspended from 27th January 2020 to 2nd February 2020 to reduce the risk of the spread of the novel coronavirus. The weekly environmental site inspection for the week 27th January 2020 to 31st January 2020 was cancelled.

5.4 Site audits were conducted on 3rd, 10th, 15th and 23rd January 2020 in the reporting month. The monthly IEC audit on 31th January 2020 was postponed to 7th February 2020. No non-compliance was observed during the site audits.

Status of Environmental Licensing and Permitting

5.5 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-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

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

5.7 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

5.8 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 for EP-344/2009

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	--	--	**--**
Air Quality	3rd January 2020	Reminder: Dusty material should be covered by impervious material at site office.	Dusty material was cleared.
Noise	--	--	**--**
Waste/Chemical Management	3rd January 2020	Reminder: Drip tray should be provided for chemical storage at site office.	Drip tray was provided for chemical storage.
	10th January 2020	Reminder: General refuse should be disposed of properly at site office.	General refuse were cleared.
	15th January 2020	Bunded storage area should be provided for chemical containers at site office.	Chemical containers were cleared.
Landscape and Visual	--	--	**--**
Permits /Licences	--	--	**--**

Summary of Mitigation Measures Implemented

5.9 All site activities were suspended from 27th January 2020 to 2nd February 2020 to reduce the risk of the spread of the novel coronavirus. The weekly environmental site inspection for the week 27th January 2020 to 31st January 2020 was cancelled. The monthly IEC audit on 31th January 2020 was postponed to 7th February 2020. The summary of mitigation measures will be recorded in the next reporting month.

5.10 An updated summary of the EMIS is provided in **Appendix D**.

Implementation Status of Event Action Plans

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

Environmental Monitoring

5.12 The Cessation of Impact Environmental Monitoring Works (Construction Phase) was approved by the EPD. Impact Environmental Monitoring was ceased since 15th April 2019.

Landscape and visual

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

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

5.14 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 E**.

6. FUTURE KEY ISSUES

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

- Daily Cleaning
- Weeding at roadside planting areas
- Painting cladding at PS2
- Installing steel platforms at PS2
- Plumbing works for irrigation system

6.2 The tentative construction program for the Project is provided in **Appendix G.**

Key Issues for the Coming Month

6.3 Key environmental issues in the coming month include:

- Dust generation from stockpiles of dusty materials, exposed site area and excavation works;
- 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; and
- Noise from operation of the equipment, especially for machinery on-site.

6.4 The tentative program of major site activities and the impact prediction and environmental mitigation measures for the coming two months, i.e. February 2020 and March 2020 are summarized as follows:

Table 6.1 Summary of the tentative program of major site activities, the impact prediction and control measures for February 2020 and March 2020

Construction Works	Major Impact Prediction	Control Measures
As mentioned in Section 6.1	Air quality impact (dust)	a) Covering stockpiles with tarpaulin or similar means;
	Water quality impact (surface run-off)	b) Provision of measures to prevent discharge into the stream;
	Noise Impact	c) Controlling the number of plants use on site; and d) Regular maintenance of machines.

7. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

7.1 The Proposal for Cessation of Construction Phase EM&A Works at Road D2 for Environmental Permits (EP) No. EP-377/2009 was approved by the EPD on 15 April 2019. The impact environmental monitoring has been ceased since 15th April 2019. The As-built drawing for Road D2 was submitted to EPD on 13 August 2019. Weekly site inspection, Landscape and Visual Monitoring and reporting for Environmental Permits (EP) No. EP-377/2009 have been ceased since 15 August 2019.

7.2 Weekly site inspection, Landscape and Visual Monitoring and reporting will be remained until the completion of Landscape Works for Environmental Permits (EP) No. EP-344/2009.

Complaints, Notification of any Summons and Prosecution Received

7.3 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 E**.

Recommendations

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

Air Quality Impact
- To implement dust suppression measures on stockpiles.

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.

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

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.

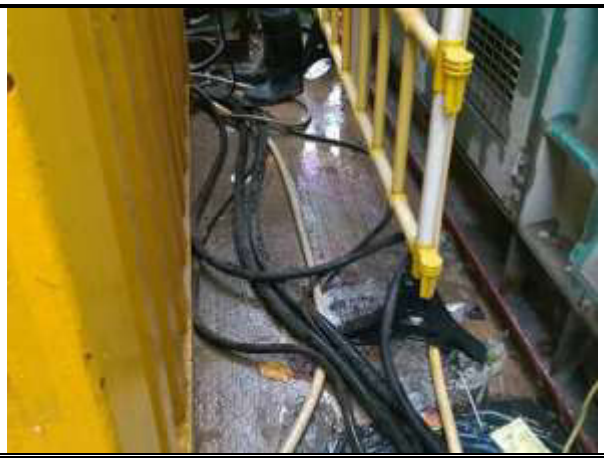
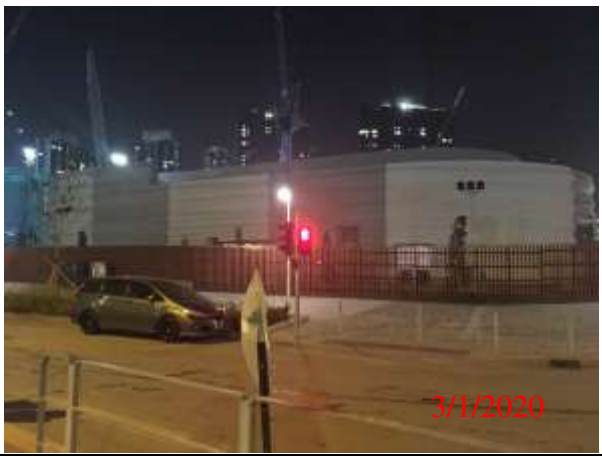
Effectiveness of Environmental Management

7.5 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 B**.

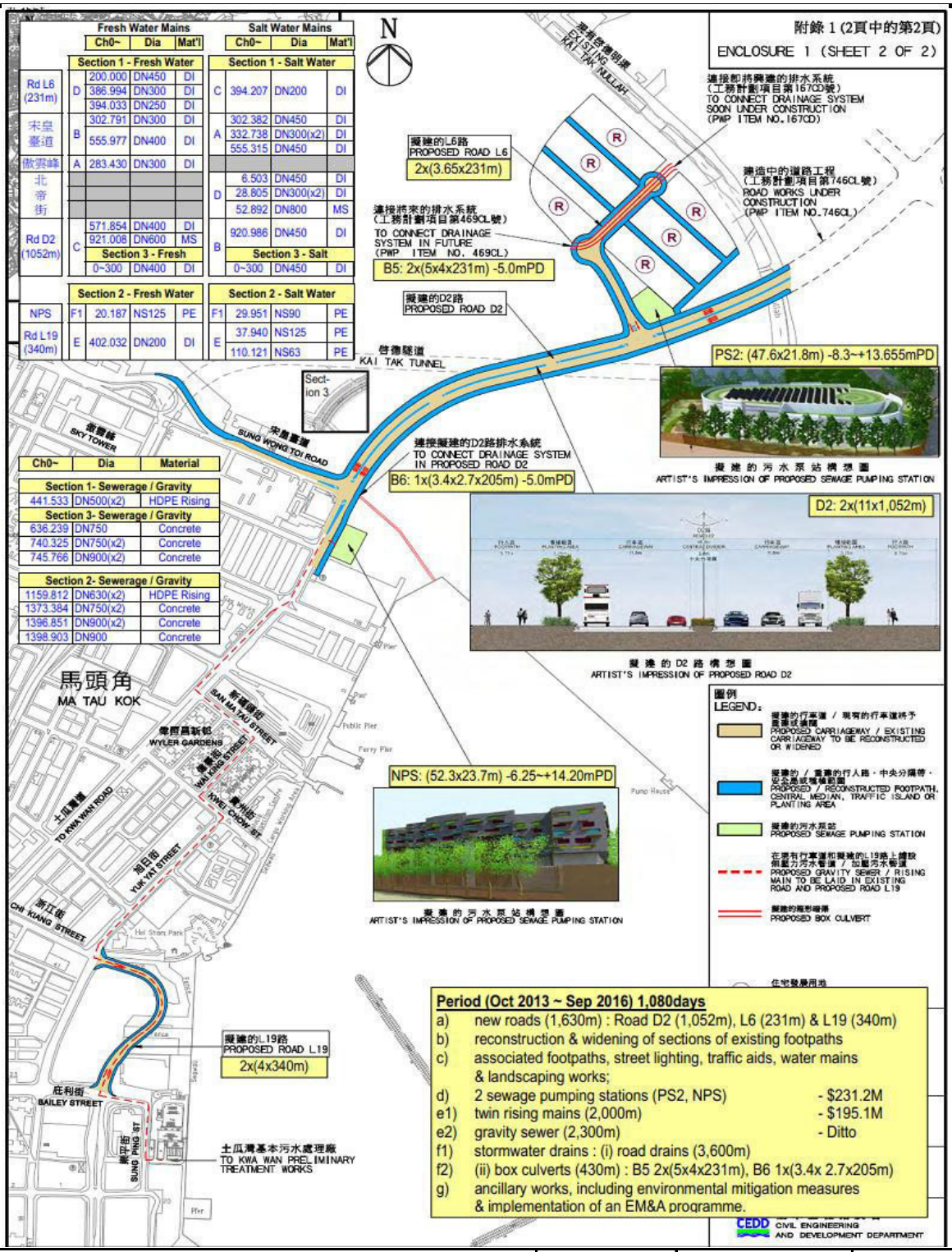
7.6 The effectiveness of environmental management is satisfactory as the above recommendations are met. Some of the examples of mitigation measures for the following recommendations are given in **Table 7.1** below.

- 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.

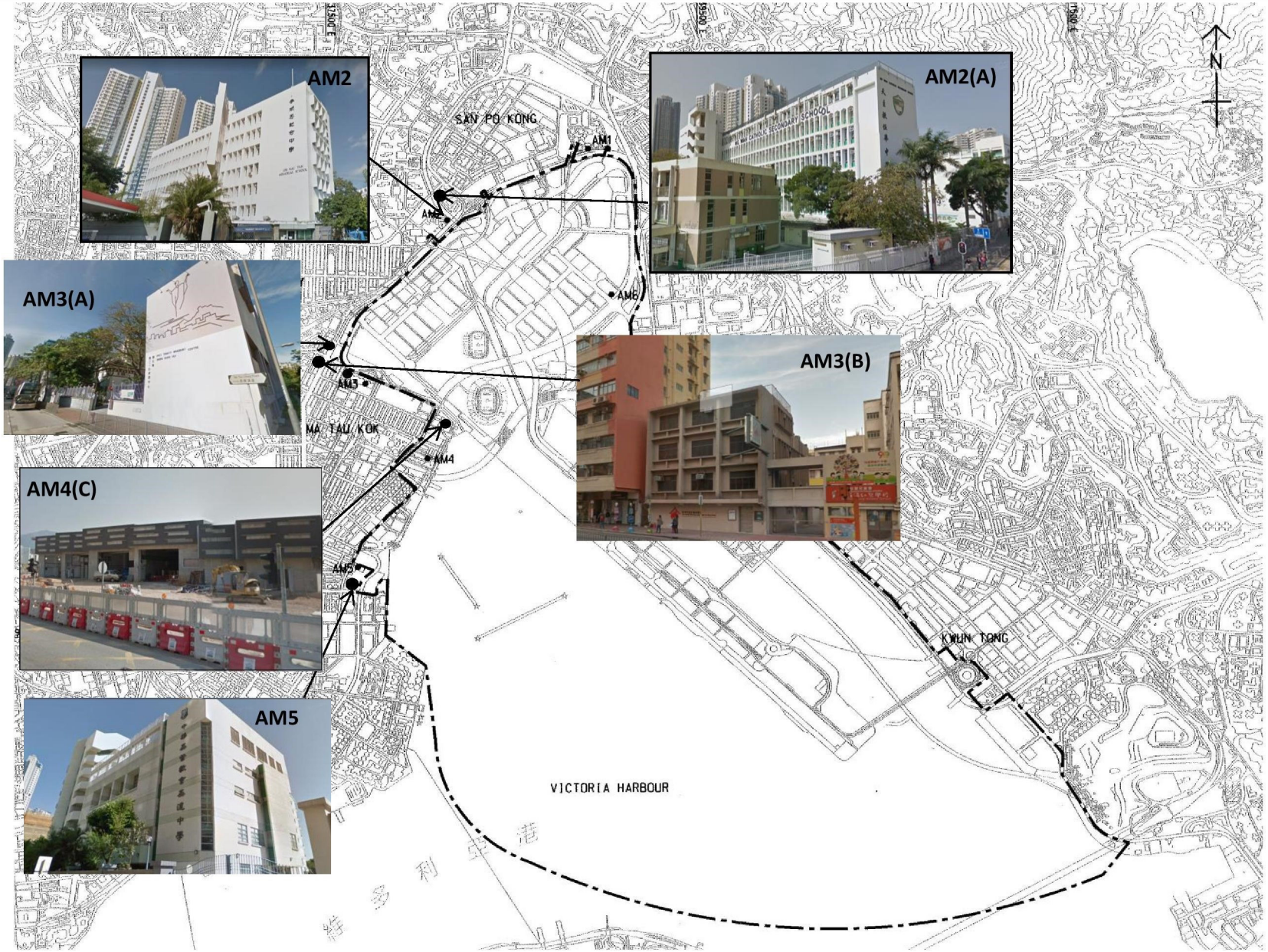
Table 7.1 Examples of Mitigation Measures for Environmental Recommendations

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

FIGURES

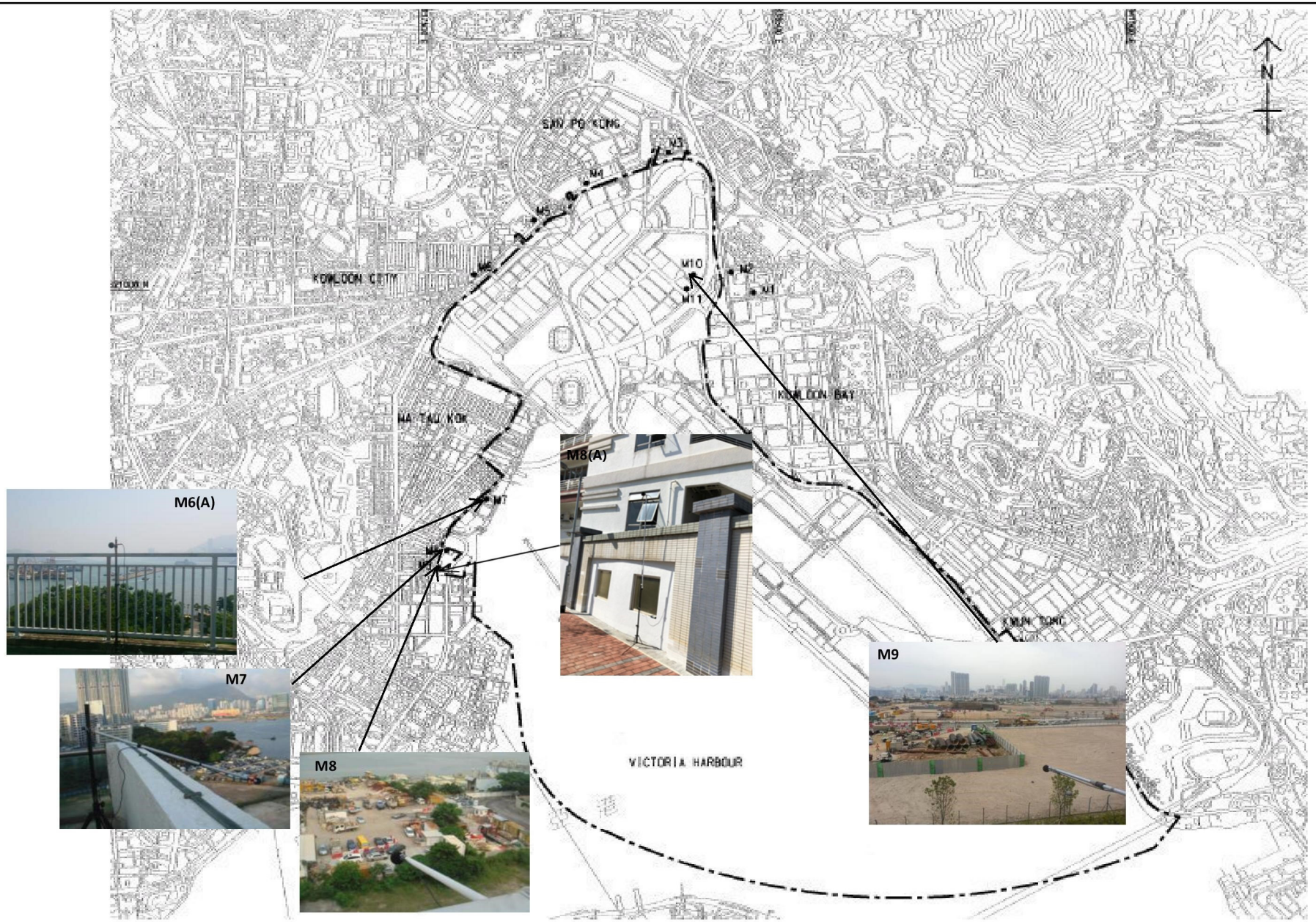


Title	KL/2012/03 - Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area	Scale N.T.S	Project No. MA13056	WELLAB 匯力 consulting . testing . research
	Site Layout Plan	Date Sep-13	Figure 1	



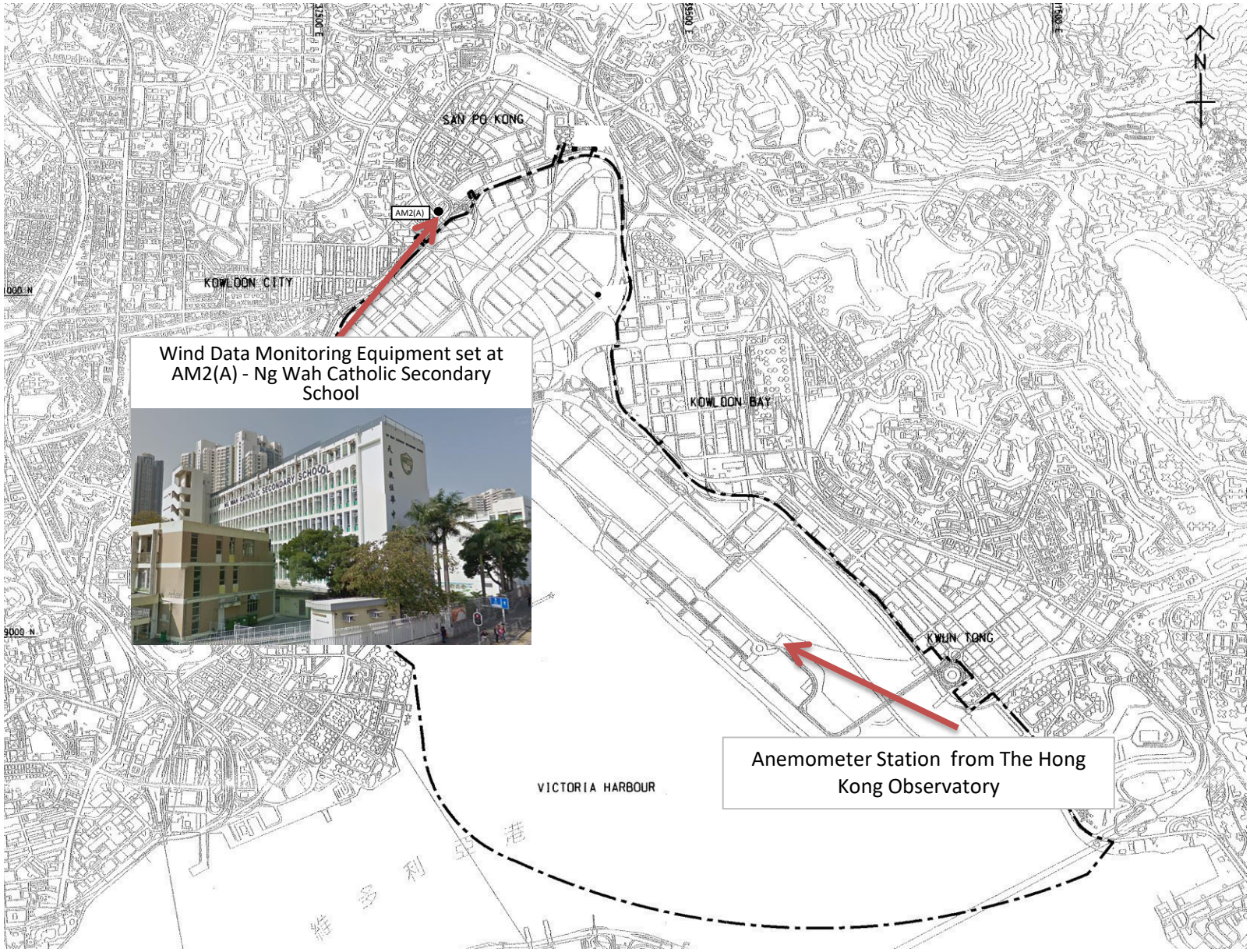
Title	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Air Quality Monitoring Stations under this Project	Scale: N.T.S Date: Dec-17	Project No.: MA13056 Figure: 2

WELLAB 匯力
consulting . testing . research



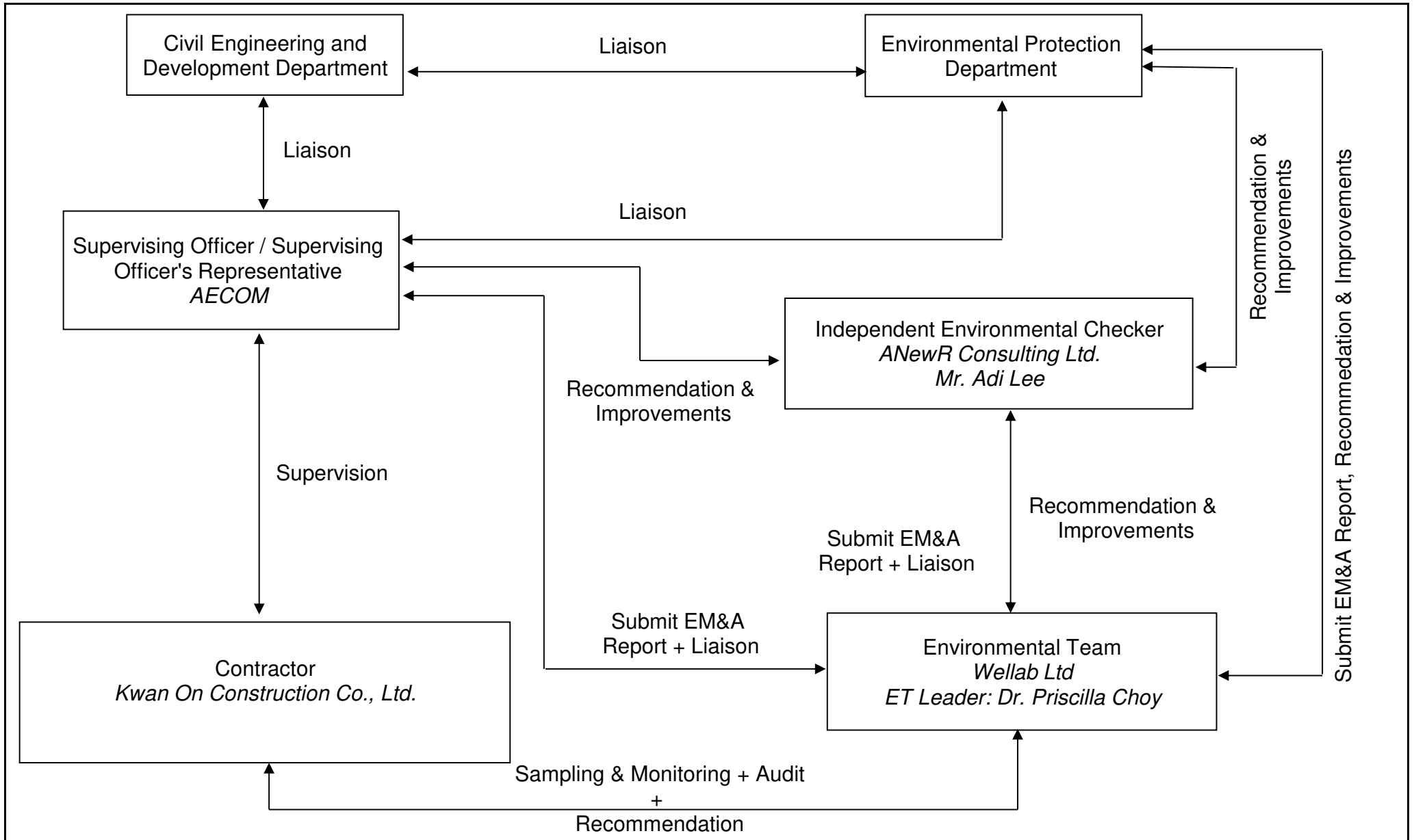
Title	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Noise Monitoring Stations under this Project	Scale: N.T.S Date: Dec-16	Project No.: MA13056 Figure: 3

WELLAB 匯力
consulting . testing . research



Title	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area	Scale: N.T.S	Project No.: MA13056
	Location of Wind Data Monitoring Equipment	Date: Aug-17	Figure: 4

WELLAB 匯力 consulting . testing . research



Title	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Management Structure	Scale N.T.S Date JAN-2019	Project No. MA13056 Figure 5	WELLAB 匯力 consulting . testing . research

APPENDIX A
ACTION AND LIMIT LEVELS

Appendix A - Action and Limit Levels

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

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

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

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

Table A-3 Action and Limit Levels for Construction Noise

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

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

APPENDIX B
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200103
Date	3 January 2020
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
200103-R02	• Dusty material should be covered by impervious material at site office.	C 7
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
200103-R01	• Drip tray should be provided for chemical storage at site office.	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 session (Ref. No. 191224), no environmental deficiency was observed during site inspection.	

	Name	Signature	Date
Recorded by	Kenneth Leung		3 January 2020
Checked by	Dr. Priscilla Choy		6 January 2020

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200110
Date	10 January 2020
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
200110-R01	• General refuse should be disposed of properly at site office.	E 1iii
	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. 200103), no environmental deficiency was observed during site inspection.	

	Name	Signature	Date
Recorded by	Kenneth Leung	Leung	13 January 2020
Checked by	Dr. Priscilla Choy		13 January 2020

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200115
Date	15 January 2020
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
200115-O01	• Bunded storage area should be provided for chemical containers at site office.	E 3i
	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. 200110), all environmental deficiency was rectified/improved by the Contractor.	

	Name	Signature	Date
Recorded by	Kenneth Leung	Leung	15 January 2020
Checked by	Dr. Priscilla Choy	WJ	16 January 2020

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200123
Date	23 January 2020
Time	10:30 – 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	
	• 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. 200115), all environmental deficiency was rectified/improved by the Contractor.	

	Name	Signature	Date
Recorded by	Kenneth Leung		24 January 2020
Checked by	Dr. Priscilla Choy		24 January 2020

APPENDIX C
EVENT ACTION PLANS

Appendix C - Event Action Plans

Event/Action Plan for Air Quality

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

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

Appendix C - Event Action Plans

Event/Action Plan for Construction Noise

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

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

Appendix C - Event Action Plans

Event/Action Plan for Landscape and Visual

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

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

APPENDIX D
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)

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

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

Construction Noise	Use of quiet PME, movable barriers barrier for Asphalt Paver, Breaker, Excavator and Hand-held breaker and full enclosure for Air Compressor, Bar Bender, Concrete Pump, Generator and Water Pump	^
	Good Site Practice: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.	^
	• Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program.	N/A(1)
	• 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 1I1; and	N/A
	(ii) Setback of building about 5m from site boundary.	N/A
	Setback of building about 35m to the northwest direction at 1L3 and 5m at Site 1L2.	N/A
	(i) avoid any sensitive façades with openable window facing the existing Kowloon City Road network; and	N/A
	(ii) for the sensitive facades facing the To Kwa Wan direction, either setback the facades by about 5m to the northeast direction or do not provide the facades with openable window.	N/A

	(i) avoid any sensitive facades with openable window facing the existing To Kwa Wan Road or (ii) provision of 17.5m high noise tolerant building fronting To Kwa Wan Road and restrict the height of the residential block(s) located at less than 55m away from To Kwa Wan Road to no more than 25m above ground. (i) avoid any sensitive facades with openable window facing the slip road connecting Prince Edward Road East and San Po Kong or other alternative mitigation measures and at-source mitigation measures for the surrounding new local roads to minimise the potential traffic noise impacts from the slip road	N/A N/A N/A
	All the ventilation fans installed in the below will be provided with silencers or acoustics treatment. (i) SPS (ii) ESS (iii) Tunnel Ventilation Shaft (iv) EFTS depot Installation of retractable roof or other equivalent measures	N/A N/A N/A N/A N/A
Construction Water Quality	The following mitigation measures are proposed to be incorporated in the design of the SPS at KTD, including: • Dual power supply or emergency generator should be provided at all the SPSs to secure electrical power supply; • Standby pumps should be provided at all SPSs to ensure smooth operation of the SPS during maintenance of the duty pumps; • An alarm should be installed to signal emergency high water level in the wet well at all SPSs; and • For all unmanned SPSs, a remote monitor system connecting SPSs with the control station through telemetry system should be provided so that swift actions could be taken in case of malfunction of unmanned facilities. <u>Land-based Construction</u> *Construction Runoff* Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: • use of sediment traps • adequate maintenance of drainage systems to prevent flooding and overflow	N/A N/A N/A N/A ^ ^ ^

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

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

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

	Supervisory staff should be assigned to station on site to closely supervise and monitor the works Marine water quality monitoring and audit programme shall be implemented for the proposed sediment treatment operation.	^ N/A
Construction Waste Management	Good Site Practices It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. Recommendations for good site practices during construction activities include: • Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site • Training of site personnel in proper waste management and chemical waste handling procedures • Provision of sufficient waste disposal points and regular collection for disposal • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers • A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites) Waste Reduction Measures Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include: • Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal • Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force • Any unused chemicals or those with remaining functional capacity should be recycled • Proper storage and site practices to minimise the potential for damage or contamination of construction materials	^ ^ * ^ ^ ^ ^ ^ ^ *

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

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

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

APPENDIX E
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 E – Summary of environmental complaint, warning, summon and notification of successful prosecution

Reporting Month: January 2020

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 F
WASTE GENERATED 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 January 2020 (year) (in tons)

Month	Total Disposal Loads	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
			Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse
	(No.s)	(in tons)	0	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)
2013 (Oct - Dec) Sub-Total	108	463.69	0	0	0	0	0	0	0	0	0	463.69
2014 (Jan – Dec) Sub-Total	24	16925.7	0	0	16798.93	83.66	1804.27	0	0	0	0	43.11
2015 (Jan – Dec) Sub-Total	284	81859.97	0	0	38291.91	43457.21	19920	0	0	0	0	310.26
2016 (Jan – Dec) Sub-Total	3369	50762.64	0	0	0	49894.67	4020	0	0	0	0	867.95
2017 (Jan – Dec) Sub-Total	2737	39615.16	0	0	0	38996.26	0	0	0	0	0	603.11
2018 (Jan – Dec) Sub-Total	566	7483.57	0	0	0	6803.57	0	0	0	0	0	680
2019 (Jan – Dec) Sub-Total	88	396.28	0	0	0	0	0	0	0	0	0	396.28
Jan-20	2	6.85	0	0	0	0	0	0	0	0	0	6.85
Feb-20												
Mar-20												
Apr-20												
May-20												
Jun-20												
Total	7178	197513.86	0	0	55090.84	139235.37	25744.27	0	0	0	0	3371.25

APPENDIX G
CONSTRUCTION PROGRAMME

		2020															
		Jan				Feb				Mar				Apr			
		7	14	21	31	7	14	21	31	7	14	21	29	7	14	21	31
1	Sung Wong Tai Road																
	Plumbing and Drainage																
	Base course																
	Asphalt laying																
	Road Marking																
	Planting																
	Resurfacing																
	Temp. Traffic Arrangement																
	Scraping and asphalt laying																
2	Pump Station NPS and PS2																
	NPS : FSI																
	Scada system test																
	Three days test																
	Recycle wood installation																
	Painting																
	Window Glass installation																
	External lighting & CCTV																
	Planting																
	Made good defects																
	Installing steel platforms																
3	PS2 : FSI																
	Scada system test																
	Benching																
	Three days test																
	Fall arrest system																
	Cladding																
	Painting cladding																
	Fence wall																
	External lighting & CCTV																
	Planting																
	Installing steel platforms																
4	Landscaping (Patch up)																
5	Road L6 footpath																

FUGRO TECHNICAL SERVICES LIMITED

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

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

Appendix B

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

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

Civil Engineering and Development Department

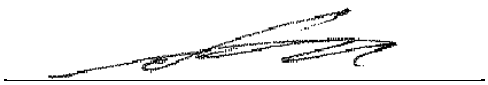
EP-337/2009 & EP-445/2013/A

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
January 2020

(Version 1.1)

Approved By 

(Environmental Team Leader)

REMARKS:

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

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

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

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

Our ref: 6-2-2020

6-2-2020 By email: clive.cheng@aecom-ktd.com and By hand

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

Dear Mr. Cheng,

Re: Contract No. KL/2014/01 (Environmental Permit Nos. EP-337/2009 and EP-445/2013/A)
Kai Tak Development –Stage 2 Infrastructure Works for Developments at Southern Part of the Former Runway
Monthly EM&A report for January 2020

Reference is made to the Environmental Team's submission of the draft Monthly EM&A Report (version 1.1) for January 2020 provided to Independent Environmental Checker (IEC) via email dated on 6 th February 2020 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.E. Ng
Independent Environmental Checker

c.c.	CEDD	Mr. CHU Chi Hong, Keith	(By email: keithchchu@cedd.gov.hk)
	AECOM	Mr. Anthony Lok	(By email: anthony.lok@aecom-ktd.com)
	CEC-CCC	Mr. Eric Fong	(By email: eric-cs-fong@continental-engineering.com)
	Cinotech	Mr K.S Lee	(By email: ks.lee@cinotech.com.hk)

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

bsi. ISO 9001 Quality Management FS 681274 | ISO 14001 Environmental Management EMS 717625 | ISO 45001 Occupational Health and Safety Management OHS 717629

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1
Introduction 1
Environmental Monitoring Works 1
Environmental Licenses and Permits 2
Key Information in the Reporting Month 2
Future Key Issues 2

1. INTRODUCTION **3**

Background 3
Project Organizations 4
Construction Activities undertaken during the Reporting Month 4
Summary of EM&A Requirements 5

2. AIR QUALITY **6**

Monitoring Requirements 6
Observations 6

3. NOISE **7**

Monitoring Requirements 7
Observations 7

4. LANDSCAPE AND VISUAL **8**

Monitoring Requirements 8
Results and Observations 8

5. ENVIRONMENTAL AUDIT **9**

Site Audits 9
Status of Environmental Licensing and Permitting 9
Status of Waste Management 10
Implementation Status of Environmental Mitigation Measures 10
Summary of Mitigation Measures Implemented 11
Implementation Status of Event Action Plans 11
Summary of Complaint, Warning, Notification of any Summons and Successful Prosecution 11

6. FUTURE KEY ISSUES **12**

7. CONCLUSIONS AND RECOMMENDATIONS **14**

Conclusions 14
Recommendations 14

LIST OF TABLES

Table I	Non-compliance Recorded for the Project in the Reporting Month
Table II	Summary Table for Key Information in the Reporting Month
Table 1.1	Key Project Contacts
Table 1.2	Construction Programme Showing the Inter-Relationship with Environmental Protection/Mitigation Measures
Table 5.1	Summary of Environmental Licensing and Permit Status
Table 5.2	Observations and Recommendations of Site Inspections

LIST OF FIGURES

Figure 1	Site Layout Plan

LIST OF APPENDICES

A	Action and Limit Levels
B	Summary of Exceedance
C	Site Audit Summary
D	Event Action Plans
E	Environmental Mitigation Implementation Schedule (EMIS)
F	Summaries of Environmental Complaint, Warning, Summon and Notification of Successful Prosecution
G	Waste Generated Quantity

EXECUTIVE SUMMARY

Introduction

1. This is the 46th 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 in January 2020.

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

3. The major site activities undertaken in the reporting month included:
   - TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
   - Construction of outfalls;
   - Laying of paving blocks for footpath;
   - Erection of noise barrier panels;
   - Planting works along footpath and at deck level;
   - Architectural features works at landscaped deck and ground floor open space,
   - E&M works, and
   - Construction of pedestrian streets.

Environmental Monitoring Works

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

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

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

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

Environmental Monitoring for Air Quality and Construction Noise

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

Environmental Licenses and Permits

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

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

9. Registration of Chemical Waste Producer (License: 5213-247-C4004-01).

10. Water Discharge License (License: WT00023634-2016).

11. Construction Noise Permits (Permit: GW-RE1024-19)

Key Information in the Reporting Month

12. Summary of key information in the reporting month is tabulated in **Table II**.

Table II Summary Table for Key Information in the Reporting Month

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

Future Key Issues

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

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

1. INTRODUCTION

Background

1.1 The Kai Tak Development (KTD) is located in the south-eastern part of Kowloon Peninsula, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling. It covers a land area of about 328 hectares. Stage 2 Infrastructure Works for Developments for Southern Part of the Former Runway is one of the construction stages of KTD. It contains two Schedule 2 DPs including new distributor roads serving the planned KTD and KTD Roads D3A & D4A. The general layout of the Project is shown in **Figure 1.**

1.2 One Environmental Permit (EP) No.: EP-337/2009 was issued on 23 April 2009 for new distributor roads serving the planned KTD and one Environmental Permit No.: EP-445/2013 was issued on 3 May 2013 for Kai Tak Development Roads D3A & D4A to Civil Engineering and Development Department (CEDD) as the Permit Holder. Pursuant to Section 13 of the EIAO, the Director of Environmental Protection Department amended the Environmental Permit No.: EP-445/2013 based on the Application No. VEP-449/2014 and the Environmental Permit (No.: EP-445/2013/A) was issued on 13 August 2014.

1.3 A study of environmental impact assessment (EIA) was undertaken to consider the key issues of air quality, noise, water quality, waste, land contamination, cultural heritage and landscape and visual impact, and identify possible mitigation measures associated with the works. EIA Reports (Register No. AEIAR-130/2009 and AEIAR-170/2013) were approved by the Environmental Protection Department (EPD) on 4 March 2009 and 3 May 2013 respectively.

1.4 Cinotech Consultants Limited (Cinotech) was commissioned by Civil Engineering and Development Department (CEDD) to undertake the role of the Environmental Team (ET) for the Contract No. KL/2014/01 – Stage 2 Infrastructure Works for Developments at the Southern Part of the Former Runway. The construction work under KL/2014/01 comprises the construction of part of the Road D4 under the EP (EP-337/2009) and the construction of Roads D3A & D4A under the EP (EP-445/2013/A).

1.5 Cinotech Consultants Limited was commissioned by Civil Engineering and Development Department (CEDD) to undertake the Environmental Monitoring and Audit (EM&A) works for the Project. The construction commencement of this Contract is on 13 April 2016. This is the 46th Monthly EM&A report summarizing the EM&A works for the Project in January 2020.

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. Keith Chu	Senior Engineer	3579 2450	3579 4516
		Ms. Adonia Yung	Engineer	3579 2124	
AECOM	Supervising Officer	Mr. Clive Cheng	CRE	3746 1801	2798 0783
Cinotech	Environmental Team	Mr. K S Lee	Environmental Team Leader	2151 2091	3107 1388
		Ms. Betty Choi	Audit Team Leader	2151 2072	
KSMC	Independent Environmental Checker	Dr. C. F. Ng	IEC	2618 2166	2120 7752
CCJV	Contractor	Mr. Jack Lai	Environmental Officer	2960 1398	2960 1399

Construction Activities undertaken during the Reporting Month

1.9 The site activities undertaken in the reporting month included:

- TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
- Construction of outfalls;
- Laying of paving blocks for footpath;
- Erection of noise barrier panels;
- Planting works along footpath and at deck level;
- Architectural features works at landscaped deck and ground floor open space,
- E&M works, and
- Construction of pedestrian streets.

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

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

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

Summary of EM&A Requirements

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

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

1.12 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 5 of this report.

2. AIR QUALITY

Monitoring Requirements

2.1 With reference to the same principle of EIA report of the Project, air quality monitoring station should be provided at the Air Sensitive Receivers (ASR) within 500 m from the boundary of this Project. Since the opening of the Centre of Excellence in Paediatrics (Children's Hospital) on 18 December 2019, the hospital is considered as the only relevant monitoring location and therefore the monitoring is required.

2.2 As the monitoring works for the hospital is covered by the Contract KL/2014/03 (Kai Tak Development Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway) at the monitoring station (KTD1a), the corresponding monitoring results for January 2020 should be accessed in the EM&A report for the reporting month. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Observations

2.3 No monitoring for air quality is required for this report.

2.4 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, construction noise monitoring station should be provided at the Noise Sensitive Receivers (NSR) within 300 m from the boundary of this Project. Since the opening of the Centre of Excellence in Paediatrics (Children's Hospital) on 18 December 2019, the hospital is considered as the only relevant monitoring location and therefore the monitoring is required.

3.2 As the monitoring works for the hospital is covered by the Contract KL/2014/03 (Kai Tak Development Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway) at the monitoring station (KTD1a), the corresponding monitoring results for January 2020 should be accessed in the EM&A report for the reporting month. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Observations

3.3 No monitoring for construction noise is required for this report. No Action/Limit Level exceedance was recorded. The summary of exceedance record in reporting month is shown in **Appendix B**.

3.4 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 3, 8, 16 & 22 January 2020 in the reporting month. IEC joint site inspection was conducted on January 2020. 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-RE1024-19	19/12/19	13/1/2020	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work other than percussive pilling and performing prescribed construction work.	Expired on 13 January 2020

Status of Waste Management

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

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

Implementation Status of Environmental Mitigation Measures

5.6 During site inspections in the reporting month, no non-conformance was identified. ET weekly site inspections were carried out during the reporting month and the observations and recommendations are summarized in Table 5.2.

Table 5.2 Observations and Recommendations of Site Inspections

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	--	--	--
Air Quality	8 January 2020	Reminder: Incomplete covering stockpile was observed at Outfall A.	The condition was observed to be improved/rectified by the contractor during the audit session on 16 January 2020.
Noise	--	--	--
Waste/ Chemical Management	--	--	--
Landscape and Visual			
Permits/ Licenses			

Summary of Mitigation Measures Implemented

5.7 An updated summary of the EMIS is provided in **Appendix E**.

Implementation Status of Event Action Plans

5.8 The Event Action Plans for noise and landscape and visual are presented in **Appendix D**. No Event Action Plan for air quality is considered necessary.

Construction Noise

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

Landscape and visual

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

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

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

6. FUTURE KEY ISSUES

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

- TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
- Construction of outfalls;
- Laying of paving blocks for footpath;
- Erection of noise barrier panels;
- Planting works along footpath and at deck level;
- Architectural features works at landscaped deck and ground floor open space,
- E&M works, and
- Construction of pedestrian streets.

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. February and March 2020 are summarized as follows:

Construction Works	**Major Impact Prediction**	**Control Measures**
As mentioned in Section 7.1	Air quality impact (dust)	a) Frequent watering of haul road and unpaved/exposed areas; b) Frequent watering or covering stockpiles with tarpaulin or similar means; and c) Watering of any earth moving activities.
	Water quality impact (surface run-off)	a) Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; b) Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; c) Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and d) Provision of measures to prevent discharge into the stream.

Construction Works	Major Impact Prediction	Control Measures
	Noise Impact	a) Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; b) Controlling the number of plants use on site; c) Regular maintenance of machines; and d) Use of acoustic barriers if necessary.

7. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

7.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken in January 2020.

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.

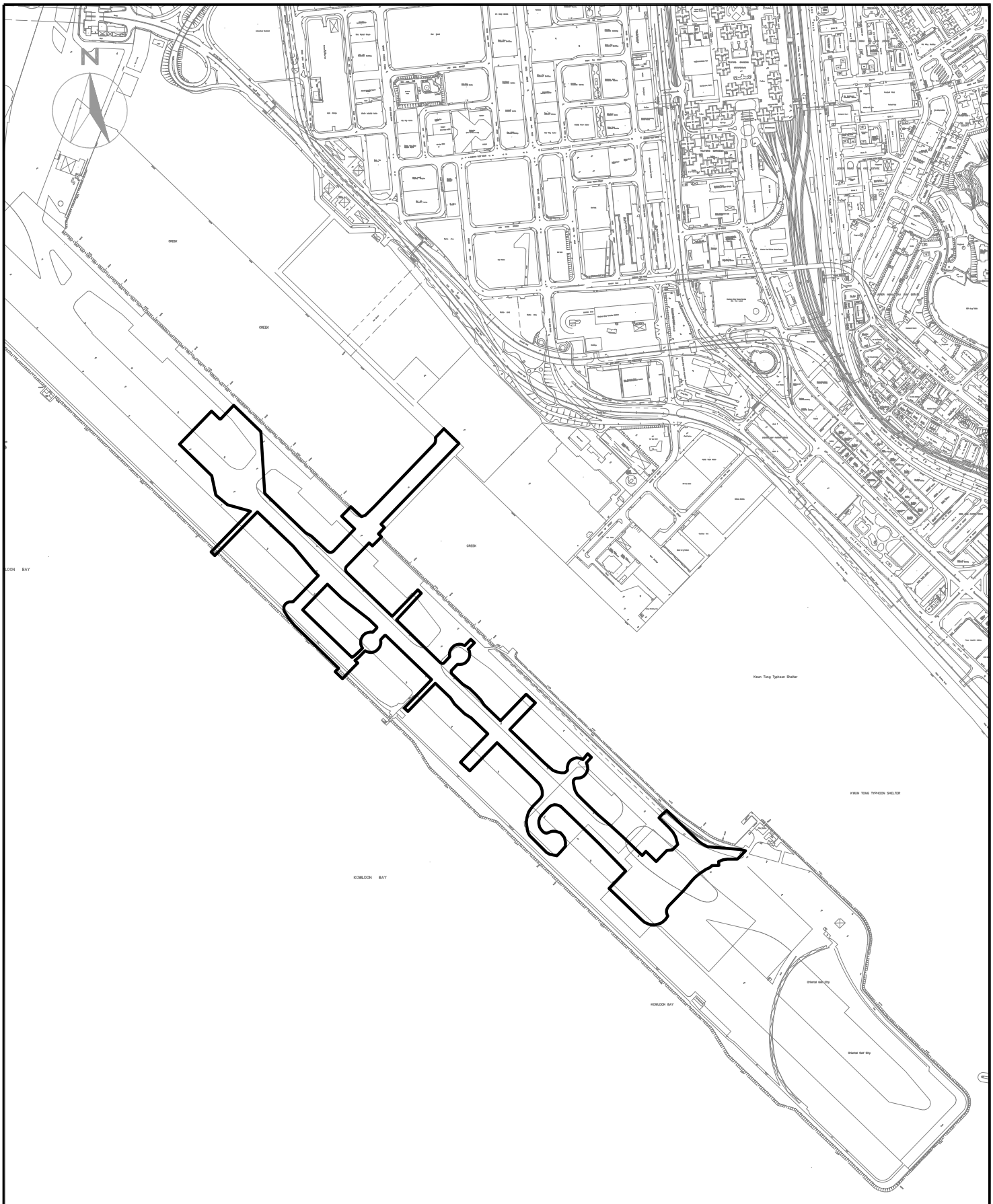
Recommendations

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

Air Quality

- To water regularly to reduce emission of dust.
- To properly cover the dusty stockpile to prevent dust generation.

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 Air Quality Monitoring

Monitoring Station	Parameter	Action Level ($\mu g/ m^3$)	Limit Level[(1)(2)] ($\mu g/ m^3$)
KTD1a	24-hr TSP	177	260
KTD1a*	1-hr TSP	285	500

* 1-hr TSP monitoring should be required in case of complaints.

Table A-2 Action and Limit Levels for Construction Noise Monitoring

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: January 2020

(A) Exceedance Record for Construction Noise

(NIL in the reporting month)

(B) Exceedance Record for Landscape and Visual

(NIL in the reporting month)

APPENDIX C
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200103
Date	3 January 2020 (Friday)
Time	14:00 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licenses	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow up on the previous audit session (Ref. No:191224): All environmental deficiencies identified in the previous audit were rectified/improved by the Contractor	

.

	Name	Signature	Date
Recorded by	Joseph Lau		6 January 2020
Checked by	Colman Wong		8 January 2020

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200108
Date	8 January 2020 (Wednesday)
Time	14:00 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
200108-R1	• Incomplete covering stockpile was observed at Outfall A.	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 /Licenses	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow up on the previous audit session (Ref. No:200103): No environmental deficiencies were identified in the previous inspection.	

.

	Name	Signature	Date
Recorded by	Joseph Lau		13 January 2020
Checked by	Colman Wong		14 January 2020

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200116
Date	16 January 2020 (Thursday)
Time	14:30 – 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 /Licenses	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow up on the previous audit session (Ref. No:200108): All environmental deficiencies identified in the previous audit were rectified/improved by the Contractor	

.

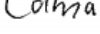
	Name	Signature	Date
Recorded by	Joseph Lau		17 January 2020
Checked by	Colman Wong		17 January 2020

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200122
Date	22 January 2020 (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 /Licenses	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow up on the previous audit session (Ref. No:200122): All environmental deficiencies identified in the previous audit were rectified/improved by the Contractor	

.

	Name	Signature	Date
Recorded by	Joseph Lau		23 January 2020
Checked by	Colman Wong		23 January 2020

APPENDIX D
EVENT ACTION PLANS

Appendix D - Event Action Plans

Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded	4. Notify ER, IEC and Contractor; 5. Carry out investigation; 6. Report the results of investigation to the IEC, ER and Contractor; 7. Discuss with the IEC and Contractor on remedial measures required; 8. Increase monitoring frequency to check mitigation effectiveness. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals. (The above actions should be taken within 2 working days after the exceedance is identified)
Limit Level being exceeded	1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)

Appendix D - Event Action Plans

Event/Action Plan for Landscape and Visual

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

APPENDIX E
ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

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

EIA Ref.	Mitigation Measures	Status
Construction Air Quality		
S3.2 (AEIAR-130/2009)	8 times daily watering of the work site with active dust emitting activities.	^
S4.8 (AEIAR-170/2013)	Control measures stipulated in the approved KTD Schedule 3 EIA Report should be strictly followed.	^
S3.2 (AEIAR-130/2009) and S4.8 (AEIAR-170/2013)	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.	
	● Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.	^
	● Misting for the dusty material should be carried out before being loaded into the vehicle.	^
	● Any vehicle with an open load carrying area should have properly fitted side and tail boards.	^
	● Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.	^
	● The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation.	^
	● The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways insider the site. Onsite unpaved roads should be compacted and kept free of lose materials.	^
	● Vehicle washing facilities should be provided at every vehicle exit point.	^

EIA Ref.	Mitigation Measures	Status
	● The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores. ● Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet. ● Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides; and ● Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	^ ^ ^ ^
Construction Noise		
S3.3 (AEIAR-130/2009)	Use of quiet PME, movable barriers barrier for Asphalt Paver, Breaker, Excavator and Hand-held breaker and full enclosure for Air Compressor, Bar Bender, Concrete Pump, Generator and Water Pump.	^
S3.3 (AEIAR-130/2009)	Good Site Practice: ● Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. ● Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. ● Mobile plant, if any, should be sited as far away from NSRs as possible. ● Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. ● Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. ● Material stockpiles and other structures should be effectively utilized, wherever	^ ^ ^ ^ ^

EIA Ref.	Mitigation Measures	Status
	practicable, in screening noise from on-site construction activities.	
S3.3 (AEIAR-130/2009)	Scheduling of Construction Works during School Examination Period	N/A
S3.8 (AEIAR-170/2013)	Provision of a landscaped deck along Roads D3A & D4A.	N/A
S3.8 (AEIAR-170/2013)	● Provision of about 1090 m length of vertical noise barrier (connected to the deck) at Roads D3A & D4A; ● Provision of about 60 m length of overhang vertical noise barrier (connected to the deck) at Road D4A; and ● Provision of staircases with noise barriers next to Sites 4A1 and 4B1 It should be noted that the exact length of the mitigation measures would be subject to minor refinement during the detailed design stage.	N/A N/A N/A
S3.8 (AEIAR-170/2013)	Non-noise sensitive use areas within Sites 4A1 and 4B1.	N/A
S3.8 (AEIAR-170/2013)	Avoid sensitive façade with openable window facing Road D3A.	N/A
Construction Water Quality		
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	<u>Construction Runoff</u> Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: ● use of sediment traps ● adequate maintenance of drainage systems to prevent flooding and overflow	 ^ ^

EIA Ref.	Mitigation Measures	Status
	Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	^
	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	^
S5.8 (AEIAR-170/2013)	Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.	^
	Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	^
S3.4 (AEIAR-130/2009)	Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m^3 capacity, are recommended as a general mitigation measure	^

EIA Ref.	Mitigation Measures	Status
	which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	^
	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.	^
S3.4 (AEIAR-130/2009)	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events.	^
	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	^
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting	^

EIA Ref.	Mitigation Measures	Status
	from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	
S5.8 (AEIAR-170/2013)	<u>Boring and Drilling Water</u> Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	^
	<u>Acid Cleaning, Etching and Pickling Wastewater</u> Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers	^
S3.4 (AEIAR-130/2009)	<u>Drainage</u> It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea.	^
S3.4 (AEIAR-130/2009)	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	^

EIA Ref.	Mitigation Measures	Status
S3.4 (AEIAR-130/2009)	All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour WCZ.	^
S5.8 (AEIAR-170/2013)	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distance of 100 m should be maintained between the discharge points of construction site effluent and the existing seawater intakes and the planned WSR mentioned in S5.3.1 as appropriate. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the relevant WPCO licence which is under the ambit of regional office (RO) of EPD.	^
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	<u>Sewage Effluent</u> Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	^
S5.8	Notices should be posted at conspicuous locations to remind the workers not to discharge	^

EIA Ref.	Mitigation Measures	Status
(AEIAR-170/2013)	any sewage or wastewater into the surrounding environment. Regular environmental audit of the construction site will provide an effective control of any malpractices and can encourage continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the project would not cause water pollution problem after undertaking all required measures.	
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	<u>Stormwater Discharges</u> Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes.	^
	<u>Debris and Litter</u> In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised and that disposal of any solid materials, litter or wastes to marine waters does not occur.	^
S5.8 (AEIAR-170/2013)	<u>Accidental Spillage</u> Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation, should be observed and complied with for control of chemical wastes. Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	^

EIA Ref.	Mitigation Measures	Status
	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: ● Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. ● Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. ● Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	^ ^ ^ ^
Construction Waste Management		
S6.7 (AEIAR-170/2013)	Prepare a Waste Management Plan, which becomes a part of the Environmental Management Plan, in accordance with the requirements stipulated in ETWB TC (W) No. 19/2005, approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites.	^
S3.5 (AEIAR-130/2009) and S6.7 (AEIAR-170/2013)	Good Site Practices It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. Recommendations for good site practices during construction activities include: ● Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site Training of site personnel in proper waste management and chemical waste handling procedures ● Provision of sufficient waste disposal points and regular collection for disposal	^ ^

EIA Ref.	Mitigation Measures	Status
	● Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers ● A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites) ● Regular cleaning and maintenance systems, sumps and oil interceptors ● Separation of chemical wastes for special handling and appropriate treatment	^ ^ ^ ^
	Waste Reduction Measures Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include: ● Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals ● Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal ● Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force ● Any unused chemicals or those with remaining functional capacity should be recycled ● Proper storage and site practices to minimise the potential for damage or contamination of construction materials ● Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste ● Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.	 ^ ^ ^ ^ ^ ^

EIA Ref.	Mitigation Measures	Status
S3.5 (AEIAR-130/2009)	Construction and Demolition Materials Mitigation measures and good site practices should be incorporated in the contract document to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include: ● Where it is unavoidable to have transient stockpiles of C&D material within the Project work site pending collection for disposal, the transient stockpiles shall be located away from waterfront or storm drains as far as possible. ● Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric. ● Skip hoist for material transport should be totally enclosed by impervious sheeting. ● Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site. ● The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores. ● The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle. ● All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet. ● The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading. When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 “Trip Ticket	^ * ^ ^ ^ ^ ^ ^ ^

EIA Ref.	Mitigation Measures	Status
	System for Disposal of Construction and Demolition Materials" should be included as one of the contractual requirement sand implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.	
S3.5 (AEIAR-130/2009)	General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem	^
Construction Landscape and Visual		
S3.8.12 (AEIAR-130/2009) and S7.9 (AEIAR-170/2013)	● Minimized construction area and contractor's temporary works areas. ● All existing trees should be carefully protected during construction. ● Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work. ● Control of night-time lighting. ● Erection of decorative screen hoarding. ● Reduction of construction period to practical minimum. ● Limitation of / Ensuring no run-off into surrounding landscape and adjacent seawater areas. ● Temporary or advance landscape should be provided along the temporary access roads to the Cruise Terminal until such time as road D3 is open.	^ ^ ^ ^ ^ ^ ^ ^

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.	# Recommendation was made during site audit but not yet 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: January 2020

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

Appendix 5. Monthly Summary Waste Flow Table

Name of Department: CEDD

Contract No: KL/2014/01

Monthly Summary Waste Flow Table for 2020

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	936.62	0	0	0	936.62	0	0	0	0	0	200.08
Feb											
Mar											
Apr											
May											
June											
Sub-total	936.62	0	0	0	936.62	0	0	0	0	0	200.08
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	936.62	0	0	0	936.62	0	0	0	0	0	200.08

* Transfer to alterative disposal ground at Lung Kwu Sheung Tan EPD approved recycler

FUGRO TECHNICAL SERVICES LIMITED

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

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

Appendix C

Monthly EM&A Report
For
Contract No. KL/2014/03
Kai Tak Development - Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

MONTHLY EM&A REPORT

January 2020

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/1232A
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 : Toby K. H. Wan

Reviewed by : Cyrus C. Y. Lai

Certified by :

Colin K. L. Yung
Environmental Team Leader
MateriaLab Consultants Limited

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

RAMBOLL

Ref.: CEDKTDS3EM00_0_0454L.20

13 February 2020

Hyder-Meinhardt Joint Venture
17/F, Two Harbour Square,
180 Wai Yip Street, Kwun Tong
Kowloon, Hong Kong

By Post and Email

Attention: Mr. Wong W. K., Chris

Dear Mr. Wong,

Re: Contract No. KL/2014/03 – Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway
Monthly EM&A Report for January 2020

Reference is made to the Environmental Team's submission of the Monthly EM&A Report for January 2020 (Report No. 0405/15/ED/1232A) we received by e-mail on 13 February 2020.

Please be informed that we have no adverse comment on the captioned report. We hereby verify the captioned submission according to Condition 3.3 of EP-337/2009, Condition 3.3 of EP-339/2009/A and Condition 3.4 of EP-451/2013.

Thank you for your attention. Please do not hesitate to contact us should you have any queries.

Yours sincerely,
For and on behalf of
Ramboll Hong Kong Limited

F. C. Tsang
Independent Environmental Checker

c.c.	CEDD	Attn.: Mr. Simon Kwok	Fax: 2739 0076
	Fugro	Attn.: Mr. Colin K. L. Yung	By email
	CRBC	Attn.: Mr. Dickey Yau	Fax: 2283 1689

Q:\Projects\CEDKTDS3EM00\02_Proj_Mgt\02_Corr\CEDKTDS3EM00_0_0454L.20.docx

Ramboll Hong Kong Limited 英環香港有限公司
21/F, BEA Harbour View Centre, 56 Gloucester Road, Wan Chai, Hong Kong Tel: 852.3465 2888 Fax: 852.3465 2899
www.ramboll.com

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

TABLE OF CONTENTS

EXECUTIVE SUMMARY **1**
1. INTRODUCTION **2**
2. AIR QUALITY **5**
3. NOISE **10**
4. LANDSCAPE AND VISUAL **14**
5. WASTE MANAGEMENT **15**
6. SITE INSPECTION **16**
7. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE **17**
8. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES **18**
9. FUTURE KEY ISSUES **19**
10. CONCLUSIONS **20**

FIGURES

Figure 1 Project General Layout
Figure 2 Air and Noise Monitoring Locations

LIST OF APPENDICES

Appendix A Construction Programme
Appendix B Project Organization Chart
Appendix C Action and Limit Levels for Air Quality and Noise
Appendix D Calibration Certificates of Monitoring Equipment
Appendix E Environmental Monitoring Schedules
Appendix F Air Quality Monitoring Data
Appendix G Noise Monitoring Data
Appendix H Event Action Plans
Appendix I Waste Flow Table
Appendix J Environmental Mitigation Implementation Schedule (EMIS)
Appendix K Weather and Meteorological Conditions during Reporting Month
Appendix L Cumulative statistics on Environmental Complaints, Notifications of Summons and Successful Prosecutions
Appendix M Summary of Site Audit in the Reporting Month
Appendix N Outstanding Issues and Deficiencies

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

EXECUTIVE SUMMARY

i. The Civil Engineering and Development Department HKSAR has appointed MateriaLab Consultants Limited (MCL) to undertake the Environmental Team services for the Project and implement the EM&A works.

ii. This Monthly EM&A report presents the environmental monitoring and audit works for the period between 1 January and 31 January 2020. As informed by the Contractor, major activities in the reporting month were:

- Excavation and laying of drainage pipe and manhole;
- Construction of SUS structure;
- Construction of District Cooling System;
- Utility laying;
- Removal of temporary decking and temporary road pavement;
- Construction of road base and road pavement.

Breaches of the Action and Limit Levels

iii. No Action / Limit Level exceedance was recorded for 24-hr TSP and construction noise at KTD1a, KTD2b 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 impacts.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

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 47th monthly EM&A Report which summarize the impact monitoring results and audit findings for the Project within the period between 1 January and 31 January 2020.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

1.2 Project Organization

1.2.1 The project proponent was the Civil Engineering and Development Department, HKSAR (CEDD). Hyder Meinhardt Joint Venture (HMJV) was commissioned by CEDD as the Engineer for the Project. Ramboll Hong Kong Limited was commissioned as the Independent Environmental Checker (IEC). China Road and Bridge Corporation (Hong Kong) (CRBC) was appointed as the main contractor for the construction works under the contract KL/2014/03. MateriaLab Consultants Limited (MCL) was appointed as the Environmental Team (ET) by CEDD to implement the EM&A programme for the Project.

1.2.2 The organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarized in **Table 1.1**.

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
Project Proponent (CEDD)	Engineer	Mr. Simon Kwok	3842 7140	2739 0076
Engineer's Representative (HMJV)	Chief Resident Engineer	Mr. W. K., Chris Wong	3742 3803	3742 3899
IEC (Ramboll Hong Kong Limited)	Independent Environmental Checker	Mr. F. C. Tsang	3465 2851	3465 2899
Main Contractor (CRBC)	Site Agent	Mr. Yau Kwok Kiu, Dickey	5699 4503	2283 1689
	Environmental Officer	Miss. Elena Lai	6841 3324	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;
- Construction of SUS structure;
- Construction of District Cooling System;
- Utility laying;
- Removal of temporary decking and temporary road pavement;
- Construction of road base and road pavement.

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,

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

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
Construction Noise Permit	GW-RE0556-19	12 July 2019	11 January 2020
Construction Noise Permit	GW-RE1017-19	16 December 2019	10 June 2020
Wastewater Discharge License	WT00023125-2015	6 January 2016	31 January 2021
Chemical Waste Producer License	5213-247-C1232-12	23 November 2015	Not Applicable

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

2. AIR QUALITY

2.1 Monitoring Requirement

In accordance with the approved EM&A Manuals, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required. Impact 24-hour TSP monitoring should be carried out at least once every 6 days. In case of complaints, 1-hour TSP monitoring should be carried out at least 3 times per 6 days when the highest dust impacts are likely to occur. The Action and Limit Levels of the air quality monitoring are given in **Appendix C**.

2.2 Monitoring Equipment

The 24-hour TSP air quality monitoring was performed using High Volume Air Samplers (HVS) located at each of the designated monitoring station. Portable TSP Monitors would be used in case of complaints for 1-hour TSP monitoring.

Table 2.1 summarizes the equipment used in air quality monitoring.

Table 2.1 Air Quality Monitoring Equipment

Item	Location	Brand	Model	Equipment	Serial Number
1	KER1b	Tisch	TE-5170 (TSP)	High Volume Sampler	
			TE-300-310X	- Mass Flow Controller	2037
			TE-5005X	- Blower Motor Assembly	3482
			TE-5007X	- Mechanical Timer	4488
			TE-5009X	- Continuous Flow Recorder	4371
2	KTD1a	Tisch	TE-5170 (TSP)	High Volume Sampler	
			TE-300-310X	- Mass Flow Controller	2524
			TE-5005X	- Blower Motor Assembly	4037
			TE-5007X	- Mechanical Timer	5160
			TE-5009X	- Continuous Flow Recorder	4377
3	KTD2b	Tisch	TE-5170 (TSP)	High Volume Sampler	
			TE-300-310X	- Mass Flow Controller	2618
			TE-5005X	- Blower Motor Assembly	3838
			G3031	- Mechanical Timer	2251
			G1051	- Continuous Flow Recorder	2307
4		Tisch	TE-5025A	HVS Sampler Calibrator	438320/2456
5		*Sibata	Model LD-3B	Sibata Portable TSP Monitors	NA

Note:
No complaint of air quality was received. Therefore, no impact 1-hour TSP monitoring was conducted.

2.3 Monitoring Methodology

2.3.1 24-hour TSP air quality monitoring

HVS Installation

The following guidelines were adopted during the installation of HVS:

- Sufficient support is provided to secure the samplers against gusty wind.
- No two samplers are placed less than 2 meters apart.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

- The distance between the sampler and an obstacle, such as buildings, is at least twice the height that the obstacle protrudes above the sampler.
- A minimum of 2 meters of separation from walls, parapets and penthouses is required for rooftop samples.
- A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
- No furnaces or incineration flues are nearby.
- Airflow around the samplers is unrestricted.
- The samplers are more than 20 meters from the drip line.
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

Filters Preparation

Fiberglass filters (provided by the HOKLAS accredited laboratory) shall be used (Note: these filters have a collection efficiency of larger than 99% for particles of 0.3 μm diameter). A HOKLAS accredited laboratory (ALS Technichem (HK) Pty Ltd.) is responsible for the preparation of 24-hr conditioned and pre-weighed filter papers for monitoring team.

All filters are equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature is around 25°C and not variable by more than ±3°C; the relative humidity (RH) is < 50% and not variable by more than ±5%. A convenient working RH is 40%.

Operating / Analytical Procedures

Operating / analytical procedures for the air quality monitoring are highlighted as follows:

- Prior to the commencement of the dust sampling, the flow rate of the HVS are properly set (between 0.6 m^3/min and 1.7 m^3/min) in accordance with the EM&A manual. The flow rate shall be indicated on the flow rate chart.
- The power supply shall be checked to ensure the samplers worked properly.
- On sampling, the samplers shall be operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air quality monitoring station.
- The filter holding frame is then removed by loosening the four nuts and carefully a weighted and conditioned filter is centered with the stamped number upwards, on a supporting screen.
- The filter shall be aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame is tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The shelter lid shall be closed and secured with the aluminum strip.
- The timer is then programmed. Information shall be recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- After sampling, the filter shall be removed and sent to laboratory for weighing. The elapsed time is also recorded.
- Before weighing, all filters are equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%. Weighing results are returned to MCL for further analysis of TSP concentrations collected by each filter.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

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: () in 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 KER1a) for air quality monitoring.

2.5.3 According to the approved relocation of monitoring location KER1a (EPD reference: () in EP2/K19/A/21 pt.5), the monitoring location KER1a are proposed to be relocated by alternative monitoring locations KER1b for air quality monitoring.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

2.5.4 According to the approved relocation of monitoring location KTD2a (EPD reference: () in EP2/K19/A/21 pt.6), the monitoring location KTD2a are proposed to be relocated by alternative monitoring locations KTD2b for air quality monitoring.

2.5.5 The most updated locations 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)
KTD2b	G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital)
KER1b	Site Boundary at Cheung Yip Street

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, KTD2b 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 Fung Road, Shing Cheong Road, Cheung Yip Street and the Kwun Tong By-pass were observed. The above factors may affect the monitoring results.

2.6.5 The weather conditions during the monitoring are provided in **Appendix K**.

2.6.6 The monitoring data of 24-hr TSP are summarized in **Table 2.3**. Detailed monitoring data are presented in **Appendix F**.

Table 2.3 Summary of 24-hr TSP Monitoring Results

Parameter	Monitoring Station	Average ($\mu g/m^3$)	Range ($\mu g/ m^3$)	Action Level ($\mu g/ m^3$)	Limit Level ($\mu g/ m^3$)
24-hr TSP in $\mu g/m^3$	KTD1a	56	13-80	177	260
	KTD2b	86	23-143	157	
	KER1b	59	4-99	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**.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

Table 2.4 Comparison of 24-hr TSP data with EIA predictions

Monitoring Station	Receiver Reference	Predicted Maximum 24-hour TSP Concentration ($\mu g/m^3$)	24-hour TSP concentration in January 2020 ($\mu g/m^3$)	Average 24-hour TSP concentration in January 2020 ($\mu g/m^3$)
KTD1a	KTD3	126	13-80	56
KTD2b	-	-	23-143	86
KER1b	KTD6	169	4-99	59

Note:
For KTD2b, there was no receiver reference in the EIA report, EIAR-174/2013.
Predicted Maximum TSP Concentration extracted from Table 4.14 of EIA Report, EIAR-174/2013.

2.7.2 The 24-hour TSP monitoring results at KTD1a and KER1b were below the Predicted Maximum 24-hr TSP concentration in the approved Environmental Impact Assessment (EIA) Report and no Action / Limit Level exceedance was recorded in the reporting period.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

3. NOISE

3.1 Monitoring Requirement

3.1.1 In accordance with the approved EM&A Manuals, Leq (30min) monitoring is conducted for at least once a week during the construction phase between 0700 and 1900 on normal weekdays at the designated monitoring locations.

3.2 Monitoring Equipment

3.2.1 The sound level meter used in noise monitoring will comply with the International Electrotechnical Commission Publication (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications as referred to in the Technical Memorandum issued under the Noise Control Ordinance (NCO).

3.2.2 Sound level calibrator will be used for the on-site calibration of the meter. This calibrator complies with the IEC Publication 942 (1988) Class 1 and ANSI S1.40 - 1984. Noise measurements were only accepted to be valid if the calibration levels from before and after the measurement agree to within 1.0dB.

3.2.3 Measurements shall be recorded to the nearest 0.1dB. Sound level meters are programmed to measure A-weighted equivalent continuous sound pressure level at 30-minute intervals between 0700 and 1900 on normal weekdays at least once a week when construction activities are underway.

Table 3.1 summarizes the noise monitoring equipment model being used for this project.

Table 3.1 Noise Monitoring Equipment

Item	Brand	Model	Equipment	Serial Number
1	Casella	CEL-63X Series	Integrating Sound Level Meter	1488303
2	Casella	CEL-63X Series	Integrating Sound Level Meter	2451048
4	Casella	CEL-120/1	Calibrator	2383707
5	Casella	CEL-120/1	Calibrator	4358251
6	Benetech	GM816	Wind Speed Anemometer	N/A

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

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

3.4 Monitoring Methodology

3.4.1 The monitoring procedures are as follows:

- The monitoring station is set at a point 1m from the exterior of the sensitive receivers building façade and set at a position 1.2m above the ground.
- The battery condition is checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time are set as follows:
  - frequency weighting : A
  - time weighting : Fast
  - measurement time : Weekly 30 minutes between 0700-1900 on normal weekdays
- Prior to and after noise measurement, the meter shall be calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement will be considered invalid and repeat of noise measurement is required after re-calibration or repair of the equipment.
- Noise monitoring should be cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
- Noise measurement should be paused during periods of high intrusive noise if possible and observation shall be recorded when intrusive noise is not avoided.
- At the end of the monitoring period, the Leq, L10 and L90 are recorded. In addition, site conditions and noise sources are recorded on a standard record sheet.

3.5 Maintenance / Calibration

3.5.1 Maintenance and Calibration procedures are as follows:

- The microphone head of the sound level meter and calibrator should be cleaned with a soft cloth at quarterly intervals.
- The sound level meter and calibrator should be calibrated annually by a HOKLAS laboratory.
- Relevant calibration certificates are provided in **Appendix D**.

3.6 Monitoring Locations

3.6.1 According to the EM&A Manual, three noise monitoring locations, namely KTD1, KTD2 and KER1, are covered by this Contract within the South Apron Area of Former Kai Tak Airport. The other two noise 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: () in 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 KER1a) for noise monitoring.

3.6.3 According to the approved relocation of monitoring location KER1a (EPD reference: () in EP2/K19/A/21 pt.5), the monitoring location KER1a are proposed to be relocated by alternative monitoring locations KER1b for noise monitoring.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

3.6.4 According to the approved relocation of monitoring location KTD2a (EPD reference: () in EP2/K19/A/21 pt.6), the monitoring location KTD2a are proposed to be relocated by alternative monitoring locations KTD2b for noise monitoring.

3.6.5 The most updated locations 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)
KTD2b	G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital)
KER1b	Site Boundary at Cheung Yip Street

3.7 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, project related construction activities and road traffic along Shing Fung Road and Shing Cheong Road were observed in the surroundings. At KTD2b, road traffic along the Kwun Tong By-pass and non-project related construction activities at the nearby construction site was observed. At KER1b, project related construction activities, road traffic along Cheung Yip Street and non-project related construction activities at the nearby construction site 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	KTD2b	KER1b		
0700-1900 hrs on normal weekdays	63-70	64-74	65-73	When one documented complaint is received	75 dB(A)

Note:
KTD1a: Façade Measurement
KTD2b & KER1b: Free-field measurement (+3dB(A) correction has been applied)

3.7.5 No Action / Limit Level exceedance of location KTD1a, KTD2b and KER1b was recorded for construction noise in the reporting month.

3.7.6 The Action and Limit Levels for noise impact monitoring have been set and are presented in **Appendix C**.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

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 January 2020
KTD1a	KTD1	74	70
KTD2b	KTD2	75	74
KER1b	KER1	75	73

Note:
Maximum Predicted Mitigated Construction Noise Level extracted from Table 5.13 of EIA Report, EIAR-174/2013.

3.8.2 The impact noise monitoring results of location KTD1a, KTD2b 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.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

4. LANDSCAPE AND VISUAL

4.1 Audit Requirements

4.1.1 As per the Trunk Road T2 EM&A Manual, the landscape and visual mitigation measures during the construction phase shall be audited by a Registered Landscape Architect, as a member of the Environmental Team, at least once every two weeks to ensure compliance with the intended aims of the measures.

4.1.2 According to the Kai Tak Development EM&A Manual, measures to mitigate landscape and visual impacts during construction should be checked to ensure compliance with the intended aims of the measures. The progress of the engineering works shall be regularly reviewed onsite to identify the earliest practical opportunities for the landscape works to be undertaken. The ET shall report on the Contractor's compliance on a weekly basis.

4.2 Results and Observations

4.2.1 To monitor and audit the implementation of landscape and visual mitigation measures, four weekly landscape and visual site audits were carried out on 2, 8, 15 and 22 January 2020 and two of them 2 and 15 January 2020 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 From 29 January 2020 to 31 January 2020, no landscape and visual audit was conducted due to the site was close under the government's special arrangement to reduce the risk of the spread of the novel coronavirus in the community.

4.2.3 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.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

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**.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

6. SITE INSPECTION

6.1 Site Inspection

6.1.1 Site inspections were carried out weekly to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix J**.

6.1.2 In the reporting month, four site inspections were carried out on 2, 8, 15 and 22 January 2020. Two of them, held on 8 and 15 January 2020 was the joint inspections with the IEC, ER, the Contractor and the ET.

6.1.3 From 29 January 2020 to 31 January 2020, no site inspection was conducted due to the site was close under the government's special arrangement to reduce the risk of the spread of the novel coronavirus in the community.

6.1.4 No outstanding issues were reported during the reporting month. Details of observations recorded during the site inspections are summarized in **Appendix M**.

6.1.5 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.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

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, KTD2b 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.**

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

8. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

8.1 Implementation Status

8.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and the EM&A Manuals. The implementation status of the mitigation measures during the reporting month is summarized in **Appendix J**. Status of required submission under the EP during the reporting period is summarized in **Table 8.1**.

Table 8.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
EP-337/2009		
Condition 2.3	Management Organization of Main Construction Companies	18/12/2015
Condition 2.4	Design Drawing of the Project	18/12/2015
Condition 2.11	Landscape Mitigation Plan(s)	18/12/2015
Condition 3.3	Monthly EM&A Report (December 2019)	14/01/2020
EP-339/2009/A		
Condition 2.4	Management Organization of Main Construction Companies	18/12/2015
Condition 2.5	Design Drawing of the Project	18/12/2015
Condition 3.3	Monthly EM&A Report (December 2019)	14/01/2020
EP-451/2013		
Condition 2.3	Management Organization of Main Construction Companies	18/12/2015
Condition 2.4	Design Drawing of the Project	18/12/2015
Condition 2.5	Landscape Mitigation Plan(s)	18/12/2015
Condition 2.10	Supplementary Contamination Assessment Report	18/12/2015
Condition 3.3	Baseline Monitoring Report	12/02/2016
Condition 3.4	Monthly EM&A Report (December 2019)	14/01/2020

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

9. FUTURE KEY ISSUES

9.1 Construction Programme for the Next Two Months

- Excavation and laying of drainage pipe and manhole
- Construction of SUS structure
- Construction of District Cooling System
- Utility laying
- Construction of road base and road pavement

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**.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

10. CONCLUSIONS

10.1.1 24-hour TSP impact monitoring and construction noise monitoring were carried out in the reporting month, no Action / Limit Level exceedance was recorded during the period.

10.1.2 No complaint of air quality was received. Therefore, no impact 1-hour TSP monitoring was conducted in the reporting month.

10.1.3 Four environmental site inspections were carried out in the reporting month. Recommendations on mitigation measures for air quality impact, noise impact, water quality impact, chemical and waste management were given to the Contractor for remediating the deficiencies identified during the site inspections.

10.1.4 Four weekly Landscape and Visual Site audits were carried out on 2, 8, 15 and 22 January 2020 and two of them 2 and 15 January 2020 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
- Dust suppression measure should be provided.
- Excavated materials should be covered or removed.
- Exposed materials should be removed or covered.

Construction Noise Impact
- Hoarding should be provided as soon as possible.

Water Quality Impact
- Stagnant water should be cleared as soon as possible.

Chemical and Waste Management
- All waste generated from the site should be cleaned and collected.
- Drip tray should be provided.
- Chemical waste should be remove.

Land Contamination
- No specific observation was identified in the reporting month.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

Landscape and Visual Impact

- No specific observation was identified in the reporting month.

General Condition

- No specific observation was identified in the reporting month.

Permit / Licenses

- No specific observation was identified in the reporting month.

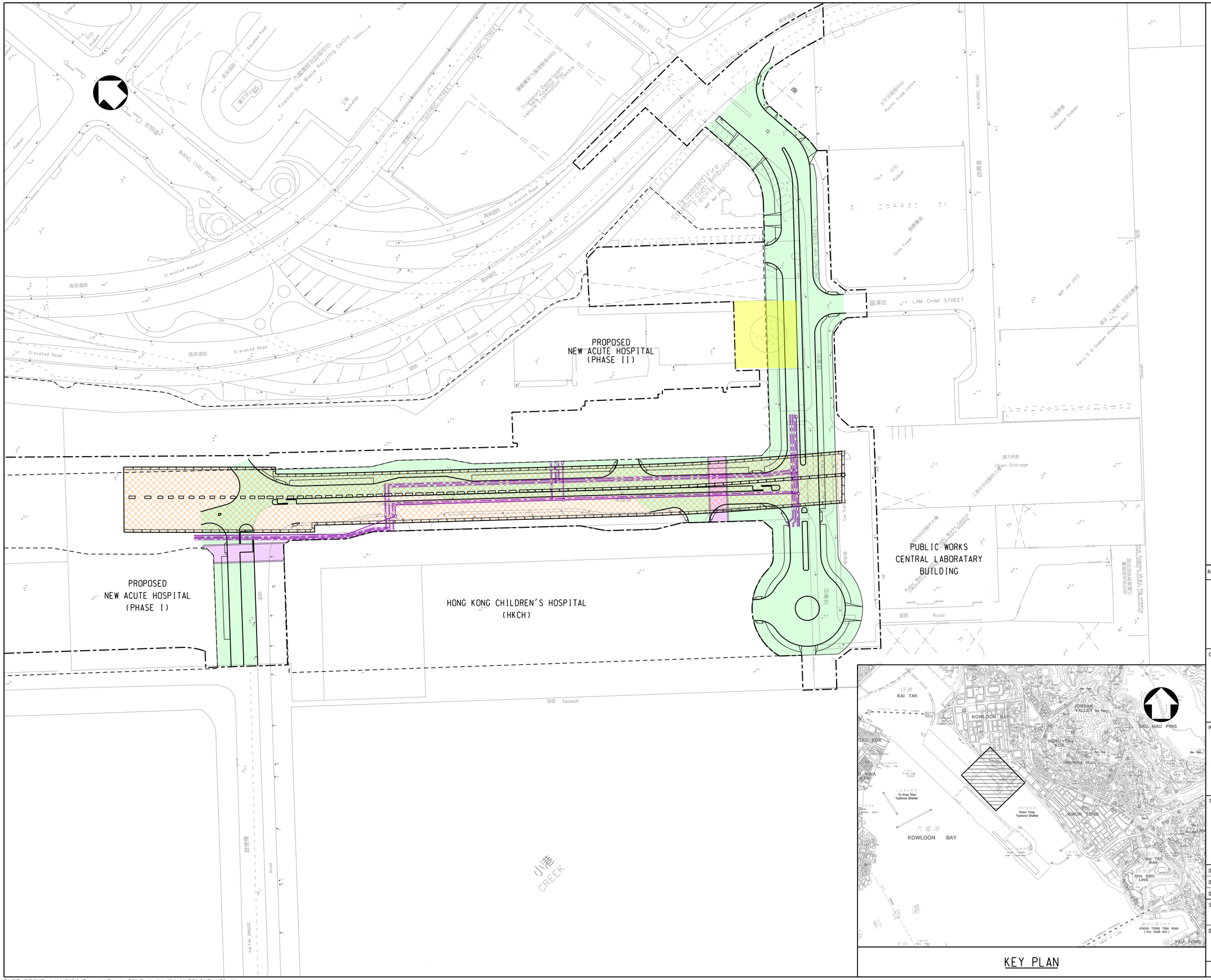
The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Figure 1

Project General Layout

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.



LEGENDS:

- SITE BOUNDARY
- HOSPITAL SITE BOUNDARY
- PROPOSED SUPPORTING UNDERGROUND STRUCTURE
- PROPOSED SUBWAYS
- PROPOSED ROADWORKS
- PROPOSED DISTRICT COOLING SYSTEM
- DEMOLITION OF RADAR TOWER

Rev.	Date	Drawn	Description	Checked	Approved

Hyder MEINHARDT
Hyder-Meinhardt JV

CLIENT

CEDD 土木工程拓展署
Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

PROJECT

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

TITLE

GENERAL LAYOUT PLAN

DESIGNED			ENG. CHECK		
DRAWN			COORDINATION		
DWG. CHECK			APPROVED		

SCALE AT A1	STATUS	REV
1 : 1000		A

Drawing No.

FIGURE 1.0

© Copyright reserved

KEY PLAN

PRINTED BY: kitchan 18/2/2015 13:00:43
FILENAME: K:\9164 Trunk Road T2\Tender Drawing (Contract II\Figure 1.dgn
PLOT DRIVE: K:\9164 Trunk Road T2\Cad Admin\AI_COLOUR V8I.plt

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Figure 2

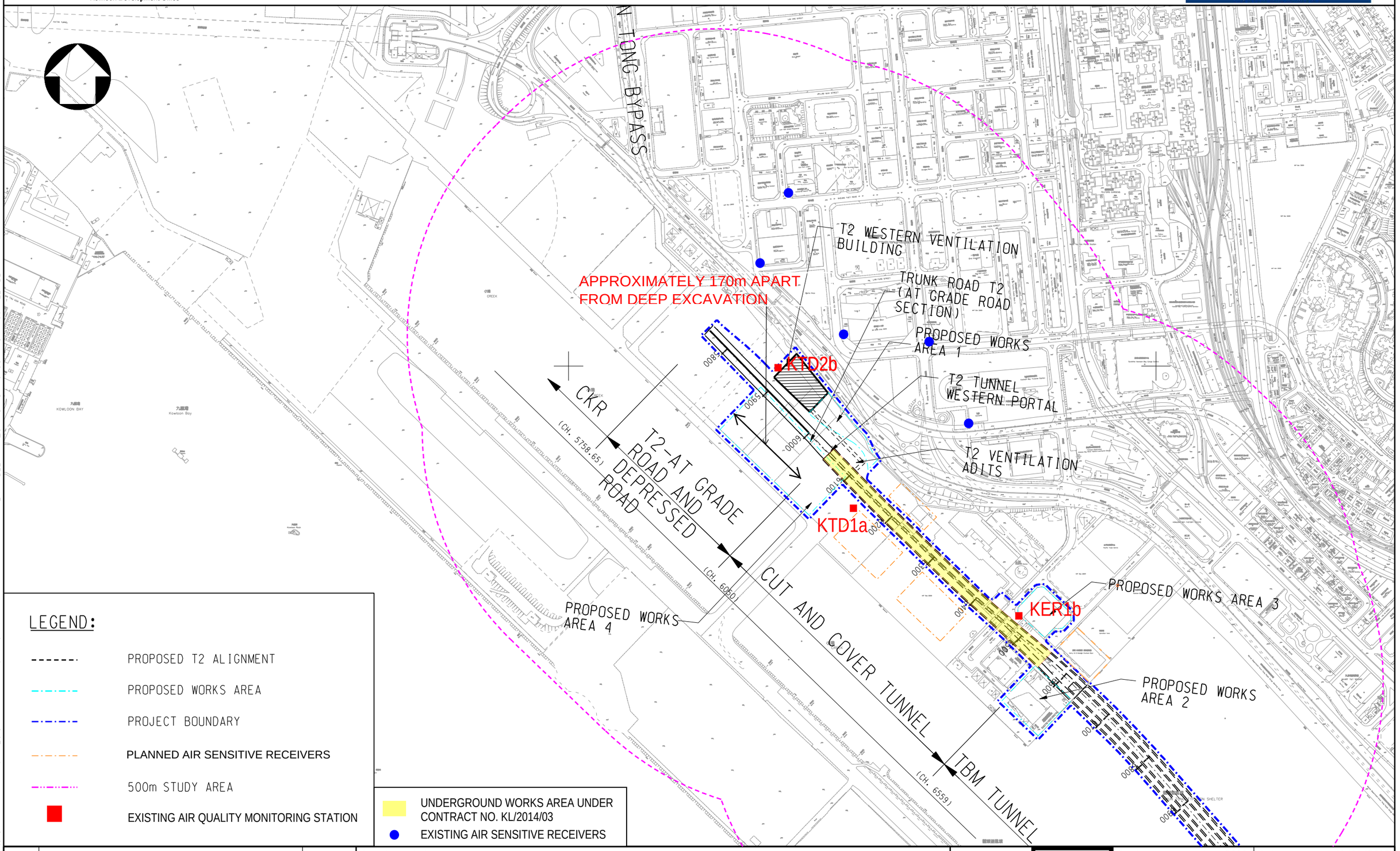
Air and Noise Monitoring Locations

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

土木工程拓展署
Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

AGREEMENT NO. CE 38/2008(HY)
KAI TAK DEVELOPMENT - TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH APRON - INVESTIGATION, DESIGN AND CONSTRUCTION

Hyder-Meinhardt JV



LEGEND:

- PROPOSED T2 ALIGNMENT
- PROPOSED WORKS AREA
- PROJECT BOUNDARY
- PLANNED AIR SENSITIVE RECEIVERS
- 500m STUDY AREA
- EXISTING AIR QUALITY MONITORING STATION
- UNDERGROUND WORKS AREA UNDER CONTRACT NO. KL/2014/03
- EXISTING AIR SENSITIVE RECEIVERS

Rev.	Description	Date

Drawing title

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

Original Size: A3

Scale: 1 : 6000 | Date: 30/01/2012

File name

© Copyright reserved

Drawing No.: FIGURE 2.1a (revised)

Rev.: --

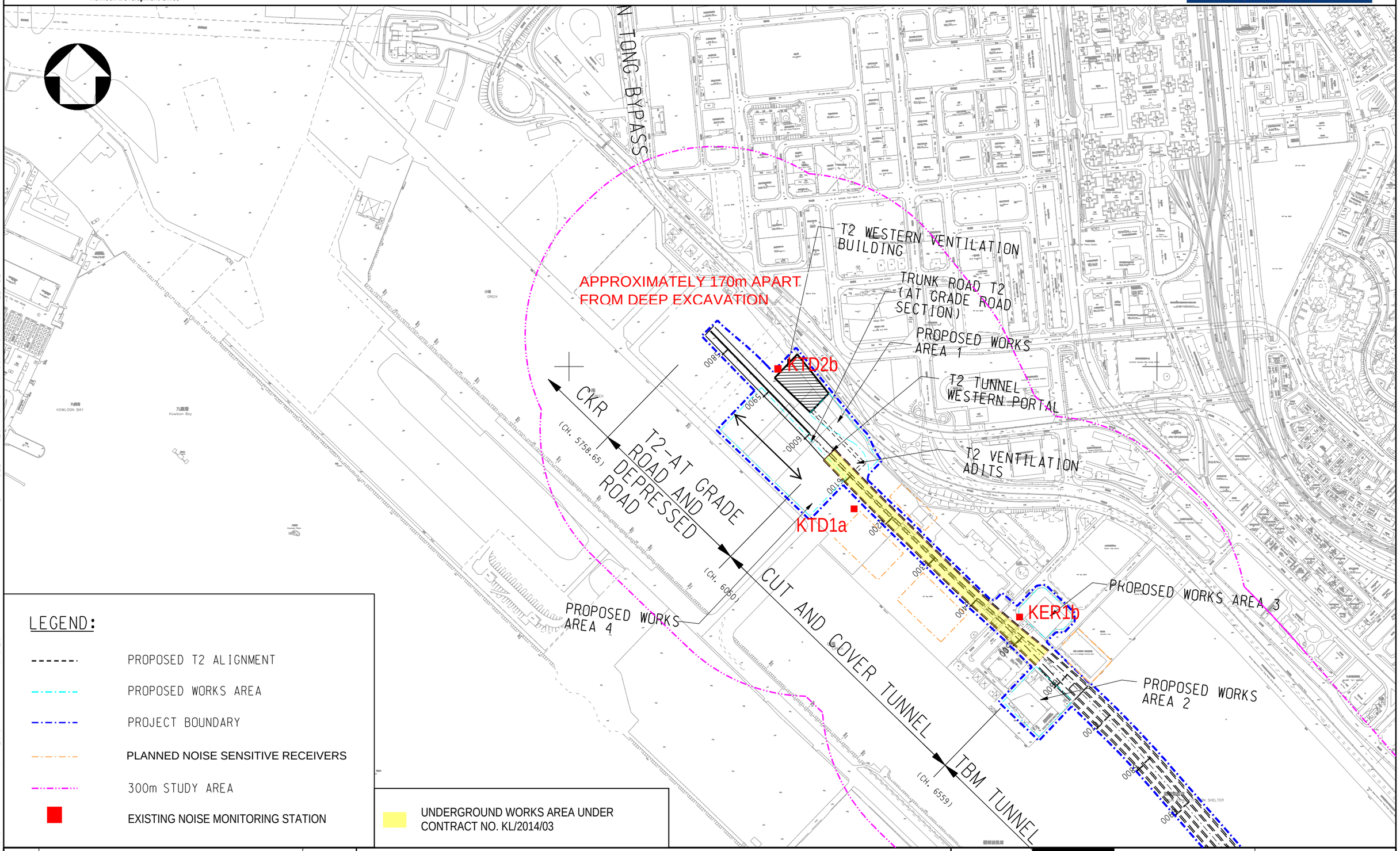
PEN TABLE: K:_STANDARD\MICROSTATION\Plot\MEL.TBL
PRINTER NAME: PDFCreator
PLOT DRV: K:\91164 Trunk Road T2\Cad Admin\A3_colour.plt
PRINTED BY: kitchan
6/11/2013 6:14:49 PM

CAD FILE : k:\91164 trunk road t2\report\final emna report\Figure 2.1a.dgn

土木工程拓展署
Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

AGREEMENT NO. CE 38/2008(HY)
KAI TAK DEVELOPMENT - TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH APRON - INVESTIGATION, DESIGN AND CONSTRUCTION

Hyder-Meinhardt JV



LEGEND:

- PROPOSED T2 ALIGNMENT
- PROPOSED WORKS AREA
- PROJECT BOUNDARY
- PLANNED NOISE SENSITIVE RECEIVERS
- 300m STUDY AREA
- EXISTING NOISE MONITORING STATION
- UNDERGROUND WORKS AREA UNDER CONTRACT NO. KL/2014/03

Rev.	Description	Date

Drawing title

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

Original Size: A3
Scale: 1 : 6000
Date: 30/01/2012
File name:
© Copyright reserved
Drawing No.: FIGURE 2.2 a (revised)
Rev.: --

PEN TABLE: K:_STANDARD\MICROSTATION\Plot\MEL.TBL
PRINTER NAME: PDFCreator
PLOT DRV: K:\91164 Trunk Road T2\Cad Admin\A3_colour.plt
PRINTED BY: kitchan
6/11/2013 6:15:29 PM

CAD FILE : k:\91164 trunk road t2\report\final emna report\Figure 3.1a.dgn

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Appendix A

Construction Programme

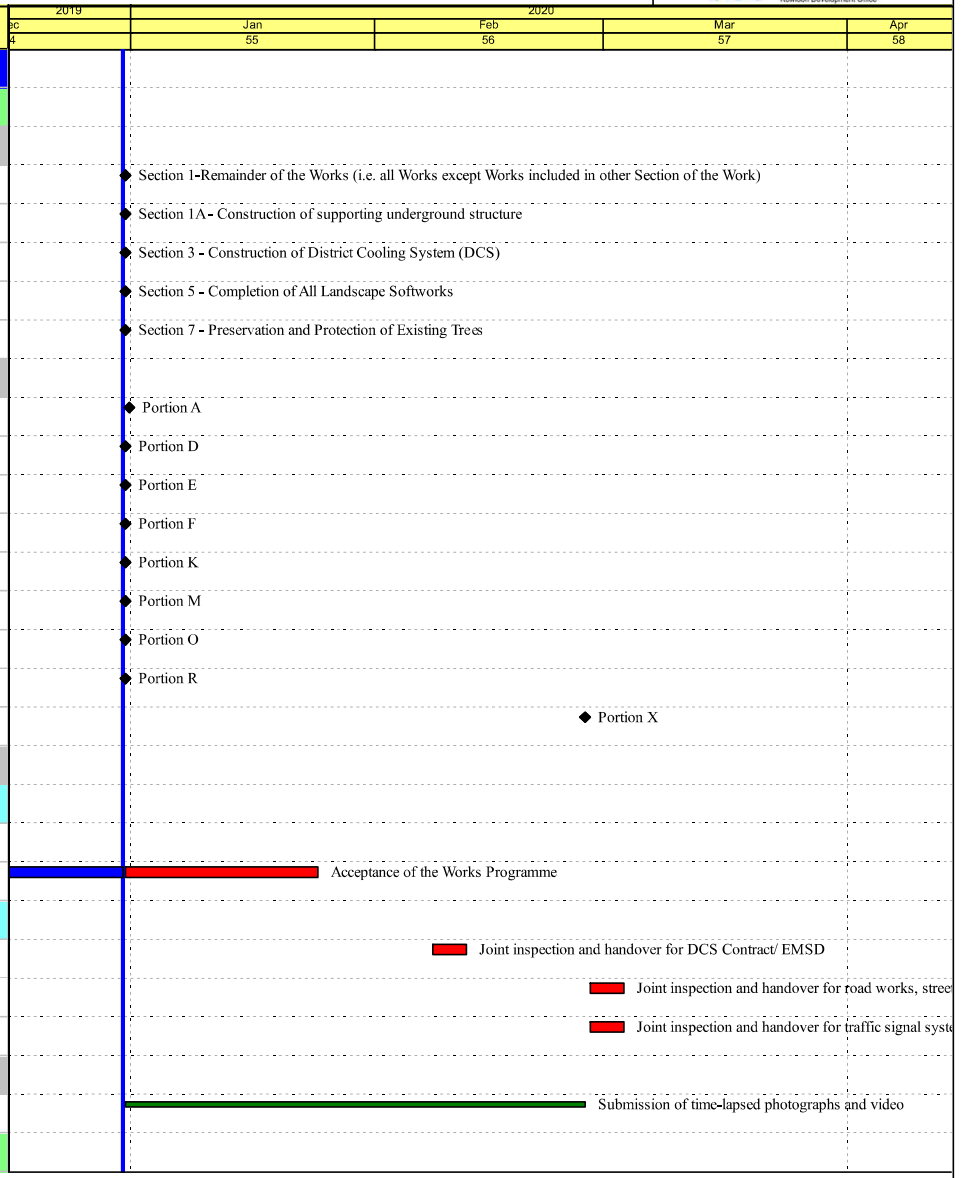
The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

Hyder - Meinhardt JV

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

CEDD 土木工程拓展署 Civil Engineering and Development Department 九龍拓展處 Kowloon Development Office

Activity ID	Activity Name	Remaining Duration	Start	Finish
KL/2014/03-Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway		427	04-Jan-16 A	01-Mar-21
Project Key Dates		64	20-Feb-16 A	03-Mar-20
Project Completion Date		0	31-Dec-19	31-Dec-19
K-PK-PCD-1000	Section 1-Remainder of the Works (i.e. all Works except Works included in other Section of the Work)	0		31-Dec-19*
K-PK-PCD-1100	Section 1A - Construction of supporting underground structure	0		31-Dec-19*
K-PK-PCD-1300	Section 3 - Construction of District Cooling System (DCS)	0		31-Dec-19*
K-PK-PCD-1600	Section 5 - Completion of All Landscape Softworks	0		31-Dec-19*
K-PK-PCD-1800	Section 7 - Preservation and Protection of Existing Trees	0		31-Dec-19*
Site Handover Date		59	31-Dec-19	27-Feb-20
K-PK-SHD-1000	Portion A	0		31-Dec-19*
K-PK-SHD-1400	Portion D	0		31-Dec-19*
K-PK-SHD-1500	Portion E	0		31-Dec-19*
K-PK-SHD-1600	Portion F	0		31-Dec-19*
K-PK-SHD-1900	Portion K	0		31-Dec-19*
K-PK-SHD-2000	Portion M	0		31-Dec-19*
K-PK-SHD-2200	Portion O	0		31-Dec-19*
K-PK-SHD-2500	Portion R	0		31-Dec-19*
K-PK-SHD-2600	Portion X	0		27-Feb-20*
General Submission		64	09-Jun-16 A	03-Mar-20
Programming / Reporting		25	09-Jun-16 A	24-Jan-20
Works Programme		25	09-Jun-16 A	24-Jan-20
K-PA-GSP-4300	Acceptance of the Works Programme	25	09-Jun-16 A	24-Jan-20
Interfacing Works		21	08-Feb-20	03-Mar-20
K-PA-INT-5000	Joint inspection and handover for DCS Contract/ EMSD	4	08-Feb-20	12-Feb-20
K-PA-INT-6000	Joint inspection and handover for road works, street furniture and lighting to HyD	4	28-Feb-20	03-Mar-20
K-PA-INT-6010	Joint inspection and handover for traffic signal system to TD/EMSD	4	28-Feb-20	03-Mar-20
Prelimiaries		59	20-Feb-16 A	27-Feb-20
K-DR-PRE-1800	Submission of time-lapsed photographs and video	59	20-Feb-16 A	27-Feb-20
Section 1 of the Works-Remainder of the Works		47	23-Nov-19 A	27-Feb-20



中國路橋工程有限責任公司 CHINA ROAD AND BRIDGE CORPORATION

- Milestone
- Critical Activity
- Non-Critical Activity
- Remaining Level of Effort
- Actual Work

3MPR Jan 2020 - Mar 2020

Project ID :3MRP Dec 19
Layout : KL201403 3MPR

Monthly Progress Update

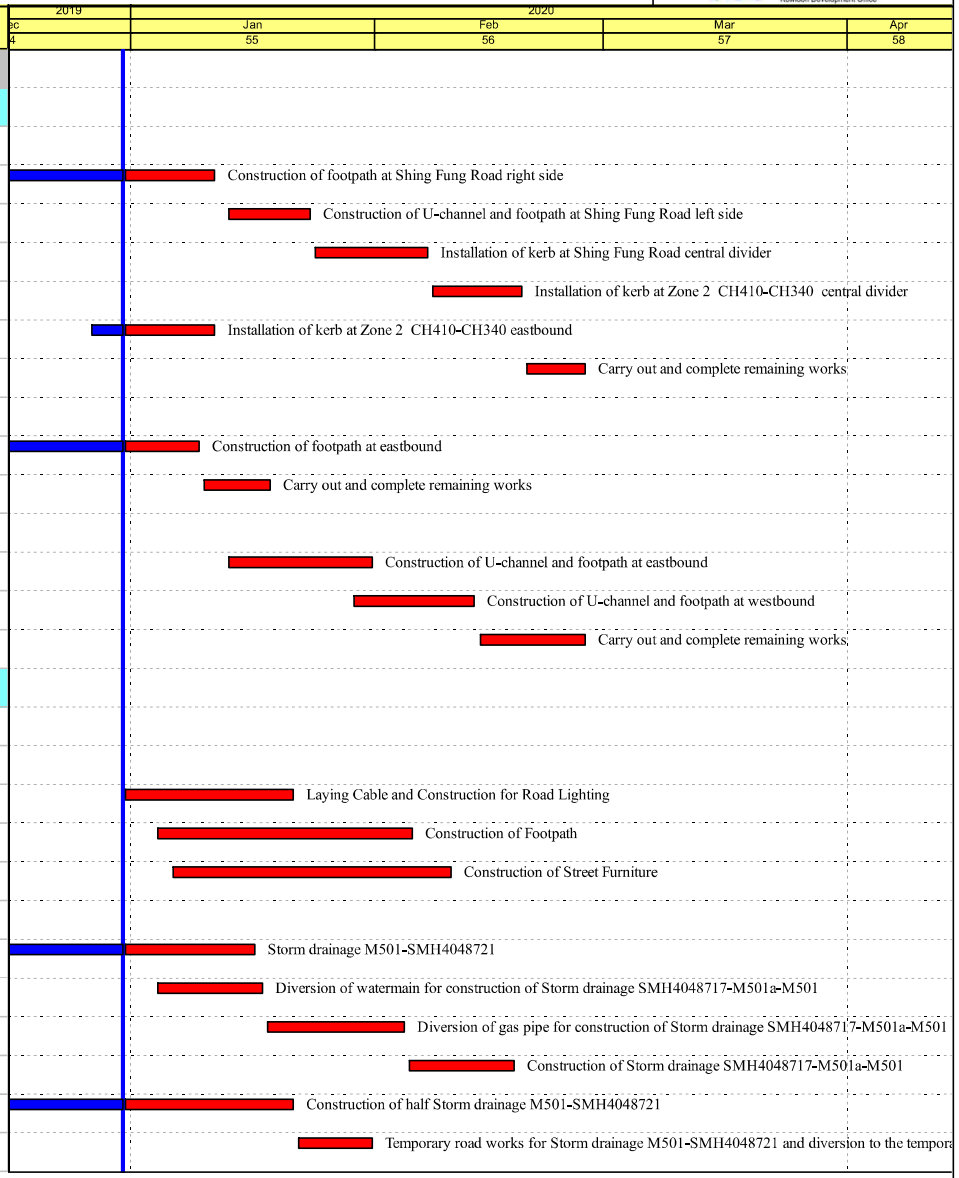
Date	Revision	Checked	Approved
28-Feb-18	WP Rev.6A		
31-Dec-19	3-Month Rolling Programme		

Hyder MEINHARDT Hyder - Meinhardt JV

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

CEDD 土木工程拓展署 Civil Engineering and Development Department 九龍拓展處 Kowloon Development Office

Activity ID	Activity Name	Remaining Duration	Start	Finish
Roadwork and Drainage Works		47	23-Nov-19 A	27-Feb-20
Road D4-3 (Ching Shung Road)		47	02-Dec-19 A	27-Feb-20
Zone 1 & 2 and Shing Fung Road R & D Works (Stage 3) CH410-CH340		47	02-Dec-19 A	27-Feb-20
SCR2800	Construction of footpath at Shing Fung Road right side	10	02-Dec-19 A	11-Jan-20
SCR2810	Construction of U-channel and footpath at Shing Fung Road left side	10	13-Jan-20	23-Jan-20
SCR2820	Installation of kerb at Shing Fung Road central divider	10	24-Jan-20	07-Feb-20
SCR2822	Installation of kerb at Zone 2 CH410-CH340 central divider	10	08-Feb-20	19-Feb-20
SCR2830	Installation of kerb at Zone 2 CH410-CH340 eastbound	10	27-Dec-19 A	11-Jan-20
SCR2835	Carry out and complete remaining works	7	20-Feb-20	27-Feb-20
Zone 3 R & D Works (Stage 2) CH270 to 190		16	14-Dec-19 A	18-Jan-20
SCR1858	Construction of footpath at eastbound	8	14-Dec-19 A	09-Jan-20
SCR1860	Carry out and complete remaining works	8	10-Jan-20	18-Jan-20
Zone 4 R & D Works		37	13-Jan-20	27-Feb-20
SCR2166	Construction of U-channel and footpath at eastbound	14	13-Jan-20	31-Jan-20
SCR2167	Construction of U-channel and footpath at westbound	14	29-Jan-20	13-Feb-20
SCR2172	Carry out and complete remaining works	12	14-Feb-20	27-Feb-20
Road D4-4 (Cheung Yip Street)		47	23-Nov-19 A	27-Feb-20
CH100 to CH150 Cheung Yip Street Cul de Sac		42	23-Nov-19 A	21-Feb-20
Cheung Yip Street Cul de Sac		32	31-Dec-19	10-Feb-20
SCR2670	Laying Cable and Construction for Road Lighting	18	31-Dec-19	21-Jan-20
SCR2680	Construction of Footpath	25	04-Jan-20	05-Feb-20
SCR2690	Construction of Street Furniture	28	06-Jan-20	10-Feb-20
Remaining Storm Drainage		42	23-Nov-19 A	21-Feb-20
SCR2710	Storm drainage M501-SMH4048721	14	23-Nov-19 A	16-Jan-20
SCR2845	Diversion of watermain for construction of Storm drainage SMH4048717-M501a-M501	12	04-Jan-20	17-Jan-20
SCR2855	Diversion of gas pipe for construction of Storm drainage SMH4048717-M501a-M501	12	18-Jan-20	04-Feb-20
SCR2865	Construction of Storm drainage SMH4048717-M501a-M501	12	05-Feb-20	18-Feb-20
SCR2875	Construction of half Storm drainage M501-SMH4048721	18	23-Nov-19 A	21-Jan-20
SCR2885	Temporary road works for Storm drainage M501-SMH4048721 and diversion to the temporary road	6	22-Jan-20	31-Jan-20



中國路橋工程有限責任公司 CHINA ROAD AND BRIDGE CORPORATION

◆ Milestone
Critical Activity
Non-Critical Activity
Remaining Level of Effort
Actual Work

3MPR Jan 2020 - Mar 2020

Project ID :3MRP Dec 19
Layout : KL201403 3MPR

Monthly Progress Update

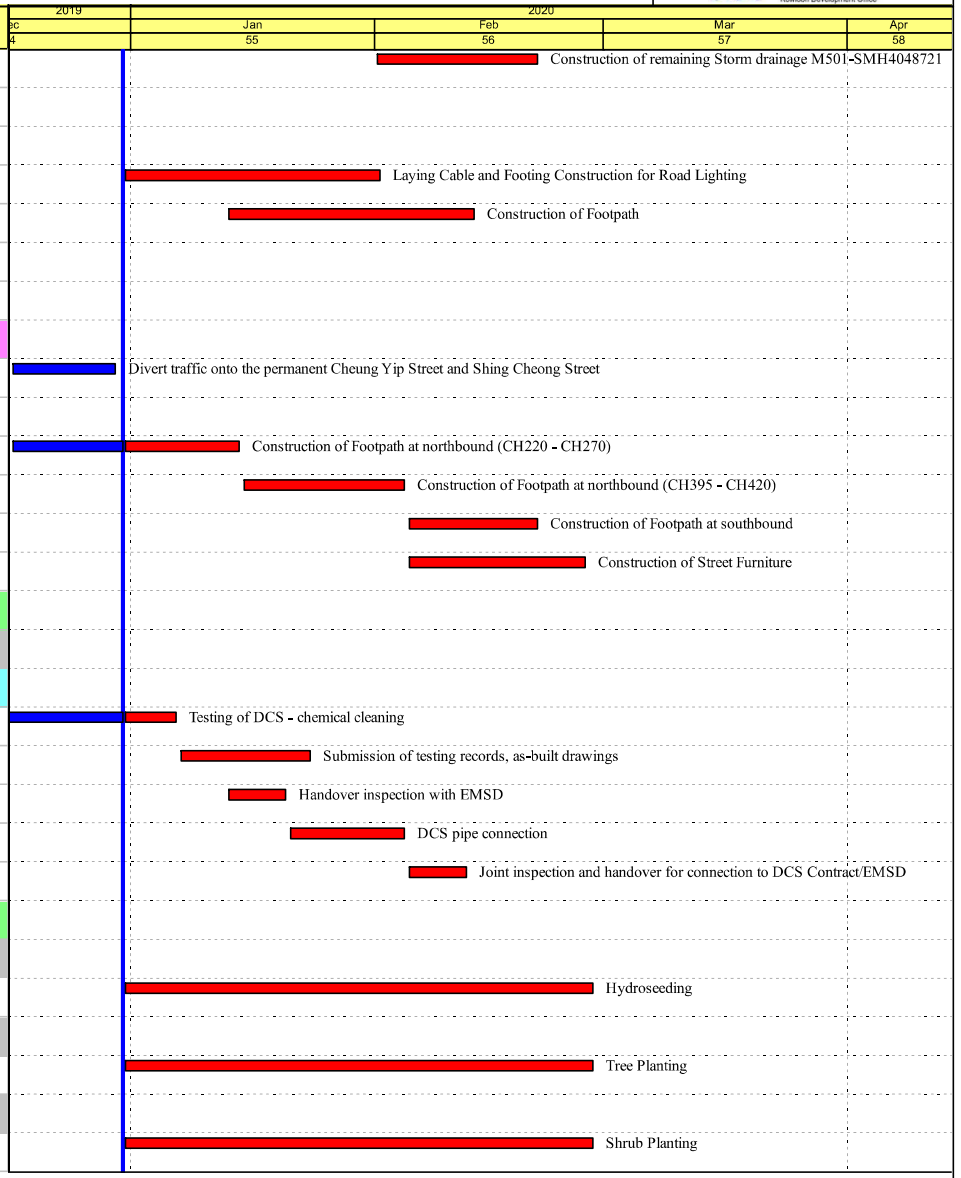
Date	Revision	Checked	Approved
28-Feb-18	WP Rev.6A		
31-Dec-19	3-Month Rolling Programme		

Hyder MEINHARDT Hyder - Meinhardt JV

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

CEDD 土木工程拓展署 Civil Engineering and Development Department 九龍拓展處 Kowloon Development Office

Activity ID	Activity Name	Remaining Duration	Start	Finish
SCR2895	Construction of remaining Storm drainage M501-SMH4048721	18	01-Feb-20	21-Feb-20
CH220 - CH420 Northbound		35	31-Dec-19	13-Feb-20
Road Works and Miscellaneous Works		35	31-Dec-19	13-Feb-20
K-01-RWS-9442	Laying Cable and Footing Construction for Road Lighting	25	31-Dec-19	01-Feb-20
K-01-RWS-9444	Construction of Footpath	25	13-Jan-20	13-Feb-20
CH220 - CH420 Southbound		47	17-Dec-19 A	27-Feb-20
Part 3		0	17-Dec-19 A	30-Dec-19 A
Road Works		0	17-Dec-19 A	30-Dec-19 A
K-01-RWS-11007	Divert traffic onto the permanent Cheung Yip Street and Shing Cheong Street	0	17-Dec-19 A	30-Dec-19 A
Miscellaneous Works		47	17-Dec-19 A	27-Feb-20
K-01-RWS-9630	Construction of Footpath at northbound (CH220 - CH270)	12	17-Dec-19 A	14-Jan-20
K-01-RWS-9631	Construction of Footpath at northbound (CH395 - CH420)	15	15-Jan-20	04-Feb-20
K-01-RWS-9635	Construction of Footpath at southbound	15	05-Feb-20	21-Feb-20
K-01-RWS-9636	Construction of Street Furniture	20	05-Feb-20	27-Feb-20
Section 3 of the Works- Construction of District Cooling System (Subject to Excision)		34	29-Nov-19 A	12-Feb-20
Construction of District Cooling System		34	29-Nov-19 A	12-Feb-20
Construction of DCS Works at Zone 4		34	29-Nov-19 A	12-Feb-20
SCR2340	Testing of DCS - chemical cleaning	5	29-Nov-19 A	06-Jan-20
SCR2350	Submission of testing records, as-built drawings	15	07-Jan-20	23-Jan-20
SCR2360	Handover inspection with EMSD	7	13-Jan-20	20-Jan-20
SCR2370	DCS pipe connection	10	21-Jan-20	04-Feb-20
SCR2380	Joint inspection and handover for connection to DCS Contract/EMSD	7	05-Feb-20	12-Feb-20
Section 5 of the Works-Completion of All Landscape Softworks		62	15-Mar-19 A	01-Mar-20
Hydroseeding		60	31-Dec-19	28-Feb-20
K-05-HYD-1050	Hydroseeding	60	31-Dec-19	28-Feb-20
Tree Planting		60	31-Dec-19	28-Feb-20
K-05-TPG-1150	Tree Planting	60	31-Dec-19	28-Feb-20
Shrub Planting		60	31-Dec-19	28-Feb-20
K-05-SPG-1200	Shrub Planting	60	31-Dec-19	28-Feb-20



中國路橋工程有限責任公司 CHINA ROAD AND BRIDGE CORPORATION

Milestone
Critical Activity
Non-Critical Activity
Remaining Level of Effort
Actual Work

3MPR Jan 2020 - Mar 2020

Project ID :3MRP Dec 19
Layout : KL201403 3MPR

Monthly Progress Update

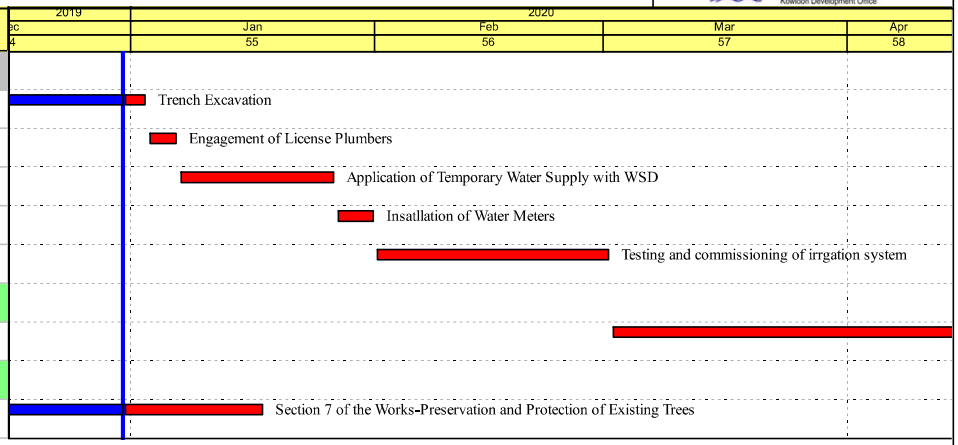
Date	Revision	Checked	Approved
28-Feb-18	WP Rev.6A		
31-Dec-19	3-Month Rolling Programme		

Hyder MEINHARDT Hyder - Meinhardt JV

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

CEDD 土木工程拓展署 Civil Engineering and Development Department 九龍拓展處 Kowloon Development Office

Activity ID	Activity Name	Remaining Duration	Start	Finish
Irrigation System		62	15-Mar-19 A	01-Mar-20
K-05-ISM-1260	Trench Excavation	3	15-Mar-19 A	02-Jan-20
K-05-ISM-1270	Engagement of License Plumbers	4	03-Jan-20	06-Jan-20
K-05-ISM-1280	Application of Temporary Water Supply with WSD	20	07-Jan-20	26-Jan-20
K-05-ISM-1290	Insatllation of Water Meters	5	27-Jan-20	31-Jan-20
K-05-ISM-1300	Testing and commissioning of irrgation system	30	01-Feb-20	01-Mar-20
Section 6 of the Works-Completion of all Establishment Works for all Landscape Softwo		365	02-Mar-20	01-Mar-21
K-06-001-1000	Section 6 of the Works-Completion of all Establishment Works for all Landscape Softworks	365	02-Mar-20	01-Mar-21
Section 7 of the Works-Preservation and Protection of Existing Trees		18	04-Jan-16 A	17-Jan-20
K-07-001-1000	Section 7 of the Works-Preservation and Protection of Existing Trees	18	04-Jan-16 A	17-Jan-20



中國路橋工程有限責任公司 CHINA ROAD AND BRIDGE CORPORATION

- Milestone
- Critical Activity
- Non-Critical Activity
- Remaining Level of Effort
- Actual Work

3MPR Jan 2020 - Mar 2020

Project ID :3MRP Dec 19
Layout : KL201403 3MPR

Monthly Progress Update

Date	Revision	Checked	Approved
28-Feb-18	WP Rev.6A		
31-Dec-19	3-Month Rolling Programme		

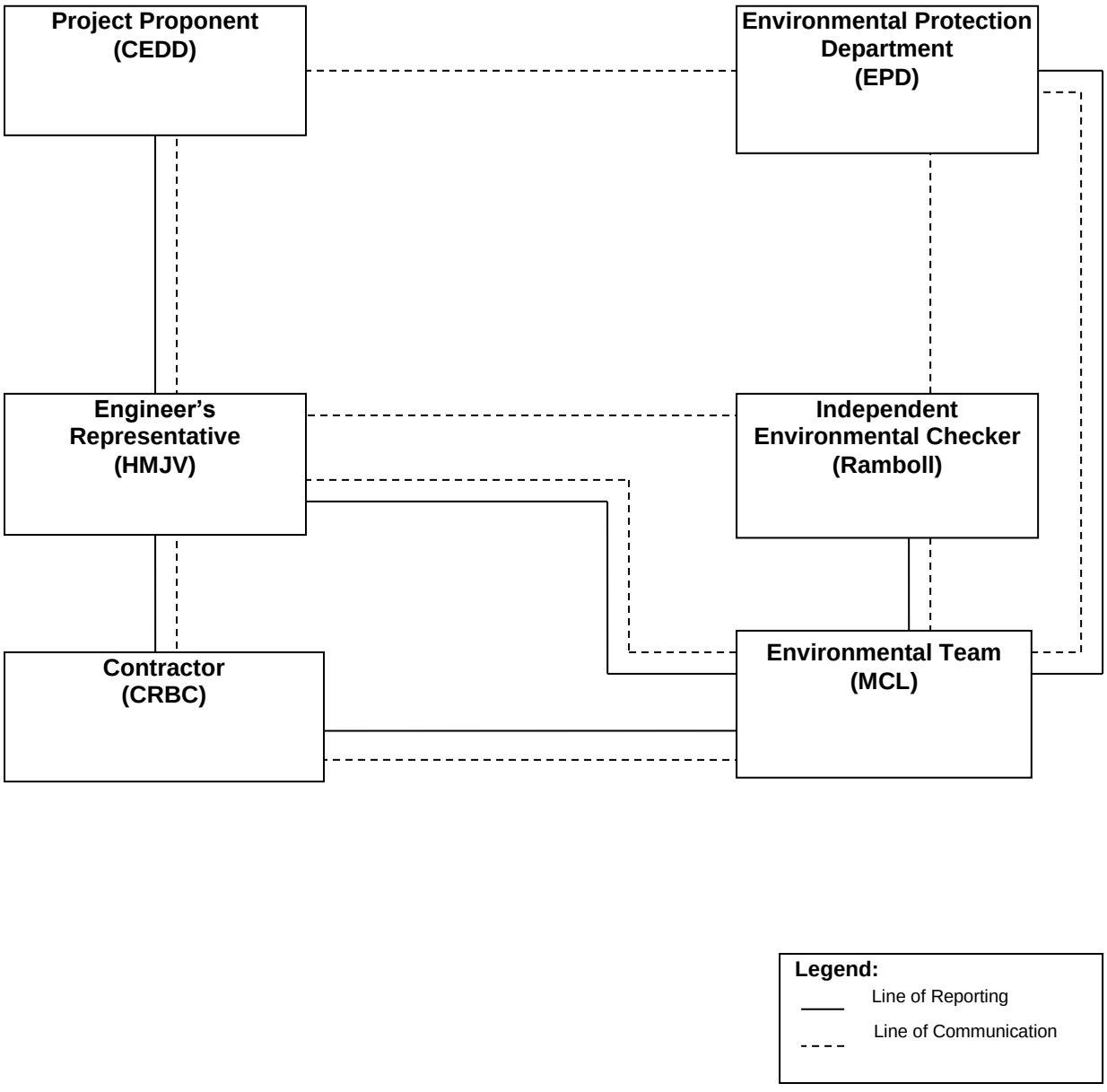
MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Appendix B

Project Organization Chart

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com



The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Appendix C

Action and Limit Levels for Air Quality and Noise

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

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

Parameter	Monitoring Station	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/ m^3$)
24-hr TSP ($\mu g/m^3$)	KTD1a	177	260
	KTD2b	157	
	KER1b	172	
*1-hr TSP ($\mu g/m^3$)	KTD1a	285	500
	KTD2b	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 KTD2b KER1b	When one documented complaint is received	75 dB(A)

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Appendix D

Calibration Certificates of Monitoring Equipment

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

TISCH Environmental

RECALIBRATION DUE DATE:
October 21, 2020

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	October 21, 2019	**Rootsmeter S/N:** 438320	**Ta:** 295	°K
Operator:	Jim Tisch		**Pa:** 744.2	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **2456**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4200	3.2	2.00
2	3	4	1	1.0180	6.3	4.00
3	5	6	1	0.9030	7.9	5.00
4	7	8	1	0.8620	8.8	5.50
5	9	10	1	0.7120	12.6	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
0.9849	0.6936	1.4066	0.9957	0.7012	0.8904
0.9808	0.9635	1.9892	0.9915	0.9740	1.2592
0.9787	1.0838	2.2240	0.9894	1.0957	1.4078
0.9775	1.1340	2.3325	0.9882	1.1464	1.4765
0.9724	1.3658	2.8131	0.9831	1.3807	1.7808
QSTD	**m=**	**2.08799**	**QA**	**m=**	**1.30746**
	b=	**-0.03545**		**b=**	**-0.02244**
	r=	**0.99989**		**r=**	**0.99989**

Calculations

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

For subsequent flow rate calculations:

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

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

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

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

RECALIBRATION

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

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

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

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Date of Calibration: 29-Nov-19
Location : KTD1a
Next Calibration Date: 28-Feb-20
Brand: Tisch
Technician: Tony Wan
Model: TE-5170 S/N: 4037

CONDITIONS

Sea Level Pressure (hPa):	1022.3	Corrected Pressure (mm Hg):	767
Temperature (℃):	19.7	Temperature (K):	293

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.08799
Model:	TE-5025A	Qstd Intercept:	-0.03545
Calibration Date:	21-Oct-19	Expiry Date:	21-Oct-20
S/N:	2456		

CALIBRATION

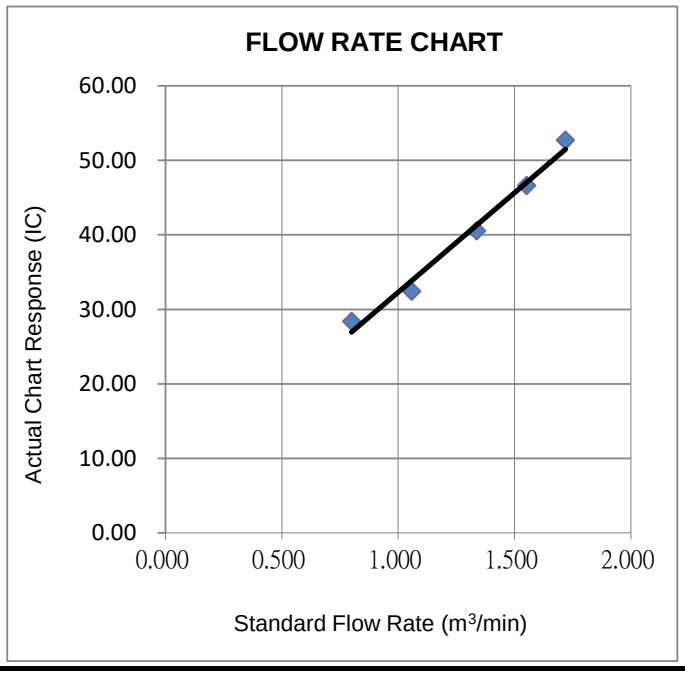
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	6.20	-6.10	12.300	1.719	52.00	52.70	Slope =	26.6948
13	4.70	-5.30	10.000	1.552	46.00	46.62	Intercept =	5.6112
10	3.90	-3.50	7.400	1.337	40.00	40.54	Corr. coeff.=	0.9921
7	2.40	-2.20	4.600	1.058	32.00	32.43		
5	1.20	-1.40	2.600	0.800	28.00	28.38		

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



Report Date: **1/12/2019**

Wan Ka Ho
Project Consultant

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Date of Calibration: 29-Nov-19
Location : KTD2b
Next Calibration Date: 28-Feb-20
Brand: Tisch
Technician: Tony Wan
Model: TE-5170 S/N: 3838

CONDITIONS

Sea Level Pressure (hPa):	1022.3	Corrected Pressure (mm Hg):	767
Temperature (℃):	19.7	Temperature (K):	293

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.08799
Model:	TE-5025A	Qstd Intercept:	-0.03545
Calibration Date:	21-Oct-19	Expiry Date:	21-Oct-20
S/N:	2456		

CALIBRATION

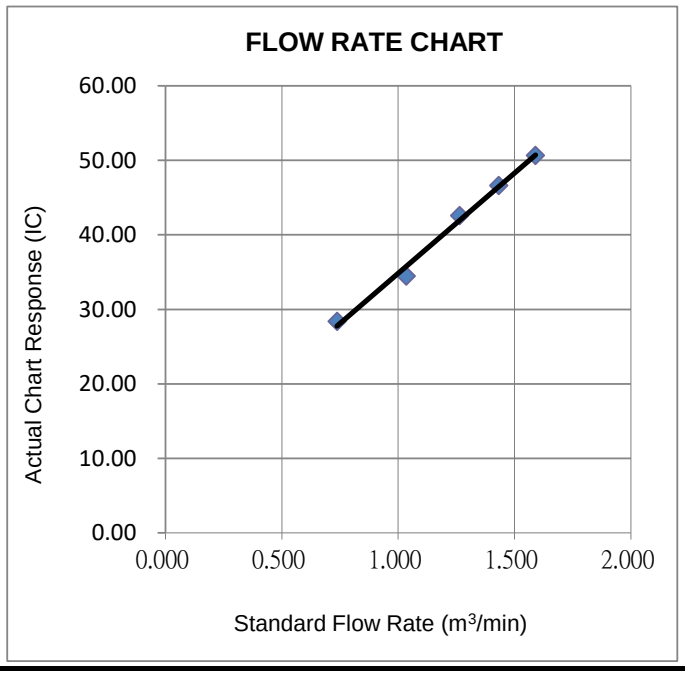
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	5.40	-5.10	10.500	1.590	50.00	50.68	Slope =	26.8950
13	4.20	-4.30	8.500	1.432	46.00	46.62	Intercept =	7.9538
10	2.80	-3.80	6.600	1.264	42.00	42.57	Corr. coeff.=	0.9961
7	2.00	-2.40	4.400	1.035	34.00	34.46		
5	1.00	-1.20	2.200	0.737	28.00	28.38		

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



Report Date: **1/12/2019**

Wan Ka Ho
Project Consultant

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Date of Calibration: 29-Nov-19
Location : KER1b
Next Calibration Date: 28-Feb-20
Brand: Tisch
Technician: Tony Wan
Model: TE-5170 S/N: 3482

CONDITIONS

Sea Level Pressure (hPa):	1022.3	Corrected Pressure (mm Hg):	767
Temperature (℃):	19.7	Temperature (K):	293

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.08799
Model:	TE-5025A	Qstd Intercept:	-0.03545
Calibration Date:	21-Oct-19	Expiry Date:	21-Oct-20
S/N:	2456		

CALIBRATION

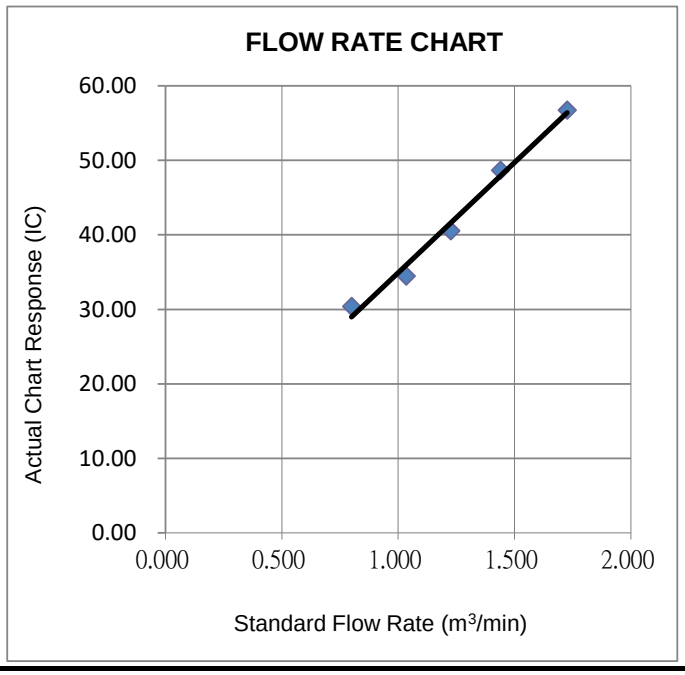
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	6.20	-6.20	12.400	1.726	56.00	56.76	Slope =	29.6075
13	4.00	-4.60	8.600	1.440	48.00	48.65	Intercept =	5.2880
10	2.80	-3.40	6.200	1.226	40.00	40.54	Corr. coeff.=	0.9934
7	1.60	-2.80	4.400	1.035	34.00	34.46		
5	1.00	-1.60	2.600	0.800	30.00	30.41		

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



Report Date: **1/12/2019**

Wan Ka Ho
Project Consultant

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

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

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

MateriaLab

Report no.: 183057CA196119(1)

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Level Meter

Manufacturer : Casella

	Meter	Microphone	Preamplifier
Model No.	CEL-63X	CE-251	CEL-495
Serial No. :	1488303	02650	003916

Next Calibration Date : 25-Aug-2020

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 : 26-Aug-2019 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : By direct comparison

Calibration Results :

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weighting frequency response	4000Hz	1.9	2.6 to -0.6
	2000Hz	1.6	2.8 to -0.4
	1000Hz	0.2	1.1 to -1.1
	500Hz	-3.1	-1.8 to -4.6
	250Hz	-8.5	-7.2 to -10.0
	125Hz	-16.0	-14.6 to -17.6
	63Hz	-26.0	-24.7 to -27.7
	31.5Hz	-39.0	-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 weighting is fast
4. The equipment does comply with EN 61672: 2003 Type 1 sound level meter for the above measurement.
5. The values given in this Calibration Certificate only relate to the unit-under-test and the values measured at the time of the test. Uncertainties will not include allowances for the environmental changes, variation and shock during transportation, or the capability of any other laboratory to repeat the measurement.

Checked by : William Date : 5-9-2019 Certified by : K T Leung Date : 6-9-2019

CA-R-297 (22/07/2009)

Leung Kwok Tai (Assistant Manager)

** End of Report **

This report shall not be reproduced except in full with prior written approval from the Company.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report no.: 183057CA196458

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Level Meter

Manufacturer : Casella

	Meter	Microphone	Preamplifier
Model No. :	CEL-63X	CE-251	CEL-495
Serial No. :	2451048	02789	004065

Equipment ID : N/A

Next Calibration Date : 21-Nov-2020

Specification Limit : EN 61672: 2003 Type 1

Laboratory Information

Details of Reference Equipment -

Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)

Equipment ID. : R-108-1

Date of Calibration : 22-Nov-2019 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : By direct comparison

Calibration Results :

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weigthing frequency response	4000Hz	1.9	2.6 to -0.6
	2000Hz	1.5	2.8 to -0.4
	1000Hz	0.0	1.1 to -1.1
	500Hz	-3.4	-1.8 to -4.6
	250Hz	-8.8	-7.2 to -10.0
	125Hz	-16.2	-14.6 to -17.6
	63Hz	-26.2	-24.7 to -27.7
	31.5Hz	-38.9	-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 weighting is fast
4. The equipment does comply with EN 61672: 2003 Type 1 sound level meter for the above measurement.

Checked by : William Date : 27-11-2019 Certified by : K T Leung Date : 28-11-2019

CA-R-297 (22/07/2009)

Leung Kwok Tai (Assistant Manager)

** End of Report **

The copyright of this report is owned by Fugro Technical Services Limited. This report shall not be reproduced except in full.

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

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

MateriaLab

Report no.: 183057CA196350(4)

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description	:	Sound Calibrator
Manufacturer	:	Casella (Model CEL-120/1)
Serial No.	:	2383707
Equipment ID	:	N/A
Next Calibration Date	:	23-Oct-2020
Specification Limit	:	EN 60942: 2003 Type 1

Laboratory Information

Description	:	Reference Sound level meter
Equipment ID.	:	R-119-1
Date of Calibration :	24-Oct-2019	Ambient Temperature : 22 °C
Calibration Location :	Calibration Laboratory of FTS	
Method Used	:	By direct comparison

Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)
94dB	-0.2 dB	±0.4dB
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.
4. The values given in this Calibration Certificate only relate to the values at the time of the test and any uncertainties will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during tranportation, overloading, mis-handling or the capability of any other laboratory to repeat the measurement.

Checked by : William Date : 1-11-2019 Certified by : R T Leung Date : 1-11-2019

CA-R-297 (22/07/2009)

Leung Kwok Tai (Assistant Manager)

** End of Report **

This report shall not be reproduced except in full with prior written approval from the Company.

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

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

MateriaLab

Report no.: 183057CA195873(1)

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description	:	Sound Calibrator
Manufacturer	:	Casella (Model CEL-120/1)
Serial No.	:	4358251
Equipment ID	:	N-34
Next Calibration Date	:	25-Jul-2020
Specification Limit	:	EN 60942: 2003 Type 1

Laboratory Information

Description	:	Reference Sound level meter
Equipment ID.	:	R-119-1
Date of Calibration :	26-Jul-2019	Ambient Temperature : 22 °C
Calibration Location :	Calibration Laboratory of MateriaLab	
Method Used	:	By direct comparison

Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)
94dB	-0.1 dB	±0.4dB
114dB	0.0 dB	

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. The equipment does comply with the specification limit.
4. The values given in this Calibration Certificate only relate to the values at the time of the test and any uncertainties will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during tranportation, overloading, mis-handling or the capability of any other laboratory to repeat the measurement.

Checked by : William Date : 26-7-2019 Certified by : K.T.Leung Date : 26-7-2019

CA-R-297 (22/07/2009)

Leung Kwok Tai (Assistant Manager)

** End of Report **

This report shall not be reproduced except in full with prior written approval from the Company.

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

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

MateriaLab

Report No. : 183057CA195782(1)

CALIBRATION CERTIFICATE OF ANEMOMETER

Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Anemometer

Manufacturer : Benetech

Model No. : GM816

Serial No. : N/A

Equipment ID. : WS-08

Next Calibration Date : 17-Jun-2020

Laboratory Information

Details of Reference Equipment –

Description : Reference Anemometer

Equipment ID. : R-101-4

Date of Calibration : 18-Jun-2019 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : R-C-279

Calibration Results :

Reference Reading (m/s)	UUT Reading (m/s)	Error (m/s)
2.05	1.0	-1.1
4.08	3.1	-1.0
6.07	4.8	-1.3
8.03	6.7	-1.3
10.14	8.8	-1.3

Remark :

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

Checked by : William Date : 22-6-2019 Certified by : K.T. Leung Date : 24-6-2019

Leung Kwok Tai (Assistant Manager)

CA-R-297 (22/07/2009)

** End of Report **

This report shall not be reproduced except in full with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Appendix E

Environmental Monitoring Schedule

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

FUGRO TECHNICAL SERVICES LIMITED

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

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

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 2020)

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 TSP Monitoring Noise Monitoring	25
26	27	28	29	30 TSP Monitoring Noise Monitoring	31	

Remarks

1. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital), KER1b: Site Boundary at Cheung Yip Street
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.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

FUGRO TECHNICAL SERVICES LIMITED

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

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

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 2020)

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

Remarks

1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition
2. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital), KER1b: Site Boundary at Cheung Yip Street
3. TSP Monitoring: 24-hours TSP Monitoring per 6 days, and 3 x 1-hour TSP Monitoring per 6 days (as required in case of complaints)
4. Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

FUGRO TECHNICAL SERVICES LIMITED

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

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

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

Impact Monitoring Schedule (March 2020)

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

Remarks

1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition
2. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital), KER1b: Site Boundary at Cheung Yip Street
3. TSP Monitoring: 24-hours TSP Monitoring per 6 days, and 3 x 1-hour TSP Monitoring per 6 days (as required in case of complaints)
4. Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

FUGRO TECHNICAL SERVICES LIMITED

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

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

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

Impact Monitoring Schedule (April 2020)

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

Remarks

1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition
2. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital), KER1b: Site Boundary at Cheung Yip Street
3. TSP Monitoring: 24-hours TSP Monitoring per 6 days, and 3 x 1-hour TSP Monitoring per 6 days (as required in case of complaints)
4. Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Appendix F

Air Quality Monitoring Data

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

24-hour TSP Monitoring Result for
Kai Tak Development - Stage 3 Infrastructure Works for
Developments at the Southern Part of the Former Runway

KTD1a - Centre of Excellence in Paediatrics (Children's Hospital)

Start Date	Weather Condition	Air Temperature (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Sampling Time(hrs)	Flow Rate (m^3/min.)		Average flow (m^3/min.)	Total volume ($m^{3)}$	Conc. (ug/m^3)	Action Level	Limit Level
				Initial	Final			Initial	Final				(ug/m^3)	(ug/m^3)
4-Jan-20	Fine	292.2	765.7	2.6743	2.7780	0.1037	24	1.31	1.29	1.30	1869.8	55	177	260
10-Jan-20	Fine	292.9	762.4	2.7113	2.8762	0.1649	24	1.68	1.66	1.67	2408.3	68		
16-Jan-20	Fine	292.8	763.3	2.6928	2.8413	0.1485	24	1.38	1.36	1.37	1975.4	75		
22-Jan-20	Fine	293.5	764.4	2.7239	2.8740	0.1501	24	1.30	1.29	1.30	1866.4	80		
24-Jan-20	Fine	294.5	763.6	2.7200	2.8050	0.0850	24	1.30	1.29	1.29	1864.0	46		
30-Jan-20	Fine	287.7	766.2	2.6994	2.7304	0.0310	24	1.70	1.66	1.68	2424.0	13		
											Min	13		
											Max	80		
											Average	56		

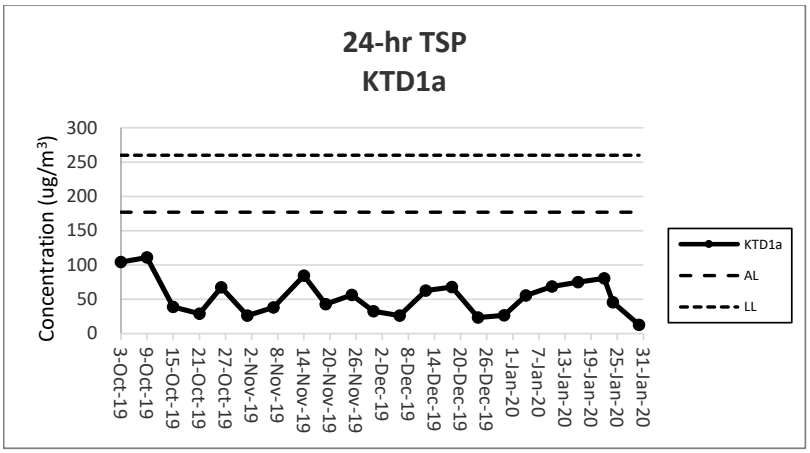
KTD 2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital)

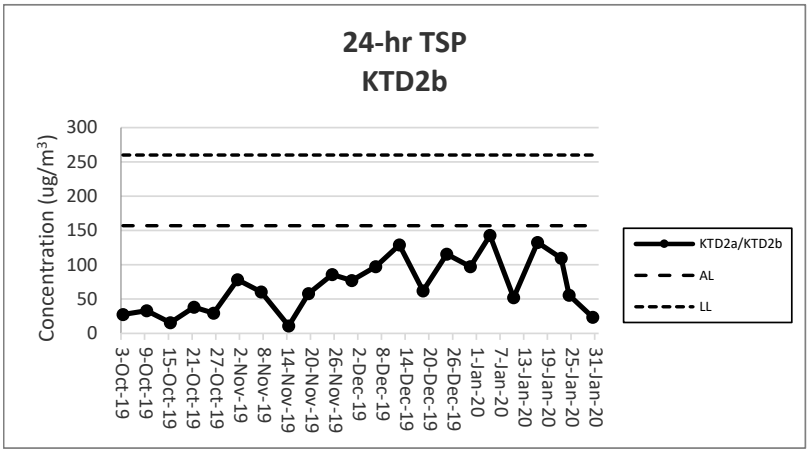
Start Date	Weather Condition	Air Temperature (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Sampling Time(hrs)	Flow Rate (m^3/min.)		Average flow (m^3/min.)	Total volume ($m^{3)}$	Conc. (ug/m^3)	Action Level	Limit Level
				Initial	Final			Initial	Final				(ug/m^3)	(ug/m^3)
4-Jan-20	Fine	292.2	765.7	2.7056	3.0529	0.3473	24	1.63	1.75	1.69	2430.5	143	157	260
10-Jan-20	Fine	292.9	762.4	2.7059	2.8243	0.1184	24	1.58	1.56	1.57	2264.9	52		
16-Jan-20	Fine	292.8	763.3	2.6808	3.0022	0.3214	24	1.58	1.79	1.69	2426.6	132		
22-Jan-20	Fine	293.5	764.4	2.7104	2.9590	0.2486	24	1.58	1.56	1.57	2265.3	110		
24-Jan-20	Fine	294.5	763.6	2.7097	2.8060	0.0963	24	1.20	1.19	1.20	1724.7	56		
30-Jan-20	Fine	287.7	766.2	2.7154	2.7715	0.0561	24	1.68	1.64	1.66	2388.8	23		
											Min	23		
											Max	143		
											Average	86		

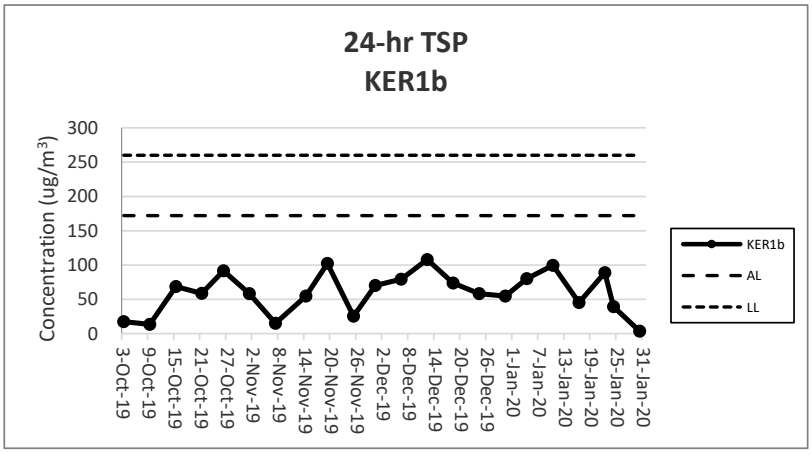
KER1b - Site Boundary at Cheung Yip Street

Start Date	Weather Condition	Air Temperature (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Sampling Time(hrs)	Flow Rate (m^3/min.)		Average flow (m^3/min.)	Total volume ($m^{3)}$	Conc. (ug/m^3)	Action Level	Limit Level
				Initial	Final			Initial	Final				(ug/m^3)	(ug/m^3)
4-Jan-20	Fine	292.2	765.7	2.6991	2.8356	0.1365	24	1.19	1.17	1.18	1701.6	80	172	260
10-Jan-20	Fine	292.9	762.4	2.6488	2.8177	0.1689	24	1.19	1.17	1.18	1698.2	99		
16-Jan-20	Fine	292.8	763.3	2.7068	2.8060	0.0992	24	1.53	1.51	1.52	2188.1	45		
22-Jan-20	Fine	293.5	764.4	2.7314	2.9257	0.1943	24	1.53	1.51	1.52	2187.4	89		
24-Jan-20	Fine	294.5	763.6	2.7143	2.8000	0.0857	24	1.52	1.51	1.52	2184.8	39		
30-Jan-20	Fine	287.7	766.2	2.7041	2.7082	0.0041	24	1.06	0.53	0.80	1148.1	4		
											Min	4		
											Max	99		
											Average	59		

Note:
Underline: Exceedance of Action Level
Underline and Bold: Exceedance of Limit Level







Note:

1) The major activities being carried out on site during the reporting period can be referred to Section 1.3.2
2) The weather conditions during the reporting period can be referred to Appendix K.
3) Any other factors which might affect the monitoing results can be referred to Section 2.6.4.
4) QA/QC results, calibration results and detection limits can be referred to Appendix D.
5) Impact noise monitoring was change to 14 November 2019 due to the traffic disturbance on 13 November 2019.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Appendix G

Noise Monitoring Data

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

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
4-Jan-20	10:15	68	71	65	0.4	Fine
10-Jan-20	09:00	68	71	66	0.0	Fine
16-Jan-20	09:51	70	73	68	0.2	Fine
22-Jan-20	09:22	69	72	67	0.2	Fine
24-Jan-20	10:38	66	67	64	0.5	Fine
30-Jan-20	09:41	63	67	61	0.3	Fine
	Max	70				
	Min	63				
	Limit Level	**75**				

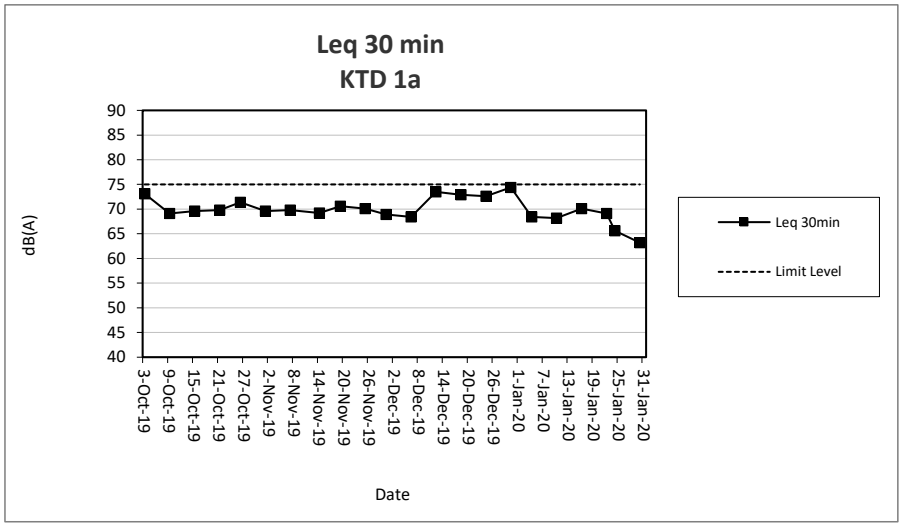
KTD 2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital)

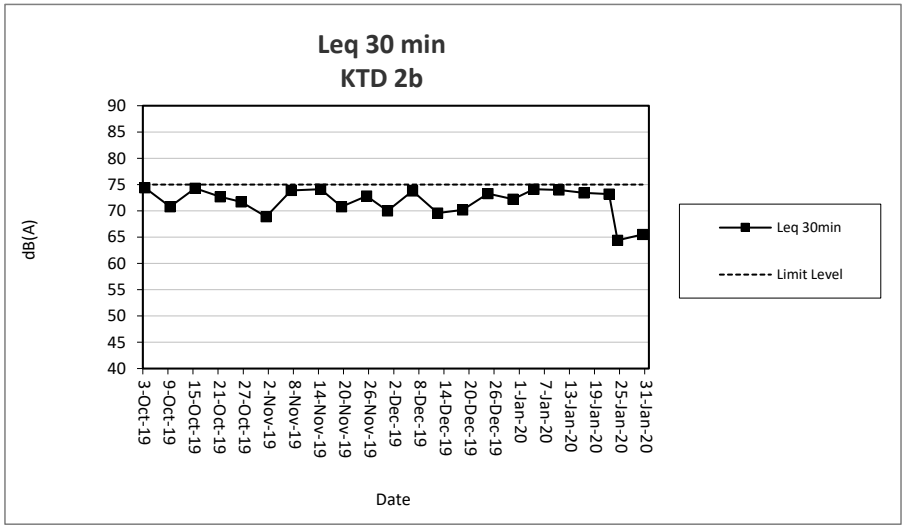
Date	Start Time	Leq 30min dB(A)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather
4-Jan-20	10:51	74	76	70	0.6	Fine
10-Jan-20	09:40	74	84	69	2.5	Fine
16-Jan-20	10:44	73	77	71	0.4	Fine
22-Jan-20	11:10	73	75	72	0.2	Fine
24-Jan-20	11:21	64	66	63	0.8	Fine
30-Jan-20	11:13	66	68	63	0.2	Fine
	Max	74				
	Min	64				
	Limit Level	**75**				

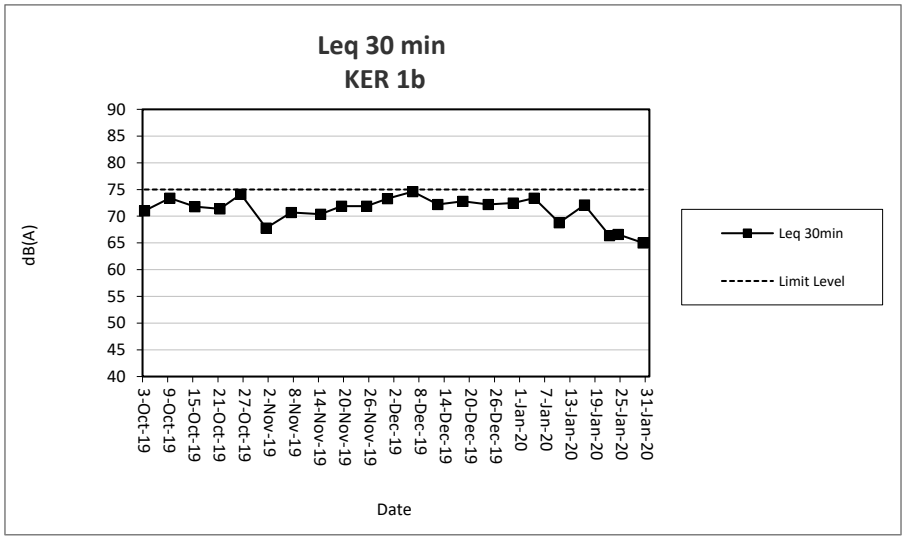
KER 1b: Site Boundary at Cheung Yip Street

Date	Start Time	Leq 30min dB(A)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather
4-Jan-20	09:38	73	75	69	0.5	Fine
10-Jan-20	10:29	69	70	67	3.0	Fine
16-Jan-20	08:45	72	76	69	0.1	Fine
22-Jan-20	10:03	66	69	64	0.3	Fine
24-Jan-20	10:00	67	68	64	0.0	Fine
30-Jan-20	10:20	65	68	61	0.1	Fine
	Max	73				
	Min	65				
	Limit Level	**75**				

Note:
KTD1a: Façade Measurement
KTD2b & KER1b: Free-field measurement (+3dB(A) correction has been applied)
No raining or wind with speed over 5 m/s was observed during noise monitoring according to the onsite observation.







Note:
1) The major activities being carried out on site during the reporting period can be referred to Section 1.3.2.
2) The weather conditions during the reporting period can be referred to Appendix K.
3) Any other factors which might affect the monitoing results can be referred to Section 3.7.2.
4) QA/QC results, calibration results and detection limits can be referred to Appendix D.
5) Impact noise monitoring was change to 14 November 2019 due to the traffic disturbance on 13 November 2019.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Appendix H

Events and Action Plan

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Event and Action Plan for Construction Dust Monitoring

EVENT	ACTION			
	ET	**IEC**	**ER**	**Contractor**
Action Level				
Exceedance for one sample.	1. Identify sources, investigate the causes of complaint and propose remedial measures. 2. Inform IEC and ER. 3. Repeat measurement to confirm finding;. 4. Increase monitoring frequency	1. Check monitoring data submitted by the ET. 2. Check the Contractor's working methods.	1. Notify the Contractor.	1. Rectify any unacceptable practices. 2. Amend working methods agreed with the ER as appropriate.
Exceedance for two or more consecutive samples.	1.Identify sources. 2.Inform the IEC and ER. 3.Advise the ER on the effectiveness of the proposed remedial measures; 4.Repeat measurements to confirm findings. 5.Increase monitoring frequency to daily. 6.Discuss with the IEC, ER and Contractor on remedial action required. 7.If exceedance continues, arrange meeting with the IEC, Contractor and ER. 8.If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET. 2. Check the Contractor's working methods. 3. Discuss with the ET, ER and Contractor on possible remedial measures if required. 4. Advise the ER on the effectiveness of proposed remedial measures if required.	1. Notify the Contractor. 2. Ensure remedial measures properly implemented.	1. Submit proposals for remedial action to the ER within 3 working days of notification. 2. Implement the agreed proposals. 3. Amend proposal as appropriate
Limit Level				
Exceedance for one sample.	1. Identify sources, investigate causes of exceedance and proposed remedial measures. 2. Inform the IEC, ER, and Contractor. 3. Repeat measurement to confirm finding. 4. 4. Increase monitoring frequency to daily. 5. Assess effectiveness of the Contractor's remedial action and keep the IEC and ER informed of the results	1. Check monitoring data submitted by the ET. 2. Check the Contractor's working methods. 3. Discuss with the ET, ER and Contractor on possible remedial measures. 4. Advise the ER and ET on the effectiveness of the proposed remedial measures. 5. Supervise the implementation of remedial measures.	1. Confirm receipt of the notification of exceedance in writing. 2. Notify the Contractor. 3. Ensure remedial measures are properly implemented.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial action to the ER and copy to the ET and IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Amend proposal as appropriate.
Exceedance for two or more consecutive samples	1. Notify the IEC, ER and Contractor. 2. Identify sources. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Carry out analysis of the Contractor's working procedures with the ER to determine the possible mitigation to be implemented. 6. Arrange meeting with the IEC and ER to discuss the remedial	1. Discuss amongst the ER, ET and Contractor on the potential remedial action. 2. Review the Contractor's remedial action whenever necessary to assure their effectiveness and advise the ER and ET accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of the notification of exceedance in writing. 2. Notify the Contractor. 3. In consultation with the IEC and ET, agree with the Contractor on the remedial measures to be implemented. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider	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 determined by the ER

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

EVENT	ACTION			
	ET	IEC	ER	Contractor
	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		what portion of works is responsible and instruct the Contractor to stop that portion of works until the exceedance is abated.	until the exceedance is abated.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Event and Action Plan for Noise Impact

EVENT	ACTION			
	ET	IEC	ER	Contractor
Action Level	1. Notify the IEC, ER and Contractor. 2. Carry out investigation. 3. Report the results of investigation to the IEC and Contractor. 4. Discuss jointly with the ER and Contractor and formulate remedial measures. 5. Increase the monitoring frequency to check the mitigation effectiveness	1. Review the monitoring data submitted by the ET. 2. Review the construction methods and proposed redial measures by the Contractor, and advise the ET and ER if the proposed remedial measures would be sufficient	1. Notify the Contractor. 2. Require the Contractor to propose remedial measures for implementation if required.	1. Submit noise mitigation proposals to the ER and copy to the IEC and ET. 2. Implement noise mitigation proposals.
Limit Level	1. Notify the IEC, ER and Contractor. 2. Identify sources. 3. Repeat measurements to confirm findings. 4. Carry out analysis of the Contractor's working procedures with the ER and Contractor to determine possible mitigations to be implemented. 5. Record the causes and action taken for the exceedances. 6. Increase the monitoring frequency. 7. Assess the effectiveness of the Contractor's remedial action with the ER and keep the IEC informed of the results. **8.** If exceedance stops, cease additional monitoring	1. Discuss amongst the ER, ET and Contractor on the potential remedial action. 2. Review the Contractor's remedial action whenever necessary to assure their effectiveness and advise the ER accordingly. **3.** Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problems. 4. Ensure remedial measures are properly implemented. **5.** If exceedance continues, consider what portion of work is responsible and instruct the Contractor to stop that portion of works until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial action to the ER and copy to the ET and IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problems still not under control. **5.** Stop the relevant portion of works as determined by the ER until the exceedance is abated.

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Event and Action Plan for Landscape and Visual Impact

EVENT	ACTION			
	ET	IEC	ER	Contractor
Non-conformity on one occasion	1. Identify Source 2. Inform the IEC and the ER 3. Discuss remedial actions with the IEC, the ER and the Contractor 4. Monitor remedial actions until rectification has been completed	1. Check report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 5. Check implementation of remedial measures.	1. Notify Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1. Identify Source 2. Inform the IEC and the ER 3. Increase monitoring frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If exceedance stops, cease additional monitoring	1. Check monitoring report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures.	1. Notify the Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake any necessary replacement

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Appendix I

Waste Flow Table

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

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 Jun	4.6035	Nil	0.8555	Nil	3.748	Nil	Nil	0.023	0.00002	0.0158	0.0619
2016 Jul	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.
3) Total Quantity Generated (Inert) = Hard Rock and Large Broken Concrete + Reused in the Contract + Disposed as Public Fill – Imported Fill

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Waste Flow Table for Year 2017

Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (Inert C&D)	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
2017 Jan	4.2300	Nil	Nil	Nil	4.2300	Nil	0.015	0.023	Nil	Nil	0.0109
2017 Feb	3.2128	Nil	Nil	Nil	3.2128	Nil	0.015	0.023	Nil	Nil	0.0096
2017 Mar	9.4759	Nil	Nil	Nil	9.4759	Nil	0.034	0.023	Nil	Nil	0.0162
2017 Apr	4.8827	Nil	Nil	Nil	4.8827	Nil	0.016	0.023	Nil	Nil	0.0062
2017 May	3.0366	Nil	Nil	Nil	3.0366	Nil	0.022	0.023	Nil	Nil	0.0282
2017 Jun	2.5656	Nil	Nil	Nil	2.5656	Nil	41.25	Nil	Nil	Nil	0.0357
2017 Jul	5.5267	Nil	0.7851	Nil	4.7416	Nil	4.01	0.4515	Nil	0.25	0.0364
2017 Aug	11.4734	Nil	0.0276	Nil	11.4458	Nil	7.4	Nil	Nil	Nil	0.0196
2017 Sep	23.9373	Nil	2.6167	Nil	21.3206	Nil	3.52	Nil	Nil	Nil	0.0333
2017 Oct	17.8261	Nil	0.4069	Nil	17.4192	Nil	Nil	Nil	Nil	Nil	0.0156
2017 Nov	5.8834	Nil	0.6664	Nil	5.217	Nil	Nil	Nil	Nil	Nil	0.023
2017 Dec	21.3554	Nil	0.4763	Nil	20.8791	Nil	29.13	Nil	Nil	Nil	0.022
Total	113.4059	Nil	4.9790	Nil	108.4269	Nil	85.412	0.5665	Nil	0.25	0.2567

Note:
1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.
3) Total Quantity Generated (Inert) = Hard Rock and Large Broken Concrete + Reused in the Contract + Disposed as Public Fill – Imported Fill

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Waste Flow Table for Year 2018

Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (Inert C&D)	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
2018 Jan	10.2340	Nil	Nil	Nil	10.2340	Nil	32.39	Nil	Nil	Nil	0.0161
2018 Feb	6.5256	Nil	Nil	Nil	6.5256	Nil	Nil	Nil	Nil	Nil	0.0235
2018 Mar	28.1995	Nil	Nil	Nil	28.1995	Nil	54.54	Nil	Nil	Nil	0.0190
2018 Apr	11.2165	Nil	Nil	Nil	11.2165	Nil	Nil	Nil	Nil	Nil	0.0270
2018 May	5.6011	Nil	Nil	Nil	5.6011	Nil	Nil	Nil	Nil	Nil	0.0140
2018 Jun	5.8072	Nil	Nil	Nil	5.8072	Nil	93.3	Nil	Nil	Nil	0.0235
2018 Jul	7.4206	Nil	Nil	Nil	7.4206	Nil	Nil	Nil	Nil	Nil	0.0383
2018 Aug	2.0815	Nil	Nil	Nil	2.0815	Nil	Nil	Nil	Nil	Nil	0.0665
2018 Sep	0.3710	Nil	Nil	Nil	0.3710	Nil	Nil	Nil	Nil	Nil	0.0436
2018 Oct	0.9087	Nil	Nil	Nil	0.9620	0.0533	Nil	Nil	Nil	Nil	0.0444
2018 Nov	0.7291	Nil	Nil	Nil	0.7733	0.0589	Nil	Nil	Nil	Nil	0.0225
2018 Dec	-0.0931	Nil	Nil	Nil	0.3860	0.4791	Nil	Nil	Nil	Nil	0.0228
Total	79.0017	Nil	Nil	Nil	79.5783	0.5913	180.23	Nil	Nil	Nil	0.3614

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.
3) Total Quantity Generated (Inert) = Hard Rock and Large Broken Concrete + Reused in the Contract + Disposed as Public Fill – Imported Fill

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Waste Flow Table for Year 2019

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)
2019 Jan	0.2485	Nil	Nil	Nil	0.7063	0.45774	Nil	Nil	Nil	Nil	0.0100
2019 Feb	0.2790	Nil	Nil	Nil	0.2790	Nil	Nil	Nil	Nil	Nil	0.0076
2019 Mar	0.7376	Nil	Nil	Nil	0.7376	Nil	Nil	Nil	Nil	Nil	0.0929
2019 Apr	0.3694	Nil	Nil	Nil	0.3694	Nil	Nil	Nil	Nil	Nil	0.0365
2019 May	0.4683	Nil	Nil	Nil	0.4683	Nil	Nil	Nil	Nil	Nil	0.0383
2019 Jun	0.8571	Nil	Nil	Nil	0.8571	Nil	Nil	Nil	Nil	Nil	0.0160
2019 Jul	15.2091	Nil	Nil	Nil	15.2091	Nil	Nil	Nil	Nil	Nil	0.0331
2019 Aug	5.7307	Nil	Nil	Nil	5.7307	Nil	Nil	Nil	Nil	Nil	0.0249
2019 Sep	9.0074	Nil	Nil	Nil	9.0074	Nil	Nil	Nil	Nil	Nil	0.0541
2019 Oct	0.6616	Nil	Nil	Nil	0.6616	Nil	Nil	Nil	Nil	Nil	0.0269
2019 Nov	0.8783	Nil	Nil	Nil	0.8783	Nil	Nil	0.17	Nil	Nil	0.0453
2019 Dec	0.6110	Nil	Nil	Nil	0.6110	Nil	Nil	Nil	Nil	Nil	0.0519
Total	35.058	0	0	0	35.5158	0.4577	0	0.17	0	0	0.4375

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.
3) Total Quantity Generated (Inert) = Hard Rock and Large Broken Concrete + Reused in the Contract + Disposed as Public Fill – Imported Fill

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Waste Flow Table for Year 2020

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)
2020 Jan	0.3807	Nil	Nil	Nil	0.3807	Nil	Nil	Nil	Nil	Nil	0.0276
2020 Feb											
2020 Mar											
2020 Apr											
2020 May											
2020 Jun											
2020 Jul											
2020 Aug											
2020 Sep											
2020 Oct											
2020 Nov											
2020 Dec											
Total	0.3807	0	0	0	0.3807	0	0	0	0	0	0.0276

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.
3) Total Quantity Generated (Inert) = Hard Rock and Large Broken Concrete + Reused in the Contract + Disposed as Public Fill – Imported Fill

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

Appendix J

Environmental Mitigation Implementation Schedule (EMIS)

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

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

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
S3.2, S5.2.19, AEIAR-174/2013 S4.9.2.2	EM&A Manual S2.2, S4.2, AEIAR-174/2013 EM&A Manual S2.3.1.2	be fully covered by impermeable sheeting to reduce dust emission.		worksites	
		Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. Use of frequent watering for particularly dusty construction areas and areas close to ASRs.	Contractor	All relevant worksites	Implemented
		Misting for the dusty material should be carried out before being loaded into the vehicle. Any vehicle with an open load carrying area should have properly fitted side and tail boards.	Contractor	All relevant worksites	Implemented
		Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.	Contractor	All relevant worksites	Implemented
		Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation.	Contractor	All relevant worksites	Implemented
		The vehicles should be restricted to maximum speed of 10 km per hour. Confined haulage and delivery vehicle to designated roadways insider the site. Onsite unpaved roads should be compacted and kept free of lose materials.	Contractor	All relevant worksites	Implemented
		Vehicle washing facilities should be provided at every vehicle exit point. Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites. The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	Contractor	All relevant worksites	Implemented
		Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	Contractor	All relevant worksites	Of 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

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed.	Contractor	All relevant worksites	Not Applicable
		Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system.	Contractor	All relevant worksites	Implemented
		Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.	Contractor	All relevant worksites	Implemented
		Open stockpiles shall be avoided or covered. Prevent placing dusty material storage piles near ASRs.	Contractor	All relevant worksites	Implemented
		Routing of vehicles and position of construction plant should be at the maximum possible distance from ASRs.	Contractor	All relevant worksites	Implemented
		<u>Dark smoke</u>			
		Dark smoke emission shall be control in accordance with the Air Pollution Control (Smoke) Regulation and ETWB TCW 19/2005.	Contractor	All relevant worksites	Implemented
		Plant and equipment should be well maintained to prevent dark smoke emission.	Contractor	All relevant worksites	Implemented
<u>Noise Measures</u>					
Trunk Road T2					
AEIAR-174/2013 S5.9.2.1	AEIAR-174/2013 EM&A Manual S3.4.1.1	The use of quieter plant, including Quality Powered Mechanical Equipment (QPME) is specified for the list of equipment: • Concrete lorry mixer • Dump Truck, 5.5 tonne < gross vehicle weight <= 38 tonne • Generator, Super Silenced, 70 dB(A) at 7m	Contractor	All relevant worksites	Implemented

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		• Poker, vibratory, Hand-held (electric) • Water Pump, Submersible (Electric) • Mobile Crane - KOBELCO CKS900 • Excavator, wheeled/tracked - HYUNDAI R80CR-9			
		Use of temporary or fixed noise barriers with a surface density of at least 10kg/m^2 to screen noise from movable and stationary plant.	Contractor	All relevant worksites	Not Applicable
		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	Not Applicable
		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

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		Use of site hoarding as a noise barrier to screen noise at low level NSRs.	Contractor	All relevant worksites	Implemented
		For the use of hand held percussive breakers (with mass of above 10kg) and portable air compressors (supply air at 500 kPa or above), the noise level of such PME shall comply with a stringent noise emission standard and a noise emission label shall be obtained from the DEP before use at any time in construction site.	Contractor	All relevant worksites	Implemented
		Quiet powered mechanical equipment (PME) shall be used for the construction of the Project.	Contractor	All relevant worksites	Implemented
		Full enclosures shall be used to screen noise from relatively static PMEs (including air compressor, bar bender, concrete pump, generator and water pump) from sensitive receiver(s).	Contractor	All relevant worksites	Not Applicable
		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	Not Applicable
		Only approved or exempted Non-road Mobile Machineries (NRMMs) including regulated machines and non-road vechicles with proper labels are allowed to be used in specified activities on-site.	Contractor	All relevant worksites	Implemented
<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

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		The storage container should be placed on an area of impermeable flooring and bunded with capacity to accommodate 110% of the volume of the container size or 20% by volume stored in the area and enclosed with at least 3 sides.	Contractor	All relevant worksites	Implemented
		The storage container should be sufficiently covered to prevent rainfall entering the container or bunded area (water collected within the bund must be tested and disposed of as chemical waste, if necessary). An emergency clean up kit shall be readily available where bentonite fluid will be stored or used.	Contractor	All relevant worksites	Implemented
		The handling and disposal of bentonite slurries should be undertaken in accordance within ProPECC PN 1/94. Surplus bentonite slurries used in construction works shall be reconditioned and reused wherever practicable. Residual bentonite slurry shall be disposed of from the site as soon as possible as stipulated in Clause 8.56 of the General Specification for Civil Engineering Works. The Contractor should explore alternative disposal outlets for the residual bentonite slurry (dewatered bentonite slurry to be disposed to a public filling area and liquid bentonite slurry, if mixed with inert fill material, to be disposed to a public filling area) and disposal at landfill should be the last resort.	Contractor	All relevant worksites	Implemented
AEIAR-174/2013 S6.4.8.8	AEIAR-174/2013 EM&A Manual S4.2.1.1	In order to protect against impacts to the surrounding marine waters of the KTTS and Victoria Harbour in the event of an accidental spillage of fuel or oil, the Contractor will be required to prepare a spill response plan to the satisfaction of AFCD, EPD, FSD, Police, TD and WSD to define procedures for the control, containment and clean-up of any spillage that could occur on the construction site.	Contractor	All relevant worksites	Implemented
		<u>Dredging, Reclamation and Filling</u>			
		No dredging, reclamation or filling in the marine environment shall be carried out.	Contractor	All relevant worksites	Implemented
Decommissioning of the Radar Station of the former Kai Tak Airport					
		<u>Building Demolition</u>			

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
AEIAR-130/2009 S5.4	AEIAR 130/2009 EM&A Manual S4.4	The site practices outlined in ProPECC PN 1/94 “Construction Site Drainage” should be followed as far as practicable in order to minimise surface runoff and the chance of erosion.	Contractor	All relevant worksites	Not Applicable
		There is a need to apply to EPD for a discharge licence under the WPCO for discharging effluent from the construction site. The discharge quality is required to meet the requirements specified in the discharge licence. All the runoff, wastewater or extracted groundwater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. It is anticipated that the wastewater generated from the works areas would be of small quantity. Monitoring of the treated effluent quality from the works areas should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD.	Contractor	All relevant worksites	Not Applicable
		<u>General Construction Works</u>			
		<u>Construction Runoff</u>			
AEIAR-130/2009 S3.4, S5.4/ AEIAR-174/2013 S6.4.8.1	AEIAR 130/2009 EM&A Manual S2.4, S4.4/ AEIAR-174/2013 EM&A Manual S4.2.1.1	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include the use of sediment traps and adequate maintenance of drainage systems to prevent flooding and overflow.	Contractor	All relevant worksites	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

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.			
		Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	Contractor	All relevant worksites	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

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		<u>Drainage</u>			
		It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea.	Contractor	All relevant worksites	Implemented
		All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	Contractor	All relevant worksites	Implemented
		<u>Stormwater Discharges</u>			
		Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes.	Contractor	All relevant worksites	Implemented
		<u>Sewage Effluent</u>			
		Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	Contractor	All relevant worksites	Implemented
		<u>Debris and Litter</u>			
		In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised and that disposal of any solid materials, litter or wastes to marine waters does not occur. Debris and refuse generated on-site should be collected, handled and disposed of	Contractor	All relevant worksites	Implemented

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		properly to avoid entering into the adjacent harbour waters. Stockpiles of cement and other construction materials should be kept covered when not being used.			
		<u>Accidental Spillage</u>			
		Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to the nearby harbour waters, all fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour WCZ. The bund should be drained of rainwater after a rain event.	Contractor	All relevant worksites	Implemented
<u>Waste Management Measures</u>					
		<u>Waste Management Plan</u>			
AEIAR-174/2013 S11.4.8.1	AEIAR-174/2013 EM&A Manual S9.2.1.2	Contractor should be requested to submit an outline Waste Management Plan (WMP) prior to the commencement of construction work, in accordance with the ETWB TC(W) No.19/2005 so as to provide an overall framework of waste management and reduction.	Contractor	All relevant worksites	Implemented
		<u>Good Site Practices</u>			
AEIAR-130/2009 S3.5, S5.5	AEIAR 130/2009 EM&A Manual S2.5, S4.5	Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.	Contractor	All relevant worksites	Implemented
		Training of site personnel in proper waste management and chemical waste handling procedures.	Contractor	All relevant worksites	Implemented
		Provision of sufficient waste disposal points and regular collection for disposal.	Contractor	All relevant worksites	Implemented
		Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	Contractor	All relevant worksites	Implemented

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).	Contractor	All relevant worksites	Implemented
		<u>Waste Reduction Measures</u>			
		Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals.	Contractor	All relevant worksites	Implemented
		Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.	Contractor	All relevant worksites	Implemented
		Encourage collection of aluminum cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force.	Contractor	All relevant worksites	Implemented
		Any unused chemicals or those with remaining functional capacity should be recycled.	Contractor	All relevant worksites	Implemented
		Proper storage and site practices to minimize the potential for damage or contamination of construction materials.	Contractor	All relevant worksites	Implemented
		<u>Construction and Demolition Materials</u>			
		Where it is unavoidable to have transient stockpiles of C&D material within the work site pending collection for disposal, the transient stockpiles shall be located away from waterfront or storm drains as far as possible.	Contractor	All relevant worksites	Implemented
		Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric.	Contractor	All relevant worksites	Implemented
		Skip hoist for material transport should be totally enclosed by impervious sheeting.	Contractor	All relevant worksites	Implemented

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site.	Contractor	All relevant worksites	Implemented
		The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	Contractor	All relevant worksites	Implemented
		The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle.	Contractor	All relevant worksites	Implemented
		All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet.	Contractor	All relevant worksites	Implemented
		The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading.	Contractor	All relevant worksites	Implemented
		When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 “Trip Ticket System for Disposal of Construction and Demolition Materials” should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.	Contractor	All relevant worksites	Implemented
		<u>Chemical Waste</u>			
		After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Contractor	All relevant worksites	Partially Implemented

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		General Refuse			
		General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem.	Contractor	All relevant worksites	Implemented
Land Contamination Measures					
		For any excavation works conducted at Radar Station			
		As the risk due to dermal contact with groundwater by site workers is uncertain, it is recommended that personnel protective equipment (PPE) be used by site workers as a mitigation measure.	Contractor	All relevant worksites	Not Applicable
Landscape and Visual Impact					
		New Distributor Roads Serving the Planned KTD			
		Construction Phase			
		All existing trees should be carefully protected during construction.	Contractor	All relevant worksites	Not Applicable
		Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work.	Contractor	All relevant worksites	Not Applicable
		Control of night-time lighting.	Contractor	All relevant worksites	Not Applicable

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

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	Not Applicable
		Trunk Road T2			
		Construction Phase			
AEIAR-174/2013 S9.9.1.1	AEIAR-174/2013 EM&A Manual S7.2.1.2	All works shall be carefully designed to minimize impacts on existing landscape resources and visually sensitive receivers. Existing trees within works area shall be retained and protected.	Contractor	All relevant worksites	Not Applicable
		Existing trees of good quality and condition that are unavoidably affected by the works should be transplanted.	Contractor	All relevant worksites	Not Applicable
		Large temporary stockpiles of excavated material shall be covered with unobtrusive sheeting to prevent dust and dirt spreading to adjacent landscape areas and vegetation, and to create a neat and tidy visual appearance.	Contractor	All relevant worksites	Implemented
		Construction plant and building material shall be orderly and carefully stored in order to create a neat and tidy visual appearance.	Contractor	All relevant worksites	Implemented
		Erection of decorative screen hoarding should be designed to be compatible with the existing urban context.	Contractor	All relevant worksites	Not Applicable
		All lighting in construction site shall be carefully controlled to minimize light pollution and night-time glare to nearby residences and GIC user. The contractor shall consider other security measures, which shall minimize the visual impacts.	Contractor	All relevant worksites	Not Applicable
General Condition					
		The Permit Holder shall display conspicuously a copy of this Permit on the Project site(s) at all vehicular site entrances/exits or at a convenient location for public's information at all times. The Permit Holder shall ensure that the most updated information about the Permit, including any amended Permit, is displayed at such locations. If the Permit Holder surrenders a part or the whole of the Permit, the notice he sends to the Director shall also be displayed at the same	Contractor	All relevant worksites	Implemented

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com
Website : www.fugro.com

EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		locations as the original Permit. The suspended, varied or cancelled Permit shall be removed from display at the Project site(s).			

Implementation status: Implemented / Partially Implemented / Not Implemented / Not Applicable

The copyright of this document is owned by MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com

Appendix K

Weather and Meteorological Conditions during Reporting Month

The copyright of this document is owned MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com

Date	Mean Pressure (hPa)	Air Temperature			Mean Relative Humidity (%)	Total Rainfall (mm)
		Maximum (deg. C)	Mean (deg. C)	Minimum (deg. C)		
January 2020						
1	1026.5	18.7	17.9	17.2	80	Trace
2	1025.2	20.4	18.3	17.4	78	0
3	1023.0	22.0	18.9	17.2	82	0
4	1020.9	22.0	19.2	17.6	83	0
5	1020.5	22.1	20.0	18.7	79	0
6	1019.3	24.0	21.0	19.5	78	0
7	1017.2	25.8	22.4	20.4	83	Trace
8	1018.5	26.0	21.9	19.7	72	0
9	1018.1	20.6	19.3	18.4	77	0
10	1016.4	21.8	19.9	18.8	82	0
11	1015.3	23.9	20.9	18.7	81	0
12	1017.1	20.3	17.9	15.7	65	0
13	1017.8	19.7	18.3	17.2	76	0
14	1019.0	21.9	19.0	17.5	76	0
15	1018.3	21.7	19.5	17.9	80	0.1
16	1017.7	22.2	19.8	18.4	84	Trace
17	1019.6	20.0	18.5	17.2	69	0
18	1019.6	21.0	18.3	17.1	73	0
19	1020.9	20.7	18.2	16.6	75	0
20	1021.9	20.6	18.0	15.7	75	0
21	1022.4	21.1	18.8	17.3	80	0
22	1019.1	23.6	20.5	18.0	82	Trace
23	1017.2	25.7	21.9	20.5	86	0
24	1018.1	23.1	21.5	20.1	89	Trace
25	1016.2	22.2	19.7	18.8	89	2.1
26	1014.9	19.2	16.5	13.7	86	12.3
27	1016.4	16.0	13.0	11.5	70	0.2
28	1018.6	16.1	13.0	10.8	66	0.1
29	1020.6	17.1	13.8	11.0	55	0
30	1021.5	18.5	14.7	11.6	44	0
31	1022.4	18.9	14.8	11.8	52	0

Source: Hong Kong Observatory

The copyright of this document is owned MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com

Appendix L

Cumulative statistics on Environmental Complaints, Notifications of Summons and Successful Prosecution

The copyright of this document is owned MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com

Environmental Complaints Log

Reference No.	Date of Complaint Received	Received From	Received By	Nature of Complaint	Date of Investigation	Outcome	Date of Reply
20161207_complaint_c	7 Dec 2016	EPD	Andy Choy (CRBC)	Air	13 Feb 2017	Project-related	13 Feb 2017
20170209_complaint_c	9 Feb 2017	EPD	Andy Choy (CRBC)	Air	22 Feb2017	Not Project-related	7 Mar 2017
20170502_complaint_c	2 May 2017	CEDD	Andy Choy (CRBC)	Noise	4 May 2017	Not Valid	22 May 2017
20170716_complaint_a	16 July 2017	CEDD	HMJV	Water Quality	4 Aug 2017	Not Project-related	4 Aug 2017
20180530_complaint	30 May 2018	EPD	CRBC	Air	9 June 2018	Not Valid	20 June 2018

Cumulative Statistics on Complaints

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Month	Cumulative Project-to-Date
Air	3	0	3
Noise	1	0	1
Water	1	0	1
Waste	0	0	0
Total	0	0	0

Cumulative Statistics on Notification of Summons and Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Notification of Summons and Prosecutions This Month	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0

The copyright of this document is owned MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com

Appendix M

Summary of Site Audit in the Reporting Month

The copyright of this document is owned MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com

Summary of Site Audit in the Reporting Month

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	02 January 2020	Observation: Dust suppression measure should be provided. (Zone 2)	8 January 2020
	8 January 2020	Reminder: Excavated materials should be covered or removed. (Zone 4)	NA
	22 January 2020	Reminder: Exposed materials should be removed or covered. (Zone 2)	NA
Noise	02 January 2020	Reminder 2: Hoarding should be provided ASAP. (Zone4)	NA
Water Quality	15 January 2020	Reminder 2: Stagnant water should be cleared ASAP. (Zone 1)	NA
Chemical and Waste Management	02 January 2020	Reminder 1: All waste generated from the site should be cleaned and collected. (Zone 2)	NA
	15 January 2020	Reminder 1: Drip tray should be provided. (Zone 1)	NA
	22 January 2020	Observation: Chemical waste should be remove. (Zone 1)	24 January 2020
Land Contamination	NA		
Landscape and Visual Impact	NA		
General Condition	NA		
Permit / Licenses	NA		

The copyright of this document is owned MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com

Appendix N

Outstanding Issues and Deficiencies

The copyright of this document is owned MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.
Tel : +852 2450 8238
Fax : +852 2450 8032
E-mail : mcl@fugro.com

Summary of Outstanding Issues and Deficiencies in the Reporting Month

Parameters	Outstanding Issues	Deficiencies
Air Quality	NA	Any items of deficiencies can be referred to **Appendix M**.
Noise	NA	
Water Quality	NA	
Chemical and Waste Management	NA	
Land Contamination	NA	
Landscape and Visual Impact	NA	
General Condition	NA	
Others	NA	

The copyright of this document is owned MateriaLab Consultants Ltd. It may not be reproduced except with prior written approval from the Company.

FUGRO TECHNICAL SERVICES LIMITED

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

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

Appendix D

Monthly EM&A Report
For
Contract No. KL/2015/02
Kai Tak Development - Stage 5A Infrastructure at Former North Apron Area

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

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

January 2020

(version 1.1)

Approved By

(Environmental Team Leader)

REMARKS:

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

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

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

FUGRO TECHNICAL SERVICES LIMITED

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

Date 13 February 2020
Our Ref. MCL/ED/0090/2020/C

Cinotech Consultants Limited
Rm 1710, Technology Park,
18 On Lai Street, Shatin,
New Territories,
Hong Kong

BY EMAIL

Attn.: Mr. K.S Lee

Dear Sir,

Contract No. KL/2015/02
Kai Tak Development –Stage 5A Infrastructure at Former North Apron
Verification of Monthly EM&A Report for January 2020

We refer to your emails dated 6 and 11 February 2020 regarding the Monthly EM&A Report for January 2020 for the captioned project prepared by the ET.

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

Should you require further information, please do not hesitate to contact Mr. Wingo So at 3565 4374 or the undersigned on 3565 4114.

Assuring you of our best attention at all times.

Yours faithfully,
For and on behalf of
FUGRO TECHNICAL SERVICES LIMITED

Colin K. L. Yung
Independent Environmental Checker

CY/ws

c.c. CEDD – Attn.: Mr. Ricky Chan
Attn.: Mr. Vincent Yip
AECOM – Attn.: Mr. Vincent Lee
Attn.: Mr. Teddy Shih

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

Introduction 1
Environmental Monitoring Works 2
Environmental Licenses and Permits 2
Key Information in the Reporting Month 3
Future Key Issues 3

1 INTRODUCTION 4

Background 4
Project Organizations 4
Construction Activities undertaken during the Reporting Month 5
Summary of EM&A Requirements 6

2 AIR QUALITY 7

Monitoring Requirements 7
Monitoring Locations 7
Monitoring Equipment 7
Monitoring Parameters, Frequency and Duration 8
Monitoring Methodology and QA/QC Procedure 8
Results and Observations 10

3 NOISE 12

Monitoring Requirements 12
Monitoring Locations 12
Monitoring Equipment 12
Monitoring Parameters, Frequency and Duration 12
Monitoring Methodology and QA/QC Procedures 13
Maintenance and Calibration 13
Results and Observations 14

4 COMPARISON OF EM&A RESULTS WITH EIA PREDICTIONS 15

5 LANDSCAPE AND VISUAL 17

Monitoring Requirements 17
Results and Observations 17

6 ENVIRONMENTAL INSPECTION 18

Site Inspections 18
Review of Environmental Monitoring Procedures 18
Status of Environmental Licensing and Permitting 18
Status of Waste Management 19
Implementation Status of Environmental Mitigation Measures 19
Summary of Mitigation Measures Implemented 20
Implementation Status of Event Action Plans 20
Summary of Complaint, Warning, Notification of any Summons and Successful Prosecution 21

7 FUTURE KEY ISSUES 22

Monitoring Schedule for Next Month 23

8 CONCLUSIONS AND RECOMMENDATIONS 24

Conclusions 24
Recommendations 24

LIST OF TABLES

Table I Air Quality and Noise Monitoring Stations for this Project
Table II Non-compliance Recorded for the Project in the Reporting Month
Table III Summary Table for Key Information in the Reporting Month
Table 1.1 Key Project Contacts
Table 1.2 Construction Programme Showing the Inter-Relationship with Environmental Protection/Mitigation Measures
Table 2.1 Locations for Air Quality Monitoring
Table 2.2 Air Quality Monitoring Equipment
Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration
Table 2.4 Summary Table of Air Quality Monitoring Results during the reporting month
Table 3.1 Noise Monitoring Stations
Table 3.2 Noise Monitoring Equipment
Table 3.3 Noise Monitoring Parameters, Frequency and Duration
Table 3.4 Major Noise Source identified at the Designated Noise Monitoring Stations
Table 3.5 Baseline Noise Level and Noise Limit Level for Monitoring Stations
Table 4.1 Comparison of 1-hr TSP data with EIA predictions
Table 4.2 Comparison of 24-hr TSP data with EIA predictions
Table 4.3 Comparison of Noise Monitoring Data with EIA predictions
Table 6.1 Summary of Environmental Licensing and Permit Status
Table 6.2 Observations and Recommendations of Site Inspections

LIST OF FIGURES

Figure 1 Site Layout Plan
Figure 2 Location of Air Quality Monitoring Stations
Figure 3 Location of Noise Monitoring Stations
Figure 4 Location of Wind Data Monitoring Equipment

LIST OF APPENDICES

A Action and Limit Levels for Air Quality and Noise
B Copies of Calibration Certificates
C Weather Information
D Environmental Monitoring Schedules
E 1-hour TSP Monitoring Results and Graphical Presentations
F 24-hour TSP Monitoring Results and Graphical Presentations
G Noise Monitoring Results and Graphical Presentations
H Summary of Exceedance
I Site Audit Summary
J Event Action Plans
K Environmental Mitigation Implementation Schedule (EMIS)
L Summaries of Environmental Complaint, Warning, Summon and Notification of Successful Prosecution
M Summary of Waste Generation and Disposal Records
N Construction Programme

EXECUTIVE SUMMARY

Introduction

1. This is the 37th Monthly Environmental Monitoring and Audit Report prepared by Cinotech Consultants Ltd. for "Contract No. KL/2015/02 - Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area" (Hereafter referred to as "the Project"). This contract comprises one Schedule 2 designated project (DP), namely the new distributor road D1 serving the planned KTD. The DP is part of the designated project under Environmental Permit (EP) No.: EP-337/2009 ("New distributor roads serving the planned Kai Tak Development") respectively. This report documents the findings of EM&A Works conducted during January 2020.

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:

- Implementation of TTA Stage 4-1 at PERE
- Demolition of the exiting ground beam underneath Bridge K72
- Excavation with ELS for subway construction at SKLR playground
- Erection of external formworks for the base slab of subway at PERE stage 2
- Drainage works at Road D1 and Road L7
- Construction of parapet at Retaining Wall S15

- Demolition of existing structure of Bridge K72
- Backfilling works at Road L7
- DCS works in Portion 1; and
- Watermais laying works in Portion 1

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 TSPj	0	0	N/A
Noise	0	0	N/A

1-hour & 24-hour TSP Monitoring

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

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

Construction Noise Monitoring

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

Environmental Licenses and Permits

9. Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Project, EP-337/2009 issued on 23 April 2009. All valid Licenses/Permits for this Project are shown in **Table 6.1**.

- Billing Account for Construction Waste Disposal (A/C# 7026164).
- Effluent Discharge License (WT00027495-2017).
- Registration of Chemical Waste Producer (WPN5213-286-P3271-01).
- Construction Noise Permit (GW-RE0915-19).
- Construction Noise Permit (GW-RE0984-19).

Key Information in the Reporting Month

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

Table III Summary Table for Key Information in the Reporting Month

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

Future Key Issues

11. 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.

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 Asia Co. Ltd (AECOM).
- Environmental Team (ET) – Cinotech Consultants Limited (Cinotech).
- Independent Environmental Checker (IEC) – Fugro Technical Services Limited (FTS).
- Contractor – Peako - Wo Hing Joint Venture (PWHJV).

1.7. 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. CHAN Wai Kit, Ricky	Senior Engineer	2116 3753	2116 0714
AECOM	Engineer's Representative	Mr. Vincent Lee	SRE	2798 0771	2210 6110
Cinotech	Environmental Team	Mr. K.S Lee	Environmental Team Leader	2151 2091	3107 1388
		Ms. Betty Choy	Audit Team Leader	2151 2072	
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

1.8. The site activities undertaken in the reporting month included:

- Implementation of TTA Stage 4-1 at PERE
- Demolition of the exiting ground beam underneath Bridge K72
- Excavation with ELS for subway construction at SKLR playground
- Erection of external formworks for the base slab of subway at PERE stage 2
- Drainage works at Road D1 and Road L7
- Construction of parapet at Retaining Wall S15
- Demolition of existing structure of Bridge K72
- Backfilling works at Road L7
- DCS works in Portion 1; and
- Watermais laying works in Portion 1

1.9. The construction programme for the Project is shown in **Appendix N**.

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
Refer to 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

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

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

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

1.13. This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely air quality and noise levels and audit works for the Project during January 2020.

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	• Sibata Scientific Technology LD-5R	2
HVS Sampler	• TE-5170 c/w of TSP sampling inlet	1
Wind Anemometer	• Davis Instruments 6152	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

Measuring Procedures

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

(Equipment: Sibata Scientific Technology; Model no. LD-3B, LD-5R)

- 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

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

Operating/Analytical Procedures

2.9. 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.

2.10. 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.

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

2.12. 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.

2.13. 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.

2.14. 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.

2.15. The shelter lid was closed and secured with the aluminium strip.

2.16. 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).

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

2.18. 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

2.19. 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 through\hout all stages of the air quality monitoring.

Results and Observations

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

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

2.22. The 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 reporting month is shown in **Appendix H**. No exceedance was recorded for the air quality monitoring.

2.25. According to our field observations during the monitoring, the major dust source identified at the two designated air quality monitoring stations are road traffic dust, exposed site area and open stockpiles, excavation works and site vehicle movements.

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

3 NOISE

Monitoring Requirements

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

Monitoring Locations

3.2. Three designated monitoring stations were selected for noise monitoring programme. Noise monitoring was conducted at three designated monitoring stations (M3, M4, and 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	Ground in front of the School facing Prince Edward Road East
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 957 • BSWA 308	3
Calibrator	• ST-120	1

Monitoring Parameters, Frequency and Duration

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

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency	Measurement
M3 M4 M5(C)	L_{10}(30 min.) dB(A) L_{90}(30 min.) dB(A) L_{eq}(30 min.) dB(A)	0700-1900 hrs on normal weekdays	Once per week	Façade

Monitoring Methodology and QA/QC Procedures

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

Maintenance and Calibration

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

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

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

Results and Observations

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

3.9. The baseline noise level and the Noise Limit Level at each designated noise monitoring station are presented in **Table 3.5**.

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

3.11. The major noise source identified at the designated noise monitoring stations are shown in **Table 3.4**.

Table 3.4 Major Noise Source identified at the Designated Noise Monitoring Stations

Monitoring Stations	Locations	Major Noise Source
M3	Cognitio College	Traffic Noise
M4	Lee Kau Yan Memorial School	Traffic Noise Site vehicle movement Excavation works Piling works Daily school activities
M5(C)	Mercy Grace's Home	Traffic Noise Site vehicle movement

Table 3.5 Baseline Noise Level and Noise Limit Level for Monitoring Stations

Station	Baseline Noise Level, dB (A)	Noise Limit Level, dB (A)
M3	N/A(1) (at 0700 – 1900 hrs on normal weekdays)	70* (at 0700 – 1900 hrs on normal weekdays)
M4	76.7(2) (at 0700 – 1900 hrs on normal weekdays)	
M5(C)	N/A(1) (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 background Noise Level was recorded during the Lunch Hour of Construction Site (i.e. 12:00-13:00) and to be used as the referencing value for compliance checking for Noise Action and Limit Level.
Note (2): The noise level due to the construction work (CNL) was calculated by the following formula:

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

Remarks: MNL = Measured Noise Level, BNL = Baseline Noise Level

4 COMPARISON OF EM&A RESULTS WITH EIA PREDICTIONS

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

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

Station	Predicted 1-hr TSP conc.		Measured 1-hr TSP conc.	
	Scenario1 (Mid 2009 to Mid-2013), µg/m³	Scenario2 (Mid 2013 to Late 2016), µg/m³	Reporting Month (January 2020), µg/m³	
			Average	Range
AM2 – Lee Kau Yan Memorial School	290	312	112	67 – 181

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

Station	Predicted 24-hr TSP conc.		Measured 24-hr TSP conc.	
	Scenario1 (Mid 2009 to Mid-2013), µg/m³	Scenario2 (Mid 2013 to Late 2016), µg/m³	Reporting Month (January 2020), µg/m³	
			Average	Range
AM2(A) – Ng Wah Catholic Secondary School	145	169	51	40 – 64(1)

(*) No construction work was conducted on 29 January 2020.
(1) The minimum, maximum and average calculation of the TSP concentration in January 2020 do not include the result on 29 January 2020.

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 (January 2020), $L_{eq\ (30min)}$ dB(A)
M3 – Cognitio College	47 – 75	62 – 67
M4 – Lee Kau Yan Memorial School	47 – 74	68 – 77(1)
M5(C) – Mercy Grace's Home	Not predicted in EIA Report	62 – 77(2)

Remarks:
(1) 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.
(2) Since the background noise level was higher than those recorded during the construction period, the recorded noise levels were considered non-valid exceedance of Noise Limit Level.

4.2. The average 1-hour TSP concentrations at AM2 in the reporting month were below the prediction in the approved Environmental Impact Assessment (EIA) Report.

4.3. The average 24-hour TSP concentrations at AM2(A) in the reporting month were below the prediction in the approved EIA Report.

4.4. The noise monitoring results in the reporting month from M3 were within the ranges of the predicted mitigated constriction noise levels in the EIA Report. The noise monitoring results in the reporting month from M4 were outside the ranges of the predicted mitigated constriction noise levels in the EIA Report.

4.5. Construction noise levels at M5(C) were not predicted in EIA Report.

5 LANDSCAPE AND VISUAL

Monitoring Requirements

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

Results and Observations

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

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

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

6 ENVIRONMENTAL INSPECTION

Site Inspections

6.1. Site inspections 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 inspections are attached in **Appendix I**.

6.2. Site inspections were conducted on 6, 16 and 20 January 2020 in the reporting month. The proposed site inspection on 30 January 2020 was suspended due to the construction site is closed for prevent spreading of the coronavirus. A joint site inspection with the representative of IEC, ER, the Contractor and the ET was conducted on 16 January 2020. The details of the observations during site inspection 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			

Permit No.	Valid Period		Status
	From	To	
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-RE0915-19	08/11/19	04/05/20	Valid
GW-RE0984-19	15/12/19	24/02/20	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	Ref No.	Date	Observations and Recommendations	Follow-up/Rectification
Water Quality	200106/ -R3	6th Jan 2020	- Drainage inlets are not bounded by sand bags at SKL.	The condition was observed to be improved/rectified by the contractor during the inspection session on 20 January 2020.
Air Quality	200106/ -R1	6th Jan 2020	- The dusty slope is exposed at Road D1.	The condition was observed to be improved/rectified by the contractor during the inspection session on 20 January 2020.
	200106/ -R2	6th Jan 2020	- The dusty slope is not covered at K72.	The condition was observed to be improved/rectified by the contractor during the inspection session on 20 January 2020.
Noise	N/A	N/A	--	--
Waste/ Chemical Management	191223/ -R1	23rd Dec 2019	- Food waste was mixed up with general waste in the waste collection tray at S15.	The condition was observed to be improved/rectified by the contractor during the inspection session on 6 January 2020.

Parameters	Ref No.	Date	Observations and Recommendations	Follow-up/Rectification
	200106/ -R4	6th Jan 2020	- The rubbish bin is not covered at SKL.	The condition was observed to be improved/rectified by the contractor during the inspection session on 16 January 2020.
	200106/ -R5	6th Jan 2020	- Waste is accumulated at Portion 6.	The condition was observed to be improved/rectified by the contractor during the inspection session on 20 January 2020.
	200116/ -R1	16th Jan 2020	- Waste accumulation is observed at Road D1.	The condition was observed to be improved/rectified by the contractor during the inspection session on 20 January 2020.
	200116/ -R2	16th Jan 2020	- The waste collection tray is not covered at S15.	Follow up actions will be reported in the next monthly report.
	200116/ -R3	16th Jan 2020	- Some chemicals were found in the worker's lounge.	The condition was observed to be improved/rectified by the contractor during the inspection session on 20 January 2020.
	200120/ -R1	20th Jan 2020	- Liquid is accumulated in the drip tray of the generator at Road D1.	Follow up actions will be reported in the next monthly report.
Landscape and Visual	N/A	N/A	--	--
Permits/ Licenses	N/A	N/A	--	--

Summary of Mitigation Measures Implemented

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

Implementation Status of Event Action Plans

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

1-hr TSP Monitoring

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

24-hr TSP Monitoring

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

Construction Noise

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

Landscape and visual

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

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

6.12. 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:

- Carry out the structural works for subway at PERE Stage 2
- Excavation with ELS for subway construction at SKLR playground
- Demolition of the exiting ground beam underneath Bridge K72 and construction of new ground beam
- Carry out trial pit at PERE Stage 4-1 and sheet piling works
- Drainage works and road works at Road D1 and Road L7
- Construction of parapet at Retaining Wall S15
- Demolition and reconstruction of existing structure of K72
- UU installation and road works at Road L7
- Refurbishment works for K72
- Preparation and erection of falsework for modifying K72 (Stage 2)
- DCS works in Portion 1; and
- Watermains laying works in Portion 1

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; and
- Accumulation of general and construction waste on site.

7.3. The tentative major site activities is mentioned in Section 7.1 of this report. The impact prediction and control measures for the coming two months are summarized as follows:

<u>Air quality impact (dust)</u>

- Frequent watering of haul road and unpaved/exposed areas;
- Frequent watering or covering stockpiles with tarpaulin or similar means; and

- Watering of any earth moving activities.

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.

Monitoring Schedule for Next Month

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

8 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

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

1-hr TSP Monitoring

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

24-hr TSP Monitoring

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

Construction Noise Monitoring

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

Landscape and visual

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

Complaint and Prosecution

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

Recommendations

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

Water Quality

- The Contractor is reminded to bounding the drainage inlets by sand bags if there are close to construction work.

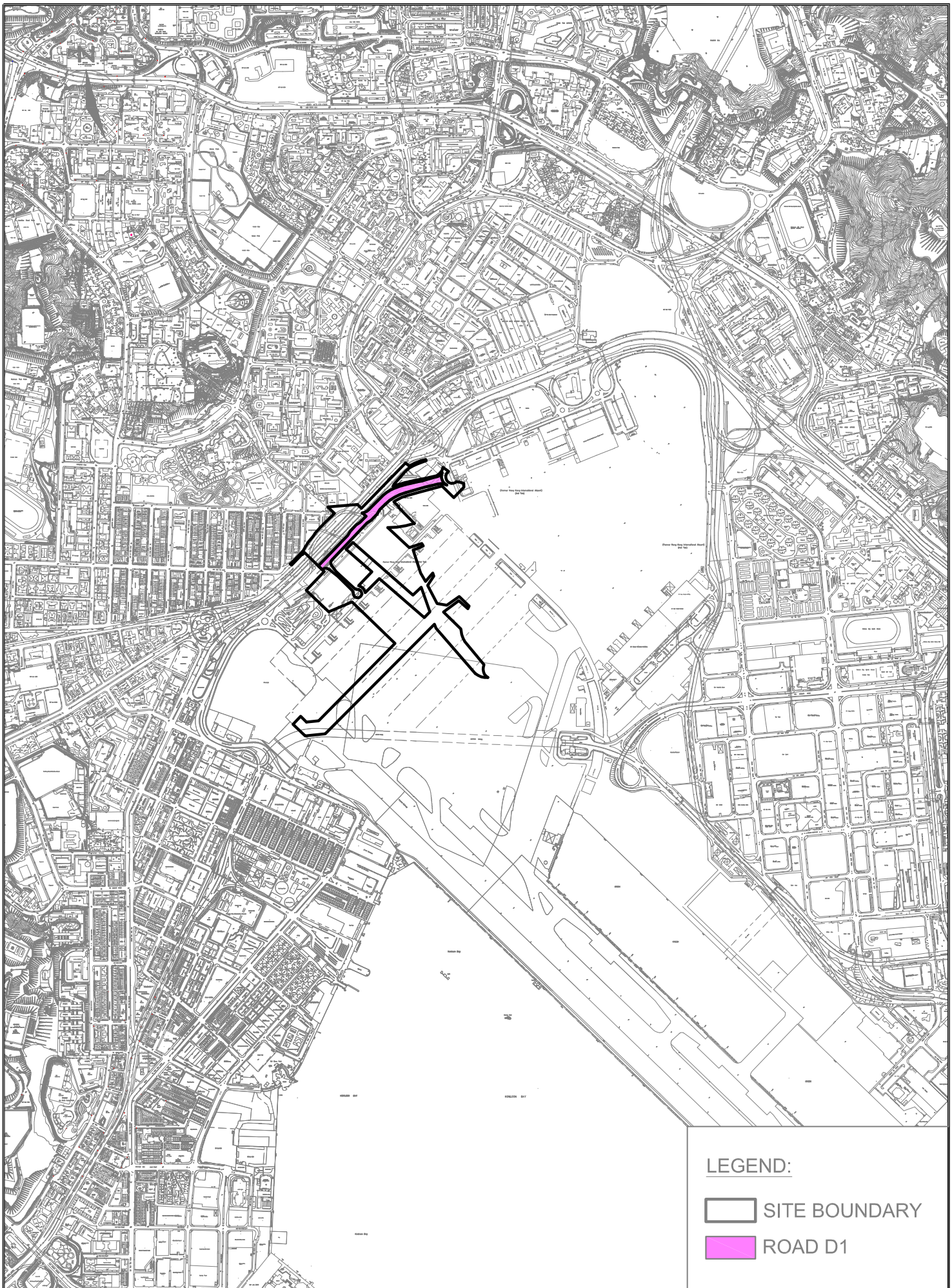
Air Quality

- The Contractor is suggested to review the status of dusty material/slope and reminded to cover it if no excavation works conduction.

Waste/ Chemical Management

- The Contractor is suggested to review the site condition and avoid waste accumulation.
- The Contractor is reminded to cover the rubbish bin/ tray.
- The chemical storage area should be separate with worker's lounge.

FIGURES

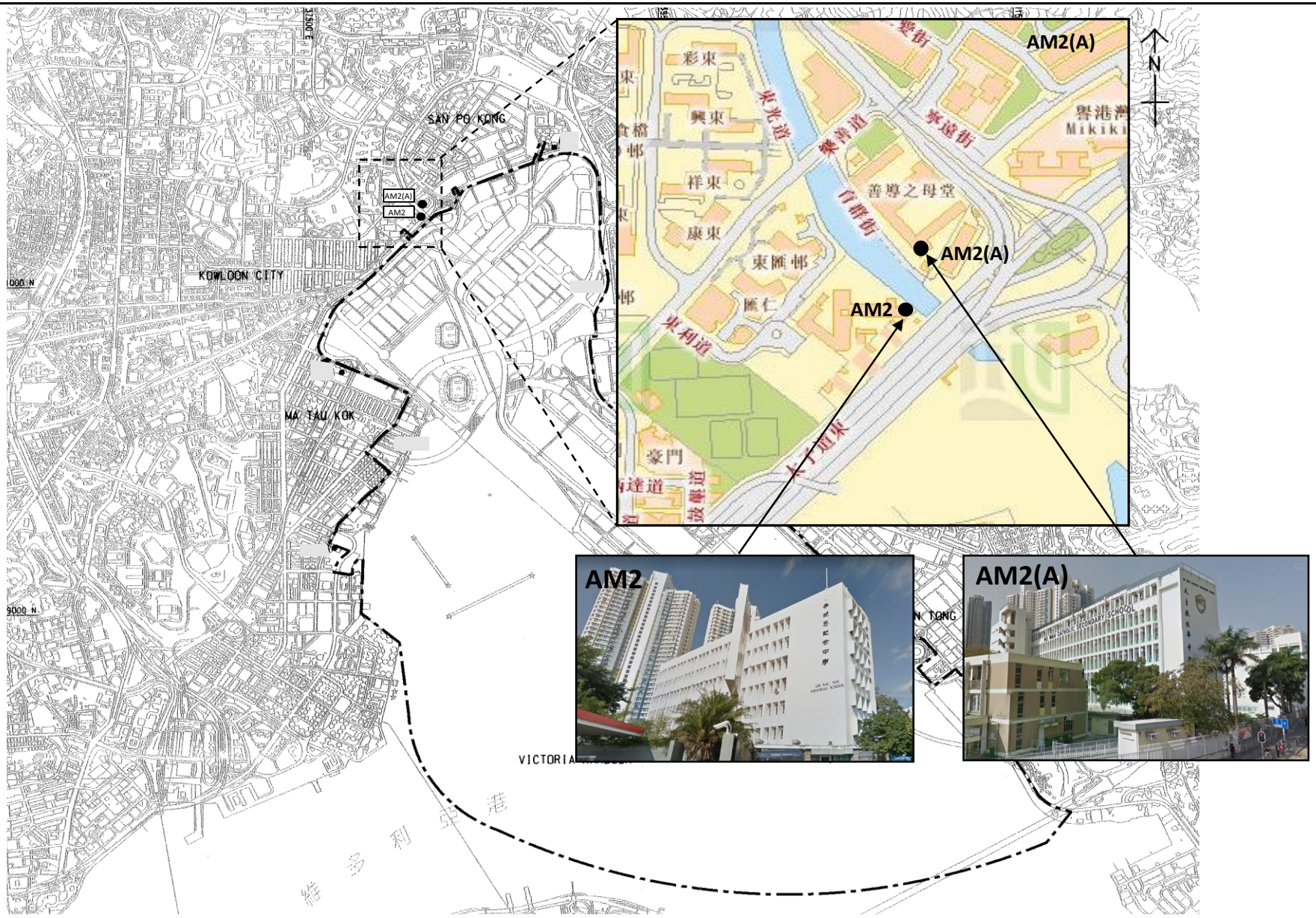


CINOTECH
Cinotech Consultants Limited

KL/2015/02 KAI TAK - STAGE 5A INFRASTRUCTURE AT FORMER NORTH APRON AREA

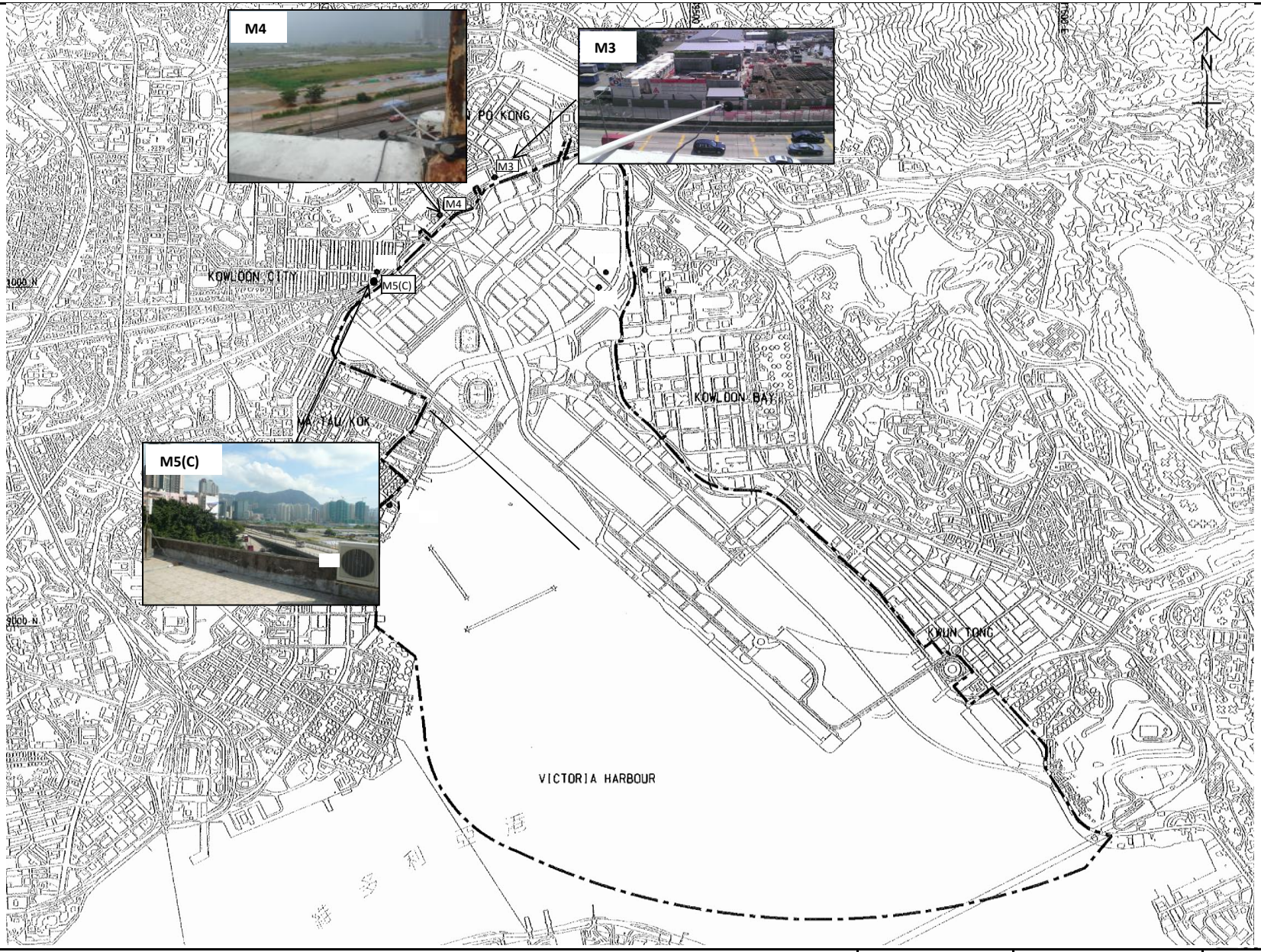
SITE LAYOUT PLAN

SCALE	1:1500@A4	DATE	DEC 2016
CHECK	KC	DRAWN	JW
JOB No.	MA16043	FIGURE NO. 1	REV -



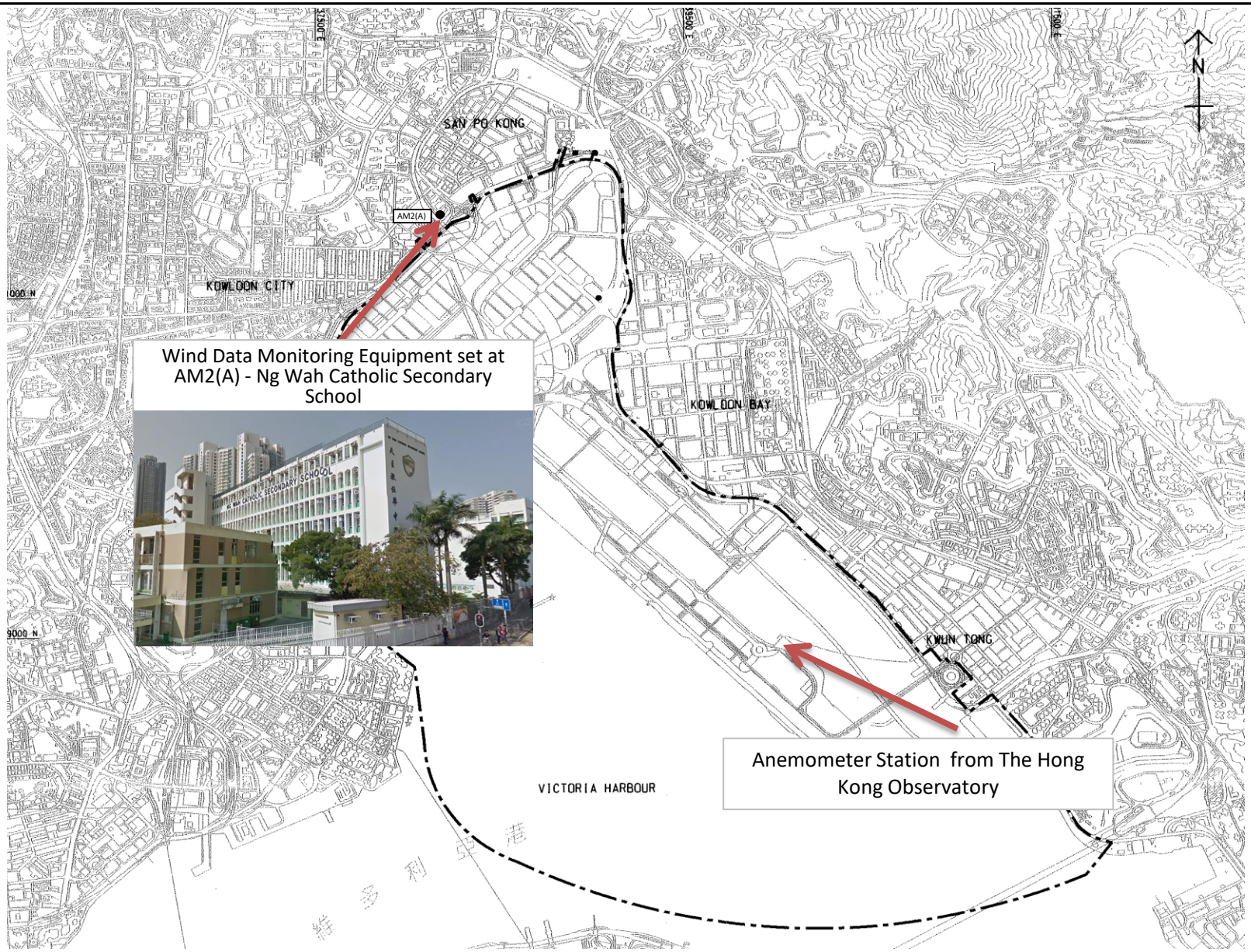
Title	Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area Location of Air Quality Monitoring Stations	Scale: N.T.S Date: Aug-17	Project No.: MA16043 Figure: 2

CINOTECH



Title	Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area Location of Noise Monitoring Stations	Scale: N.T.S Date: Apr-17	Project No.: MA16043 Figure: 3

CINOTECH



Title	Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area Location of Wind Data Monitoring Equipment	Scale: N.T.S Date: Aug-17	Project No.: MA16043 Figure: 4

CINOTECH

APPENDIX A
ACTION AND LIMIT LEVELS FOR AIR QUALITY AND NOISE

Appendix A - Action and Limit Levels

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

Location	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
AM2	346	500

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

Location	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
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-1
COPIES OF CALIBRATION
CERTIFCATES (AIR)

Cerificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

Description: Digital Dust Indicator

Date of Calibration 7-Dec-19

Manufacturer: Sibata Scientific Technology LTD.

Validity of Calibration Record 6-Feb-20

Model No.: LD-5R

Serial No.: 972780

Equipment No.: SA-01-09

Sensitivity 0.001 mg/m3

High Volume Sampler No.: A-01-01A

Before Sensitivity Adjustment 739 CPM

Tisch Calibration Orifice No.: 3607

After Sensitivity Adjustment 739 CPM

Calibration of 1 hr TSP		
Calibration Point	**Laser Dust Monitor** Mass Concentration (µg/m3) **X-axis**	**HVS** Mass concentration (µg/m^3) **Y-axis**
1	79.0	160.5
2	56.0	153.8
3	29.0	146.4
Average	**54.7**	**153.6**

By Linear Regression of Y on X

Slope , mw = **0.2818** **Intercept, bw =** **138.1631**

Correlation coefficient* = **0.9998**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	153.6
Particaulate Concentration by Dust Meter (µg/m^3)	54.7
Measureing time, (min)	60.0

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)] **2.8**

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.

Those filter papers are weighted by HOKLAS laboratory (Wellab Litimed)

Calibrated by: Wong Shing Kwai

Approved by: Henry Leung

Cerificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

Description: Digital Dust Indicator
Date of Calibration 7-Dec-19
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 6-Feb-20
Model No.: LD-5R
Serial No.: 972781
Equipment No.: SA-01-10
Sensitivity 0.001 mg/m3
High Volume Sampler No.: A-01-01A
Before Sensitivity Adjustment 734 CPM
Tisch Calibration Orifice No.: 3607
After Sensitivity Adjustment 734 CPM

Calibration of 1 hr TSP		
Calibration Point	**Laser Dust Monitor** Mass Concentration (µg/m3) **X-axis**	**HVS** Mass concentration (µg/m^3) **Y-axis**
1	84.0	160.5
2	57.0	153.8
3	31.0	146.4
Average	**57.3**	**153.6**

By Linear Regression of Y on X

Slope , mw = **0.2659** **Intercept, bw =** **138.3204**

Correlation coefficient* = **0.9992**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	153.6
Particaulate Concentration by Dust Meter (µg/m^3)	57.3
Measureing time, (min)	60.0

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)] **2.7**

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.

Those filter papers are weighted by HOKLAS laboratory (Wellab Litimed)

Calibrated by: Wong Shing Kwai

Approved by: Henry Leung

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16043/13/0014

Project No. AM2(A) - Ng Wah Catholic Secondary School

Date: 4-Nov-19 Next Due Date: 3-Jan-20 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	298	Pressure, Pa (mmHg)	761.1

Orifice Transfer Standard Information					
Serial No.	3607	Slope, mc	0.0588	Intercept, bc	-0.02422
Last Calibration Date:	8-Jan-19	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	8-Jan-20	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

.

Calibration of TSP Sampler					
Calibration Point	Orfice			HVS	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	DW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	12.0	3.47	59.37	8.2	2.87
2	9.3	3.05	52.31	6.3	2.51
3	7.2	2.69	46.08	4.8	2.19
4	4.8	2.19	37.70	2.8	1.67
5	3.0	1.73	29.89	1.9	1.38

By Linear Regression of Y on X

Slope , mw = **0.0518** **Intercept, bw =** **-0.2088**

Correlation coefficient* = **0.9977**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

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

Remarks:

Conducted by: SK Wong Signature: Date: 4 November 2019

Checked by: Henry Leung Signature: Date: 4 November 2019

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16043/13/0015

Project No. AM2(A) - Ng Wah Catholic Secondary School

Date: 6-Jan-20 Next Due Date: 5-Mar-20 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	294	Pressure, Pa (mmHg)	764.3

Orifice Transfer Standard Information					
Serial No.	3607	Slope, mc	0.0588	Intercept, bc	-0.02422
Last Calibration Date:	8-Jan-19	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	8-Jan-20	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	DW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	12.3	3.54	60.63	8.4	2.93
2	9.4	3.10	53.06	6.3	2.53
3	7.3	2.73	46.80	4.9	2.23
4	4.9	2.23	38.42	2.8	1.69
5	3.2	1.81	31.13	1.8	1.35

By Linear Regression of Y on X

Slope , mw = **0.0542** **Intercept, bw =** **-0.3473**

Correlation coefficient* = **0.9986**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **3.86**

Remarks:

Conducted by: SK Wong Signature: Date: 06 January 2020

Checked by: Henry Leung Signature: Date: 06 January 2020

TISCH Environmental

RECALIBRATION DUE DATE:
January 8, 2020

Certificate of Calibration

Calibration Certification Information					
Cal. Date:	January 8, 2019	**Rootsmeter S/N:** 438320	**Ta:** 294	°K	
Operator:	Jim Tisch		**Pa:** 748.0	mm Hg	
Calibration Model #:	TE-5025A	**Calibrator S/N:** **3607**			

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4340	3.2	2.00
2	3	4	1	1.0190	6.3	4.00
3	5	6	1	0.9110	7.8	5.00
4	7	8	1	0.8650	8.7	5.50
5	9	10	1	0.7150	12.6	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
0.9934	0.6927	1.4125	0.9957	0.6944	0.8866
0.9892	0.9708	1.9976	0.9916	0.9731	1.2538
0.9872	1.0837	2.2334	0.9896	1.0862	1.4018
0.9860	1.1399	2.3424	0.9884	1.1426	1.4703
0.9808	1.3718	2.8251	0.9832	1.3750	1.7732
QSTD	**m=**	**2.07879**	**QA**	**m=**	**1.30170**
	b=	**-0.02422**		**b=**	**-0.01520**
	r=	**0.99997**		**r=**	**0.99997**

Calculations

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

For subsequent flow rate calculations:

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

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

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

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

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

sch Environmental, Inc.
15 South Miami Avenue
illage of Cleves, OH 45002

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

TISCH Environmental

RECALIBRATION DUE DATE:
January 17, 2021

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	January 17, 2020	**Rootsmeter S/N:** 438320	**Ta:** 295	°K
Operator:	Jim Tisch		**Pa:** 744.2	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **3746**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4340	3.2	2.00
2	3	4	1	1.0180	6.4	4.00
3	5	6	1	0.9080	7.9	5.00
4	7	8	1	0.8700	8.7	5.50
5	9	10	1	0.7150	12.6	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
0.9849	0.6868	1.4066	0.9957	0.6944	0.8904
0.9807	0.9633	1.9892	0.9914	0.9739	1.2592
0.9787	1.0779	2.2240	0.9894	1.0896	1.4078
0.9776	1.1237	2.3325	0.9883	1.1360	1.4765
0.9724	1.3601	2.8131	0.9831	1.3749	1.7808
QSTD	**m=**	**2.09221**	**QA**	**m=**	**1.31010**
	b=	**-0.02779**		**b=**	**-0.01759**
	r=	**0.99994**		**r=**	**0.99994**

Calculations

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

For subsequent flow rate calculations:

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

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

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

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

RECALIBRATION

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

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

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

Cerificate of Calibration - Wind Monitoring Station

Description:	Ng Wah Catholic Seconday School - Weather Stations
Manufacturer:	Davis Instruments
Model No.:	Davis 6152, Vantage Pro2
Serial No.:	BC180522050
Equipment No.:	SA-03-03
Date of Calibration	11-Oct-19
Next Due Date	10-Apr-20

1. Performance check of Wind Speed

Wind Speed, m/s		Difference D (m/s)
Wind Speed Reading (V1)	Anemometer Value (V1)	D = V1 – V2
0.5	0.5	0.0
1.5	1.5	0.0
2.3	2.1	0.2
2.4	2.2	0.2

2. Performance check of Wind Direction

Wind Direction (^{o})		Difference D (^{o})
Wind Direction Reading (V1)	Marine Compass Value (V1)	D = W1 - W2
0	0	0.0
90	90	0.0
180	180	0.0
270	270	0.0

Test Specification:

1. Performance Wind Speed Test - The wind meter was on-site calibrated against the anemometer

2. Performance Wind Direction Test - The wind meter was on-site calibrated against the marine compass at four direction

Calibrated by: _____ Wong Shing Kwai

Approved by: _____ Henry Leung

APPENDIX B-2
COPIES OF CALIBRATION CERTIFCATES (NOISE)

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

TEST REPORT

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

Test Report No.:	32151
Date of Issue:	2019-09-27
Date Received:	2019-09-26
Date Tested:	2019-09-26
Date Completed:	2019-09-27
Next Due Date:	2020-09-26
Page:	1 of 1

ATTN: **Mr. Henry Leung**

Certificate of Calibration

Item for calibration:

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

Test conditions:

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

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

This report may not be reproduced, except in full, without prior written approval from WELLAB LIMITED and the results relate only to the items calibrated or tested.

Equipment no.: N-12-02

Calibration Certificate

0022522

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong Customer Code : SVEC09005	Object 1 : BSWA 308 SLM Serial No. /Ref. No. : 570187 / 550841 Object 2 : Serial No. /Ref. No. : Manufacturer : BSWAtech
Date of calibration: 23/09/2019 Date of the recommended re-calibration: 23/09/2020	Certificate No.: 0022522 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	94.0dB	0.0dB	+/- 1.5dB	1
114.0dB	113.9dB	-0.1dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
5.The calibrations certificate may not be reproduced.

Measured value(s) within **the allowable deviation.**

Performed by

Calibration Technician

Approved by

Quality Manager

Calibration Certificate

0023000

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong Customer Code : SVEC09005	Object 1 : SVAN957 SLM Serial No. /Ref. No. : 23852 / N-08-11 Object 2 : Microphone Serial No. /Ref. No. : 35989 Manufacturer : Svantek
Date of calibration: 19/12/2019 Date of the recommended re-calibration: 19/12/2020	Certificate No.: 0023000 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.4dB	-0.6dB	+/- 1.5dB	1
114.0dB	113.4dB	-0.6dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
5.The calibrations certificate may not be reproduced.

Measured value(s) within **the allowable deviation.**

Performed by

Calibration Technician

Approved by

Quality Manager

Appleone Calibration Laboratory Ltd. Rm1309, 13/F, No.77 Wing Hong St, Kln, HKSAR Tel: +852 2370 4437 Fax: +852 2114 0393

Calibration Certificate

0022673

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong Customer Code : SVEC09005	Object 1 : ST-120 sound calibrator Serial No. /Ref. No. : 181001608 Object 2 : Serial No. /Ref. No. : Manufacturer : Soundtek
Date of calibration: 24/10/2019 Date of the recommended re-calibration: 24/10/2020	Certificate No.: 0022673 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	94.0dB	0.0dB	+/- 0.3dB	1
114.0dB	114.1dB	+0.1dB	+/- 0.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source .

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
5.The calibrations certificate may not be reproduced.

Measured value(s) within **the allowable deviation.**

Performed by

Calibration Technician

Approved by

Quality Manager

Appleone Calibration Laboratory Ltd. Rm1309, 13/F, No.77 Wing Hong St, Kln, HKSAR Tel: +852 2370 4437 Fax: +852 2114 0393

APPENDIX C
WEATHER INFORMATION

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation(mm)
1-Jan-20	17.9	80	Trace
2-Jan-20	18.3	78	0
3-Jan-20	18.9	82	0
4-Jan-20	19.2	83	0
5-Jan-20	20	79	0
6-Jan-20	21	78	0
7-Jan-20	22.4	83	Trace
8-Jan-20	21.9	72	0
9-Jan-20	19.3	77	0
10-Jan-20	19.9	82	0
11-Jan-20	20.9	81	0
12-Jan-20	17.9	65	0
13-Jan-20	18.3	76	0
14-Jan-20	19	76	0
15-Jan-20	19.5	80	0.1
16-Jan-20	19.8	84	Trace
17-Jan-20	18.5	69	0
18-Jan-20	18.3	73	0
19-Jan-20	18.2	75	0
20-Jan-20	18	75	0
21-Jan-20	18.8	80	0
22-Jan-20	20.5	82	Trace
23-Jan-20	21.9	86	0
24-Jan-20	21.5	89	Trace
25-Jan-20	19.7	89	2.1
26-Jan-20	16.5	86	12.3
27-Jan-20	13	70	0.2
28-Jan-20	13	66	0.1
29-Jan-20	13.8	55	0
30-Jan-20	14.7	44	0
31-Jan-20	14.8	52	0

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

** Trace = rainfall less than 0.05 mm.

*** The level of precipitation indicate the total amount of rainfall for each date (24 hours)

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind speed(m/s)	Wind Direction
1-Jan-20	1:00	0.4	W
1-Jan-20	2:00	1.8	NNW
1-Jan-20	3:00	1.8	NNW
1-Jan-20	4:00	1.8	NNW
1-Jan-20	5:00	1.3	WNW
1-Jan-20	6:00	0.9	NNW
1-Jan-20	7:00	1.3	WNW
1-Jan-20	8:00	1.3	NW
1-Jan-20	9:00	1.3	NNW
1-Jan-20	10:00	1.3	NNW
1-Jan-20	11:00	1.8	NNW
1-Jan-20	12:00	0.9	NNW
1-Jan-20	13:00	1.3	NNW
1-Jan-20	14:00	0.9	NW
1-Jan-20	15:00	0.9	WNW
1-Jan-20	16:00	0.4	NNW
1-Jan-20	17:00	0.9	NW
1-Jan-20	18:00	0.4	ENE
1-Jan-20	19:00	0.4	NW
1-Jan-20	20:00	0.4	ESE
1-Jan-20	21:00	0	NNW
1-Jan-20	22:00	0	NW
1-Jan-20	23:00	0.4	N
2-Jan-20	0:00	0.4	N
2-Jan-20	1:00	0.9	NNW
2-Jan-20	2:00	1.3	NNW
2-Jan-20	3:00	1.3	NW
2-Jan-20	4:00	0.9	NNW
2-Jan-20	5:00	0.4	NNW
2-Jan-20	6:00	0.7	NNE
2-Jan-20	7:00	0.9	NNE
2-Jan-20	8:00	0.9	NNE
2-Jan-20	9:00	0.9	NNW
2-Jan-20	10:00	0.4	ENE
2-Jan-20	11:00	0.4	NNW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

2-Jan-20	12:00	0	NNW
2-Jan-20	13:00	0.4	NNW
2-Jan-20	14:00	0	NNW
2-Jan-20	15:00	0.4	NNW
2-Jan-20	16:00	0.4	N
2-Jan-20	17:00	0	NNW
2-Jan-20	18:00	0	NNW
2-Jan-20	19:00	0.4	NE
2-Jan-20	20:00	0.4	NE
2-Jan-20	21:00	0.4	E
2-Jan-20	22:00	0.4	N
2-Jan-20	23:00	0.9	E
3-Jan-20	0:00	1.8	E
3-Jan-20	1:00	2.7	ESE
3-Jan-20	2:00	3.1	ESE
3-Jan-20	3:00	1.8	SE
3-Jan-20	4:00	1.3	NW
3-Jan-20	5:00	1.8	WNW
3-Jan-20	6:00	1.8	WNW
3-Jan-20	7:00	1.3	WNW
3-Jan-20	8:00	1.8	NNW
3-Jan-20	9:00	1.3	NNW
3-Jan-20	10:00	1.3	WNW
3-Jan-20	11:00	0.9	WNW
3-Jan-20	12:00	1.3	NNW
3-Jan-20	13:00	1.8	NNW
3-Jan-20	14:00	1.8	NNW
3-Jan-20	15:00	2.2	NNW
3-Jan-20	16:00	0.9	WNW
3-Jan-20	17:00	0.9	NW
3-Jan-20	18:00	1.3	NNW
3-Jan-20	19:00	0.9	NNW
3-Jan-20	20:00	0.4	S
3-Jan-20	21:00	0.4	S
3-Jan-20	22:00	0.4	S
3-Jan-20	23:00	0.4	S
4-Jan-20	0:00	0.4	S
4-Jan-20	1:00	0.4	S

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

4-Jan-20	2:00	0.9	WNW
4-Jan-20	3:00	1.3	NNW
4-Jan-20	4:00	1.8	NNW
4-Jan-20	5:00	1.8	NNW
4-Jan-20	6:00	1.3	NNW
4-Jan-20	7:00	1.8	WNW
4-Jan-20	8:00	1.8	NNW
4-Jan-20	9:00	0.9	WNW
4-Jan-20	10:00	1.8	NNW
4-Jan-20	11:00	1.3	WNW
4-Jan-20	12:00	1.3	WNW
4-Jan-20	13:00	0.9	WNW
4-Jan-20	14:00	0.9	WNW
4-Jan-20	15:00	1.3	WNW
4-Jan-20	16:00	1.8	WNW
4-Jan-20	17:00	0.4	NW
4-Jan-20	18:00	0.4	WNW
4-Jan-20	19:00	0.9	NNW
4-Jan-20	20:00	0.9	NW
4-Jan-20	21:00	0.9	NW
4-Jan-20	22:00	1.3	NNW
4-Jan-20	23:00	1.8	NNW
5-Jan-20	0:00	1.8	NNW
5-Jan-20	1:00	2.7	NNW
5-Jan-20	2:00	2.7	NNW
5-Jan-20	3:00	2.7	NNW
5-Jan-20	4:00	2.2	NNW
5-Jan-20	5:00	2.7	NNW
5-Jan-20	6:00	2.2	NNW
5-Jan-20	7:00	2.2	NNW
5-Jan-20	8:00	2.7	NNW
5-Jan-20	9:00	1.8	NNW
5-Jan-20	10:00	1.8	NNW
5-Jan-20	11:00	1.3	NNW
5-Jan-20	12:00	0.9	NNW
5-Jan-20	13:00	0.9	NW
5-Jan-20	14:00	0.9	NW
5-Jan-20	15:00	0.4	WNW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

5-Jan-20	16:00	0.9	NW
5-Jan-20	17:00	0.4	WNW
5-Jan-20	18:00	0.4	WNW
5-Jan-20	19:00	0.4	WNW
5-Jan-20	20:00	0.9	WNW
5-Jan-20	21:00	0.9	WNW
5-Jan-20	22:00	0.9	WNW
5-Jan-20	23:00	1.3	NNW
6-Jan-20	0:00	1.8	NNW
6-Jan-20	1:00	2.7	NNW
6-Jan-20	2:00	3.6	NNW
6-Jan-20	3:00	2.2	NNW
6-Jan-20	4:00	2.2	NNW
6-Jan-20	5:00	1.8	NNW
6-Jan-20	6:00	1.3	NNW
6-Jan-20	7:00	0.9	SE
6-Jan-20	8:00	0.4	SE
6-Jan-20	9:00	0.4	ESE
6-Jan-20	10:00	0.4	ESE
6-Jan-20	11:00	0.9	SE
6-Jan-20	12:00	0.9	SE
6-Jan-20	13:00	1.3	ESE
6-Jan-20	14:00	0.9	ESE
6-Jan-20	15:00	1.3	ESE
6-Jan-20	16:00	1.3	SE
6-Jan-20	17:00	0.9	ESE
6-Jan-20	18:00	1.3	ESE
6-Jan-20	19:00	1.8	ESE
6-Jan-20	20:00	1.8	ESE
6-Jan-20	21:00	1.3	ESE
6-Jan-20	22:00	2.7	SE
6-Jan-20	23:00	1.8	ESE
7-Jan-20	0:00	1.8	ESE
7-Jan-20	1:00	2.2	ESE
7-Jan-20	2:00	1.8	ESE
7-Jan-20	3:00	2.2	SE
7-Jan-20	4:00	1.3	SE
7-Jan-20	5:00	1.8	NNW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

7-Jan-20	6:00	1.8	NNW
7-Jan-20	7:00	0.4	WNW
7-Jan-20	8:00	0.4	SE
7-Jan-20	9:00	0.4	NW
7-Jan-20	10:00	0.9	NNW
7-Jan-20	11:00	0.4	WNW
7-Jan-20	12:00	0.4	WNW
7-Jan-20	13:00	0.4	SE
7-Jan-20	14:00	0.4	ESE
7-Jan-20	15:00	0.4	W
7-Jan-20	16:00	0.4	SE
7-Jan-20	17:00	0	WNW
7-Jan-20	18:00	0.9	SE
7-Jan-20	19:00	0.4	SE
7-Jan-20	20:00	0.4	SSE
7-Jan-20	21:00	0.4	E
7-Jan-20	22:00	0.9	E
7-Jan-20	23:00	0.9	NNW
8-Jan-20	0:00	0.9	WNW
8-Jan-20	1:00	0.9	ESE
8-Jan-20	2:00	1.3	NNW
8-Jan-20	3:00	1.3	NNW
8-Jan-20	4:00	1.3	NNW
8-Jan-20	5:00	1.8	NNW
8-Jan-20	6:00	0.9	WNW
8-Jan-20	7:00	0.9	WNW
8-Jan-20	8:00	0.9	WNW
8-Jan-20	9:00	0.9	WNW
8-Jan-20	10:00	0.4	NW
8-Jan-20	11:00	0.4	NW
8-Jan-20	12:00	0.4	WNW
8-Jan-20	13:00	1.3	NNW
8-Jan-20	14:00	0.9	NNW
8-Jan-20	15:00	0.4	WNW
8-Jan-20	16:00	0.4	WNW
8-Jan-20	17:00	0.4	NNW
8-Jan-20	18:00	0.4	WNW
8-Jan-20	19:00	0.4	WNW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

8-Jan-20	20:00	0.4	NW
8-Jan-20	21:00	0.4	NW
8-Jan-20	22:00	1.8	NNW
8-Jan-20	23:00	0.9	NNW
9-Jan-20	0:00	0.9	WNW
9-Jan-20	1:00	0.9	WNW
9-Jan-20	2:00	1.3	NW
9-Jan-20	3:00	0.9	WNW
9-Jan-20	4:00	2.2	NNW
9-Jan-20	5:00	1.3	NW
9-Jan-20	6:00	1.3	NNW
9-Jan-20	7:00	1.8	NNW
9-Jan-20	8:00	1.8	NNW
9-Jan-20	9:00	1.3	NNW
9-Jan-20	10:00	0.9	NNW
9-Jan-20	11:00	1.3	NNW
9-Jan-20	12:00	0.4	NNW
9-Jan-20	13:00	1.3	NNW
9-Jan-20	14:00	0.9	NNW
9-Jan-20	15:00	1.3	WNW
9-Jan-20	16:00	1.8	WNW
9-Jan-20	17:00	1.8	NW
9-Jan-20	18:00	1.8	NW
9-Jan-20	19:00	1.3	NW
9-Jan-20	20:00	0.9	WNW
9-Jan-20	21:00	0.9	WNW
9-Jan-20	22:00	0.4	W
9-Jan-20	23:00	0.4	WNW
10-Jan-20	0:00	0.9	WNW
10-Jan-20	1:00	1.8	WNW
10-Jan-20	2:00	1.3	NW
10-Jan-20	3:00	2.2	NNW
10-Jan-20	4:00	1.8	WNW
10-Jan-20	5:00	1.8	NNW
10-Jan-20	6:00	1.3	NW
10-Jan-20	7:00	1.3	NNW
10-Jan-20	8:00	1.3	NNW
10-Jan-20	9:00	0.9	WNW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

10-Jan-20	10:00	1.3	WNW
10-Jan-20	11:00	0.9	WNW
10-Jan-20	12:00	0.9	WNW
10-Jan-20	13:00	1.3	WNW
10-Jan-20	14:00	0	SSW
10-Jan-20	15:00	0	SSW
10-Jan-20	16:00	0	SSW
10-Jan-20	17:00	0	S
10-Jan-20	18:00	0	SSW
10-Jan-20	19:00	0	SSW
10-Jan-20	20:00	0	NW
10-Jan-20	21:00	0	WSW
10-Jan-20	22:00	0	SW
10-Jan-20	23:00	0.4	WNW
11-Jan-20	0:00	0	W
11-Jan-20	1:00	0.4	W
11-Jan-20	2:00	0.4	W
11-Jan-20	3:00	0.4	SW
11-Jan-20	4:00	0.9	WNW
11-Jan-20	5:00	0.9	WNW
11-Jan-20	6:00	0.9	WNW
11-Jan-20	7:00	0.9	WNW
11-Jan-20	8:00	0.4	WNW
11-Jan-20	9:00	0.9	WNW
11-Jan-20	10:00	0.9	NW
11-Jan-20	11:00	0	WNW
11-Jan-20	12:00	0	WNW
11-Jan-20	13:00	0	WNW
11-Jan-20	14:00	0	WNW
11-Jan-20	15:00	0	WNW
11-Jan-20	16:00	0	WNW
11-Jan-20	17:00	0	WSW
11-Jan-20	18:00	0	W
11-Jan-20	19:00	0	WNW
11-Jan-20	20:00	0	W
11-Jan-20	21:00	0	SSW
11-Jan-20	22:00	0	WSW
11-Jan-20	23:00	0	S

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

12-Jan-20	0:00	0	WSW
12-Jan-20	1:00	0	WNW
12-Jan-20	2:00	0	SSW
12-Jan-20	3:00	0	SW
12-Jan-20	4:00	0	SW
12-Jan-20	5:00	0	WSW
12-Jan-20	6:00	0	WSW
12-Jan-20	7:00	0	WNW
12-Jan-20	8:00	0	WNW
12-Jan-20	9:00	0	S
12-Jan-20	10:00	0	ESE
12-Jan-20	11:00	0	SE
12-Jan-20	12:00	0	SE
12-Jan-20	13:00	0	SSW
12-Jan-20	14:00	0	SSW
12-Jan-20	15:00	0	SSE
12-Jan-20	16:00	0	SSE
12-Jan-20	17:00	0	---
12-Jan-20	18:00	0	SSE
12-Jan-20	19:00	0	SSW
12-Jan-20	20:00	0	SSW
12-Jan-20	21:00	0	SSW
12-Jan-20	22:00	0	SSW
12-Jan-20	23:00	0	SSW
13-Jan-20	0:00	0	WNW
13-Jan-20	1:00	0	WNW
13-Jan-20	2:00	0.4	WNW
13-Jan-20	3:00	0.9	WNW
13-Jan-20	4:00	0.4	SW
13-Jan-20	5:00	0.9	WNW
13-Jan-20	6:00	0.4	SSW
13-Jan-20	7:00	0	SSW
13-Jan-20	8:00	0	SSW
13-Jan-20	9:00	0	WSW
13-Jan-20	10:00	0	WSW
13-Jan-20	11:00	0	W
13-Jan-20	12:00	0.4	SSW
13-Jan-20	13:00	0.4	SSW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

13-Jan-20	14:00	0.4	SSW
13-Jan-20	15:00	1.8	SSW
13-Jan-20	16:00	0.9	SSW
13-Jan-20	17:00	0	SW
13-Jan-20	18:00	1.3	SW
13-Jan-20	19:00	1.8	SW
13-Jan-20	20:00	0.4	NW
13-Jan-20	21:00	0.9	NW
13-Jan-20	22:00	1.3	NW
13-Jan-20	23:00	0.9	NW
14-Jan-20	0:00	0.9	NW
14-Jan-20	1:00	0.9	NW
14-Jan-20	2:00	1.3	NW
14-Jan-20	3:00	1.3	NW
14-Jan-20	4:00	2.2	WNW
14-Jan-20	5:00	1.3	NW
14-Jan-20	6:00	0.9	NW
14-Jan-20	7:00	0.4	SSW
14-Jan-20	8:00	1.3	SW
14-Jan-20	9:00	1.3	SE
14-Jan-20	10:00	1.3	SE
14-Jan-20	11:00	0.4	SE
14-Jan-20	12:00	0.4	SSE
14-Jan-20	13:00	0	SSW
14-Jan-20	14:00	0	SSW
14-Jan-20	15:00	0	SW
14-Jan-20	16:00	0	SW
14-Jan-20	17:00	0	WNW
14-Jan-20	18:00	0	WNW
14-Jan-20	19:00	0	W
14-Jan-20	20:00	0	W
14-Jan-20	21:00	0	W
14-Jan-20	22:00	0	W
14-Jan-20	23:00	0	W
15-Jan-20	0:00	0	W
15-Jan-20	1:00	0.4	WNW
15-Jan-20	2:00	0.4	WNW
15-Jan-20	3:00	0.4	WNW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

15-Jan-20	4:00	0.4	WSW
15-Jan-20	5:00	0.9	WNW
15-Jan-20	6:00	0.9	WNW
15-Jan-20	7:00	0.4	WNW
15-Jan-20	8:00	0.4	NW
15-Jan-20	9:00	0	W
15-Jan-20	10:00	0	W
15-Jan-20	11:00	0	---
15-Jan-20	12:00	0	---
15-Jan-20	13:00	0	W
15-Jan-20	14:00	0	W
15-Jan-20	15:00	0	W
15-Jan-20	16:00	0	---
15-Jan-20	17:00	0	---
15-Jan-20	18:00	0	W
15-Jan-20	19:00	0	SW
15-Jan-20	20:00	0	SW
15-Jan-20	21:00	0	SSW
15-Jan-20	22:00	0	SSW
15-Jan-20	23:00	0	SSW
16-Jan-20	0:00	0	SW
16-Jan-20	1:00	0.4	SSW
16-Jan-20	2:00	0.4	SSW
16-Jan-20	3:00	0.4	SSW
16-Jan-20	4:00	0.4	SSW
16-Jan-20	5:00	0.4	SSW
16-Jan-20	6:00	0	SW
16-Jan-20	7:00	0.9	WNW
16-Jan-20	8:00	1.8	WNW
16-Jan-20	9:00	0.9	WNW
16-Jan-20	10:00	1.3	W
16-Jan-20	11:00	0.9	WSW
16-Jan-20	12:00	0.9	WSW
16-Jan-20	13:00	0.9	WSW
16-Jan-20	14:00	1.3	WNW
16-Jan-20	15:00	0.9	ENE
16-Jan-20	16:00	0.9	WNW
16-Jan-20	17:00	2.2	WNW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

16-Jan-20	18:00	1.8	WNW
16-Jan-20	19:00	0.4	WNW
16-Jan-20	20:00	0.4	WNW
16-Jan-20	21:00	0.9	WNW
16-Jan-20	22:00	0.9	WNW
16-Jan-20	23:00	0.4	NNE
17-Jan-20	0:00	0.9	WNW
17-Jan-20	1:00	0.9	WNW
17-Jan-20	2:00	0.9	WNW
17-Jan-20	3:00	1.3	WNW
17-Jan-20	4:00	1.3	WNW
17-Jan-20	5:00	3.6	WNW
17-Jan-20	6:00	3.6	WNW
17-Jan-20	7:00	3.6	WNW
17-Jan-20	8:00	3.6	WNW
17-Jan-20	9:00	2.2	WNW
17-Jan-20	10:00	1.8	WNW
17-Jan-20	11:00	1.3	WNW
17-Jan-20	12:00	0.9	WNW
17-Jan-20	13:00	1.8	WNW
17-Jan-20	14:00	0.9	WNW
17-Jan-20	15:00	0.4	W
17-Jan-20	16:00	0.9	WNW
17-Jan-20	17:00	0.4	WNW
17-Jan-20	18:00	0.4	WNW
17-Jan-20	19:00	0.4	WNW
17-Jan-20	20:00	0.4	NW
17-Jan-20	21:00	0.4	ESE
17-Jan-20	22:00	0	ESE
17-Jan-20	23:00	0.4	NW
18-Jan-20	0:00	1.3	WNW
18-Jan-20	1:00	1.3	WNW
18-Jan-20	2:00	2.2	WNW
18-Jan-20	3:00	2.7	WNW
18-Jan-20	4:00	5.4	WNW
18-Jan-20	5:00	5.8	WNW
18-Jan-20	6:00	5.4	WNW
18-Jan-20	7:00	4.5	WNW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

18-Jan-20	8:00	3.1	WNW
18-Jan-20	9:00	0.9	WSW
18-Jan-20	10:00	0.4	WSW
18-Jan-20	11:00	0.9	WNW
18-Jan-20	12:00	0.4	WNW
18-Jan-20	13:00	1.3	WNW
18-Jan-20	14:00	0.4	WSW
18-Jan-20	15:00	0.9	W
18-Jan-20	16:00	0.4	WNW
18-Jan-20	17:00	0.9	W
18-Jan-20	18:00	0	WNW
18-Jan-20	19:00	0	NNE
18-Jan-20	20:00	0.4	W
18-Jan-20	21:00	0.9	WNW
18-Jan-20	22:00	0.9	WNW
18-Jan-20	23:00	1.3	WNW
19-Jan-20	0:00	1.8	WNW
19-Jan-20	1:00	1.8	WNW
19-Jan-20	2:00	1.3	WNW
19-Jan-20	3:00	2.2	WNW
19-Jan-20	4:00	4	WNW
19-Jan-20	5:00	2.7	WNW
19-Jan-20	6:00	2.2	WNW
19-Jan-20	7:00	0.9	WSW
19-Jan-20	8:00	0.9	WSW
19-Jan-20	9:00	1.3	WSW
19-Jan-20	10:00	0.9	WSW
19-Jan-20	11:00	0.9	W
19-Jan-20	12:00	0.4	NE
19-Jan-20	13:00	0.4	ENE
19-Jan-20	14:00	0.4	NE
19-Jan-20	15:00	0.9	NE
19-Jan-20	16:00	0.4	WSW
19-Jan-20	17:00	0.9	W
19-Jan-20	18:00	0.9	WSW
19-Jan-20	19:00	0.4	WSW
19-Jan-20	20:00	0.9	WSW
19-Jan-20	21:00	0.9	WSW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

19-Jan-20	22:00	0.9	WNW
19-Jan-20	23:00	1.3	WNW
20-Jan-20	0:00	0.4	WSW
20-Jan-20	1:00	1.8	WNW
20-Jan-20	2:00	0.9	WSW
20-Jan-20	3:00	1.3	WNW
20-Jan-20	4:00	1.8	WNW
20-Jan-20	5:00	2.2	WNW
20-Jan-20	6:00	1.8	WNW
20-Jan-20	7:00	0.9	WNW
20-Jan-20	8:00	0.9	ENE
20-Jan-20	9:00	0.9	WSW
20-Jan-20	10:00	0.9	WSW
20-Jan-20	11:00	0.4	SW
20-Jan-20	12:00	0.4	E
20-Jan-20	13:00	0.9	ENE
20-Jan-20	14:00	1.3	ENE
20-Jan-20	15:00	0.9	ENE
20-Jan-20	16:00	1.8	E
20-Jan-20	17:00	1.3	ENE
20-Jan-20	18:00	1.3	ENE
20-Jan-20	19:00	1.3	ENE
20-Jan-20	20:00	1.3	ENE
20-Jan-20	21:00	0.9	E
20-Jan-20	22:00	0.9	ESE
20-Jan-20	23:00	1.3	E
21-Jan-20	0:00	1.8	ENE
21-Jan-20	1:00	1.8	ESE
21-Jan-20	2:00	1.3	ENE
21-Jan-20	3:00	1.3	ESE
21-Jan-20	4:00	1.8	E
21-Jan-20	5:00	1.8	ENE
21-Jan-20	6:00	1.8	ESE
21-Jan-20	7:00	1.8	ENE
21-Jan-20	8:00	1.3	SE
21-Jan-20	9:00	1.8	ENE
21-Jan-20	10:00	1.3	ENE
21-Jan-20	11:00	0.9	ESE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

21-Jan-20	12:00	0.9	E
21-Jan-20	13:00	0.9	ENE
21-Jan-20	14:00	0.9	ENE
21-Jan-20	15:00	0.4	ESE
21-Jan-20	16:00	0.9	SE
21-Jan-20	17:00	1.3	ENE
21-Jan-20	18:00	0.9	SW
21-Jan-20	19:00	0.9	ENE
21-Jan-20	20:00	0.9	E
21-Jan-20	21:00	0.4	SW
21-Jan-20	22:00	0.9	ENE
21-Jan-20	23:00	0.9	ENE
22-Jan-20	0:00	1.8	SW
22-Jan-20	1:00	0.4	SW
22-Jan-20	2:00	0.9	SSW
22-Jan-20	3:00	0.9	SW
22-Jan-20	4:00	0.9	SW
22-Jan-20	5:00	1.8	SW
22-Jan-20	6:00	0.9	SW
22-Jan-20	7:00	0.4	SW
22-Jan-20	8:00	0	SSE
22-Jan-20	9:00	0.9	NE
22-Jan-20	10:00	0.4	NE
22-Jan-20	11:00	0.9	NE
22-Jan-20	12:00	0.9	NE
22-Jan-20	13:00	1.3	SE
22-Jan-20	14:00	2.7	ENE
22-Jan-20	15:00	2.2	ENE
22-Jan-20	16:00	2.7	ENE
22-Jan-20	17:00	3.1	ENE
22-Jan-20	18:00	2.2	ENE
22-Jan-20	19:00	1.3	ENE
22-Jan-20	20:00	2.2	ENE
22-Jan-20	21:00	1.8	ENE
22-Jan-20	22:00	2.2	ENE
22-Jan-20	23:00	3.1	ENE
23-Jan-20	0:00	3.1	ENE
23-Jan-20	1:00	3.6	ENE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

23-Jan-20	2:00	2.7	ENE
23-Jan-20	3:00	2.2	ENE
23-Jan-20	4:00	2.2	ENE
23-Jan-20	5:00	2.2	ENE
23-Jan-20	6:00	1.3	ENE
23-Jan-20	7:00	1.3	ENE
23-Jan-20	8:00	2.2	ENE
23-Jan-20	9:00	2.7	ENE
23-Jan-20	10:00	1.3	E
23-Jan-20	11:00	1.3	ESE
23-Jan-20	12:00	1.3	ENE
23-Jan-20	13:00	1.8	ENE
23-Jan-20	14:00	1.3	E
23-Jan-20	15:00	1.3	SE
23-Jan-20	16:00	1.8	ESE
23-Jan-20	17:00	1.3	E
23-Jan-20	18:00	0.9	ESE
23-Jan-20	19:00	0.9	ESE
23-Jan-20	20:00	0.9	ESE
23-Jan-20	21:00	1.3	ENE
23-Jan-20	22:00	2.2	ENE
23-Jan-20	23:00	2.2	ENE
24-Jan-20	0:00	2.2	ENE
24-Jan-20	1:00	0.9	SW
24-Jan-20	2:00	1.3	SW
24-Jan-20	3:00	0.9	SW
24-Jan-20	4:00	0.9	SW
24-Jan-20	5:00	0.9	SSW
24-Jan-20	6:00	0.9	SW
24-Jan-20	7:00	0.4	ENE
24-Jan-20	8:00	0	NE
24-Jan-20	9:00	0.9	SSW
24-Jan-20	10:00	0.9	SSW
24-Jan-20	11:00	1.3	S
24-Jan-20	12:00	0.9	ENE
24-Jan-20	13:00	0.9	ENE
24-Jan-20	14:00	3.6	ENE
24-Jan-20	15:00	2.2	ENE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

24-Jan-20	16:00	1.3	ENE
24-Jan-20	17:00	2.2	SW
24-Jan-20	18:00	1.8	SW
24-Jan-20	19:00	2.2	SW
24-Jan-20	20:00	2.7	SW
24-Jan-20	21:00	1.8	SW
24-Jan-20	22:00	0.9	SSW
24-Jan-20	23:00	0.9	SSW
25-Jan-20	0:00	1.3	SW
25-Jan-20	1:00	1.3	SW
25-Jan-20	2:00	0.9	SW
25-Jan-20	3:00	0.9	SW
25-Jan-20	4:00	1.3	SW
25-Jan-20	5:00	1.8	ENE
25-Jan-20	6:00	0.9	ESE
25-Jan-20	7:00	1.8	E
25-Jan-20	8:00	1.3	E
25-Jan-20	9:00	1.3	ESE
25-Jan-20	10:00	1.3	E
25-Jan-20	11:00	1.3	E
25-Jan-20	12:00	1.3	ENE
25-Jan-20	13:00	0.9	ENE
25-Jan-20	14:00	0.9	NNE
25-Jan-20	15:00	1.8	ENE
25-Jan-20	16:00	1.8	ENE
25-Jan-20	17:00	1.3	ENE
25-Jan-20	18:00	0.9	ENE
25-Jan-20	19:00	0.4	WNW
25-Jan-20	20:00	0.4	E
25-Jan-20	21:00	0	ENE
25-Jan-20	22:00	0.9	E
25-Jan-20	23:00	1.3	E
26-Jan-20	0:00	0.9	E
26-Jan-20	1:00	0.9	NW
26-Jan-20	2:00	0.9	W
26-Jan-20	3:00	1.3	W
26-Jan-20	4:00	2.2	NW
26-Jan-20	5:00	2.7	NW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

26-Jan-20	6:00	1.8	NW
26-Jan-20	7:00	1.3	WNW
26-Jan-20	8:00	1.3	NW
26-Jan-20	9:00	0.4	W
26-Jan-20	10:00	0.9	ESE
26-Jan-20	11:00	0.4	E
26-Jan-20	12:00	0.4	WSW
26-Jan-20	13:00	0.4	E
26-Jan-20	14:00	0.4	ESE
26-Jan-20	15:00	0.4	W
26-Jan-20	16:00	0.4	WSW
26-Jan-20	17:00	0.4	W
26-Jan-20	18:00	0.4	ESE
26-Jan-20	19:00	0.4	ENE
26-Jan-20	20:00	0.4	NNE
26-Jan-20	21:00	0.4	ENE
26-Jan-20	22:00	0.4	NNW
26-Jan-20	23:00	0.9	W
27-Jan-20	0:00	1.3	W
27-Jan-20	1:00	1.8	NW
27-Jan-20	2:00	1.8	NW
27-Jan-20	3:00	2.7	NW
27-Jan-20	4:00	1.8	NW
27-Jan-20	5:00	1.3	W
27-Jan-20	6:00	1.8	NW
27-Jan-20	7:00	1.8	NW
27-Jan-20	8:00	1.3	W
27-Jan-20	9:00	0.9	W
27-Jan-20	10:00	0.9	NW
27-Jan-20	11:00	0.9	NW
27-Jan-20	12:00	0.4	NW
27-Jan-20	13:00	0.4	NW
27-Jan-20	14:00	0.9	NW
27-Jan-20	15:00	1.3	W
27-Jan-20	16:00	0.9	W
27-Jan-20	17:00	0.9	W
27-Jan-20	18:00	1.3	W
27-Jan-20	19:00	1.3	WSW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

27-Jan-20	20:00	0.9	ESE
27-Jan-20	21:00	0.4	W
27-Jan-20	22:00	0.9	NE
27-Jan-20	23:00	0.4	NW
28-Jan-20	0:00	0.9	WNW
28-Jan-20	1:00	0.9	W
28-Jan-20	2:00	1.3	W
28-Jan-20	3:00	1.3	NW
28-Jan-20	4:00	0.9	WNW
28-Jan-20	5:00	1.3	WNW
28-Jan-20	6:00	1.3	NW
28-Jan-20	7:00	1.3	W
28-Jan-20	8:00	1.3	NW
28-Jan-20	9:00	0.9	WNW
28-Jan-20	10:00	0.9	WNW
28-Jan-20	11:00	1.3	WNW
28-Jan-20	12:00	1.3	WNW
28-Jan-20	13:00	0.4	NE
28-Jan-20	14:00	0.9	ENE
28-Jan-20	15:00	0.4	ENE
28-Jan-20	16:00	0.9	WNW
28-Jan-20	17:00	0.9	WSW
28-Jan-20	18:00	0.9	W
28-Jan-20	19:00	0.4	WSW
28-Jan-20	20:00	0.4	WNW
28-Jan-20	21:00	1.3	WNW
28-Jan-20	22:00	0.4	ESE
28-Jan-20	23:00	0.4	E
29-Jan-20	0:00	0.4	WNW
29-Jan-20	1:00	1.8	NW
29-Jan-20	2:00	0.9	W
29-Jan-20	3:00	1.3	W
29-Jan-20	4:00	0.9	NW
29-Jan-20	5:00	1.3	WNW
29-Jan-20	6:00	1.8	ENE
29-Jan-20	7:00	0.9	ESE
29-Jan-20	8:00	1.8	E
29-Jan-20	9:00	1.3	E

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

29-Jan-20	10:00	1.3	ESE
29-Jan-20	11:00	1.3	E
29-Jan-20	12:00	1.3	E
29-Jan-20	13:00	1.3	ENE
29-Jan-20	14:00	0.9	ENE
29-Jan-20	15:00	0.9	NNE
29-Jan-20	16:00	1.8	ENE
29-Jan-20	17:00	1.8	ENE
29-Jan-20	18:00	1.3	ENE
29-Jan-20	19:00	0.9	ENE
29-Jan-20	20:00	0.4	WNW
29-Jan-20	21:00	0.4	E
29-Jan-20	22:00	0	ENE
29-Jan-20	23:00	0.9	ENE
30-Jan-20	0:00	1.8	E
30-Jan-20	1:00	1.3	ENE
30-Jan-20	2:00	1.3	ENE
30-Jan-20	3:00	1.3	ENE
30-Jan-20	4:00	1.3	ENE
30-Jan-20	5:00	0.9	E
30-Jan-20	6:00	0.9	ESE
30-Jan-20	7:00	1.3	E
30-Jan-20	8:00	1.8	ENE
30-Jan-20	9:00	1.8	ESE
30-Jan-20	10:00	1.3	ENE
30-Jan-20	11:00	1.3	ESE
30-Jan-20	12:00	1.8	E
30-Jan-20	13:00	1.8	ENE
30-Jan-20	14:00	1.8	ESE
30-Jan-20	15:00	0.4	SE
30-Jan-20	16:00	0.4	ESE
30-Jan-20	17:00	0.4	W
30-Jan-20	18:00	0.4	SE
30-Jan-20	19:00	0	WNW
30-Jan-20	20:00	0.9	SE
30-Jan-20	21:00	0.4	SE
30-Jan-20	22:00	0.4	SSE
30-Jan-20	23:00	0.4	E

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

31-Jan-20	0:00	0.9	E
31-Jan-20	1:00	0.9	NNW
31-Jan-20	2:00	0.9	WNW
31-Jan-20	3:00	0.9	ESE
31-Jan-20	4:00	1.3	NNW
31-Jan-20	5:00	1.3	NNW
31-Jan-20	6:00	1.3	NNW
31-Jan-20	7:00	1.8	NNW
31-Jan-20	8:00	0.9	WNW
31-Jan-20	9:00	0.9	WNW
31-Jan-20	10:00	0.9	WNW
31-Jan-20	11:00	0.9	WNW
31-Jan-20	12:00	0.4	NW
31-Jan-20	13:00	0.4	NW
31-Jan-20	14:00	0.4	WNW
31-Jan-20	15:00	1.3	NNW
31-Jan-20	16:00	0.9	NNW
31-Jan-20	17:00	1.8	ESE
31-Jan-20	18:00	1.8	ESE
31-Jan-20	19:00	1.3	ESE
31-Jan-20	20:00	2.7	SE
31-Jan-20	21:00	1.8	ESE
31-Jan-20	22:00	1.8	ESE
31-Jan-20	23:00	2.2	ESE
01-Jan-20	0:00	2.4	ESE

APPENDIX D
ENVIRONMENTAL MONITORING SCHEDULES

Contract No. KLN/2016/04
Environmental Monitoring Works for Contract No. KL/2015/02
Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area
Impact Air and Noise Monitoring Schedule for January 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Jan	2-Jan	3-Jan	4-Jan
				24-hr TSP [AM2(A)]	**1-hr TSP x 3 [AM2]**	
5-Jan	6-Jan	7-Jan	8-Jan	9-Jan	10-Jan	11-Jan
			24-hr TSP [AM2(A)]	**1-hr TSP x 3 [AM2]** **Noise [M3, M4 & M5(C)]**		
12-Jan	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan	18-Jan
		24-hr TSP [AM2(A)]	**1-hr TSP x 3 [AM2]** **Noise [M3, M4 & M5(C)]**			
19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan	25-Jan
	24-hr TSP [AM2(A)]	**1-hr TSP x 3 [AM2]** **Noise [M3, M4 & M5(C)]**				
26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	31-Jan	1-Feb
			24-hr TSP [AM2(A)]	~~**1-hr TSP x 3 [AM2]**~~ ~~**Noise [M3, M4 & M5(C)]**~~		

* The noise level limit is 65dB(A) during the exam period
* The field monitoring was cancelled on 30 January 2020 due to the construction work was suspended.

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

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 February 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Feb
2-Feb	3-Feb	4-Feb	5-Feb	6-Feb	7-Feb	8-Feb
		24-hr TSP [AM2(A)]	**1-hr TSP x 3 [AM2]** **Noise [M3, M4 & M5(C)]**			
9-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb
	24-hr TSP [AM2(A)]	**1-hr TSP x 3 [AM2]** **Noise [M3, M4 & M5(C)]**				**24-hr TSP [AM2(A)]**
16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	22-Feb
	1-hr TSP x 3 [AM2] **Noise [M3, M4 & M5(C)]**			**24-hr TSP [AM2(A)]**	**1-hr TSP x 3 [AM2]**	
23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	29-Feb
			24-hr TSP [AM2(A)]	**1-hr TSP x 3 [AM2]** **Noise [M3, M4 & M5(C)]**		

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)
* The noise level limit is 65dB(A) during the exam period

Air Quality Monitoring Station

AM2 - Lee Kau Yan Memorial School
AM2(A) - Ng Wah Catholic Secondary School

Noise Monitoring Station

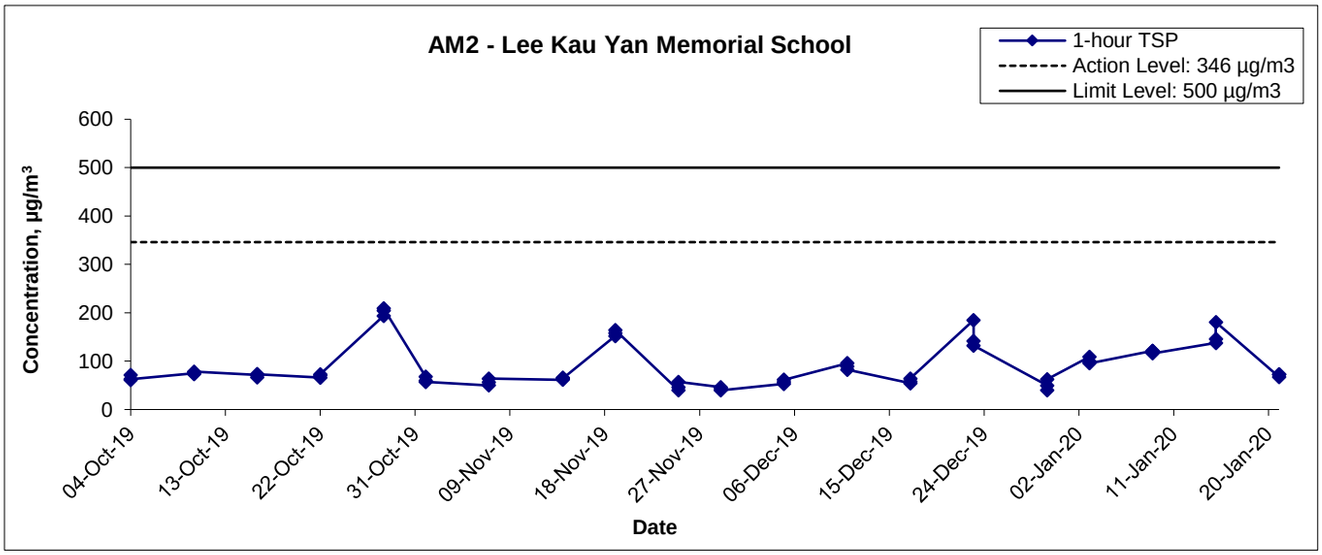
M3 - Cognitio College
M4 - Lee Kau Yan Memorial School
M5(C) - Mercy Grace's Home

APPENDIX E
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix E - 1-hour TSP Monitoring Results in January 2020

Location AM2 - Lee Kau Yan Memorial School			
Date	Time	Weather	Particulate Concentration (µg/m3)
3-Jan-20	9:00	Sunny	109
3-Jan-20	10:00	Sunny	99
3-Jan-20	11:00	Sunny	96
9-Jan-20	9:00	Cloudy	122
9-Jan-20	10:00	Cloudy	122
9-Jan-20	11:00	Cloudy	116
15-Jan-20	13:00	Fine	138
15-Jan-20	14:00	Fine	146
15-Jan-20	15:00	Fine	181
21-Jan-20	9:00	Sunny	67
21-Jan-20	10:00	Sunny	73
21-Jan-20	11:00	Sunny	73
		Average	112
		Maximum	181
		Minimum	67

1-hr TSP Concentration Levels



Title	Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S	Project No. MA16043 Appendix E	CINOTECH

APPENDIX F
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix F - 24-hour TSP Monitoring Results in January 2020

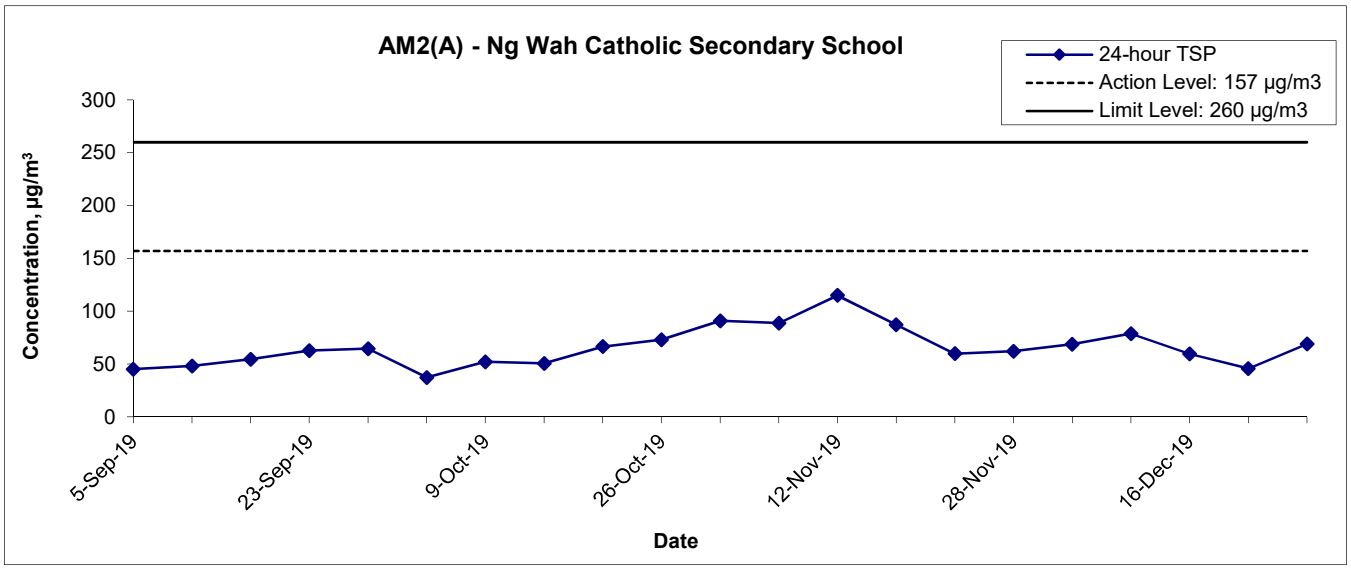
Location AM2(A) - Ng Wah Catholic Secondary School

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 (m3/min)	Total vol. (m3)	Conc. (µg/m3) [1] [2]
				Initial	Final		Initial	Final		Initial	Final			
2-Jan-20	Sunny	291.6	768.3	3.4690	3.5474	0.0784	5177.4	5201.4	24.0	1.23	1.23	1.23	1775.5	44
8-Jan-20	Sunny	293.6	764.0	3.4881	3.6011	0.1130	5201.4	5225.4	24.0	1.22	1.23	1.23	1765.5	64
14-Jan-20	Sunny	291.7	764.2	3.4713	3.5732	0.1019	5225.4	5249.4	24.0	1.23	1.23	1.23	1771.1	58
20-Jan-20	Cloudy	291.4	766.9	3.5052	3.5754	0.0702	5249.4	5273.4	24.0	1.23	1.23	1.23	1774.7	40
29-Jan-20	Cloudy	287.8	766.0	3.5209	3.5618	0.0409	5273.4	5297.4	24.0	1.24	1.24	1.24	1784.2	23
													Min	40
													Max	64
													Average	51

[1] No construction work was conducted on 29 January 2020.

[2] The minimum, maximum and average calculation of the TSP concentration in January 2020 do not include the result on 29 January 2020.

24-hr TSP Concentration Levels



Title	Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA16043 Appendix F	CINOTECH

APPENDIX G
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix G - Noise Monitoring Results

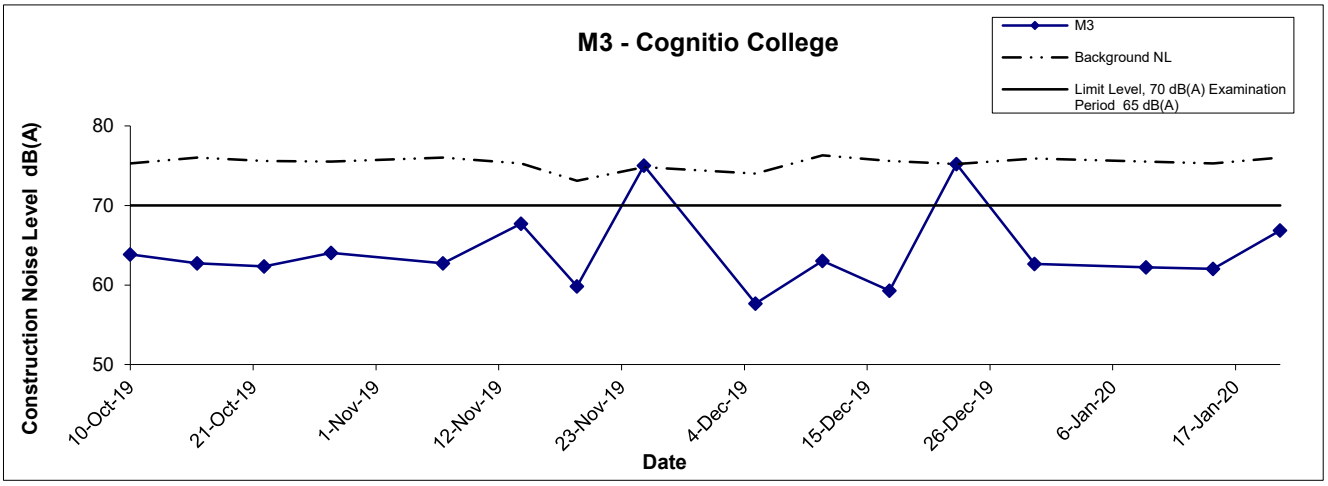
Location M3 - Cognitio College								
Date	Time	Weather	Unit: dB (A) (30-min)					
			Measured Noise Level			Background Noise	Construction Noise Level	
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	
9-Jan-20	11:30	Cloudy	76	77	73	76	62	
15-Jan-20	11:30	Sunny	76	77	73	75	62	
21-Jan-20	11:30	Sunny	77	78	74	76	67	

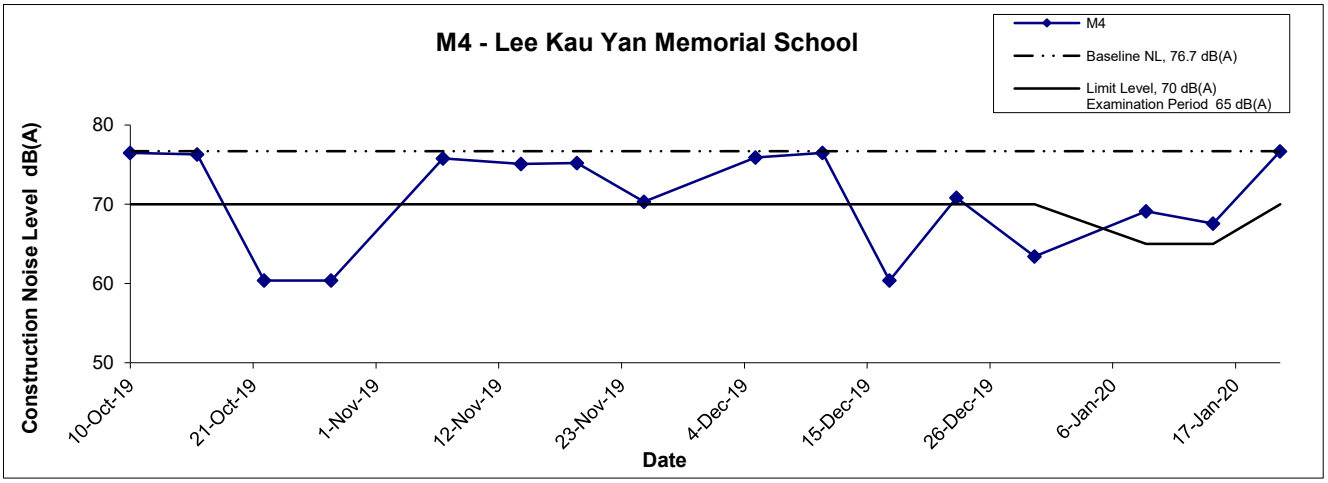
Location M4 - Lee Kau Yan Memorial School								
Date	Time	Weather	Unit: dB (A) (30-min)					
			Measured Noise Level			Baseline Level	Construction Noise Level	
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	
9-Jan-20	10:15	Cloudy	77	79	76	77	69	
15-Jan-20	13:45	Fine	77	78	76		68	
21-Jan-20	14:00	Sunny	77	79	76		77	Measured ≦ Baseline

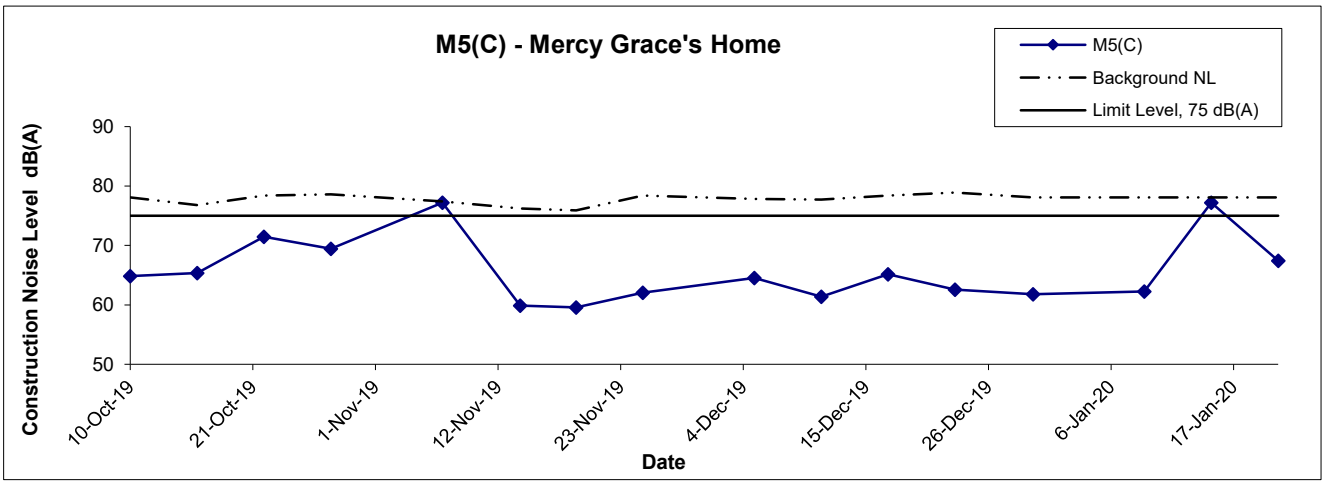
Location M5(C) - Mercy Grace's Home								
Date	Time	Weather	Unit: dB (A) (30-min)					
			Measured Noise Level			Background Noise	Construction Noise Level	
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	
9-Jan-20	13:00	Fine	79	80	77	79	62	
15-Jan-20	13:00	Fine	77	79	75	77	77	Measured ≦ Background
21-Jan-20	13:00	Sunny	78	80	76	78	67	

*All data has been presented to the nearest integer

Noise Levels







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

Title: Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date:	Project No.: MA16043 Appendix: G	CINOTECH

APPENDIX H
SUMMARY OF EXCEEDANCE

Appendix H – Summary of Exceedance

Exceedance Report for Contract No. KL/2015/02

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

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

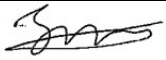
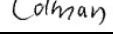
(C) Exceedance Report for Landscape and Visual
(NIL in the reporting month)

APPENDIX I
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200106
Date	6 January 2020
Time	14:00 – 15:30

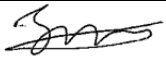
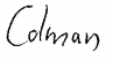
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
R3	• Drainage inlets are not bounded by sand bags at SKL.	B7
	C. Air Quality	
R1	• The dusty slope is exposed at Road D1.	C7
R2	• The dusty slope is not covered at K72.	C7
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
R4	• The rubbish bin is not covered at SKL.	E1
R5	• Waste is accumulated at Portion 6.	E1
	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	
191223-R1	• Following up on the previous site inspection (191223): The item (191223-R1) in the previous inspection was rectified/improved by the Contractor.	E1

	Name	Signature	Date
Recorded by	Tommy Lam		6 January 2020
Checked by	Colman Wong		6 January 2020

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200116
Date	16 January 2020
Time	09:30 – 10:45

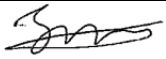
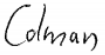
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
R1	• Waste accumulation is observed at Road D1.	E1
R2	• The waste collection tray is not covered at S15.	E1
R3	• Some chemicals were found in the worker's lounge.	E3
	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	
200106-R4	• Following up on the previous site inspection (200106): The item (200106-R4) in the previous inspection was rectified/improved by the Contractor.	E1
200106-R1	• Following up on the previous site inspection (200106): The dusty slope is exposed at Road D1.	C7
200106-R2	• Following up on the previous site inspection (200106): The dusty slope is not covered at K72.	C7
200106-R3	• Following up on the previous site inspection (200106): Drainage inlets are not bounded by sand bags at SKL.	B7
200106-R5	• Following up on the previous site inspection (200106): Waste is accumulated at Portion 6.	E1

	Name	Signature	Date
Recorded by	Tommy Lam		17 January 2020
Checked by	Colman Wong		17 January 2020

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200120
Date	20 January 2020
Time	14:00 – 15:00

Ref. No.	**Non-Compliance**	**Related Item No.**
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
R1	• Liquid is accumulated in the drip tray of the generator at Road D1.	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	
	• Following up on the previous site inspection (200106): The items (200106-R1, R2, R3 & R5) in the previous inspection were rectified/improved by the Contractor.	
	• Following up on the previous site inspection (200116): The items (200116-R1 & R3) in the previous inspection were rectified/improved by the Contractor.	
200116-R2	• Following up on the previous site inspection (200116): The waste collection tray is not covered at S15.	E1

	Name	Signature	Date
Recorded by	Tommy Lam		23 January 2020
Checked by	Colman Wong		23 January 2020

APPENDIX J
EVENT ACTION PLANS

Appendix J - Event Action Plans

Event/Action Plan for Air Quality

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

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

Appendix J - Event Action Plans

Event/Action Plan for Construction Noise

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

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

Appendix J - Event Action Plans

Event/Action Plan for Landscape and Visual

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

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

APPENDIX K
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)

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

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

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

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

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

S7.8	(i) Provision of low noise surfacing in a section of Road L4 before occupation of Site 1I1; and	N/A
	(ii) Setback of building about 5m from site boundary.	N/A
S7.8	Setback of building about 35m to the northwest direction at 1L3 and 5m at Site 1L2.	N/A
S7.8	(i) avoid any sensitive façades with openable window facing the existing Kowloon City Road network; and Avoid the sensitive façade of class room facing Road L2 and L4; and	N/A
	(ii) for the sensitive facades facing the To Kwa Wan direction, either setback the facades by about 5m to the northeast direction or do not provide the facades with openable window.	N/A
S7.8	(i) avoid any sensitive facades with openable window facing the existing To Kwa Wan Road or	N/A
	(ii) provision of 17.5m high noise tolerant building fronting To Kwa Wan Road and restrict the height of the residential block(s) located at less than 55m away from To Kwa Wan Road to no more than 25m above ground	N/A
S7.8	(i) avoid any sensitive facades with openable window facing the slip road connecting Prince Edward Road East and San Po Kong or other alternative mitigation measures and at-source mitigation measures for the surrounding new local roads to minimise the potential traffic noise impacts from the slip road	^
S7.8	All the ventilation fans installed in the below will be provided with silencers or acoustics treatment.	
	(i) SPS	N/A
	(ii) ESS	N/A
	(iii) Tunnel Ventilation Shaft	N/A
	(iv) EFTS depot	N/A
S7.8	Installation of retractable roof or other equivalent measures	N/A
Construction Water Quality		
S8.8	The following mitigation measures are proposed to be incorporated in the design of the SPS at KTD, including:	
	• Dual power supply or emergency generator should be provided at all the SPSs to secure electrical power supply;	N/A
	• Standby pumps should be provided at all SPSs to ensure smooth operation of the SPS during maintenance of the duty pumps;	N/A
	• An alarm should be installed to signal emergency high water level in the wet well at all SPSs; and	
	• For all unmanned SPSs, a remote monitor system connecting SPSs with the control station through telemetry system should be provided so that swift actions could be taken in case of malfunction of unmanned facilities	N/A N/A

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

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

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

S8.8	Land-based Construction *Construction Runoff* Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: • use of sediment traps • adequate maintenance of drainage systems to prevent flooding and overflow	 ^ ^
S8.8	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	^
S8.8	Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	^
S8.8	Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	^
S8.8	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	^
S8.8	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.	*
S8.8	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarized in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty	^

	surface runoff during storm events.	
S8.8	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	N/A(1)
S8.8	All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	^
S8.8	*Drainage* It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea	^
S8.8	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	^
S8.8	All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour WCZ.	^
S8.8	*Sewage Effluent* Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	^

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

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

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

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

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

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

	transient stockpiles should be located away from waterfront or storm drains as far as possible	
	• Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric	*
	• Skip hoist for material transport should be totally enclosed by impervious sheeting	^
	• Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site	^
	• The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores	^
	• The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle	^
	• All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet	^
	• The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading	^
	When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 “Trip Ticket System for Disposal of Construction and Demolition Materials” should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.	^
S9.5	Chemical Waste After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*	#

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

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

Remarks:

^	Compliance of mitigation measure
*	Recommendations were made during site audits but improved/rectified by the Contractor
#	Recommendations were made during site audits but has not yet been improved/rectified by the Contractor
●	Non-compliance but rectified by the Contractor
X	Non-compliance of mitigation measure
N/A	Not Applicable at this stage
N/A(1)	Not observed

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

Contract No. KLN/2016/04
Environmental Monitoring Works for Contract No. KL/2015/02
Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area

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

Complaint Log

EPD Complaint Ref No.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
17-34438	Dakota Drive and Olympic Avenue	23 October 2017	The complainant concerned about the dust emission when vehicle running on the dry surface outside Dakota Drive and Olympic Avenue. In addition, vehicles were not clear enough before leaving the construction site.	In accordance with the information gathered in the investigation, construction activities were conducted with proper mitigation measures to minimize the dust impact arise from the construction site to the vicinity of this Project. Regular water spraying was provided to haul roads and unpaved areas within the site areas to reduce the dust impact arise from the construction site to the vicinity of this Project. The Contractor had also ensured vehicles and plants were wheel washed to be cleaned of mud and debris before leaving the construction site area. Therefore, the complaint is considered as non-project related. The following recommendations were made to further enhance the mitigation measures: ● Where practicable, to provide sheltered area on the top and three sides for stockpiles of dusty materials, or perform frequent water spraying so as to maintain the entire surface wet; ● Frequent checking and repair the gaps or broken tarpaulin sheets; and ● To provide a hard-surfaced road between any cleaning facility and the public Road	Closed

Remarks: No complaint was received in the reporting month.

Contract No. KLN/2016/04
Environmental Monitoring Works for Contract No. KL/2015/02
Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area

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

Warnings / Summons and Successful Prosecutions received

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

Remarks: No warning/summon and prosecution was received in the reporting month.

APPENDIX M
SUMMARY OF WASTE GENERATION AND DISPOSAL RECORDS

Department: CEDD
Contract No.: KL/2015/02
Project : Kai Tak Development - Stage 5A Infrastructure at Former North Apron Area

Peako - Wo Hing Joint Venture

Monthly Summary Waste Flow Table for 2020

As at 3 February 2020

Month	**Forecast** Quantities of Inert C & D Materials Generated Monthly						**Forecast** Quantities of C & D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ Cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m³)
Jan	0	0	0	0	0	0	0	0	0	0	0.007
Feb	0	0	0	0	0	0	0	0	0	0	-
Mar	0	0	0	0	0	0	0	0	0	0	-
Apr	0	0	0	0	0	0	0	0	0	0	-
May	0	0	0	0	0	0	0	0	0	0	-
June	0	0	0	0	0	0	0	0	0	0	-
Sub-total	66.537	0	0	0	66.537	0	0	0	0	0	1.841
July	0	0	0	0	0	0	0	0	0	0	-
Aug	0	0	0	0	0	0	0	0	0	0	-
Sept	0	0	0	0	0	0	0	0	0	0	-
Oct	0	0	0	0	0	0	0	0	0	0	-
Nov	0	0	0	0	0	0	0	0	0	0	-
Dec	0	0	0	0	0	0	0	0	0	0	-
Total	66.537	0	0	0	66.537	0	0	0	0	0	1.841

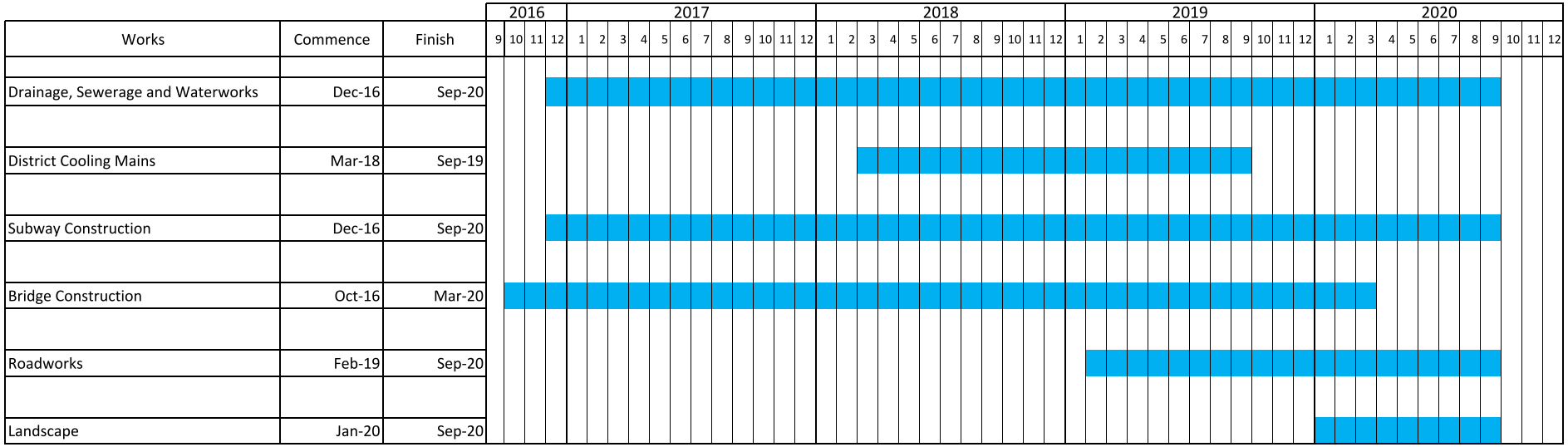
Forecast of Total Quantities of C&D Materials to be Generated from the Contract*										
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ Cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m³)
63000	0	0	0	67	0	0	0	0	0	2.5

Notes:
(1) The performance targets are given in PS clause 6(14).
(2) The waste flow table shall also include C & D materials that are specified in the Contract to be imported for use at the Site.
(3) Plastics refer to plastic bottles/ containers, plastic sheets/ foam from packaging material.
(4) The Contractor shall also submit the latest forcast of the total amount of C&D materials exected to be generated from the Works, together with a braskdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or excreeding 50,00 m³. (PS Cleuse 25.02A(7) refers).

APPENDIX N
CONSTRUCTION PROGRAMME

KL/2015/02

Construction Programme



Works	Commence	Finish
Drainage, Sewerage and Waterworks	Dec-16	Sep-20
District Cooling Mains	Mar-18	Sep-19
Subway Construction	Dec-16	Sep-20
Bridge Construction	Oct-16	Mar-20
Roadworks	Feb-19	Sep-20
Landscape	Jan-20	Sep-20

FUGRO TECHNICAL SERVICES LIMITED

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

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

Appendix E

Monthly EM&A Report
For
Contract No. ED/2018/01
Kai Tak Development – Stage 4 infrastructure at the former runway and south apron

The copyright of this document is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the Company.

Environmental Monitoring and Audit Report

for

Contract No. ED/2018/01 –

Kai Tak Development – Stage 4 infrastructure at the former runway and south apron

Contract No.: EDO 15/2018

January 2020

(Version 1.2)

Certified By:

(Environmental Team Leader)

Ref.: CEDKTDS4EM00_0_0051L.20

13 February 2020

AECOM Asia Company Limited
8/F, Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
Shatin, Hong Kong

By Post and Email

Attention: Mr. Clive Cheng

Dear Sir,

Re: Contract No. ED/2018/01 – Kai Tak Development
Stage 4 Infrastructure at the Former Runway and South Apron

Monthly EM&A Report for January 2020

Reference is made to the Environmental Team's submission of the Monthly EM&A Report for January 2020 (Version 1.2) certified by the ET Leader and provided to us via e-mail on 13 February 2020. Please be informed that we have no adverse comments on the captioned submission. We hereby verify the captioned submission in accordance with Condition 3.3 of EP-337/2009, Condition 3.2 of EP-445/2013 and Condition 3.2 of EP-445/2013/A.

The ET Leader is reminded that it is the ET's responsibility to ensure the reported information be true, valid and correct as per Condition 3.4 of EP-337/2009, Condition 3.3 of EP-445/2013 and Condition 3.3 of EP-445/2013/A.

Thank you for your attention. Please do not hesitate to contact the undersigned should you have any queries.

Yours faithfully,

For and on behalf of

Ramboll Hong Kong Limited

Ray Yan

Independent Environmental Checker

c.c.	CEDD	Attn.: Mr. Ronald Siu	Fax: 2739 0076
	Ka Shing	Attn.: Mr. Chan Pang	By e-mail
	Penta-Ocean	Attn.: Mr. Daniel Ho	Fax: 2572 4080

Q:\Projects\CEDKTDS4EM00\02 Proj_Mgt\02 Corr\CEDKTDS4EM00_0_0051L.20.doc

Ramboll Hong Kong Limited 英環香港有限公司
21/F, BEA Harbour View Centre, 56 Gloucester Road, Wanchai, Hong Kong Tel: 852.3465 2888 Fax: 852.3465 2899
www.Ramboll.com

Table of Content Page

EXECUTIVE SUMMARY 1

Breaches of Action and Limit Levels 1

Complaint log 1

Notifications of summons and successful prosecutions 2

Report changes 2

Key construction works in the reporting month 3

Future key issues 3

1. INTRODUCTION 4

Project Background 4

Project Organization 5

Works Area and Construction Programme 5

Construction works undertaken during reporting month 6

Submission Status under the Environmental Permits 6

2. AIR QUALITY MONITORING 8

Monitoring Requirements 8

Monitoring Locations 8

Monitoring Parameters, Frequency and Duration 8

Monitoring Equipment 9

Monitoring Methodology and QA/QC Procedure 10

Wind Data Monitoring 12

Action and Limit Levels 12

Impact Air Quality Monitoring results 13

3. NOISE MONITORING 15

Monitoring Requirements 15

Monitoring Locations 15

Monitoring Parameters, Frequency and Duration 15

Monitoring Equipment 16
Monitoring Methodology and QA/QC Procedure 16
Maintenance and Calibration 17
Action and Limit Levels 17
Impact Noise Monitoring results 18
4. COMPARISON OF EM&A RESULTS WITH EIA PREDICTIONS 19
5. LANDSCAPE AND VISUAL MONITORING 21
Results and Observations 21
6. ENVIRONMENTAL SITE INSPECTION AND AUDIT 22
Site Inspection 22
Status of Waste Management 22
Status of Environmental Licenses, Notification and Permits 22
Implementation Status of Environmental Mitigation Measures 23
Environmental Complaint and Non-compliance 23
Notifications of summons and successful prosecutions 24
7. FUTURE KEY ISSUES 25
Construction Programme in the coming month 25
Environmental Site Inspection and Monitoring Schedule for next month 25
8. CONCLUSIONS 26

List of Tables

Table I Non-compliance Record in the Reporting Month
Table II Summary of complaints in the Reporting Month
Table III Summary of summons and successful prosecutions in the Reporting Month
Table IV Summary of future key issues and potential impact in the coming month
Table 1.1 Contact Information of Key Personnel
Table 1.2 Major activities of the Project during reporting month
Table 1.3 Summary of Status of Required Submission of EPs

Table 2.1 Locations of Air Quality Monitoring Stations

Table 2.2 Air Quality Monitoring Parameters, Frequency and Duration

Table 2.3 Air Quality Monitoring Equipment

Table 2.4 Action and Limit Levels of 24-hour average TSP for Construction Dust Monitoring

Table 2.5 Action and Limit Levels of 1-hour average TSP for Construction Dust Monitoring

Table 2.6 Summary of 24-hour average TSP Monitoring Data during the reporting month

Table 2.7 Summary of 1-hour average TSP Monitoring Data during the reporting month

Table 3.1 Locations of Noise Monitoring Stations

Table 3.2 Noise Monitoring Parameters, Frequency and Duration

Table 3.3 Noise Monitoring Equipment

Table 3.4 Baseline Noise Level and Action and Limit Levels for Construction Noise Monitoring

Table 3.5 Summary of Noise Monitoring Data during the reporting month

Table 4.1 Comparison of 24-hour average TSP Monitoring Data with EIA predictions

Table 4.2 Comparison of 1-hour average TSP Monitoring Data with EIA predictions

Table 4.3 Comparison of Noise Monitoring Data with EIA predictions

Table 5.1 Summary of observations of Landscape and Visual impact during the reporting month

Table 6.1 Summary of site inspections observations during the reporting month

Table 6.2 Summary of Environmental Licenses, Notifications and Permits

Table 6.3 Summary of complaints in the Reporting Month

Table 6.4 Summary of summons and successful prosecutions in the Reporting Month

Table 7.1 Summary of future key issues and potential impact in the coming month

List of Figure

Figure 1 – Proposed works of Contract No. ED/2018/01

Figure 2 – Proposed Bus Stop And Associated Noise Barrier At Road D3A

Figure 3 – Future Pedestrian Connection Between Landscaped Deck And Private Developments

Figure 4 – Site Layout Plan

Figure 5 – Air Quality Monitoring Stations

Figure 6 – Noise Monitoring Stations

List of Appendices

Appendix A – Organization Chart of EM&A Team

Appendix B – Construction Programme

Appendix C – Environmental monitoring schedules

Appendix D – Photographic records

Appendix E – Calibration certificates, catalogue of air quality monitoring equipment

Appendix F – Weather information

Appendix G – 24-hr TSP monitoring results and graphical presentation

Appendix H – 1-hr TSP monitoring results and graphical presentation

Appendix I – Event and Action Plan for air quality

Appendix J – Calibration certificates, catalogue of noise monitoring equipment

Appendix K – Noise monitoring results and graphical presentation

Appendix L – Event and Action Plan for noise

Appendix M – Event and Action Plan for Landscape and Visual Impact

Appendix N – Waste Flow Table

Appendix O – Environmental Licenses and Notification

Appendix P – Environmental Mitigation Implementation Schedule (EMIS)

Appendix Q – Summaries of Environmental Complaint, Warning, Summon and Notification of Successful Prosecution

EXECUTIVE SUMMARY

1. This is the 1st Monthly Environmental Monitoring & Audit (EM&A) report which summaries the findings of the EM&A Programme during the reporting period from 20 to 31 January 2020.

Breaches of Action and Limit Levels

2. 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

3. 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

4. Construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

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

Table I Non-compliance Record in the Reporting Month

Parameter	No. of Exceedance		Action Taken
	Action Level	Limit Level	
1-hr TSP	0	0	N/A
24-hr TSP	0	0	N/A
Construction noise	0	0	N/A

Complaint log

6. No complaint was received in the reporting month. Summary of complaints in the reporting month is tabulated in Table II.

Table II Summary of complaints in the Reporting Month

Date of Notification from EPD	Date of compliant	Description of complaint	Recommendations / Action take	Close-out date / Status
No complaint	NA	NA	NA	NA

Date of Notification from EPD	Date of compliant	Description of complaint	Recommendations / Action take	Close-out date / Status
was received in the reporting month.				

Notifications of summons and successful prosecutions

7. No notification of summons and successful prosecutions was received in the reporting month. Summary of summons and successful prosecutions in the reporting month is tabulated in Table III.

Table III Summary of summons and successful prosecutions in the Reporting Month

Date of receiving notification of summons or prosecutions	Date of event	Description of event	Action take	Close-out date / Status
No notification of summons and successful prosecutions were received in the reporting month.	NA	NA	NA	NA

Report changes

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

Key construction works in the reporting month

9. Major construction activities undertake during the reporting month included:
   - Ground investigation works
   - Piling works for Bridge D3
   - Installation of sheetpile for North Approach Ramp
   - Excavation for North Depressed Road

Future key issues

10. The future key issues and potential impact in the coming month are given in Table IV.

Table IV Summary of future key issues and potential impact in the coming month

Future key issues in the coming month	Potential impact
Ground investigation work	Noise
Piling works for Bridge D3	Noise
Installation of sheetpile for North Approach Ramp	Noise
Excavation for North Depressed Road	Air Quality

1. INTRODUCTION

Project Background

1.1 The Kai Tak Development (KTD) 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.

1.2 Contract No. ED/2018/01 - Kai Tak Development – stage 4 infrastructure at the former runway and south apron (The Project), comprises mainly the design and construction of a dual two- lane Road D3 (Metro Park Section), a single 2-lane Road L12d, a salt water pumping station, a sewage pumping station, landscaped deck and promenade above and adjoining Road D3 (Metro Park Section) respectively, some remaining road works at Road L14, noise barrier at Road D3A, and other associated works at the former runway and south apron. The proposed works are shown in Figure 1 and Figure 2. During the course of the Contract No. ED/2018/01, there may be modification of noise barriers in association with the construction of footbridges connecting to the landscaped deck of Road D3A by developers of adjacent lands (Figure 3). The proposed works and site boundary are shown in Figure 4.

1.3 Civil Engineering and Development Department (CEDD) had completed an Environmental Impact Assessment (EIA) and is the Permit Holder.

1.4 The construction work under ED/2018/01 comprises the EM&A Manuals (EIA Register Nos. AEIAR-130/2009 for Kai Tak Development and EIA Register Nos. AEIAR-170/2013 for Roads D3A and D4A) and Environmental Permit (EP) Nos. EP-337/2009, EP-445/2013 and Variation to the EP (VEP) No. EP-445/2013/A.

1.5 Air quality and noise monitoring has been proposed in the EM&A Manual with EIA Register Nos. AEIAR-130/2009 for Kai Tak Development while no air quality and noise monitoring are proposed in EM&A Manual with EIA Register Nos. AEIAR-170/2013 for Roads D3A and D4A.

Project Organization

1.6 The project organization chart and with respect to the EM&A programme is shown in Appendix A. Information of key personnel contact names and telephone numbers are summarized in Table 1.1.

Table 1.1 Contact Information of Key Personnel

Party	Role	Contact Person	Position	Phone No.	Fax No.
Civil Engineering and Development Department (CEDD)	Project Proponent	Mr. Ronald Siu	Senior Engineer	3579 2452	2739 0076
		Mr. Edwin Chan	Engineer	3579 2458	2739 0076
AECOM Asia Co. Ltd. (AECOM)	Supervisor (act as Engineers' Representative (ER) listed in EM&A Manual)	Mr. Clive Cheng	CRE	3911 4201	3911 4288
Ramboll Hong Kong Limited (Ramboll)	Independent Environmental Checker (IEC)	Mr. Ray Yan	IEC	3465 2836	3465 2899
Ka Shing Management Consultant Limited (Ka Shing)	Environmental Team (ET)	Mr. Chan Pang	ET Leader	6082 2973	2120 7752
Penta-Ocean Construction Co., Ltd. (Penta-Ocean)	Contractor	Mr. Tony Tang	Environmental Officer	9433 2628	3465 8898

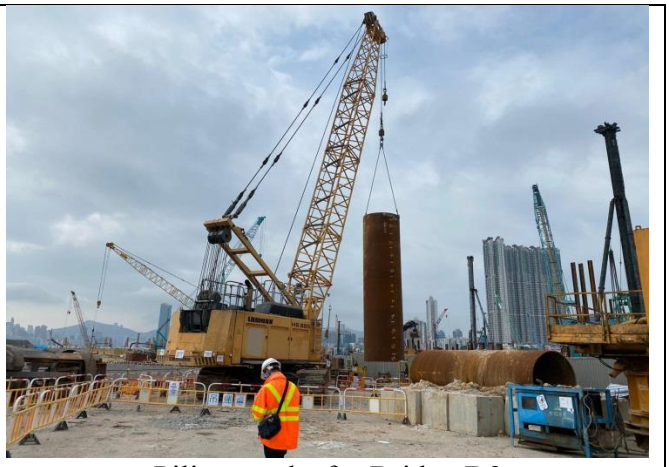
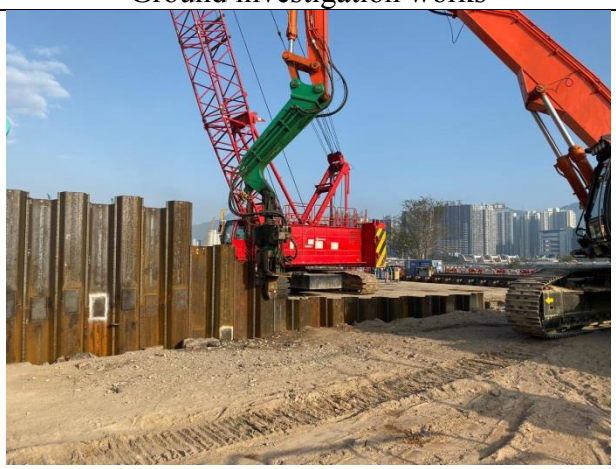
Works Area and Construction Programme

1.7 The construction works commenced on 20 January 2020.The construction programme of the Project is given in Appendix B.

Construction works undertaken during reporting month

1.8 Major construction works of the Project in the reporting month are summarized in Table 1.2:

Table 1.2 Major activities of the Project during reporting month

Ground investigation works	 Piling works for Bridge D3
 Installation of sheetpile for North Approach Ramp	Excavation for North Depressed Road

Submission Status under the Environmental Permits

1.9 The status of required submission under Environmental Permit (EP) conditions under EP-337/2009, EP-445/2013 and Variation to the EP (VEP) No. EP-445/2013/A are summarized in Table 1.3.

Table 1.3 Summary of Status of Required Submission of EPs

EP Condition EP-337/2009	EP Condition EP-445/2013	EP Condition EP-445/2013/A	Submission	Submission Date
Condition 1.11	Condition 1.12	Condition 1.12	Notification of Commencement Date of Construction of the Project	6 Jan 2020
Condition 2.3	Condition 2.3	Condition 2.3	Management Organization of Main Construction Companies	9 Sep 2019
Condition 2.4	Condition 2.4	Condition 2.4	Design Drawings	6 Jan 2020
Condition 2.11	Condition 2.5	Condition 2.5	Landscape Mitigation Plans	2 Jan 2020
Condition 3.2	NA	NA	Baseline Monitoring Report	2 Jan 2020

2. AIR QUALITY MONITORING

Monitoring Requirements

2.1 In accordance with EM&A Manuals (EIA Register Nos. AEIAR-130/2009), impact air quality monitoring shall be carried out during the construction phase of the Project. For regular impact monitoring, a sampling frequency of at least once in every six says will be strictly observed at all of the monitoring stations for 24-hour TSP. For 1-hour TSP monitoring, the sampling frequency of at least three times in every six days will be undertaken when the highest dust impact occurs.

Monitoring Locations

2.2 Three designated monitoring stations were selected for air quality monitoring programme. Impact air quality monitoring was conducted at three air quality monitoring stations in the reporting month. Table 2.1 describes the air quality monitoring locations, which are also depicted in Figure 5.

Table 2.1 Locations of Air Quality Monitoring Stations

Air Quality Monitoring Locations for the Project	Location of Measurement
AM3 - Sky Tower	Podium floor near T7
AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	Rooftop
AM7 – Hong Kong Children's Hospital	Rooftop

Monitoring Parameters, Frequency and Duration

2.3 The air quality monitoring locations and monitoring frequency are listed in Table 2.2.

Table 2.2 Air Quality Monitoring Parameters, Frequency and Duration

Air Monitoring Station	Location for Measurement	Parameter	Duration	Frequency
AM3 - Sky Tower	Podium floor near T7	- 24-hour average TSP - 1-hour average TSP	- 24 hours - 1 hour	- Once every 6 days - Three times every 6 days
AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	Rooftop			
AM7 - Hong Kong Children's Hospital	Rooftop			

2.4 The monitoring schedule for reporting month and next month is presented in Appendix C.

2.5 Photographic records of the impact monitoring setup are shown in Appendix D.

Monitoring Equipment

2.6 24-hour average TSP and 1-hour average TSP levels were measured for impact monitoring. 24-hour average TSP levels were measured by the High Volume Samplers (HVS) and 1-hour average TSP levels were measured by direct reading method to indicate short-term impacts. Wind data monitoring equipment was set up at conspicuous locations for logging wind speed and wind direction near to the dust monitoring locations. Table 2.3 summarizes the equipment to be used in the air quality monitoring.

Table 2.3 Air Quality Monitoring Equipment

Equipment	Model	Quantity
HVS Sampler	TE-5170 X c/w of TSP sampling inlet	3
Calibrator	TISCH TE-5025A	1
1-hour TSP Dust Meter	TSI Model AM510 SidePak Personal Aerosol Monitor	2
Wind Anemometer	Davis Vantage Pro2 Weather Station	1

2.7 High volume samplers (HVS) (TE-5170 X c/w of TSP sampling inlet) comprising 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).

2.8 Calibration certificates, catalogue of equipment are given in Appendix E.

Monitoring Methodology and QA/QC Procedure

24-hour TSP Monitoring

Operating/Analytical Procedures

2.9 Setup criteria of HVS are shown as follows:

- A horizontal platform with appropriate support to secure the samplers against gusty wind was provided.
- No two samplers were placed less than 2m 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 2m of separation from walls, parapets and penthouses was set for the rooftop samples.
- A minimum of 2m separation from any supporting structure, measured horizontally was set.
- No furnaces or incineration flues was nearby.
- Airflow around the sampler was unrestricted.
- The sampler was more than 20m from the dripline.
- Any wire fence and gate, to protect the samplers, was not caused any obstruction during monitoring.
- Permission were obtained to setup the samplers and to obtain access to the monitoring stations.
- A secured supply of electricity was provided to operate the samplers.

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

2.11 For TSP sampling, Glass Fiber Filter Media 8" x 10" have a collection efficiency of > 99 % for particles of 0.3 μm diameter were used.

2.12 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.

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

2.14 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 was sufficient to avoid air leakage at the edges.

2.15 The shelter lid was closed and secured with the aluminium strip.

2.16 The timer was 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).

2.17 After sampling, the filter was removed from the HVS and put into a clean and labeled seal plastic bag to avoid cross contamination. The elapsed time was also be recorded. The sampled filters were sent to the Castco Testing Centre Limited for weighting.

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

Maintenance/Calibration

2.19 The following maintenance/calibration are required for the HVS:

- The HVS 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 with at bi-monthly intervals using TE-5025A Calibration Kit throughout all stages of the air quality monitoring.

1-hour TSP Monitoring

Measurement Procedures

2.20 The measurement procedures of the 1-hour TSP were conducted in accordance with the

Manufacturer's Instruction Manual as follows:

- Set up the dust meter on a tripod at 1.2m level.
- Turned on the dust meter and check the battery, if too low, change new ones. Pointed the meter to the source area or the planned measurement area.
- The zero calibration of the instrument was conducted before and after each sampling.
- TSP levels were recorded for 1-hour with 5-minute data logging interval.
- Recorded down the general meteorological conditions, Test ID no., start/end time, initial/final reading at each sampling location for data processing.
- Recorded any activities that may generate dust during measurement period.

Maintenance/Calibration

2.21 The following maintenance/calibration are required for the direct dust meters:

- To validity the accuracy of dust meter, compare the results measured by dust meter and HVS by direct reading method every 12 months throughout all stages of the air quality monitoring.

Wind Data Monitoring

2.22 Wind Anemometer was installed at the roof-top of AM7 - Hong Kong Children's Hospital with 10m above ground and clear of constructions or turbulence caused by the buildings.

2.23 The wind data was captured by a data logger and the data was downloaded at least once per month for analysis.

2.24 The wind data monitoring equipment will be re-calibrated at least once every six months.

2.25 Wind direction is divided into 16 sectors of 22.5 degrees each.

2.26 Details of weather information during the monitoring period are shown in Appendix F.

Action and Limit Levels

2.27 The Action and Limit Levels of 24-hour average TSP and 1-hour average TSP are summarized

in Table 2.4 and Table 2.5 respectively.

Table 2.4 Action and Limit Levels of 24-hour average TSP for Construction Dust Monitoring

Parameter	Air Monitoring Station	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
24-hour average TSP	AM3	182	260
	AM4(A)	187	260
	AM7	181	260

Table 2.5 Action and Limit Levels of 1-hour average TSP for Construction Dust Monitoring

Parameter	Air Monitoring Station	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
1-hour average TSP	AM3	297	500
	AM4(A)	326	500
	AM7	315	500

Impact Air Quality Monitoring results

2.28 Impact monitoring results for 24-hour average TSP and 1-hour average TSP levels at the designed air quality monitoring stations are summarized in Table 2.6 and Table 2.7 respectively.

Table 2.6 Summary of 24-hour average TSP Monitoring Data during the reporting month

Air Monitoring Station	Average TSP Concentration, $\mu g/m^3$	Range, $\mu g/m^3$	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
AM3	85	35 - 125	182	260
AM4(A)	53	40 - 70	187	260
AM7	52	31 - 78	181	260

Table 2.7 Summary of 1-hour average TSP Monitoring Data during the reporting month

Air Monitoring Station	Average TSP Concentration, $\mu g/m^3$	Range, $\mu g/m^3$	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
AM3	80	68 - 92	297	500
AM4(A)	75	64 - 85	326	500
AM7	74	63 - 89	315	500

2.29 There was no Action and Limit Level exceedance of 24-hour average TSP and 1-hour average TSP levels recorded during the reporting month.

2.30 Graphical presentation and detailed monitoring results of 24-hour average TSP and 1-hour

average TSP levels are shown in Appendix G and Appendix H respectively.

2.31 The Event and Action Plan is provided in Appendix I.

2.32 Non-project related construction activities in the adjacent construction sites were observed during the reporting period and may affect the monitoring results.

3. NOISE MONITORING

Monitoring Requirements

3.1 In accordance with EM&A Manuals (EIA Register Nos. AEIAR-130/2009), impact noise monitoring shall be carried out during the construction phase of the Project.

3.2 Regular monitoring, $L_{Aeq, 30\text{-minute}}$, for each station will be on a weekly basis and conduct one set of measurements between 0700 – 1900 on normal weekdays.

3.3 If construction works are extended to include works during 1900 – 0700 as well as public holidays and Sundays, additional weekly impact monitoring will be carried out during the respective restricted hours periods.

Monitoring Locations

3.4 Two designated monitoring stations were selected for noise monitoring programme. Impact noise monitoring was conducted at two noise monitoring stations in the reporting month. Table 3.1 describes the noise monitoring locations, which are also depicted in Figure 6.

Table 3.1 Locations of Noise Monitoring Stations

Noise Monitoring Locations for the Project	Location of Measurement
M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	Rooftop (Façade)
M12 - Hong Kong Children's Hospital	Rooftop (Façade)

Monitoring Parameters, Frequency and Duration

3.5 The noise monitoring locations and monitoring frequency are listed in Table 3.2.

Table 3.2 Noise Monitoring Parameters, Frequency and Duration

Noise Monitoring Station	Location for Measurement	Parameter	Frequency and Duration
M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	Rooftop (Façade)	L_{Aeq}, L_{A10} and L_{A90}	30 - minutes measurement at each monitoring station between 0700 – 1900 hrs on normal weekdays (Monday to Saturday) at frequency of once per week.
M12 - Hong Kong Children's Hospital	Rooftop (Façade)		

3.6 The monitoring schedule for reporting month and next month is presented in Appendix C.

3.7 Photographic records of the monitoring setup are shown in Appendix D.

Monitoring Equipment

3.8 As referred to in the Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO), sound level meters in compliance with the IEC 61672-1 (Type 1) standard [this standard replaced the International Electrotechnical Commission Publications 60651:1979 (Type 1) and 60804:1985 (Type 1)] were used for noise monitoring. Table 3.3 summarizes the equipment to be used in the noise monitoring.

Table 3.3 Noise Monitoring Equipment

Equipment	Model	Quantity
Sound Level Meter	RION NL52	2
Sound Level Calibrator	RION NC 74	1
Air Flowmeter	TSI TA440 Air Velocity	1

3.9 Calibration certificates, catalogue of equipment are given in Appendix J.

Monitoring Methodology and QA/QC Procedure

3.10 The noise level measurement was conducted at 1m from the exterior of the nearby noise sensitive receivers building façade and at 1.2m above the ground and facing to the source area or the planned measurement area.

3.11 No noise measurement was conducted in the presence of fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s. Air flow was measured by air flow

meter.

3.12 Turned on the sound level meter and check the battery, if too low, change new ones.

3.13 Calibration was conducted immediately prior to and after each noise measurement, the accuracy of the sound level meters was checked by using sound calibrator generating 1,000 Hz with 94dB. Measurement data was found to be valid only if the calibration levels from before and after the noise measurement agreed to within 1.0 dB.

3.14 Noise level was recorded.

3.15 Recorded any activities that may generate noise during measurement period.

Maintenance and Calibration

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

3.17 The sound level meter and sound calibrator were calibrated annually.

3.18 Calibration for sound level meter was conducted immediately prior to and following each noise measurement by using sound calibrator generating a known sound pressure level at a known frequency (1,000 Hz with 94dB). Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Action and Limit Levels

3.19 The Baseline Noise Levels and Action and Limit Levels for construction noise is presented in Table 3.4.

Table 3.4 Baseline Noise Level and Action and Limit Levels for Construction Noise Monitoring

Time Period	Noise Monitoring Station	Baseline Noise Levels, dB (A)	Action Level	Limit Level ^
0700 – 1900 on normal weekdays	M11	68.3	When one documented complaint is received.	75 dB(A)
	M12	61.9		

Note: ^ 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.

Impact Noise Monitoring results

3.20 Impact noise monitoring results at the designed noise monitoring stations are summarized in Table 3.5 respectively.

Table 3.5 Summary of Noise Monitoring Data during the reporting month

Noise Monitoring Station	Measured $L_{Aeq, 30\text{-}min}$, Average, dB(A)	Measured $L_{Aeq, 30\text{-}min}$, Range, dB(A)	Action Level	Limit Level ^
M11	66.6	64.5 – 68	When one documented complaint is received	75 dB(A)
M12	65.4	64.3 – 66.2		

Note: ^ 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.

3.21 There was no Action and Limit Level exceedance of $L_{Aeq, 30\text{-}min}$ recorded during the reporting month.

3.22 Graphical presentation and detailed monitoring results are shown in Appendix K.

3.23 The Event and Action Plan is provided in Appendix L.

3.24 Non-project related construction activities in the adjacent construction sites were observed during the reporting period and may affect the monitoring results.

4. COMPARISON OF EM&A RESULTS WITH EIA PREDICTIONS

4.1 The environmental impacts predictions were given in Agreement No. CE 35/2006(CE) Kai Tak Development Engineering Study cum Design and Construction of Advance Works - Investigation, Design and Construction - Kai Tak Development Environmental Impact Assessment Report, EIA Register Nos. AEIAR-130/2009 for Kai Tak Development (The EIA Report). The EM&A data was compared with the EIA predictions as summarized in Table 4.1 to Table 4.3.

Table 4.1 Comparison of 24-hour average TSP Monitoring Data with EIA predictions

Air Monitoring Station	ASR No. in EIA report	Predicted Cumulative Maximum 24-hour average TSP concentration		Measured 24-hr average TSP in Reporting Month (January 2020) $\mu g/m^3$
		Scenario 1 (Mid 2009 to Mid 2013), $\mu g/m^3$	Scenario 2 (Mid 2013 to Late 2016), $\mu g/m^3$	
AM3 - Sky Tower	A40^	106	138	35 - 125
AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	A43^	123	195	40 - 70
AM7 – Hong Kong Children's Hospital	PA60	NA	NA	31 - 78

Note:
^ Prediction results are given in the Table 3.13 of the EIA report EIA Register Nos. AEIAR-130/2009 for Kai Tak Development.

Table 4.2 Comparison of 1-hour average TSP Monitoring Data with EIA predictions

Air Monitoring Station	ASR No. in EIA report	Predicted Cumulative Maximum 1-hour average TSP concentration		Measured 1-hr average TSP in Reporting Month (January 2020) $\mu g/m^3$
		Scenario 1 (Mid 2009 to Mid 2013), $\mu g/m^3$	Scenario 2 (Mid 2013 to Late 2016), $\mu g/m^3$	
AM3 - Sky Tower	A40	217^	247^	68 - 92
AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	A43	283^	409^	64 - 85
AM7 – Hong Kong Children's Hospital	PA60	NA	NA	63 - 89

Note:
^ Prediction results are given in the Table 3.13 of the EIA report EIA Register Nos. AEIAR-130/2009 for Kai Tak Development.

Table 4.3 Comparison of Noise Monitoring Data with EIA predictions

Noise Monitoring Station	NSR No. in EIA report	Predicted Mitigated Construction Noise Levels during Normal Daytime Working Hour $L_{Aeq, 30min}$, dB(A)	Measured Noise Level in Reporting Month (January 2020) $L_{Aeq, 30min}$, dB(A)
M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	N18	50 – 76*	64.5 – 68
M12 - Hong Kong Children's Hospital	PN83, PN84, PN84A	NA	64.3 – 66.2

Note:
* Prediction results are given in the Table 3.20 of the EIA report EIA Register Nos. AEIAR-130/2009 for Kai Tak Development.

4.2 24-hour TSP monitoring results at AM3 was recorded higher than the Scenario 1 (Mid 2009 to Mid 2013) prediction but lower than the Scenario 2 (Mid 2013 to Late 2016) in the EIA Report. Non-project related construction activities in the adjacent construction sites were observed during the reporting period and may affect the monitoring results.

4.3 24-hour TSP monitoring results at AM4(A) were recorded lower than the prediction in the EIA Report.

4.4 No prediction in the EIA Report for 24-hour TSP monitoring results at AM7.

4.5 1-hour TSP monitoring results at AM3, AM4(A) were recorded lower than the prediction in the EIA Report.

4.6 No prediction in the EIA Report for 1-hour TSP monitoring results at AM7.

4.7 Noise monitoring results at M11 was recorded lower than the prediction in the EIA Report.

4.8 No prediction in the EIA Report for noise monitoring results at M12.

5. LANDSCAPE AND VISUAL MONITORING

5.1 In accordance with EM&A Manuals (EIA Register Nos. AEIAR-130/2009 and AEIAR-170/2013), Landscape and Visual Monitoring shall be carried out during the construction phase of the Project. Regular impact monitoring will be conducted at least once per week.

Results and Observations

5.2 Site inspections were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.

5.3 Site inspections were conducted on 22 January 2020 in the reporting month. No site inspection was conducted on week 26 January to 2 February 2020 due to site closure.

5.4 The summaries of site audits are attached in Table 5.1.

Table 5.1 Summary of observations of Landscape and Visual impact during the reporting month

Inspection Date	Key Observations	Recommendations / Actions	Close-out Date / Status
22 Jan 2020	No	NA	NA

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

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

6. ENVIRONMENTAL SITE INSPECTION AND AUDIT

Site Inspection

6.1 Site inspections were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.

6.2 Site inspections were conducted on 22 January 2020 in the reporting month. No site inspection was conducted on week 26 January to 2 February 2020 due to site closure.

6.3 The summaries of site audits are attached in Table 6.1.

Table 6.1 Summary of site inspections observations during the reporting month

Inspection Date	Key Observations	Recommendations / Actions	Close-out Date / Status
22 Jan 2020	No	NA	NA

Status of Waste Management

6.4 The amount of wastes generated by the major site activities of the work contracts within the Project during the reporting month is shown in Appendix N.

6.5 The Contractor was registered as a chemical waste producer for the Project. The Contractor was 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.

Status of Environmental Licenses, Notification and Permits

6.6 A summary of the relevant permits, licenses and/or notifications on environmental protection for the Project is shown in Table 6.2. Environmental licenses and notifications are reported in Appendix O.

Table 6.2 Summary of Environmental Licenses, Notifications and Permits

Environmental Licenses, Notifications and Permits	Ref. No.	Valid Form	Valid Till
Environmental Permit under EIAO	EP-337/2009	23 Apr 2009	N/A
	EP-445/2013	3 May 2013	N/A
	EP-445/2013/A	13 Aug 2014	N/A
Construction Dust Notification under APCO	445956	6 Jun 2019	N/A
Wastewater Discharge License under WPCO	WT00034610-2019	26 Sep 2019	30 Sep 2024
Construction Noise Permit	GW-RE0699-19	13 Sep 2019	12 Mar 2020
	GW-RE0786-19	5 Oct 2019	4 Apr 2020
	GW-RE0880-19	30 Oct 2019	27 Apr 2020
	GW-RE0039-20	24 Jan 2020	23 Mar 2020
Waste Disposal Billing Account	7034450	28 Jun 2019	N/A
Registration as a Chemical Waste Producer	5218-286-P3182-03	18 Jul 2019	N/A

Implementation Status of Environmental Mitigation Measures

6.7 The Contractor has implemented environmental mitigation measures and requires 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 P.

6.8 In response to the site audit findings, the Contractor carried out corrective actions with summary given in Appendix P.

Environmental Complaint and Non-compliance

6.9 No complaint was received in the reporting month. Summary of complaints in the reporting month is tabulated in Table 6.3.

Table 6.3 Summary of complaints in the Reporting Month

Date of Notification from EPD	Date of compliant	Description of complaint	Recommendations / Action take	Close-out date / Status
No complaint was received	NA	NA	NA	NA

Date of Notification from EPD	Date of compliant	Description of complaint	Recommendations / Action take	Close-out date / Status
in the reporting month.				

6.10 Complaint log is shown in Appendix Q.

Notifications of summons and successful prosecutions

6.11 No notification of summons and successful prosecutions was received in the reporting month. Summary of summons and successful prosecutions in the reporting month is tabulated in Table 6.4.

Table 6.4 Summary of summons and successful prosecutions in the Reporting Month

Date of receiving notification of summons or prosecutions	Date of event	Description of event	Action take	Close-out date / Status
No notification of summons and successful prosecutions were received in the reporting month.	NA	NA	NA	NA

6.12 The summaries of cumulative environmental complaint, warning, summon and notification of successful prosecution for the Project is presented in Appendix Q.

7. FUTURE KEY ISSUES

Construction Programme in the coming month

7.1 The major construction activities and potential impacts in the next reporting month as follow:

Table 7.1 Summary of future key issues and potential impact in the coming month

Future key issues in the coming month	Potential impact
Ground investigation work	Noise
Piling works for Bridge D3	Noise
Installation of sheetpile for North Approach Ramp	Noise
Excavation for North Depressed Road	Air Quality

7.2 The mitigation measures for environmental impact including Air Quality, Construction Noise, Water Quality, Chemical and Waste Management, Landscape and Visual 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 the stockpiles,
- Good maintenance to the plant and equipment,
- Use of quieter plant and Quality Powered Mechanical Equipment (QPME),
- Appropriate desilting/ sedimentation devices provided on site for treatment before discharge,
- Onsite waste sorting and implementation of trip ticket system,
- Erection of decorative screen hoarding,
- Strictly following the Environmental Permits and Licenses, and
- Provide sufficient mitigation measures as recommended in Approved EIA Reports.

Environmental Site Inspection and Monitoring Schedule for next month

7.3 The tentative schedule for weekly site inspection and air quality and noise monitoring in the next month is provided in Appendix C.

8. CONCLUSIONS

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

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

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

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

8.5 No complaint was received in the reporting month.

8.6 No notification of summons and successful prosecutions was received in the reporting month.

Figure

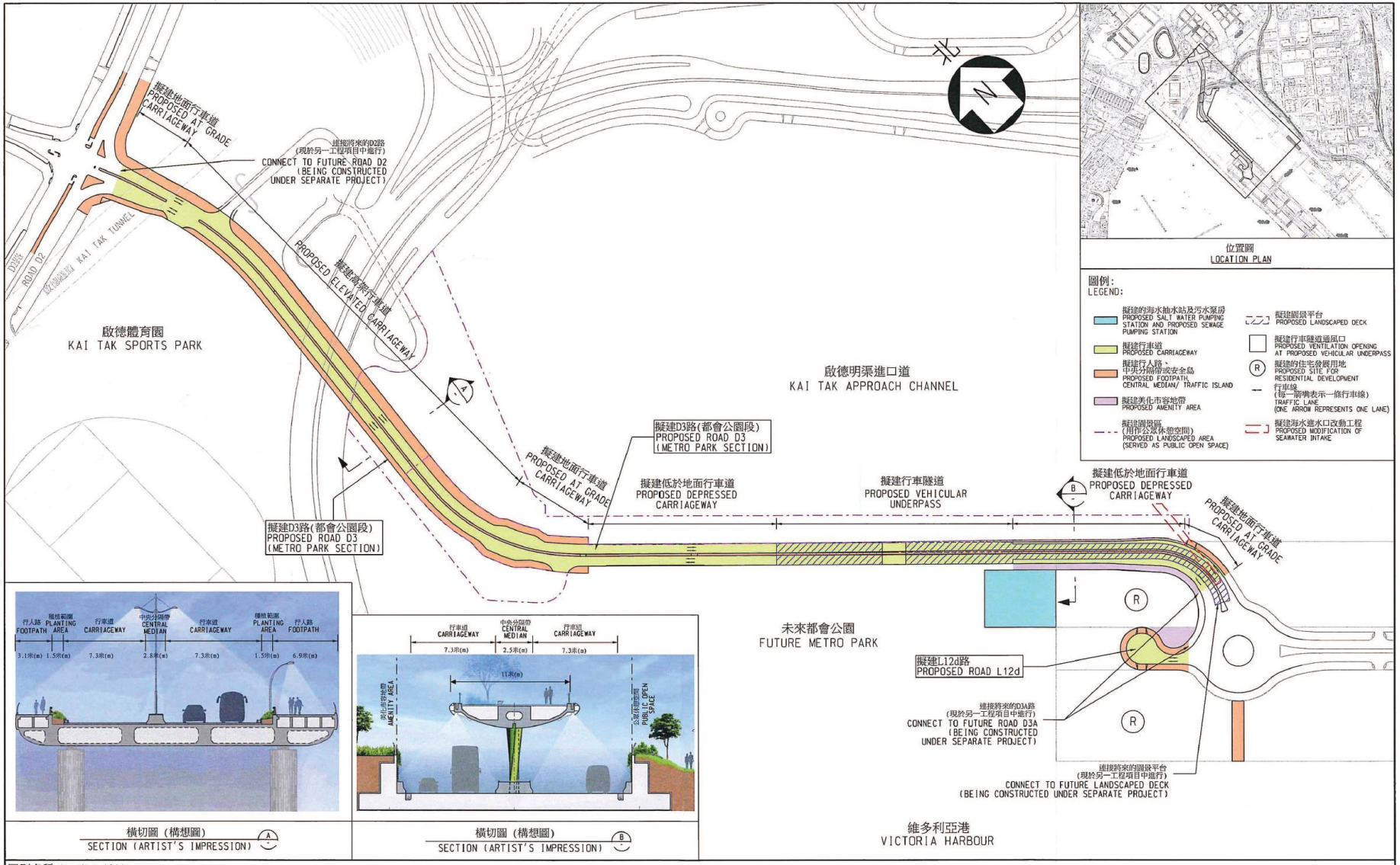


Figure 1 – Proposed works of Contract No. ED/2018/01

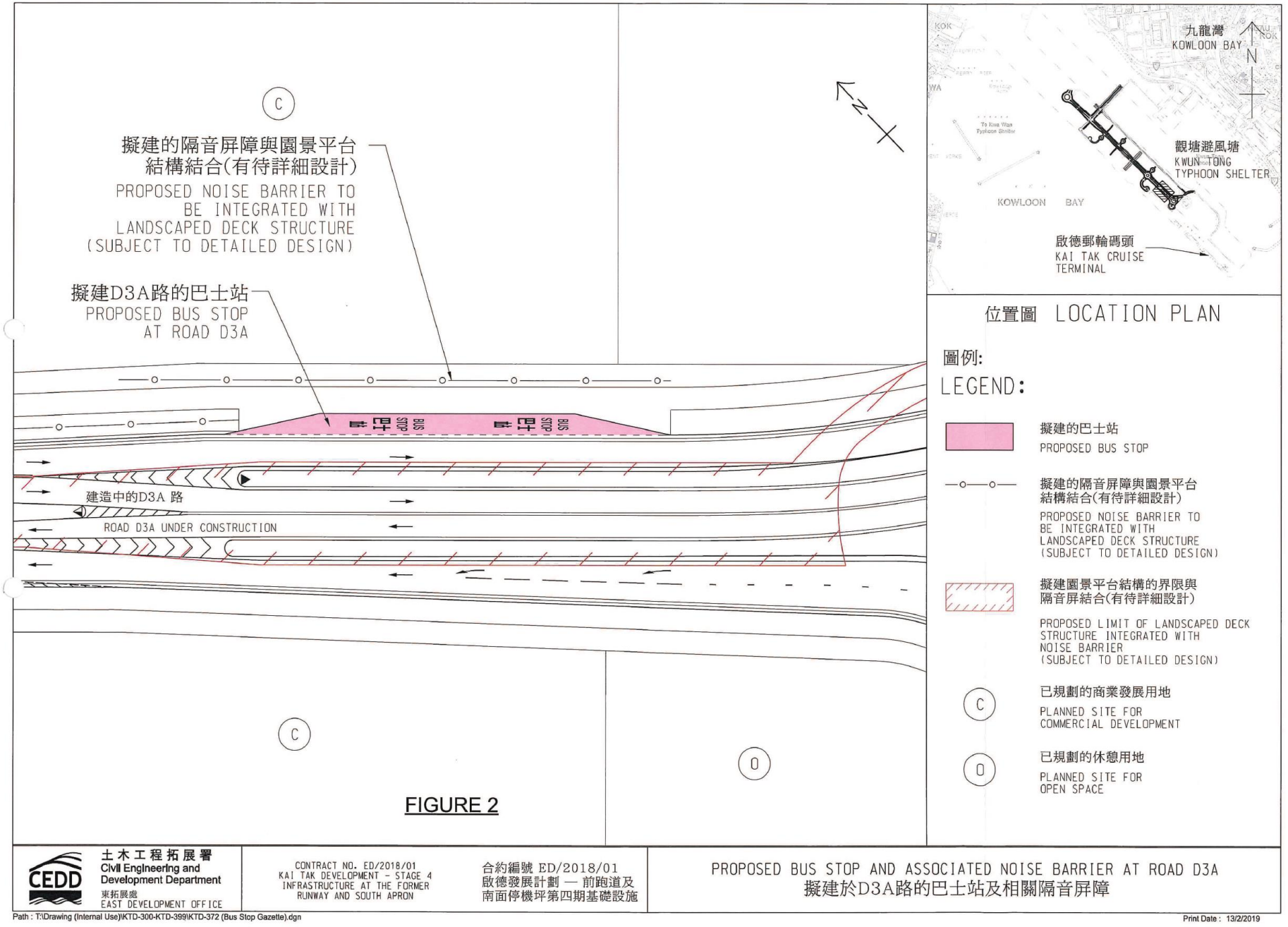


Figure 2 – Proposed Bus Stop And Associated Noise Barrier At Road D3A

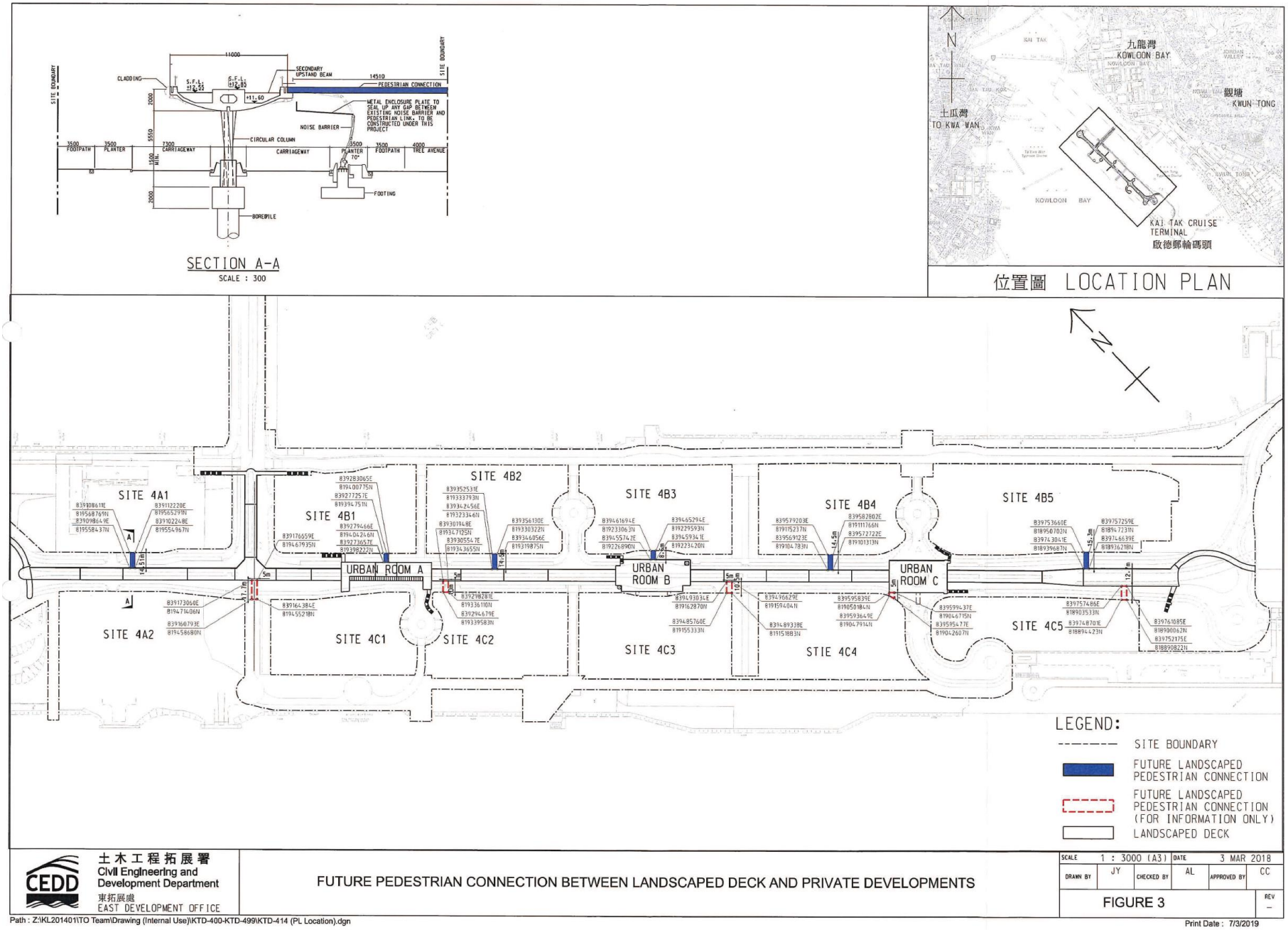


Figure 3 – Future Pedestrian Connection Between Landscaped Deck And Private Developments

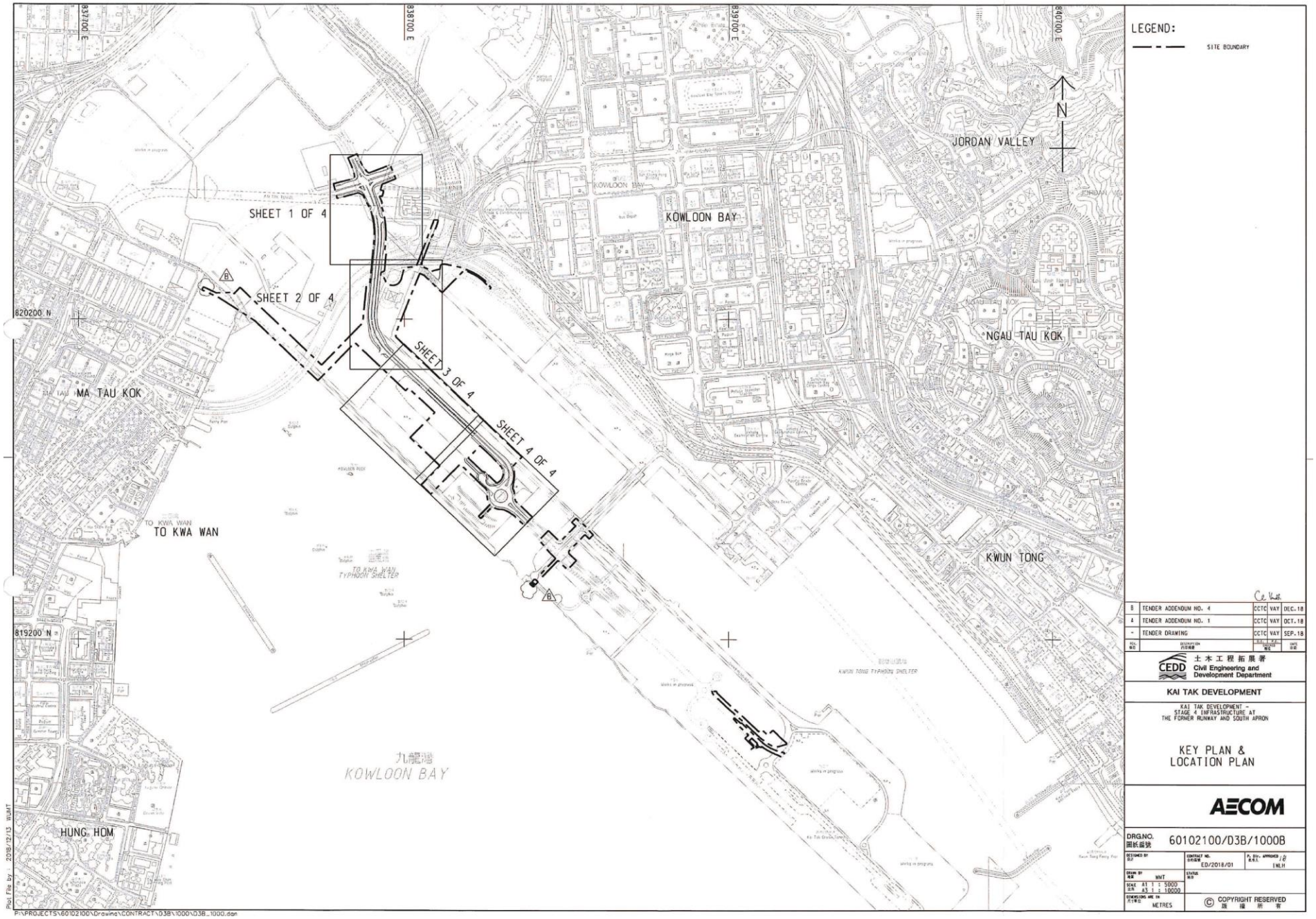


Figure 4 – Site Layout Plan

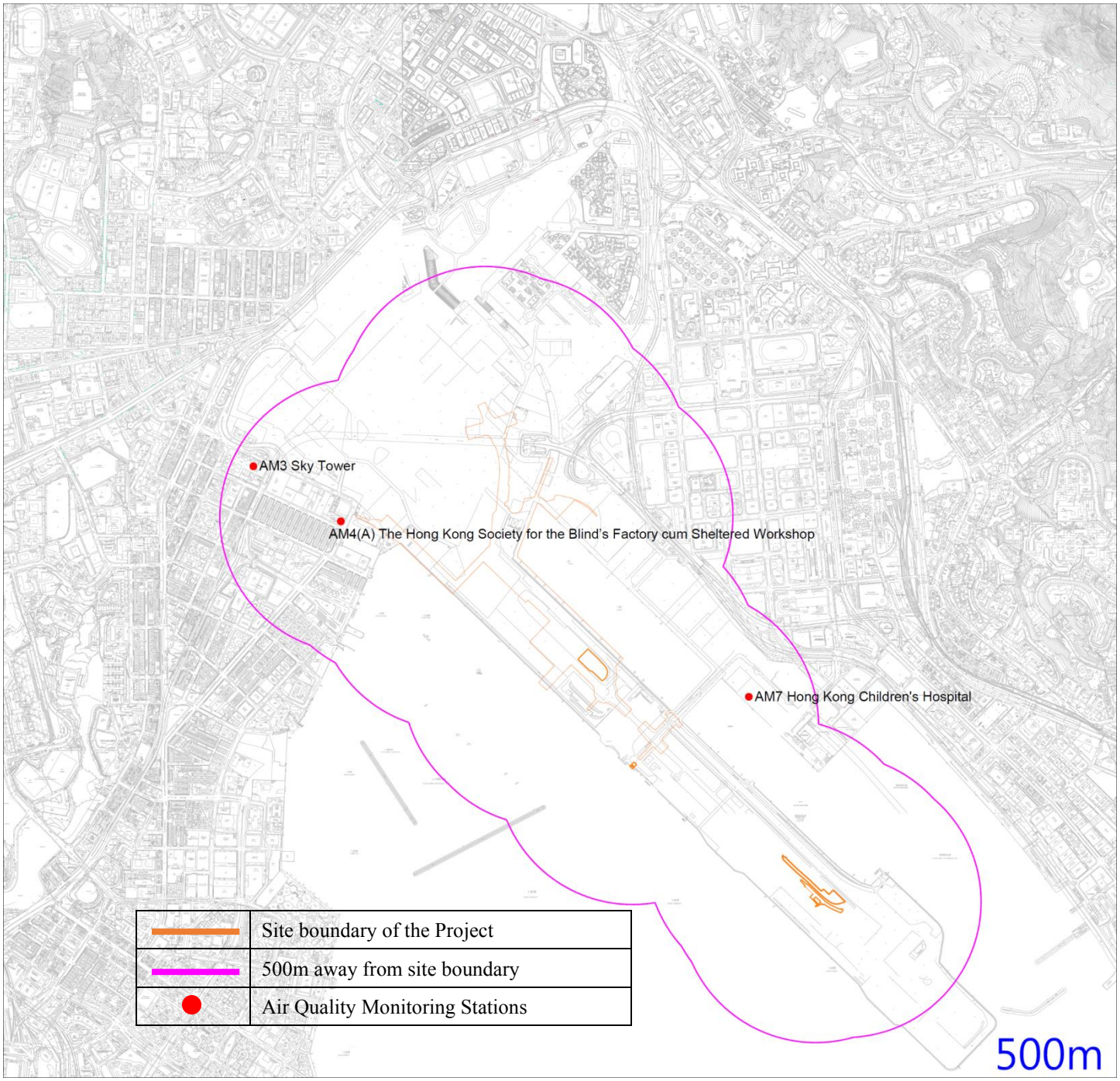


Figure 5 – Air Quality Monitoring Stations

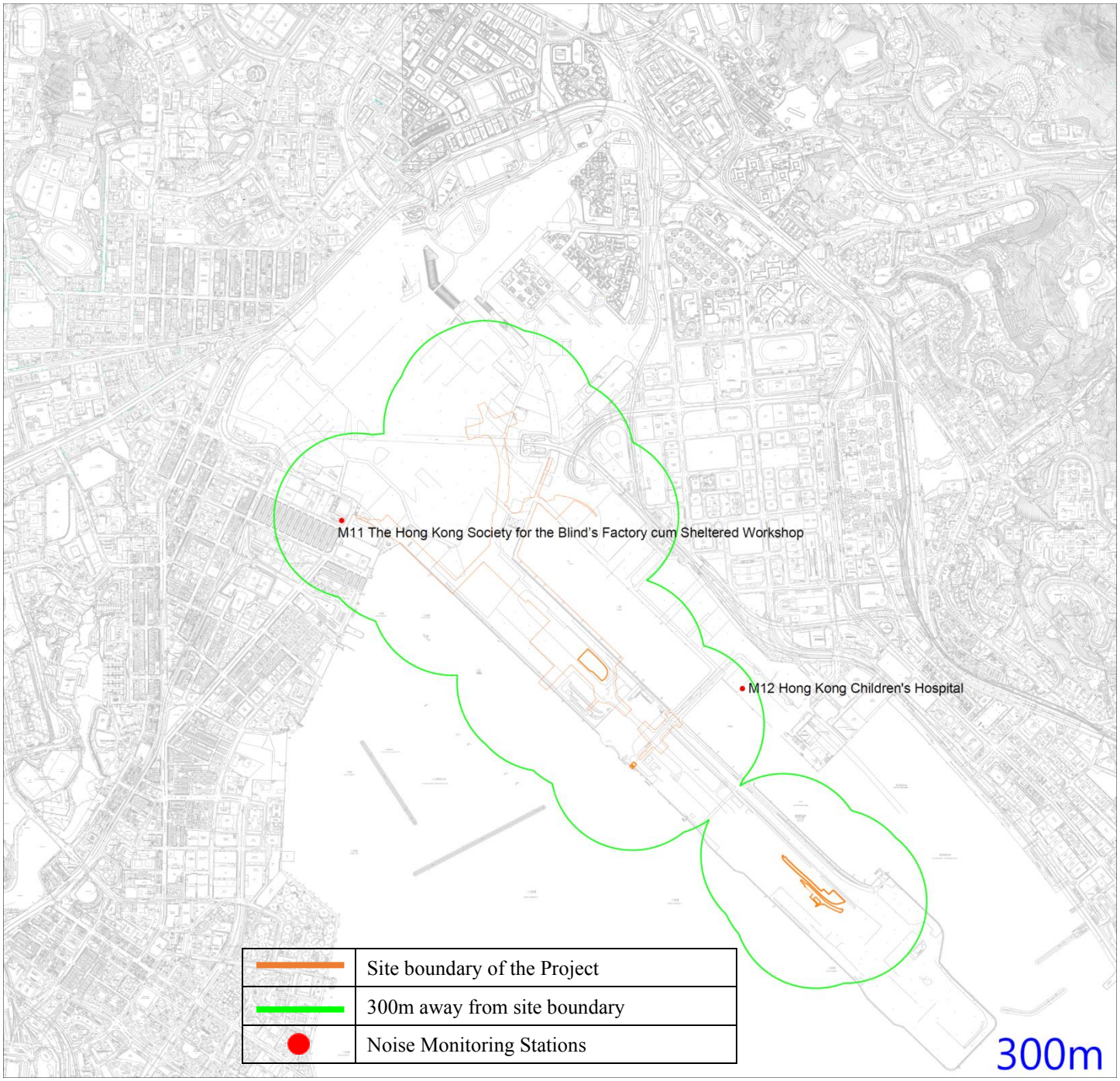
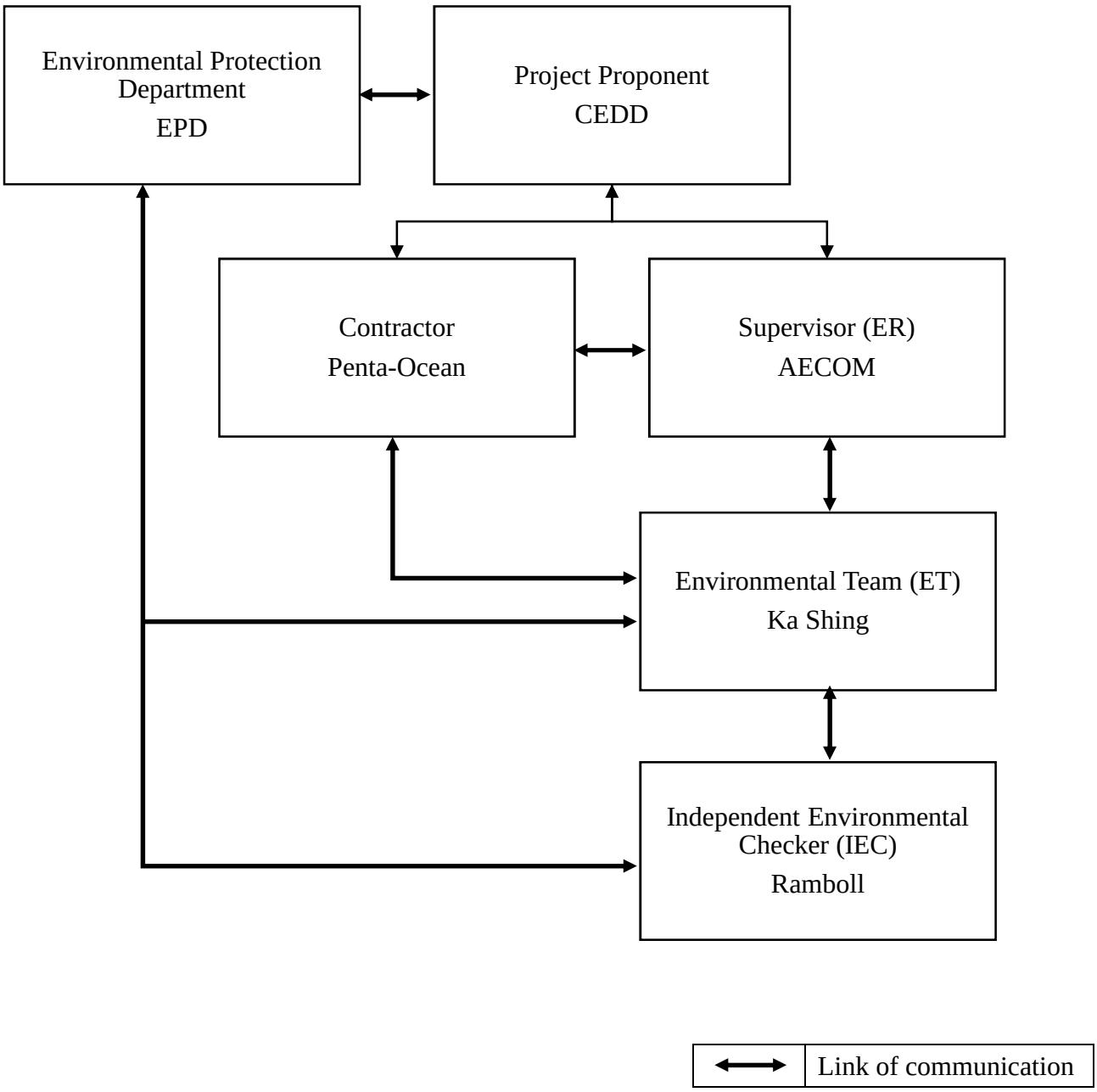


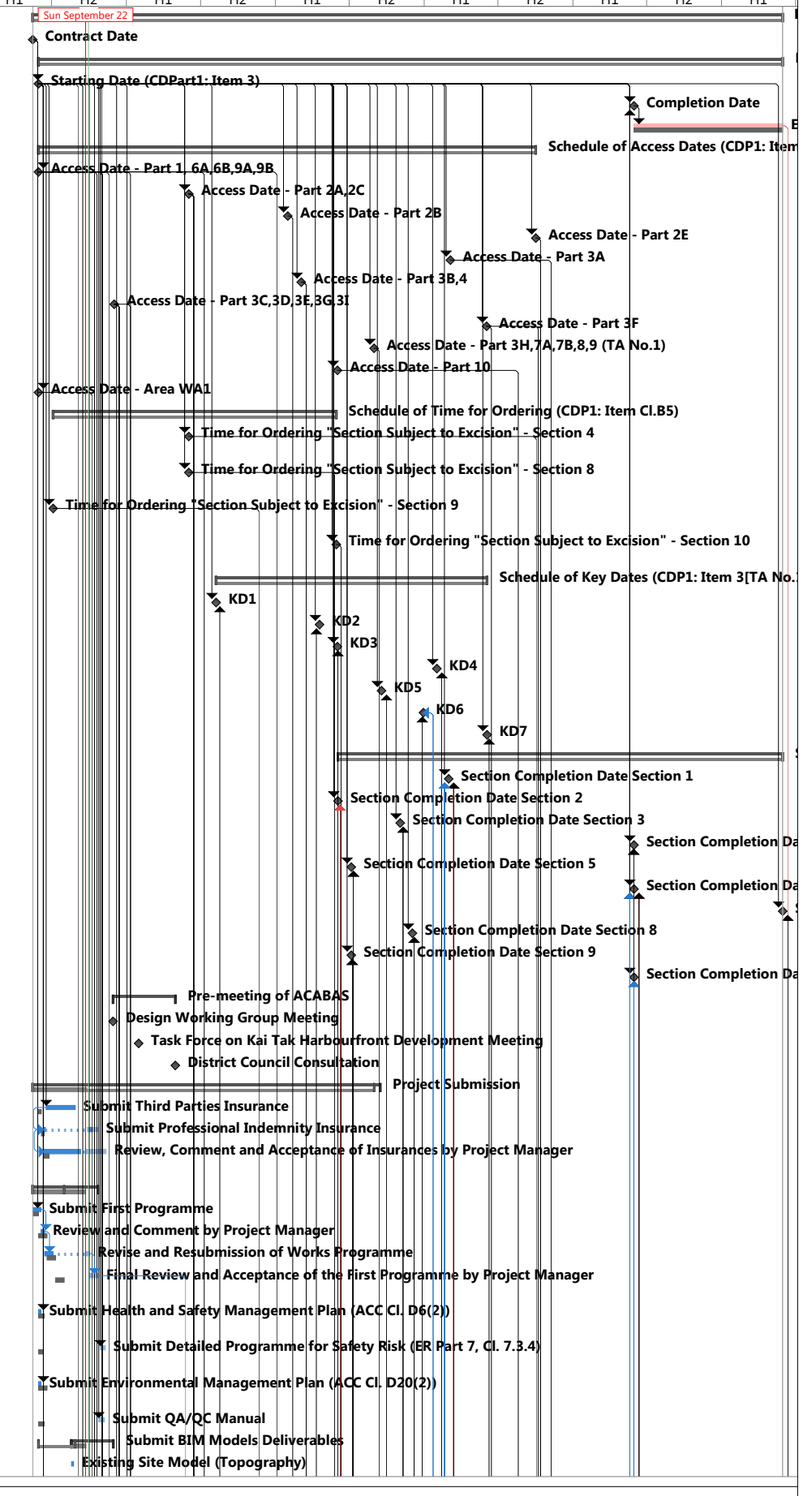
Figure 6 – Noise Monitoring Stations

Appendix A – Organization Chart of EM&A Team


Environmental Protection Department
EPD
Project Proponent
CEDD
Contractor
Penta-Ocean
Supervisor (ER)
AECOM
Environmental Team (ET)
Ka Shing
Independent Environmental Checker (IEC)
Ramboll
Link of communication

Appendix B – Construction Programme

ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
1	**Project Dates**	**1841 days**	**1841 days**	**May 16, 2019**	**NA**	**May 16, 2019**	**May 29, 2024**	**May 16, 2019**	**May 29, 2024**	**0%**	**0 days**	**0 days**	**0 days**
2	Contract Date	0 days	0 days	May 16, 2019	May 16, 2019	May 16, 2019	May 16, 2019	May 16, 2019	May 16, 2019	0%	0 days	0 days	0 days
3	**Date of Commencement & Completion (CDP1: Item 3)**	**1827 days**	**1827 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**May 29, 2024**	**May 30, 2019**	**May 29, 2024**	**0%**	**0 days**	**0 days**	**0 days**
4	Starting Date (CDPart1: Item 3)	0 days	0 days	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	100%	0 days	0 days	0 days
5	Completion Date	0 days	0 days	NA	NA	May 30, 2023	May 30, 2023	May 30, 2023	May 30, 2023	0%	0 days	0 days	0 days
6	Establishment Work	365 days	365 days	NA	NA	May 31, 2023	May 29, 2024	May 31, 2023	May 29, 2024	0%	0 days	0 days	0 days
7	**Schedule of Access Dates (CDP1: Item 3[TA No.1)**	**1221 days**	**1221 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**October 2, 2022**	**May 30, 2019**	**October 2, 2022**	**0%**	**0 days**	**0 days**	**0 days**
8	Access Date - Part 1, 6A,6B,9A,9B	0 days	0 days	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	100%	0 days	0 days	0 days
9	Access Date - Part 2A,2C	0 days	0 days	NA	NA	June 2, 2020	June 2, 2020	June 2, 2020	June 2, 2020	0%	0 days	0 days	0 days
10	Access Date - Part 2B	0 days	0 days	NA	NA	January 31, 2021	January 31, 2021	January 31, 2021	January 31, 2021	0%	0 days	0 days	0 days
11	Access Date - Part 2E	0 days	0 days	NA	NA	October 2, 2022	October 2, 2022	October 2, 2022	October 2, 2022	0%	0 days	0 days	0 days
12	Access Date - Part 3A	0 days	0 days	NA	NA	March 6, 2022	March 6, 2022	March 6, 2022	March 6, 2022	0%	0 days	0 days	0 days
13	Access Date - Part 3B,4	0 days	0 days	NA	NA	March 5, 2021	March 5, 2021	March 5, 2021	March 5, 2021	0%	0 days	0 days	0 days
14	Access Date - Part 3C,3D,3E,3G,3I	0 days	0 days	NA	NA	December 2, 2019	December 2, 2019	December 2, 2019	December 2, 2019	0%	0 days	0 days	0 days
15	Access Date - Part 3F	0 days	0 days	NA	NA	June 3, 2022	June 3, 2022	June 3, 2022	June 3, 2022	0%	0 days	0 days	0 days
16	Access Date - Part 3H,7A,7B,8,9 (TA No.1)	0 days	0 days	NA	NA	August 31, 2021	August 31, 2021	August 31, 2021	August 31, 2021	0%	0 days	0 days	0 days
17	Access Date - Part 10	0 days	0 days	NA	NA	June 2, 2021	June 2, 2021	June 2, 2021	June 2, 2021	0%	0 days	0 days	0 days
18	Access Date - Area WA1	0 days	0 days	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	100%	0 days	0 days	0 days
19	**Schedule of Time for Ordering (CDP1: Item Cl.B5)**	**695 days**	**695 days**	**July 5, 2019**	**NA**	**July 5, 2019**	**May 30, 2021**	**July 5, 2019**	**May 30, 2021**	**0%**	**0 days**	**0 days**	**0 days**
20	Time for Ordering "Section Subject to Excision" - Section 4	0 days	0 days	NA	NA	June 2, 2020	June 2, 2020	June 2, 2020	June 2, 2020	0%	0 days	0 days	0 days
21	Time for Ordering "Section Subject to Excision" - Section 8	0 days	0 days	NA	NA	June 2, 2020	June 2, 2020	June 2, 2020	June 2, 2020	0%	0 days	0 days	0 days
22	Time for Ordering "Section Subject to Excision" - Section 9	0 days	0 days	July 5, 2019	July 5, 2019	July 5, 2019	July 5, 2019	July 5, 2019	July 5, 2019	100%	0 days	0 days	0 days
23	Time for Ordering "Section Subject to Excision" - Section 10	0 days	0 days	NA	NA	May 30, 2021	May 30, 2021	May 30, 2021	May 30, 2021	0%	0 days	0 days	0 days
24	**Schedule of Key Dates (CDP1: Item 3[TA No.1])**	**665 days**	**665 days**	**NA**	**NA**	**August 7, 2020**	**June 3, 2022**	**August 7, 2020**	**June 3, 2022**	**0%**	**0 days**	**0 days**	**0 days**
25	KD1	0 days	0 days	NA	NA	August 7, 2020	August 7, 2020	August 7, 2020	August 7, 2020	0%	0 days	0 days	0 days
26	KD2	0 days	0 days	NA	NA	April 18, 2021	April 18, 2021	April 18, 2021	April 18, 2021	0%	0 days	0 days	0 days
27	KD3	0 days	0 days	NA	NA	June 1, 2021	June 1, 2021	June 1, 2021	June 1, 2021	0%	0 days	0 days	0 days
28	KD4	0 days	0 days	NA	NA	January 31, 2022	January 31, 2022	January 31, 2022	January 31, 2022	0%	0 days	0 days	0 days
29	KD5	0 days	0 days	NA	NA	September 17, 2021	September 17, 2021	September 17, 2021	September 17, 2021	0%	0 days	0 days	0 days
30	KD6	0 days	0 days	NA	NA	December 29, 2021	December 29, 2021	December 29, 2021	December 29, 2021	0%	0 days	0 days	0 days
31	KD7	0 days	0 days	NA	NA	June 3, 2022	June 3, 2022	June 3, 2022	June 3, 2022	0%	0 days	0 days	0 days
32	**Schedule of Section Completion (CDP1 Cl. X5)**	**1092 days**	**1092 days**	**NA**	**NA**	**June 2, 2021**	**May 29, 2024**	**June 2, 2021**	**May 29, 2024**	**0%**	**0 days**	**0 days**	**0 days**
33	Section Completion Date Section 1	0 days	0 days	NA	NA	March 1, 2022	March 1, 2022	March 1, 2022	March 1, 2022	0%	0 days	0 days	0 days
34	Section Completion Date Section 2	0 days	0 days	NA	NA	June 2, 2021	June 2, 2021	June 2, 2021	June 2, 2021	0%	0 days	0 days	0 days
35	Section Completion Date Section 3	0 days	0 days	NA	NA	November 2, 2021	November 2, 2021	November 2, 2021	November 2, 2021	0%	0 days	0 days	0 days
36	Section Completion Date Section 4	0 days	0 days	NA	NA	May 30, 2023	May 30, 2023	May 30, 2023	May 30, 2023	0%	0 days	0 days	0 days
37	Section Completion Date Section 5	0 days	0 days	NA	NA	July 5, 2021	July 5, 2021	July 5, 2021	July 5, 2021	0%	0 days	0 days	0 days
38	Section Completion Date Section 6	0 days	0 days	NA	NA	May 30, 2023	May 30, 2023	May 30, 2023	May 30, 2023	0%	0 days	0 days	0 days
39	Section Completion Date Section 7	0 days	0 days	NA	NA	May 29, 2024	May 29, 2024	May 29, 2024	May 29, 2024	0%	0 days	0 days	0 days
40	Section Completion Date Section 8	0 days	0 days	NA	NA	December 2, 2021	December 2, 2021	December 2, 2021	December 2, 2021	0%	0 days	0 days	0 days
41	Section Completion Date Section 9	0 days	0 days	NA	NA	July 5, 2021	July 5, 2021	July 5, 2021	July 5, 2021	0%	0 days	0 days	0 days
42	Section Completion Date Section 10	0 days	0 days	NA	NA	May 30, 2023	May 30, 2023	May 30, 2023	May 30, 2023	0%	0 days	0 days	0 days
43	**Pre-meeting of ACABAS**	**153 days**	**153 days**	**NA**	**NA**	**November 29, 2019**	**April 30, 2020**	**May 29, 2024**	**May 29, 2024**	**0%**	**1491 d...**		**1491 d...**
44	Design Working Group Meeting	0 days	0 days	NA	NA	November 29, 2019	November 29, 2019	May 29, 2024	May 29, 2024	0%	1644 d...		1644 d...
45	Task Force on Kai Tak Harbourfront Development Meeting	0 days	0 days	NA	NA	January 31, 2020	January 31, 2020	May 29, 2024	May 29, 2024	0%	1581 d...		1581 d...
46	District Council Consultation	0 days	0 days	NA	NA	April 30, 2020	April 30, 2020	May 29, 2024	May 29, 2024	0%	1491 d...		1491 d...
47	**Project Submission**	**853 days**	**679.02 days**	**May 16, 2019**	**NA**	**May 16, 2019**	**September 14, 20...**	**May 16, 2019**	**May 29, 2024**	**0%**	**988 days**	**0 days**	**988 days**
48	Submit Third Parties Insurance	71 days	0 days	June 18, 2019	August 27, 2019	June 18, 2019	August 27, 2019	June 18, 2019	August 27, 2019	100%	0 days	0 days	0 days
49	Submit Professional Indemnity Insurance	29.39 days	14 days	June 11, 2019	NA	June 11, 2019	October 22, 2019	June 11, 2019	May 29, 2024	52%	2 days	0 days	1681.1...
50	Review, Comment and Acceptance of Insurances by Project Manager	139.1 days	50 days	June 13, 2019	NA	June 13, 2019	November 11, 2019	June 13, 2019	May 29, 2024	64%	1661 days	0 days	1661 days
51	**Works Programme**	**160 days**	**60.42 days**	**May 16, 2019**	**NA**	**May 16, 2019**	**October 22, 2019**	**May 16, 2019**	**June 1, 2020**	**0%**	**223 days**		**223 days**
52	Submit First Programme	20 days	0 days	May 16, 2019	June 4, 2019	May 16, 2019	June 4, 2019	May 16, 2019	June 4, 2019	100%	0 days	0 days	0 days
53	Review and Comment by Project Manager	9 days	0 days	June 5, 2019	June 13, 2019	June 5, 2019	June 13, 2019	June 5, 2019	June 13, 2019	100%	0 days	0 days	0 days
54	Revise and Resubmission of Works Programme	30 days	9.21 days	June 14, 2019	NA	June 14, 2019	October 2, 2019	June 14, 2019	May 11, 2020	69%	0 days	0 days	222.79 ...
55	Final Review and Acceptance of the First Programme by Project Manager	21 days	21 days	NA	NA	October 2, 2019	October 23, 2019	May 12, 2020	June 1, 2020	0%	218.79 days	0 days	222.79 days
56	Submit Health and Safety Management Plan (ACC Cl. D6(2))	6 days	0 days	May 30, 2019	June 4, 2019	May 30, 2019	June 4, 2019	May 30, 2019	June 4, 2019	100%	0 days	0 days	0 days
57	Submit Detailed Programme for Safety Risk (ER Part 7, Cl. 7.3.4)	12 days	12 days	NA	NA	October 29, 2019	November 9, 2019	May 18, 2024	May 29, 2024	0%	1663 days	0 days	1663 days
58	Submit Environmental Management Plan (ACC Cl. D20(2))	6 days	0 days	May 30, 2019	June 4, 2019	May 30, 2019	June 4, 2019	May 30, 2019	June 4, 2019	100%	0 days	0 days	0 days
59	Submit QA/QC Manual	14 days	14 days	NA	NA	October 25, 2019	November 7, 2019	May 16, 2024	May 29, 2024	0%	1665 d...	0 days	1665 d...
60	**Submit BIM Models Deliverables**	**103 days**	**41.33 days**	**August 19, 2019**	**NA**	**August 19, 2019**	**November 30, 2019**	**August 19, 2019**	**May 29, 2024**	**0%**	**1643 d...**		**1643 d...**
61	Existing Site Model (Topography)	5 days	0 days	August 19, 2019	August 23, 2019	August 19, 2019	August 23, 2019	August 19, 2019	August 23, 2019	100%	0 days		0 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

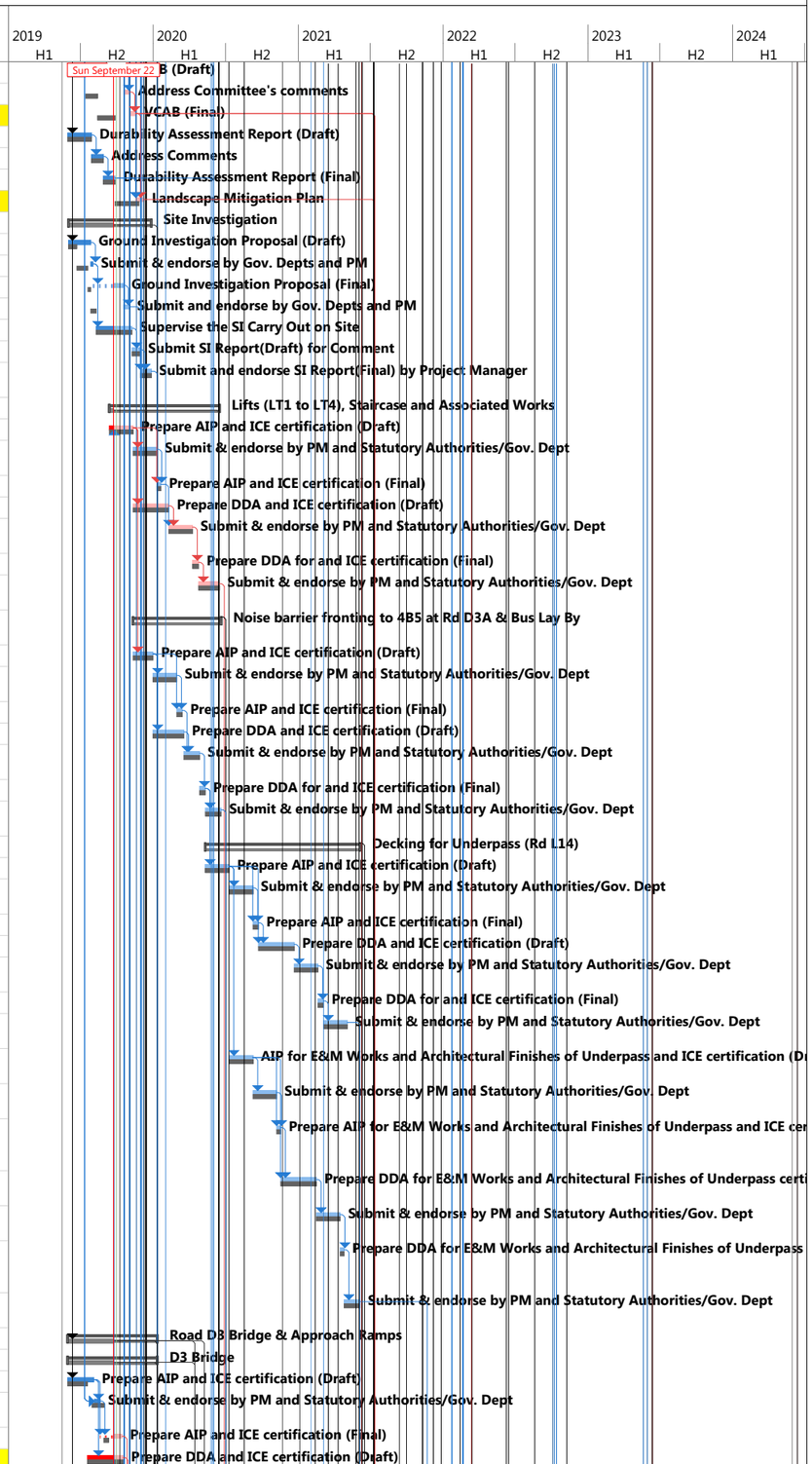
Critical	Task	Manual Task	Duration-only	Baseline Milestone	Summary	External Tasks	Inactive Milestone	Baseline Summary
Critical Split	Split	Start-only	Baseline	Milestone	Manual Summary	External Milestone	Inactive Summary	
Critical Progress	Task Progress	Finish-only	Baseline Split	Summary Progress	Project Summary	Inactive Task	Deadline	

ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
62	Existing Underground Utilities (UU) Model	5 days	0 days	August 26, 2019	August 30, 2019	August 26, 2019	August 30, 2019	August 26, 2019	August 30, 2019	100%	0 days		0 days
63	3D Digital Survey For Existing Conditions	28 days	4.8 days	September 2, 2019	NA	September 2, 2019	September 30, 2019	September 2, 2019	May 29, 2024	83%	1703 d...		1703 d...
64	3D Photogrametry Model	46 days	40.02 days	September 16, 2019	NA	September 16, 2019	November 2, 2019	September 16, 2019	May 29, 2024	13%	1670.9...		1670.9...
65	AIP Model	18 days	1.08 days	September 6, 2019	NA	September 6, 2019	September 24, 2019	September 6, 2019	May 29, 2024	94%	1709.9...		1709.9...
66	Interfacing Contract Model	15 days	1.05 days	September 9, 2019	NA	September 9, 2019	September 24, 2019	September 9, 2019	May 29, 2024	93%	1709.9...		1709.9...
67	Monthly Updated BIM Model	0 days	0 days	NA	NA	October 31, 2019	October 31, 2019	October 31, 2019	October 31, 2019	0%	0 days		0 days
68	4D Model Linked Up with Programme	0 days	0 days	NA	NA	October 31, 2019	October 31, 2019	October 31, 2019	October 31, 2019	0%	0 days		0 days
69	Construction Method Simulation (CMS) in 3D Model	0 days	0 days	NA	NA	November 30, 2019	November 30, 2019	November 30, 2019	November 30, 2019	0%	0 days		0 days
70	**BIM Deliverables Schedule**	**77 days**	**77 days**	**August 16, 2019**	**NA**	**August 16, 2019**	**October 31, 2019**	**August 16, 2019**	**October 31, 2019**	**0%**	**0 days**		**0 days**
71	Establish BIM Team	0 days	0 days	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	100%	0 days		0 days
72	BIM Execution Plan	0 days	0 days	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	100%	0 days		0 days
73	BIM Submission Schedule	0 days	0 days	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	100%	0 days		0 days
74	BIM 360 License	0 days	0 days	August 31, 2019	August 31, 2019	August 31, 2019	August 31, 2019	August 31, 2019	August 31, 2019	100%	0 days		0 days
75	BIM/Drawing Management Software System	0 days	0 days	August 31, 2019	August 31, 2019	August 31, 2019	August 31, 2019	August 31, 2019	August 31, 2019	100%	0 days		0 days
76	CDE Setup	0 days	0 days	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	100%	0 days		0 days
77	Clash Report Format	0 days	0 days	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	100%	0 days		0 days
78	Monthly Report Format	0 days	0 days	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	100%	0 days		0 days
79	Quality Assurance Plan for BIM	0 days	0 days	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	100%	0 days		0 days
80	BIM Training Plan	0 days	0 days	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	100%	0 days		0 days
81	BIM Training Schedule for CIC Training	0 days	0 days	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	100%	0 days		0 days
82	4 Sets of BIM Software, Hardware and Server	0 days	0 days	NA	NA	October 31, 2019	October 31, 2019	October 31, 2019	October 31, 2019	0%	0 days		0 days
83	Monthly BIM Progress Report	0 days	0 days	NA	NA	October 31, 2019	October 31, 2019	October 31, 2019	October 31, 2019	0%	0 days		0 days
84	Monthly Clash Report	0 days	0 days	NA	NA	October 31, 2019	October 31, 2019	October 31, 2019	October 31, 2019	0%	0 days		0 days
85	BIM Object Libraries	0 days	0 days	NA	NA	October 31, 2019	October 31, 2019	October 31, 2019	October 31, 2019	0%	0 days		0 days
86	**Temporary Traffic Management**	**839 days**	**682.35 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**September 14, 20...**	**May 30, 2019**	**May 29, 2024**	**0%**	**988 days**		**988 days**
87	Submit Traffic Engineering Consultant and TTM Team Leader (PS1.16(3))	14 days	0 days	May 30, 2019	June 12, 2019	May 30, 2019	June 12, 2019	May 30, 2019	June 12, 2019	100%	0 days	0 days	0 days
88	Submit Road Closure Implementation Plan (PS1.14A(2)) within 14d after acceptance of Works Programme	14 days	14 days	NA	NA	November 1, 2019	November 14, 2019	May 16, 2024	May 29, 2024	0%	1658 days	0 days	1658 days
89	Submit EP Mgt System Co-ordinator (PS Cl. 1.18N(2))	7 days	0 days	May 30, 2019	June 5, 2019	May 30, 2019	June 5, 2019	May 30, 2019	June 5, 2019	100%	0 days	0 days	0 days
90	Approve of EP Co-ordinator by Project Manager (PS Cl. 1.18N(2))	14 days	0 days	June 6, 2019	June 19, 2019	June 6, 2019	June 19, 2019	June 6, 2019	June 19, 2019	100%	0 days	0 days	0 days
91	Submit UU detection equipment for Supervisor approval (PS Cl. 1.25A(1))	7 days	0 days	May 30, 2019	June 5, 2019	May 30, 2019	June 5, 2019	May 30, 2019	June 5, 2019	100%	0 days	0 days	0 days
92	Submit & obtain approval: site office's location and layout plan (PS Cl. 1.45(11)) (7d submission + 14d approval)	31 days	10 days	May 30, 2019	NA	May 30, 2019	October 2, 2019	May 30, 2019	May 29, 2024	100%	1701 days	0 days	1701 days
93	Submit Site survey record (PS Cl.1.47(7))	34 days	0 days	May 30, 2019	July 2, 2019	May 30, 2019	July 2, 2019	May 30, 2019	July 2, 2019	100%	0 days	0 days	0 days
94	Submit & obtain approval: fencing & hoarding plan (PS Cl. 1.48(10)	5 days	5 days	NA	NA	October 2, 2019	October 6, 2019	November 4, 2019	November 8, 2019	0%	1 day	0.5 days	33 days
95	Submit site facilities (PS Cl. 1.50S)	65 days	0 days	May 30, 2019	August 2, 2019	May 30, 2019	August 2, 2019	May 30, 2019	August 2, 2019	100%	0 days	0 days	0 days
96	Submit security system (PS Cl. 1.53A(5))	36 days	0 days	May 30, 2019	July 4, 2019	May 30, 2019	July 4, 2019	May 30, 2019	July 4, 2019	100%	0 days	0 days	0 days
97	Submit Weather Protection Scheme (PS Cl. 1.87 (1))	12 days	0 days	October 15, 2019	October 26, 2019	October 15, 2019	October 26, 2019	October 15, 2019	October 26, 2019	100%	0 days	0 days	0 days
98	Submit Interface Management Plan (PS Cl. 1.89(2))	47 days	0 days	May 30, 2019	July 15, 2019	May 30, 2019	July 15, 2019	May 30, 2019	July 15, 2019	100%	0 days	0 days	0 days
99	Submit Subcontractor Management Plan (ACC Cl. C5(1))	13 days	0 days	May 30, 2019	June 11, 2019	May 30, 2019	June 11, 2019	May 30, 2019	June 11, 2019	100%	0 days	0 days	0 days
100	Submit Temporary Drainage and Sewerage Management Plan (PS Cl. 1.24A(1))	45 days	33.12 days	May 30, 2019	NA	May 30, 2019	October 26, 2019	May 30, 2019	August 7, 2020	32%	33.88 days	0 days	286.88 days
101	Submit Piling Programme (PS Cl. 8.35D)	12 days	12 days	NA	NA	January 2, 2020	January 13, 2020	February 1, 2020	February 12, 2020	0%	18 days	0 days	30 days
102	Submit EM&A Manual (ER Part 8, Cl. 8.2)	6 days	0 days	May 30, 2019	June 4, 2019	May 30, 2019	June 4, 2019	May 30, 2019	June 4, 2019	100%	0 days	0 days	0 days
103	Submit Proposal of selection of suppliers of Plant and Materials (ACC Cl. C11(1)	80 days	0 days	May 30, 2019	August 17, 2019	May 30, 2019	August 17, 2019	May 30, 2019	August 17, 2019	100%	0 days	0 days	0 days
104	Submit Contractor's Management Team (ACC Cl. D1(3))	50 days	0 days	May 30, 2019	July 18, 2019	May 30, 2019	July 18, 2019	May 30, 2019	July 18, 2019	100%	0 days	0 days	0 days
105	**Permanent Works Design Submission**	**839 days**	**705.7 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**September 14, 20...**	**May 30, 2019**	**November 15, 2022**	**0%**	**427 days**		**427 days**
106	**General Design Submission**	**192 days**	**43.98 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**December 7, 2019**	**May 30, 2019**	**December 10, 2019**	**0%**	**3 days**		**3 days**
107	Project Design Plan (Draft)	16 days	0 days	May 30, 2019	June 14, 2019	May 30, 2019	June 14, 2019	May 30, 2019	June 14, 2019	100%	0 days	0 days	0 days
108	Project Design Plan (Draft) Comment by PM	14 days	0 days	June 15, 2019	June 28, 2019	June 15, 2019	June 28, 2019	June 15, 2019	June 28, 2019	100%	0 days		0 days
109	Address Comments	66 days	0 days	July 2, 2019	September 5, 2019	July 2, 2019	September 5, 2019	July 2, 2019	September 5, 2019	100%	0 days	1 days	0 days
110	Project Design Plan (Final)	19 days	15.2 days	September 5, 2019	NA	September 5, 2019	October 8, 2019	September 5, 2019	December 10, 2019	20%	63.8 days	0 days	63.8 days
111	Design Memorandum (Draft)	26 days	0 days	June 4, 2019	June 29, 2019	June 4, 2019	June 29, 2019	June 4, 2019	June 29, 2019	100%	0 days	0 days	0 days
112	Address Comments	15 days	0 days	August 1, 2019	August 15, 2019	August 1, 2019	August 15, 2019	August 1, 2019	August 15, 2019	100%	0 days	1 days	0 days
113	Design Memorandum (Final)	5 days	5 days	July 23, 2019	NA	July 23, 2019	September 27, 2019	July 23, 2019	December 10, 2019	0%	74 days	0 days	74 days
114	Traffic Impact Assessment(Draft)	25 days	4 days	September 16, 2019	NA	September 16, 2019	October 10, 2019	September 16, 2019	October 18, 2019	84%	0 days	1 day	8 days
115	Address Comments	28 days	28 days	NA	NA	October 11, 2019	November 7, 2019	October 19, 2019	November 15, 2019	0%	0 days	0.5 days	8 days
116	Traffic Impact Assessment(Final)	25 days	25 days	NA	NA	November 8, 2019	December 2, 2019	November 16, 2019	December 10, 2019	0%	8 days	0.5 days	8 days
117	ACABAS (Draft)	69 days	0 days	May 30, 2019	August 6, 2019	May 30, 2019	August 6, 2019	May 30, 2019	August 6, 2019	100%	0 days	2 days	0 days
118	Address Committee's comments	51 days	6 days	August 7, 2019	NA	August 7, 2019	September 28, 2019	August 7, 2019	December 10, 2019	88%	73 days	2 days	73 days
119	ACABAS (Final)	25 days	0 days	August 28, 2019	September 21, 2019	August 28, 2019	September 21, 2019	August 28, 2019	September 21, 2019	100%	0 days	1 days	0 days

Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
120	VCAB (Draft)	45 days	0 days	September 4, 2019	October 18, 2019	September 4, 2019	October 18, 2019	September 4, 2019	October 18, 2019	100%	0 days	2 days	0 days
121	Address Committee's comments	15 days	15 days	NA	NA	October 19, 2019	November 2, 2019	October 22, 2019	November 5, 2019	0%	0 days	2 days	3 days
122	VCAB (Final)	15 days	15 days	NA	NA	November 3, 2019	November 17, 2019	November 6, 2019	November 20, 2019	0%	0 days	2 days	3 days
123	Durability Assessment Report (Draft)	60 days	0 days	May 30, 2019	July 28, 2019	May 30, 2019	July 28, 2019	May 30, 2019	July 28, 2019	0%	0 days	3 days	0 days
124	Address Comments	30 days	0 days	July 29, 2019	August 27, 2019	July 29, 2019	August 27, 2019	July 29, 2019	August 27, 2019	0%	0 days	2 days	0 days
125	Durability Assessment Report (Final)	30 days	4 days	August 28, 2019	NA	August 28, 2019	September 26, 2019	August 28, 2019	November 20, 2019	0%	52 days	2 days	55 days
126	Landscape Mitigation Plan	20 days	20 days	NA	NA	November 18, 2019	December 7, 2019	November 21, 2019	December 10, 2019	0%	3 days	3 days	3 days
127	**Site Investigation**	**209 days**	**116.69 days**	**June 1, 2019**	**NA**	**June 1, 2019**	**December 26, 2019**	**June 1, 2019**	**January 10, 2020**	**0%**	**15 days**		**15 days**
128	Ground Investigation Proposal (Draft)	56 days	0 days	June 1, 2019	July 26, 2019	June 1, 2019	July 26, 2019	June 1, 2019	July 26, 2019	100%	0 days	1 days	0 days
129	Submit & endorse by Gov. Depts and PM	6 days	0 days	July 27, 2019	August 1, 2019	July 27, 2019	August 1, 2019	July 27, 2019	August 1, 2019	100%	0 days	1 days	0 days
130	Ground Investigation Proposal (Final)	25 days	25 days	August 2, 2019	NA	August 2, 2019	October 17, 2019	August 2, 2019	November 29, 2019	0%	0 days	1 days	43 days
131	Submit and endorse by Gov. Depts and PM	14 days	14 days	NA	NA	October 18, 2019	October 31, 2019	November 30, 2019	December 13, 2019	0%	28 days	1 days	43 days
132	Supervise the SI Carry Out on Site	90 days	46 days	August 10, 2019	NA	August 10, 2019	November 7, 2019	August 10, 2019	November 22, 2019	49%	0 days	4 days	15 days
133	Submit SI Report(Draft) for Comment	21 days	21 days	NA	NA	November 8, 2019	November 28, 2019	November 23, 2019	December 13, 2019	0%	0 days	1 days	15 days
134	Submit and endorse SI Report(Final) by Project Manager	28 days	28 days	NA	NA	November 29, 2019	December 26, 2019	December 14, 2019	January 10, 2020	0%	15 days	1 days	15 days
135	**Lifts (LT1 to LT4), Staircase and Associated Works**	**278 days**	**269.21 days**	**September 12, 20...**	**NA**	**September 12, 20...**	**June 15, 2020**	**September 12, 2019**	**June 19, 2020**	**0%**	**0 days**		**4 days**
136	Prepare AIP and ICE certification (Draft)	60 days	49 days	September 12, 2019	NA	September 12, 2019	November 10, 2019	September 12, 2019	November 14, 2019	18%	0 days	3 days	4 days
137	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	November 11, 2019	January 9, 2020	December 5, 2019	February 2, 2020	0%	0 days	0.5 days	24 days
138	Prepare AIP and ICE certification (Final)	10 days	10 days	NA	NA	January 10, 2020	January 19, 2020	February 3, 2020	February 12, 2020	0%	20 days	0 days	24 days
139	Prepare DDA and ICE certification (Draft)	90 days	90 days	NA	NA	November 11, 2019	February 8, 2020	November 15, 2019	February 12, 2020	0%	0 days	4 days	4 days
140	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	February 9, 2020	April 8, 2020	February 13, 2020	April 12, 2020	0%	0 days	3 days	4 days
141	Prepare DDA for and ICE certification (Final)	15 days	15 days	NA	NA	April 9, 2020	April 23, 2020	April 13, 2020	April 27, 2020	0%	0 days	1 days	4 days
142	Submit & endorse by PM and Statutory Authorities/Gov. Dept	53 days	53 days	NA	NA	April 24, 2020	June 15, 2020	April 28, 2020	June 19, 2020	0%	0 days	3 days	4 days
143	**Noise barrier fronting to 4B5 at Rd D3A & Bus Lay By**	**222 days**	**222 days**	**NA**	**NA**	**November 11, 2019**	**June 19, 2020**	**November 18, 2019**	**June 26, 2020**	**0%**	**0 days**		**7 days**
144	Prepare AIP and ICE certification (Draft)	50 days	50 days	NA	NA	November 11, 2019	December 30, 2019	November 18, 2019	January 6, 2020	0%	0 days	2 days	7 days
145	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	December 31, 2019	February 28, 2020	January 11, 2020	March 10, 2020	0%	0 days	0.5 days	11 days
146	Prepare AIP and ICE certification (Final)	14 days	14 days	NA	NA	February 29, 2020	March 13, 2020	March 11, 2020	March 24, 2020	0%	4 days	0 days	11 days
147	Prepare DDA and ICE certification (Draft)	78 days	78 days	NA	NA	December 31, 2019	March 17, 2020	January 7, 2020	March 24, 2020	0%	0 days	4 days	7 days
148	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	40 days	NA	NA	March 18, 2020	April 26, 2020	March 25, 2020	May 3, 2020	0%	0 days	2 days	7 days
149	Prepare DDA for and ICE certification (Final)	14 days	14 days	NA	NA	April 27, 2020	May 10, 2020	May 4, 2020	May 17, 2020	0%	0 days	1 days	7 days
150	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	40 days	NA	NA	May 11, 2020	June 19, 2020	May 18, 2020	June 26, 2020	0%	0 days	1 days	7 days
151	**Decking for Underpass (Rd L14)**	**390 days**	**390 days**	**NA**	**NA**	**May 11, 2020**	**June 4, 2021**	**May 23, 2020**	**June 16, 2021**	**0%**	**0 days**		**12 days**
152	Prepare AIP and ICE certification (Draft)	60 days	60 days	NA	NA	May 11, 2020	July 9, 2020	May 23, 2020	July 21, 2020	0%	0 days	3 days	12 days
153	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	July 10, 2020	September 7, 2020	August 23, 2020	October 21, 2020	0%	0 days	0.5 days	44 days
154	Prepare AIP and ICE certification (Final)	14 days	14 days	NA	NA	September 8, 2020	September 21, 2020	October 22, 2020	November 4, 2020	0%	0 days	0 days	44 days
155	Prepare DDA and ICE certification (Draft)	90 days	90 days	NA	NA	September 22, 2020	December 20, 2020	November 5, 2020	February 2, 2021	0%	0 days	1 day	44 days
156	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	December 21, 2020	February 18, 2021	February 3, 2021	April 3, 2021	0%	0 days	0.5 days	44 days
157	Prepare DDA for and ICE certification (Final)	14 days	14 days	NA	NA	February 19, 2021	March 4, 2021	April 4, 2021	April 17, 2021	0%	0 days	0 days	44 days
158	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	March 5, 2021	May 3, 2021	April 18, 2021	June 16, 2021	0%	32 days	0 days	44 days
159	AIP for E&M Works and Architectural Finishes of Underpass and ICE certification (Draft)	60 days	60 days	NA	NA	July 10, 2020	September 7, 2020	July 22, 2020	September 19, 2020	0%	0 days	3 day	12 days
160	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	September 8, 2020	November 6, 2020	September 20, 2020	November 18, 2020	0%	0 days	3 days	12 days
161	Prepare AIP for E&M Works and Architectural Finishes of Underpass and ICE certification (Final)	10 days	10 days	NA	NA	November 7, 2020	November 16, 2020	November 19, 2020	November 28, 2020	0%	0 days	0 days	12 days
162	Prepare DDA for E&M Works and Architectural Finishes of Underpass certification (Draft)	90 days	90 days	NA	NA	November 17, 2020	February 14, 2021	November 29, 2020	February 26, 2021	0%	0 days	3 days	12 days
163	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	February 15, 2021	April 15, 2021	February 27, 2021	April 27, 2021	0%	0 days	3 days	12 days
164	Prepare DDA for E&M Works and Architectural Finishes of Underpass and ICE certification (Final)	10 days	10 days	NA	NA	April 16, 2021	April 25, 2021	April 28, 2021	May 7, 2021	0%	0 days	0 days	12 days
165	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	40 days	NA	NA	April 26, 2021	June 4, 2021	May 8, 2021	June 16, 2021	0%	12 days	2 days	12 days
166	**Road D3 Bridge & Approach Ramps**	**226 days**	**98.71 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**January 10, 2020**	**May 30, 2019**	**January 10, 2020**	**0%**	**0 days**		**0 days**
167	**D3 Bridge**	**226 days**	**106.5 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**January 10, 2020**	**May 30, 2019**	**January 10, 2020**	**0%**	**0 days**		**0 days**
168	Prepare AIP and ICE certification (Draft)	66 days	0 days	May 30, 2019	August 3, 2019	May 30, 2019	August 3, 2019	May 30, 2019	August 3, 2019	100%	0 days	3 days	0 days
169	Submit & endorse by PM and Statutory Authorities/Gov. Dept	15 days	0 days	August 5, 2019	August 19, 2019	August 5, 2019	August 19, 2019	August 5, 2019	August 19, 2019	100%	0 days	1 days	0 days
170	Prepare AIP and ICE certification (Final)	21 days	21 days	August 20, 2019	NA	August 20, 2019	October 13, 2019	August 20, 2019	October 16, 2019	0%	3 days	0 days	3 days
171	Prepare DDA and ICE certification (Draft)	90 days	24 days	July 19, 2019	NA	July 19, 2019	October 16, 2019	July 19, 2019	October 16, 2019	73%	0 days	5 days	0 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

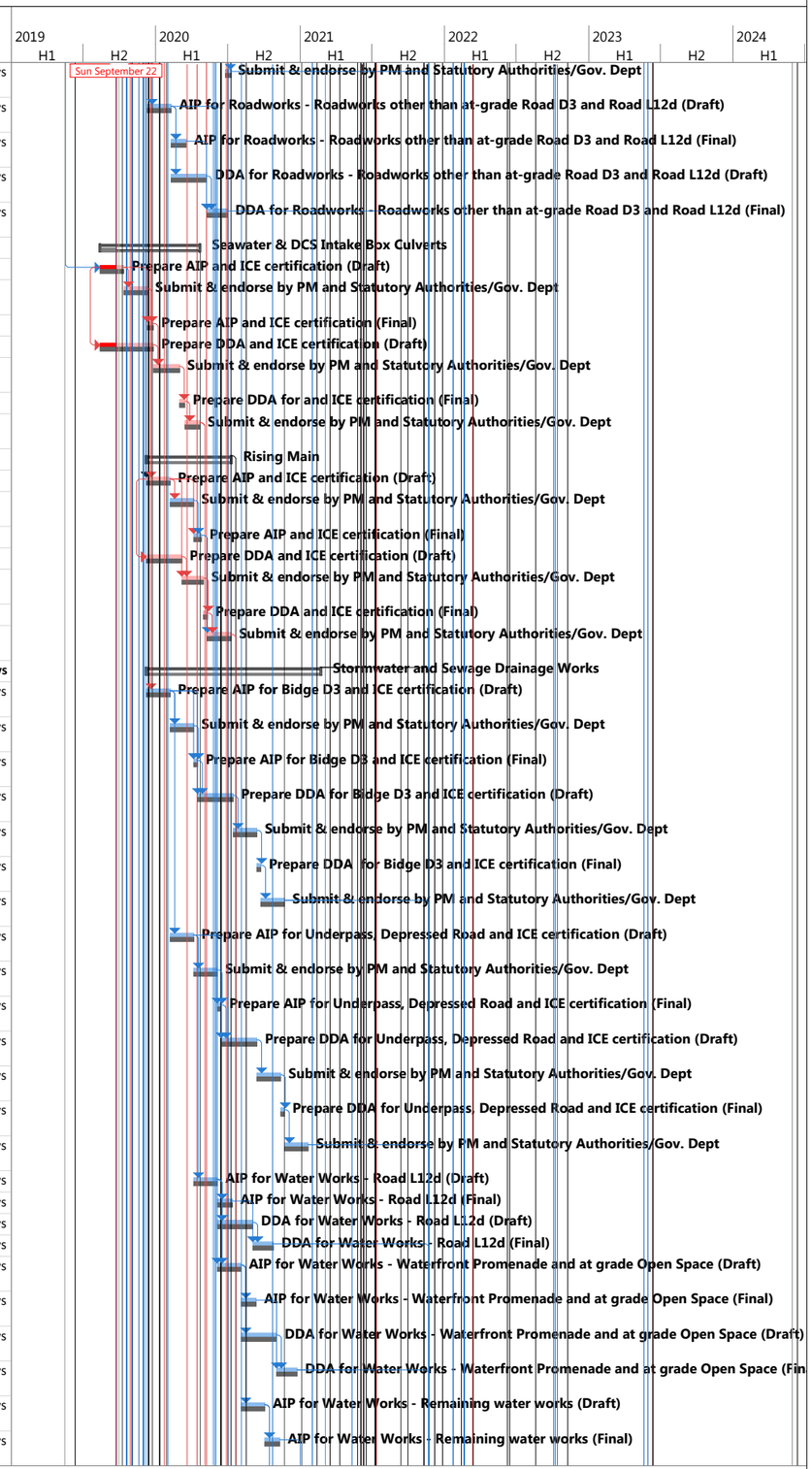
Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
172	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	40 days	NA	NA	October 17, 2019	November 25, 2019	October 17, 2019	November 25, 2019	0%	0 days	3 days	0 days
173	Prepare DDA for and ICE certification (Final)	15 days	15 days	NA	NA	November 26, 2019	December 10, 2019	November 26, 2019	December 10, 2019	0%	0 days	1 days	0 days
174	Submit & endorse by PM and Statutory Authorities/Gov. Dept	31 days	31 days	NA	NA	December 11, 2019	January 10, 2020	December 11, 2019	January 10, 2020	0%	0 days	1 days	0 days
175	**D3 North Approach Ramp**	**226 days**	**103.48 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**January 10, 2020**	**May 30, 2019**	**January 10, 2020**	**0%**	**0 days**		**0 days**
176	Prepare AIP and ICE certification (Draft)	56 days	0 days	May 30, 2019	July 24, 2019	May 30, 2019	July 24, 2019	May 30, 2019	July 24, 2019	100%	0 days	3 days	0 days
177	Submit & endorse by PM and Statutory Authorities/Gov. Dept	12 days	0 days	July 25, 2019	August 5, 2019	July 25, 2019	August 5, 2019	July 25, 2019	August 5, 2019	100%	0 days	1 days	0 days
178	Prepare AIP and ICE certification (Final)	29 days	15 days	August 6, 2019	NA	August 6, 2019	October 7, 2019	August 6, 2019	October 16, 2019	48%	9 days	0 days	9 days
179	Prepare DDA and ICE certification (Draft)	90 days	24 days	July 19, 2019	NA	July 19, 2019	October 16, 2019	July 19, 2019	October 16, 2019	73%	0 days	5 days	0 days
180	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	40 days	NA	NA	October 17, 2019	November 25, 2019	October 17, 2019	November 25, 2019	0%	0 days	3 days	0 days
181	Prepare DDA for and ICE certification (Final)	15 days	15 days	NA	NA	November 26, 2019	December 10, 2019	November 26, 2019	December 10, 2019	0%	0 days	1 days	0 days
182	Submit & endorse by PM and Statutory Authorities/Gov. Dept	31 days	31 days	NA	NA	December 11, 2019	January 10, 2020	December 11, 2019	January 10, 2020	0%	0 days	1 days	0 days
183	**D3 South Approach Ramp**	**226 days**	**86.62 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**January 10, 2020**	**May 30, 2019**	**January 10, 2020**	**0%**	**0 days**		**0 days**
184	Prepare AIP and ICE certification (Draft)	50 days	0 days	May 30, 2019	July 18, 2019	May 30, 2019	July 18, 2019	May 30, 2019	July 18, 2019	100%	0 days	3 days	0 days
185	Submit & endorse by PM and Statutory Authorities/Gov. Dept	46 days	0 days	July 19, 2019	September 2, 2019	July 19, 2019	September 2, 2019	July 19, 2019	September 2, 2019	100%	0 days	1 days	0 days
186	Prepare AIP and ICE certification (Final)	15 days	0 days	August 18, 2019	September 1, 2019	August 18, 2019	September 1, 2019	August 18, 2019	September 1, 2019	100%	0 days	0 days	0 days
187	Prepare DDA and ICE certification (Draft)	90 days	24 days	July 19, 2019	NA	July 19, 2019	October 16, 2019	July 19, 2019	October 16, 2019	73%	0 days	5 days	0 days
188	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	40 days	NA	NA	October 17, 2019	November 25, 2019	October 17, 2019	November 25, 2019	0%	0 days	3 days	0 days
189	Prepare DDA for and ICE certification (Final)	15 days	15 days	NA	NA	November 26, 2019	December 10, 2019	November 26, 2019	December 10, 2019	0%	0 days	1 days	0 days
190	Submit & endorse by PM and Statutory Authorities/Gov. Dept	31 days	31 days	NA	NA	December 11, 2019	January 10, 2020	December 11, 2019	January 10, 2020	0%	0 days	1 days	0 days
191	**Road D3 Underpass and Depressed Road**	**412 days**	**213.27 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**July 14, 2020**	**May 30, 2019**	**December 1, 2020**	**0%**	**140 days**		**140 days**
192	**Underpass**	**412 days**	**296 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**July 14, 2020**	**May 30, 2019**	**December 1, 2020**	**0%**	**100 days**		**140 days**
193	Prepare AIP and ICE certification (Draft)	50 days	0 days	May 30, 2019	July 18, 2019	May 30, 2019	July 18, 2019	May 30, 2019	July 18, 2019	100%	0 days	3 days	0 days
194	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	0 days	July 19, 2019	August 27, 2019	July 19, 2019	August 27, 2019	July 19, 2019	August 27, 2019	100%	0 days	1 days	0 days
195	Prepare AIP and ICE certification (Final)	38 days	12 days	August 28, 2019	NA	August 28, 2019	October 4, 2019	August 28, 2019	October 4, 2019	68%	0 days	2 days	0 days
196	Prepare DDA and ICE certification (Draft)	64 days	64 days	NA	NA	October 5, 2019	December 7, 2019	October 5, 2019	December 7, 2019	0%	0 days	3 days	0 days
197	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	90 days	NA	NA	December 8, 2019	March 6, 2020	April 26, 2020	July 24, 2020	0%	0 days	0.5 days	140 days
198	Prepare DDA for and ICE certification (Final)	40 days	40 days	NA	NA	March 7, 2020	April 15, 2020	July 25, 2020	September 2, 2020	0%	0 days	0 days	140 days
199	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	90 days	NA	NA	April 16, 2020	July 14, 2020	September 3, 2020	December 1, 2020	0%	100 days	0 days	140 days
200	**Depressed Road (North and South)**	**162 days**	**33.85 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**November 7, 2019**	**May 30, 2019**	**April 15, 2020**	**0%**	**46 days**		**160 days**
201	Prepare AIP and ICE certification (Draft)	66 days	0 days	May 30, 2019	August 3, 2019	May 30, 2019	August 3, 2019	May 30, 2019	August 3, 2019	100%	0 days	1 days	0 days
202	Submit & endorse by PM and Statutory Authorities/Gov. Dept	30 days	0 days	August 6, 2019	September 4, 2019	August 6, 2019	September 4, 2019	August 6, 2019	September 4, 2019	100%	0 days	2 days	0 days
203	Prepare AIP and ICE certification (Final)	10 days	10 days	NA	NA	September 23, 2019	October 2, 2019	April 6, 2020	April 15, 2020	0%	196 days	0 days	196 days
204	Prepare DDA and ICE certification (Draft)	71 days	0 days	May 30, 2019	August 8, 2019	May 30, 2019	August 8, 2019	May 30, 2019	August 8, 2019	100%	0 days	5 days	0 days
205	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	0 days	August 9, 2019	September 17, 2019	August 9, 2019	September 17, 2019	August 9, 2019	September 17, 2019	100%	0 days	1 days	0 days
206	Prepare DDA for and ICE certification (Final)	11 days	6 days	September 18, 2019	NA	September 18, 2019	September 28, 2019	September 18, 2019	March 6, 2020	45%	0 days	1 days	160 days
207	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	40 days	NA	NA	September 29, 2019	November 7, 2019	March 7, 2020	April 15, 2020	0%	160 days	1 days	160 days
208	**Remaining Road Works**	**332 days**	**316.32 days**	**August 13, 2019**	**NA**	**August 13, 2019**	**July 9, 2020**	**August 13, 2019**	**November 21, 2021**	**0%**	**500 days**		**500 days**
209	Prepare AIP for At-grade Road D3 and ICE certification (Draft)	60 days	19 days	August 13, 2019	NA	August 13, 2019	October 11, 2019	August 13, 2019	May 16, 2020	68%	0 days	1 day	218 days
210	Submit & endorse by PM and Statutory Authorities/Gov. Dept	28 days	28 days	NA	NA	October 12, 2019	November 8, 2019	April 30, 2021	May 27, 2021	0%	0 days	0.5 days	566 days
211	Prepare AIP for At-grade Road D3 and ICE certification (Final)	14 days	14 days	NA	NA	November 9, 2019	November 22, 2019	May 28, 2021	June 10, 2021	0%	48 days	0 days	566 days
212	Prepare DDA for At-grade Road D3 and ICE certification (Draft)	90 days	90 days	NA	NA	October 12, 2019	January 9, 2020	March 13, 2021	June 10, 2021	0%	0 days	1 day	518 days
213	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	January 10, 2020	March 9, 2020	June 11, 2021	August 9, 2021	0%	0 days	0.5 days	518 days
214	Prepare DDA for At-grade Road D3 and ICE certification (Final)	14 days	14 days	NA	NA	March 10, 2020	March 23, 2020	August 10, 2021	August 23, 2021	0%	0 days	0 days	518 days
215	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	90 days	NA	NA	March 24, 2020	June 21, 2020	August 24, 2021	November 21, 2021	0%	518 days	0 days	518 days
216	Prepare AIP for Road L12d and ICE certification (Draft)	60 days	60 days	NA	NA	October 12, 2019	December 10, 2019	May 17, 2020	July 15, 2020	0%	0 days	1 day	218 days
217	Submit & endorse by PM and Statutory Authorities/Gov. Dept	28 days	28 days	NA	NA	December 11, 2019	January 7, 2020	April 24, 2021	May 21, 2021	0%	0 days	0.5 days	500 days
218	Prepare AIP for Road L12d and ICE certification (Final)	10 days	10 days	NA	NA	January 8, 2020	January 17, 2020	May 22, 2021	May 31, 2021	0%	0 days	0 days	500 days
219	Prepare DDA for Road L12d and ICE certification (Draft)	90 days	90 days	NA	NA	January 18, 2020	April 16, 2020	June 1, 2021	August 29, 2021	0%	0 days	1 day	500 days
220	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	April 17, 2020	June 15, 2020	August 30, 2021	October 28, 2021	0%	0 days	0.5 days	500 days
221	Prepare DDA for Road L12d and ICE certification (Final)	10 days	10 days	NA	NA	June 16, 2020	June 25, 2020	October 29, 2021	November 7, 2021	0%	0 days	0 days	500 days

Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

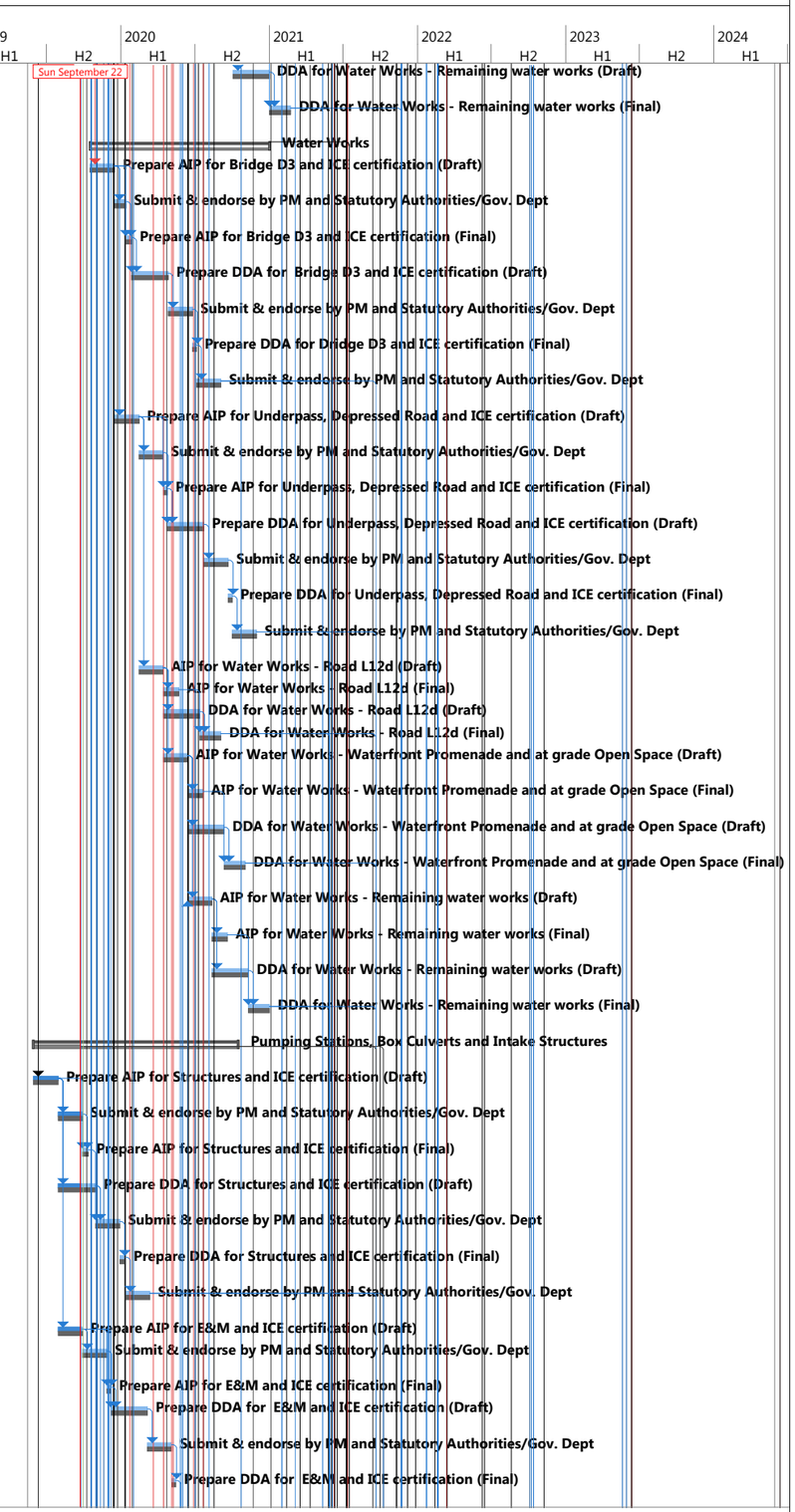
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
222	Submit & endorse by PM and Statutory Authorities/Gov. Dept	14 days	14 days	NA	NA	June 26, 2020	July 9, 2020	November 8, 2021	November 21, 2021	0%	500 days	0 days	500 days
223	AIP for Roadworks - Roadworks other than at-grade Road D3 and Road L12d (Draft)	60 days	60 days	NA	NA	December 11, 2019	February 8, 2020	July 16, 2020	September 13, 2020	0%	0 days	1 day	218 days
224	AIP for Roadworks - Roadworks other than at-grade Road D3 and Road L12d (Final)	38 days	38 days	NA	NA	February 9, 2020	March 17, 2020	August 24, 2021	September 30, 2021	0%	52 days	0.5 days	562 days
225	DDA for Roadworks - Roadworks other than at-grade Road D3 and Road L12d (Draft)	90 days	90 days	NA	NA	February 9, 2020	May 8, 2020	July 3, 2021	September 30, 2021	0%	0 days	1 day	510 days
226	DDA for Roadworks - Roadworks other than at-grade Road D3 and Road L12d (Final)	52 days	52 days	NA	NA	May 9, 2020	June 29, 2020	October 1, 2021	November 21, 2021	0%	510 days	0.5 days	510 days
227	**Seawater & DCS Intake Box Culverts**	**253 days**	**199.53 days**	**August 13, 2019**	**NA**	**August 13, 2019**	**April 21, 2020**	**August 13, 2019**	**April 21, 2020**	**0%**	**0 days**		**0 days**
228	Prepare AIP and ICE certification (Draft)	60 days	19 days	August 13, 2019	NA	August 13, 2019	October 11, 2019	August 13, 2019	October 11, 2019	68%	0 days	3 days	0 days
229	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	October 12, 2019	December 10, 2019	October 12, 2019	December 10, 2019	0%	0 days	3 days	0 days
230	Prepare AIP and ICE certification (Final)	15 days	15 days	NA	NA	December 11, 2019	December 25, 2019	December 11, 2019	December 25, 2019	0%	0 days	1 days	0 days
231	Prepare DDA and ICE certification (Draft)	135 days	94 days	August 13, 2019	NA	August 13, 2019	December 25, 2019	August 13, 2019	December 25, 2019	30%	0 days	1 days	0 days
232	Submit & endorse by PM and Statutory Authorities/Gov. Dept	66 days	66 days	NA	NA	December 26, 2019	February 29, 2020	December 26, 2019	February 29, 2020	0%	0 days	3 days	0 days
233	Prepare DDA for and ICE certification (Final)	14 days	14 days	NA	NA	March 1, 2020	March 14, 2020	March 1, 2020	March 14, 2020	0%	0 days	0 days	0 days
234	Submit & endorse by PM and Statutory Authorities/Gov. Dept	38 days	38 days	NA	NA	March 15, 2020	April 21, 2020	March 15, 2020	April 21, 2020	0%	0 days	2 days	0 days
235	**Rising Main**	**215 days**	**215 days**	**NA**	**NA**	**December 8, 2019**	**July 9, 2020**	**December 8, 2019**	**July 9, 2020**	**0%**	**0 days**		**0 days**
236	Prepare AIP and ICE certification (Draft)	60 days	60 days	NA	NA	December 8, 2019	February 5, 2020	December 8, 2019	February 5, 2020	0%	0 days	3 days	0 days
237	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	February 6, 2020	April 5, 2020	February 21, 2020	April 20, 2020	0%	0 days	0.5 days	15 days
238	Prepare AIP and ICE certification (Final)	20 days	20 days	NA	NA	April 6, 2020	April 25, 2020	April 21, 2020	May 10, 2020	0%	15 days	0 days	15 days
239	Prepare DDA and ICE certification (Draft)	90 days	90 days	NA	NA	December 8, 2019	March 6, 2020	December 8, 2019	March 6, 2020	0%	0 days	4 days	0 days
240	Submit & endorse by PM and Statutory Authorities/Gov. Dept	55 days	55 days	NA	NA	March 7, 2020	April 30, 2020	March 7, 2020	April 30, 2020	0%	0 days	3 days	0 days
241	Prepare DDA and ICE certification (Final)	10 days	10 days	NA	NA	May 1, 2020	May 10, 2020	May 1, 2020	May 10, 2020	0%	0 days	0 days	0 days
242	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	May 11, 2020	July 9, 2020	May 11, 2020	July 9, 2020	0%	0 days	3 days	0 days
243	**Stormwater and Sewage Drainage Works**	**442 days**	**442 days**	**NA**	**NA**	**December 8, 2019**	**February 21, 2021**	**March 18, 2020**	**June 2, 2021**	**0%**	**84 days**		**101 days**
244	Prepare AIP for Bidge D3 and ICE certification (Draft)	60 days	60 days	NA	NA	December 8, 2019	February 5, 2020	March 18, 2020	May 16, 2020	0%	0 days	1 day	101 days
245	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	February 6, 2020	April 5, 2020	August 17, 2020	October 15, 2020	0%	0 days	0.5 days	193 days
246	Prepare AIP for Bidge D3 and ICE certification (Final)	10 days	10 days	NA	NA	April 6, 2020	April 15, 2020	October 16, 2020	October 25, 2020	0%	0 days	0 days	193 days
247	Prepare DDA for Bidge D3 and ICE certification (Draft)	90 days	90 days	NA	NA	April 16, 2020	July 14, 2020	October 26, 2020	January 23, 2021	0%	0 days	1 day	193 days
248	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	July 15, 2020	September 12, 2020	January 24, 2021	March 24, 2021	0%	0 days	0.5 days	193 days
249	Prepare DDA for Bidge D3 and ICE certification (Final)	10 days	10 days	NA	NA	September 13, 2020	September 22, 2020	March 25, 2021	April 3, 2021	0%	0 days	0 days	193 days
250	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	September 23, 2020	November 21, 2020	April 4, 2021	June 2, 2021	0%	176 days	0 days	193 days
251	Prepare AIP for Underpass, Depressed Road and ICE certification (Draft)	60 days	60 days	NA	NA	February 6, 2020	April 5, 2020	May 17, 2020	July 15, 2020	0%	0 days	1 day	101 days
252	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	April 6, 2020	June 4, 2020	August 17, 2020	October 15, 2020	0%	0 days	0.5 days	133 days
253	Prepare AIP for Underpass, Depressed Road and ICE certification (Final)	10 days	10 days	NA	NA	June 5, 2020	June 14, 2020	October 16, 2020	October 25, 2020	0%	0 days	0 days	133 days
254	Prepare DDA for Underpass, Depressed Road and ICE certification (Draft)	90 days	90 days	NA	NA	June 15, 2020	September 12, 2020	October 26, 2020	January 23, 2021	0%	0 days	1 day	133 days
255	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	September 13, 2020	November 11, 2020	January 24, 2021	March 24, 2021	0%	0 days	0.5 days	133 days
256	Prepare DDA for Underpass, Depressed Road and ICE certification (Final)	10 days	10 days	NA	NA	November 12, 2020	November 21, 2020	March 25, 2021	April 3, 2021	0%	0 days	0 days	133 days
257	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	November 22, 2020	January 20, 2021	April 4, 2021	June 2, 2021	0%	116 days	0 days	133 days
258	AIP for Water Works - Road L12d (Draft)	60 days	60 days	NA	NA	April 6, 2020	June 4, 2020	July 16, 2020	September 13, 2020	0%	0 days	1 day	101 days
259	AIP for Water Works - Road L12d (Final)	38 days	38 days	NA	NA	June 5, 2020	July 12, 2020	March 5, 2021	April 11, 2021	0%	52 days	0.5 days	273 days
260	DDA for Water Works - Road L12d (Draft)	90 days	90 days	NA	NA	June 5, 2020	September 2, 2020	January 12, 2021	April 11, 2021	0%	0 days	1 day	221 days
261	DDA for Water Works - Road L12d (Final)	52 days	52 days	NA	NA	September 3, 2020	October 24, 2020	April 12, 2021	June 2, 2021	0%	204 days	1 day	221 days
262	AIP for Water Works - Waterfront Promenade and at grade Open Space (Draft)	60 days	60 days	NA	NA	June 5, 2020	August 3, 2020	September 14, 2020	November 12, 2020	0%	0 days	1 day	101 days
263	AIP for Water Works - Waterfront Promenade and at grade Open Space (Final)	38 days	38 days	NA	NA	August 4, 2020	September 10, 2020	March 5, 2021	April 11, 2021	0%	52 days	0.5 days	213 days
264	DDA for Water Works - Waterfront Promenade and at grade Open Space (Draft)	90 days	90 days	NA	NA	August 4, 2020	November 1, 2020	January 12, 2021	April 11, 2021	0%	0 days	1 day	161 days
265	DDA for Water Works - Waterfront Promenade and at grade Open Space (Final)	52 days	52 days	NA	NA	November 2, 2020	December 23, 2020	April 12, 2021	June 2, 2021	0%	144 days	1 day	161 days
266	AIP for Water Works - Remaining water works (Draft)	60 days	60 days	NA	NA	August 4, 2020	October 2, 2020	November 13, 2020	January 11, 2021	0%	0 days	1 day	101 days
267	AIP for Water Works - Remaining water works (Final)	38 days	38 days	NA	NA	October 3, 2020	November 9, 2020	March 5, 2021	April 11, 2021	0%	52 days	0.5 days	153 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

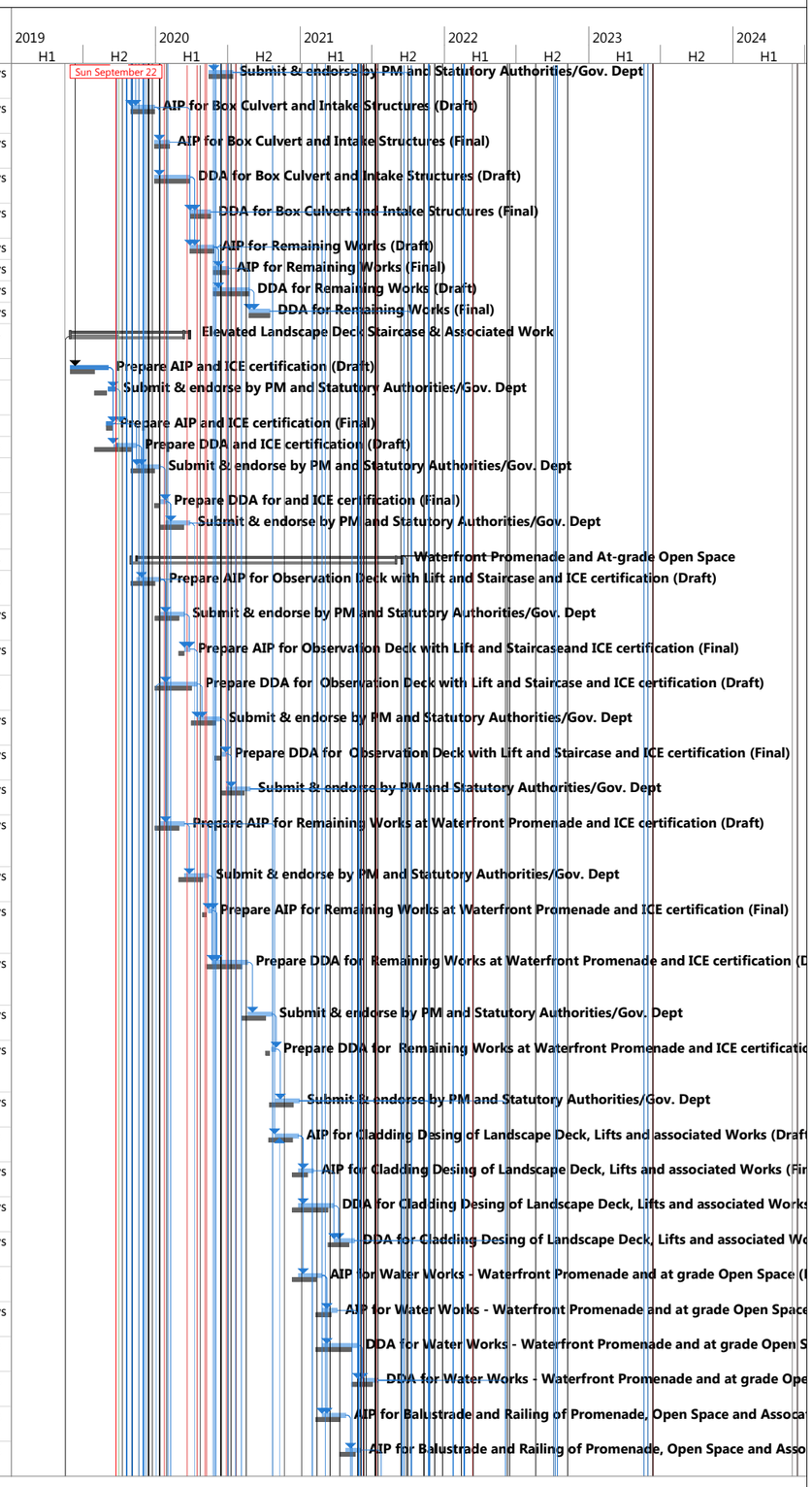
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
268	DDA for Water Works - Remaining water works (Draft)	90 days	90 days	NA	NA	October 3, 2020	December 31, 2020	January 12, 2021	April 11, 2021	0%	0 days	1 day	101 days
269	DDA for Water Works - Remaining water works (Final)	52 days	52 days	NA	NA	January 1, 2021	February 21, 2021	April 12, 2021	June 2, 2021	0%	84 days	1 day	101 days
270	**Water Works**	**442 days**	**442 days**	**NA**	**NA**	**October 17, 2019**	**December 31, 2020**	**May 1, 2020**	**July 16, 2021**	**0%**	**197 days**		**197 days**
271	Prepare AIP for Bridge D3 and ICE certification (Draft)	60 days	60 days	NA	NA	October 17, 2019	December 15, 2019	May 1, 2020	June 29, 2020	0%	0 days	1 day	197 days
272	Submit & endorse by PM and Statutory Authorities/Gov. Dept	28 days	28 days	NA	NA	December 16, 2019	January 12, 2020	October 28, 2020	November 24, 2020	0%	0 days	0.5 days	317 days
273	Prepare AIP for Bridge D3 and ICE certification (Final)	14 days	14 days	NA	NA	January 13, 2020	January 26, 2020	November 25, 2020	December 8, 2020	0%	0 days	0 days	317 days
274	Prepare DDA for Bridge D3 and ICE certification (Draft)	90 days	90 days	NA	NA	January 27, 2020	April 25, 2020	December 9, 2020	March 8, 2021	0%	0 days	1 day	317 days
275	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	April 26, 2020	June 24, 2020	March 9, 2021	May 7, 2021	0%	0 days	0.5 days	317 days
276	Prepare DDA for Dridge D3 and ICE certification (Final)	10 days	10 days	NA	NA	June 25, 2020	July 4, 2020	May 8, 2021	May 17, 2021	0%	0 days	0 days	317 days
277	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	July 5, 2020	September 2, 2020	May 18, 2021	July 16, 2021	0%	268 days	0 days	317 days
278	Prepare AIP for Underpass, Depressed Road and ICE certification (Draft)	60 days	60 days	NA	NA	December 16, 2019	February 13, 2020	June 30, 2020	August 28, 2020	0%	0 days	1 day	197 days
279	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	February 14, 2020	April 13, 2020	September 30, 2020	November 28, 2020	0%	0 days	0.5 days	229 days
280	Prepare AIP for Underpass, Depressed Road and ICE certification (Final)	10 days	10 days	NA	NA	April 14, 2020	April 23, 2020	November 29, 2020	December 8, 2020	0%	0 days	0	229 days
281	Prepare DDA for Underpass, Depressed Road and ICE certification (Draft)	90 days	90 days	NA	NA	April 24, 2020	July 22, 2020	December 9, 2020	March 8, 2021	0%	0 days	1 day	229 days
282	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	July 23, 2020	September 20, 2020	March 9, 2021	May 7, 2021	0%	0 days	0.5 days	229 days
283	Prepare DDA for Underpass, Depressed Road and ICE certification (Final)	10 days	10 days	NA	NA	September 21, 2020	September 30, 2020	May 8, 2021	May 17, 2021	0%	0 days	0 days	229 days
284	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	October 1, 2020	November 29, 2020	May 18, 2021	July 16, 2021	0%	180 days	0 days	229 days
285	AIP for Water Works - Road L12d (Draft)	60 days	60 days	NA	NA	February 14, 2020	April 13, 2020	August 29, 2020	October 27, 2020	0%	0 days	1 day	197 days
286	AIP for Water Works - Road L12d (Final)	38 days	38 days	NA	NA	April 14, 2020	May 21, 2020	April 18, 2021	May 25, 2021	0%	52 days	0.5 days	369 days
287	DDA for Water Works - Road L12d (Draft)	90 days	90 days	NA	NA	April 14, 2020	July 12, 2020	February 25, 2021	May 25, 2021	0%	0 days	1 day	317 days
288	DDA for Water Works - Road L12d (Final)	52 days	52 days	NA	NA	July 13, 2020	September 2, 2020	May 26, 2021	July 16, 2021	0%	268 days	1 day	317 days
289	AIP for Water Works - Waterfront Promenade and at grade Open Space (Draft)	60 days	60 days	NA	NA	April 14, 2020	June 12, 2020	October 28, 2020	December 26, 2020	0%	0 days	1 day	197 days
290	AIP for Water Works - Waterfront Promenade and at grade Open Space (Final)	38 days	38 days	NA	NA	June 13, 2020	July 20, 2020	April 18, 2021	May 25, 2021	0%	52 days	0.5 days	309 days
291	DDA for Water Works - Waterfront Promenade and at grade Open Space (Draft)	90 days	90 days	NA	NA	June 13, 2020	September 10, 2020	February 25, 2021	May 25, 2021	0%	0 days	1 day	257 days
292	DDA for Water Works - Waterfront Promenade and at grade Open Space (Final)	52 days	52 days	NA	NA	September 11, 2020	November 1, 2020	May 26, 2021	July 16, 2021	0%	208 days	1 day	257 days
293	AIP for Water Works - Remaining water works (Draft)	60 days	60 days	NA	NA	June 13, 2020	August 11, 2020	December 27, 2020	February 24, 2021	0%	0 days	1 day	197 days
294	AIP for Water Works - Remaining water works (Final)	38 days	38 days	NA	NA	August 12, 2020	September 18, 2020	April 18, 2021	May 25, 2021	0%	52 days	0.5 days	249 days
295	DDA for Water Works - Remaining water works (Draft)	90 days	90 days	NA	NA	August 12, 2020	November 9, 2020	February 25, 2021	May 25, 2021	0%	0 days	1 day	197 days
296	DDA for Water Works - Remaining water works (Final)	52 days	52 days	NA	NA	November 10, 2020	December 31, 2020	May 26, 2021	July 16, 2021	0%	148 days	1 day	197 days
297	**Pumping Stations, Box Culverts and Intake Structures**	**505 days**	**409.17 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**October 15, 2020**	**May 30, 2019**	**February 10, 2022**	**0%**	**340 days**		**483 days**
298	Prepare AIP for Structures and ICE certification (Draft)	61 days	0 days	May 30, 2019	July 29, 2019	May 30, 2019	July 29, 2019	May 30, 2019	July 29, 2019	100%	0 days	1 day	0 days
299	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	5 days	July 30, 2019	NA	July 30, 2019	September 27, 2019	July 30, 2019	September 15, 2021	92%	0 days	0.5 days	719 days
300	Prepare AIP for Structures and ICE certification (Final)	14 days	14 days	NA	NA	September 28, 2019	October 11, 2019	September 16, 2021	September 29, 2021	0%	18 days	0 days	719 days
301	Prepare DDA for Structures and ICE certification (Draft)	92 days	37 days	July 30, 2019	NA	July 30, 2019	October 29, 2019	July 30, 2019	May 30, 2020	0%	0 days	1 day	214 days
302	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	October 30, 2019	December 28, 2019	September 30, 2021	November 28, 2021	0%	0 days	0.5 days	701 days
303	Prepare DDA for Structures and ICE certification (Final)	14 days	14 days	NA	NA	December 29, 2019	January 11, 2020	November 29, 2021	December 12, 2021	0%	0 days	0 days	701 days
304	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	January 12, 2020	March 11, 2020	December 13, 2021	February 10, 2022	0%	558 days	0 days	701 days
305	Prepare AIP for E&M and ICE certification (Draft)	60 days	5 days	July 30, 2019	NA	July 30, 2019	September 27, 2019	July 30, 2019	May 30, 2020	0%	0 days	1 day	246 days
306	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	September 28, 2019	November 26, 2019	April 27, 2021	June 25, 2021	0%	0 days	0.5 days	577 days
307	Prepare AIP for E&M and ICE certification (Final)	10 days	10 days	NA	NA	November 27, 2019	December 6, 2019	June 26, 2021	July 5, 2021	0%	0 days	0 days	577 days
308	Prepare DDA for E&M and ICE certification (Draft)	90 days	90 days	NA	NA	December 7, 2019	March 5, 2020	July 6, 2021	October 3, 2021	0%	0 days	1 day	577 days
309	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	March 6, 2020	May 4, 2020	October 4, 2021	December 2, 2021	0%	0 days	0.5 days	577 days
310	Prepare DDA for E&M and ICE certification (Final)	10 days	10 days	NA	NA	May 5, 2020	May 14, 2020	December 3, 2021	December 12, 2021	0%	0 days	0 days	577 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

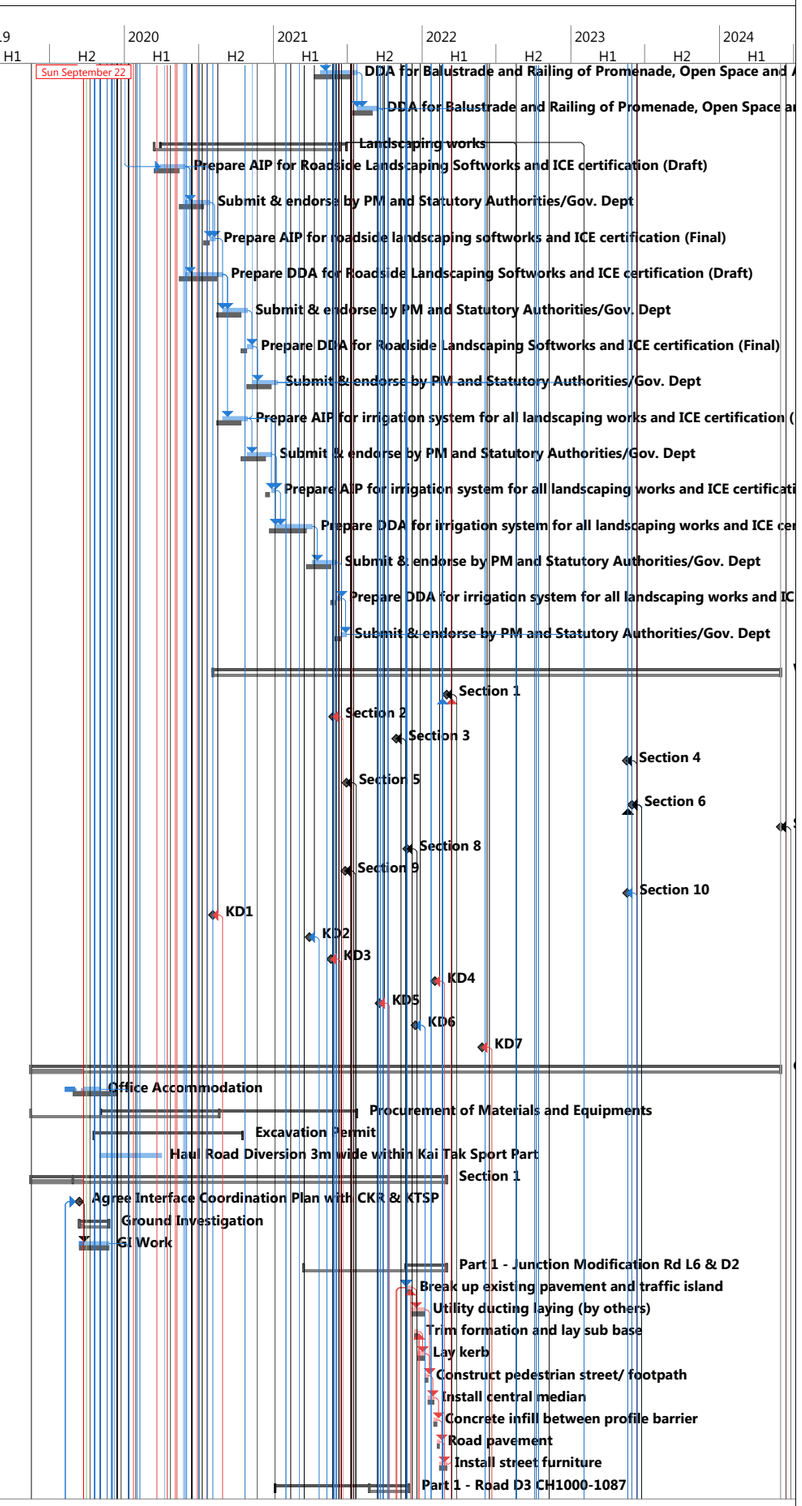
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
311	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	May 15, 2020	July 13, 2020	December 13, 2021	February 10, 2022	0%	434 days	0 days	577 days
312	AIP for Box Culvert and Intake Structures (Draft)	60 days	60 days	NA	NA	October 30, 2019	December 28, 2019	May 31, 2020	July 29, 2020	0%	0 days	1 day	214 days
313	AIP for Box Culvert and Intake Structures (Final)	38 days	38 days	NA	NA	December 29, 2019	February 4, 2020	November 13, 2021	December 20, 2021	0%	52 days	0.5 days	685 days
314	DDA for Box Culvert and Intake Structures (Draft)	90 days	90 days	NA	NA	December 29, 2019	March 27, 2020	July 30, 2020	October 27, 2020	0%	0 days	1 day	214 days
315	DDA for Box Culvert and Intake Structures (Final)	52 days	52 days	NA	NA	March 28, 2020	May 18, 2020	December 21, 2021	February 10, 2022	0%	490 days	1 day	633 days
316	AIP for Remaining Works (Draft)	60 days	60 days	NA	NA	March 28, 2020	May 26, 2020	October 28, 2020	December 26, 2020	0%	0 days	1 day	214 days
317	AIP for Remaining Works (Final)	38 days	38 days	NA	NA	May 27, 2020	July 3, 2020	November 13, 2021	December 20, 2021	0%	52 days	0.5 days	535 days
318	DDA for Remaining Works (Draft)	90 days	90 days	NA	NA	May 27, 2020	August 24, 2020	September 22, 2021	December 20, 2021	0%	0 days	1 day	483 days
319	DDA for Remaining Works (Final)	52 days	52 days	NA	NA	August 25, 2020	October 15, 2020	December 21, 2021	February 10, 2022	0%	340 days	1 day	483 days
320	**Elevated Landscape Deck Staircase & Associated Work**	**302 days**	**173.99 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**March 26, 2020**	**May 30, 2019**	**May 5, 2020**	**0%**	**40 days**		**40 days**
321	Prepare AIP and ICE certification (Draft)	96 days	0 days	May 30, 2019	September 2, 2019	May 30, 2019	September 2, 2019	May 30, 2019	September 2, 2019	100%	0 days	3 days	0 days
322	Submit & endorse by PM and Statutory Authorities/Gov. Dept	18 days	0 days	September 3, 2019	September 20, 2019	September 3, 2019	September 20, 2019	September 3, 2019	September 20, 2019	100%	0 days	1 days	0 days
323	Prepare AIP and ICE certification (Final)	14 days	0 days	August 29, 2019	September 11, 2019	August 29, 2019	September 11, 2019	August 29, 2019	September 11, 2019	100%	0 days	0 days	0 days
324	Prepare DDA and ICE certification (Draft)	52 days	46.9 days	September 14, 2019	NA	September 14, 2019	November 13, 2019	September 14, 2019	December 9, 2019	10%	0 days	1 day	26 days
325	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	November 14, 2019	January 12, 2020	December 24, 2019	February 21, 2020	0%	0 days	0.5 days	40 days
326	Prepare DDA for and ICE certification (Final)	14 days	14 days	NA	NA	January 13, 2020	January 26, 2020	February 22, 2020	March 6, 2020	0%	0 days	0 days	40 days
327	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	January 27, 2020	March 26, 2020	March 7, 2020	May 5, 2020	0%	0 days	0 days	40 days
328	**Waterfront Promenade and At-grade Open Space**	**671 days**	**671 days**	**NA**	**NA**	**November 14, 2019**	**September 14, 20...**	**December 10, 2019**	**October 10, 2021**	**0%**	**0 days**		**26 days**
329	Prepare AIP for Observation Deck with Lift and Staircase and ICE certification (Draft)	61 days	61 days	NA	NA	November 14, 2019	January 13, 2020	December 10, 2019	February 8, 2020	0%	0 days	1 day	26 days
330	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	January 14, 2020	March 13, 2020	March 17, 2021	May 15, 2021	0%	0 days	0.5 days	428 days
331	Prepare AIP for Observation Deck with Lift and Staircaseand ICE certification (Final)	14 days	14 days	NA	NA	March 14, 2020	March 27, 2020	May 16, 2021	May 29, 2021	0%	18 days	0 days	428 days
332	Prepare DDA for Observation Deck with Lift and Staircase and ICE certification (Draft)	92 days	92 days	NA	NA	January 14, 2020	April 14, 2020	February 9, 2020	May 10, 2020	0%	0 days	1 day	26 days
333	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	April 15, 2020	June 13, 2020	May 30, 2021	July 28, 2021	0%	0 days	0.5 days	410 days
334	Prepare DDA for Observation Deck with Lift and Staircase and ICE certification (Final)	14 days	14 days	NA	NA	June 14, 2020	June 27, 2020	July 29, 2021	August 11, 2021	0%	0 days	0 days	410 days
335	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	June 28, 2020	August 26, 2020	August 12, 2021	October 10, 2021	0%	384 days	0 days	410 days
336	Prepare AIP for Remaining Works at Waterfront Promenade and ICE certification (Draft)	60 days	60 days	NA	NA	January 14, 2020	March 13, 2020	September 24, 2020	November 22, 2020	0%	0 days	1 day	254 days
337	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	March 14, 2020	May 12, 2020	December 25, 2020	February 22, 2021	0%	0 days	0.5 days	286 days
338	Prepare AIP for Remaining Works at Waterfront Promenade and ICE certification (Final)	10 days	10 days	NA	NA	May 13, 2020	May 22, 2020	February 23, 2021	March 4, 2021	0%	0 days	0 days	286 days
339	Prepare DDA for Remaining Works at Waterfront Promenade and ICE certification (Draft)	90 days	90 days	NA	NA	May 23, 2020	August 20, 2020	March 5, 2021	June 2, 2021	0%	0 days	1 day	286 days
340	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	August 21, 2020	October 19, 2020	June 3, 2021	August 1, 2021	0%	0 days	0.5 days	286 days
341	Prepare DDA for Remaining Works at Waterfront Promenade and ICE certification (Final)	10 days	10 days	NA	NA	October 20, 2020	October 29, 2020	August 2, 2021	August 11, 2021	0%	0 days	0 days	286 days
342	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	October 30, 2020	December 28, 2020	August 12, 2021	October 10, 2021	0%	260 days	0 days	286 days
343	AIP for Cladding Desing of Landscape Deck, Lifts and associated Works (Draft)	60 days	60 days	NA	NA	October 28, 2020	December 26, 2020	November 23, 2020	January 21, 2021	0%	0 days	1 day	26 days
344	AIP for Cladding Desing of Landscape Deck, Lifts and associated Works (Final)	38 days	38 days	NA	NA	December 27, 2020	February 2, 2021	July 13, 2021	August 19, 2021	0%	52 days	0.5 days	198 days
345	DDA for Cladding Desing of Landscape Deck, Lifts and associated Works (Draft)	90 days	90 days	NA	NA	December 27, 2020	March 26, 2021	May 22, 2021	August 19, 2021	0%	0 days	1 day	146 days
346	DDA for Cladding Desing of Landscape Deck, Lifts and associated Works (Final)	52 days	52 days	NA	NA	March 27, 2021	May 17, 2021	August 20, 2021	October 10, 2021	0%	120 days	1 day	146 days
347	AIP for Water Works - Waterfront Promenade and at grade Open Space (Draft)	60 days	60 days	NA	NA	December 27, 2020	February 24, 2021	January 22, 2021	March 22, 2021	0%	0 days	1 day	26 days
348	AIP for Water Works - Waterfront Promenade and at grade Open Space (Final)	38 days	38 days	NA	NA	February 25, 2021	April 3, 2021	July 13, 2021	August 19, 2021	0%	52 days	0.5 days	138 days
349	DDA for Water Works - Waterfront Promenade and at grade Open Space (Draft)	90 days	90 days	NA	NA	February 25, 2021	May 25, 2021	May 22, 2021	August 19, 2021	0%	0 days	1 day	86 days
350	DDA for Water Works - Waterfront Promenade and at grade Open Space (Final)	52 days	52 days	NA	NA	May 26, 2021	July 16, 2021	August 20, 2021	October 10, 2021	0%	60 days	1 day	86 days
351	AIP for Balustrade and Railing of Promenade, Open Space and Assocated Works (Draft)	60 days	60 days	NA	NA	February 25, 2021	April 25, 2021	March 23, 2021	May 21, 2021	0%	0 days	1 day	26 days
352	AIP for Balustrade and Railing of Promenade, Open Space and Assocated Works (Final)	38 days	38 days	NA	NA	April 26, 2021	June 2, 2021	July 13, 2021	August 19, 2021	0%	52 days	0.5 days	78 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

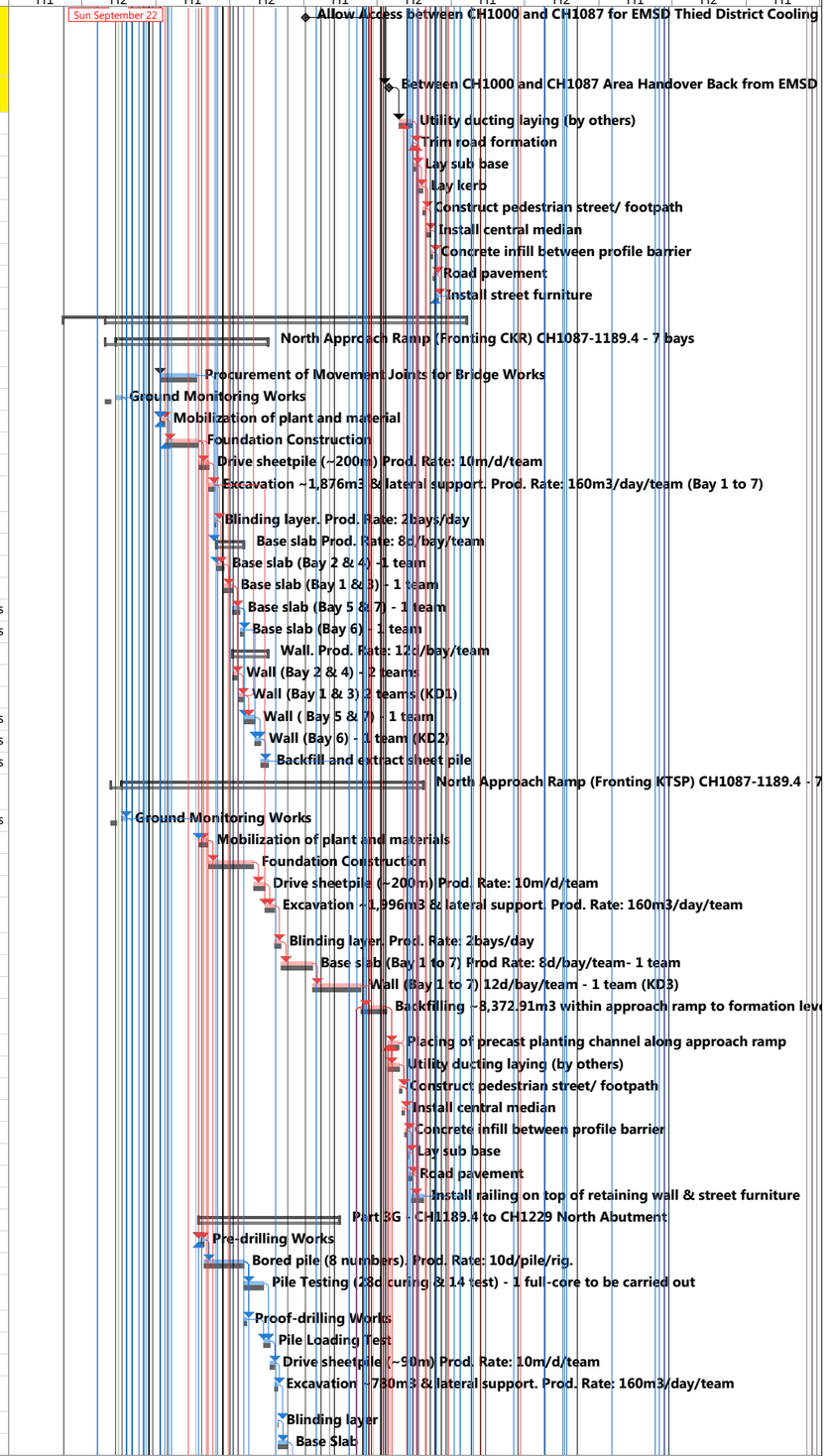
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
353	DDA for Balustrade and Railing of Promenade, Open Space and Assocated Works (Draft)	90 days	90 days	NA	NA	April 26, 2021	July 24, 2021	May 22, 2021	August 19, 2021	0%	0 days	1 day	26 days
354	DDA for Balustrade and Railing of Promenade, Open Space and Assocated Works (Final)	52 days	52 days	NA	NA	July 25, 2021	September 14, 2021	August 20, 2021	October 10, 2021	0%	0 days	1 day	26 days
355	**Landscaping works**	**457 days**	**457 days**	**NA**	**NA**	**March 29, 2020**	**June 28, 2021**	**April 24, 2020**	**November 15, 2022**	**0%**	**26 days**		**26 days**
356	Prepare AIP for Roadside Landscaping Softworks and ICE certification (Draft)	61 days	61 days	NA	NA	March 29, 2020	May 28, 2020	April 24, 2020	June 23, 2020	0%	0 days	1 day	26 days
357	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	May 29, 2020	July 27, 2020	April 22, 2022	June 20, 2022	0%	0 days	0.5 days	693 days
358	Prepare AIP for roadside landscaping softworks and ICE certification (Final)	14 days	14 days	NA	NA	July 28, 2020	August 10, 2020	June 21, 2022	July 4, 2022	0%	18 days	0 days	693 days
359	Prepare DDA for Roadside Landscaping Softworks and ICE certification (Draft)	92 days	92 days	NA	NA	May 29, 2020	August 28, 2020	June 24, 2020	September 23, 2020	0%	0 days	1 day	26 days
360	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	August 29, 2020	October 27, 2020	July 5, 2022	September 2, 2022	0%	0 days	0.5 days	675 days
361	Prepare DDA for Roadside Landscaping Softworks and ICE certification (Final)	14 days	14 days	NA	NA	October 28, 2020	November 10, 2020	September 3, 2022	September 16, 2022	0%	0 days	0 days	675 days
362	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	November 11, 2020	January 9, 2021	September 17, 2022	November 15, 2022	0%	587 days	0 days	675 days
363	Prepare AIP for irrigation system for all landscaping works and ICE certification (Draft)	60 days	60 days	NA	NA	August 29, 2020	October 27, 2020	September 24, 2020	November 22, 2020	0%	0 days	1 day	26 days
364	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	October 28, 2020	December 26, 2020	March 17, 2022	May 15, 2022	0%	0 days	0.5 days	505 days
365	Prepare AIP for irrigation system for all landscaping works and ICE certification (Final)	10 days	10 days	NA	NA	December 27, 2020	January 5, 2021	May 16, 2022	May 25, 2022	0%	0 days	0 days	505 days
366	Prepare DDA for irrigation system for all landscaping works and ICE certification (Draft)	90 days	90 days	NA	NA	January 6, 2021	April 5, 2021	May 26, 2022	August 23, 2022	0%	0 days	1 day	505 days
367	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	April 6, 2021	June 4, 2021	August 24, 2022	October 22, 2022	0%	0 days	0.5 days	505 days
368	Prepare DDA for irrigation system for all landscaping works and ICE certification (Final)	10 days	10 days	NA	NA	June 5, 2021	June 14, 2021	October 23, 2022	November 1, 2022	0%	0 days	0 days	505 days
369	Submit & endorse by PM and Statutory Authorities/Gov. Dept	14 days	14 days	NA	NA	June 15, 2021	June 28, 2021	November 2, 2022	November 15, 2022	0%	417 days	0 days	505 days
370	**Work Stage/ Phase - Planned Completion**	**1394 days**	**1394 days**	**NA**	**NA**	**August 4, 2020**	**May 29, 2024**	**August 7, 2020**	**May 29, 2024**	**0%**	**0 days**		**0 days**
371	Section 1	0 days	0 days	NA	NA	March 1, 2022	March 1, 2022	March 1, 2022	March 1, 2022	0%	0 days	0 days	0 days
372	Section 2	0 days	0 days	NA	NA	May 26, 2021	May 26, 2021	June 2, 2021	June 2, 2021	0%	6 days	0 days	6 days
373	Section 3	0 days	0 days	NA	NA	October 28, 2021	October 28, 2021	November 2, 2021	November 2, 2021	0%	4 days	0 days	4 days
374	Section 4	0 days	0 days	NA	NA	May 17, 2023	May 17, 2023	May 30, 2023	May 30, 2023	0%	10 days	0 days	10 days
375	Section 5	0 days	0 days	NA	NA	June 28, 2021	June 28, 2021	July 5, 2021	July 5, 2021	0%	5 days	0 days	5 days
376	Section 6	0 days	0 days	NA	NA	May 30, 2023	May 30, 2023	May 30, 2023	May 30, 2023	0%	0 days	0 days	0 days
377	Section 7	0 days	0 days	NA	NA	May 29, 2024	May 29, 2024	May 29, 2024	May 29, 2024	0%	0 days	0 days	0 days
378	Section 8	0 days	0 days	NA	NA	November 24, 2021	November 24, 2021	December 2, 2021	December 2, 2021	0%	7 days	0 days	7 days
379	Section 9	0 days	0 days	NA	NA	June 25, 2021	June 25, 2021	July 5, 2021	July 5, 2021	0%	7 days	0 days	7 days
380	Section 10	0 days	0 days	NA	NA	May 18, 2023	May 18, 2023	May 30, 2023	May 30, 2023	0%	9 days	0 days	9 days
381	KD1	0 days	0 days	NA	NA	August 4, 2020	August 4, 2020	August 7, 2020	August 7, 2020	0%	3 days	0 days	3 days
382	KD2	0 days	0 days	NA	NA	March 29, 2021	March 29, 2021	April 18, 2021	April 18, 2021	0%	14 days	0 days	14 days
383	KD3	0 days	0 days	NA	NA	May 21, 2021	May 21, 2021	June 1, 2021	June 1, 2021	0%	9 days	0 days	9 days
384	KD4	0 days	0 days	NA	NA	January 31, 2022	January 31, 2022	January 31, 2022	January 31, 2022	0%	0 days	0 days	0 days
385	KD5	0 days	0 days	NA	NA	September 17, 2021	September 17, 2021	September 17, 2021	September 17, 2021	0%	0 days	0 days	0 days
386	KD6	0 days	0 days	NA	NA	December 14, 2021	December 14, 2021	December 29, 2021	December 29, 2021	0%	11 days	0 days	11 days
387	KD7	0 days	0 days	NA	NA	May 27, 2022	May 27, 2022	June 3, 2022	June 3, 2022	0%	5 days	0 days	5 days
388	**Construction Works**	**1499 days**	**1491.94 days**	**May 16, 2019**	**NA**	**May 16, 2019**	**May 29, 2024**	**May 16, 2019**	**May 29, 2024**	**0%**	**0 days**		**0 days**
389	Office Accommodation	53 days	32 days	August 8, 2019	NA	August 8, 2019	October 31, 2019	August 8, 2019	January 10, 2020	40%	58 days	1 day	58 days
390	**Procurement of Materials and Equipments**	**509 days**	**509 days**	**NA**	**NA**	**November 4, 2019**	**July 23, 2021**	**November 26, 2019**	**July 27, 2022**	**0%**	**19 days**		**19 days**
398	**Excavation Permit**	**297 days**	**297 days**	**NA**	**NA**	**October 18, 2019**	**October 16, 2020**	**November 22, 2020**	**November 21, 2021**	**0%**	**326 days**		**326 days**
400	Haul Road Diversion 3m wide within Kai Tak Sport Part	152 days	152 days	NA	NA	November 1, 2019	March 31, 2020	December 30, 2023	May 29, 2024	0%	1520 d...		1520 d...
401	**Section 1**	**831 days**	**825.54 days**	**May 16, 2019**	**NA**	**May 16, 2019**	**March 1, 2022**	**May 16, 2019**	**May 29, 2024**	**0%**	**668 days**		**668 days**
402	Agree Interface Coordination Plan with CKR & KTSP	14 days	0 days	August 27, 2019	September 11, 2019	August 27, 2019	September 11, 2019	August 27, 2019	September 11, 2019	100%	0 days	0 days	0 days
403	**Ground Investigation**	**60 days**	**52 days**	September 12, 2019	**NA**	**September 12, 20...**	**November 23, 2019**	**September 12, 2019**	**January 10, 2020**	**0%**	**38 days**		**38 days**
404	GI Work	60 days	52 days	September 12, 2019	NA	September 12, 2019	November 23, 2019	September 12, 2019	January 10, 2020	13%	38 days	0.5 days	38 days
405	**Part 1 - Junction Modification Rd L6 & D2**	**80 days**	**80 days**	**NA**	**NA**	**November 22, 2021**	**March 1, 2022**	**November 22, 2021**	**March 1, 2022**	**0%**	**0 days**		**0 days**
406	Break up existing pavement and traffic island	12 days	12 days	NA	NA	November 22, 2021	December 4, 2021	November 22, 2021	December 4, 2021	0%	0 days	0 days	0 days
407	Utility ducting laying (by others)	25 days	25 days	NA	NA	December 6, 2021	January 6, 2022	December 6, 2021	January 6, 2022	0%	0 days	1 days	0 days
408	Trim formation and lay sub base	7 days	7 days	NA	NA	December 13, 2021	December 20, 2021	December 13, 2021	December 20, 2021	0%	0 days	0 days	0 days
409	Lay kerb	12 days	12 days	NA	NA	December 21, 2021	January 6, 2022	December 21, 2021	January 6, 2022	0%	0 days	0 days	0 days
410	Construct pedestrian street/ footpath	7 days	7 days	NA	NA	January 7, 2022	January 14, 2022	January 7, 2022	January 14, 2022	0%	0 days	0 days	0 days
411	Install central median	12 days	12 days	NA	NA	January 15, 2022	January 28, 2022	January 15, 2022	January 28, 2022	0%	0 days	0 days	0 days
412	Concrete infill between profile barrier	4 days	4 days	NA	NA	January 29, 2022	February 5, 2022	January 29, 2022	February 5, 2022	0%	0 days	0 days	0 days
413	Road pavement	5 days	5 days	NA	NA	February 7, 2022	February 11, 2022	February 7, 2022	February 11, 2022	0%	0 days	0 days	0 days
414	Install street furniture	15 days	15 days	NA	NA	February 12, 2022	March 1, 2022	February 12, 2022	March 1, 2022	0%	0 days	1 days	0 days
415	**Part 1 - Road D3 CH1000-1087**	**269 days**	**269 days**	**NA**	**NA**	**January 5, 2021**	**November 29, 2021**	**February 25, 2021**	**March 1, 2022**	**0%**	**41 days**		**41 days**



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical	Task	Manual Task	Duration-only	Baseline Milestone	Summary	External Tasks	Inactive Milestone	Baseline Summary	
Critical Split	Split	Start-only	Baseline	Milestone	Manual Summary	External Milestone	Inactive Summary		
Critical Progress	Task Progress	Finish-only	Baseline Split	Summary Progress	Project Summary	Inactive Task	Deadline		

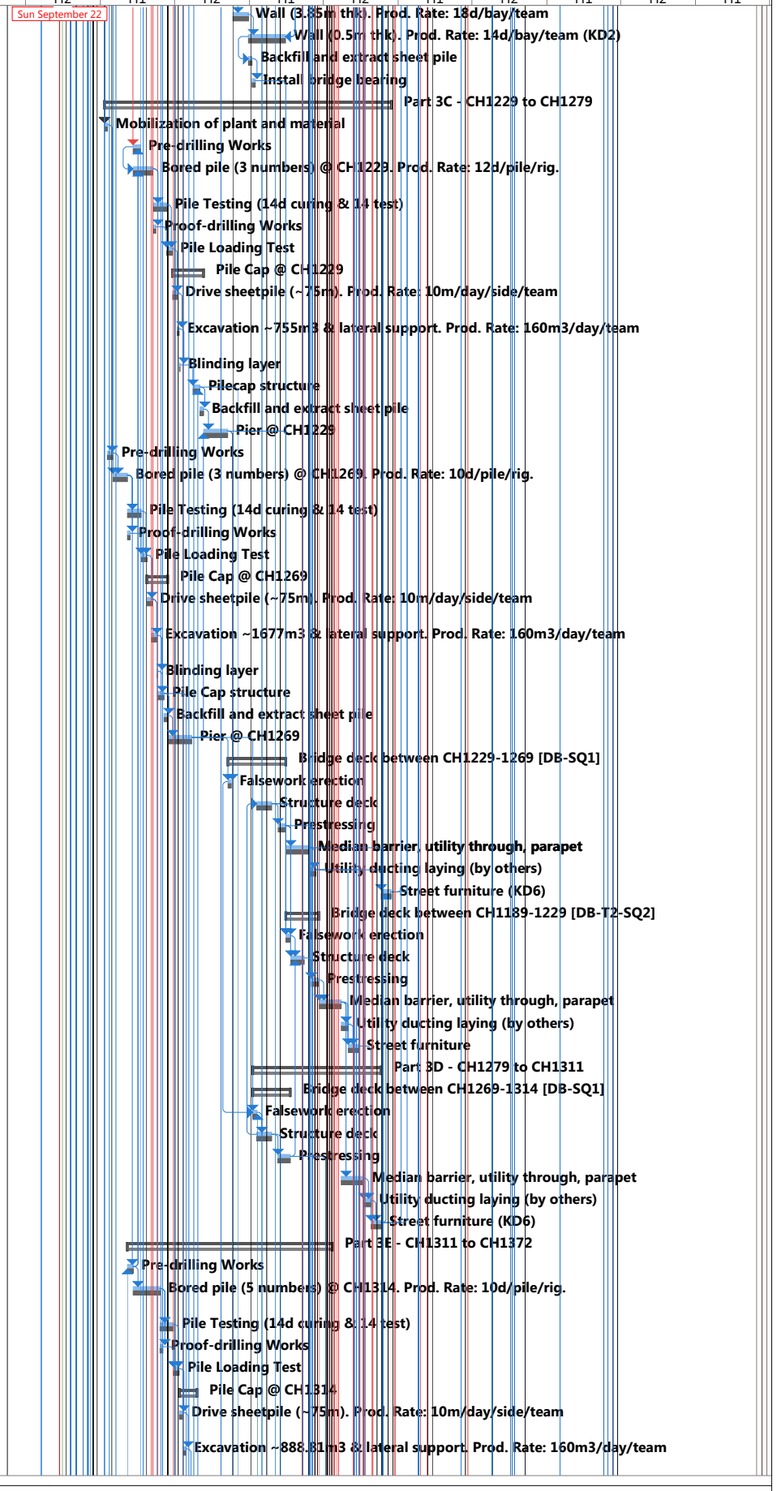
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
416	Allow Access between CH1000 and CH1087 for EMSD Thied District Cooling System for Associated Pipeline Laying (Assume the DCS Pipeline Lay within CH1010 and Ch1087 Area)	0 days	0 days	NA	NA	January 5, 2021	January 5, 2021	February 25, 2021	February 25, 2021	0%	26 days		51 days
417	Between CH1000 and CH1087 Area Handover Back from EMSD third District Cooling System Contractor	0 days	0 days	NA	NA	July 30, 2021	July 30, 2021	August 24, 2021	August 24, 2021	0%	25 days		25 days
418	Utility ducting laying (by others)	26 days	26 days	NA	NA	August 24, 2021	September 23, 2021	August 24, 2021	September 23, 2021	0%	0 days	2 days	0 days
419	Trim road formation	3 days	3 days	NA	NA	September 24, 2021	September 27, 2021	September 24, 2021	September 27, 2021	0%	0 days	0 days	0 days
420	Lay sub base	7 days	7 days	NA	NA	September 28, 2021	October 6, 2021	September 28, 2021	October 6, 2021	0%	0 days	0 days	0 days
421	Lay kerb	12 days	12 days	NA	NA	October 7, 2021	October 21, 2021	October 7, 2021	October 21, 2021	0%	0 days	0 days	0 days
422	Construct pedestrian street/ footpath	7 days	7 days	NA	NA	October 22, 2021	October 29, 2021	October 22, 2021	October 29, 2021	0%	0 days	0 days	0 days
423	Install central median	10 days	10 days	NA	NA	October 30, 2021	November 10, 2021	October 30, 2021	November 10, 2021	0%	0 days	0 days	0 days
424	Concrete infill between profile barrier	4 days	4 days	NA	NA	November 11, 2021	November 15, 2021	November 11, 2021	November 15, 2021	0%	0 days	0 days	0 days
425	Road pavement	5 days	5 days	NA	NA	November 16, 2021	November 20, 2021	November 16, 2021	November 20, 2021	0%	0 days	0 days	0 days
426	Install street furniture	7 days	7 days	NA	NA	November 22, 2021	November 29, 2021	February 22, 2022	March 1, 2022	0%	73 days	0 days	73 days
427	**Bridge D3 (Approach Ramp and Bridge) CH1087-1444.7**	**812 days**	**812 days**	**NA**	**NA**	**May 16, 2019**	**February 7, 2022**	**December 28, 2019**	**March 1, 2022**	**0%**	**19 days**		**19 days**
428	**North Approach Ramp (Fronting CKR) CH1087-1189.4 - 7 bays**	**306 days**	**306 days**	**NA**	**NA**	**September 23, 2019**	**October 3, 2020**	**December 28, 2019**	**April 17, 2021**	**0%**	**79 days**		**79 days**
429	Procurement of Movement Joints for Bridge Works	90 days	90 days	NA	NA	January 11, 2020	April 9, 2020	March 4, 2020	June 1, 2020	0%	49 days		53 days
430	Ground Monitoring Works	14 days	14 days	NA	NA	September 23, 2019	October 6, 2019	December 28, 2019	January 10, 2020	0%	0 days	0 days	96 days
431	Mobilization of plant and material	10 days	10 days	NA	NA	January 11, 2020	January 22, 2020	January 11, 2020	January 22, 2020	0%	0 days	0 days	0 days
432	Foundation Construction	64 days	64 days	NA	NA	January 23, 2020	April 14, 2020	January 23, 2020	April 14, 2020	0%	0 days	3 days	0 days
433	Drive sheetpile (~200m) Prod. Rate: 10m/d/team	20 days	20 days	NA	NA	April 15, 2020	May 10, 2020	April 18, 2020	May 13, 2020	0%	0 days	1 days	3 days
434	Excavation ~1,876m3 & lateral support. Prod. Rate: 160m3/day/team (Bay 1 to 7)	12 days	12 days	NA	NA	May 11, 2020	May 24, 2020	May 14, 2020	May 27, 2020	0%	0 days	1 days	3 days
435	Blinding layer. Prod. Rate: 2bays/day	4 days	4 days	NA	NA	May 25, 2020	May 28, 2020	May 28, 2020	June 1, 2020	0%	0 days	0 days	3 days
436	**Base slab Prod. Rate: 8d/bay/team**	**56 days**	**56 days**	**NA**	**NA**	**May 29, 2020**	**August 4, 2020**	**June 2, 2020**	**March 15, 2021**	**0%**	**3 days**	**3 days**	**3 days**
437	Base slab (Bay 2 & 4) -1 team	16 days	16 days	NA	NA	May 29, 2020	June 16, 2020	June 2, 2020	June 19, 2020	0%	0 days	1 days	3 days
438	Base slab (Bay 1 & 3) - 1 team	16 days	16 days	NA	NA	June 17, 2020	July 7, 2020	June 20, 2020	July 10, 2020	0%	0 days	1 days	3 days
439	Base slab (Bay 5 & 7) - 1 team	16 days	16 days	NA	NA	July 8, 2020	July 25, 2020	January 25, 2021	February 11, 2021	0%	0 days	0 days	166 days
440	Base slab (Bay 6) - 1 team	8 days	8 days	NA	NA	July 27, 2020	August 4, 2020	March 6, 2021	March 15, 2021	0%	24 days	0 days	182 days
441	**Wall. Prod. Rate: 12d/bay/team**	**74 days**	**74 days**	**NA**	**NA**	**July 8, 2020**	**October 3, 2020**	**July 11, 2020**	**April 17, 2021**	**0%**	**3 days**	**3 days**	**3 days**
442	Wall (Bay 2 & 4) - 2 teams	12 days	12 days	NA	NA	July 8, 2020	July 21, 2020	July 11, 2020	July 24, 2020	0%	0 days	1 days	3 days
443	Wall (Bay 1 & 3) 2 teams (KD1)	12 days	12 days	NA	NA	July 22, 2020	August 4, 2020	July 25, 2020	August 7, 2020	0%	0 days	1 days	3 days
444	Wall (Bay 5 & 7) - 1 team	24 days	24 days	NA	NA	August 5, 2020	September 1, 2020	February 16, 2021	March 15, 2021	0%	0 days	0.5 days	158 days
445	Wall (Bay 6) - 1 team (KD2)	12 days	12 days	NA	NA	September 2, 2020	September 15, 2020	March 16, 2021	March 29, 2021	0%	0 days	0 days	158 days
446	Backfill and extract sheet pile	14 days	14 days	NA	NA	September 16, 2020	October 3, 2020	March 30, 2021	April 17, 2021	0%	144 days	0 days	158 days
447	**North Approach Ramp (Fronting KTSP) CH1087-1189.4 - 7 bays**	**608 days**	**608 days**	**NA**	**NA**	**October 7, 2019**	**October 23, 2021**	**April 1, 2020**	**February 21, 2022**	**0%**	**97 days**		**97 days**
448	Ground Monitoring Works	14 days	14 days	NA	NA	October 7, 2019	October 20, 2019	April 1, 2020	April 14, 2020	0%	0 days	0 days	177 days
449	Mobilization of plant and materials	19 days	19 days	NA	NA	April 15, 2020	May 8, 2020	April 15, 2020	May 8, 2020	0%	0 days	1 days	0 days
450	Foundation Construction	94 days	94 days	NA	NA	May 9, 2020	August 28, 2020	May 9, 2020	August 28, 2020	0%	0 days	4 days	0 days
451	Drive sheetpile (~200m) Prod. Rate: 10m/d/team	24 days	24 days	NA	NA	August 29, 2020	September 25, 2020	August 29, 2020	September 25, 2020	0%	0 days	1 days	0 days
452	Excavation ~1,996m3 & lateral support. Prod. Rate: 160m3/day/team	18 days	18 days	NA	NA	September 26, 2020	October 19, 2020	September 26, 2020	October 19, 2020	0%	0 days	1 days	0 days
453	Blinding layer. Prod. Rate: 2bays/day	13 days	13 days	NA	NA	October 20, 2020	November 4, 2020	October 20, 2020	November 4, 2020	0%	0 days	0 days	0 days
454	Base slab (Bay 1 to 7) Prod Rate: 8d/bay/team- 1 team	64 days	64 days	NA	NA	November 5, 2020	January 21, 2021	November 5, 2020	January 21, 2021	0%	0 days	3 days	0 days
455	Wall (Bay 1 to 7) 12d/bay/team - 1 team (KD3)	95 days	95 days	NA	NA	January 22, 2021	May 21, 2021	January 22, 2021	May 21, 2021	0%	0 days	4 days	0 days
456	Backfilling ~8,372.91m3 within approach ramp to formation level (160m3/day) considered time for SRT	53 days	53 days	NA	NA	May 22, 2021	July 24, 2021	May 22, 2021	July 24, 2021	0%	0 days	1 days	0 days
457	Placing of precast planting channel along approach ramp	24 days	24 days	NA	NA	July 27, 2021	August 23, 2021	July 27, 2021	August 23, 2021	0%	0 days	1 days	0 days
458	Utility ducting laying (by others)	26 days	26 days	NA	NA	July 26, 2021	August 24, 2021	July 26, 2021	August 24, 2021	0%	0 days	1 days	0 days
459	Construct pedestrian street/ footpath	5 days	5 days	NA	NA	August 25, 2021	August 30, 2021	August 25, 2021	August 30, 2021	0%	0 days	0 days	0 days
460	Install central median	6 days	6 days	NA	NA	August 31, 2021	September 6, 2021	August 31, 2021	September 6, 2021	0%	0 days	0 days	0 days
461	Concrete infill between profile barrier	5 days	5 days	NA	NA	September 7, 2021	September 11, 2021	September 7, 2021	September 11, 2021	0%	0 days	0 days	0 days
462	Lay sub base	4 days	4 days	NA	NA	September 13, 2021	September 16, 2021	September 13, 2021	September 16, 2021	0%	0 days	0 days	0 days
463	Road pavement	5 days	5 days	NA	NA	September 17, 2021	September 23, 2021	September 17, 2021	September 23, 2021	0%	0 days	0 days	0 days
464	Install railing on top of retaining wall & street furniture	24 days	24 days	NA	NA	September 24, 2021	October 23, 2021	January 21, 2022	February 21, 2022	0%	24 days	0.5 days	97 days
465	**Part 3G - CH1189.4 to CH1229 North Abutment**	**286 days**	**286 days**	**NA**	**NA**	**April 15, 2020**	**March 29, 2021**	**May 4, 2020**	**April 17, 2021**	**0%**	**14 days**		**14 days**
466	Pre-drilling Works	14 days	14 days	NA	NA	April 15, 2020	April 28, 2020	May 4, 2020	May 17, 2020	0%	0 days	1 days	19 days
467	Bored pile (8 numbers). Prod. Rate: 10d/pile/rig.	80 days	80 days	NA	NA	April 29, 2020	August 4, 2020	May 18, 2020	August 20, 2020	0%	0 days	2 days	14 days
468	Pile Testing (28d curing & 14 test) - 1 full-core to be carried out	42 days	42 days	NA	NA	August 5, 2020	September 22, 2020	August 21, 2020	October 10, 2020	0%	0 days	2 days	14 days
469	Proof-drilling Works	7 days	7 days	NA	NA	August 5, 2020	August 11, 2020	October 4, 2020	October 10, 2020	0%	42 days	0 days	60 days
470	Pile Loading Test	16 days	16 days	NA	NA	September 23, 2020	October 8, 2020	October 11, 2020	October 26, 2020	0%	0 days	1 days	18 days
471	Drive sheetpile (~90m) Prod. Rate: 10m/d/team	9 days	9 days	NA	NA	October 9, 2020	October 19, 2020	October 27, 2020	November 5, 2020	0%	0 days	0 days	14 days
472	Excavation ~780m3 & lateral support. Prod. Rate: 160m3/day/team	6 days	6 days	NA	NA	October 20, 2020	October 27, 2020	November 6, 2020	November 12, 2020	0%	0 days	0 days	14 days
473	Blinding layer	1 day	1 day	NA	NA	October 28, 2020	October 28, 2020	November 13, 2020	November 13, 2020	0%	0 days	0 days	14 days
474	Base Slab	20 days	20 days	NA	NA	October 29, 2020	November 20, 2020	November 14, 2020	December 7, 2020	0%	0 days	1 days	14 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

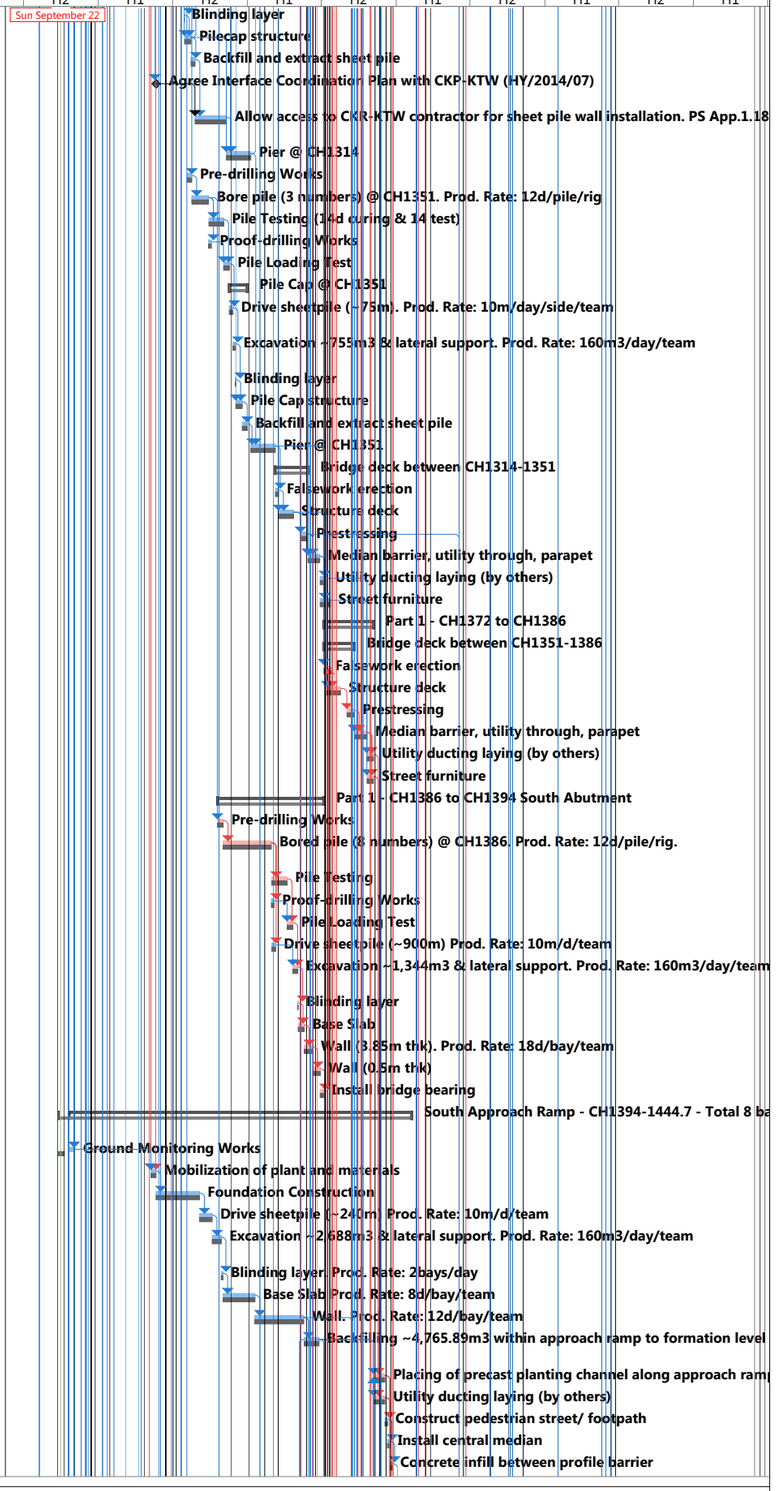
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
475	Wall (3.85m thk). Prod. Rate: 18d/bay/team	30 days	30 days	NA	NA	November 21, 2020	December 28, 2020	December 8, 2020	January 14, 2021	0%	0 days	1 days	14 days
476	Wall (0.5m thk). Prod. Rate: 14d/bay/team (KD2)	74 days	74 days	NA	NA	December 29, 2020	March 29, 2021	January 15, 2021	April 17, 2021	0%	0 days	0 days	14 days
477	Backfill and extract sheet pile	7 days	7 days	NA	NA	December 29, 2020	January 6, 2021	March 27, 2021	April 7, 2021	0%	0 days	0 days	72 days
478	Install bridge bearing	7 days	7 days	NA	NA	January 7, 2021	January 14, 2021	April 8, 2021	April 15, 2021	0%	61 days	0 days	72 days
479	**Part 3C - CH1229 to CH1279**	**573 days**	**573 days**	**NA**	**NA**	**January 11, 2020**	**December 14, 2021**	**January 20, 2020**	**December 29, 2021**	**0%**	**7 days**		**7 days**
480	Mobilization of plant and material	6 days	6 days	NA	NA	January 11, 2020	January 17, 2020	January 20, 2020	January 29, 2020	0%	0 days	1 days	7 days
481	Pre-drilling Works	14 days	14 days	NA	NA	March 21, 2020	April 7, 2020	May 14, 2020	May 29, 2020	0%	0 days	0 days	40 days
482	Bored pile (3 numbers) @ CH1229. Prod. Rate: 12d/pile/rig.	36 days	36 days	NA	NA	March 21, 2020	May 8, 2020	May 14, 2020	June 24, 2020	0%	0 days	0.5 days	40 days
483	Pile Testing (14d curing & 14 test)	28 days	28 days	NA	NA	May 9, 2020	June 10, 2020	June 26, 2020	July 29, 2020	0%	0 days	0.5 days	40 days
484	Proof-drilling Works	7 days	7 days	NA	NA	May 9, 2020	May 15, 2020	July 23, 2020	July 29, 2020	0%	26 days	0 days	75 days
485	Pile Loading Test	14 days	14 days	NA	NA	June 11, 2020	June 24, 2020	July 30, 2020	August 12, 2020	0%	1 day	0 days	49 days
486	**Pile Cap @ CH1229**	**64 days**	**64 days**	**NA**	**NA**	**June 26, 2020**	**September 9, 2020**	**August 13, 2020**	**September 23, 20...**	**0%**	**12 days**		**12 days**
487	Drive sheetpile (~75m). Prod. Rate: 10m/day/side/team	8 days	8 days	NA	NA	June 26, 2020	July 6, 2020	August 13, 2020	August 21, 2020	0%	0 days	0 days	40 days
488	Excavation ~755m3 & lateral support. Prod. Rate: 160m3/day/team	5 days	5 days	NA	NA	July 7, 2020	July 11, 2020	August 22, 2020	August 27, 2020	0%	0 days	0 days	40 days
489	Blinding layer	1 day	1 day	NA	NA	July 13, 2020	July 13, 2020	August 28, 2020	August 28, 2020	0%	28 days	0 days	40 days
490	Pilecap structure	14 days	14 days	NA	NA	August 15, 2020	August 31, 2020	August 29, 2020	September 14, 2020	0%	0 days	1 days	12 days
491	Backfill and extract sheet pile	8 days	8 days	NA	NA	September 1, 2020	September 9, 2020	September 15, 2020	September 23, 2020	0%	0 days	0 days	12 days
492	Pier @ CH1229	48 days	48 days	NA	NA	September 10, 2020	November 7, 2020	September 24, 2020	November 21, 2020	0%	0 days	2 days	12 days
493	Pre-drilling Works	14 days	14 days	NA	NA	January 18, 2020	January 31, 2020	January 30, 2020	February 12, 2020	0%	0 days	1 days	12 days
494	Bored pile (3 numbers) @ CH1269. Prod. Rate: 10d/pile/rig.	30 days	30 days	NA	NA	February 1, 2020	March 6, 2020	February 13, 2020	March 18, 2020	0%	0 days	0 days	10 days
495	Pile Testing (14d curing & 14 test)	28 days	28 days	NA	NA	March 7, 2020	April 9, 2020	April 21, 2020	May 25, 2020	0%	0 days	0.5 days	34 days
496	Proof-drilling Works	7 days	7 days	NA	NA	March 7, 2020	March 13, 2020	May 19, 2020	May 25, 2020	0%	27 days	0 days	73 days
497	Pile Loading Test	14 days	14 days	NA	NA	April 10, 2020	April 23, 2020	May 26, 2020	June 8, 2020	0%	0 days	0 days	46 days
498	**Pile Cap @ CH1269**	**42 days**	**42 days**	**NA**	**NA**	**April 24, 2020**	**June 13, 2020**	**June 9, 2020**	**July 29, 2020**	**0%**	**37 days**		**37 days**
499	Drive sheetpile (~75m). Prod. Rate: 10m/day/side/team	8 days	8 days	NA	NA	April 24, 2020	May 5, 2020	June 9, 2020	June 17, 2020	0%	0 days	0 days	37 days
500	Excavation ~1677m3 & lateral support. Prod. Rate: 160m3/day/team	11 days	11 days	NA	NA	May 6, 2020	May 18, 2020	June 18, 2020	July 2, 2020	0%	0 days	0 days	37 days
501	Blinding layer	1 day	1 day	NA	NA	May 19, 2020	May 19, 2020	July 3, 2020	July 3, 2020	0%	0 days	0 days	37 days
502	Pile Cap structure	14 days	14 days	NA	NA	May 20, 2020	June 4, 2020	July 4, 2020	July 20, 2020	0%	0 days	0 days	37 days
503	Backfill and extract sheet pile	8 days	8 days	NA	NA	June 5, 2020	June 13, 2020	July 21, 2020	July 29, 2020	0%	0 days	0 days	37 days
504	Pier @ CH1269	48 days	48 days	NA	NA	June 15, 2020	August 11, 2020	July 30, 2020	September 23, 2020	0%	25 days	0 days	37 days
505	**Bridge deck between CH1229-1269 [DB-SQ1]**	**116 days**	**116 days**	**NA**	**NA**	**November 9, 2020**	**March 30, 2021**	**January 22, 2021**	**April 15, 2021**	**0%**	**11 days**		**11 days**
506	Falsework erection	7 days	7 days	NA	NA	November 9, 2020	November 16, 2020	January 22, 2021	January 29, 2021	0%	50 days	0 days	61 days
507	Structure deck	28 days	28 days	NA	NA	January 19, 2021	February 23, 2021	February 1, 2021	March 8, 2021	0%	0 days	1 days	11 days
508	Prestressing	16 days	16 days	NA	NA	March 12, 2021	March 30, 2021	March 25, 2021	April 15, 2021	0%	0 days	1 days	11 days
509	Median barrier, utility through, parapet	45 days	45 days	NA	NA	March 31, 2021	May 27, 2021	May 10, 2021	July 3, 2021	0%	0 days	0.5 days	30 days
510	Utility ducting laying (by others)	14 days	14 days	NA	NA	May 28, 2021	June 12, 2021	September 25, 2021	October 12, 2021	0%	65 days	0 days	100 days
511	Street furniture (KD6)	21 days	21 days	NA	NA	November 20, 2021	December 14, 2021	December 3, 2021	December 29, 2021	0%	0 days	2 days	11 days
512	**Bridge deck between CH1189-1229 [DB-T2-SQ2]**	**64 days**	**64 days**	**NA**	**NA**	**March 31, 2021**	**June 19, 2021**	**April 16, 2021**	**July 3, 2021**	**0%**	**11 days**		**11 days**
513	Falsework erection	7 days	7 days	NA	NA	March 31, 2021	April 10, 2021	April 16, 2021	April 23, 2021	0%	0 days	0 days	11 days
514	Structure deck	28 days	28 days	NA	NA	April 12, 2021	May 14, 2021	April 24, 2021	May 28, 2021	0%	0 days	1 days	11 days
515	Prestressing	15 days	15 days	NA	NA	June 2, 2021	June 19, 2021	June 16, 2021	July 3, 2021	0%	0 days	1 days	11 days
516	Median barrier, utility through, parapet	46 days	46 days	NA	NA	June 21, 2021	August 13, 2021	July 5, 2021	August 26, 2021	0%	0 days	2 days	11 days
517	Utility ducting laying (by others)	14 days	14 days	NA	NA	August 14, 2021	August 30, 2021	September 25, 2021	October 12, 2021	0%	0 days	0 days	35 days
518	Street furniture	21 days	21 days	NA	NA	August 31, 2021	September 24, 2021	October 13, 2021	November 6, 2021	0%	24 days	0 days	35 days
519	**Part 3D - CH1279 to CH1311**	**257 days**	**257 days**	**NA**	**NA**	**January 9, 2021**	**November 19, 2021**	**January 22, 2021**	**December 2, 2021**	**0%**	**11 days**		**11 days**
520	**Bridge deck between CH1269-1314 [DB-SQ1]**	**73 days**	**73 days**	**NA**	**NA**	**January 9, 2021**	**April 10, 2021**	**January 22, 2021**	**April 23, 2021**	**0%**	**11 days**		**11 days**
521	Falsework erection	8 days	8 days	NA	NA	January 9, 2021	January 18, 2021	January 22, 2021	January 30, 2021	0%	0 days	0 days	11 days
522	Structure deck	28 days	28 days	NA	NA	January 19, 2021	February 23, 2021	February 1, 2021	March 8, 2021	0%	0 days	1 days	11 days
523	Prestressing	23 days	23 days	NA	NA	March 12, 2021	April 10, 2021	March 25, 2021	April 23, 2021	0%	0 days	0 days	11 days
524	Median barrier, utility through, parapet	45 days	45 days	NA	NA	August 14, 2021	October 7, 2021	August 27, 2021	October 21, 2021	0%	0 days	2 days	11 days
525	Utility ducting laying (by others)	14 days	14 days	NA	NA	October 8, 2021	October 25, 2021	October 22, 2021	November 6, 2021	0%	0 days	1 days	11 days
526	Street furniture (KD6)	22 days	22 days	NA	NA	October 26, 2021	November 19, 2021	November 8, 2021	December 2, 2021	0%	0 days	0 days	11 days
527	**Part 3E - CH1311 to CH1372**	**407 days**	**407 days**	**NA**	**NA**	**March 7, 2020**	**July 22, 2021**	**March 19, 2020**	**October 23, 2021**	**0%**	**10 days**		**10 days**
528	Pre-drilling Works	14 days	14 days	NA	NA	March 7, 2020	March 20, 2020	March 19, 2020	April 1, 2020	0%	0 days	0	12 days
529	Bored pile (5 numbers) @ CH1314. Prod. Rate: 10d/pile/rig.	50 days	50 days	NA	NA	March 21, 2020	May 25, 2020	April 2, 2020	June 5, 2020	0%	0 days	1 days	10 days
530	Pile Testing (14d curing & 14 test)	28 days	28 days	NA	NA	May 26, 2020	June 27, 2020	June 6, 2020	July 10, 2020	0%	0 days	1 days	10 days
531	Proof-drilling Works	7 days	7 days	NA	NA	May 26, 2020	June 1, 2020	July 4, 2020	July 10, 2020	0%	26 days	0 days	39 days
532	Pile Loading Test	14 days	14 days	NA	NA	June 28, 2020	July 11, 2020	July 11, 2020	July 24, 2020	0%	1 day	1 days	13 days
533	**Pile Cap @ CH1314**	**37 days**	**37 days**	**NA**	**NA**	**July 13, 2020**	**August 24, 2020**	**July 25, 2020**	**September 5, 2020**	**0%**	**11 days**		**11 days**
534	Drive sheetpile (~75m). Prod. Rate: 10m/day/side/team	8 days	8 days	NA	NA	July 13, 2020	July 21, 2020	July 25, 2020	August 3, 2020	0%	0 days	0 days	11 days
535	Excavation ~888.81m3 & lateral support. Prod. Rate: 160m3/day/team	6 days	6 days	NA	NA	July 22, 2020	July 28, 2020	August 4, 2020	August 10, 2020	0%	0 days	0 days	11 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical
Critical Split
Critical Progress
Task
Split
Task Progress
Manual Task
Start-only
Finish-only
Duration-only
Baseline
Baseline Split
Baseline Milestone
Milestone
Summary Progress
Summary
Manual Summary
Project Summary
External Tasks
External Milestone
Inactive Task
Inactive Milestone
Inactive Summary
Deadline
Baseline Summary

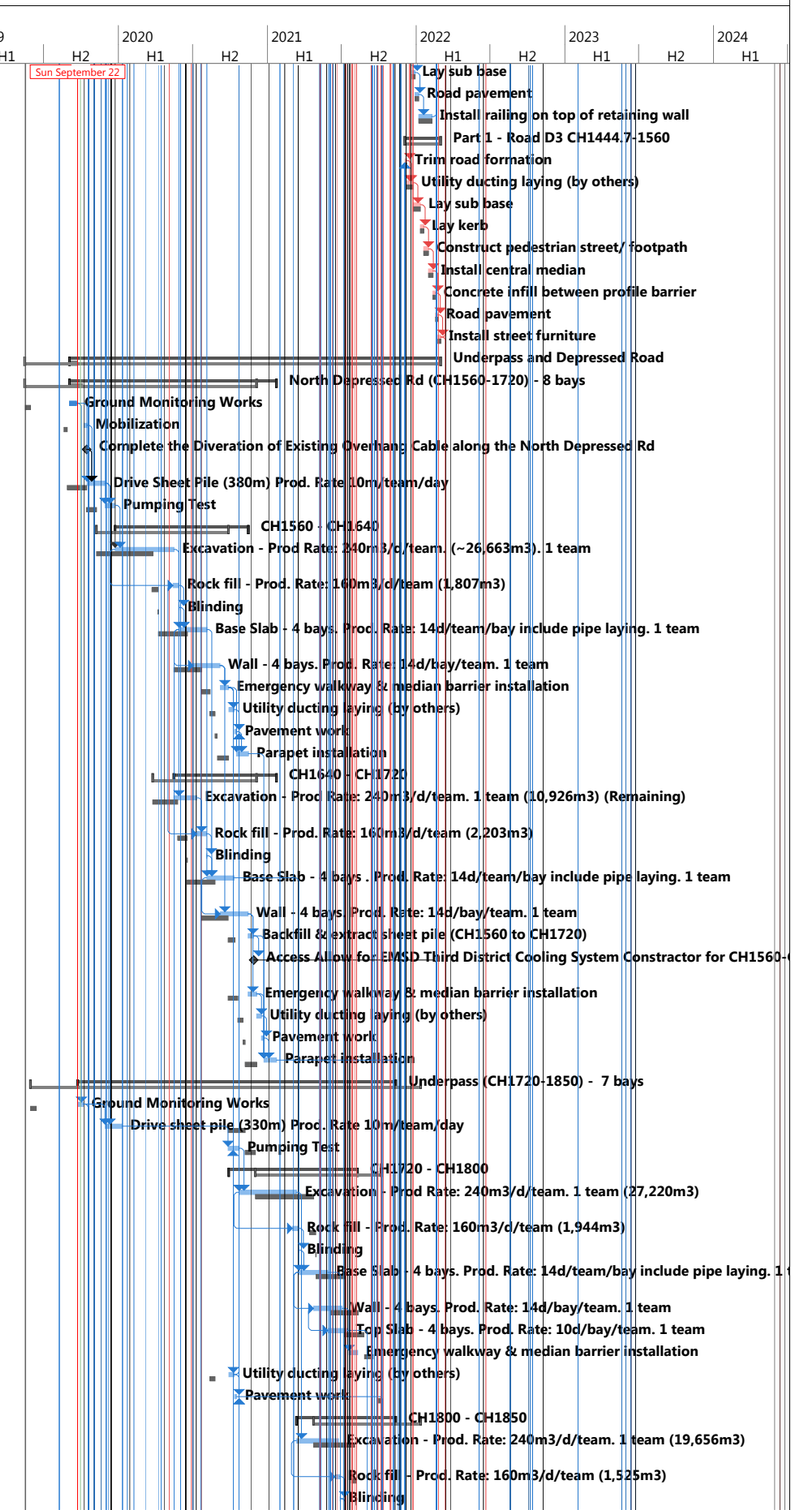
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
536	Blinding layer	1 day	1 day	NA	NA	July 29, 2020	July 29, 2020	August 11, 2020	August 11, 2020	0%	0 days	0 days	11 days
537	Pilecap structure	14 days	14 days	NA	NA	July 30, 2020	August 14, 2020	August 12, 2020	August 27, 2020	0%	0 days	1 days	11 days
538	Backfill and extract sheet pile	8 days	8 days	NA	NA	August 15, 2020	August 24, 2020	August 28, 2020	September 5, 2020	0%	0 days	1 days	11 days
539	Agree Interface Coordination Plan with CKP-KTW (HY/2014/07)	14 days	14 days	NA	NA	May 6, 2020	May 21, 2020	August 21, 2020	September 5, 2020	0%	79 days	0 days	90 days
540	Allow access to CKR-KTW contractor for sheet pile wall installation. PS App.1.18 2.7(A)(c)	63 days	63 days	NA	NA	August 25, 2020	November 9, 2020	September 7, 2020	November 21, 2020	0%	0 days	3 days	11 days
541	Pier @ CH1314	49 days	49 days	NA	NA	November 10, 2020	January 8, 2021	November 23, 2020	January 21, 2021	0%	0 days	2 days	11 days
542	Pre-drilling Works	12 days	12 days	NA	NA	August 5, 2020	August 16, 2020	August 23, 2020	September 3, 2020	0%	0 days	1 days	18 days
543	Bore pile (3 numbers) @ CH1351. Prod. Rate: 12d/pile/rig	36 days	36 days	NA	NA	August 17, 2020	September 26, 2020	September 4, 2020	October 17, 2020	0%	0 days	1 days	16 days
544	Pile Testing (14d curing & 14 test)	28 days	28 days	NA	NA	September 28, 2020	November 2, 2020	January 2, 2021	February 3, 2021	0%	0 days	0.5 days	77 days
545	Proof-drilling Works	7 days	7 days	NA	NA	September 27, 2020	October 3, 2020	January 28, 2021	February 3, 2021	0%	30 days	0 days	123 days
546	Pile Loading Test	14 days	14 days	NA	NA	November 3, 2020	November 16, 2020	February 4, 2021	February 17, 2021	0%	0 days	0 days	93 days
547	**Pile Cap @ CH1351**	**36 days**	**36 days**	**NA**	**NA**	**November 17, 2020**	**December 30, 2020**	**February 18, 2021**	**March 31, 2021**	**0%**	**74 days**		**74 days**
548	Drive sheetpile (~75m). Prod. Rate: 10m/day/side/team	8 days	8 days	NA	NA	November 17, 2020	November 25, 2020	February 18, 2021	February 26, 2021	0%	0 days	0 days	74 days
549	Excavation ~755m3 & lateral support. Prod. Rate: 160m3/day/team	5 days	5 days	NA	NA	November 26, 2020	December 1, 2020	February 27, 2021	March 4, 2021	0%	0 days	0 days	74 days
550	Blinding layer	1 day	1 day	NA	NA	December 2, 2020	December 2, 2020	March 5, 2021	March 5, 2021	0%	0 days	0 days	74 days
551	Pile Cap structure	14 days	14 days	NA	NA	December 3, 2020	December 18, 2020	March 6, 2021	March 22, 2021	0%	0 days	0 days	74 days
552	Backfill and extract sheet pile	8 days	8 days	NA	NA	December 19, 2020	December 30, 2020	March 23, 2021	March 31, 2021	0%	7 days	0 days	74 days
553	Pier @ CH1351	48 days	48 days	NA	NA	January 9, 2021	March 9, 2021	April 1, 2021	June 1, 2021	0%	0 days	0.5 days	67 days
554	**Bridge deck between CH1314-1351**	**64 days**	**64 days**	**NA**	**NA**	**March 10, 2021**	**May 28, 2021**	**June 2, 2021**	**August 20, 2021**	**0%**	**67 days**	**1 day**	**67 days**
555	Falsework erection	7 days	7 days	NA	NA	March 10, 2021	March 17, 2021	June 2, 2021	June 9, 2021	0%	0 days	0 days	67 days
556	Structure deck	28 days	28 days	NA	NA	March 18, 2021	April 22, 2021	June 10, 2021	July 14, 2021	0%	0 days	0.5 days	67 days
557	Prestressing	15 days	15 days	NA	NA	May 11, 2021	May 28, 2021	August 4, 2021	August 20, 2021	0%	0 days	0 days	70 days
558	Median barrier, utility through, parapet	24 days	24 days	NA	NA	May 29, 2021	June 26, 2021	August 26, 2021	September 23, 2021	0%	0 days	0.5 days	74 days
559	Utility ducting laying (by others)	14 days	14 days	NA	NA	June 28, 2021	July 14, 2021	October 7, 2021	October 23, 2021	0%	81 days	0 days	84 days
560	Street furniture	21 days	21 days	NA	NA	June 28, 2021	July 22, 2021	September 24, 2021	October 20, 2021	0%	74 days	0 days	74 days
561	**Part 1 - CH1372 to CH1386**	**102 days**	**102 days**	**NA**	**NA**	**July 7, 2021**	**November 5, 2021**	**July 7, 2021**	**November 9, 2021**	**0%**	**0 days**		**0 days**
562	**Bridge deck between CH1351-1386**	**64 days**	**64 days**	**NA**	**NA**	**July 7, 2021**	**September 19, 20...**	**July 7, 2021**	**September 20, 20...**	**0%**	**0 days**		**0 days**
563	Falsework erection	7 days	7 days	NA	NA	July 7, 2021	July 14, 2021	July 7, 2021	July 14, 2021	0%	0 days	0 days	0 days
564	Structure deck	28 days	28 days	NA	NA	July 15, 2021	August 16, 2021	July 15, 2021	August 16, 2021	0%	0 days	1 days	0 days
565	Prestressing	15 days	15 days	NA	NA	September 2, 2021	September 19, 2021	September 2, 2021	September 20, 2021	0%	0 days	1 days	0 days
566	Median barrier, utility through, parapet	24 days	24 days	NA	NA	September 20, 2021	October 20, 2021	September 20, 2021	October 20, 2021	0%	0 days	1 days	0 days
567	Utility ducting laying (by others)	14 days	14 days	NA	NA	October 21, 2021	November 5, 2021	October 25, 2021	November 9, 2021	0%	0 days	1 days	3 days
568	Street furniture	14 days	14 days	NA	NA	October 21, 2021	November 5, 2021	October 21, 2021	November 5, 2021	0%	0 days	1 days	0 days
569	**Part 1 - CH1386 to CH1394 South Abutment**	**210 days**	**210 days**	**NA**	**NA**	**October 19, 2020**	**July 6, 2021**	**October 19, 2020**	**July 6, 2021**	**0%**	**0 days**		**0 days**
570	Pre-drilling Works	14 days	14 days	NA	NA	October 19, 2020	November 1, 2020	October 19, 2020	November 1, 2020	0%	0 days	1 days	0 days
571	Bored pile (8 numbers) @ CH1386. Prod. Rate: 12d/pile/rig.	96 days	96 days	NA	NA	November 2, 2020	February 27, 2021	November 2, 2020	February 27, 2021	0%	0 days	1 days	0 days
572	Pile Testing	30 days	30 days	NA	NA	March 1, 2021	April 7, 2021	March 1, 2021	April 7, 2021	0%	0 days	1 days	0 days
573	Proof-drilling Works	7 days	7 days	NA	NA	February 28, 2021	March 6, 2021	April 1, 2021	April 7, 2021	0%	32 days	0 days	32 days
574	Pile Loading Test	14 days	14 days	NA	NA	April 8, 2021	April 21, 2021	April 8, 2021	April 21, 2021	0%	0 days	1 days	0 days
575	Drive sheetpile (~900m) Prod. Rate: 10m/d/team	9 days	9 days	NA	NA	March 1, 2021	March 10, 2021	April 12, 2021	April 21, 2021	0%	33 days	0 days	33 days
576	Excavation ~1,344m3 & lateral support. Prod. Rate: 160m3/day/team	9 days	9 days	NA	NA	April 22, 2021	May 3, 2021	April 22, 2021	May 3, 2021	0%	0 days	1 days	0 days
577	Blinding layer	1 day	1 day	NA	NA	May 4, 2021	May 4, 2021	May 4, 2021	May 4, 2021	0%	0 days	0 days	0 days
578	Base Slab	12 days	12 days	NA	NA	May 5, 2021	May 19, 2021	May 5, 2021	May 20, 2021	0%	0 days	0 days	0 days
579	Wall (3.85m thk). Prod. Rate: 18d/bay/team	18 days	18 days	NA	NA	May 20, 2021	June 9, 2021	May 20, 2021	June 9, 2021	0%	0 days	1 days	0 days
580	Wall (0.5m thk)	14 days	14 days	NA	NA	June 10, 2021	June 27, 2021	June 10, 2021	June 28, 2021	0%	0 days	1 days	0 days
581	Install bridge bearing	7 days	7 days	NA	NA	June 28, 2021	July 6, 2021	June 28, 2021	July 6, 2021	0%	0 days	0 days	0 days
582	**South Approach Ramp - CH1394-1444.7 - Total 8 bays (4 bay/side)**	**682 days**	**682 days**	**NA**	**NA**	**October 21, 2019**	**February 7, 2022**	**August 11, 2020**	**March 1, 2022**	**0%**	**19 days**		**19 days**
583	Ground Monitoring Works	14 days	14 days	NA	NA	October 21, 2019	November 3, 2019	August 11, 2020	August 24, 2020	0%	187 days	0 days	295 days
584	Mobilization of plant and materials	10 days	10 days	NA	NA	May 9, 2020	May 20, 2020	August 25, 2020	September 4, 2020	0%	0 days	0 days	90 days
585	Foundation Construction	90 days	90 days	NA	NA	May 21, 2020	September 4, 2020	September 5, 2020	December 22, 2020	0%	0 days	1 day	90 days
586	Drive sheetpile (~240m) Prod. Rate: 10m/d/team	24 days	24 days	NA	NA	September 5, 2020	October 5, 2020	December 23, 2020	January 22, 2021	0%	0 days	0.5 days	90 days
587	Excavation ~2,688m3 & lateral support. Prod. Rate: 160m3/day/team	18 days	18 days	NA	NA	October 6, 2020	October 27, 2020	January 23, 2021	February 16, 2021	0%	0 days	0 days	90 days
588	Blinding layer. Prod. Rate: 2bays/day	4 days	4 days	NA	NA	October 28, 2020	October 31, 2020	February 17, 2021	February 20, 2021	0%	0 days	0 days	90 days
589	Base Slab Prod. Rate: 8d/bay/team	64 days	64 days	NA	NA	November 2, 2020	January 18, 2021	February 22, 2021	May 11, 2021	0%	0 days	1 day	90 days
590	Wall. Prod. Rate: 12d/bay/team	96 days	96 days	NA	NA	January 19, 2021	May 18, 2021	May 12, 2021	September 3, 2021	0%	0 days	1 day	90 days
591	Backfilling ~4,765.89m3 within approach ramp to formation level (160m3/day) considered time for SRT	30 days	30 days	NA	NA	May 20, 2021	June 24, 2021	September 4, 2021	October 11, 2021	0%	0 days	0.5 days	90 days
592	Placing of precast planting channel along approach ramp	24 days	24 days	NA	NA	November 6, 2021	December 3, 2021	November 6, 2021	December 3, 2021	0%	0 days	1 days	0 days
593	Utility ducting laying (by others)	24 days	24 days	NA	NA	November 6, 2021	December 3, 2021	November 10, 2021	December 7, 2021	0%	0 days	1 days	3 days
594	Construct pedestrian street/ footpath	5 days	5 days	NA	NA	December 4, 2021	December 9, 2021	December 29, 2021	January 4, 2022	0%	0 days	0 days	19 days
595	Install central median	5 days	5 days	NA	NA	December 10, 2021	December 15, 2021	January 5, 2022	January 10, 2022	0%	0 days	0 days	19 days
596	Concrete infill between profile barrier	5 days	5 days	NA	NA	December 16, 2021	December 21, 2021	January 11, 2022	January 15, 2022	0%	0 days	0 days	19 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical
Critical Split
Critical Progress
Task
Split
Task Progress
Manual Task
Start-only
Finish-only
Duration-only
Baseline
Baseline Split
Baseline Milestone
Milestone
Summary Progress
Summary
Manual Summary
Project Summary
External Tasks
External Milestone
Inactive Task
Inactive Milestone
Inactive Summary
Deadline
Baseline Summary

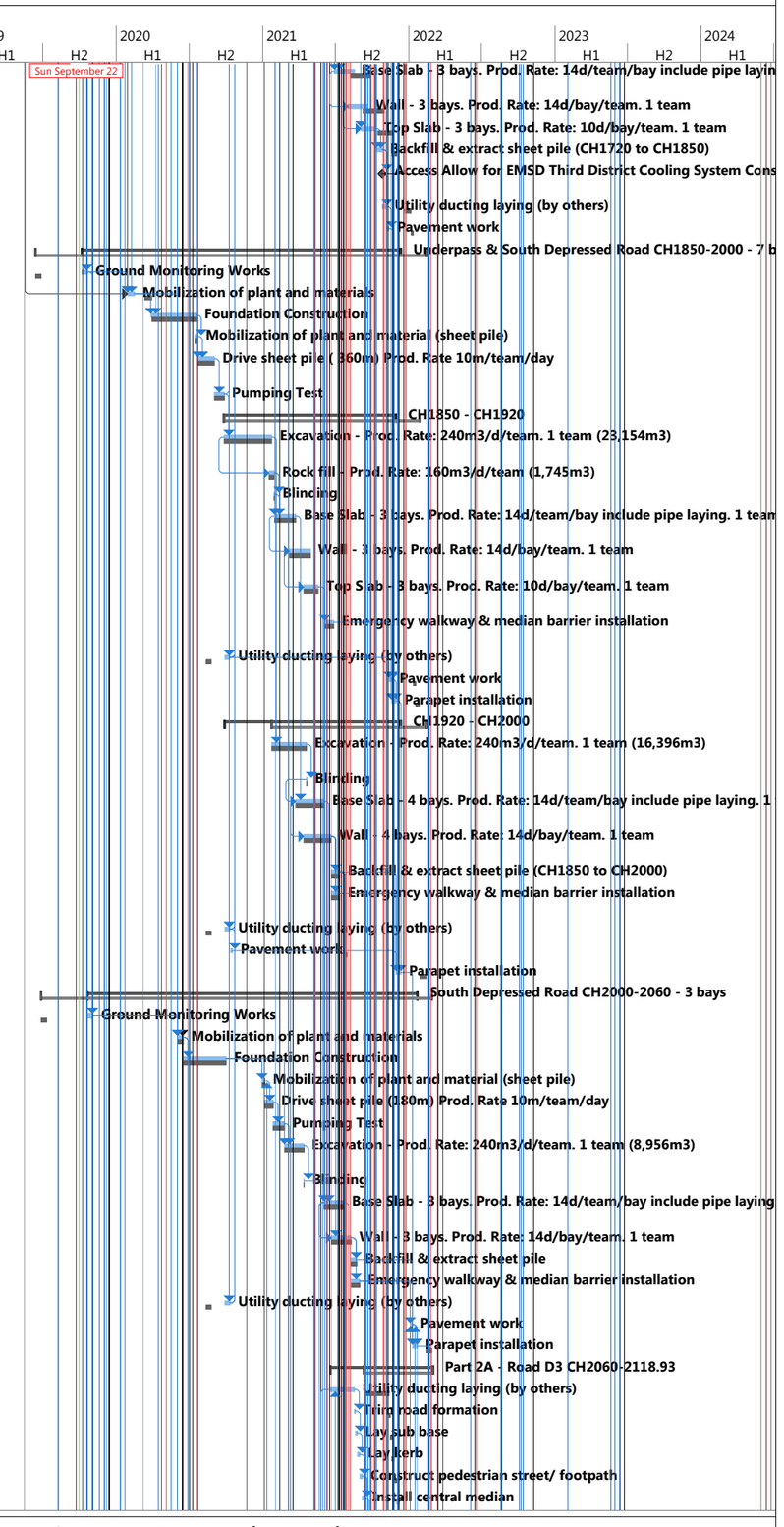
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
597	Lay sub base	4 days	4 days	NA	NA	December 22, 2021	December 28, 2021	January 17, 2022	January 20, 2022	0%	0 days	0 days	19 days
598	Road pavement	7 days	7 days	NA	NA	December 29, 2021	January 6, 2022	January 21, 2022	January 28, 2022	0%	0 days	0 days	19 days
599	Install railing on top of retaining wall	24 days	24 days	NA	NA	January 7, 2022	February 7, 2022	January 29, 2022	March 1, 2022	0%	19 days	0.5 days	19 days
600	**Part 1 - Road D3 CH1444.7-1560**	**69 days**	**69 days**	**NA**	**NA**	**December 4, 2021**	**March 1, 2022**	**December 4, 2021**	**March 1, 2022**	**0%**	**0 days**		**0 days**
601	Trim road formation	3 days	3 days	NA	NA	December 4, 2021	December 7, 2021	December 4, 2021	December 7, 2021	0%	0 days	0 days	0 days
602	Utility ducting laying (by others)	14 days	14 days	NA	NA	December 8, 2021	December 23, 2021	December 8, 2021	December 23, 2021	0%	0 days	1 days	0 days
603	Lay sub base	12 days	12 days	NA	NA	December 24, 2021	January 10, 2022	December 24, 2021	January 10, 2022	0%	0 days	0 days	0 days
604	Lay kerb	7 days	7 days	NA	NA	January 11, 2022	January 18, 2022	January 11, 2022	January 18, 2022	0%	0 days	0 days	0 days
605	Construct pedestrian street/ footpath	10 days	10 days	NA	NA	January 19, 2022	January 30, 2022	January 19, 2022	January 31, 2022	0%	0 days	0 days	0 days
606	Install central median	7 days	7 days	NA	NA	January 31, 2022	February 10, 2022	January 31, 2022	February 10, 2022	0%	0 days	0 days	0 days
607	Concrete infill between profile barrier	5 days	5 days	NA	NA	February 11, 2022	February 16, 2022	February 11, 2022	February 16, 2022	0%	0 days	0 days	0 days
608	Road pavement	5 days	5 days	NA	NA	February 17, 2022	February 22, 2022	February 17, 2022	February 22, 2022	0%	0 days	0 days	0 days
609	Install street furniture	6 days	6 days	NA	NA	February 23, 2022	March 1, 2022	February 23, 2022	March 1, 2022	0%	0 days	0 days	0 days
610	**Underpass and Depressed Road**	**739 days**	**733.65 days**	**September 3, 2019**	**NA**	**September 3, 2019**	**March 1, 2022**	**September 3, 2019**	**May 29, 2024**	**0%**	**668 days**		**668 days**
611	**North Depressed Rd (CH1560-1720) - 8 bays**	**413 days**	**401.77 days**	**September 3, 2019**	**NA**	**September 3, 2019**	**January 22, 2021**	**September 3, 2019**	**March 1, 2022**	**0%**	**326 days**		**326 days**
612	Ground Monitoring Works	17 days	0 days	September 3, 2019	September 19, 2019	September 3, 2019	September 19, 2019	September 3, 2019	September 19, 2019	100%	0 days	2 days	0 days
613	Mobilization	7 days	7 days	NA	NA	October 8, 2019	October 15, 2019	June 15, 2020	June 22, 2020	0%	0 days	0 days	203 days
614	Complete the Diveration of Existing Overhang Cable along the North Depressed Rd	0 days	0 days	NA	NA	October 15, 2019	October 15, 2019	June 23, 2020	June 23, 2020	0%	1 day		252 days
615	Drive Sheet Pile (380m) Prod. Rate 10m/team/day	38 days	38 days	NA		October 16, 2019	November 28, 2019	June 23, 2020	August 7, 2020	0%	0 days	1 days	203 days
616	Pumping Test	21 days	21 days	NA	NA	November 29, 2019	December 23, 2019	August 8, 2020	September 1, 2020	0%	0 days	1 days	203 days
617	**CH1560 - CH1640**	**264 days**	**264 days**	**NA**	**NA**	**December 24, 2019**	**November 14, 2020**	**September 2, 2020**	**December 16, 2021**	**0%**	**203 days**		**203 days**
618	Excavation - Prod Rate: 240m3/d/team. (~26,663m3). 1 team	112 days	112 days	NA	NA	December 24, 2019	May 15, 2020	September 2, 2020	January 16, 2021	0%	0 days	1 days	203 days
619	Rock fill - Prod. Rate: 160m3/d/team (1,807m3)	12 days	12 days	NA	NA	May 14, 2020	May 27, 2020	January 15, 2021	January 28, 2021	0%	0 days	1 days	203 days
620	Blinding	1 day	1 day	NA	NA	May 28, 2020	May 28, 2020	January 29, 2021	January 29, 2021	0%	0 days	0 days	203 days
621	Base Slab - 4 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team	56 days	56 days	NA	NA	May 29, 2020	August 4, 2020	January 30, 2021	April 12, 2021	0%	0 days	3 days	203 days
622	Wall - 4 bays. Prod. Rate: 14d/bay/team. 1 team	56 days	56 days	NA	NA	July 3, 2020	September 5, 2020	June 26, 2021	August 31, 2021	0%	0 days	3 days	292 days
623	Emergency walkway & median barrier installation	18 days	18 days	NA	NA	September 7, 2020	September 26, 2020	October 11, 2021	November 1, 2021	0%	0 days	0 days	324 days
624	Utility ducting laying (by others)	10 days	10 days	NA	NA	September 28, 2020	October 10, 2020	November 2, 2021	November 12, 2021	0%	0 days	0 days	324 days
625	Pavement work	5 days	5 days	NA	NA	October 12, 2020	October 16, 2020	November 13, 2021	November 18, 2021	0%	0 days	0 days	324 days
626	Parapet installation	24 days	24 days	NA	NA	October 17, 2020	November 14, 2020	November 19, 2021	December 16, 2021	0%	32 days	0.5 days	324 days
627	**CH1640 - CH1720**	**208 days**	**208 days**	**NA**	**NA**	**May 16, 2020**	**January 22, 2021**	**January 18, 2021**	**March 1, 2022**	**0%**	**203 days**		**203 days**
628	Excavation - Prod Rate: 240m3/d/team. 1 team (10,926m3) (Remaining)	46 days	46 days	NA	NA	May 16, 2020	July 10, 2020	January 18, 2021	March 15, 2021	0%	0 days	1 days	203 days
629	Rock fill - Prod. Rate: 160m3/d/team (2,203m3)	20 days	20 days	NA	NA	July 11, 2020	August 3, 2020	March 16, 2021	April 10, 2021	0%	0 days	1 days	203 days
630	Blinding	1 day	1 day	NA	NA	August 4, 2020	August 4, 2020	April 12, 2021	April 12, 2021	0%	0 days	0 days	203 days
631	Base Slab - 4 bays . Prod. Rate: 14d/team/bay include pipe laying. 1 team	56 days	56 days	NA	NA	August 5, 2020	October 10, 2020	April 13, 2021	June 19, 2021	0%	0 days	2 days	203 days
632	Wall - 4 bays. Prod. Rate: 14d/bay/team. 1 team	56 days	56 days	NA	NA	September 7, 2020	November 13, 2020	September 1, 2021	November 8, 2021	0%	0 days	2 days	292 days
633	Backfill & extract sheet pile (CH1560 to CH1720)	12 days	12 days	NA	NA	November 14, 2020	November 27, 2020	December 3, 2021	December 16, 2021	0%	21 days	1 day	313 days
634	Access Allow for EMSD Third District Cooling System Constractor for CH1560-CH1720 Pipe Laying	0 days	0 days	NA	NA	November 27, 2020	November 27, 2020	March 1, 2022	March 1, 2022	0%	459 days		459 days
635	Emergency walkway & median barrier installation	18 days	18 days	NA	NA	November 14, 2020	December 4, 2020	November 9, 2021	November 29, 2021	0%	0 days	0 days	292 days
636	Utility ducting laying (by others)	10 days	10 days	NA	NA	December 5, 2020	December 16, 2020	November 30, 2021	December 10, 2021	0%	0 days	0 days	292 days
637	Pavement work	5 days	5 days	NA	NA	December 17, 2020	December 22, 2020	December 11, 2021	December 16, 2021	0%	0 days	0 days	292 days
638	Parapet installation	24 days	24 days	NA	NA	December 23, 2020	January 22, 2021	December 17, 2021	January 17, 2022	0%	243 days	0.5 days	292 days
639	**Underpass (CH1720-1850) - 7 bays**	**635 days**	**635 days**	**NA**	**NA**	**September 23, 20...**	**November 11, 2021**	**March 19, 2020**	**May 29, 2024**	**0%**	**145 days**		**145 days**
640	Ground Monitoring Works	14 days	14 days	NA	NA	September 23, 2019	October 6, 2019	March 19, 2020	April 1, 2020	0%	0 days	0 days	178 days
641	Drive sheet pile (330m) Prod. Rate 10m/team/day	33 days	33 days	NA	NA	November 29, 2019	January 9, 2020	September 26, 2020	November 6, 2020	0%	212 days	0 days	245 days
642	Pumping Test	21 days	21 days	NA	NA	September 26, 2020	October 22, 2020	November 7, 2020	December 1, 2020	0%	0 days	1 days	33 days
643	**CH1720 - CH1800**	**255 days**	**255 days**	**NA**	**NA**	**September 28, 20...**	**August 9, 2021**	**December 2, 2020**	**May 29, 2024**	**0%**	**53 days**		**53 days**
644	Excavation - Prod Rate: 240m3/d/team. 1 team (27,220m3)	114 days	114 days	NA	NA	October 23, 2020	March 12, 2021	December 2, 2020	April 23, 2021	0%	0 days	5 days	33 days
645	Rock fill - Prod. Rate: 160m3/d/team (1,944m3)	13 days	13 days	NA	NA	March 3, 2021	March 17, 2021	June 3, 2021	June 18, 2021	0%	0 days	0 days	74 days
646	Blinding	1 day	1 day	NA	NA	March 18, 2021	March 18, 2021	June 19, 2021	June 19, 2021	0%	0 days	0 days	74 days
647	Base Slab - 4 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team	56 days	56 days	NA	NA	March 19, 2021	May 28, 2021	June 21, 2021	August 25, 2021	0%	0 days	1 day	74 days
648	Wall - 4 bays. Prod. Rate: 14d/bay/team. 1 team	56 days	56 days	NA	NA	April 24, 2021	July 2, 2021	August 12, 2021	October 19, 2021	0%	0 days	1 day	90 days
649	Top Slab - 4 bays. Prod. Rate: 10d/bay/team. 1 team	40 days	40 days	NA	NA	May 29, 2021	July 16, 2021	September 14, 2021	November 2, 2021	0%	41 days	0.5 days	90 days
650	Emergency walkway & median barrier installation	18 days	18 days	NA	NA	July 20, 2021	August 9, 2021	May 8, 2024	May 29, 2024	0%	834 days	0 days	834 days
651	Utility ducting laying (by others)	10 days	10 days	NA	NA	September 28, 2020	October 10, 2020	November 2, 2021	November 12, 2021	0%	0 days	0 days	324 days
652	Pavement work	5 days	5 days	NA	NA	October 12, 2020	October 16, 2020	December 2, 2021	December 7, 2021	0%	291 days	0 days	340 days
653	**CH1800 - CH1850**	**199 days**	**199 days**	**NA**	**NA**	**March 13, 2021**	**November 11, 2021**	**April 24, 2021**	**March 1, 2022**	**0%**	**33 days**		**33 days**
654	Excavation - Prod. Rate: 240m3/d/team. 1 team (19,656m3)	82 days	82 days	NA	NA	March 13, 2021	June 23, 2021	April 24, 2021	August 2, 2021	0%	0 days	1 days	33 days
655	Rock fill - Prod. Rate: 160m3/d/team (1,525m3)	10 days	10 days	NA	NA	June 16, 2021	June 26, 2021	July 26, 2021	August 5, 2021	0%	0 days	1 days	33 days
656	Blinding	1 day	1 day	NA	NA	June 28, 2021	June 28, 2021	August 6, 2021	August 6, 2021	0%	0 days	0 days	33 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
657	Base Slab - 3 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team	42 days	42 days	NA	NA	June 29, 2021	August 17, 2021	August 26, 2021	October 16, 2021	0%	0 days	2 days	49 days
658	Wall - 3 bays. Prod. Rate: 14d/bay/team. 1 team	42 days	42 days	NA	NA	August 2, 2021	September 18, 2021	September 29, 2021	November 18, 2021	0%	0 days	1 days	49 days
659	Top Slab - 3 bays. Prod. Rate: 10d/bay/team. 1 team	30 days	30 days	NA	NA	September 3, 2021	October 9, 2021	November 3, 2021	December 7, 2021	0%	0 days	1 days	49 days
660	Backfill & extract sheet pile (CH1720 to CH1850)	12 days	12 days	NA	NA	October 11, 2021	October 25, 2021	December 8, 2021	December 21, 2021	0%	0 days	0 days	49 days
661	Access Allow for EMSD Third District Cooling System Constractor for CH1720-CH1850 Pipe Laying	0 days	0 days	NA	NA	October 25, 2021	October 25, 2021	March 1, 2022	March 1, 2022	0%	127 days		127 days
662	Utility ducting laying (by others)	10 days	10 days	NA	NA	October 26, 2021	November 5, 2021	December 22, 2021	January 5, 2022	0%	0 days	1 day	49 days
663	Pavement work	5 days	5 days	NA	NA	November 6, 2021	November 11, 2021	January 6, 2022	January 11, 2022	0%	0 days	1 day	49 days
664	**Underpass & South Depressed Road CH1850-2000 - 7 bays**	**650 days**	**650 days**	**NA**	**NA**	**October 7, 2019**	**December 11, 2021**	**April 2, 2020**	**February 14, 2022**	**0%**	**49 days**		**49 days**
665	Ground Monitoring Works	14 days	14 days	NA	NA	October 7, 2019	October 20, 2019	April 2, 2020	April 15, 2020	0%	0 days	0 days	178 days
666	Mobilization of plant and materials	15 days	15 days	NA	NA	January 29, 2020	February 14, 2020	April 16, 2020	May 5, 2020	0%	35 days	0 days	63 days
667	Foundation Construction	90 days	90 days	NA	NA	March 27, 2020	July 18, 2020	May 6, 2020	August 20, 2020	0%	0 days	1 day	28 days
668	Mobilization of plant and material (sheet pile)	6 days	6 days	NA	NA	July 15, 2020	July 21, 2020	August 17, 2020	August 22, 2020	0%	0 days	0 days	28 days
669	Drive sheet pile (360m) Prod. Rate 10m/team/day	36 days	36 days	NA	NA	July 22, 2020	September 1, 2020	August 24, 2020	October 6, 2020	0%	0 days	0.5 days	28 days
670	Pumping Test	21 days	21 days	NA	NA	September 2, 2020	September 25, 2020	October 7, 2020	October 31, 2020	0%	0 days	0 days	28 days
671	**CH1850 - CH1920**	**349 days**	**349 days**	**NA**	**NA**	**September 26, 20...**	**November 29, 2021**	**November 2, 2020**	**January 28, 2022**	**0%**	**28 days**		**28 days**
672	Excavation - Prod. Rate: 240m3/d/team. 1 team (23,154m3)	96 days	96 days	NA	NA	September 26, 2020	January 22, 2021	November 2, 2020	February 27, 2021	0%	0 days	1 day	28 days
673	Rock fill - Prod. Rate: 160m3/d/team (1,745m3)	11 days	11 days	NA	NA	January 16, 2021	January 28, 2021	February 22, 2021	March 5, 2021	0%	0 days	0 days	28 days
674	Blinding	1 day	1 day	NA	NA	January 29, 2021	January 29, 2021	March 6, 2021	March 6, 2021	0%	0 days	0 days	28 days
675	Base Slab - 3 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team	42 days	42 days	NA	NA	January 30, 2021	March 23, 2021	March 8, 2021	April 28, 2021	0%	0 days	0.5 days	28 days
676	Wall - 3 bays. Prod. Rate: 14d/bay/team. 1 team	42 days	42 days	NA	NA	March 8, 2021	April 28, 2021	September 29, 2021	November 18, 2021	0%	0 days	0.5 days	168 days
677	Top Slab - 3 bays. Prod. Rate: 10d/bay/team. 1 team	30 days	30 days	NA	NA	April 13, 2021	May 18, 2021	November 3, 2021	December 7, 2021	0%	0 days	0.5 days	168 days
678	Emergency walkway & median barrier installation	18 days	18 days	NA	NA	June 5, 2021	June 26, 2021	December 24, 2021	January 17, 2022	0%	119 days	0 days	168 days
679	Utility ducting laying (by others)	10 days	10 days	NA	NA	September 28, 2020	October 10, 2020	November 2, 2021	November 12, 2021	0%	0 days	0 days	324 days
680	Pavement work	5 days	5 days	NA	NA	November 12, 2021	November 17, 2021	January 12, 2022	January 17, 2022	0%	0 days	0 days	49 days
681	Parapet installation	10 days	10 days	NA	NA	November 18, 2021	November 29, 2021	January 18, 2022	January 28, 2022	0%	0 days	0 days	49 days
682	**CH1920 - CH2000**	**359 days**	**359 days**	**NA**	**NA**	**September 28, 20...**	**December 11, 2021**	**April 14, 2021**	**February 14, 2022**	**0%**	**49 days**		**49 days**
683	Excavation - Prod. Rate: 240m3/d/team. 1 team (16,396m3)	68 days	68 days	NA	NA	January 23, 2021	April 19, 2021	April 14, 2021	July 6, 2021	0%	0 days	1 day	63 days
684	Blinding	1 day	1 day	NA	NA	April 20, 2021	April 20, 2021	July 7, 2021	July 7, 2021	0%	0 days	0 days	63 days
685	Base Slab - 4 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team	56 days	56 days	NA	NA	March 24, 2021	June 2, 2021	April 29, 2021	July 7, 2021	0%	0 days	1 day	28 days
686	Wall - 4 bays. Prod. Rate: 14d/bay/team. 1 team	56 days	56 days	NA	NA	April 13, 2021	June 19, 2021	July 10, 2021	September 13, 2021	0%	0 days	1 day	72 days
687	Backfill & extract sheet pile (CH1850 to CH2000)	18 days	18 days	NA	NA	June 21, 2021	July 12, 2021	September 14, 2021	October 6, 2021	0%	0 days	0 days	72 days
688	Emergency walkway & median barrier installation	18 days	18 days	NA	NA	June 21, 2021	July 12, 2021	January 8, 2022	January 28, 2022	0%	117 days	0 days	166 days
689	Utility ducting laying (by others)	10 days	10 days	NA	NA	September 28, 2020	October 10, 2020	November 2, 2021	November 12, 2021	0%	0 days	0 days	324 days
690	Pavement work	5 days	5 days	NA	NA	October 12, 2020	October 16, 2020	January 24, 2022	January 28, 2022	0%	333 days	0 days	382 days
691	Parapet installation	11 days	11 days	NA	NA	November 30, 2021	December 11, 2021	January 29, 2022	February 14, 2022	0%	21 days	0 days	49 days
692	**South Depressed Road CH2000-2060 - 3 bays**	**671 days**	**671 days**	**NA**	**NA**	**October 21, 2019**	**January 21, 2022**	**May 30, 2020**	**February 26, 2022**	**0%**	**28 days**		**28 days**
693	Ground Monitoring Works	14 days	14 days	NA	NA	October 21, 2019	November 3, 2019	May 30, 2020	June 12, 2020	0%	211 days	0 days	222 days
694	Mobilization of plant and materials	12 days	12 days	NA	NA	June 2, 2020	June 15, 2020	June 13, 2020	June 27, 2020	0%	0 days	0 days	10 days
695	Foundation Construction	90 days	90 days	NA	NA	June 16, 2020	September 30, 2020	December 18, 2020	April 12, 2021	0%	72 days	0.5 days	154 days
696	Mobilization of plant and material (sheet pile)	5 days	5 days	NA	NA	December 30, 2020	January 5, 2021	April 13, 2021	April 17, 2021	0%	0 days	0 days	82 days
697	Drive sheet pile (180m) Prod. Rate 10m/team/day	18 days	18 days	NA	NA	January 6, 2021	January 26, 2021	April 19, 2021	May 10, 2021	0%	0 days	0 days	82 days
698	Pumping Test	21 days	21 days	NA	NA	January 27, 2021	February 23, 2021	May 11, 2021	June 4, 2021	0%	0 days	0 days	82 days
699	Excavation - Prod. Rate: 240m3/d/team. 1 team (8,956m3)	38 days	38 days	NA	NA	February 24, 2021	April 12, 2021	June 5, 2021	July 21, 2021	0%	0 days	0.5 days	82 days
700	Blinding	1 day	1 day	NA	NA	April 13, 2021	April 13, 2021	July 22, 2021	July 22, 2021	0%	41 days	0 days	82 days
701	Base Slab - 3 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team	40 days	40 days	NA	NA	June 3, 2021	July 21, 2021	July 23, 2021	September 7, 2021	0%	0 days	0.5 days	41 days
702	Wall - 3 bays. Prod. Rate: 14d/bay/team. 1 team	42 days	42 days	NA	NA	June 21, 2021	August 9, 2021	November 24, 2021	January 14, 2022	0%	0 days	0.5 days	130 days
703	Backfill & extract sheet pile	12 days	12 days	NA	NA	August 10, 2021	August 23, 2021	January 28, 2022	February 14, 2022	0%	113 days	0 days	141 days
704	Emergency walkway & median barrier installation	18 days	18 days	NA	NA	August 10, 2021	August 30, 2021	January 15, 2022	February 8, 2022	0%	102 days	0 days	130 days
705	Utility ducting laying (by others)	10 days	10 days	NA	NA	September 28, 2020	October 10, 2020	November 2, 2021	November 12, 2021	0%	0 days	0 days	324 days
706	Pavement work	5 days	5 days	NA	NA	January 4, 2022	January 8, 2022	February 9, 2022	February 14, 2022	0%	0 days	0 days	28 days
707	Parapet installation	11 days	11 days	NA	NA	January 10, 2022	January 21, 2022	February 15, 2022	February 26, 2022	0%	27 days	0 days	28 days
708	**Part 2A - Road D3 CH2060-2118.93**	**208 days**	**208 days**	**NA**	**NA**	**June 19, 2021**	**February 28, 2022**	**November 22, 2021**	**March 1, 2022**	**0%**	**1 day**		**1 day**
709	Utility ducting laying (by others)	50 days	50 days	NA	NA	June 19, 2021	August 17, 2021	November 22, 2021	January 21, 2022	0%	0 days	0 days	129 days
710	Trim road formation	2 days	2 days	NA	NA	August 18, 2021	August 19, 2021	January 22, 2022	January 24, 2022	0%	0 days	0 days	129 days
711	Lay sub base	4 days	4 days	NA	NA	August 20, 2021	August 24, 2021	January 25, 2022	January 28, 2022	0%	0 days	0 days	129 days
712	Lay kerb	5 days	5 days	NA	NA	August 25, 2021	August 30, 2021	January 29, 2022	February 7, 2022	0%	0 days	0 days	129 days
713	Construct pedestrian street/ footpath	6 days	6 days	NA	NA	August 31, 2021	September 6, 2021	February 8, 2022	February 14, 2022	0%	0 days	0 days	129 days
714	Install central median	4 days	4 days	NA	NA	September 7, 2021	September 10, 2021	February 15, 2022	February 18, 2022	0%	0 days	0 days	129 days

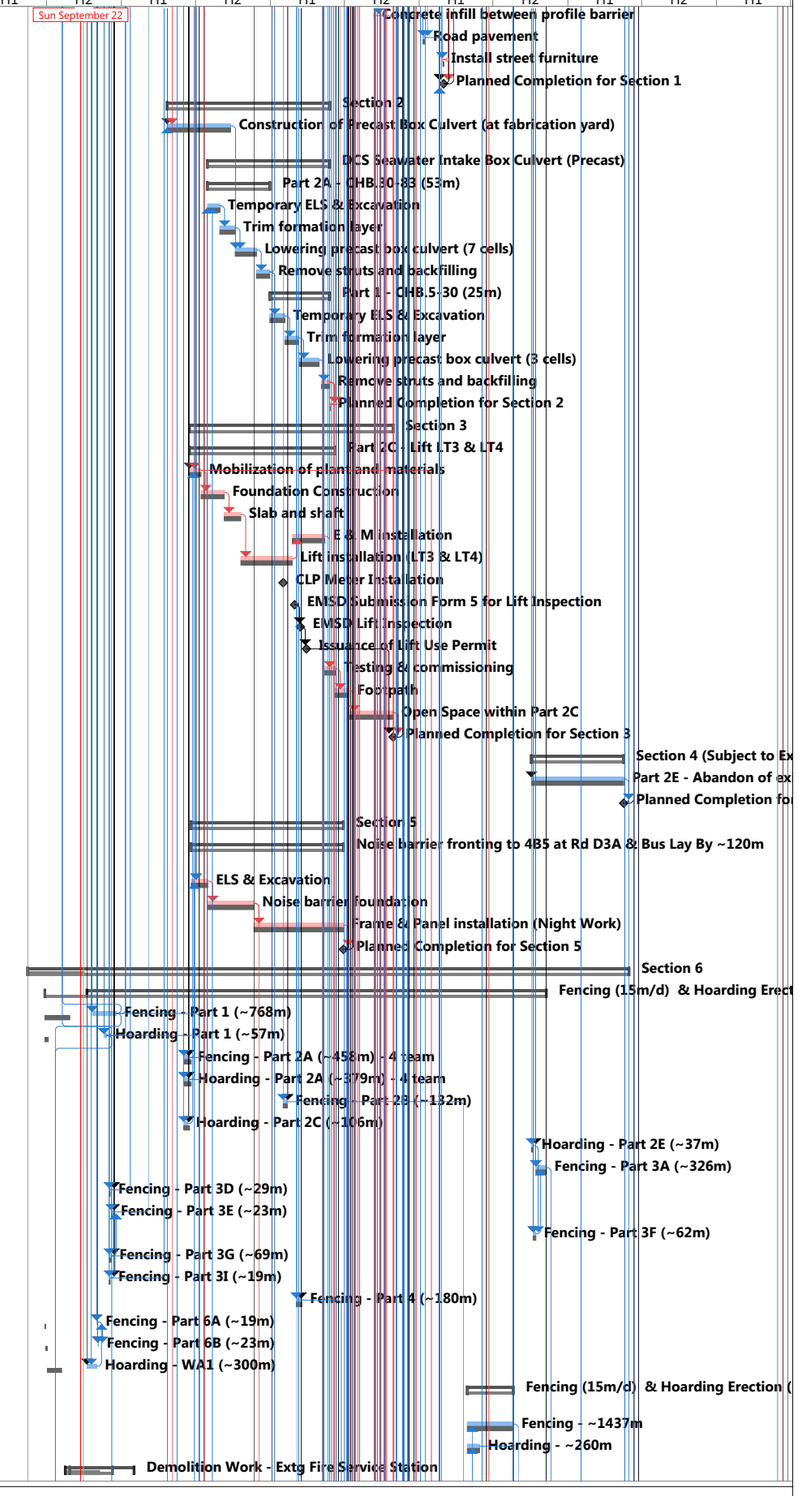


Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

22092019_Revised Programme with Progress Update as of 22-Sep-19

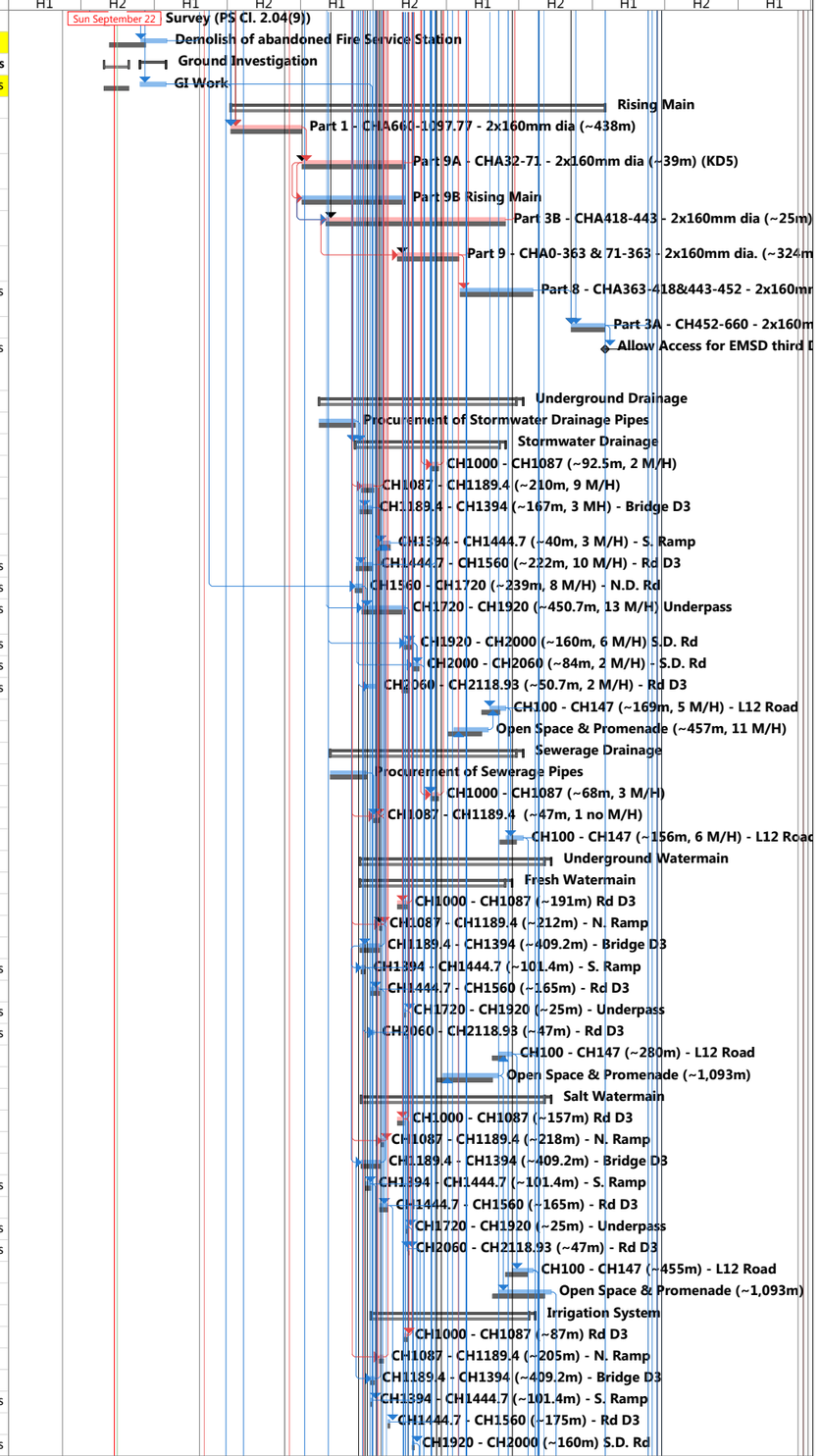
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
715	Concrete infill between profile barrier	2 days	2 days	NA	NA	September 11, 2021	September 13, 2021	February 19, 2022	February 21, 2022	0%	95 days	0 days	129 days
716	Road pavement	5 days	5 days	NA	NA	January 10, 2022	January 14, 2022	February 22, 2022	February 26, 2022	0%	33 days	0 days	34 days
717	Install street furniture	2 days	2 days	NA	NA	February 26, 2022	February 28, 2022	February 28, 2022	March 1, 2022	0%	1 day	0 days	1 day
718	Planned Completion for Section 1	0 days	0 days	NA	NA	March 1, 2022	March 1, 2022	March 1, 2022	March 1, 2022	0%	0 days	0 days	0 days
719	**Section 2**	**325 days**	**325 days**	**NA**	**NA**	**April 22, 2020**	**May 26, 2021**	**May 14, 2020**	**June 2, 2021**	**0%**	**6 days**		**6 days**
720	Construction of Precast Box Culvert (at fabrication yard)	130 days	130 days	NA	NA	April 22, 2020	September 24, 2020	May 14, 2020	October 16, 2020	0%	7 days	1 day	17 days
721	**DCS Seawater Intake Box Culvert (Precast)**	**243 days**	**243 days**	**NA**	**NA**	**July 30, 2020**	**May 25, 2021**	**August 11, 2020**	**June 1, 2021**	**0%**	**6 days**		**6 days**
722	**Part 2A - CHB.30-83 (53m)**	**126 days**	**126 days**	**NA**	**NA**	**July 30, 2020**	**December 29, 2020**	**August 11, 2020**	**January 11, 2021**	**0%**	**10 days**		**10 days**
723	Temporary ELS & Excavation	30 days	30 days	NA	NA	July 30, 2020	August 28, 2020	August 11, 2020	September 9, 2020	0%	0 days	1 days	12 days
724	Trim formation layer	30 days	30 days	NA	NA	August 29, 2020	October 5, 2020	September 10, 2020	October 16, 2020	0%	0 days	1 days	10 days
725	Lowering precast box culvert (7 cells)	44 days	44 days	NA	NA	October 6, 2020	November 26, 2020	October 17, 2020	December 8, 2020	0%	0 days	2 days	10 days
726	Remove struts and backfilling	26 days	26 days	NA	NA	November 27, 2020	December 29, 2020	December 9, 2020	January 11, 2021	0%	0 days	1 days	10 days
727	**Part 1 - CHB.5-30 (25m)**	**117 days**	**117 days**	**NA**	**NA**	**December 30, 2020**	**May 25, 2021**	**January 12, 2021**	**June 1, 2021**	**0%**	**6 days**		**6 days**
728	Temporary ELS & Excavation	31 days	31 days	NA	NA	December 30, 2020	February 4, 2021	January 12, 2021	February 19, 2021	0%	0 days	1 days	10 days
729	Trim formation layer	26 days	26 days	NA	NA	February 5, 2021	March 10, 2021	February 20, 2021	March 22, 2021	0%	0 days	1 days	10 days
730	Lowering precast box culvert (3 cells)	40 days	40 days	NA	NA	March 11, 2021	April 29, 2021	March 23, 2021	May 12, 2021	0%	4 days	2 days	10 days
731	Remove struts and backfilling	16 days	16 days	NA	NA	May 6, 2021	May 25, 2021	May 13, 2021	June 1, 2021	0%	0 days	1 days	6 days
732	Planned Completion for Section 2	1 day	1 day	NA	NA	May 26, 2021	May 26, 2021	June 2, 2021	June 2, 2021	0%	0 days	0 days	6 days
733	**Section 3**	**408 days**	**408 days**	**NA**	**NA**	**June 16, 2020**	**October 28, 2021**	**June 20, 2020**	**May 29, 2024**	**0%**	**4 days**		**4 days**
734	**Part 2C - Lift LT3 & LT4**	**291 days**	**291 days**	**NA**	**NA**	**June 16, 2020**	**June 8, 2021**	**June 20, 2020**	**May 29, 2024**	**0%**	**4 days**		**4 days**
735	Mobilization of plant and materials	22 days	22 days	NA	NA	June 16, 2020	July 13, 2020	June 20, 2020	July 17, 2020	0%	0 days	1 days	4 days
736	Foundation Construction	49 days	49 days	NA	NA	July 14, 2020	September 8, 2020	July 18, 2020	September 12, 2020	0%	0 days	2 days	4 days
737	Slab and shaft	33 days	33 days	NA	NA	September 9, 2020	October 19, 2020	September 14, 2020	October 23, 2020	0%	0 days	1 days	4 days
738	E & M installation	65 days	65 days	NA	NA	February 23, 2021	May 13, 2021	February 27, 2021	May 18, 2021	0%	0 days	3 days	4 days
739	Lift installation (LT3 & LT4)	101 days	101 days	NA	NA	October 20, 2020	February 22, 2021	October 24, 2020	February 26, 2021	0%	0 days	5 days	4 days
740	CLP Meter Installation	0 days	0 days	NA	NA	February 1, 2021	February 1, 2021	May 29, 2024	May 29, 2024	0%	1214 d...		1214 d...
741	EMSD Submission Form 5 for Lift Inspection	0 days	0 days	NA	NA	March 1, 2021	March 1, 2021	October 5, 2021	October 5, 2021	0%	0 days		218 days
742	EMSD Lift Inspection	0 days	0 days	NA	NA	March 14, 2021	March 14, 2021	October 19, 2021	October 19, 2021	0%	0 days		218 days
743	Issuance of Lift Use Permit	0 days	0 days	NA	NA	March 29, 2021	March 29, 2021	November 2, 2021	November 2, 2021	0%	213 days		218 days
744	Testing & commissioning	21 days	21 days	NA	NA	May 14, 2021	June 8, 2021	May 20, 2021	June 12, 2021	0%	0 days	1 days	4 days
745	Footpath	27 days	27 days	NA	NA	June 9, 2021	July 12, 2021	June 15, 2021	July 16, 2021	0%	0 days	1 days	4 days
746	Open Space within Part 2C	90 days	90 days	NA	NA	July 13, 2021	October 28, 2021	July 17, 2021	November 2, 2021	0%	0 days	4 days	4 days
747	Planned Completion for Section 3	0 days	0 days	NA	NA	October 28, 2021	October 28, 2021	November 2, 2021	November 2, 2021	0%	0 days	0 days	4 days
748	**Section 4 (Subject to Excision)**	**185 days**	**185 days**	**NA**	**NA**	**October 3, 2022**	**May 17, 2023**	**October 15, 2022**	**May 30, 2023**	**0%**	**10 days**		**10 days**
749	Part 2E - Abandon of existing DCS	185 days	185 days	NA	NA	October 3, 2022	May 17, 2023	October 15, 2022	May 30, 2023	0%	0 days	9 days	10 days
750	Planned Completion for Section 4	0 days	0 days	NA	NA	May 17, 2023	May 17, 2023	May 30, 2023	May 30, 2023	0%	0 days		10 days
751	**Section 5**	**303 days**	**303 days**	**NA**	**NA**	**June 20, 2020**	**June 28, 2021**	**June 27, 2020**	**July 5, 2021**	**0%**	**5 days**		**5 days**
752	**Noise barrier fronting to 4B5 at Rd D3A & Bus Lay By ~120m**	**303 days**	**303 days**	**NA**	**NA**	**June 20, 2020**	**June 28, 2021**	**June 27, 2020**	**July 5, 2021**	**0%**	**5 days**		**5 days**
753	ELS & Excavation	33 days	33 days	NA	NA	June 20, 2020	July 30, 2020	June 27, 2020	August 5, 2020	0%	0 days	2 days	5 days
754	Noise barrier foundation	94 days	94 days	NA	NA	July 31, 2020	November 20, 2020	August 6, 2020	November 26, 2020	0%	0 days	4 days	5 days
755	Frame & Panel installation (Night Work)	176 days	176 days	NA	NA	November 21, 2020	June 28, 2021	November 27, 2020	July 5, 2021	0%	0 days	8 days	5 days
756	Planned Completion for Section 5	0 days	0 days	NA	NA	June 28, 2021	June 28, 2021	July 5, 2021	July 5, 2021	0%	0 days	0 days	5 days
757	**Section 6**	**1202 days**	**1198.4 days**	**May 16, 2019**	**NA**	**May 16, 2019**	**May 30, 2023**	**May 16, 2019**	**May 29, 2024**	**0%**	**297 days**		**297 days**
758	**Fencing (15m/d) & Hoarding Erection (10m/d)**	**919 days**	**919 days**	**NA**	**NA**	**October 8, 2019**	**November 8, 2022**	**November 9, 2019**	**May 29, 2024**	**0%**	**28 days**		**28 days**
759	Fencing - Part 1 (~768m)	51 days	51 days	NA	NA	October 21, 2019	December 18, 2019	November 9, 2019	January 10, 2020	0%	17 days	1 day	17 days
760	Hoarding - Part 1 (~57m)	6 days	6 days	NA	NA	November 19, 2019	November 25, 2019	January 4, 2020	January 10, 2020	0%	0 days	0 days	37 days
761	Fencing - Part 2A (~458m) - 4 team	12 days	12 days	NA	NA	June 2, 2020	June 15, 2020	June 12, 2020	June 26, 2020	0%	4 days	1 days	9 days
762	Hoarding - Part 2A (~379m) - 4 team	12 days	12 days	NA	NA	June 2, 2020	June 15, 2020	June 12, 2020	June 26, 2020	0%	4 days	1 days	9 days
763	Fencing - Part 2B (~132m)	9 days	9 days	NA	NA	February 1, 2021	February 10, 2021	June 15, 2022	June 24, 2022	0%	347 days	0 days	404 days
764	Hoarding - Part 2C (~106m)	9 days	9 days	NA	NA	June 2, 2020	June 11, 2020	June 10, 2020	June 19, 2020	0%	3 days	1 days	7 days
765	Hoarding - Part 2E (~37m)	4 days	4 days	NA	NA	October 3, 2022	October 7, 2022	January 27, 2023	January 31, 2023	0%	0 days	0 days	95 days
766	Fencing - Part 3A (~326m)	22 days	22 days	NA	NA	October 14, 2022	November 8, 2022	February 7, 2023	March 3, 2023	0%	0 days	0.5 days	95 days
767	Fencing - Part 3D (~29m)	2 days	2 days	NA	NA	December 2, 2019	December 3, 2019	January 21, 2020	January 22, 2020	0%	40 days	0 days	40 days
768	Fencing - Part 3E (~23m)	2 days	2 days	NA	NA	December 7, 2019	December 9, 2019	March 17, 2020	March 18, 2020	0%	70 days	0 days	80 days
769	Fencing - Part 3F (~62m)	5 days	5 days	NA	NA	October 8, 2022	October 13, 2022	February 1, 2023	February 6, 2023	0%	0 days	0 days	95 days
770	Fencing - Part 3G (~69m)	5 days	5 days	NA	NA	December 2, 2019	December 6, 2019	March 11, 2020	March 16, 2020	0%	0 days	0 days	80 days
771	Fencing - Part 3I (~19m)	2 days	2 days	NA	NA	December 2, 2019	December 3, 2019	March 14, 2020	March 16, 2020	0%	3 days	0 days	83 days
772	Fencing - Part 4 (~180m)	12 days	12 days	NA	NA	March 5, 2021	March 18, 2021	June 9, 2021	June 23, 2021	0%	77 days	0 days	77 days
773	Fencing - Part 6A (~19m)	2 days	2 days	NA	NA	November 1, 2019	November 2, 2019	May 25, 2024	May 27, 2024	0%	0 days	0 days	1355 d...
774	Fencing - Part 6B (~23m)	2 days	2 days	NA	NA	November 4, 2019	November 5, 2019	May 28, 2024	May 29, 2024	0%	1355 d...	0 days	1355 d...
775	Hoarding - WA1 (~300m)	21 days	21 days	NA	NA	October 8, 2019	October 31, 2019	April 29, 2024	May 24, 2024	0%	0 days	0.5 days	1355 d...
776	**Fencing (15m/d) & Hoarding Erection (10m/d) - Upon Works Completion**	**95 days**	**95 days**	**NA**	**NA**	**April 29, 2022**	**August 19, 2022**	**July 25, 2022**	**November 15, 2022**	**0%**	**72 days**		**72 days**
777	Fencing - ~1437m	95 days	95 days	NA	NA	April 29, 2022	August 19, 2022	July 25, 2022	November 15, 2022	0%	0 days	1 day	72 days
778	Hoarding - ~260m	26 days	26 days	NA	NA	April 29, 2022	May 28, 2022	October 17, 2022	November 15, 2022	0%	69 days	0.5 days	141 days
779	**Demolition Work - Extg Fire Service Station**	**136 days**	**117.24 days**	**August 16, 2019**	**NA**	**August 16, 2019**	**January 31, 2020**	**August 16, 2019**	**May 13, 2020**	**0%**	**82 days**		**82 days**



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

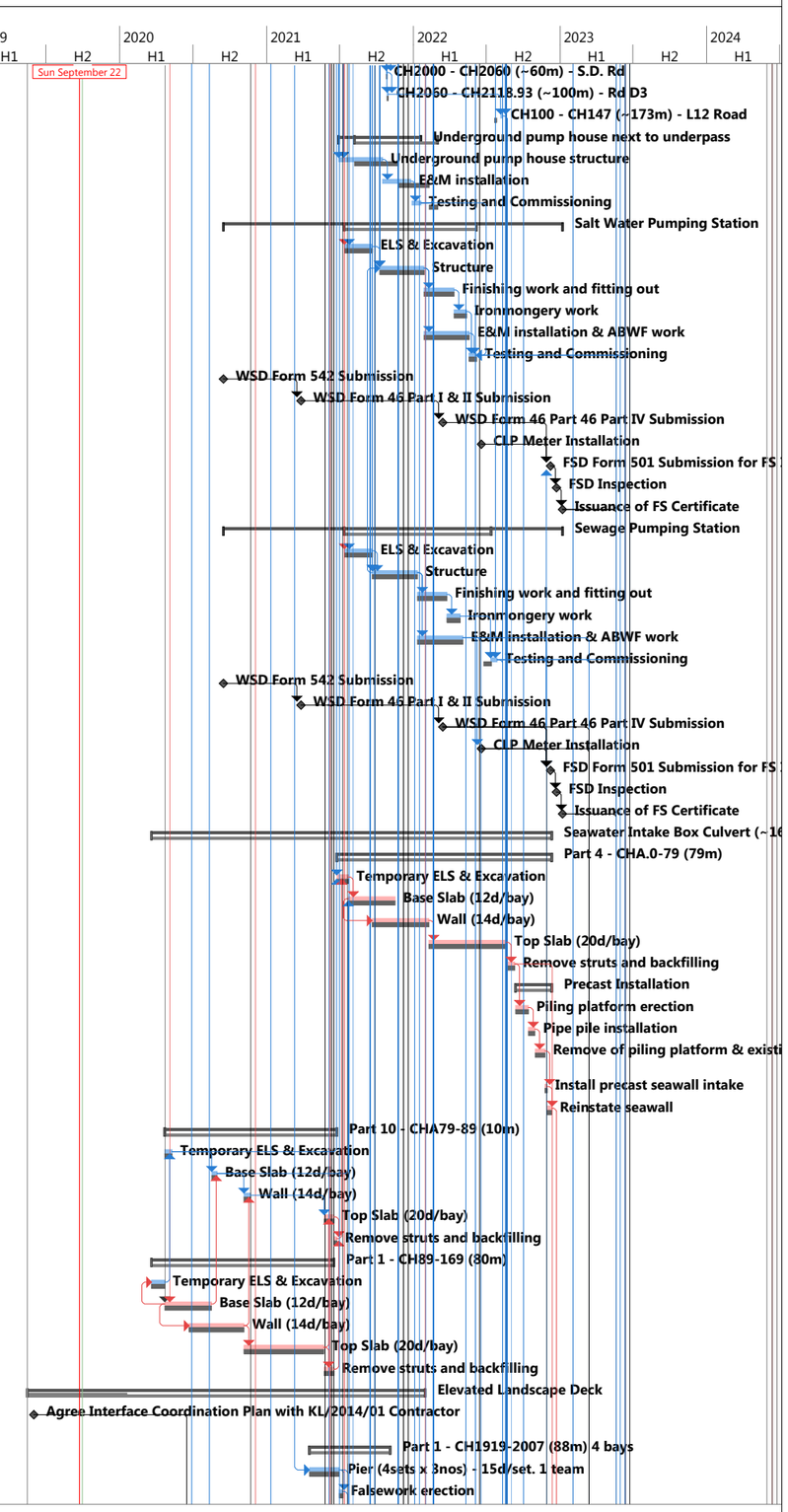
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
780	Asbesto Survey (PS Cl. 2.04(9))	8 days	0 days	August 16, 2019	August 23, 2019	August 16, 2019	August 23, 2019	August 16, 2019	August 23, 2019	100%	0 days	0 days	0 days
781	Demolish of abandoned Fire Service Station	50 days	50 days	NA	NA	November 28, 2019	January 31, 2020	March 10, 2020	May 13, 2020	0%	65 days	1 day	82 days
782	**Ground Investigation**	**50 days**	**50 days**	**NA**	**NA**	**November 26, 2019**	**January 29, 2020**	**May 11, 2020**	**July 9, 2020**	**0%**	**131 days**		**131 days**
783	GI Work	50 days	50 days	NA	NA	November 26, 2019	January 29, 2020	May 11, 2020	July 9, 2020	0%	131 days	0.5 days	131 days
784	**Rising Main**	**765 days**	**765 days**	**NA**	**NA**	**July 10, 2020**	**February 1, 2023**	**July 10, 2020**	**May 30, 2023**	**0%**	**0 days**		**0 days**
785	Part 1 - CHA660-1097.77 - 2x160mm dia (~438m)	146 days	146 days	NA	NA	July 10, 2020	January 2, 2021	July 10, 2020	January 2, 2021	0%	0 days	7 days	0 days
786	Part 9A - CHA32-71 - 2x160mm dia (~39m) (KD5)	211 days	211 days	NA	NA	January 4, 2021	September 17, 2021	January 4, 2021	September 17, 2021	0%	0 days	30 days	0 days
787	Part 9B Rising Main	211 days	211 days	NA	NA	January 4, 2021	September 17, 2021	March 11, 2021	November 23, 2021	0%	49 days	30 days	54 days
788	Part 3B - CHA418-443 - 2x160mm dia (~25m) (KD7)	365 days	365 days	NA	NA	March 5, 2021	May 27, 2022	March 11, 2021	June 2, 2022	0%	0 days	50 days	5 days
789	Part 9 - CHA0-363 & 71-363 - 2x160mm dia. (~324m) (KD4)	126 days	126 days	NA	NA	August 31, 2021	January 31, 2022	August 31, 2021	January 31, 2022	0%	0 days	15 day	0 days
790	Part 8 - CHA363-418&443-452 - 2x160mm dia (~64m)	150 days	150 days	NA	NA	February 4, 2022	August 4, 2022	September 2, 2022	March 3, 2023	0%	79 days	0 days	174 days
791	Part 3A - CH452-660 - 2x160mm dia (~208m)	69 days	69 days	NA	NA	November 9, 2022	February 1, 2023	March 4, 2023	May 30, 2023	0%	0 days	1 day	95 days
792	Allow Access for EMSD third District Cooling System Contractor for DCS Pipeline Laying at Parts 3A, 3B, 8, 9 and 9A	0 days	0 days	NA	NA	February 1, 2023	February 1, 2023	May 30, 2023	May 30, 2023	0%	118 days		118 days
793	**Underground Drainage**	**416 days**	**416 days**	**NA**	**NA**	**February 16, 2021**	**July 11, 2022**	**March 5, 2021**	**September 24, 20...**	**0%**	**15 days**		**15 days**
794	Procurement of Stormwater Drainage Pipes	90 days	90 days	NA	NA	February 16, 2021	May 16, 2021	March 5, 2021	June 2, 2021	0%	0 days		17 days
795	**Stormwater Drainage**	**308 days**	**308 days**	**NA**	**NA**	**May 17, 2021**	**May 28, 2022**	**June 3, 2021**	**September 24, 20...**	**0%**	**14 days**		**14 days**
796	CH1000 - CH1087 (~92.5m, 2 M/H)	16 days	16 days	NA	NA	November 24, 2021	December 11, 2021	November 24, 2021	December 11, 2021	0%	0 days	1 days	0 days
797	CH1087 - CH1189.4 (~210m, 9 M/H)	24 days	24 days	NA	NA	June 3, 2021	July 2, 2021	June 3, 2021	July 2, 2021	0%	0 days	1 days	0 days
798	CH1189.4 - CH1394 (~167m, 3 MH) - Bridge D3	24 days	24 days	NA	NA	May 29, 2021	June 26, 2021	September 11, 2021	October 11, 2021	0%	18 days	0.5 days	88 days
799	CH1394 - CH1444.7 (~40m, 3 M/H) - S. Ramp	21 days	21 days	NA	NA	July 20, 2021	August 12, 2021	October 12, 2021	November 5, 2021	0%	70 days	0 days	70 days
800	CH1444.7 - CH1560 (~222m, 10 M/H) - Rd D3	35 days	35 days	NA	NA	May 20, 2021	June 30, 2021	October 25, 2021	December 3, 2021	0%	130 days	0.5 days	130 days
801	CH1560 - CH1720 (~239m, 8 M/H) - N.D. Rd	14 days	14 days	NA	NA	May 17, 2021	June 2, 2021	April 19, 2022	May 4, 2022	0%	0 days	0 days	273 days
802	CH1720 - CH1920 (~450.7m, 13 M/H) Underpass	90 days	90 days	NA	NA	June 3, 2021	September 17, 2021	May 5, 2022	August 19, 2022	0%	0 days	1 day	273 days
803	CH1920 - CH2000 (~160m, 6 M/H) S.D. Rd	14 days	14 days	NA	NA	September 18, 2021	October 6, 2021	August 20, 2022	September 5, 2022	0%	0 days	0 days	273 days
804	CH2000 - CH2060 (~84m, 2 M/H) - S.D. Rd	14 days	14 days	NA	NA	October 7, 2021	October 23, 2021	September 6, 2022	September 22, 2022	0%	0 days	0 days	273 days
805	CH2060 - CH2118.93 (~50.7m, 2 M/H) - Rd D3	14 days	14 days	NA	NA	June 19, 2021	July 6, 2021	September 8, 2022	September 24, 2022	0%	0 days	0 days	366 days
806	CH100 - CH147 (~169m, 5 M/H) - L12 Road	35 days	35 days	NA	NA	April 19, 2022	May 28, 2022	June 25, 2022	August 5, 2022	0%	0 days	0.5 days	57 days
807	Open Space & Promenade (~457m, 11 M/H)	70 days	70 days	NA	NA	January 19, 2022	April 14, 2022	March 30, 2022	June 24, 2022	0%	0 days	1 day	57 days
808	**Sewerage Drainage**	**392 days**	**392 days**	**NA**	**NA**	**March 16, 2021**	**July 11, 2022**	**April 4, 2021**	**September 16, 20...**	**0%**	**15 days**		**15 days**
809	Procurement of Sewerage Pipes	90 days	90 days	NA	NA	March 16, 2021	June 13, 2021	April 4, 2021	July 2, 2021	0%	19 days		19 days
810	CH1000 - CH1087 (~68m, 3 M/H)	18 days	18 days	NA	NA	November 22, 2021	December 11, 2021	November 22, 2021	December 11, 2021	0%	0 days	1 days	0 days
811	CH1087 - CH1189.4 (~47m, 1 no M/H)	12 days	12 days	NA	NA	July 3, 2021	July 16, 2021	July 3, 2021	July 16, 2021	0%	0 days	1 days	0 days
812	CH100 - CH147 (~156m, 6 M/H) - L12 Road	35 days	35 days	NA	NA	May 30, 2022	July 11, 2022	August 6, 2022	September 16, 2022	0%	0 days	0.5 days	57 days
813	**Underground Watermain**	**392 days**	**392 days**	**NA**	**NA**	**May 29, 2021**	**September 19, 20...**	**July 16, 2021**	**October 14, 2022**	**0%**	**20 days**		**20 days**
814	**Fresh Watermain**	**310 days**	**310 days**	**NA**	**NA**	**May 29, 2021**	**June 13, 2022**	**July 17, 2021**	**September 22, 20...**	**0%**	**40 days**		**40 days**
815	CH1000 - CH1087 (~191m) Rd D3	20 days	20 days	NA	NA	August 31, 2021	September 23, 2021	August 31, 2021	September 23, 2021	0%	0 days	1 days	0 days
816	CH1087 - CH1189.4 (~212m) - N. Ramp	4 days	4 days	NA	NA	July 17, 2021	July 21, 2021	July 17, 2021	July 21, 2021	0%	0 days	0 days	0 days
817	CH1189.4 - CH1394 (~409.2m) - Bridge D3	40 days	40 days	NA	NA	May 29, 2021	July 16, 2021	August 21, 2021	October 8, 2021	0%	0 days	0.5 days	70 days
818	CH1394 - CH1444.7 (~101.4m) - S. Ramp	10 days	10 days	NA	NA	June 1, 2021	June 11, 2021	October 9, 2021	October 21, 2021	0%	0 days	0 days	108 days
819	CH1444.7 - CH1560 (~165m) - Rd D3	18 days	18 days	NA	NA	June 25, 2021	July 16, 2021	October 19, 2021	November 8, 2021	0%	0 days	0 days	95 days
820	CH1720 - CH1920 (~25m) - Underpass	2 days	2 days	NA	NA	September 18, 2021	September 20, 2021	September 19, 2022	September 20, 2022	0%	0 days	0 days	297 days
821	CH2060 - CH2118.93 (~47m) - Rd D3	2 days	2 days	NA	NA	July 2, 2021	July 3, 2021	September 21, 2022	September 22, 2022	0%	69 days	0 days	366 days
822	CH100 - CH147 (~280m) - L12 Road	28 days	28 days	NA	NA	May 11, 2022	June 13, 2022	July 5, 2022	August 5, 2022	0%	0 days	0.5 days	45 days
823	Open Space & Promenade (~1,093m)	110 days	110 days	NA	NA	December 22, 2021	May 10, 2022	January 18, 2022	June 2, 2022	0%	0 days	1 day	20 days
824	**Salt Watermain**	**390 days**	**390 days**	**NA**	**NA**	**June 1, 2021**	**September 19, 20...**	**July 22, 2021**	**October 14, 2022**	**0%**	**20 days**		**20 days**
825	CH1000 - CH1087 (~157m) Rd D3	15 days	15 days	NA	NA	August 31, 2021	September 16, 2021	August 31, 2021	September 16, 2021	0%	0 days	1 days	0 days
826	CH1087 - CH1189.4 (~218m) - N. Ramp	4 days	4 days	NA	NA	July 22, 2021	July 26, 2021	July 22, 2021	July 26, 2021	0%	0 days	0 days	0 days
827	CH1189.4 - CH1394 (~409.2m) - Bridge D3	40 days	40 days	NA	NA	June 1, 2021	July 19, 2021	August 24, 2021	October 11, 2021	0%	0 days	0.5 days	70 days
828	CH1394 - CH1444.7 (~101.4m) - S. Ramp	10 days	10 days	NA	NA	June 12, 2021	June 24, 2021	October 22, 2021	November 2, 2021	0%	0 days	0 days	108 days
829	CH1444.7 - CH1560 (~165m) - Rd D3	18 days	18 days	NA	NA	July 17, 2021	August 6, 2021	November 9, 2021	November 29, 2021	0%	0 days	0 days	95 days
830	CH1720 - CH1920 (~25m) - Underpass	2 days	2 days	NA	NA	September 21, 2021	September 23, 2021	September 21, 2022	September 22, 2022	0%	0 days	0 days	297 days
831	CH2060 - CH2118.93 (~47m) - Rd D3	2 days	2 days	NA	NA	September 24, 2021	September 25, 2021	September 23, 2022	September 24, 2022	0%	24 days	0 days	297 days
832	CH100 - CH147 (~455m) - L12 Road	45 days	45 days	NA	NA	June 14, 2022	August 5, 2022	August 6, 2022	September 28, 2022	0%	0 days	0.5 days	45 days
833	Open Space & Promenade (~1,093m)	110 days	110 days	NA	NA	May 11, 2022	September 19, 2022	June 4, 2022	October 14, 2022	0%	0 days	1 day	20 days
834	**Irrigation System**	**337 days**	**337 days**	**NA**	**NA**	**June 25, 2021**	**August 10, 2022**	**July 16, 2021**	**October 5, 2022**	**0%**	**17 days**		**17 days**
835	CH1000 - CH1087 (~87m) Rd D3	5 days	5 days	NA	NA	September 17, 2021	September 23, 2021	September 17, 2021	September 23, 2021	0%	0 days	0 days	0 days
836	CH1087 - CH1189.4 (~205m) - N. Ramp	9 days	9 days	NA	NA	July 16, 2021	July 26, 2021	July 16, 2021	July 26, 2021	0%	0 days	0 days	0 days
837	CH1189.4 - CH1394 (~409.2m) - Bridge D3	7 days	7 days	NA	NA	June 25, 2021	July 3, 2021	October 4, 2021	October 11, 2021	0%	13 days	0 days	83 days
838	CH1394 - CH1444.7 (~101.4m) - S. Ramp	3 days	3 days	NA	NA	June 25, 2021	June 28, 2021	November 3, 2021	November 5, 2021	0%	108 days	0 days	108 days
839	CH1444.7 - CH1560 (~175m) - Rd D3	4 days	4 days	NA	NA	August 7, 2021	August 11, 2021	November 30, 2021	December 3, 2021	0%	95 days	0 days	95 days
840	CH1920 - CH2000 (~160m) S.D. Rd	4 days	4 days	NA	NA	October 7, 2021	October 11, 2021	September 19, 2022	September 22, 2022	0%	10 days	0 days	283 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical
Critical Split
Critical Progress
Task
Split
Task Progress
Manual Task
Start-only
Finish-only
Duration-only
Baseline
Baseline Split
Baseline Milestone
Milestone
Summary Progress
Summary
Manual Summary
Project Summary
External Tasks
External Milestone
Inactive Task
Inactive Milestone
Inactive Summary
Deadline
Baseline Summary

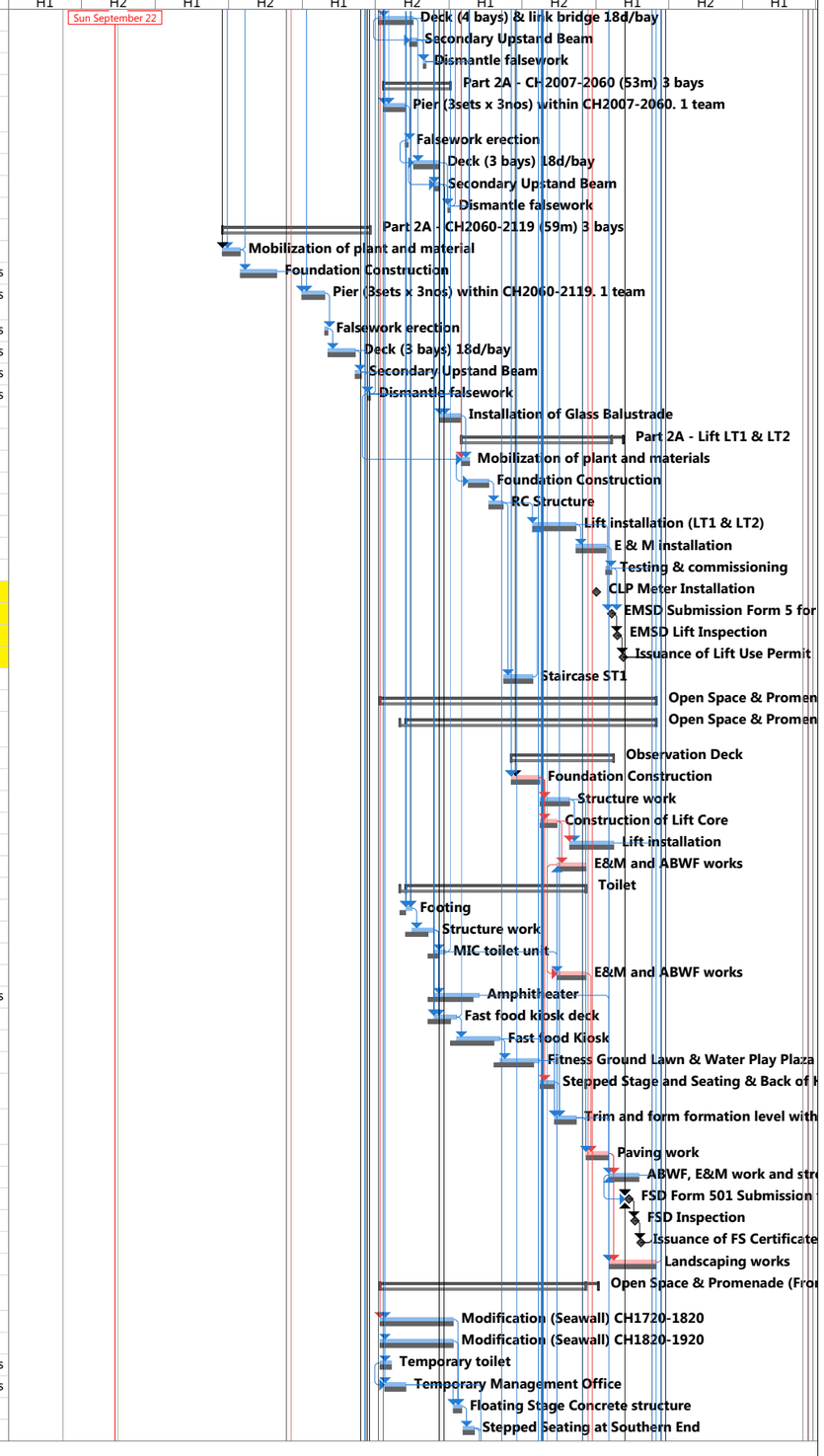
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
841	CH2000 - CH2060 (~60m) - S.D. Rd	2 days	2 days	NA	NA	October 25, 2021	October 26, 2021	September 23, 2022	September 24, 2022	0%	0 days	0 days	273 days
842	CH2060 - CH2118.93 (~100m) - Rd D3	3 days	3 days	NA	NA	October 27, 2021	October 29, 2021	September 26, 2022	September 28, 2022	0%	228 days	0 days	273 days
843	CH100 - CH147 (~173m) - L12 Road	4 days	4 days	NA	NA	August 6, 2022	August 10, 2022	September 29, 2022	October 5, 2022	0%	0 days	0 days	45 days
844	**Underground pump house next to underpass**	**168 days**	**168 days**	**NA**	**NA**	**June 29, 2021**	**January 18, 2022**	**August 7, 2021**	**March 1, 2022**	**0%**	**33 days**		**33 days**
845	Underground pump house structure	90 days	90 days	NA	NA	June 29, 2021	October 15, 2021	August 7, 2021	November 23, 2021	0%	0 days	4 days	33 days
846	E&M installation	60 days	60 days	NA	NA	October 16, 2021	December 24, 2021	November 24, 2021	February 8, 2022	0%	0 days	3 days	33 days
847	Testing and Commissioning	18 days	18 days	NA	NA	December 28, 2021	January 18, 2022	February 9, 2022	March 1, 2022	0%	33 days	1 days	33 days
848	**Salt Water Pumping Station**	**689 days**	**689 days**	**NA**	**NA**	**September 15, 20...**	**January 6, 2023**	**July 23, 2022**	**May 30, 2023**	**0%**	**114 days**		**114 days**
849	ELS & Excavation	60 days	60 days	NA	NA	July 13, 2021	September 20, 2021	July 23, 2022	October 3, 2022	0%	14 days	1 day	307 days
850	Structure	90 days	90 days	NA	NA	October 9, 2021	January 26, 2022	October 5, 2022	January 18, 2023	0%	0 days	1 day	293 days
851	Finishing work and fitting out	60 days	60 days	NA	NA	January 27, 2022	April 11, 2022	January 30, 2023	April 13, 2023	0%	0 days	1 day	299 days
852	Ironmongery work	24 days	24 days	NA	NA	April 12, 2022	May 12, 2022	April 14, 2023	May 12, 2023	0%	6 days	0.5 days	299 days
853	E&M installation & ABWF work	90 days	90 days	NA	NA	January 27, 2022	May 19, 2022	January 19, 2023	May 12, 2023	0%	0 days	1 day	293 days
854	Testing and Commissioning	14 days	14 days	NA	NA	May 20, 2022	June 6, 2022	May 13, 2023	May 30, 2023	0%	293 days	0 days	293 days
855	WSD Form 542 Submission	0 days	0 days	NA	NA	September 15, 2020	September 15, 2020	May 1, 2023	May 1, 2023	0%	193 days		958 days
856	WSD Form 46 Part I & II Submission	0 days	0 days	NA	NA	March 27, 2021	March 27, 2021	May 1, 2023	May 1, 2023	0%	353 days		765 days
857	WSD Form 46 Part 46 Part IV Submission	0 days	0 days	NA	NA	March 15, 2022	March 15, 2022	May 1, 2023	May 1, 2023	0%	268 days		412 days
858	CLP Meter Installation	0 days	0 days	NA	NA	June 19, 2022	June 19, 2022	May 1, 2023	May 1, 2023	0%	172 days		316 days
859	FSD Form 501 Submission for FS Inspection	0 days	0 days	NA	NA	December 8, 2022	December 8, 2022	May 1, 2023	May 1, 2023	0%	0 days		144 days
860	FSD Inspection	0 days	0 days	NA	NA	December 22, 2022	December 22, 2022	May 16, 2023	May 16, 2023	0%	0 days		144 days
861	Issuance of FS Certificate	0 days	0 days	NA	NA	January 6, 2023	January 6, 2023	May 30, 2023	May 30, 2023	0%	144 days		144 days
862	**Sewage Pumping Station**	**689 days**	**689 days**	**NA**	**NA**	**September 15, 20...**	**January 6, 2023**	**November 26, 2021**	**May 30, 2023**	**0%**	**114 days**		**114 days**
863	ELS & Excavation	60 days	60 days	NA	NA	July 13, 2021	September 20, 2021	November 26, 2021	February 10, 2022	0%	0 days	1 day	114 days
864	Structure	90 days	90 days	NA	NA	September 21, 2021	January 10, 2022	February 11, 2022	May 31, 2022	0%	0 days	1 day	114 days
865	Finishing work and fitting out	60 days	60 days	NA	NA	January 11, 2022	March 24, 2022	June 9, 2022	August 18, 2022	0%	0 days	1 day	120 days
866	Ironmongery work	24 days	24 days	NA	NA	March 25, 2022	April 26, 2022	August 19, 2022	September 16, 2022	0%	63 days	0.5 days	120 days
867	E&M installation & ABWF work	90 days	90 days	NA	NA	January 11, 2022	May 3, 2022	June 1, 2022	September 16, 2022	0%	39 days	1 day	114 days
868	Testing and Commissioning	14 days	14 days	NA	NA	July 12, 2022	July 27, 2022	September 17, 2022	October 5, 2022	0%	12 days	0 days	57 days
869	WSD Form 542 Submission	0 days	0 days	NA	NA	September 15, 2020	September 15, 2020	May 1, 2023	May 1, 2023	0%	193 days		958 days
870	WSD Form 46 Part I & II Submission	0 days	0 days	NA	NA	March 27, 2021	March 27, 2021	May 1, 2023	May 1, 2023	0%	353 days		765 days
871	WSD Form 46 Part 46 Part IV Submission	0 days	0 days	NA	NA	March 15, 2022	March 15, 2022	May 1, 2023	May 1, 2023	0%	268 days		412 days
872	CLP Meter Installation	0 days	0 days	NA	NA	June 19, 2022	June 19, 2022	May 1, 2023	May 1, 2023	0%	172 days		316 days
873	FSD Form 501 Submission for FS Inspection	0 days	0 days	NA	NA	December 8, 2022	December 8, 2022	May 1, 2023	May 1, 2023	0%	0 days		144 days
874	FSD Inspection	0 days	0 days	NA	NA	December 22, 2022	December 22, 2022	May 16, 2023	May 16, 2023	0%	0 days		144 days
875	Issuance of FS Certificate	0 days	0 days	NA	NA	January 6, 2023	January 6, 2023	May 30, 2023	May 30, 2023	0%	144 days		144 days
876	**Seawater Intake Box Culvert (~169m)**	**812 days**	**812 days**	**NA**	**NA**	**March 20, 2020**	**December 10, 2022**	**April 22, 2020**	**December 10, 2022**	**0%**	**0 days**		**0 days**
877	**Part 4 - CHA.0-79 (79m)**	**440 days**	**440 days**	**NA**	**NA**	**June 24, 2021**	**December 10, 2022**	**June 24, 2021**	**December 10, 2022**	**0%**	**0 days**		**0 days**
878	Temporary ELS & Excavation	24 days	24 days	NA	NA	June 24, 2021	July 22, 2021	June 24, 2021	July 22, 2021	0%	0 days	1 days	0 days
879	Base Slab (12d/bay)	96 days	96 days	NA	NA	July 23, 2021	November 15, 2021	July 23, 2021	November 15, 2021	0%	0 days	5 days	0 days
880	Wall (14d/bay)	112 days	112 days	NA	NA	September 20, 2021	February 7, 2022	September 20, 2021	February 7, 2022	0%	0 days	5 days	0 days
881	Top Slab (20d/bay)	160 days	160 days	NA	NA	February 8, 2022	August 19, 2022	February 8, 2022	August 19, 2022	0%	0 days	8 days	0 days
882	Remove struts and backfilling	18 days	18 days	NA	NA	August 20, 2022	September 9, 2022	August 20, 2022	September 9, 2022	0%	0 days	1 days	0 days
883	**Precast Installation**	**76 days**	**76 days**	**NA**	**NA**	**September 12, 20...**	**December 10, 2022**	**September 12, 2022**	**December 10, 2022**	**0%**	**0 days**		**0 days**
884	Piling platform erection	26 days	26 days	NA	NA	September 12, 2022	October 13, 2022	September 12, 2022	October 13, 2022	0%	0 days	1 days	0 days
885	Pipe pile installation	14 days	14 days	NA	NA	October 14, 2022	October 29, 2022	October 14, 2022	October 29, 2022	0%	0 days	1 days	0 days
886	Remove of piling platform & existing seawall	21 days	21 days	NA	NA	October 31, 2022	November 23, 2022	October 31, 2022	November 23, 2022	0%	0 days	1 days	0 days
887	Install precast seawall intake	5 days	5 days	NA	NA	November 24, 2022	November 29, 2022	November 24, 2022	November 29, 2022	0%	0 days	0 days	0 days
888	Reinstate seawall	10 days	10 days	NA	NA	November 30, 2022	December 10, 2022	November 30, 2022	December 10, 2022	0%	0 days	0 days	0 days
889	**Part 10 - CHA79-89 (10m)**	**348 days**	**348 days**	**NA**	**NA**	**April 22, 2020**	**June 23, 2021**	**April 1, 2021**	**June 23, 2021**	**0%**	**0 days**		**0 days**
890	Temporary ELS & Excavation	14 days	14 days	NA	NA	April 22, 2020	May 9, 2020	April 1, 2021	April 20, 2021	0%	82 days	0 days	282 days
891	Base Slab (12d/bay)	12 days	12 days	NA	NA	August 17, 2020	August 29, 2020	April 21, 2021	May 5, 2021	0%	54 days	0 days	200 days
892	Wall (14d/bay)	14 days	14 days	NA	NA	November 5, 2020	November 20, 2020	May 6, 2021	May 22, 2021	0%	146 days	0 days	146 days
893	Top Slab (20d/bay)	20 days	20 days	NA	NA	May 24, 2021	June 16, 2021	May 24, 2021	June 16, 2021	0%	0 days	1 days	0 days
894	Remove struts and backfilling	6 days	6 days	NA	NA	June 17, 2021	June 23, 2021	June 17, 2021	June 23, 2021	0%	0 days	0 days	0 days
895	**Part 1 - CH89-169 (80m)**	**366 days**	**366 days**	**NA**	**NA**	**March 20, 2020**	**June 16, 2021**	**April 22, 2020**	**June 16, 2021**	**0%**	**0 days**		**0 days**
896	Temporary ELS & Excavation	24 days	24 days	NA	NA	March 20, 2020	April 21, 2020	March 4, 2021	March 31, 2021	0%	0 days	0.5 days	282 days
897	Base Slab (12d/bay)	96 days	96 days	NA	NA	April 22, 2020	August 15, 2020	April 22, 2020	August 15, 2020	0%	0 days	4 days	0 days
898	Wall (14d/bay)	112 days	112 days	NA	NA	June 22, 2020	November 4, 2020	June 22, 2020	November 4, 2020	0%	0 days	5 days	0 days
899	Top Slab (20d/bay)	160 days	160 days	NA	NA	November 5, 2020	May 22, 2021	November 5, 2020	May 22, 2021	0%	0 days	8 days	0 days
900	Remove struts and backfilling	20 days	20 days	NA	NA	May 24, 2021	June 16, 2021	May 24, 2021	June 16, 2021	0%	0 days	1 days	0 days
901	**Elevated Landscape Deck**	**808 days**	**788.7 days**	**May 16, 2019**	**NA**	**May 16, 2019**	**January 29, 2022**	**May 16, 2019**	**April 23, 2022**	**0%**	**65 days**		**65 days**
902	Agree Interface Coordination Plan with KL/2014/01 Contractor	14 days	0 days	May 16, 2019	May 31, 2019	May 16, 2019	May 31, 2019	May 16, 2019	May 31, 2019	100%	0 days	0 days	0 days
903	**Part 1 - CH1919-2007 (88m) 4 bays**	**165 days**	**165 days**	**NA**	**NA**	**April 17, 2021**	**November 3, 2021**	**May 22, 2021**	**February 8, 2022**	**0%**	**28 days**		**28 days**
904	Pier (4sets x 3nos) - 15d/set. 1 team	60 days	60 days	NA	NA	April 17, 2021	June 29, 2021	May 22, 2021	August 2, 2021	0%	0 days	1 day	28 days
905	Falsework erection	7 days	7 days	NA	NA	June 30, 2021	July 8, 2021	August 3, 2021	August 10, 2021	0%	0 days	0 days	28 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

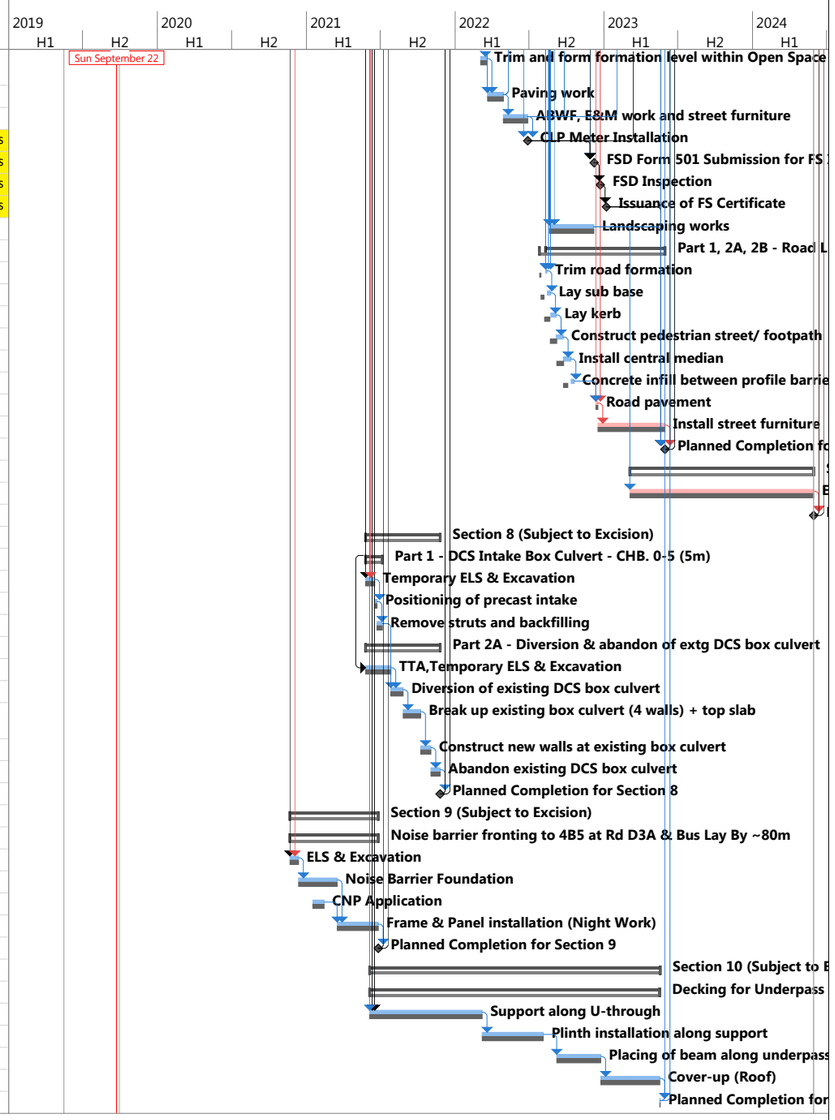
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
906	Deck (4 bays) & link bridge 18d/bay	72 days	72 days	NA	NA	July 9, 2021	October 2, 2021	August 11, 2021	November 5, 2021	0%	0 days	1 day	28 days
907	Secondary Upstand Beam	14 days	14 days	NA	NA	September 24, 2021	October 11, 2021	December 11, 2021	December 29, 2021	0%	0 days	0 days	65 days
908	Dismantle falsework	5 days	5 days	NA	NA	October 29, 2021	November 3, 2021	January 31, 2022	February 8, 2022	0%	49 days	0 days	77 days
909	**Part 2A - CH2007-2060 (53m) 3 bays**	**136 days**	**136 days**	**NA**	**NA**	**July 22, 2021**	**January 3, 2022**	**September 8, 2021**	**February 8, 2022**	**0%**	**28 days**		**28 days**
910	Pier (3sets x 3nos) within CH2007-2060. 1 team	45 days	45 days	NA	NA	July 22, 2021	September 11, 2021	September 8, 2021	November 2, 2021	0%	0 days	0.5 days	41 days
911	Falsework erection	7 days	7 days	NA	NA	September 13, 2021	September 20, 2021	November 3, 2021	November 10, 2021	0%	13 days	0 days	41 days
912	Deck (3 bays) 18d/bay	54 days	54 days	NA	NA	October 4, 2021	December 6, 2021	November 6, 2021	January 11, 2022	0%	0 days	1 day	28 days
913	Secondary Upstand Beam	12 days	12 days	NA	NA	November 25, 2021	December 8, 2021	December 30, 2021	January 13, 2022	0%	0 days	0 days	28 days
914	Dismantle falsework	5 days	5 days	NA	NA	December 28, 2021	January 3, 2022	January 31, 2022	February 8, 2022	0%	0 days	0 days	28 days
915	**Part 2A - CH2060-2119 (59m) 3 bays**	**299 days**	**299 days**	**NA**	**NA**	**June 16, 2020**	**June 18, 2021**	**June 29, 2020**	**November 20, 2021**	**0%**	**10 days**		**10 days**
916	Mobilization of plant and material	36 days	36 days	NA	NA	June 16, 2020	July 29, 2020	June 29, 2020	August 10, 2020	0%	0 days	2 days	10 days
917	Foundation Construction	90 days	90 days	NA	NA	July 30, 2020	October 27, 2020	March 11, 2021	June 8, 2021	0%	63 days	1 day	224 days
918	Pier (3sets x 3nos) within CH2060-2119. 1 team	45 days	45 days	NA	NA	December 30, 2020	February 24, 2021	June 9, 2021	August 2, 2021	0%	0 days	0.5 days	129 days
919	Falsework erection	7 days	7 days	NA	NA	February 25, 2021	March 4, 2021	August 3, 2021	August 10, 2021	0%	0 days	0 days	129 days
920	Deck (3 bays) 18d/bay	54 days	54 days	NA	NA	March 5, 2021	May 11, 2021	August 11, 2021	October 15, 2021	0%	0 days	1 day	129 days
921	Secondary Upstand Beam	12 days	12 days	NA	NA	May 12, 2021	May 26, 2021	October 16, 2021	October 29, 2021	0%	0 days	0 days	129 days
922	Dismantle falsework	5 days	5 days	NA	NA	June 12, 2021	June 18, 2021	November 16, 2021	November 20, 2021	0%	0 days	0 days	129 days
923	Installation of Glass Balustrade	42 days	42 days	NA	NA	December 9, 2021	January 29, 2022	March 2, 2022	April 23, 2022	0%	0 days	0.5 days	65 days
924	**Part 2A - Lift LT1 & LT2**	**330 days**	**330 days**	**NA**	**NA**	**January 31, 2022**	**March 9, 2023**	**April 25, 2022**	**May 30, 2023**	**0%**	**64 days**		**64 days**
925	Mobilization of plant and materials	15 days	15 days	NA	NA	January 31, 2022	February 19, 2022	April 25, 2022	May 11, 2022	0%	0 days	0 days	65 days
926	Foundation Construction	43 days	43 days	NA	NA	February 17, 2022	April 8, 2022	May 9, 2022	June 28, 2022	0%	0 days	0.5 days	65 days
927	RC Structure	28 days	28 days	NA	NA	April 9, 2022	May 14, 2022	June 29, 2022	August 1, 2022	0%	0 days	0.5 days	65 days
928	Lift installation (LT1 & LT2)	90 days	90 days	NA	NA	July 27, 2022	November 11, 2022	October 14, 2022	January 31, 2023	0%	0 days	1 day	65 days
929	E & M installation	60 days	60 days	NA	NA	November 12, 2022	January 25, 2023	February 1, 2023	April 15, 2023	0%	0 days	1 day	65 days
930	Testing & commissioning	12 days	12 days	NA	NA	January 26, 2023	February 8, 2023	April 17, 2023	April 29, 2023	0%	0 days	0 days	65 days
931	CLP Meter Installation	0 days	0 days	NA	NA	January 2, 2023	January 2, 2023	January 2, 2023	January 2, 2023	0%	0 days		0 days
932	EMSD Submission Form 5 for Lift Inspection	0 days	0 days	NA	NA	February 8, 2023	February 8, 2023	May 2, 2023	May 2, 2023	0%	0 days		82 days
933	EMSD Lift Inspection	0 days	0 days	NA	NA	February 22, 2023	February 22, 2023	May 16, 2023	May 16, 2023	0%	0 days		82 days
934	Issuance of Lift Use Permit	0 days	0 days	NA	NA	March 9, 2023	March 9, 2023	May 30, 2023	May 30, 2023	0%	82 days		82 days
935	Staircase ST1	60 days	60 days	NA	NA	May 16, 2022	July 26, 2022	August 2, 2022	October 13, 2022	0%	0 days	1 day	65 days
936	**Open Space & Promenade**	**561 days**	**561 days**	**NA**	**NA**	**July 13, 2021**	**May 30, 2023**	**October 7, 2021**	**May 30, 2023**	**0%**	**0 days**		**0 days**
937	**Open Space & Promenade (From Northern End - CH1720)**	**506 days**	**506 days**	**NA**	**NA**	**September 15, 2021**	**May 30, 2023**	**October 11, 2021**	**May 30, 2023**	**0%**	**0 days**		**0 days**
938	**Observation Deck**	**210 days**	**210 days**	**NA**	**NA**	**June 4, 2022**	**February 13, 2023**	**June 4, 2022**	**May 30, 2023**	**0%**	**0 days**		**0 days**
939	Foundation Construction	60 days	60 days	NA	NA	June 4, 2022	August 13, 2022	June 4, 2022	August 13, 2022	0%	0 days	3 days	0 days
940	Structure work	60 days	60 days	NA	NA	August 15, 2022	October 26, 2022	September 26, 2022	December 6, 2022	0%	0 days	1 day	35 days
941	Construction of Lift Core	35 days	35 days	NA	NA	August 15, 2022	September 25, 2022	August 15, 2022	September 26, 2022	0%	0 days	2 days	0 days
942	Lift installation	90 days	90 days	NA	NA	October 27, 2022	February 13, 2023	February 8, 2023	May 30, 2023	0%	85 days	1 day	85 days
943	E&M and ABWF works	60 days	60 days	NA	NA	September 26, 2022	December 6, 2022	September 26, 2022	December 6, 2022	0%	0 days	3 days	0 days
944	**Toilet**	**366 days**	**366 days**	**NA**	**NA**	**September 15, 20...**	**December 6, 2022**	**October 11, 2021**	**December 6, 2022**	**0%**	**0 days**		**0 days**
945	Footing	12 days	12 days	NA	NA	September 15, 2021	September 29, 2021	October 11, 2021	October 25, 2021	0%	0 days	0 days	20 days
946	Structure work	45 days	45 days	NA	NA	September 30, 2021	November 23, 2021	October 26, 2021	December 16, 2021	0%	0 days	0.5 days	20 days
947	MIC toilet unit	24 days	24 days	NA	NA	November 24, 2021	December 21, 2021	December 17, 2021	January 17, 2022	0%	0 days	0.5 days	20 days
948	E&M and ABWF works	60 days	60 days	NA	NA	September 26, 2022	December 6, 2022	September 26, 2022	December 6, 2022	0%	0 days	3 days	0 days
949	Amphitheater	90 days	90 days	NA	NA	November 24, 2021	March 15, 2022	October 15, 2022	February 1, 2023	0%	264 days	1 day	264 days
950	Fast food kiosk deck	45 days	45 days	NA	NA	November 24, 2021	January 18, 2022	January 26, 2022	March 22, 2022	0%	0 days	0.5 days	51 days
951	Fast food Kiosk	86 days	86 days	NA	NA	January 19, 2022	May 6, 2022	March 23, 2022	July 7, 2022	0%	0 days	1 day	51 days
952	Fitness Ground Lawn & Water Play Plaza	82 days	82 days	NA	NA	May 7, 2022	August 12, 2022	July 8, 2022	October 14, 2022	0%	31 days	1 day	51 days
953	Stepped Stage and Seating & Back of House Facility (under Bridge D3)	30 days	30 days	NA	NA	August 15, 2022	September 19, 2022	September 7, 2022	October 14, 2022	0%	0 days	0.5 days	20 days
954	Trim and form formation level within Open Space & Promenade area	45 days	45 days	NA	NA	September 20, 2022	November 12, 2022	October 15, 2022	December 6, 2022	0%	20 days	0.5 days	20 days
955	Paving work	45 days	45 days	NA	NA	December 7, 2022	February 1, 2023	December 7, 2022	February 1, 2023	0%	0 days	2 days	0 days
956	ABWF, E&M work and street furniture	60 days	60 days	NA	NA	February 2, 2023	April 17, 2023	March 12, 2023	May 27, 2023	0%	0 days	1 day	33 days
957	FSD Form 501 Submission for FS Inspection	0 days	0 days	NA	NA	March 23, 2023	March 23, 2023	May 1, 2023	May 1, 2023	0%	0 days		38 days
958	FSD Inspection	0 days	0 days	NA	NA	April 7, 2023	April 7, 2023	May 16, 2023	May 16, 2023	0%	0 days		38 days
959	Issuance of FS Certificate	0 days	0 days	NA	NA	April 22, 2023	April 22, 2023	May 30, 2023	May 30, 2023	0%	38 days		38 days
960	Landscaping works	95 days	95 days	NA	NA	February 2, 2023	May 30, 2023	February 2, 2023	May 30, 2023	0%	0 days	4 days	0 days
961	**Open Space & Promenade (From CH1720 - South End)**	**447 days**	**447 days**	**NA**	**NA**	**July 13, 2021**	**January 6, 2023**	**October 7, 2021**	**May 30, 2023**	**0%**	**72 days**		**72 days**
962	Modification (Seawall) CH1720-1820	150 days	150 days	NA	NA	July 13, 2021	January 10, 2022	October 7, 2021	April 8, 2022	0%	0 days	1 day	72 days
963	Modification (Seawall) CH1820-1920	150 days	150 days	NA	NA	July 13, 2021	January 10, 2022	October 7, 2021	April 8, 2022	0%	0 days	1 day	72 days
964	Temporary toilet	24 days	24 days	NA	NA	July 13, 2021	August 9, 2021	January 31, 2022	March 2, 2022	0%	0 days	0.5 days	167 days
965	Temporary Management Office	45 days	45 days	NA	NA	July 24, 2021	September 14, 2021	February 15, 2022	April 8, 2022	0%	95 days	0.5 days	167 days
966	Floating Stage Concrete structure	18 days	18 days	NA	NA	January 11, 2022	January 31, 2022	April 9, 2022	May 3, 2022	0%	0 days	0 days	72 days
967	Stepped Seating at Southern End	24 days	24 days	NA	NA	February 4, 2022	March 3, 2022	May 4, 2022	May 31, 2022	0%	0 days	0.5 days	72 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
968	Trim and form formation level within Open Space & Promenade area	14 days	14 days	NA	NA	March 4, 2022	March 19, 2022	June 1, 2022	June 17, 2022	0%	0 days	0 days	72 days
969	Paving work	30 days	30 days	NA	NA	March 21, 2022	April 28, 2022	June 18, 2022	July 23, 2022	0%	0 days	0.5 days	72 days
970	ABWF, E&M work and street furniture	50 days	50 days	NA	NA	April 29, 2022	June 27, 2022	July 28, 2022	September 24, 2022	0%	0 days	1 day	75 days
971	CLP Meter Installation	0 days	0 days	NA	NA	June 27, 2022	June 27, 2022	May 1, 2023	May 1, 2023	0%	163 days		307 days
972	FSD Form 501 Submission for FS Inspection	0 days	0 days	NA	NA	December 8, 2022	December 8, 2022	May 1, 2023	May 1, 2023	0%	0 days		144 days
973	FSD Inspection	0 days	0 days	NA	NA	December 22, 2022	December 22, 2022	May 16, 2023	May 16, 2023	0%	0 days		144 days
974	Issuance of FS Certificate	0 days	0 days	NA	NA	January 6, 2023	January 6, 2023	May 30, 2023	May 30, 2023	0%	144 days		144 days
975	Landscaping works	90 days	90 days	NA	NA	August 20, 2022	December 6, 2022	November 16, 2022	March 4, 2023	0%	72 days	1 day	72 days
976	**Part 1, 2A, 2B - Road L12**	**238 days**	**238 days**	**NA**	**NA**	**August 11, 2022**	**May 30, 2023**	**October 6, 2022**	**May 30, 2023**	**0%**	**0 days**		**0 days**
977	Trim road formation	3 days	3 days	NA	NA	August 11, 2022	August 13, 2022	October 6, 2022	October 8, 2022	0%	0 days	1 day	45 days
978	Lay sub base	7 days	7 days	NA	NA	August 15, 2022	August 22, 2022	October 10, 2022	October 17, 2022	0%	0 days	1 day	45 days
979	Lay kerb	12 days	12 days	NA	NA	August 23, 2022	September 5, 2022	October 18, 2022	October 31, 2022	0%	0 days	1 day	45 days
980	Construct pedestrian street/ footpath	14 days	14 days	NA	NA	September 6, 2022	September 22, 2022	November 1, 2022	November 16, 2022	0%	0 days	1 day	45 days
981	Install central median	14 days	14 days	NA	NA	September 23, 2022	October 11, 2022	November 17, 2022	December 2, 2022	0%	0 days	1 day	45 days
982	Concrete infill between profile barrier	7 days	7 days	NA	NA	October 12, 2022	October 19, 2022	December 3, 2022	December 10, 2022	0%	45 days	0 days	45 days
983	Road pavement	5 days	5 days	NA	NA	December 12, 2022	December 16, 2022	December 12, 2022	December 16, 2022	0%	0 days	0 days	0 days
984	Install street furniture	131 days	131 days	NA	NA	December 17, 2022	May 30, 2023	December 17, 2022	May 30, 2023	0%	0 days	6 days	0 days
985	Planned Completion for Section 6	0 days	0 days	NA	NA	May 30, 2023	May 30, 2023	May 30, 2023	May 30, 2023	0%	0 days	0 days	0 days
986	**Section 7**	**365 days**	**365 days**	**NA**	**NA**	**March 6, 2023**	**May 29, 2024**	**March 6, 2023**	**May 29, 2024**	**0%**	**0 days**		**0 days**
987	Establishment work for landscape softwork	365 days	365 days	NA	NA	March 6, 2023	May 29, 2024	March 6, 2023	May 29, 2024	0%	0 days	10 days	0 days
988	Planned Completion for Section 7	0 days	0 days	NA	NA	May 29, 2024	May 29, 2024	May 29, 2024	May 29, 2024	0%	0 days		0 days
989	**Section 8 (Subject to Excision)**	**152 days**	**152 days**	**NA**	**NA**	**May 26, 2021**	**November 24, 2021**	**June 3, 2021**	**December 2, 2021**	**0%**	**7 days**		**7 days**
990	**Part 1 - DCS Intake Box Culvert - CHB. 0-5 (5m)**	**33 days**	**33 days**	**NA**	**NA**	**May 26, 2021**	**July 5, 2021**	**June 25, 2021**	**August 3, 2021**	**0%**	**0 days**		**25 days**
991	Temporary ELS & Excavation	18 days	18 days	NA	NA	May 26, 2021	June 16, 2021	June 25, 2021	July 16, 2021	0%	0 days	2 days	25 days
992	Positioning of precast intake	5 days	5 days	NA	NA	June 17, 2021	June 22, 2021	July 17, 2021	July 22, 2021	0%	0 days	1 days	25 days
993	Remove struts and backfilling	10 days	10 days	NA	NA	June 23, 2021	July 5, 2021	July 23, 2021	August 3, 2021	0%	18 days	2 days	25 days
994	**Part 2A - Diversion & abandon of extg DCS box culvert**	**152 days**	**152 days**	**NA**	**NA**	**May 26, 2021**	**November 24, 2021**	**June 3, 2021**	**December 2, 2021**	**0%**	**7 days**		**7 days**
995	TTA,Temporary ELS & Excavation	51 days	51 days	NA	NA	May 26, 2021	July 26, 2021	June 3, 2021	August 3, 2021	0%	0 days	3 days	7 days
996	Diversion of existing DCS box culvert	26 days	26 days	NA	NA	July 27, 2021	August 25, 2021	August 4, 2021	September 2, 2021	0%	0 days	2 days	7 days
997	Break up existing box culvert (4 walls) + top slab	35 days	35 days	NA	NA	August 26, 2021	October 7, 2021	September 3, 2021	October 16, 2021	0%	0 days	2 days	7 days
998	Construct new walls at existing box culvert	20 days	20 days	NA	NA	October 8, 2021	November 1, 2021	October 18, 2021	November 9, 2021	0%	0 days	1 days	7 days
999	Abandon existing DCS box culvert	20 days	20 days	NA	NA	November 2, 2021	November 24, 2021	November 10, 2021	December 2, 2021	0%	0 days	1 days	7 days
1000	Planned Completion for Section 8	0 days	0 days	NA	NA	November 24, 2021	November 24, 2021	December 2, 2021	December 2, 2021	0%	0 days	0 days	7 days
1001	**Section 9 (Subject to Excision)**	**174 days**	**174 days**	**NA**	**NA**	**November 21, 2020**	**June 25, 2021**	**November 30, 2020**	**July 5, 2021**	**0%**	**7 days**		**7 days**
1002	**Noise barrier fronting to 4B5 at Rd D3A & Bus Lay By ~80m**	**174 days**	**174 days**	**NA**	**NA**	**November 21, 2020**	**June 25, 2021**	**November 30, 2020**	**July 5, 2021**	**0%**	**7 days**		**7 days**
1003	ELS & Excavation	18 days	18 days	NA	NA	November 21, 2020	December 11, 2020	November 30, 2020	December 19, 2020	0%	0 days	1 days	7 days
1004	Noise Barrier Foundation	75 days	75 days	NA	NA	December 12, 2020	March 16, 2021	December 21, 2020	March 24, 2021	0%	0 days	4 days	7 days
1005	CNP Application	28 days	28 days	NA	NA	January 16, 2021	February 12, 2021	February 25, 2021	March 24, 2021	0%	32 days		40 days
1006	Frame & Panel installation (Night Work)	81 days	81 days	NA	NA	March 17, 2021	June 25, 2021	March 25, 2021	July 5, 2021	0%	0 days	4 days	7 days
1007	Planned Completion for Section 9	0 days	0 days	NA	NA	June 25, 2021	June 25, 2021	July 5, 2021	July 5, 2021	0%	0 days	0.5 days	10 days
1008	**Section 10 (Subject to Excision)**	**582 days**	**582 days**	**NA**	**NA**	**June 5, 2021**	**May 18, 2023**	**June 17, 2021**	**May 30, 2023**	**0%**	**9 days**		**9 days**
1009	**Decking for Underpass (Rd L14)**	**581 days**	**581 days**	**NA**	**NA**	**June 5, 2021**	**May 17, 2023**	**June 17, 2021**	**May 29, 2023**	**0%**	**9 days**		**9 days**
1010	Support along U-through	225 days	225 days	NA	NA	June 5, 2021	March 7, 2022	June 17, 2021	March 17, 2022	0%	0 days	10 days	9 days
1011	Plinth installation along support	123 days	123 days	NA	NA	March 8, 2022	August 4, 2022	March 18, 2022	August 15, 2022	0%	0 days	6 days	9 days
1012	Placing of beam along underpass	90 days	90 days	NA	NA	September 7, 2022	December 23, 2022	September 19, 2022	January 4, 2023	0%	0 days	4 days	9 days
1013	Cover-up (Roof)	115 days	115 days	NA	NA	December 24, 2022	May 17, 2023	January 5, 2023	May 29, 2023	0%	0 days	5 days	9 days
1014	Planned Completion for Section 10	1 day	1 day	NA	NA	May 18, 2023	May 18, 2023	May 30, 2023	May 30, 2023	0%	0 days	0.5 days	12 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

Appendix C – Environmental monitoring schedules

Contract No. EDO 15/2018 Environmental Monitoring at Kai Tak Development Stage 4 Infrastructure at the former runway and south apron

Environmental Monitoring and Weekly Site Inspection Schedule for January 2020

January 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2 Weekly Site Inspection	3	4
5	6	7	8	9 Weekly Site Inspection + SSMC meeting	10	11
12	13	14	15 Weekly Site Inspection	16	17	18
19	20 Project Commence Date	21 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	22 Weekly Site Inspection	23	24 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7	25
26	27	28	29	30 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	31	

NOTE:

1) Site inspection schedule may be changed due to unforeseen circumstance (e.g. adverse weather).

Air Quality Monitoring Station

AM3 - Sky Tower

AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop

AM7 - Hong Kong Children's Hospital

Noise Quality Monitoring Station

M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop

M12 - Hong Kong Children's Hospital

Contract No. EDO 15/2018 Environmental Monitoring at Kai Tak Development Stage 4 Infrastructure at the former runway and south apron

Propose Environmental Monitoring and Weekly Site Inspection Schedule for February 2020

February 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	5	6 Weekly Site Inspection + SSMC meeting	7	8
9	10 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	11	12	13 Weekly Site Inspection	14	15 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7
16	17	18	19	20 Weekly Site Inspection	21 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	22
23	24	25	26	27 Weekly Site Inspection 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	28	29

NOTE:

1) Site inspection schedule and Impact monitoring schedule may be changed due to unforeseen circumstance (e.g. adverse weather).

Air Quality Monitoring Station

AM3 - Sky Tower

AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop

AM7 - Hong Kong Children's Hospital

Noise Quality Monitoring Station

M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop

M12 - Hong Kong Children's Hospital

Appendix D – Photographic records

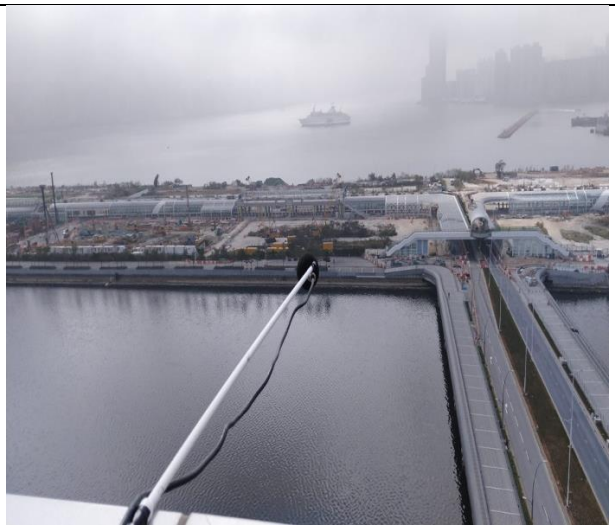
Measurement setup at AM3

Measurement setup at AM4(A)

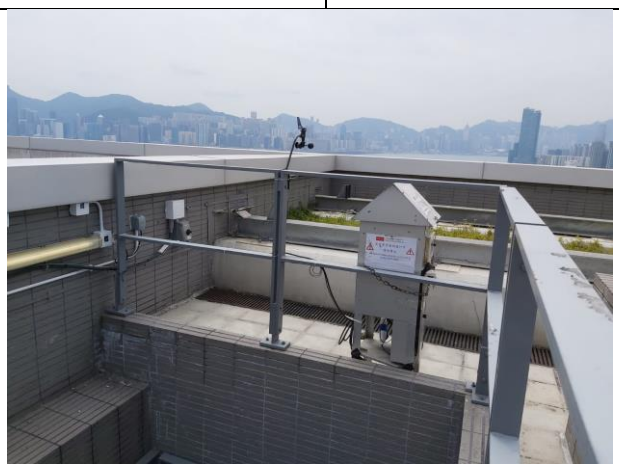
Measurement setup at AM7

Impact Noise Monitoring

Measurement setup at M11



Measurement setup at M12



Weather Station at the rooftop of Hong Kong Children's Hospital

Appendix E – Calibration certificates, catalogue of air quality monitoring equipment

TISCH Environmental

TSP MFC

Total Suspended Particulate, Mass Flow Controlled

MFC **TSP**

Ambient Air Sampler

The TE-5170 is a high volume ambient Total Suspended Particulate (TSP) air sampler featuring a mass flow controller (MFC) for accurate and consistent particulate sampling. The mass flow controller adjust the motor speed as the filter media collects particulate to maintain a constant flow rate throughout the entire sample duration. The system utilizes a stainless steel filter holder for use with standard 8" x 10" filter paper. The anodized aluminum shelter and robust electrical components allow the system to operate a continuous 24 hour sample.

- **Meets EPA CFR, Appendix B to Part 50**
- **Total Suspended Particulate(TSP)**
- **Mass Flow Controlled**
- **7-Day Mechanical Timer**
- **Elapsed Time Indicator**
- **Aluminum Outdoor Shelter**
- **Brush Style Motor**
- **Dickson Chart Recorder, 24 Hour**
- **Stainless Steel Filter Holder**
- **36-60 CFM**
- **Made In USA**

ABOUT US: Tisch Environmental Inc. Tisch Environmental is the benchmark for high volume air sampling, particulate, metals, volatiles, and specialty monitoring equipment. Since the company's inception in 1953 as General Metal Works, our product line has expanded from the first high volume air sampler to include high-tech and custom samplers. Our clients are professionals from every sector of the regulatory and industrial markets.

Copyright © 2014 Tisch International All Rights Reserved
www.tischinternational.com

TISCH Environmental

www.tisch-env.com

Tisch Environmental
145 S. Miami Ave
Cleves, OH 45002
513-467-9000
sales@tisch-env.com

TISCH Environmental

TSP MFC

MFC TSP Ambient Air Sampler

General System Specifications

Particulate Size: Total Suspended Particulate (TSP)
EPA Designation: CFR 40 Part 50 Appendix B
Flow Controller: Mass Flow Controller
Motor Style: Brush Style Motor Assembly
Pressure Recorder: Dickson Chart Recorder, 24 hour
Timer: 7 Day Mechanical
Elapsed Time Indicator: Mechanical, Hours and Tenths
Flow Range: 39-60CFM, 1.09M^3M-1.68M^3M
Housing: Anodized Aluminum
Filter Holder: Stainless Steel, 8" x 10"
4" Recorder Charts: Box of 100
Filter Holder: 8" x 10" Stainless Steel with hold down frame

Applications

US EPA Reference Method Sampling, CFR
Appendix J Part 50 Regulatory Compliance
Institutional Studies
Construction Sites
Bridge and Water Tower Painting Sites
Fence Line Monitoring
Industrial Monitoring
Landfill Monitoring
Public Health Applications

Optional Equipment

TE-3000 Filter Holder Cartridge
TE-G653 8" x 10" Glass Fiber Filter Media
TE-33384 Motor Brush Set (110volt)
TE-33378 Motor Brush Set (220volt)
TE-116311 Replacement Motor (110volt)
TE-116312 Replacement Motor (220volt)
TE-106 Recorder Charts
TE-160 Recorder Pen Points
TE-5018 Gasket 8" x 10"

Available Models

TE-5170 TSP MFC, 110 Volt 60 Hertz, 8 Amps
TE-5170X TSP MFC, 220 Volt 50 Hertz 4 Amps
TE-5170XZ TSP MFC, 220 Volts 60 Hertz, 4 Amps

Calibration Equipment

TE-5028 -Variable Flow Calibration Kit
TE-HVC-V Xcalibrator HiVol Calibrator

Physical Specifications

Weight: 75lbs, Shelter
Shipping Dimensions: 46"W x 23"L x 20" H, Shelter
19"W x 19"L x 20"H, Lid

Assembled Dimensions: 28"W x 28"L x 61"H

Copyright © 2014 Tisch International All Rights Reserved
www.tischinternational.com

www.tisch-env.com

TISCH Environmental

Calibration Certificate of HVS

CASTCO 佳力高試驗中心有限公司 CASTCO TESTING CENTRE LTD.

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2020011601 Date of calibration : 16/01/2020

Location : The Hong Kong Society for the Blind's Factory cum Sheltered Workshop Sampler : TE-5170X

Calibration Data

Ambient barometric pressure, Pa = 762.1 (mmHg) Ambient temperature, Ta = 296.65 (deg K)

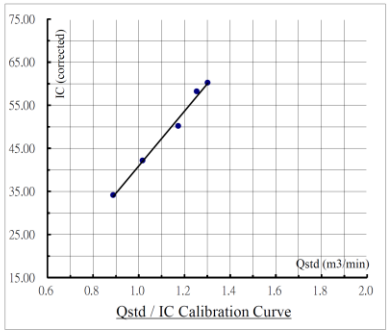
Qstd Slope, m = 2.03067 Qstd Intercept, b = -0.007660

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	6.90	1.302	60.0	60.22
13	6.40	1.254	58.0	58.21
10	5.60	1.173	50.0	50.18
7	4.20	1.017	42.0	42.15
5	3.20	0.888	34.0	34.12

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	Qstd = 1 / m1 [(I) (Sqrt ((Pav / 760) (298 / Tav))) - b1]	63.487	-22.5613	0.9953



Qstd / IC Calibration Curve

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 (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 : Name : (Chan Kwok Ho) Checked by : Name : (Wong Yin Tong)

Form No. INS-HVS-CAL dd 16 01 2020

Calibration Certificate of HVS

CASTCO 佳力高試驗中心有限公司 CASTCO TESTING CENTRE LTD.

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2020011602 Date of calibration : 16/01/2020

Location : Sky Tower Sampler : TE-5170X

Calibration Data

Ambient barometric pressure, Pa = 762.1 (mmHg) Ambient temperature, Ta = 296.65 (deg K)

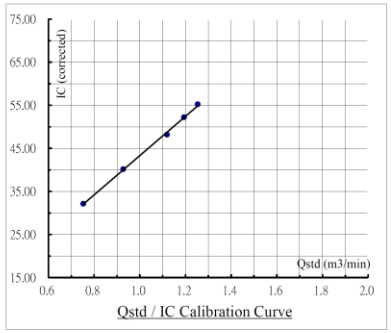
Qstd Slope, m = 2.03067 Qstd Intercept, b = -0.007660

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	6.40	1.254	55.0	55.20
13	5.80	1.194	52.0	52.19
10	5.10	1.120	48.0	48.17
7	3.50	0.928	40.0	40.15
5	2.30	0.753	32.0	32.12

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	Qstd = 1 / m1 [(I) (Sqrt ((Pav / 760) (298 / Tav))) - b1]	45.529	-2.2307	0.9993



Qstd / IC Calibration Curve

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 (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 : Name : (Chan Kwok Ho) Checked by : Name : (Wong Yin Tong)

Form No. INS-HVS-CAL dd 16 01 2020

Calibration Certificate of HVS

CASTCO 佳力高試驗中心有限公司
CASTCO TESTING CENTRE LTD.

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2020011603 Date of calibration : 16/01/2020

Location : Hong Kong Children's Hospital Sampler : TE-5170X

Calibration Data

Ambient barometric pressure, Pa = 762.1 (mmHg) Ambient temperature, Ta = 296.65 (deg K)

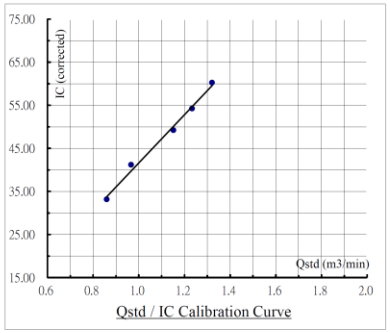
Qstd Slope, m = 2.03067 Qstd Intercept, b = -0.007660

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	7.10	1.321	60.0	60.22
13	6.20	1.234	54.0	54.20
10	5.40	1.152	49.0	49.18
7	3.80	0.967	41.0	41.15
5	3.00	0.860	33.0	33.12

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	Qstd = 1 / m1 [(I) (Sqrt ((Pav / 760) (298 / Tav))) - b1]	55.960	-14.3626	0.9957



Qstd / IC Calibration Curve

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 (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 : Checked by :

Name : (Chan Kwok Ho) Name : (Wong Yin Tong)

Form No. INS-HVS-CAL dd 16 01 2020

Calibration Certificate for Calibrator

TISCH Environmental

RECALIBRATION DUE DATE: July 25, 2020

Certificate of Calibration

Calibration Certification Information

Cal. Date: July 25, 2019 Rootsmeter S/N: 438320 Ta: 297 °K

Operator: Jim Tisch Pa: 755.7 mm Hg

Calibration Model #: TE-5025A Calibrator S/N: 0006

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4200	3.2	2.00
2	3	4	1	1.0040	6.3	4.00
3	5	6	1	0.8960	7.9	5.00
4	7	8	1	0.8480	8.8	5.50
5	9	10	1	0.7040	12.7	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
0.9934	0.6996	1.4125	0.9958	0.7012	0.8866
0.9893	0.9854	1.9976	0.9917	0.9877	1.2539
0.9872	1.1018	2.2334	0.9895	1.1044	1.4019
0.9860	1.1627	2.3424	0.9884	1.1655	1.4703
0.9809	1.3933	2.8251	0.9832	1.3966	1.7732
QSTD	m=	2.03067	QA	m=	1.27157
	b=	-0.00766		b=	-0.00481
	r=	0.99992		r=	0.99992

Calculations

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

For subsequent flow rate calculations:

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

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

Key

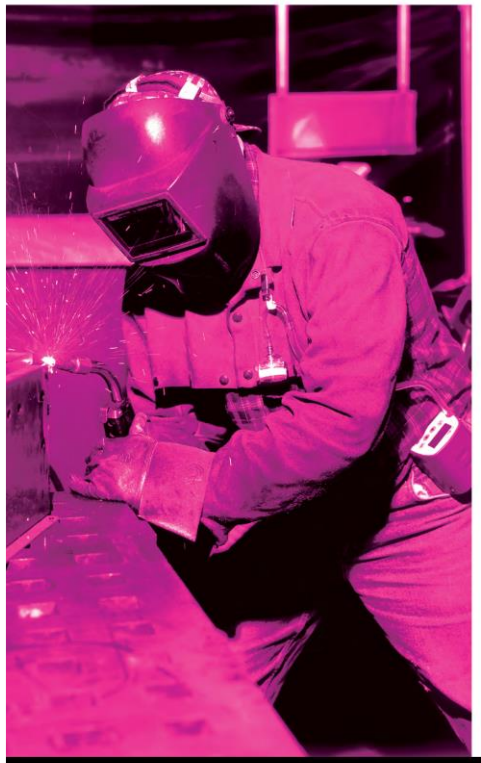
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION

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

isch Environmental, Inc.
45 South Miami Avenue
illage of Cleves, OH 45002
www.tisch-env.com
TOLL FREE: (877)263-7610
FAX: (513)467-9009

The SidePak AM510 monitor's easy-to-read display shows your data as both real-time aerosol mass-concentration and 8-hour time-weighted average (TWA). With its convenient data logging and long battery life, the AM510 is also ideal for extended sampling. The easy-to-use TrakPro Data Analysis Software lets you create effective graphs and reports.



User Friendly

+ Small, lightweight and quiet to maximize worker acceptance
+ Rugged design with secure belt clip
+ Easy-to-understand user interface with only four keys
+ Lockable keypad prevents tampering while sampling
+ User-adjustable sample flow rate
+ Define, label and store multiple calibration constants
+ Easy-to-read LCD display
+ Convenient, threaded tripod socket accommodates area sampling

Advanced Features

+ Smart Battery Management System provides precise run time information, maximizes battery capacity and speeds charging
+ Integrated pump allows use of size-selective aerosol inlet conditioners
+ Built-in impactors let you choose "none," 1.0, 2.5 or 10-micron cut off
+ 10-mm Dorr-Oliver cyclone for respirable sampling
+ Display shows real-time concentrations (mg/m³) and "on-the-fly" TWA as you data log
+ Display statistics: max, min and average readings, elapsed time and 8-hour TWA

Quick and Easy Reports

+ Convenient preprogramming for occupational exposure sampling
+ Data log for long periods and store multiple tests
+ Analyze data, print graphs and create reports with TrakPro Data Analysis Software
+ USB port lets you conveniently connect to your computer

Power to Spare

+ Long-lasting NiMH rechargeable battery packs eliminate "memory" issues
+ Choice of rechargeable NiMH smart battery packs or AA-cell pack

Model AM510
SidePak Personal Aerosol Monitor

Sensitivity

Sensor Type	90° light scattering, 670 nm laser diode
Aerosol Concentration Range	0.001 to 20 mg/m³ (calibrated to respirable fraction of ISO 12103-1, A1 test dust)
Particle Size Range	0.1 to 10 micrometer (µm)
Minimum Resolution	0.001 mg/m³
Zero stability	±0.001 mg/m³ over 24 hours using 10-second time-constant
Temperature Coefficient	Approximately +0.0005 mg/m³ per °C (for variations from temperature at which instrument was last zeroed)

Flow Rate

Range	User-adjustable, 0.7 to 1.8 liters/min (L/min)

Temperature Range

Operating Range	32 to 120°F (0 to 50°C)
Storage Range	-4 to 140°F (-20 to 60°C)

Operational Humidity
0 to 95% RH, non-condensing

Time Constant (LCD display)

Range	User-adjustable, 1 to 60 seconds

Data Logging

Data Points	Approx. 31,000
Logging Interval	User-adjustable, 1 second to 1 hour

User-Select Calibration Factors

Factory Setting	1.0 (non-adjustable)
User-defined Settings	3, with user-defined labels
Range	0.1 to 10.0, user-adjustable

Physical

External Dimensions	4.2 x 3.7 x 2.8 in. (106 x 92 x 70 mm) with 801723, 801724, 801729 or 801743 battery 5.1 x 3.7 x 2.8 in. (130 x 92 x 70 mm) with 801708, 801722, 801728, 801735, or 801736 battery
Weight	16 oz (0.46 kg) with 801723, 801724, 801729 or 801743 battery 19 oz (0.54 kg) with 801708, 01722, 801728, 801735, or 801736 battery
Display	2 line x 12 character LCD
Tripod Socket	1/4-20 female thread

Power Supply/Charger (P/N 2613210)

Input Voltage Range	100 to 240 VAC, 50 to 60 Hz
Output Voltage	9 VDC @ 1.0 A

Maintenance

Factory Clean/Calibrate	Recommended annually
User Zero Calibration	Before each use
User Flow Calibration	As needed

Communications Interface

Type	USB 1.1
Connector, Instrument	USB Mini-B (socket)

Minimum Computer Requirements for TrakPro™ Data Analysis Software

Communications Port	Universal Serial Bus (USB) v 1.1 or higher
Operating System	Microsoft Windows® XP, or 7 (32-bit or 64-bit) operating systems

Battery Performance

Battery Options	Charge Time (hrs)*	Intrinsic Safety Rating	Run Time (hrs @ 1.7 L/min)
1600 mAH NiMH Pack, 4.8 V (P/N 801723)	3.0	No	7.1
1650 mAH NiMH Pack, 4.8V (P/N 801724, 801729 or 801743)	3.5	CSA**	7.5
2700 mAH NiMH Pack, 4.8 V (P/N 801722 or 801728)	5.5	No	12.0
2700 mAH NiMH Pack, 4.8 V (P/N 801735)	5.5	No	12.0
6-Cell AA-size Alkaline Pack*** (P/N 801708 or 801736 with six user-supplied AA cells)	N/A	No	22.5

*Of a fully depleted battery
**All dust plugs and dust gaskets must be installed.
***Using Energizer AA-size, E91 alkaline batteries.

Battery Level Indicator

The Smart Battery Management System™ technology utilizes a built-in "gauge" in the SidePak™ battery packs. The gauge monitors battery capacity and calculates run time information by dividing capacity of the battery (mAH) by the instantaneous current consumed by the instrument (mA). This calculation is correct for current operating conditions and can change due to current (mA) consumption or changes in battery capacity.

Calibration Certificate of Dust Meter (TSI Sidepack AM510)

CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

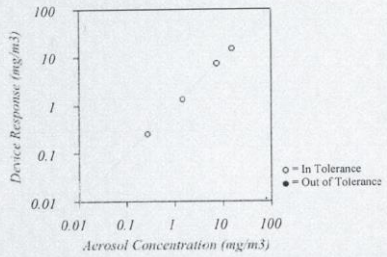
CASTCO

Environment Conditions		
Temperature	76.4 (24.7)	°F (°C)
Relative Humidity	22	%RH
Barometric Pressure	29.38 (994.9)	inHg (hPa)

Model	AM510
Serial Number	11404005

☒ As Left ☐ As Found
☒ In Tolerance ☐ Out of Tolerance

Concentration Linearity Plot



System ID: DTII01-02

Unit: mg/m3

CONCENTRATION							
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	1.474	1.333	1.327~1.621	3	7.284	7.276	5.099~9.469
2	0.274	0.248	0.222~0.315	4	15.067	14.901	13.560~16.574

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass per standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 4:1

Measurement Variable	System ID	Last Cal.	Cal. Due
Temp/Humidity	E005657	02-28-18	02-28-19
DC Voltage	E003314	05-02-18	05-31-19
Photometer	E005612	12-19-18	06-30-19
Pressure	E003511	10-29-18	10-31-19

Measurement Variable	System ID	Last Cal.	Cal. Due
Temp/Humidity	E005656	03-01-18	03-31-19
DC Voltage	E003315	05-17-18	05-31-19
Microbalance	M001324	10-03-18	10-31-20
Flowmeter	E004025	06-06-18	06-30-19

JEAN, LEWIS
Calibrated

February 8, 2019
Date

CASTCO

TSI P/N 2300157

Personal Aerosol Monitor Performance check with High Volume Sampler

Preformance Check ref. No. : AS0190801-1 Report Issue Date: 05/08/2017

Date of performance check : 1-3 August 2019

Objective:

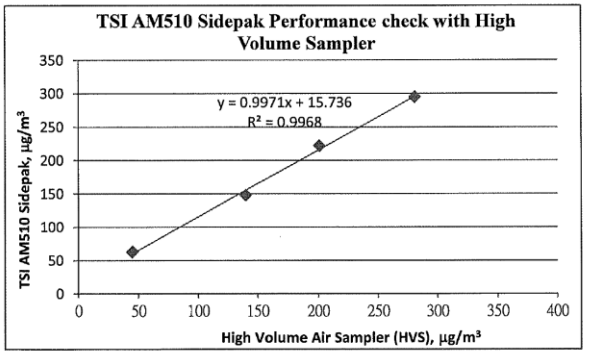
A dust meter, TSI AM510 Sidepak, and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

Equipment Used:

Equipment	Manufacturer and Model	Serial Number
Personal Aerosol Monitor	TSI AM510 Sidepak	11404005
Total Suspended Particulate High Volume Air Sampler (HVS)	GS2310	10346

Resuslt:

Equipment	Measurement Result, μg/m³			
TSI AM510 Sidepak	63	148	222	295
High Volume Air Sampler (HVS)	45	140	201	281



Tested by : _____ Checked by : _____

Name : (Chan Kwok Ho) Name : (Wong Yin Tong)

Form No. ENV CAL SAMPLER CC1 dd12/12/2003

Calibration Certificate of Dust Meter (TSI Sidepack AM510)

TSI P/N 2300157

CERTIFICATE OF CALIBRATION AND TESTING

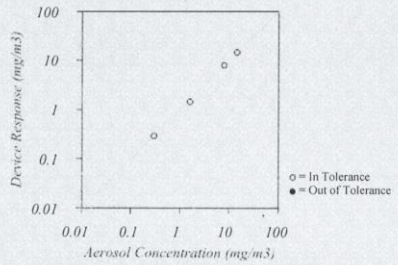
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

Environment Conditions		
Temperature	77.2 (25.1)	°F (°C)
Relative Humidity	21	%RH
Barometric Pressure	29.08 (984.8)	inHg (hPa)

Model	AM510
Serial Number	11108001

☒ As Left ☐ As Found
☒ In Tolerance ☐ Out of Tolerance

Concentration Linearity Plot



System ID: DTI101-02

CONCENTRATION — Unit: mg/m3

#	Standard	Measured	Allowable Range	#	Standard	Measured	Allowable Range
1	1.575	1.439	1.417~1.733	3	7.861	7.826	5.503~10.219
2	0.291	0.259	0.247~0.335	4	14.566	14.552	13.108~16.023

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass per standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 4:1

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Temp/Humidity	E005657	02-28-18	02-28-19	Temp/Humidity	E005656	03-01-18	03-31-19
DC Voltage	E003314	05-02-18	05-31-19	DC Voltage	E003315	05-17-18	05-31-19
Photometer	E005612	12-19-18	06-30-19	Microbalance	M001324	10-03-18	10-31-20
Pressure	E003511	10-29-18	10-31-19	Flowmeter	E004025	06-06-18	06-30-19

JEAN LEWIS
Calibrated

February 6, 2019
Date

CASTCO

CASTCO

Personal Aerosol Monitor Performance check with High Volume Sampler

Preformance Check ref. No. : AS0190801-2 Report Issue Date: 05/08/2017
Date of performance check : 1-3 August 2019

Objective:

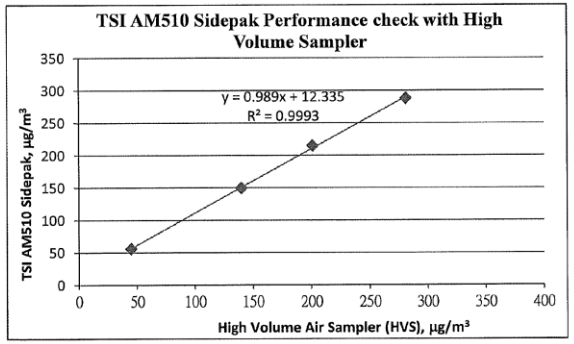
A dust meter, TSI AM510 Sidepak, and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

Equipment Used:

Equipment	Manufacturer and Model	Serial Number
Personal Aerosol Monitor	TSI AM510 Sidepak	11108001
Total Suspended Particulate High Volume Air Sampler (HVS)	GS2310	10346

Resusit:

Equipment	Measurement Result, μg/m³			
TSI AM510 Sidepak	56	150	215	288
High Volume Air Sampler (HVS)	45	140	201	281



Tested by : (Chan Kwok Ho)
Name :

Checked by : (Wong Yin Tong)
Name :

Form No. ENV CAL SAMPLER CC1 dd12/12/2003

Cabled Vantage Pro2™ & Vantage Pro2 Plus™ Stations

6152C
6162C

Vantage Pro2™

The Vantage Pro2™ (# 6152C) and Vantage Pro2™ Plus (# 6162C) cabled weather stations include two components: the Integrated Sensor Suite (ISS) and the console. The ISS contains the sensor interface module (SIM), rain collector, an anemometer, and a passive radiation shield. The Vantage Pro2 console provides the user interface, data display, and calculations. The Vantage Pro2 Plus weather station includes two additional sensors that are optional on the Vantage Pro2 and purchased separately: the UV Sensor and the Solar Radiation Sensor. The console and ISS are powered by an AC-power adapter connected to the console. Batteries can be installed in the console to provide a backup power supply. Use WeatherLink® to let your weather station interface with a computer, log data, and upload weather information to the Internet. The 6152C and 6162C models rely on passive shielding to reduce solar-radiation induced temperature errors in the outside temperature sensor readings.

Integrated Sensor Suite (ISS)

Operating Temperature	-40° to +150°F (-40° to +65°C)
Non-operating Temperature	-40° to +158°F (-40° to +70°C)
Current Draw	5 mA (average) at 4 to 6 VDC for ISS only. 10 mA average for both console and ISS
Connectors, Sensor	Modular RJ-11
Cable Type	4-conductor, 26 AWG
Cable Length, Anemometer	40' (12 m) (included); 240' (73 m) (maximum recommended)

Note: Maximum displayable wind decreases as the length of cable increases. at 140' (42 m) of cable, the maximum wind speed displayed is 135 mph (60 m/s); at 240' (73 m), the maximum wind speed displayed is 100 mph (34 m/s).

Wind Speed Sensor	Solid state magnetic sensor
Wind Direction Sensor	Wind vane with potentiometer
Rain Collector Type	Tipping bucket, 0.01" per tip (0.2 mm with metric rain adapter), 33.2 in^2 (214 cm^2) collection area
Temperature Sensor Type	PN Junction Silicon Diode
Relative Humidity Sensor Type	Film capacitor element
Housing Material	UV-resistant ABS, polypropylene
Sensor Inputs	
RF Filtering	RC low-pass filter on each signal line

ISS Dimensions(not including anemometer or bird spikes):

Vantage Pro2 with Standard Rad Shield	14.0" x 9.4" x 14.5" (356 mm x 239 mm x 368 mm)
Vantage Pro2 with Fan-Asprated Rad Shield	20.8" x 9.4" x 16.0" (528 mm x 239 mm x 406 mm)
Vantage Pro2 Plus with Standard Rad Shield	14.3" x 9.7" x 14.5" (363 mm x 246 mm x 368 mm)
Vantage Pro2 Plus with Fan-Aspirated Rad Shield	21.1" x 9.7" x 16.0" (536 mm x 246 mm x 406 mm)

DAVIS® Davis Instruments 3465 Diablo Ave., Hayward, CA 94545-2778 USA
(510) 732-9229 • FAX (510) 670-0589 • sales@davisinstruments.com • www.davisinstruments.com

Ultra Violet (UV) Radiation Index (requires UV sensor)

Resolution and Units	0.1 Index
Range	0 to 16 Index
Accuracy	±5% of full scale (Reference: Yankee UVB-1 at UV index 10 (Extremely High))
Cosine Response	±4% FS (0° to 90° zenith angle)
Update Interval	50 seconds to 1 minute (5 minutes when dark)
Current Graph Data	Instant Reading and Hourly Average; Daily, Monthly High
Historical Graph Data	Hourly Average, Daily, Monthly Highs
Alarm	High Threshold from Instant Calculation

Wind

Wind Chill (Calculated)

Resolution and Units	1°F or 1°C (user-selectable); °C is converted from °F and rounded to the nearest 1°C
Range	-110° to +135°F (-79° to +57°C)
Accuracy	±2°F (±1°C) (typical)
Update Interval	10 to 12 seconds
Source	United States National Weather Service (NWS)/NOAA
Equation Used	Osczevski (1995) (adopted by US NWS in 2001)
Variables Used	Instant Outside Temperature and 10-min. Avg. Wind Speed
Current Display Data	Instant Calculation
Current Graph Data	Instant Calculation; Hourly, Daily and Monthly Low
Historical Graph Data	Hourly, Daily and Monthly Lows
Alarm	Low Threshold from Instant Calculation

Wind Direction

Range	1 - 360°
Display Resolution	16 points (22.5°) on compass rose, 1° in numeric display
Accuracy	±3°
Update Interval	2.5 to 3 seconds
Current Graph Data	Instant Reading (user adjustable); 10-min. Dominant; Hourly, Daily, Monthly Dominant
Historical Graph Data	Past 6 10-min. Dominants on compass rose only; Hourly, Daily, Monthly Dominants

Wind Speed

Resolution and Units	1 mph, 1 km/h, 0.4 m/s, or 1 knot (user-selectable) Measured in mph; other units are converted from mph and rounded to nearest 1 km/hr, 0.1 m/s, or 1 knot.
Range	0 to 200 mph, 0 to 173 knots, 0 to 89 m/s, 0 to 322 km/h
Update Interval	Instant Reading: 2.5 to 3 seconds, 10-minute Average: 1 minute
Accuracy	±2 mph (2 kts, 3.2 km/h, 0.9 m/s) or ±5%, whichever is greater
Maximum Cable Length	540' (165 m) (Note that maximum wind speed reading decreases as length of cable from anemometer to ISS increases.)
Current Display Data	Instant
Current Graph Data	Instant Reading; 10-minute and Hourly Average; Hourly High; Daily, Monthly and Yearly High with Direction of High
Historical Graph Data	10-min. and Hourly Averages; Hourly Highs; Daily, Monthly and Yearly Highs with Direction of Highs
Alarms	High Thresholds from Instant Reading and 10-minute Average

CALIBRATION

Calibration Certificate

Certificate No.: CC0101908

1. Description

Calibration item :	a) Wind Speed b) Wind Direction
Equipment description :	Weather Station
Manufacturer :	Davis Vantage Pro 2
Type / Model No. :	6152CUK
Serial No. :	BC180807017
Assigned equipment no. :	N/A
Adjustment :	N/A
Remark :	Received with good condition

2. Customer information

Customer :	Castco Testing Centre Limited
Address :	33, On Kui Street, Fanling, N.T.
Date of receipt :	19 August 2019

3. Date of performance of the calibration

Date of calibration :	21 August 2019

Approved Signatory:
WM Ling

Company Chop:

Certificate issue date: 26 August 2019

CT-BEG-02

1. The certificate shall not reproduced except in full without the written approval of CAL LAB LTD
2. The certificate is issued subject to the latest Term and Condition, available assessable at our web site

Cal Lab Limited
Address: Room 2103, Technology Plaza, 29-35 Sha Tsui Road, Tsuen Wan, NT, Hong Kong
Tel : (852)25680106 Fax(852)30116194 Email: info@callab.com.hk Website:callab.com.hk

CALIBRATION

4. Result of Calibration

a) Wind Speed

Reference reading ; m/s	Measured reading ; m/s	Error of indication ; %
0.0	0.0	N/A
2.0	2.1	5.0
5.0	5.3	4.0
10.0	9.9	-1.0
15.0	15.1	0.7
20.0	20.1	0.5

Estimated expanded uncertainty: 0.5 m/s Technical Requirement: +/-5% or 1 m/s

a) Wind direction

Reference reading	Measured reading	Error of indication
0°	0°	0°
45°	45°	0°
90°	90°	0°
135°	135°	0°
180°	180°	0°
225°	225°	0°
270°	270°	0°
315°	315°	0°

Estimated expanded uncertainty: 5° Technical Requirement: N/A

Note: The arrow head was adjusted to the magnetic north before performing calibration.

1. The certificate shall not reproduced except in full without the written approval of CAL LAB LTD
2. The certificate is issued subject to the latest Term and Condition, available assessable at our web site

Cal Lab Limited
Address: Room 2103, Technology Plaza, 29-35 Sha Tsui Road, Tsuen Wan, NT, Hong Kong
Tel : (852)25680106 Fax(852)30116194 Email: info@callab.com.hk Website:callab.com.hk

CALIBRATION

5. Reference method for calibration

Wind Speed	SOP-251
Wind Direction	SOP-252

6. Environment condition of calibration

Temperature ; ˚C	24.6 ºC
Relative humidity ; %RH	42 %RH

7. Reference equipment used in the calibration

Item	Model	Serial No.	Expiry date	Traceable to
Reference Anemometer	TSI 9515	T95151233004	7 Jan 2020	SMQ

Note1: The estimated expanded uncertainties have been calculated in "Evaluation and expression of uncertainty in measurement" and give an internal estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Note2: The standard (s) and instrument used in the calibration are traceable to national or international recognized standard and are calibrated on a schedule to maintain the accuracy and good condition.

Note3: The result reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long term stability of the instrument.

Note4: The result shows in this calibration certificate relate only to the item calibrated, and the result only applies to the calibration item as received.

Calibrated by: Date: 22 August 2019

Checked by: Date: 22 August 2019

*** End of Certificate ***

CT-END-02

1. The certificate shall not reproduced except in full without the written approval of CAL LAB LTD
2. The certificate is issued subject to the latest Term and Condition, available assessable at our web site

Cal Lab Limited
Address: Room 2103, Technology Plaza, 29-35 Sha Tsui Road, Tsuen Wan, NT, Hong Kong
Tel : (852)25680106 Fax(852)30116194 Email: info@callab.com.hk Website:callab.com.hk

Appendix F – Weather information

General Information

Date	Absolute Daily Min Temperature (˚C)	Absolute Daily Max Temperature (˚C)	Total Rainfall (mm)
20/01/2020	15.7	20.6	0.0
21/01/2020	17.3	21.1	0.0
22/01/2020	18.0	23.6	Trace
23/01/2020	20.5	25.7	0.0
24/01/2020	20.1	23.1	Trace
25/01/2020	18.8	22.2	2.1
26/01/2020	13.7	19.2	12.3
27/01/2020	11.5	16.0	0.2
28/01/2020	10.8	16.1	0.1
29/01/2020	11.0	17.1	0.0
30/01/2020	11.6	18.5	0.0
31/01/2020	11.8	18.9	0.0

NOTE1: The above weather information was obtained from manned weather station of Hong Kong Observatory.

NOTE2: Trace means rainfall less than 0.05 mm

https://www.hko.gov.hk/en/cis/dailyExtract.htm?y=2020&m=01

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Hong Kong Children's Hospital

Date / Time	Wind Speed (m/s)	Wind Direction
20/01/2020 0:00	1.29	168.5
20/01/2020 1:00	0.36	180.5
20/01/2020 2:00	0.3	197
20/01/2020 3:00	0.56	220.5
20/01/2020 4:00	0.1	260.5
20/01/2020 5:00	0.6	195.8
20/01/2020 6:00	0.37	155
20/01/2020 7:00	0.38	277
20/01/2020 8:00	0.54	198
20/01/2020 9:00	1.46	180.5
20/01/2020 10:00	1.48	175
20/01/2020 11:00	1.38	236.3
20/01/2020 12:00	1.38	237.8
20/01/2020 13:00	1.86	256
20/01/2020 14:00	1.64	241
20/01/2020 15:00	1.16	214.8
20/01/2020 16:00	1.2	252.3
20/01/2020 17:00	0.49	228
20/01/2020 18:00	0.26	221.3
20/01/2020 19:00	0.19	214.6
20/01/2020 20:00	0.13	207.9
20/01/2020 21:00	0.09	201.2
20/01/2020 22:00	0.06	194.5
20/01/2020 23:00	0.05	187.8
21/01/2020 0:00	0.33	181.1
21/01/2020 1:00	0.74	174.4
21/01/2020 2:00	0.57	176.3
21/01/2020 3:00	1.37	217.5
21/01/2020 4:00	1.94	232.5
21/01/2020 5:00	2.27	228.8
21/01/2020 6:00	1.43	247.5
21/01/2020 7:00	1.76	221.3
21/01/2020 8:00	1.32	187.5
21/01/2020 9:00	1.33	258.8
21/01/2020 10:00	1.42	176.3
21/01/2020 11:00	1.57	176.3
21/01/2020 12:00	1.87	247.5
21/01/2020 13:00	1.34	225.3
21/01/2020 14:00	1.49	202.5

Date / Time	Wind Speed (m/s)	Wind Direction
21/01/2020 15:00	0.94	191.3
21/01/2020 16:00	0.68	176.3
21/01/2020 17:00	0.68	146.3
21/01/2020 18:00	0.52	146.3
21/01/2020 19:00	0.87	198.8
21/01/2020 20:00	0.88	251.3
21/01/2020 21:00	0.69	255
21/01/2020 22:00	1.74	232.5
21/01/2020 23:00	2.27	217.5
22/01/2020 0:00	1.36	228.8
22/01/2020 1:00	0.75	236.3
22/01/2020 2:00	0.91	232.5
22/01/2020 3:00	1.33	247.5
22/01/2020 4:00	1.38	243.8
22/01/2020 5:00	1.85	232.5
22/01/2020 6:00	2.93	198.8
22/01/2020 7:00	3.18	183.8
22/01/2020 8:00	2.45	187.5
22/01/2020 9:00	2.08	180
22/01/2020 10:00	1.94	195
22/01/2020 11:00	1.89	195
22/01/2020 12:00	1.55	297.3
22/01/2020 13:00	1.16	228.8
22/01/2020 14:00	1.25	221.3
22/01/2020 15:00	0.97	288.8
22/01/2020 16:00	0.92	187.5
22/01/2020 17:00	0.94	195
22/01/2020 18:00	0.62	303.8
22/01/2020 19:00	0.86	180
22/01/2020 20:00	1.12	258.8
22/01/2020 21:00	1.09	213.8
22/01/2020 22:00	1.49	251.3
22/01/2020 23:00	2.11	232.5
23/01/2020 0:00	2.37	225
23/01/2020 1:00	2.19	255
23/01/2020 2:00	1.81	251.3
23/01/2020 3:00	1.68	228.8
23/01/2020 4:00	1.43	258.8
23/01/2020 5:00	1.72	247.5
23/01/2020 6:00	2.44	195.8
23/01/2020 7:00	2.09	247.5
23/01/2020 8:00	2.37	225

Date / Time	Wind Speed (m/s)	Wind Direction
23/01/2020 9:00	2.49	187.5
23/01/2020 10:00	2.06	213.8
23/01/2020 11:00	1.63	168.8
23/01/2020 12:00	2.71	195
23/01/2020 13:00	1.52	232.5
23/01/2020 14:00	1.42	243.8
23/01/2020 15:00	1.77	195
23/01/2020 16:00	2.28	206.3
23/01/2020 17:00	0.48	292.5
23/01/2020 18:00	1.39	266.3
23/01/2020 19:00	1.58	240
23/01/2020 20:00	1.73	198.8
23/01/2020 21:00	1.53	260
23/01/2020 22:00	1.79	225
23/01/2020 23:00	1.46	161.3
24/01/2020 0:00	1.73	228.8
24/01/2020 1:00	1.42	285
24/01/2020 2:00	1.61	225
24/01/2020 3:00	1.32	236.3
24/01/2020 4:00	1.79	251.3
24/01/2020 5:00	2.21	187.5
24/01/2020 6:00	2.29	217.5
24/01/2020 7:00	1.82	236.3
24/01/2020 8:00	1.84	206.3
24/01/2020 9:00	1.54	198.8
24/01/2020 10:00	1.62	195
24/01/2020 11:00	2.05	210
24/01/2020 12:00	2.64	195
24/01/2020 13:00	2.34	213.8
24/01/2020 14:00	2.37	217.5
24/01/2020 15:00	2.17	198.8
24/01/2020 16:00	2.27	206.3
24/01/2020 17:00	2.21	221.3
24/01/2020 18:00	1.8	202.5
24/01/2020 19:00	2.41	213.8
24/01/2020 20:00	2.23	225
24/01/2020 21:00	2.41	228.8
24/01/2020 22:00	2.02	247.5
24/01/2020 23:00	1.93	183.8
25/01/2020 0:00	1.24	210
25/01/2020 1:00	0.73	225
25/01/2020 2:00	0.63	202.5

Date / Time	Wind Speed (m/s)	Wind Direction
25/01/2020 3:00	0.75	315.5
25/01/2020 4:00	1.53	304.3
25/01/2020 5:00	0.82	304.3
25/01/2020 6:00	0.67	308
25/01/2020 7:00	0.55	270.5
25/01/2020 8:00	0.45	263
25/01/2020 9:00	0.96	270.5
25/01/2020 10:00	0.94	274.3
25/01/2020 11:00	1.13	278
25/01/2020 12:00	1.63	263
25/01/2020 13:00	1.26	248
25/01/2020 14:00	1.95	233
25/01/2020 15:00	1.9	206.8
25/01/2020 16:00	1.4	244.3
25/01/2020 17:00	1.7	220
25/01/2020 18:00	1.41	213.3
25/01/2020 19:00	0.94	206.6
25/01/2020 20:00	0.66	199.9
25/01/2020 21:00	0.66	193.2
25/01/2020 22:00	0.76	186.5
25/01/2020 23:00	0.66	179.8
26/01/2020 0:00	0.19	173.1
26/01/2020 1:00	0.78	166.4
26/01/2020 2:00	0.76	159.7
26/01/2020 3:00	0.37	247.5
26/01/2020 4:00	0.79	206.3
26/01/2020 5:00	0.96	210
26/01/2020 6:00	0.41	195
26/01/2020 7:00	0.1	138.8
26/01/2020 8:00	0.88	161.3
26/01/2020 9:00	0.97	183.8
26/01/2020 10:00	1.12	168.8
26/01/2020 11:00	0.69	191.3
26/01/2020 12:00	0.87	168.8
26/01/2020 13:00	0.89	202.5
26/01/2020 14:00	1.24	161.3
26/01/2020 15:00	1.09	176.3
26/01/2020 16:00	0.79	191.3
26/01/2020 17:00	0.55	277.5
26/01/2020 18:00	0.64	183.8
26/01/2020 19:00	0.39	225
26/01/2020 20:00	0.81	258.8

Date / Time	Wind Speed (m/s)	Wind Direction
26/01/2020 21:00	0.32	228.8
26/01/2020 22:00	0.46	217.5
26/01/2020 23:00	0.35	135
27/01/2020 0:00	0.24	138.8
27/01/2020 1:00	0.06	157.5
27/01/2020 2:00	0.59	165
27/01/2020 3:00	0.63	146.3
27/01/2020 4:00	0.22	123.8
27/01/2020 5:00	0.24	243.8
27/01/2020 6:00	0.23	157.5
27/01/2020 7:00	1.23	292.5
27/01/2020 8:00	1.49	300
27/01/2020 9:00	1.67	300
27/01/2020 10:00	2.1	307.5
27/01/2020 11:00	1.98	315
27/01/2020 12:00	1.69	288
27/01/2020 13:00	2.03	313.3
27/01/2020 14:00	1.98	285
27/01/2020 15:00	2.36	290.5
27/01/2020 16:00	1.98	300.5
27/01/2020 17:00	1.8	288.4
27/01/2020 18:00	1.49	270
27/01/2020 19:00	1.34	307.5
27/01/2020 20:00	1.21	311.3
27/01/2020 21:00	1.06	292.5
27/01/2020 22:00	1.17	311.3
27/01/2020 23:00	1.52	303.8
28/01/2020 0:00	1.47	298.8
28/01/2020 1:00	1.37	315
28/01/2020 2:00	1.11	331.3
28/01/2020 3:00	1.1	322.5
28/01/2020 4:00	0.84	313.3
28/01/2020 5:00	0.74	297.5
28/01/2020 6:00	2.14	276.5
28/01/2020 7:00	2.19	296.3
28/01/2020 8:00	1.76	288.8
28/01/2020 9:00	3.14	281.3
28/01/2020 10:00	3.12	277.5
28/01/2020 11:00	2.74	295
28/01/2020 12:00	2.52	286.8
28/01/2020 13:00	2.58	296.3
28/01/2020 14:00	3.17	298.8

Date / Time	Wind Speed (m/s)	Wind Direction
28/01/2020 15:00	2.83	113
28/01/2020 16:00	2.46	113
28/01/2020 17:00	2.54	113
28/01/2020 18:00	2.26	169.3
28/01/2020 19:00	2.58	195.5
28/01/2020 20:00	1.72	168.5
28/01/2020 21:00	1.34	229.3
28/01/2020 22:00	0.75	303.3
28/01/2020 23:00	1.17	289.3
29/01/2020 0:00	0.79	281.8
29/01/2020 1:00	1.39	296.8
29/01/2020 2:00	0.93	300.5
29/01/2020 3:00	1.23	296.8
29/01/2020 4:00	1.69	285.5
29/01/2020 5:00	1.46	311.8
29/01/2020 6:00	2.68	195.5
29/01/2020 7:00	2.34	199.3
29/01/2020 8:00	2.23	188
29/01/2020 9:00	2.81	263
29/01/2020 10:00	3.51	289.3
29/01/2020 11:00	3.07	311.8
29/01/2020 12:00	3.38	304.3
29/01/2020 13:00	3.62	308
29/01/2020 14:00	2.15	311.8
29/01/2020 15:00	2	285
29/01/2020 16:00	1.91	292.5
29/01/2020 17:00	2.02	303.8
29/01/2020 18:00	1.63	303.8
29/01/2020 19:00	0.93	273.8
29/01/2020 20:00	0.78	281.3
29/01/2020 21:00	1.57	281.3
29/01/2020 22:00	2.68	292.5
29/01/2020 23:00	2.71	288.8
30/01/2020 0:00	2.21	292.5
30/01/2020 1:00	2.63	281.3
30/01/2020 2:00	2.28	292.5
30/01/2020 3:00	2.12	288.8
30/01/2020 4:00	2.24	285
30/01/2020 5:00	2.86	288.8
30/01/2020 6:00	0.83	285
30/01/2020 7:00	1.98	296.3
30/01/2020 8:00	2.2	288.8

Date / Time	Wind Speed (m/s)	Wind Direction
30/01/2020 9:00	2.71	121.9
30/01/2020 10:00	2.62	121.9
30/01/2020 11:00	2.82	121.9
30/01/2020 12:00	2.7	178.2
30/01/2020 13:00	2.95	204.4
30/01/2020 14:00	2.53	174.4
30/01/2020 15:00	2.11	238.2
30/01/2020 16:00	2.21	313.2
30/01/2020 17:00	1.58	298.2
30/01/2020 18:00	0.56	290.7
30/01/2020 19:00	0.73	305.7
30/01/2020 20:00	0.41	309.4
30/01/2020 21:00	0.58	305.7
30/01/2020 22:00	0.84	294.4
30/01/2020 23:00	0.71	320.7
31/01/2020 0:00	0.47	204.4
31/01/2020 1:00	0.4	208.2
31/01/2020 2:00	0.58	196.9
31/01/2020 3:00	0.76	271.9
31/01/2020 4:00	0.3	298.2
31/01/2020 5:00	0.07	320.7
31/01/2020 6:00	0.16	313.2
31/01/2020 7:00	0.09	316.9
31/01/2020 8:00	0.75	320.7
31/01/2020 9:00	1.15	213.8
31/01/2020 10:00	1.39	180
31/01/2020 11:00	0.93	251.3
31/01/2020 12:00	1.78	315
31/01/2020 13:00	1.87	337
31/01/2020 14:00	0.53	318.8
31/01/2020 15:00	0.24	206.3
31/01/2020 16:00	0.66	180.3
31/01/2020 17:00	1.13	313.8
31/01/2020 18:00	0.24	262.5
31/01/2020 19:00	0.26	286.3
31/01/2020 20:00	1	157.5
31/01/2020 21:00	1.38	165.3
31/01/2020 22:00	1.17	187
31/01/2020 23:00	0.81	165

Appendix G – 24-hr TSP monitoring results and graphical presentation

Location: AM3 – Sky Tower

Start Date	Weather	Air Temp. (℃)	Atmospheric Pressure (hPa)	Filter weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (min)	Flow Rate (cfm)		Av. Flow (m^3/min)	Total vol. (m^3)	Conc. (μg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
21/1/2020	Sunny	21.1	1015	18.6657	18.9138	0.2481	36000	38400	1440	50	50	1.38	1992	125
24/1/2020	Cloudy	23.1	1012	18.7516	18.9352	0.1836	38400	40800	1440	48	48	1.32	1905	96
30/1/2020	Sunny	19.7	1017	14.4799	14.5491	0.0692	40800	43200	1440	50	50	1.39	1999	35
												Maximum		125
												Minimum		35
												Average		85
												Action Level		182
												Limit Level		260

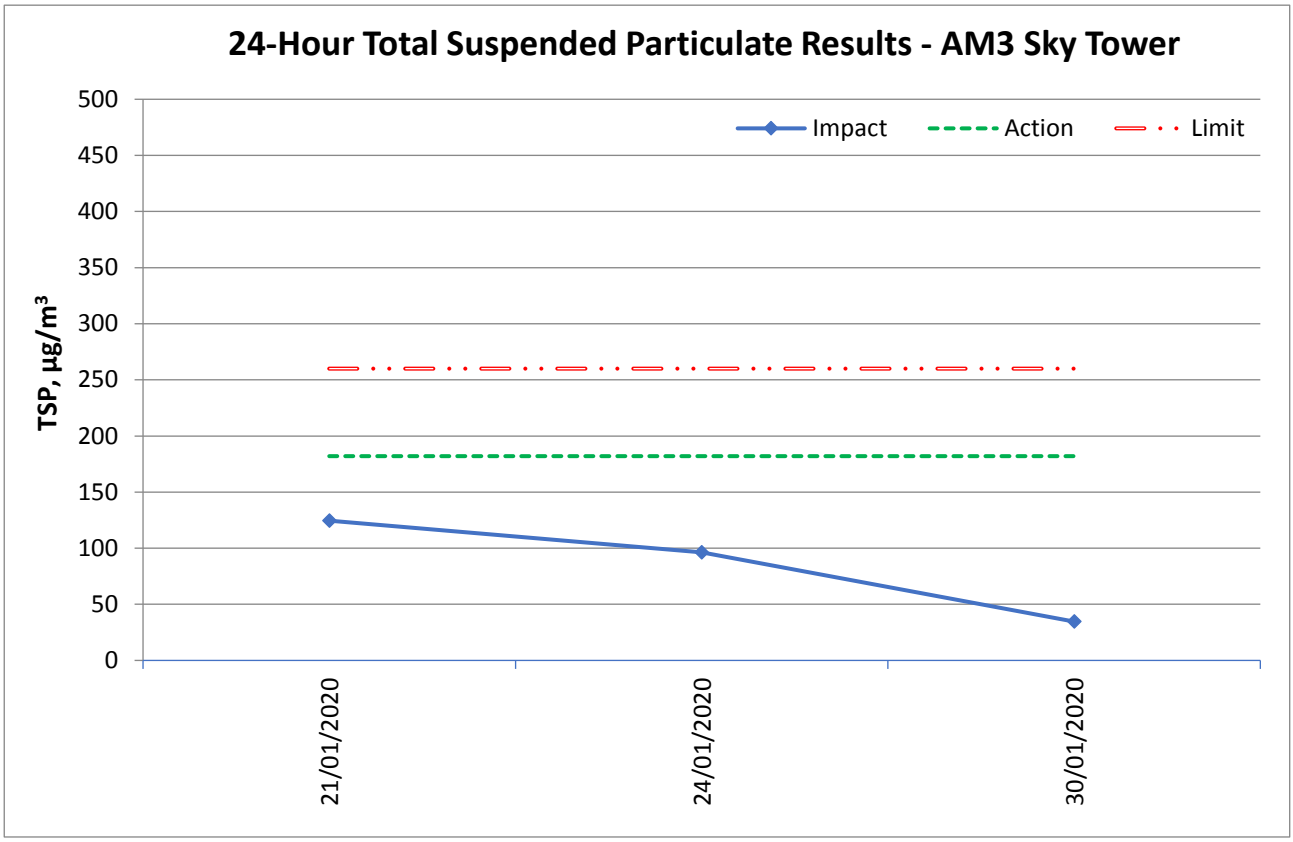
Location: AM4(A) – The Hong Kong Society for the Blind's Factory cum Sheltered Workshop

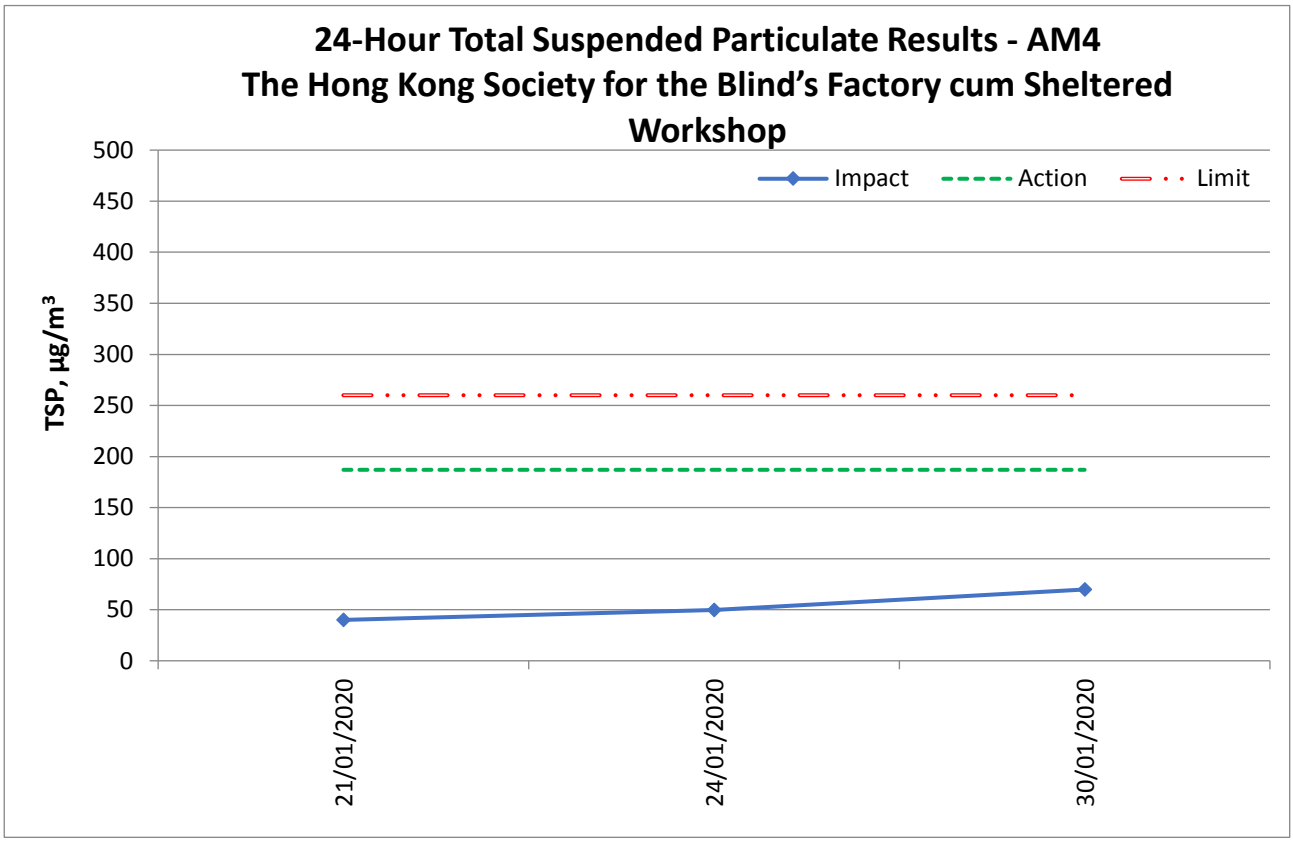
Start Date	Weather	Air Temp. (℃)	Atmospheric Pressure (hPa)	Filter weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (min)	Flow Rate (cfm)		Av. Flow (m^3/min)	Total vol. (m^3)	Conc. (μg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
21/1/2020	Sunny	21.1	1016	15.0955	15.1690	0.0735	36000	38400	1440	46	46	1.28	1837	40
24/1/2020	Cloudy	23.1	1015	14.3563	14.4512	0.0949	38400	40800	1440	48	48	1.32	1908	50
30/1/2020	Sunny	19.7	1010	18.7539	18.8875	0.1336	40800	43200	1440	48	48	1.33	1914	70
												Maximum		70
												Minimum		40
												Average		53
												Action Level		187
												Limit Level		260

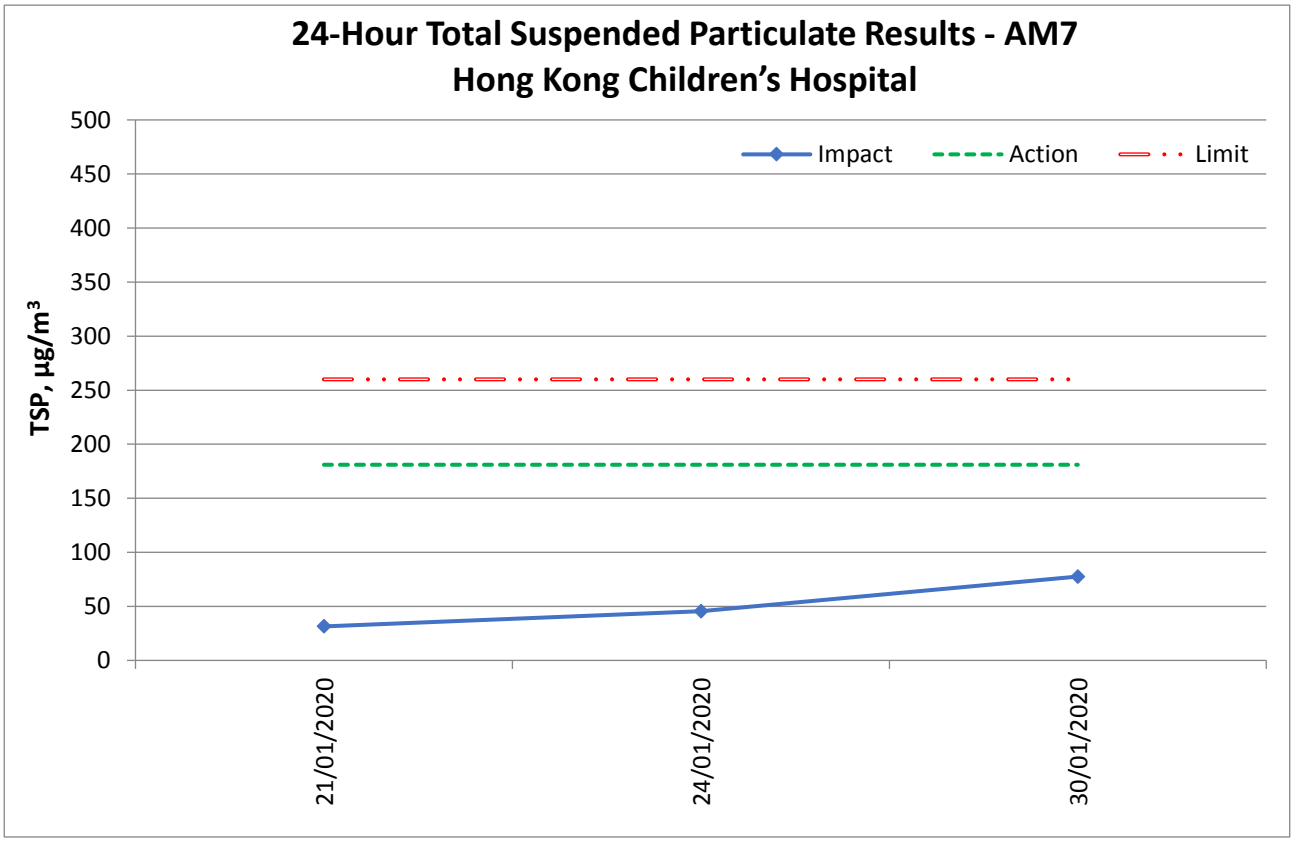
Location: AM7 – Hong Kong Children's Hospital

Start Date	Weather	Air Temp. (℃)	Atmospheric Pressure (hPa)	Filter weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (min)	Flow Rate (cfm)		Av. Flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
21/1/2020	Sunny	21.1	1018	14.9623	15.0226	0.0603	36000	38400	1440	48	48	1.33	1917	31
24/1/2020	Cloudy	23.1	1013	15.4809	15.5641	0.0832	38400	40800	1440	46	46	1.27	1828	46
30/1/2020	Sunny	19.7	1019	15.5419	15.6971	0.1552	40800	43200	1440	50	50	1.39	2001	78
												Maximum		78
												Minimum		31
												Average		52
												Action Level		181
												Limit Level		260

24-hour average TSP



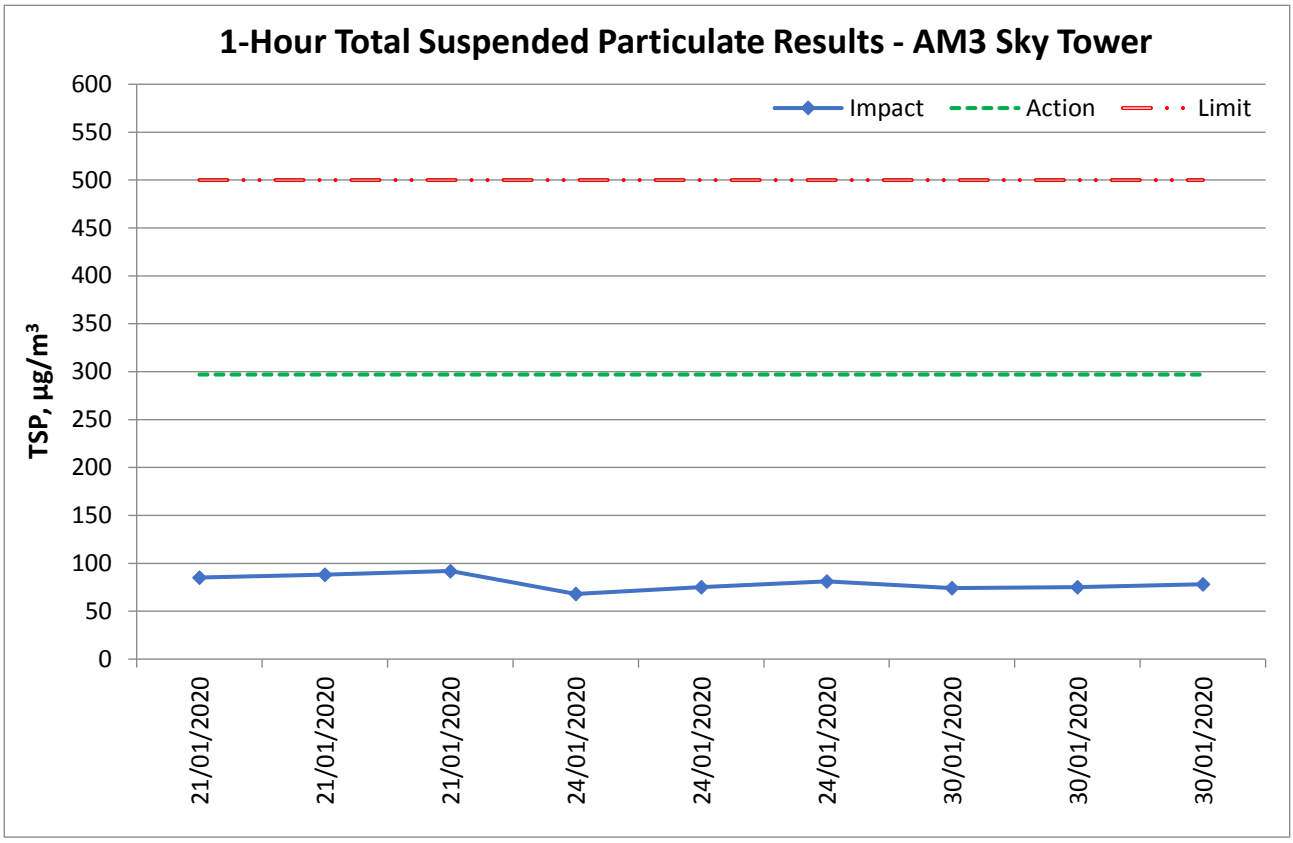


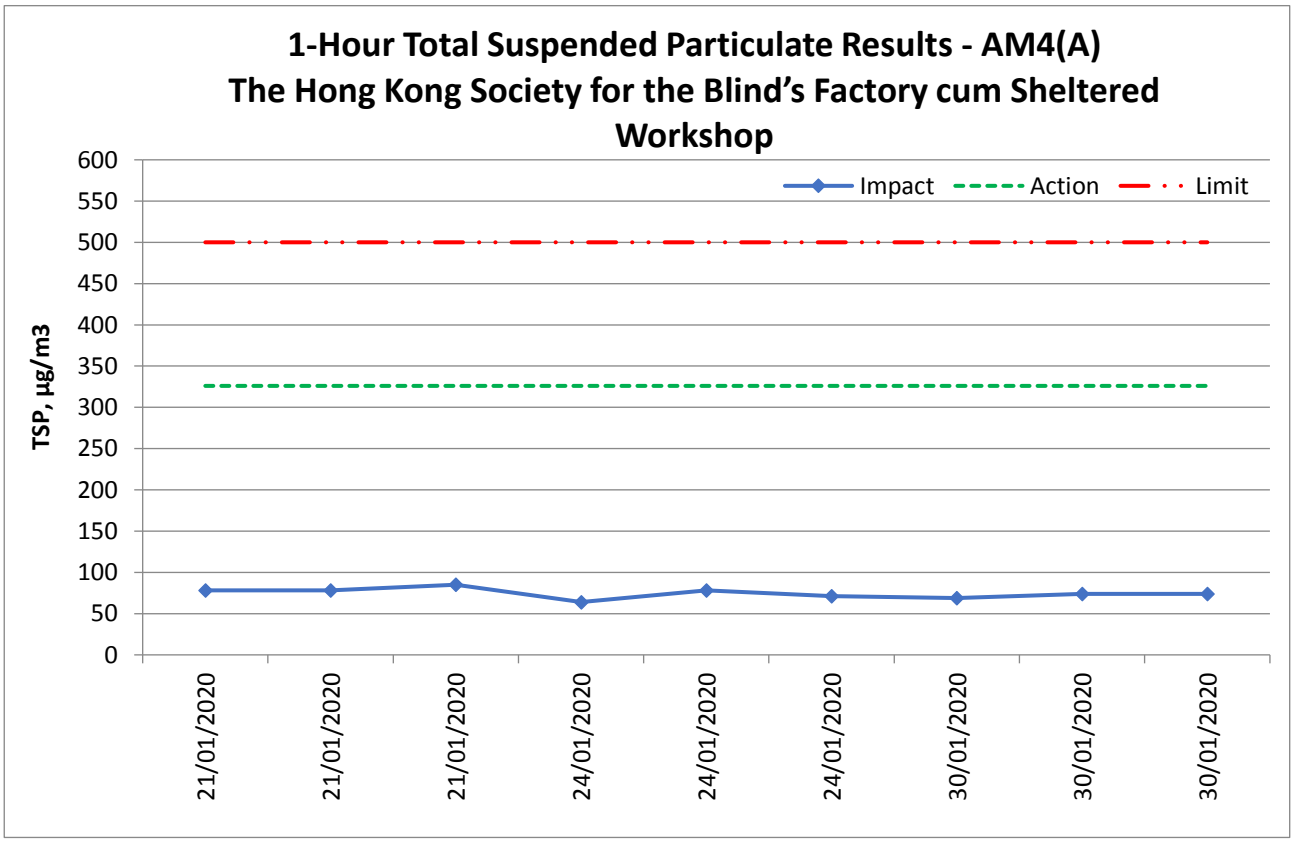

24-Hour Total Suspended Particulate Results - AM7
Hong Kong Children's Hospital
TSP, µg/m³
500
450
400
350
300
250
200
150
100
50
0
Impact
Action
Limit
21/01/2020
24/01/2020
30/01/2020

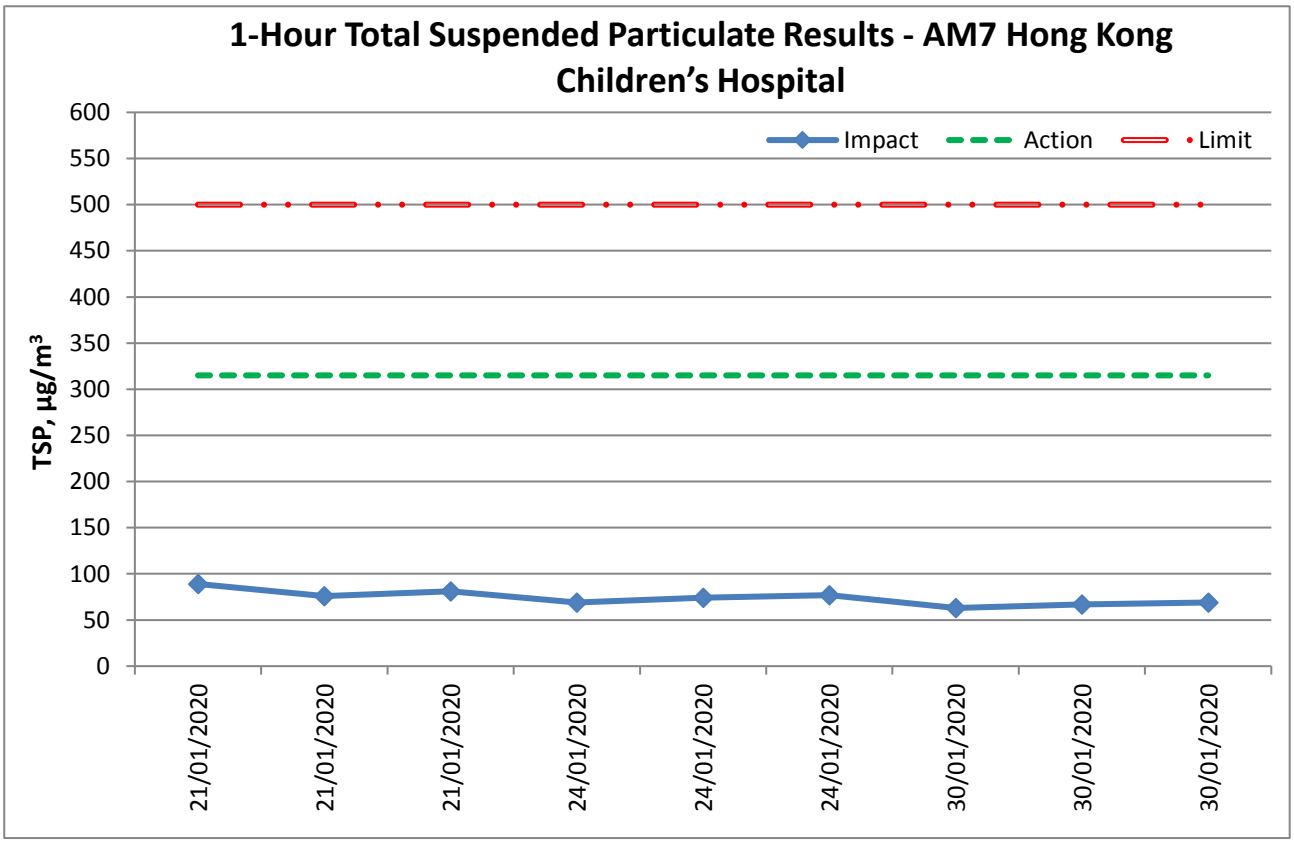
Appendix H – 1-hr TSP monitoring results and graphical presentation

	Date	Measurement Period			1-hr TSP concentration, $\mu g/m^3$	Weather
Location: **AM3 - Sky Tower**	21/01/2020	13:00	-	14:00	85	Sunny
		14:00	-	15:00	88	
		15:00	-	16:00	92	
	24/01/2020	9:00	-	10:00	68	Cloudy
		10:00	-	11:00	75	
		11:00	-	12:00	81	
	30/01/2020	13:00	-	14:00	74	Sunny
		14:00	-	15:00	75	
		15:00	-	16:00	78	
	Maximum				92	
	Minimum				68	
	Average				80	
	Action Level				297	
	Limit Level				500	
Location: **AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop**	21/01/2020	9:00	-	10:00	78	Sunny
		10:00	-	11:00	78	
		11:00	-	12:00	85	
	24/01/2020	13:00	-	14:00	64	Cloudy
		14:00	-	15:00	78	
		15:00	-	16:00	71	
	30/01/2020	9:00	-	10:00	69	Sunny
		10:00	-	11:00	74	
		11:00	-	12:00	74	
	Maximum				85	
	Minimum				64	
	Average				75	
	Action Level				326	
	Limit Level				500	
Location: **AM7 - Hong Kong Children's Hospital**	21/01/2020	9:00	-	10:00	89	Sunny
		10:00	-	11:00	76	
		11:00	-	12:00	81	
	24/01/2020	13:00	-	14:00	69	Cloudy
		14:00	-	15:00	74	
		15:00	-	16:00	77	
	30/01/2020	9:00	-	10:00	63	Sunny
		10:00	-	11:00	67	
		11:00	-	12:00	69	
	Maximum				89	
	Minimum				63	
	Average				74	
	Action Level				315	
	Limit Level				500	

1-hour average TSP






1-Hour Total Suspended Particulate Results - AM7 Hong Kong Children's Hospital
Impact
Action
Limit
TSP, µg/m³
600
550
500
450
400
350
300
250
200
150
100
50
0
21/01/2020
21/01/2020
21/01/2020
24/01/2020
24/01/2020
24/01/2020
30/01/2020
30/01/2020
30/01/2020

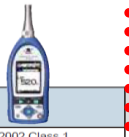
Appendix I – Event and Action Plan for air quality

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

Event	Action			
	ET	IEC	Supervisor / ER	Contractor
	Contractor's remedial actions and keep EPD, IEC and Supervisor /ER informed of the results.	on the effectiveness of the proposed remedial measures.	implemented; 4. Supervise implementation of remedial measures; 5. Conduct meeting with ET and IEC if exceedance continues.	within three working days of notification; 4. Implement the agreed proposals.
Limit Level being exceeded by two or more consecutive sampling	1. Notify IEC, Supervisor /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, Supervisor /ER and Contractor to discuss the remedial action to be taken; 6. Assess effectiveness of Contractor's remedial actions and keep EPD, IEC and Supervisor /ER informed of the results; 7. If exceedance stop, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with Supervisor /ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the Supervisor /ER accordingly.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Discuss with ET and IEC on proper remedial actions; 3. Submit proposal for remedial actions to Supervisor /ER and 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 Supervisor /ER until the exceedance is abated.

Appendix J – Calibration certificates, catalogue of noise monitoring equipment

Specifications



	NL-52	NL-42
Applicable standards	IEC 61672-1: 2002 Class 1 ANSI S1.4-1983 Type 1 ANSI S1.4A-1985 Type 1 ANSI S1.43-1997 Type 1 JIS C 1509-1: 2005 Class 1	IEC 61672-1: 2002 Class 2 ANSI S1.4-1983 Type 2 ANSI S1.4A-1985 Type 2 ANSI S1.43-1997 Type 2 JIS C 1509-1: 2005 Class 2
	CE Marking (EMC Directive 2004/108/EC, Low Voltage Directive 2006/95/EC), WEEE Directives, Chinese RoHS (export model for China only)	
Measurement functions	Simultaneous measurement of the following items, with selected time weighting and frequency weighting	
Processing (main ch)	Instantaneous sound pressure level: L_p Equivalent continuous sound pressure level: L_{eq} Sound exposure level: L_E Maximum sound pressure level: L_{max} Minimum sound pressure level: L_{min} Percentile sound levels: L_N (0.1 to 99.9 %, 0.1-increment steps, max. 5 values)	
Processing (sub ch)	Instantaneous sound pressure level: L_p	
Additional processing	In addition to main processing items, one of the following can be selected for simultaneous processing: C-weighted equivalent continuous sound level: L_{Ceq} C-weighted peak sound level: L_{Cpeak} Z-weighted peak sound level: L_{Zpeak} □-time-weighted equivalent continuous sound level: $L_{A□eq}$ *2 Maximum □-time-weighted equivalent continuous sound level: $L_{A□max}$ *2 The power average of the maximum level of each 5 second interval: L_{Atm5} The frequency weighting for the additional processing synchronizes with the frequency weighting of the sub-channel, so when the sub-channel has A-weighting, L_{Atm5} can be selected. When C-weighting (Z-weighting) is selected, the additional processing L_{Ceq} and L_{Cpeak} (L_{Zpeak}) are selectable.	
Measuring time	10 s, 1, 5, 10, 15, 30 m, 1, 8, 24 h, and manual (maximum 24 h)	
Microphone Type	UC-59	UC-52
Microphone Sensitivity level	−27 dB	−33 dB
Measurement range	A-weighting: 25 dB to 138 dB C-weighting: 33 dB to 138 dB Z-weighting: 38 dB to 138 dB C-weighting peak sound level: 55 dB to 141 dB Z-weighting peak sound level: 60 dB to 141 dB	
Inherent noise A-weighting	17 dB or less	19 dB or less
Inherent noise C-weighting	25 dB or less	27 dB or less
Inherent noise Z-weighting	30 dB or less	32 dB or less
Frequency range	20 Hz to 20 kHz	20 Hz to 8 kHz
Frequency weighting	A, C, and Z	
Time weighting	F (Fast) and S (Slow)	
Level range	Single range (Linearity range: 113 dB)	
Bar graph display range max	Max. 110 dB (20 to 130 dB)	
Switching of bar graph display	Set the upper/ lower limit in 10 dB increments.	
RMS detection circuit	Digital processing method	
Sampling cycle	20.8 µs (L_p, L_{eq}, L_E, L_{max}, L_{min}, L_{peak} : sampling frequency: 48 kHz) 100 ms (L_N)	
Calibration	Measurement Law: electrical calibration performed according to IEC and JIS standards, using internally generated signals: acoustic calibration performed with the NC-74.	
Correction functions	Windscreen correction: Compliant with IEC 61672-1 and JIS C 1509-1 standards when the windscreen is installed.	
	Diffuse sound field correction: Correction of frequency characteristics in order to comply with standards (ANSI S1.4) in diffuse sound field.	
Delay time	The meter can be set to start measuring a specified time (OFF, 1, 3, 5 or 10 s) after the start button has been pressed or when a user-set trigger is exceeded.	
Back erase function	When the PAUSE key is pressed to pause measurement, the preceding (user selectable) 0, 1, 3 or 5 s data are excluded from processing.	
Display	Backlit semitransparent color TFT LCD display WQVGA (400 x 240 dots) *LCD with touch panel (Capacitive Touch Panel)	
	Numerical display update frequency: 1 s; Bar graph update frequency: 100 ms	
Store Manual	Data for measurement results are stored manually in single address increments.	
Number of data	Internal memory: max. 1000 sets SD Card: depends on the capacity of the SD Card *1	
Auto *2	Instantaneous values (L_p mode) and processed values (L_{eq} mode) are stored continuously and automatically at preset intervals.	
L_p sampling cycle	100 ms, 200 ms, 1 s, L_{eq} 1s	
L_{eq} sampling cycle	10 s, 1, 5, 10, 15, 30 ms, 1, 8, 24 h	
Measurement Time	Max. 1000 h (depends on the capacity of the SD Card) *1	

Data recall	Allows viewing of stored data	
Setup memory	Up to five setup configurations can be saved in internal memory, for later recall Start up via file settings previously stored on SD card possible	
Waveform recording *3		
File format	Uncompressed waveform WAVE file	
Sampling frequency	Select 48 kHz, 24 kHz or 12 kHz	
Data length	Select 24 bit or 16 bit	
Outputs DC output	Output DC signals using a frequency weighting characteristic selected by processing.	
Output voltage	2.5 V, 25 mV / dB at bar graph display full scale	
AC output	Output AC signals using a frequency weighting characteristic selected by processing or by A, C, Z-weighting.	
Output voltage	1 V (rms values) at bar graph display full scale	
Comparator output *2	Turns on when the open-collector output exceeds the set value (max. applied voltage 24 V, max. current 60 mA, allowable dissipation 300 mW)	
USB	Allows USB to be connected to a computer and recognized as a removable disk	
	Allows USB to be controlled via communication commands	
RS-232C communication	Allows for RS-232C communication via use of a dedicated cable	
Data continuous output *2		
Type of data Instantaneous value	L_p	
Type of data Processed value	L_{eq}, L_{max}, L_{min}, L_{peak}	
Output interval	100 ms	
Print out	Printing of measurement results on dedicated printer DPU-414	
Power requirements	Four IEC R6 (size AA) batteries (alkaline or rechargeable batteries) or external power supply	
Battery life (23 °C)	Alkaline battery LR6 (AA): 26 h Ni-MH secondary battery: 25 h At the maximum *Depends on the setting	
AC adapter	NC-98C (NC-34 for previous models cannot be used)	
External power voltage	5 to 7 V (rated voltage: 6 V)	
Current consumption	Approximately 90 mA (normal operation, rated voltage)	
Ambient conditions Temperature	−10 to +50 °C	
Ambient conditions Humidity	10 to 90 % RH (non-condensing)	
Dustproof / water-resistant performance *4	IP code: IP54 (except for microphone) See precautions regarding waterproofing	
Dimensions, weight	Approx. 250 (H) x 76 (W) x 33 mm(D), approx. 400 g (with batteries)	
Supplied accessories	Storage case x 1, Windscreen WS-10 x 1, Windscreen fall prevention rubber x 1, Hand strap x 1, LR6 (AA) alkaline batteries x 4, SD card 512 MB*1 (NX-42EX preinstalled model only)	

Options

Product name	Product number
Extended function program (Inst.on 512 MB SD card)	NX-42EX
Waveform recording program *2 (Inst.on 2 GB SD card)	NX-42WR
Octave, 1/3 octave real-time analysis program *2 (Inst.on 512 MB SD card)	NX-42RT
FFT analysis program *2 (Inst.on 512 MB SD card)	NX-42FT
Data management software for environmental measurement	AS-60
Data management software for environmental measurement (Includes the octave and 1/3 octave data management software)	AS-60RT
Data management software for environmental measurement (Includes the vibration level data management software)	AS-60VM
Waveform analysis software	CAT-WAVE
SD Card 512 MB	SD-512M
SD Card 2 GB	SD-2G
AC adapter (100 V to 240 V)	NC-98C
Battery pack	BP-21
Microphone extension cables	EC-04 (from 2 m)
BNC-Pin output code	CC-24
Comparator output cable	CC-42C
Printer	DPU-414
Printer cable	CC-42P
RS 232C serial □/O cable	CC-42R
USB cable	—
Sound calibrator	NC-74
All-weather windscreen	WS-15
Windscreen mounting adapter	WS-15006
Rain-protection windscreen	WS-16
Sound level meter tripod	ST-80
All-weather windscreen tripod	ST-81

*1 Use Rion fully guaranteed products. *2 NX-42EX required (sold separately). *3 NX-42WR required (sold separately).
*4 Protection against harmful dust and water splashing from any direction.

Precautions regarding waterproofing

Before use, verify that the rubber bottom cover and the battery compartment lid are firmly closed.
To maintain the water and dust proof rating, internal packing replacement is required every two years (at cost).

* Windows is a trademark of Microsoft Corporation.
* Specifications subject to change without notice.

ISO 14001 RION CO., LTD.
ISO 9001 RION CO., LTD.

Distributed by:

RION CO., LTD.
http://www.rion.co.jp/english/
3-20-41, Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan
Tel: +81-42-359-7888 Fax: +81-42-359-7442

This product is environment-friendly. It does not include toxic chemicals on our policy.
This product is certified to an International Protection rating of IP54 (dust protected and resistant to splashing water).
This leaflet is printed with environmentally friendly vegetable-based ink on recycled paper.

1011-4 I212.P.D

Calibration Certificate of Sound Level Meter

中国赛宝实验室
(工业和信息化部电子第五研究所)
CHINA CEPREI LABORATORY

CNAS 中国认可 国际互认 校准 CALIBRATION CNAS L0462

校 准 证 书
CALIBRATION CERTIFICATE

证书编号：2HB19001116-0003
Certificate No.

委托单位: Client	Castco Testing Centre Limited
仪器名称: Description	Sound Level Meter
型号规格: Model/Type	NL-52
制造商: Manufacturer	RION
机身号: Serial No.	00921213
管理号: Asset No.	AAST-SLM-04
接收日期: Rec. Date	2019年07月03日
校准日期: Cal. Date	2019 年 07 月 10 日
签发日期: App. Date	2019年07月12日
建议再校日期: Next Cal. Date	2020 年 07 月 10 日
结论: Conclusion	所校准项目合格(Passed at Calibration Items)

校准: Calibrated by 杨西振
核验: Inspected by 刘鹏
签发: Approved by 邵木方
印章: Stamp

赛宝计量检测中心
广州总部地址：广州天河区东莞庄路110号
香港分部地址：香港上水剑桥广场G/F2
客服电话：852-26680871 传真：852-26686197
投诉电话：852-26680936 020-87236789
邮件：cal@ceprei.com.hk
网址：www.ceprei-cal.com

CEPREI Calibration and Testing Center
H.Q. Addr: No.110 Dongguanzhuang Road, Tianhe District, Guangzhou
CEPREI(H.K.) Addr.: G/F2 Cambridge Plaza Sheung Shui N.T. Hong Kong
Tel: 852-26680871 Fax: 852-26686197
Complaint phone: 852-26680936 020-87236789
Email: cal@ceprei.com.hk
Website: www.ceprei-cal.com

说 明
DIRECTIONS

1. 本机构质量管理体系符合ISO/IEC 17025的要求，获得中国合格评定国家认可委员会（CNAS）认可，认可证书号为：CNAS L0462。
This laboratory quality management system meets the ISO/IEC 17025 and is accredited by the China National Accreditation Service for Conformity Assessment, No. CNAS L0462.

2. 本次校准的技术依据及CNAS认可范围(Reference documents and CNAS accredited scopes)：
- JJG 188-2002 声级计检定规程；声压级:(20～130)dB;频率计权:(20～130)dB@(10Hz～20kHz)
* 详细内容请查看CNAS网站中注册编号为L0462的证书附件，超出范围的内容未被认可。(Please see the attachment of certificate No. L0462 at CNAS website for details, beyond which is not accredited).

3. 本次校准所使用的主要测量标准(The main measurement standards used during the calibration)：

名 称 (Description)	证书号/有效期/溯源单位 (Certificate No./Due Date/Traceability to)	技术指标 (Specification)
Sound Calibrator	2HB19000002-0104/2020-03-25/赛宝	1级
音频分析仪	2HB19000002-0019/2020-01-05/赛宝	失真度测量：±5%

4. 校准地点(The calibration place)：
广州市天河区东莞庄路110号401楼振动声学室

5. 环境条件(Environmental conditions)：
温度(Temperature)：21℃ 相对湿度(Relative Humidity)：63%

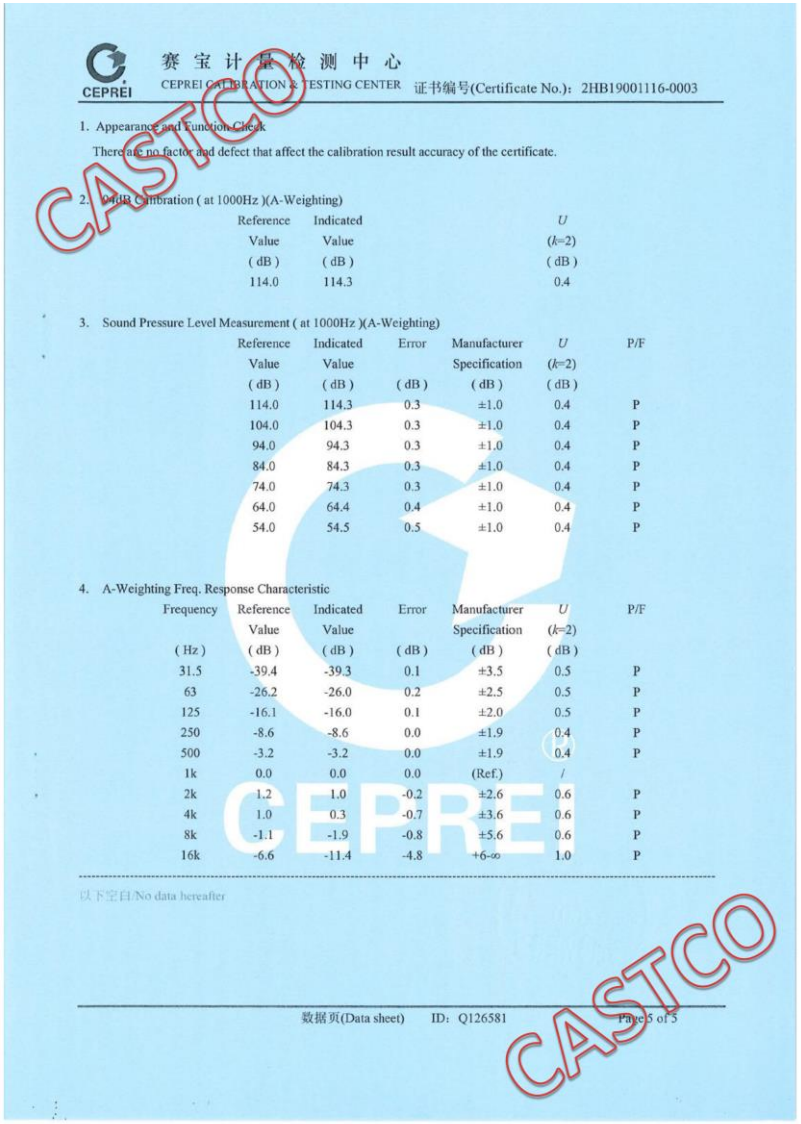
6. 依据《JJF 1059.1-2012 测量不确定度评定与表示》进行测量结果不确定度评定。评定结果以包含因子为k的扩展不确定度U或相对扩展不确定度U_{rel}表示。
The evaluation was made according to JJF 1059.1-2012 Evaluation and Expression of Uncertainty in Measurement.The evaluation results were expressed by the extended uncertainty U or relative expanded uncertainty U_{rel} with a coverage factor k.

7. 证书中"P"、"合格"代表"测量结果在允许范围内"，"F"、"不合格"代表"测量结果不在允许范围内"，"N/A"代表"不适用"。本证书报告的判定规则和结论仅供参考，使用人员应结合实际测量的要求合理使用，如考虑测量结果测量不确定度的影响等。
"P" and "Pass" in this certificate stand for "Low Limit≤the measured value ≤High Limit", "F" and "Fail" stand for "the measured value<Low Limit or the measured value>High Limit", "N/A" stands for "Not Applicable ".The judgment rules and conclusions of this certificate are for reference only. Users should use them reasonably according to the actual measurement requirements, such as considering the impact of measurement uncertainty, etc.

8. 建议再校日期是本实验室依据本证书报告的技术依据和仪器设备常规使用条件给出的建议，供委托方参考。委托方可以根据实际使用情况自行决定样品的再校准日期。
The recommended date of recalibration is based on the reference documents and the normal operating conditions of the calibrated instrument. It is only for reference. The client may decide the date of recalibration of the instrument according to actual use.

注: 1.本证书未经本机构书面授权，不得部分复制。(The certificate shall not be partly reproduced without written approval of the laboratory.)
2.本次校准结果仅与被校物有关。(The results are only related to the items calibrated.)

Calibration Certificate of Sound Level Meter



CEPREI 赛宝计量检测中心
CEPREI CALIBRATION & TESTING CENTER 证书编号(Certificate No.)：2HB19001116-0003

1. Appearance and Function Check

There are no factor and defect that affect the calibration result accuracy of the certificate.

2. 94dB Calibration (at 1000Hz)(A-Weighting)

Reference Value (dB)	Indicated Value (dB)	U (k=2) (dB)
114.0	114.3	0.4

3. Sound Pressure Level Measurement (at 1000Hz)(A-Weighting)

Reference Value (dB)	Indicated Value (dB)	Error (dB)	Manufacturer Specification (dB)	U (k=2) (dB)	P/F
114.0	114.3	0.3	±1.0	0.4	P
104.0	104.3	0.3	±1.0	0.4	P
94.0	94.3	0.3	±1.0	0.4	P
84.0	84.3	0.3	±1.0	0.4	P
74.0	74.3	0.3	±1.0	0.4	P
64.0	64.4	0.4	±1.0	0.4	P
54.0	54.5	0.5	±1.0	0.4	P

4. A-Weighting Freq. Response Characteristic

Frequency (Hz)	Reference Value (dB)	Indicated Value (dB)	Error (dB)	Manufacturer Specification (dB)	U (k=2) (dB)	P/F
31.5	-39.4	-39.3	0.1	±3.5	0.5	P
63	-26.2	-26.0	0.2	±2.5	0.5	P
125	-16.1	-16.0	0.1	±2.0	0.5	P
250	-8.6	-8.6	0.0	±1.9	0.4	P
500	-3.2	-3.2	0.0	±1.9	0.4	P
1k	0.0	0.0	0.0	(Ref.)	/	
2k	1.2	1.0	-0.2	±2.6	0.6	P
4k	1.0	0.3	-0.7	±3.6	0.6	P
8k	-1.1	-1.9	-0.8	±5.6	0.6	P
16k	-6.6	-11.4	-4.8	+6-∞	1.0	P

以下空白/No data hereafter

数据页(Data sheet) ID：Q126581 Page 5 of 5

CASTCO CEPREI CASTCO

Calibration Certificate of Sound Level Meter

Cal Cert 2019
AAST-SLM-12

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C193567
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC19-1346) Date of Receipt / 收件日期 : 3 July 2019

Description / 儀器名稱 : Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52
Serial No. / 編號 : 01287681
Supplied By / 委託者 : Castco Testing Centre Limited
Air & Acoustics Laboratory, 1/F., Techno Centre,
33 On Kui Street, Fanling, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 7 July 2019

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong, Technical Officer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 9 July 2019

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準，局部複印本證書需先獲本實驗所書面批准，

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C193567
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration was performed before the test.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C190176
CL281	Multifunction Acoustic Calibrator	CDK1806821

5. Test procedure : MA101N.
6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT	IEC 61672
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Class 1 Spec. (dB)
30 - 130	L_A	A	Fast	94.00	1	94.1	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)
30 - 130	L_A	A	Fast	94.00	1	94.1 (Ref.)
				104.00		104.1
				114.00		114.1

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT	IEC 61672
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Class 1 Spec. (dB)
30 - 130	L_A	A	Fast	94.00	1	94.1	Ref.
			Slow			94.1	± 0.3

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準，局部複印本證書需先獲本實驗所書面批准，

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

CASTCO

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C193567
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.8	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.5
					250 Hz	85.4	-8.6 ± 1.4
					500 Hz	90.8	-3.2 ± 1.4
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.6
					4 kHz	95.1	+1.0 ± 1.6
					8 kHz	93.0	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.6	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_C	C	Fast	94.00	63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.5
					250 Hz	94.0	0.0 ± 1.4
					500 Hz	94.1	0.0 ± 1.4
					1 kHz	94.1	Ref.
					2 kHz	93.9	-0.2 ± 1.6
					4 kHz	93.3	-0.8 ± 1.6
					8 kHz	91.1	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.7	-6.2 (+3.0 ; -6.0)

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準，局部複印本證書需先獲本實驗所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

CASTCO

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C193567
證書編號

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 14595

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準，局部複印本證書需先獲本實驗所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

CASTCO

Catalogue of Sound Calibrator	Calibration Certificate of Sound Calibrator

For microphone calibration **NC-74**

How to use

Carefully insert the microphone all the way into the coupler of the NC-74. Then simply turn the power on to apply a constant sound pressure level to the diaphragm of the microphone.

Usage example (NL series)

The performance of the NC-74 is suitable for calibration of high-precision sound level meters. The unit is compact, lightweight, and easy to use. Two IEC LR6 (size AA) alkaline batteries will power the unit for more than 30 hours of continuous use at room temperature.

Atmospheric pressure compensation principle

The NC-74 incorporates a sensor that detects atmospheric pressure. Based on the information provided by the sensor, the CPU controls the signal amplitude. This allows the unit to always provide the correct output for achieving constant sound pressure level, regardless of fluctuations in atmospheric pressure.

Using the 1/2-inch adapter

To allow calibration of sound level meter microphones with 1 inch diameter, the 1/2-inch microphone adapter can be removed. 1/2-inch microphones are calibrated with the adapter in place.

Specifications

Applicable standards	IEC 60942:2003 Class 1 JIS C1515:2004 Class 1	
Suitable microphones	1-inch microphones	IEC 61094-1 Type LS1P UC-27 UC-25 UC-34
	1/2-inch microphones	IEC 61094-1 Type LS2aP UC-59 UC-57 UC-53A UC-52 UC-26 UC-30 UC-31 UC-33P
Nominal sound pressure level	94 dB	
Sound pressure level tolerance	±0.3 dB	
Nominal frequency	1 kHz	
Frequency tolerance	±1.0 % or less	
Power requirements	IEC LR6 (size AA) alkaline battery × 2	
Dimensions, mass	Approx. 49 (H) × 80 (W) × 74 (D) mm Approx. 200 g (including batteries)	
Supplied accessories	Case × 1 IEC LR6 (size AA) alkaline battery × 2 1/2-inch microphone adapter NC-74-002 × 1	

• Specification subject to change without notice.

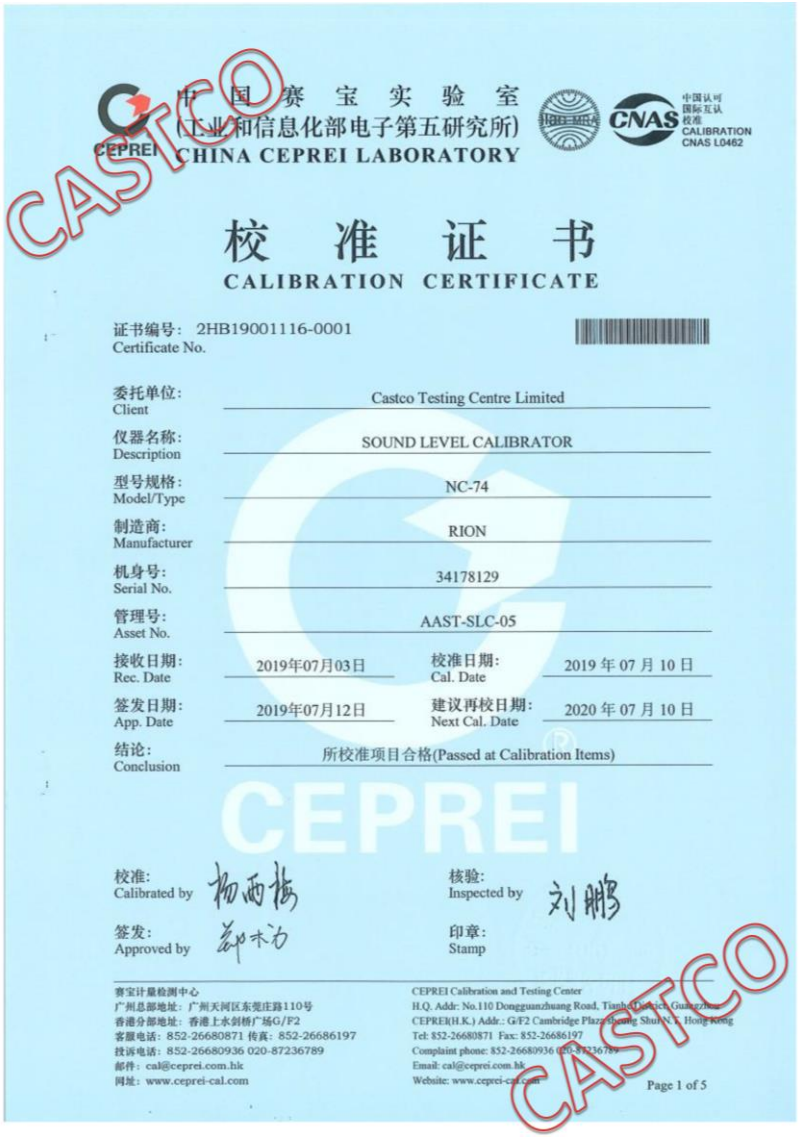
ISO 14001 RION CO., LTD.
ISO 9001 RION CO., LTD.

RION CO., LTD.

3-20-41, Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan
Tel: +81-42-359-7888 Fax: +81-42-359-7442
http://www.rion.co.jp/english/

Distributed by:

Printed in Japan 0510-1 0807.P.MP



中国赛宝实验室
(工业和信息化部电子第五研究所)
CEPREI CHINA CEPREI LABORATORY

CNAS 中国认可 国际互认 校准 CALIBRATION CNAS L0462

校 准 证 书
CALIBRATION CERTIFICATE

证书编号: 2HB19001116-0001
Certificate No.

委托单位: Client	Castco Testing Centre Limited		
仪器名称: Description	SOUND LEVEL CALIBRATOR		
型号规格: Model/Type	NC-74		
制造商: Manufacturer	RION		
机身号: Serial No.	34178129		
管理号: Asset No.	AAST-SLC-05		
接收日期: Rec. Date	2019年07月03日	校准日期: Cal. Date	2019 年 07 月 10 日
签发日期: App. Date	2019年07月12日	建议再校日期: Next Cal. Date	2020 年 07 月 10 日
结论: Conclusion	所校准项目合格(Passed at Calibration Items)		

校准: Calibrated by 杨西振
核验: Inspected by 刘鹏
签发: Approved by 郭木方
印章: Stamp

赛宝计量检测中心
广州总部地址: 广州天河区东莞庄路110号
香港分部地址: 香港上水剑桥广场G/F2
客服电话: 852-26680871 传真: 852-26686197
投诉电话: 852-26680936 020-87236789
邮件: cal@ceprei.com.hk
网址: www.ceprei-cal.com

CEPREI Calibration and Testing Center
H.Q. Addr: No.110 Dongguanzhuang Road, Tianhe District, Guangzhou
CEPREI(H.K.) Addr.: G/F2 Cambridge Plaza, Sheung Shui N.T. Hong Kong
Tel: 852-26680871 Fax: 852-26686197
Complaint phone: 852-26680936 020-87236789
Email: cal@ceprei.com.hk
Website: www.ceprei-cal.com

Page 1 of 5

Catalogue of Air Flow Meter (TSI TA440)	Calibration Certificate of Air Flow Meter

SPECIFICATIONS

THERMAL ANEMOMETERS
MODELS TA410, TA430 AND TA440

Velocity

Range (TA410)	0 to 20 m/s (0 to 4,000 ft/min)
Range (TA430, TA440)	0 to 30 m/s (0 to 6,000 ft/min)
Accuracy (TA410)[1][2]	±5% of reading or ±0.025 m/s (±5 ft/min), whichever is greater
Accuracy (TA430, TA440)[1][2]	±3% of reading or ±0.015 m/s (±3 ft/min), whichever is greater
Resolution	0.01 m/s (1 ft/min)

Duct Size (TA430, TA440)

Dimensions	1 to 635 cm in increments of 0.1 cm (1 to 250 inches in increments of 0.1 in.)

Volumetric Flow Rate (TA430, TA440)

Range	Actual range is a function of velocity, and duct size

Temperature

Range (TA410, TA430)	-18 to 93°C (0 to 200°F)
Range (TA440)	-10 to 60°C (14 to 140°F)
Accuracy[3]	±0.3°C (±0.5°F)
Resolution	0.1°C (0.1°F)

Relative Humidity (TA440 only)

Range	5 to 95% RH
Accuracy[4]	±3% RH
Resolution	0.1% RH

Wet Bulb Temperature (TA440 only)

Range	5 to 60°C (40 to 140°F)
Resolution	0.1°C (0.1°F)

Dew Point (TA440 only)

Range	-15 to 49°C (5 to 120°F)
Resolution	0.1°C (0.1°F)

Instrument Temperature Range

Operating (Electronics)	5 to 45°C (40 to 113°F)
Model TA410, TA430 Operating (Probe)	-18 to 93°C (0 to 200°F)
Model TA440 Operating (Probe)	-10 to 60°C (14 to 140°F)
Storage	-20 to 60°C (-4 to 140°F)

Data Storage Capabilities (TA430, TA440)

Range	12,700+ samples and 100 test IDs

Logging Interval (TA430, TA440)
1 second to 1 hour

Time Constant (TA430, TA440)
User selectable

External Meter Dimensions
8.4 cm x 17.8 cm x 4.4 cm (3.3 in. x 7.0 in. x 1.8 in.)

Meter Weight with Batteries
0.27 kg (0.6 lbs.)

Meter Probe Dimensions

Probe Length	101.6 cm (40 in.)
Probe Diameter of Tip	7.0 mm (0.28 in.)
Probe Diameter of Base	13.0 mm (0.51 in.)

Articulating Probe Dimensions

Articulating Section Length	19.7 cm (7.8 in.)
Diameter of Articulating Knuckle	9.5 mm (0.38 in.)

Power Requirements
Four AA-size batteries or AC adapter

	TA410	TA430, TA430-A	TA440, TA440-A
Velocity range 0 to 20.00 m/s (0 to 4000 ft/min)	+		
Velocity range 0 to 30.00 m/s (0 to 6000 ft/min)		+	+
Temperature	+	+	+
Flow		+	+
Humidity, wet bulb, dew point			+
Probe	Straight	Straight or -A articulated	Straight or -A articulated
Variable time constant		+	+
Manual data logging		+	+
Auto save data logging			+
Statistics		+	+
Review data		+	+
LogDat2 downloading software		+	+
Free Certificate of Calibration	+	+	+

[1] Temperature compensated over an air temperature range of 5 to 65°C (40 to 150°F).
[2] The accuracy statement begins at 30 ft/min through 4000 ft/min (0.15 m/s through 20 m/s) for the Model TA410, and 30 ft/min through 6,000 ft/min (0.15 m/s through 30 m/s) for Models TA430 and TA440.
[3] Accuracy with instrument case at 25°C (77°F), add uncertainty of 0.03°C/°C (0.05°F/°F) for change in instrument temperature.
[4] Accuracy with probe at 25°C (77°F). Add uncertainty of 0.2% RH/°C (0.1% RH/°F) for change in probe temperature. Includes 1% hysteresis.

Specifications subject to change without notice.

TSI and the TSI logo are registered trademarks, and Airflow, the Airflow logo and LogDat2 are trademarks of TSI Incorporated.

AIRFLOW INSTRUMENTS

Airflow Instruments, TSI Instruments Ltd.
Visit our website at **www.airflowinstruments.co.uk** for more information.

UK **Tel:** +44 149 4 459200 **Germany** **Tel:** +49 241 523030
France **Tel:** +33 491 11 87 64

P/N 2980548 Rev D (A4) ©2014 TSI Incorporated

AIRFLOW INSTRUMENTS — CERTIFICATE OF CALIBRATION AND TESTING

TSI Instruments Ltd, Stirling Road, Cressex Business Park
High Wycombe Bucks HP12 3ST England
Tel: (Int +44) (UK 0) 1494 459200 Fax: (Int +44) (UK 0) 1494 459700 http://www.airflowinstruments.co.uk

Environment Condition		
Temperature	22.1	°C
Relative Humidity	43.89	%RH
Barometric Pressure	1007.8	hPa

Model	TA440
Serial Number	TA4401232005

☒ As Left ☐ As Found
☒ In Tolerance ☐ Out of Tolerance

– Calibration Verification Results –

Temperature Verification — System T-200 — *Unit: °C*

#	Standard	Measured	Allowable Range	#	Standard	Measured	Allowable Range
1	0.0	0.1	−0.3–0.3	2	60.0	60.0	59.7–60.3

Velocity Verification — System V-352 — *Unit: m/s*

#	Standard	Measured	Allowable Range	#	Standard	Measured	Allowable Range
1	0.00	0.00	−0.02–0.02	7	3.34	3.34	3.24–3.44
2	0.18	0.18	0.16–0.19	8	5.11	5.11	4.96–5.27
3	0.33	0.33	0.32–0.35	9	7.51	7.51	7.28–7.73
4	0.51	0.50	0.49–0.52	10	12.78	12.85	12.39–13.16
5	0.82	0.81	0.80–0.85	11	22.97	23.08	22.29–23.66
6	1.71	1.69	1.66–1.76	12	29.47	29.43	28.59–30.36

Humidity Verification — System H-200 — *Unit: %RH*

#	Standard	Measured	Allowable Range	#	Standard	Measured	Allowable Range
1	10.0	9.9	7.8–12.2	4	70.0	69.2	67.8–72.2
2	29.7	29.2	27.5–31.9	5	90.0	88.7	87.8–92.2
3	50.0	49.2	47.8–52.2				

TSI does hereby certify that the above described instrument conforms to the original manufacturer's specification (not applicable to As Found data) and has been calibrated using standards whose accuracies are traceable to members of the European co-operation for Accreditation (EA) (for example: UKAS, SWEDAC, DAkkS) or has been verified with respect to instrumentation whose accuracy is traceable to some member of EA, or is derived from accepted values of physical constants. TSI's calibration system is registered to ISO-9001:2008 and meets the requirements of ISO 10012:2003.

Measurement Variable	System ID
DC Volts	E006008
Temperature	E006127
Pressure	E006002
Pressure	E006038
Velocity	E006121
Humidity	E006018
Temperature	E006007

Measurement Variable	System ID
Temperature	E006020
Temperature	E006006
Temperature	E006022
DC Voltage	E006010
Pressure	E006078
DC Volts	E006125

P. McBain

13 MAR 2019

Doc. ID: CERT_DEFAULT

Appendix K – Noise monitoring results and graphical presentation

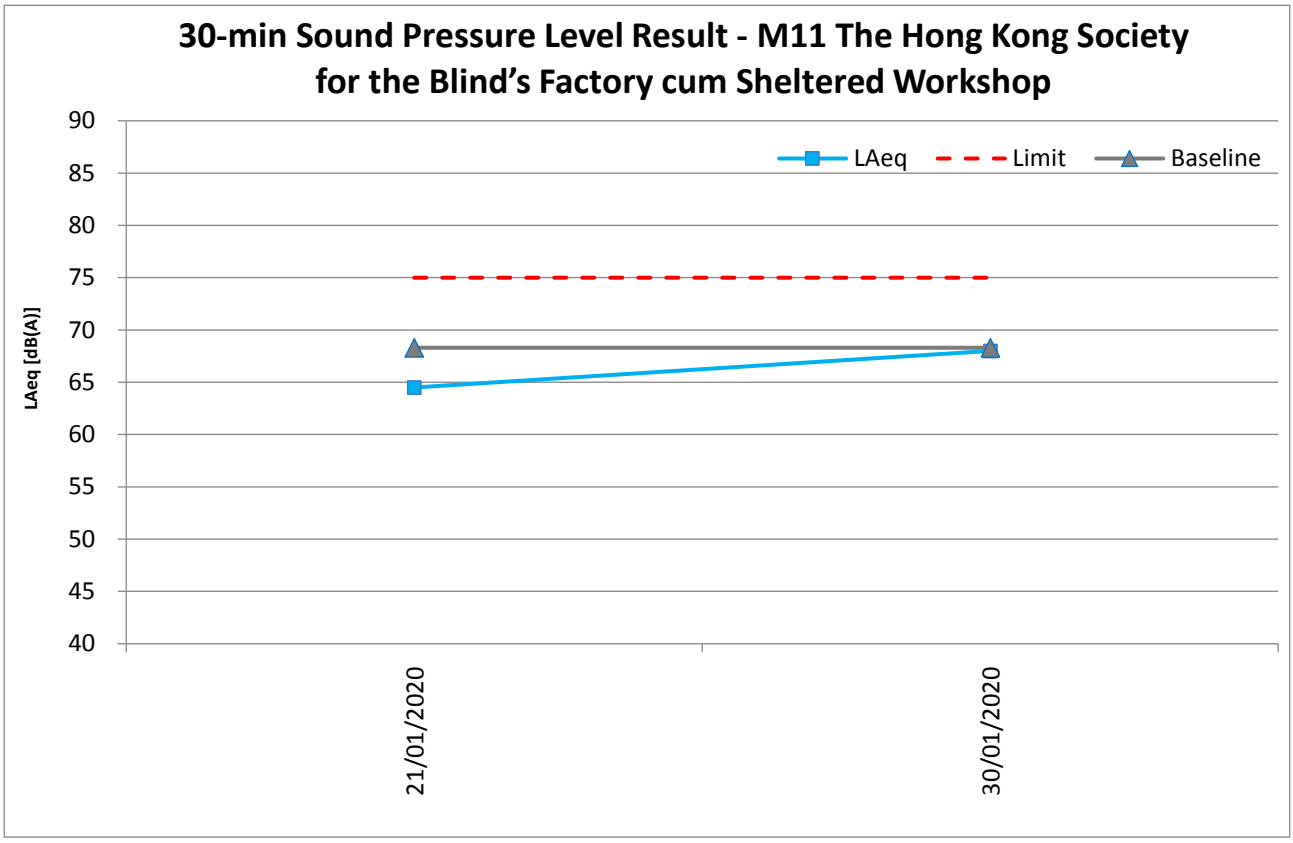
M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop

Date	Temp (°C)	Weather	Measured Noise Level at M11, dB(A)							Limit
			Time			Baseline	L_{Aeq}	L_{A10}	L_{A90}	
21/01/2020	21.1	Sunny	10:15	-	10:45	68.3	64.5	68	63.2	75
30/01/2020	19.7	Sunny	11:00	-	11:30	68.3	68.0	70.9	65.2	75
			Maximum				68.0			
			Minimum				64.5			
			Average				66.6			

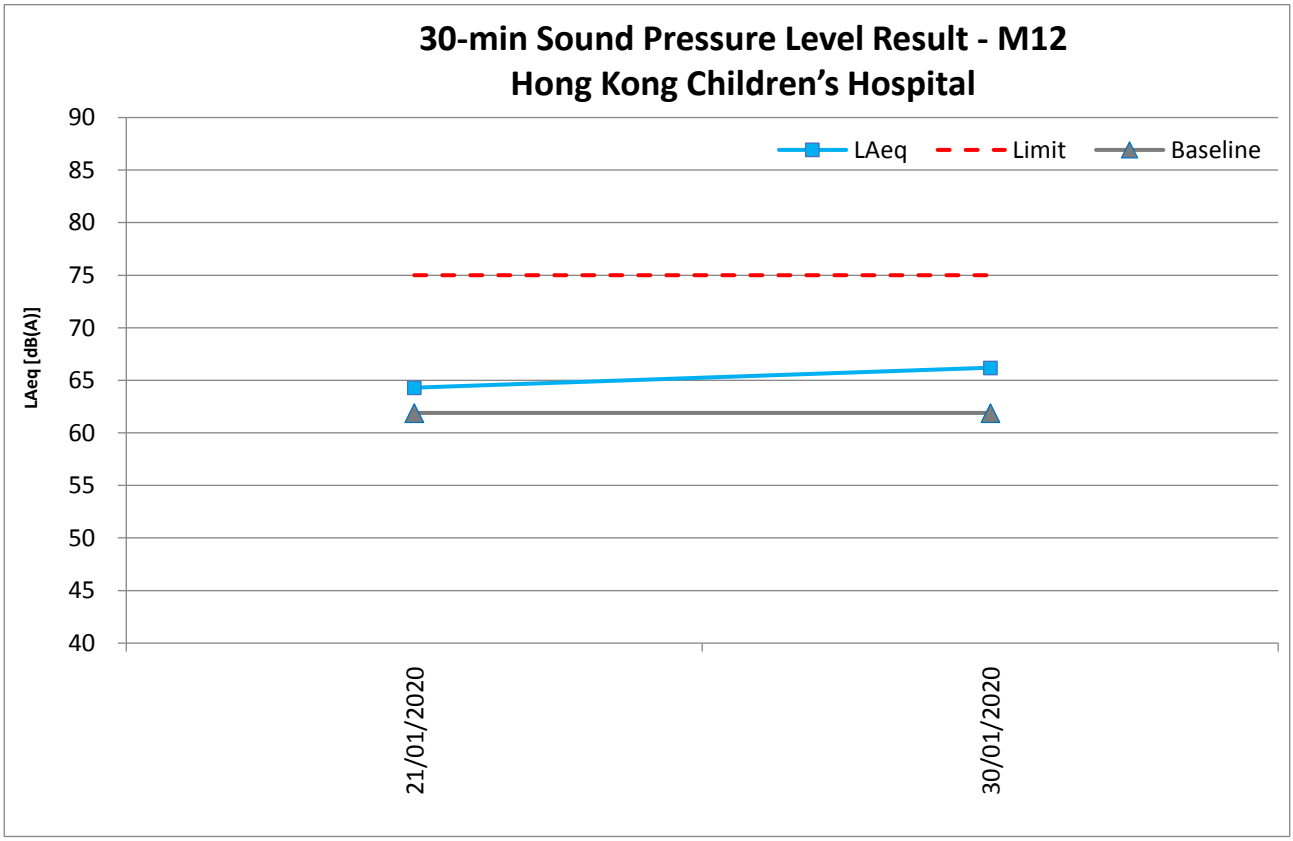
M12 - Hong Kong Children's Hospital

Date	Temp (°C)	Weather	Measured Noise Level at M12, dB(A)							Limit
			Time			Baseline	L_{Aeq}	L_{A10}	L_{A90}	
21/01/2020	21.1	Sunny	11:20	-	11:50	61.9	64.3	68.4	61.7	75
30/01/2020	19.7	Sunny	10:45	-	11:15	61.9	66.2	68.4	62.9	75
			Maximum				66.2			
			Minimum				64.3			
			Average				65.4			

$L_{Aeq, 30\text{-}min}$ graphical results of M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop



$L_{Aeq, 30\text{-}min}$ graphical results of M12 - Hong Kong Children's Hospital



Appendix L – Event and Action Plan for noise

Event	Action			
	ET	**IEC**	**Supervisor / ER**	**Contractor**
Action Level being exceeded	1. Notify Supervisor / ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, Supervisor / ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness. (The above actions should be taken within 2 working days after the exceedance is identified.)	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures submitted by the Contractor and advise the ER accordingly; 3. Advise the Supervisor / ER on the proposed remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified.)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified.)	1. Submit noise mitigation proposal to IEC and Supervisor / ER; 2. Implement noise mitigation proposals. (The above actions should be taken within 2 working days after the exceedance is identified.)
Limit Level being exceeded	1. Inform IEC, Supervisor /ER, Contractor and EPD; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contract's working procedure; 6. Discuss remedial measures required with the IEC, Contractor and Supervisor /ER; 7. Assess effectiveness of	1. Discuss the potential remedial actions with Supervisor /ER, ET and Contractor; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the Supervisor /ER accordingly. (The above actions should be taken within 2 working days after the exceedance is identified.)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and Supervisor /ER within 3 working days of notification; 3. Implement the agreed proposal; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the Supervisor /ER until the exceedance is abated. (The above actions should be

Event	Action			
	ET	**IEC**	**Supervisor / ER**	**Contractor**
	Contractor's remedial actions and keep IEC, EPD, and Supervisor /ER informed of the results; 8. If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified.)		exceedance until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified.)	taken within 2 working days after the exceedance is identified.)

Appendix M – Event and Action Plan for Landscape and Visual Impact

Event	Action			
	ET	**IEC**	**Supervisor / 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 Supervisor /ER. 3. Discuss remedial actions with IEC, Supervisor /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 Supervisor /ER on effectiveness of proposed remedial measures. 5. Check implementation of remedial measures.	1. Notify Contractor. 2. Ensure remedial measures are properly implemented.	1. Amend working methods. 2. Rectify damage and undertake any necessary replacement.
Repeated Non-conformity	1. Identify Source. 2. Inform IEC and Supervisor /ER. 3. Increase monitoring frequency. 4. Discuss remedial actions with IEC, Supervisor /ER and Contractor. 5. Monitor remedial actions until rectification has been completed. 6. If non-conformity stops, cease additional monitoring.	1. Check monitoring report. 2. Check Contractor's working method. 3. Discuss with ET and Contractor on possible remedial measures. 4. Advise Supervisor /ER on effectiveness of proposed remedial measures. 5. Supervise 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.

Appendix N – Waste Flow Table

Appendix F - Monthly Summary Waste Flow Table

Name of Department : CEDD

Contract No.: ED/2018/01

Monthly Summary Waste Flow Table for January 2020

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 '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan	**1.068**	--	--	--	**1.068**	--	--	--	--	--	**0.007**
Feb	--	--	--	--	--	--	--	--	--	--	--
Mar	--	--	--	--	--	--	--	--	--	--	--
Apr	--	--	--	--	--	--	--	--	--	--	--
May	--	--	--	--	--	--	--	--	--	--	--
Jun	--	--	--	--	--	--	--	--	--	--	--
Sub-total	--	--	--	--	--	--	--	--	--	--	--
July	--	--	--	--	--	--	--	--	--	--	--
Aug	--	--	--	--	--	--	--	--	--	--	--
Sep	--	--	--	--	--	--	--	--	--	--	--
Oct	--	--	--	--	--	--	--	--	--	--	--
Nov	--	--	--	--	--	--	--	--	--	--	--
Dec	--	--	--	--	--	--	--	--	--	--	--
Total	**1.068**	--	--	--	**1.068**	--	--	--	--	--	**0.007**

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 '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
--	--	--	--	--	--	--	--	--	--	--

Notes: (1) The performance targets are given in **ER Appendix 8I Clause 14** and the EM&A Manual
(2) The waste flow table shall also include C&D materials 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 50,000m^3 (**ER Part 8 Clause 8.7.5(d)**(ii) refers)

Appendix O – Environmental Licenses and Notification

0049

本署檔號 Our Ref: 445956
來函檔號 Your Ref:
電話 Tel. No.: 2755 5518
圖文傳真 Fax No.: 2756 8588
電子郵件 E-Mail:
網址 Homepage: http://www.epd.gov.hk/

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
5th Floor, Nan Fung Commercial Centre,
19 Lam Lok Street, Kowloon Bay,
Kowloon, Hong Kong.

環境保護署
環保法規管理科
區域辦事處(東)
香港九龍九龍灣臨樂街
十九號南豐商業中心五樓

06/06/2019

Penta-Ocean Construction Co. Ltd
Flat 601, K. Wah Centre, 191 Java Road,
North Point, Hong Kong

Dear Sirs,

Site /Premises:
Kai Tak Development - Stage 4 Infrastruvture
at the former runway and south apron

This is to acknowledge receipt of the following submission(s) on 06/06/2019

Notification Pursuant to Section 3(1) of The Air Pollution Control (Construction Dust) Regulation
Ref. Number: 445956

Meanwhile, if you have any further questions, please contact the undersigned.

Yours faithfully,

(Customer Service Counter (RE))
for Director of Environmental Protection

再造紙 RECYCLED PAPER

(內文中文譯本)

執事先生：

工地/處所 (見英文版本)

我們已於 2019 年 6 月 6 日收到你最交的文件，詳列如下：

- ☐ 進行指明工序所需的牌照申請
- ☐ 申請批准裝置或改裝火爐、烘爐及焙窯
- ☐ 申請露天焚物許可證 —
- ☐ 石棉調查報告、石棉消減計劃、石棉管理計劃，及/或開始進行石棉消減工程通知書
- ☑ 空氣污染管制(建造工程塵埃)規例的建造工程通知書
- ☐ 一般工程/訂明建造工程的建築噪音許可證申請
- ☐ 撞擊式打樁工程的建築噪音許可證申請
- ☐ 申請空氣壓縮機的噪音標籤
- ☐ 申請手提撞擊式破碎機的噪音標籤
- ☐ 水污染管制條例的排污牌照申請
- ☐ 申請化學廢物產生者的登記
- ☐ 化學廢物處置牌照申請
- ☐ 化學廢物收集牌照申請
- ☐ 根據條例第17條的規定呈報指定(甲類)化學廢物通知書
- ☐ 申請批准使用容量超過450公升的化學廢物容器
- ☐ 廢物進出口許可證申請
- ☐ 申請批准使用油污分散劑及類似物質
- ☐ 傾物入海許可證申請

如有疑問，請與代行人查詢

環境保護署署長
(代行)

年 月 日

0501

本署檔號
Our Ref: EP682/286/0141/I
來函檔號
Your Ref:
電　話
Tel. No.: 2117 7539
圖文傳真
Fax No.: 2756 8588
電子郵件
E-Mail:
網　址
Homepage: http://www.epd.gov.hk/

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
5th Floor, Nan Fung Commercial Centre,
19 Lam Lok Street, Kowloon Bay,
Kowloon, Hong Kong.

環境保護署
環保法規管理科
區域辦事處（東）
香港九龍九龍灣臨樂街
十九號南豐商業中心五樓

BY REGISTERED POST

26 SEP 2019

Penta-Ocean Construction Co., Ltd.
Room 601, K. Wah Centre,
191 Java Road,
North Point, Hong Kong

PENTA-OCEAN
03 OCT 2019
RECEIVED

Dear Sir/Madam,

Water Pollution Control Ordinance (Cap. 358)
Victoria Harbour (Phase Two) Water Control Zone
Issue of Licence

I refer to your application for a licence made under Section 19/~~23~~/~~23A~~* of the Water Pollution Control Ordinance ("the Ordinance"), Chapter 358, for the discharge/deposit from your premises as stated in your application. The licence pursuant to Section 20/~~23A~~* of the Ordinance is enclosed. Your attention is drawn to the details, terms and conditions subject to which the licence is granted. You should note, in particular, the stipulated sampling, treatment and disposal requirements and should also read the notes at the back of the licence.

Please note that granting of this licence to you does not imply that the discharge from your premises is in compliance with the required limits as stipulated in the licence. It is your responsibility to ensure that the terms and conditions of the licence are complied with.

You are reminded that it is an offence to contravene any of the provisions specified in the licence. The offender is liable to a fine of $200,000 and to imprisonment for 6 months.

If you are aggrieved by any of the terms and conditions of the licence, you may appeal to the Appeal Board by lodging a notice of appeal under Section 29 of the Ordinance in the prescribed manner and form within 21 days after receipt of this licence.

Should you have any enquiry, please feel free to contact LEE Yau-hang, Benson at 2117 7527.

Yours faithfully,

(CHAN Wai-lun, William)
Environmental Protection Officer
for Director of Environmental Protection

Encl.: Discharge Licence

* Delete as appropriate

再造紙
RECYCLED PAPER

掛號郵件

先生/女士:

《水污染管制條例》（第358章）
維多利亞港(第二期)水質管制區
發出排污牌照事宜

你根據香港法例第 358 章《水污染管制條例》（「本條例」）第 19/~~23~~/~~23A~~*條就你的申請所述處所排放的污水／沉積物向本署遞交的牌照申請書已經收悉。現寄上根據本條例第 20/~~23A~~*條簽發的牌照。請留意發出牌照的細節、條款及條件，尤須注意有關取樣、處理及排放等事宜的規定，另請細讀牌照背頁的附註。

獲簽發本牌照並不表示從你的處所排出的污水或污染物質已達到牌照所規定的排放限度。你必須採取必要措施，以確保符合牌照中的條款及條件。

請注意，任何人違反牌照的任何條文，均屬違法，可處罰款二十萬元及監禁六個月。

如你對牌照所載的條款及條件感到不滿，可於收到本牌照後 21 天內，按本條例第 29 條的規定，使用訂明的方式及表格，向上訴委員會遞交上訴通知書，提出上訴。

如有查詢，請致電 2117 7527 與本署 李有恒 聯絡。

環境保護署署長
（環境保護主任）
（陳偉麟代行）

附件：排污牌照

* 將不適用者刪去

0502

Licence No.: WT00034610-2019
牌照編號 : WT00034610-2019

This Licence is Valid to : 30 September 2024
本牌照有效期至 : 二〇二四年九月三十日

ENVIRONMENTAL PROTECTION DEPARTMENT
環境保護署

WATER POLLUTION CONTROL ORDINANCE (CAP. 358)
水污染管制條例(第358章)

LICENCE PURSUANT TO SECTION ~~15~~/20/~~23A~~*
按第~~15~~/20/~~23A~~*條簽發的牌照

The Director of Environmental Protection ("the Authority") grants this licence under the Water Pollution Control Ordinance ("the Ordinance") on the terms and conditions stated below.

環境保護署署長(「監督」)按下列的條款及條件，根據水污染管制條例(「本條例」)批給此牌照。

26 September 2019
Date
日期

(CHAN Wai-lun, William)
For *the Authority*
監督 (陳偉麟 代行)

PART A 甲部 : GENERAL TERMS 一般條款

Name of Licensee ("the Licensee") 持牌人名稱(「持牌人」)	Penta-Ocean Construction Co., Ltd.
Discharge Premises ("the premises") 排放處所(「處所」)	Construction Site of Kai Tak Development – Stage 4 Infrastructure at the Former Runway and South Apron, Kowloon City, Kowloon (CEDD Contract No. ED/2018/01) (See Annex I) 九龍九龍城啟德發展-前跑道和南停機坪的第4階段基礎設施之建築地盤 (土木工程拓展署合約編號 ED/2018/01) (參見附件 I)
Water Control Zone 水質管制區	Victoria Harbour (Phase Two) Water Control Zone 維多利亞港(第二期)水質管制區
Discharge Category 排放種類	Discharge of industrial trade effluent 工業污水排放
Nature of Discharge and Wastewater Treatment Facilities 排放性質及廢水處理設施	Effluent, Surface Run-off, and all other wastewater discharges from the premises 上址排放的污水、地面徑流水及其他的廢水 Screen, pH Adjustment, Sedimentation Tank and Chemical Precipitation 隔濾設施，酸鹼值調節，沉澱池及化學沉降缸
Discharge Point(s) 排放點	Discharge into communal storm water drain 排放入公用雨水渠
Sampling Point(s) 取樣點	Discharge outlet(s) of Wastewater Treatment Facility marked S.P. on Annex II attached 參見附件 II 中標指 S.P.的廢水處理設施的出水口

*Delete as appropriate
將不適用者刪去

PART B 乙部 : SPECIFIC CONDITIONS 特別條件

B1. Limitations on Discharge 排放限制

The quantity and composition of any discharge from the premises shall not exceed the limits stated in the table below(Note a). All figures are upper limits unless otherwise indicated. All units are expressed as concentration in milligramme per litre unless otherwise stated.
任何源自處所之排放的量和成份不得超過下表所列的限度(附註a)。除另予表明外，所有數字均為上限。除另予說明外，所有單位均以毫克/升的濃度表示。

Determinand 測量物	Limit 限度
Flow Rate (m^3 / day) 流量(立方米/日)	60
pH (pH units) 酸鹼值 (pH 單位)	6-9#
Suspended Solids 懸浮固體	30
Chemical Oxygen Demand 化學需氧量	80

Range 上下限

B2. Self-monitoring and Reporting 自行監測及報告

☐ The Licensee shall perform self-monitoring as and when required by the Authority.
持牌人須在監督要求時進行自行監測。

☒ The Licensee shall sample the discharge at the Sampling Point(s) and, at his own expense carry out analyses in accordance with the sample type and measurement frequency specified for each determinand named below:-
持牌人須在取樣點為排放抽取樣本，並依照下列指定的測量物、取樣形式及頻率，自資予以分析。

Determinand 測量物	*Unit 單位*	*Sample Type 取樣形式*	*Frequency 頻率*
Suspended Solids 懸浮固體	mg/L 毫克/升	Grab 隨意取集	Quarterly 每三個月一次

Results of these monitoring shall be summarized in a report on a ~~Monthly/Bi-monthly~~/Quarterly/~~Yearly~~* basis and shall be submitted to the Authority.
所有監測結果須以摘要形式，每~~一個月/兩個月~~/三個月/~~年~~*作出報告，並須呈交監督審閱。

*Delete as appropriate
將不適用者刪去

PART C 丙部 : STANDARD CONDITIONS 標準條件

C1. The Discharge 排放

C1.1 The discharge shall not contain polychlorinated biphenyls (PCB), polyaromatic hydrocarbon (PAH), fumigant, pesticide or toxicant, chlorinated hydrocarbons, flammable or toxic solvents, calcium carbide; any substance likely to damage the sewer or to interfere with any of the treatment processes, or to be harmful to the health and safety of any personnel engaged in the operation or maintenance of a sewerage system; waste liable to form scum or deposits in any part of the drainage or sewerage system, or the waters of Hong Kong; waste liable to form discolouration in any parts of the waters of Hong Kong; sludge, floatable substances or solids larger than 10 mm; and sludge or solid refuse of any kind.

排放不得含有多氯聯苯、聚芳烴、薰蒸劑、殺蟲劑或毒劑、氯化烴、可燃的或有毒的溶劑、碳化鈣；會損毀污水渠結構或干擾任何處理程序的物質，或有損操作及維修排污系統人員健康及安全的任何物質；足以在排水或排污系統，或香港水域任何範圍內形成浮渣或沉積物的廢物；足以在香港水域任何範圍內形成變色的廢物；污泥、漂浮物質或體積超越 10 毫米的固體；及任何種類的污泥或固體垃圾。

C1.2 No discharge shall bypass the wastewater treatment facilities, the Sampling Point(s) or the Discharge Point(s) unless it is unavoidable to prevent loss of life, personal injury or severe property damage or no feasible alternative exists.

除非避免人命傷亡或嚴重財物損失或無其他可行代替辦法，排放不得繞流不經其廢水處理設施，取樣點或排放點。

C1.3 Dilution of the discharge to achieve compliance with the limits contained in this licence is prohibited.

不得將排放稀釋，以求達到本牌照內所訂的限度。

C2. Flow Measurement 量度流量

The Licensee shall determine the flow rate of the discharge by installing, operating and maintaining a continuous flow measuring device with an accuracy certified by its manufacturer to be within plus or minus 3 percent of the actual flow, and calibrating the flow measuring device regularly according to manufacturer's recommendations. If no such device is installed, the Licensee shall determine the flow rate through using calculation methods agreed by the Authority, by making reference to the amount of water used in the premises being served by mains supply and other sources, less process consumption and any other losses.

持牌人必須設置、操作及保養一個連續性流量計作為測定排放的流量率之方法，其準確程度須經製造商證實為不超逾或低於真正流量的 3%，並應根據製造商建議的方法，定期校準流量計。如沒有設置該設備，持牌人須依照監督同意的計算方法，根據處所由自來水及其他水源供應的總用水量減去工序耗水量及其他耗水量來測定流量率。

C3. Treatment 處理

C3.1 The Licensee shall provide necessary wastewater treatment facilities, and shall engage personnel with adequate qualification and experience to properly operate and maintain all wastewater treatment facilities at all times. Standby equipment shall be provided to guard against failure of major treatment equipment.

持牌人須提供必需的廢水處理設施，並須僱用有足夠資格及經驗的人士，時常妥善操作及保養所有廢水處理設施。主要處理設施須配有後備裝置，以應付故障發生。

C3.2 In the event of loss of efficiency of operation, or failure of all or part of the wastewater treatment facility, the Licensee shall take all reasonable steps to the extent necessary to maintain compliance with this licence. Such steps shall remain until operation of the wastewater treatment facility is restored or an alternative method of treatment is provided.

倘若部份或整個廢水處理設施操作失靈或發生故障，持牌人須採取所有必要的合理措施，以求達到符合本牌照的規定。此等措施須維持至廢水處理設施恢復如常操作或有其他代替的處理方法可供採用為止。

C3.3 If the wastewater treatment facilities are not properly operated and maintained to the satisfaction of the Authority, the Licensee shall take immediate and effective remedial actions as required by the Authority.

倘若廢水處理設施的操作及保養未能令監督滿意，持牌人須按監督之規定，採取即時及有效的補救行動。

C4. Disposal 棄置

Sludges, screenings, solids, oil and grease, filter backwash, or other pollutants removed in the course of treatment shall be disposed of in a proper manner(Note b & e).

處理過程中所產生的污泥、隔濾物、固體、油脂、過濾器回洗或其他污染物，必須妥善地棄置(附註 b 及 e)。

C5. Monitoring 監測

C5.1 The Licensee shall provide and maintain suitable and accessible facility such as an inspection chamber, manhole or sampling valve at each Sampling Point to enable duly authorized officer(s) of the Authority to take samples of the discharge at any time from the premises.

持牌人須在每一個取樣點提供及保養適當及可容易到達的設施，例如檢查槽，沙井或取樣閥，以確保獲監督授權的人員隨時可在處所內抽取排放樣本。

C5.2 For self-monitoring, "grab samples" shall be taken during the period when the determinand to be analyzed for is likely to be present in its maximum concentration. "Composite samples" shall include samples taken over daily duration of the discharge.

在自行監測中，「隨意取集樣本」須在測量物的濃度很可能是最高的那段時間內抽取。「綜合樣本」須包含在每日排放期間不同時候所抽取的樣本。

C5.3 For self-monitoring, all samples shall be analyzed in accordance with the most updated analytical methods used by the Government Chemist (Note d).

在自行監測中，所有樣本均須按照政府化驗師所採用的最新分析方法予以分析(附註 d)。

C6. Records and Reporting 紀錄及報告

C6.1 The Licensee shall keep the following records in the premises for inspection by duly authorized officer(s) of the Authority:

持牌人須在處所內保存下列紀錄，以備獲監督授權的人員隨時查閱：

(i) records of flow rate, nature and composition of the discharge;
排放流量率、性質及成份的紀錄；

(ii) updated records of all monitoring information, including all laboratory analytical results relating to samples taken, all original chart recordings for continuous flow and pH monitoring; and
所有最新監測資料的紀錄，包括所有關於已取樣本的檢驗分析結果、所有連續性流量及酸鹼值監測記錄圖表的正本；及

(iii) records of all desludging and degreasing operation, and records of corresponding disposal operation.
所有清除污泥和清理隔油池廢物工序的紀錄，及其棄置工序的紀錄。

Copies of all such records shall be submitted to the Authority upon request.

在監督要求時，須向監督呈交所有該等紀錄的副本。

C6.2 The Licensee shall notify and explain to the Authority: Director of Environmental Protection, Regional Office (E), Kowloon City Section by fax (fax no.: 2756 8588) or electronic mail (email address: hotline_e@epd.gov.hk) within 24 hours upon the occurrence of an accidental discharge or any emergency bypass or an overflow of untreated effluent or an operation upset which places the discharge in a temporary state of non-compliance with this licence. The Licensee shall within 7 days following the incident, submit to the Authority a detailed report in writing on the cause and duration of the non-compliance and steps taken or to be taken to reduce, eliminate, or prevent recurrence of such non-compliance. Reporting in accordance with this Condition does not relieve the Licensee of any obligations imposed by this licence.

倘若有未經處理的污水意外排放、緊急繞流或溢滿的事件或操作失靈，引至排放出現短暫不符合牌照規定的情況，持牌人須在事發後 24 小時內以傳真（傳真號碼：2756 8588）或電郵（電郵地址：hotline_e@epd.gov.hk）通知監督：環境保護署署長，區域辦事處(東) 九龍城區，並予以解釋。持牌人須在事故發生後 7 天內，以書面報告，詳述事件的起因、違反牌照條件的時間及為減少、消除或防止類似事件再次發生所採取或將會採取的措施，送交監督審閱。然而，按照本條件的規定提交報告並不表示持牌人可獲免除承擔本牌照內所載的任何責任。

C7. Operation Manual 操作手冊

The Licensee shall prepare an operation manual which shall include, as a minimum, operating procedures, inspection programme and repair and maintenance programme for the wastewater treatment facilities. The operation manual shall be kept at the aforesaid wastewater treatment facilities and a copy of the manual shall be submitted to the Authority upon request.

持牌人須擬備廢水處理設施的操作手冊。手冊內容須最低限度包括操作程序、檢查、維修及保養工作計劃表。該手冊須保存在上述廢水處理設施內。持牌人須在監督要求時，呈交手冊副本乙份。

C8. Notification of Change 更改通知

The Licensee shall notify the Authority: Director of Environmental Protection, Regional Office (E), Kowloon City Section by fax (fax no.: 2756 8588) or electronic mail (email address: hotline_e@epd.gov.hk)

in writing within 14 days of any changes or proposed changes in the wastewater treatment methods/facilities, the processes of manufacture or the nature of the raw materials used or of any other circumstances which may alter the nature and composition of the discharge or may result in the permanent cessation of the discharge.

倘若持牌人更改或擬更改其廢水處理設施、生產程序、或所用原料的性質、或有其他足以改變其排放的性質及成份或可導致永久性終止排放的事情，必須在 14 日內以傳真（傳真號碼：2756 8588）或電郵（電郵地址：hotline_e@epd.gov.hk）書面通知監督：環境保護署署長，區域辦事處(東) 九龍城區。

Notes 附註

(a) For the purposes of determining compliance with the limits stated in Specific Condition B1, samples shall be taken by the duly authorized officer(s) of the Authority at the Sampling Point(s) or any other points from which the samples so taken are regarded by the duly authorized officer(s) as being representative of the quality of the discharge. When any single sample analyzed for a determinand is proved not complying with corresponding limit set out in the table, the discharge is deemed to have failed to comply with Specific Condition B1.
為確定排放是否符合特別條件第 B1 項內所列的限度，獲監督授權的人員須在取樣點或在認為可以抽取到具代表性的樣本的任何其他位置抽取樣本。只要在任何一個經分析的樣本中，證實任何一個測量物不符合表中所列的相應限度時，排放即被視為不符合特別條件第 B1 項。

(b) An example of proper disposal method for sludge is sending dewatered sludge to landfill for disposal.
妥善棄置污泥方法中的一個例子是將脫水後的污泥運往堆填區棄置。

(c) Proper disposal of grease trap waste includes but is not limited to employing registered grease trap waste collector to conduct the disposal work. All registered collectors should have a Certificate of Registration issued by the Environmental Protection Department. The most updated list of the registered collectors can be obtained from the Environmental Protection Department.
妥善的隔油池廢物棄置方法包括卻不限於聘用已登記的隔油池廢物收集商進行有關的棄置工作。所有已登記的隔油池廢物收集商，均領有由環境保護署發出的登記證明書。已登記的隔油池廢物收集商最新名單，可向環境保護署索取。

(d) The Licensee may make reference to Annex I of the <Technical Memorandum on Effluent Standards> for analytical methods used by the Government Chemist.
持牌人可參照「流出物標準技術備忘錄」附件 1 有關政府化驗師所採用的分析方法。

(e) The Licensee shall keep this licence in the premises and make it available at all times for inspection by duly authorized officer(s) of the Authority.
持牌人須在處所內保存此牌照，以備獲監督授權的人員隨時查閱。

(f) (i) The Licensee shall allow duly authorized officer(s) of the Authority to enter the premises for the purposes of inspection, sampling, records examination or any other duties authorized by Section 37 and Section 38 of the Ordinance.
持牌人須准許獲監督授權的人員進入處所內進行檢查、抽取樣本、審查紀錄或執行其他根據本條例第 37 及第 38 條所授權的職務。

(ii) Where the premises has security measures in force which would require proper identification and clearance before entry, the Licensee shall make necessary arrangements such that upon presentation of evidence of identity and of authorization, duly authorized officer(s) will be permitted to enter, without delay, for the purposes of performing duties.
倘若由於處所的保安理由而需先行鑑定來人的身份，持牌人必須作出必要的安排，以便獲授權人員在出示身份證明及授權文件後，即可內進執行其職務而不致受延誤。

(g) (i) For a licence granted under Section 15 of the Ordinance, the Licensee may, not less than 2 months before expiry of the licence, apply under Section 19 of the Ordinance for a new licence. The Authority may grant the licence or otherwise.
持有根據本條例第 15 條所批給牌照的人士，可於牌照屆滿前不少於 2 個月內，根據本條例第 19 條的規定，申請一面新牌照。監督可批給或拒絕批給牌照。

(ii) For a licence granted under Section 20 or 23A of the Ordinance, the Licensee may, not more than 4 months and not less than 2 months before expiry of the licence, apply under Section 23 or 23A respectively of the Ordinance for renewal of licence. The Authority may renew the licence or otherwise.
持有根據本條例第 20 條或第 23 A 條所批給牌照的人士，可於牌照屆滿前不多於 4 個月及不少於 2 個月內，根據本條例的第 23 或 23 A 條的規定，申請牌照續期。監督可將牌照續期或拒絕將牌照續期。

(h) Under Section 24 of the Ordinance, the Authority may by notice in writing, impose new or amended terms and conditions on this licence or cancel this licence. Under Section 25, 26 and 27 of the Ordinance, a Licensee whose licence has been so varied or cancelled may be entitled to compensation.
根據本條例第 24 條的規定，監督可以書面通知，向本牌照施加新訂或經修訂的條款及條件，或取消本牌照。根據本條例第 25、26 及 27 條的規定，被更改或取消牌照的持牌人可能會獲得補償。

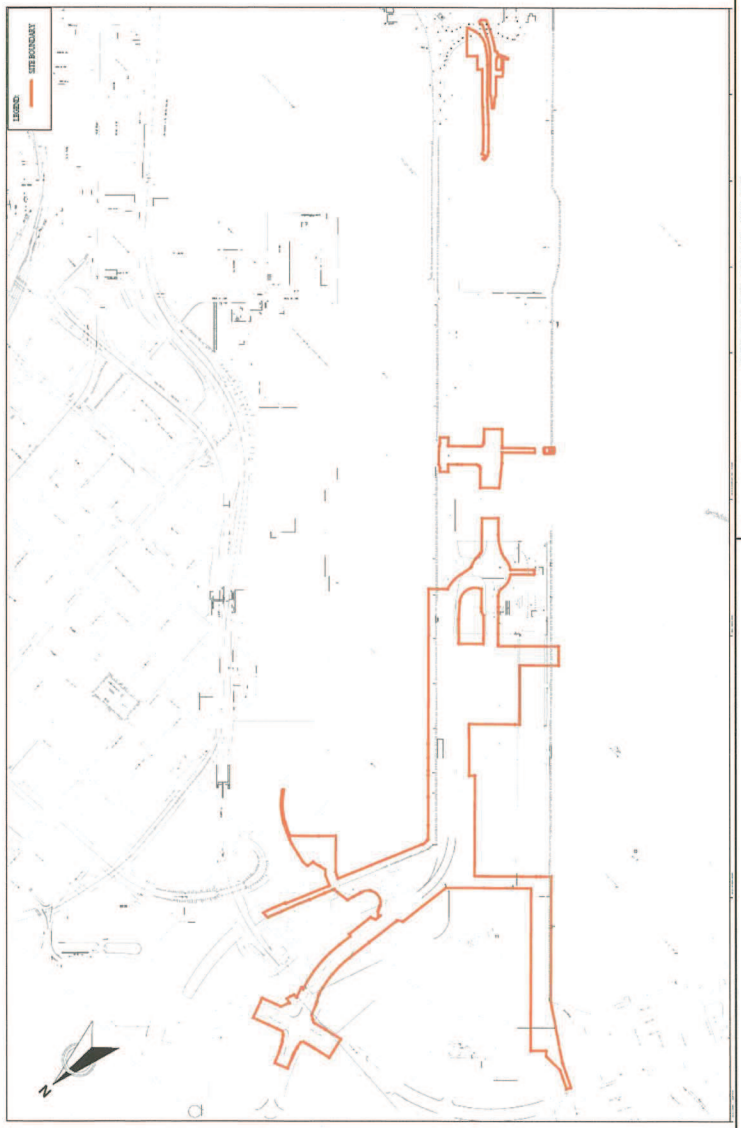
(i) Under Section 28 of the Ordinance, the Licensee may apply to the Authority for a variation of this licence.
根據本條例第 28 條的規定，持牌人可向監督申請更改本牌照。

(j) Under Section 49 of the Ordinance, this licence shall not be construed as a dispensation from the requirements of any other Ordinance except where that other Ordinance so provides.
根據本條例第 49 條的規定，本牌照並不得解釋為豁免符合任何其他條例的規定，除非該其他條例如此訂定。

(k) The licensee should ensure good practice is carried out in dealing with discharges from the construction site. The licensee should make reference to the EPD's Practice Note for Professional Persons, No. PN 1/94, "Construction Site Drainage."
持牌人須確保妥善處理地盤之去水排放。持牌人可參考環保署印發之 Practice Note for Professional Persons, 編號 PN 1/94, "Construction Site Drainage"。

EPD156

Annex I
附件 I



Annex to licence No.: WT00034610-2019

牌照編號 WT00034610-2019 的附件

Title: Construction Site Boundary

標題: 建築地盤範圍

Construction Site of Kai Tak Development – Stage 4 Infrastructure at the Former Runway and South Apron, Kowloon City, Kowloon (CEDD Contract No. ED/2018/01)

九龍九龍城啟德發展 -前跑道和南停機坪的第4階段基礎設施之建築地盤 (土木工程拓展署合約編號ED/2018/01)

Date: September 2019

日期:

Scale: NTS

比例: 不按比例

ENVIRONMENTAL PROTECTION DEPARTMENT, HONG KONG REGIONAL OFFICE (EAST)

香港環境保護署 區域辦事處(東)

Annex II

附件 II

Wastewater Treatment Facility
廢水處理設施

Sampling Point (S.P.) at sampling valve of the discharge outlet of Wastewater Treatment Facility
取樣點 (S.P.) 位於廢水處理設施出水口的取樣閥

Annex to licence No.: **WT00034610-2019**
牌照編號 **WT00034610-2019** 的附件

ENVIRONMENTAL PROTECTION DEPARTMENT, HONG KONG
REGIONAL OFFICE (EAST)
香港環境保護署
區域辦事處(東)

Date: **September 2019**
日期:

Scale: **NTS**
比例: 不按比例

Title: Wastewater Treatment Facility and Sampling Point (S.P.)
標題: 廢水處理設施 及取樣點 (S.P.)

Construction Site of Kai Tak Development – Stage 4 Infrastructure at the Former Runway and South Apron, Kowloon City, Kowloon (CEDD Contract No. ED/2018/01)
九龍九龍城啟德發展-前跑道和南停機坪的第4階段基礎設施之建築地盤 (土木工程拓展署合約編號ED/2018/01)

本署檔案
OUR REF : (4) in EP631/K19/RE448177-19
來函檔案
YOUR REF :
電 話
TEL NO : 2150 8081
圖文傳真
FAX NO : 2402 8275
網 址
HOMEPAGE : http://www.epd.gov.hk/

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
8/F., Cheung Sha Wan Government Offices,
303 Cheung Sha Wan Road,
Kowloon

環境保護署 0354
環保法規管理科
區域辦事處(東)
九龍長沙灣道 303 號
長沙灣政府合署 8 樓

RECEIVED
- 3 SEP 2019
PENTA-OCEAN
KTD (902)

Registered Post

30 August 2019

To: PENTA – OCEAN CONSTRUCTION CO., LTD.
Flat 601, K.Wah Centre,
191 Java Road,
North Point, Hong Kong

Dear Sir,

Notice of Issue of Construction Noise Permit pursuant to section 8(6) of the Noise Control Ordinance (Cap. 400)

I write to inform you that, under section 8(6) of the Noise Control Ordinance, the Authority has decided to issue a construction noise permit in respect of your application, which was received by the Authority on 16 August 2019 **for the use of powered mechanical equipment for carrying out construction work at Kai Tak Development – Stage 4 infrastructure at the former runway and south apron, Kai Tak, Kowloon (CEDD Contract No. ED/2018/01).**

The construction noise permit No. GW-RE0699-19 is enclosed.

You are advised to read the conditions of the permit carefully and to ensure compliance with these conditions. Any breaching of the conditions may lead to cancellation of the permit, **subsequent prosecution action** and the Authority's refusal to issue further permit for the above construction site.

Yours faithfully,

(TANG Wai-man, Lisa)
for Authority

Note:

Electronic submission of application for construction noise permit is available at Environmental Protection Department's website. File attachments with total size not exceeding 20 MB in acceptable format are allowed for electronic submission. Electronic application form can be downloaded from our website (https://epic.epd.gov.hk/eForm/ChangeLanguage.do?language=eng&url=/pages/datadownload/downloadMain.jsp) and an overview of application submission (https://epic.epd.gov.hk/eForm/introduce.html) is provided for more information.

(4) in EP631/K19/RE448177-19

2150 8081
2402 8275

掛號函件

致： 香港 北角
渣華道 191 號
嘉華國際中心 601 室
PENTA – OCEAN CONSTRUCTION CO., LTD.

執事先生：

根據《噪音管制條例(第 400 章)》第 8(6)條
發出的通知書 — 簽發「建築噪音許可證」

本監督於二零一九年八月十六日，收到你擬於下述地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施 (土木工程拓展署合約編號 ED/2018/01)，使用機動設備進行建築工程而提出的「建築噪音許可證」申請，現根據《噪音管制條例》第 8(6)條的規定通知你，上述的申請已被批准。

隨函附上「第 GW-RE0699-19 號建築噪音許可證」。

請細閱許可證各項條件，確保遵守，如有違反，本監督可撤銷許可證，提出檢控及拒絕再就上述地盤簽發任何「建築噪音許可證」。

監 督
(鄧慧敏 代行)

二零一九年八月三十日

注意:
環境保護署提供網上申請「建築噪音許可證」服務。網上申請容許上傳檔案總容量不大於 20 MB 的有關文件。可於本署網頁下載電子表格 (https://epic.epd.gov.hk/eForm/ChangeLanguage.do?language=eng&url=/pages/datadownload/downloadMain.jsp)及參閱電子表格提交服務概覽(https://epic.epd.gov.hk/eForm/introduce.html)，了解更多資料。

FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. GW-RE0699-19
To : PENTA – OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed:
   Full address : Kai Tak Development – Stage 4 infrastructure at the former runway and south apron, Kai Tak, Kowloon (CEDD Contract No. ED/2018/01), Lot No. : ---
   The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. * ~~PART~~/WHOLE of the site falls * ~~WITHIN~~/OUTSIDE a designated area.

3. Powered Mechanical Equipment

   a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	*Description of item of powered mechanical equipment*	*No. of units*
	Refer to attached sheet.	

   b. Validity of the construction noise permit for the use of the powered mechanical equipment:
      Date and time of commencement : 13 September 2019 at 1900 hours
      Days and hours : 0000-2400 hours on general holiday (including Sunday), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].
      This part of the permit expires on : 12 March 2020 at 2300 hours

   c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.

   d. Other conditions imposed on the use of the powered mechanical equipment :

      1. The powered mechanical equipment listed in condition 3.a shall only be operated during the hours shown below:

General holiday (including Sunday)	0700 – 2300 hours
Any day not being a general holiday	1900 – 2300 hours

      2. Only one group of the powered mechanical equipment listed in condition 3.a. shall be allowed to operate at any time.

4. Prescribed Construction Work

a. Type of prescribed construction work which may be carried out inside the site boundary :

Identification code of type of prescribed construction work	*Description of type of prescribed construction work*
	Not applicable

b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement: Not applicable at Not applicable

Days and hours: Not applicable

This part of the permit expires on : Not applicable at Not applicable

c. ~~Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.~~

d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 30th day of August 20 19

Signed : _____
(TANG Wai-man, Lisa)
for Authority

* Delete as necessary

表格 3 [第5(a)條]

噪音管制條例
(第400章)
第8(9)條

建築噪音許可證
為進行建築工程(撞擊式打樁除外)而使用機動設備及／或進行訂明建築工程

建築噪音許可證編號：GW-RE0699-19

致：PENTA - OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第8條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及／或進行訂明建築工程，但須受以下條件規限。若不按照該等條件進行建築工程，許可證可遭撤銷，而且會受到檢控。

條 件

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

詳細地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(土木工程拓展署合約編號ED/2018/01)。 地段編號：---

地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上，而該圖則是本建築噪音許可證的一部分。

2. 該地盤~~部分~~／全部*位於指定範圍之~~內~~／外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼 (如適用的話)	*各項機動設備的說明*	*數目*
	參見附頁。	

b. 可使用機動設備的建築噪音許可證有效期：

生效日期及時間：二零一九年九月十三日 下午七時

日期及時間：公眾假日(包括星期日)的凌晨零時至晚上十二時，公眾假日以外的任何一日凌晨零時至上午七時及下午七時至晚上十二時【但須注意條件3.d.1.有關可以使用上列機動設備的時間】。

此部分許可證屆滿日期及時間：二零二零年三月十二日 晚上十一時
日期 時間

c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀，供監督隨時查看；該等照片須經監督認可。

d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件3. a 內的機動設備：

公眾假日(包括星期日)	上午七時至晚上十一時
公眾假日以外的任何一日	下午七時至晚上十一時

2. 在任何時間內，祇可使用列在條件3.a. 內的其中一組機動設備。

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

訂明建築工程的識辨代碼	*訂明建築工程的類別的說明*
	不適用

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間： 不適用

日期及時間： 不適用。

此部分許可證屆滿日期及時間： 不適用
日期 時間

c. ~~本許可證可夾附經監督認可的地盤圖則，以顯示本許可證准予進行訂明建築工程的地點。該地盤圖則須存放於建築地盤供監督隨時查看~~。

d. 規限進行訂明建築工程的其他條件：

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處，給予公眾人士參閱。

日期：2019 年 08 月 30 日

簽署：

監督
(鄧慧敏 代行)

* 刪去不適用者

Sheet Attached to Construction Noise Permit
No. GW-RE0699-19

3.a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)		*Description of item of powered mechanical equipment*	*No. of units*
Group A	CNP 101	Generator, standard	One
	---	Lorry with grab, 5.5 tonne<gross vehicle weight≦38 tonne	One
	---	Lorry with crane, 5.5 tonne<gross vehicle weight≦38 tonne	One
	---	Wastewater treatment plant	One
	CNP 281	Water pump (electric)	One
	CNP 283	Water pump, submersible (electric)	One
Group B	CNP 101	Generator, standard	One
	---	Dump truck, 5.5 tonne<gross vehicle weight≦38 tonne	One
	---	Wastewater treatment plant	One
	CNP 281	Water pump (electric)	One
	CNP 283	Water pump, submersible (electric)	One
	CNP 081	Excavator, tracked	One

Signed :
(TANG Wai-man, Lisa)
for Authority

建築噪音許可證
編號 GW-RE0699-19 的附頁

3.a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼 (如適用的話)		*各項機動設備的說明*	*數目*
A 組	CNP 101	發電機，標準型	壹
	---	抓斗貨車，5.5 噸< 總重量 ≤38 噸	壹
	---	吊臂貨車，5.5 噸< 總重量 ≤38 噸	壹
	---	污水處理器	壹
	CNP 281	水泵 (電動)	壹
	CNP 283	潛水泵 (電動)	壹
B 組	CNP 101	發電機，標準型	壹
	---	卸土車，5.5 噸< 總重量 ≤38 噸	壹
	---	污水處理器	壹
	CNP 281	水泵 (電動)	壹
	CNP 283	潛水泵 (電動)	壹
	CNP 081	挖土機，履帶式	壹

簽署：

監督
(鄧慧敏 代行)

Photograph(s) attached to Construction Noise Permit No. GW-RE0699-19
建築噪音許可證編號：**GW-RE0699-19** 的照片

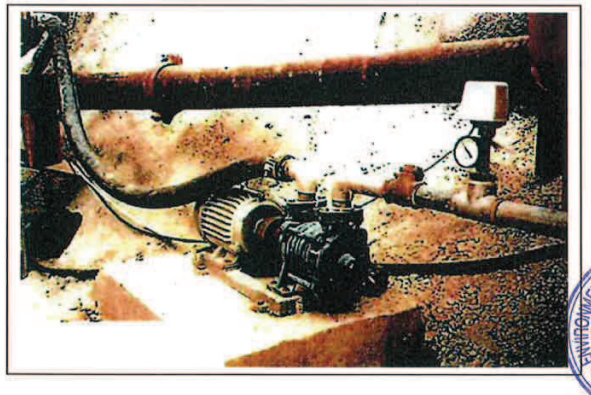
CNP 101 Generator, standard
發電機，標準型

Lorry with grab, 5.5 tonne<gross vehicle weight≤38 tonne
抓斗貨車，5.5 噸<總重量≤38 噸

ENVIRONMENTAL PROTECTION DEPARTMENT
HONG KONG
環境保護署

Photograph(s) attached to Construction Noise Permit No. GW-RE0699-19
建築噪音許可證編號：**GW-RE0699-19** 的照片

Wastewater treatment plant
污水處理器



CNP 281 Water pump (electric)
水泵 (電動)

Photograph(s) attached to Construction Noise Permit No. GW-RE0699-19
建築噪音許可證編號：**GW-RE0699-19** 的照片

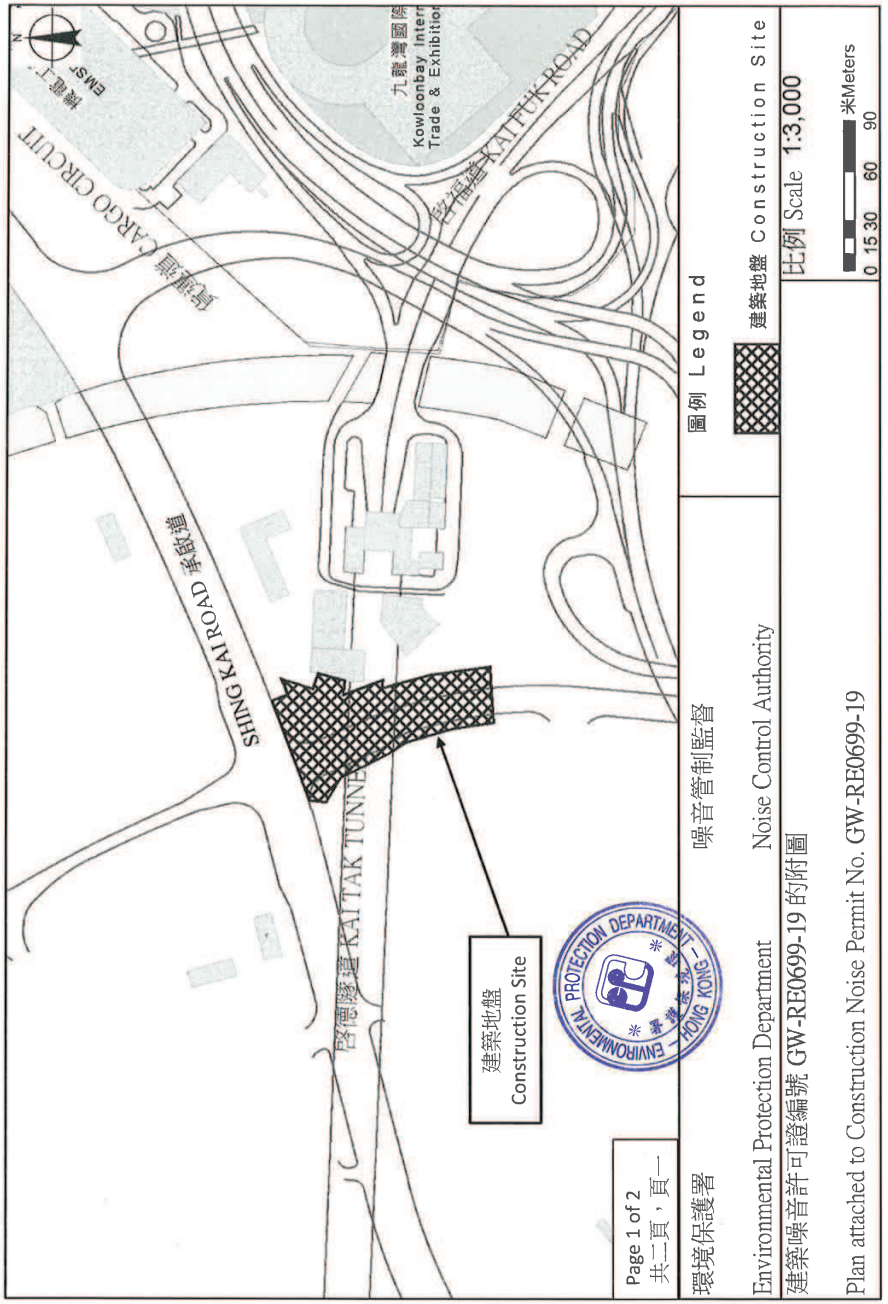
CNP 283 Water pump, submersible (electric)
潛水泵 (電動)

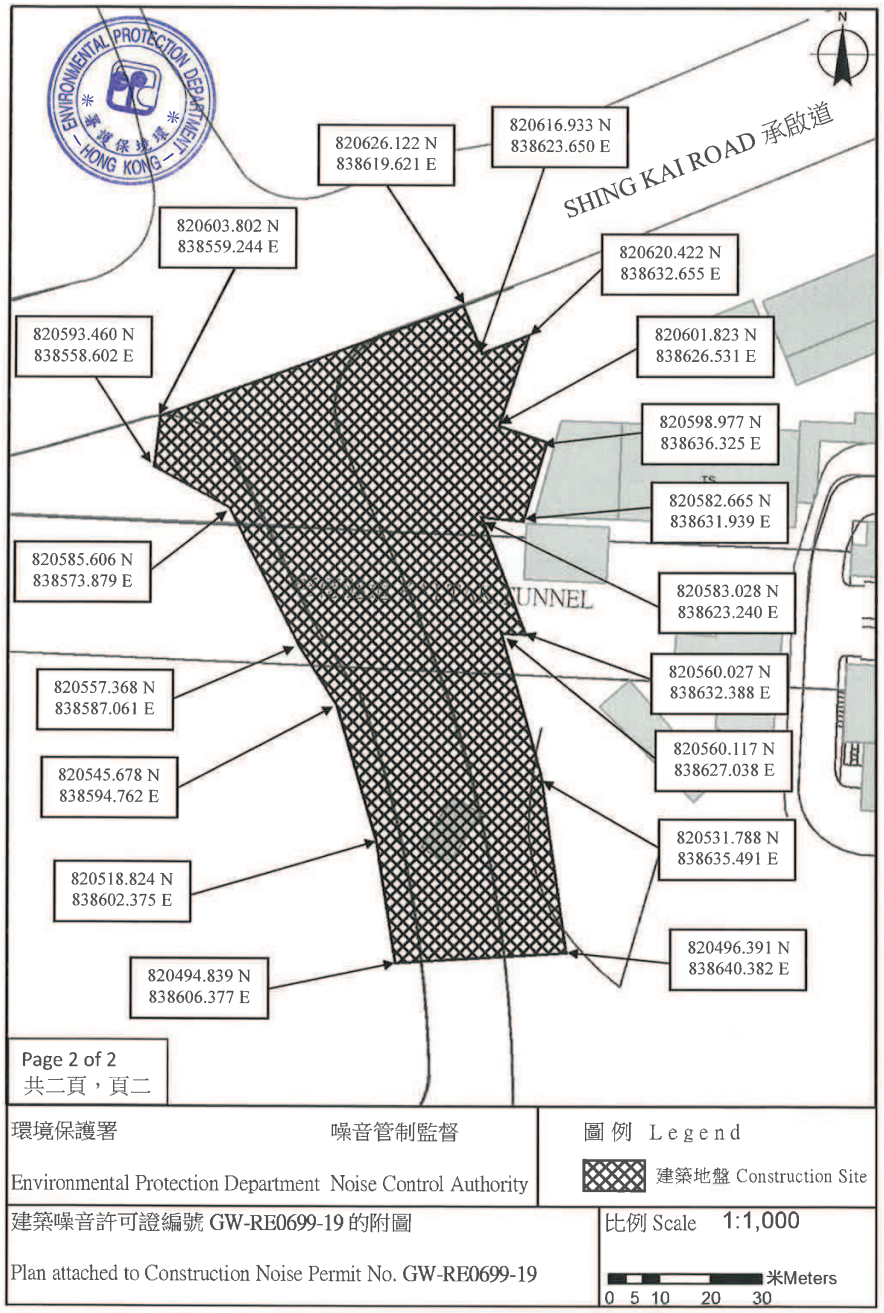
Lorry with crane, 5.5 tonne<gross vehicle weight≦38 tonne
吊臂貨車，5.5 噸<總重量≦38 噸

Photograph(s) attached to Construction Noise Permit No. GW-RE0699-19
建築噪音許可證編號：**GW-RE0699-19** 的照片

Dump truck, 5.5 tonne<gross vehicle weight≦38 tonne
卸土車，5.5 噸<總重量≦38 噸

CNP 081 Excavator, tracked
挖土機，履帶式





本署檔案
OUR REF : (4) in EP631/K19/RE449113-19
來函檔案
YOUR REF :
電 話
TEL NO : 2150 8081
圖文傳真
FAX NO : 2402 8275
網 址
HOMEPAGE : http://www.epd.gov.hk/

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
8/F., Cheung Sha Wan Government Offices,
303 Cheung Sha Wan Road,
Kowloon

環境保護署
環保法規管理科
區域辦事處(東)
九龍長沙灣道 303 號
長沙灣政府合署 8 樓

0513

RECEIVED
5 OCT 2019
PENTA-OCEAN
KTD (902)

Registered Post

03 October 2019

To: PENTA – OCEAN CONSTRUCTION CO., LTD.
Flat 601, K.Wah Centre,
191 Java Road,
North Point, Hong Kong

Dear Sir,

Notice of Issue of Construction Noise Permit pursuant to section 8(6) of the Noise Control Ordinance (Cap. 400)

I write to inform you that, under section 8(6) of the Noise Control Ordinance, the Authority has decided to issue a construction noise permit in respect of your application, which was received by the Authority on 16 September 2019 **for the use of powered mechanical equipment for carrying out construction work at Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Works Area WA1), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01).**

The construction noise permit No. GW-RE0786-19 is enclosed.

You are advised to read the conditions of the permit carefully and to ensure compliance with these conditions. Any breaching of the conditions may lead to cancellation of the permit, **subsequent prosecution action** and the Authority's refusal to issue further permit for the above construction site.

Yours faithfully,

(TANG Wai-man, Lisa)
for Authority

Note:

Electronic submission of application for construction noise permit is available at Environmental Protection Department's website. File attachments with total size not exceeding 20 MB in acceptable format are allowed for electronic submission. Electronic application form can be downloaded from our website (https://epic.epd.gov.hk/eForm/ChangeLanguage.do?language=eng&url=/pages/datadownload/downloadMain.jsp) and an overview of application submission (https://epic.epd.gov.hk/eForm/introduce.html) is provided for more information.

(4) in EP631/K19/RE449113-19

2150 8081
2402 8275

掛號函件

致： 香港 北角
渣華道 191 號
嘉華國際中心 601 室
PENTA – OCEAN CONSTRUCTION CO., LTD.

執事先生：

根據《噪音管制條例(第 400 章)》第 8(6)條
發出的通知書 — 簽發「建築噪音許可證」

本監督於二零一九年九月十六日，收到你擬於下述地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區 WA1) (土木工程拓展署合約編號 ED/2018/01)，使用機動設備進行建築工程而提出的「建築噪音許可證」申請，現根據《噪音管制條例》第 8(6)條的規定通知你，上述的申請已被批准。

隨函附上「第 GW-RE0786-19 號建築噪音許可證」。

請細閱許可證各項條件，確保遵守，如有違反，本監督可撤銷許可證，提出檢控及拒絕再就上述地盤簽發任何「建築噪音許可證」。

監 督
(鄧慧敏 代行)

二零一九年十月三日

注意:
環境保護署提供網上申請「建築噪音許可證」服務。網上申請容許上傳檔案總容量不大於 20 MB 的有關文件。可於本署網頁下載電子表格(https://epic.epd.gov.hk/eForm/ChangeLanguage.do?language=eng&url=/pages/datadownload/downloadMain.jsp)及參閱電子表格提交服務概覽(https://epic.epd.gov.hk/eForm/introduce.html)，了解更多資料。

FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. GW-RE0786-19
To : PENTA – OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed:
   Full address : Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Works Area WA1), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No. : ---
   The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.
2. * ~~PART~~/WHOLE of the site falls * ~~WITHIN~~/OUTSIDE a designated area.
3. Powered Mechanical Equipment
   a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	*Description of item of powered mechanical equipment*	*No. of units*
---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A)	Two

   b. Validity of the construction noise permit for the use of the powered mechanical equipment:
   Date and time of commencement : 05 October 2019 at 1900 hours
   Days and hours : 0000-2400 hours on general holiday (including Sunday), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday.
   This part of the permit expires on : 04 April 2020 at 2400 hours
   c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.
   d. Other conditions imposed on the use of the powered mechanical equipment :

4. Prescribed Construction Work

a. Type of prescribed construction work which may be carried out inside the site boundary :

Identification code of type of prescribed construction work	*Description of type of prescribed construction work*
	Not applicable

b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement: Not applicable at Not applicable

Days and hours: Not applicable

This part of the permit expires on : Not applicable at Not applicable

c. ~~Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.~~

d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 03rd day of October 20 19

Signed :

(TANG Wai-man, Lisa)
for Authority

* Delete as necessary

表格 3 [第5(a)條]

噪音管制條例
(第400章)
第8(9)條

建築噪音許可證
為進行建築工程（撞擊式打樁除外）
而使用機動設備及／或進行訂明建築工程

建築噪音許可證編號：GW-RE0786-19

致：PENTA - OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第8條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及／或進行訂明建築工程，但須受以下條件規限。若不按照該等條件進行建築工程，許可證可遭撤銷，而且會受到檢控。

條 件

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

詳細地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區WA1)(土木工程拓展署合約編號ED/2018/01)。 地段編號：---

地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上，而該圖則是本建築噪音許可證的一部分。

2. 該地盤~~部分~~／全部*位於指定範圍之~~內~~／外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼 (如適用的話)	*各項機動設備的說明*	*數目*
---	發電機，備有優質機動設備標籤顯示聲功率級≦93分貝(A)	貳

b. 可使用機動設備的建築噪音許可證有效期：

生效日期及時間：二零一九年十月五日 下午七時

日期及時間：公眾假日(包括星期日)的凌晨零時至晚上十二時，公眾假日以外的任何一日凌晨零時至上午七時及下午七時至晚上十二時。

此部分許可證屆滿日期及時間：二零二零年四月四日 晚上十二時
日期 時間

c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀，供監督隨時查看；該等照片須經監督認可。

d. 規限使用機動設備的其他條件：

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

訂明建築工程的識辨代碼	*訂明建築工程的類別的說明*
	不適用

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間： 不適用

日期及時間： 不適用。

此部分許可證屆滿日期及時間： 不適用
日期 時間

c. ~~本許可證可夾附經監督認可的地盤圖則，以顯示本許可證准予進行訂明建築工程的地點。該地盤圖則須存放於建築地盤供監督隨時查看。~~

d. 規限進行訂明建築工程的其他條件：

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處，給予公眾人士參閱。

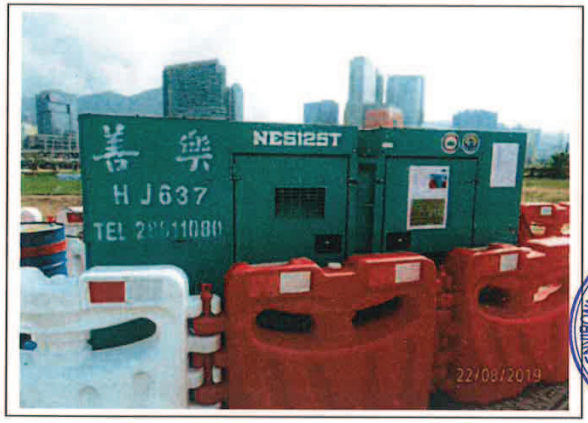
日期：2019 年 10 月 03 日

簽署：

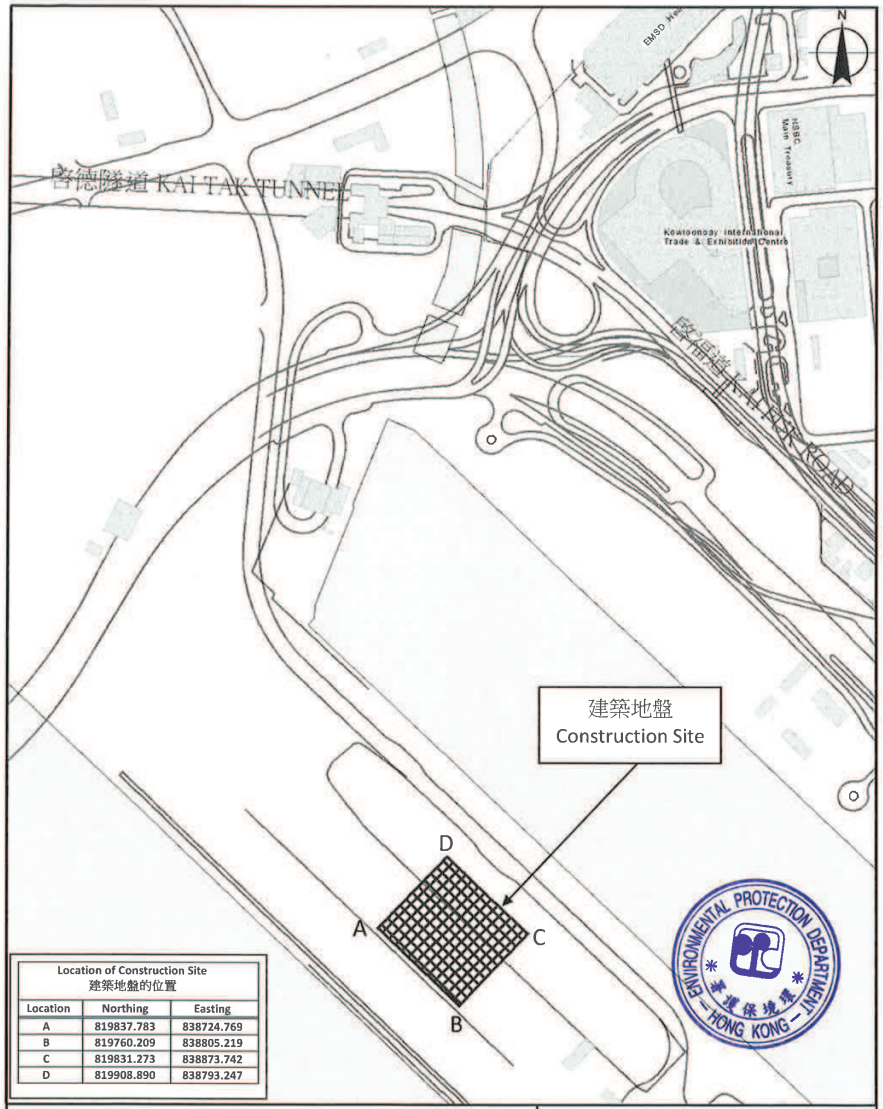
監督
(鄧慧敏 代行)

* 刪去不適用者

Photograph(s) attached to Construction Noise Permit No. GW-RE0786-19
建築噪音許可證編號：GW-RE0786-19 的照片



Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A)
發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A)



本署檔案
OUR REF : (4) in EP631/K19/RE449941-19
來函檔案
YOUR REF :
電 話
TEL NO : 2150 8081
圖文傳真
FAX NO : 2402 8275
網 址
HOMEPAGE : http://www.epd.gov.hk/

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
8/F., Cheung Sha Wan Government Offices,
303 Cheung Sha Wan Road,
Kowloon

環境保護署
環保法規管理科
區域辦事處(東)
九龍長沙灣道 303 號
長沙灣政府合署 8 樓

000687

Registered Post

30 October 2019

To: PENTA – OCEAN CONSTRUCTION CO., LTD.
Flat 601, K.Wah Centre,
191 Java Road,
North Point, Hong Kong

PENTA-OCEAN
08 NOV 2019
RECEIVED

RECEIVED
09 NOV 2019
PENTA-OCEAN
KTD (902)

Dear Sir,

Notice of Issue of Construction Noise Permit pursuant to section 8(6) of the Noise Control Ordinance (Cap. 400)

I write to inform you that, under section 8(6) of the Noise Control Ordinance, the Authority has decided to issue a construction noise permit in respect of your application, which was received by the Authority on 14 October 2019 **for the use of powered mechanical equipment for carrying out construction work at Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Works Area Part 1), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01).**

The construction noise permit No. GW-RE0880-19 is enclosed.

You are advised to read the conditions of the permit carefully and to ensure compliance with these conditions. Any breaching of the conditions may lead to cancellation of the permit, **subsequent prosecution action** and the Authority's refusal to issue further permit for the above construction site.

Yours faithfully,

(TANG Wai-man, Lisa)
for Authority

Note:

Electronic submission of application for construction noise permit is available at Environmental Protection Department's website. File attachments with total size not exceeding 20 MB in acceptable format are allowed for electronic submission. Electronic application form can be downloaded from our website (https://epic.epd.gov.hk/eForm/ChangeLanguage.do?language=eng&url=/pages/datadownload/downloadMain.jsp) and an overview of application submission (https://epic.epd.gov.hk/eForm/introduce.html) is provided for more information.

(4) in EP631/K19/RE449941-19

2150 8081
2402 8275

掛號函件

致： 香港 北角
渣華道 191 號
嘉華國際中心 601 室
PENTA – OCEAN CONSTRUCTION CO., LTD.

執事先生：

根據《噪音管制條例(第 400 章)》第 8(6)條
發出的通知書 — 簽發「建築噪音許可證」

本監督於二零一九年十月十四日，收到你擬於下述地址：**九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第一部分) (土木工程拓展署合約編號 ED/2018/01)**，**使用機動設備進行建築工程**而提出的「建築噪音許可證」申請，現根據《噪音管制條例》第 8(6)條的規定通知你，上述的申請已被批准。

隨函附上「第 GW-RE0880-19 號建築噪音許可證」。

請細閱許可證各項條件，確保遵守，如有違反，本監督可撤銷許可證，**提出檢控**及拒絕再就上述地盤簽發任何「建築噪音許可證」。

監 督
(鄧慧敏 代行)

二零一九年十月三十日

注意:
環境保護署提供網上申請「建築噪音許可證」服務。網上申請容許上傳檔案總容量不大於 20 MB 的有關文件。可於本署網頁下載電子表格(https://epic.epd.gov.hk/eForm/ChangeLanguage.do?language=eng&url=/pages/datadownload/downloadMain.jsp)及參閱電子表格提交服務概覽(https://epic.epd.gov.hk/eForm/introduce.html)，了解更多資料。

FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. GW-RE0880-19

To : PENTA – OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed :
   Full address : Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Works Area Part 1), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No.: ---

   The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. * ~~PART~~/WHOLE of the site falls * ~~WITHIN~~/OUTSIDE a designated area.

3. Powered Mechanical Equipment

   a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	*Description of item of powered mechanical equipment*	*No. of units*
	Refer to attached sheet.	

   b. Validity of the construction noise permit for the use of the powered mechanical equipment:

      Date and time of commencement : 30 October 2019 at 1900 hours
      Days and hours : 0000-2400 hours on general holiday (including Sunday), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note Condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].
      This part of the permit expires on : 27 April 2020 at 2400 hours

   c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.

   d. Other conditions imposed on the use of the powered mechanical equipment :

      Refer to attached sheet.

4. Prescribed Construction Work

a. Type of prescribed construction work which may be carried out inside the site boundary:

Identification code of type of prescribed construction work	*Description of type of prescribed construction work*
	Not applicable

b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement: Not applicable at Not applicable

Days and hours: Not applicable.

This part of the permit expires on : Not applicable at Not applicable

c. ~~Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.~~

d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 30th day of October 20 19

Signed : (TANG Wai-man, Lisa)
for Authority

* Delete as necessary

表格 3 [第5(a)條]
噪音管制條例
(第400章)
第8(9)條

建築噪音許可證
為進行建築工程(撞擊式打樁除外)
而使用機動設備及／或進行訂明建築工程

建築噪音許可證編號：GW-RE0880-19

致：PENTA - OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第8條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及／或進行訂明建築工程，但須受以下條件規限。若不按照該等條件進行建築工程，許可證可遭撤銷，而且會受到檢控。

條　件

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

詳細地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第一部分)(土木工程拓展署合約編號ED/2018/01)。 地段編號：---

地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上，而該圖則是本建築噪音許可證的一部分。

2. 該地盤部~~分~~／全部*位於指定範圍之~~內~~／外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼(如適用的話)	*各項機動設備的說明*	*數目*
	參見附頁。	

b. 可使用機動設備的建築噪音許可證有效期：

生效日期及時間：二零一九年十月三十日 下午七時

日期及時間：公眾假日(包括星期日)的凌晨零時至晚上十二時，公眾假日以外的任何一日凌晨零時至上午七時及下午七時至晚上十二時【但須注意條件3.d.1.有關可以使用上列機動設備的時間】。

此部分許可證屆滿日期及時間：二零二零年四月二十七日 晚上十二時
日期 時間

c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀，供監督隨時查看；該等照片須經監督認可。

d. 規限使用機動設備的其他條件：

參見附頁。

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

訂明建築工程的識辨代碼	*訂明建築工程的類別的說明*
	不適用

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間： 不適用

日期及時間：不適用。

此部分許可證屆滿日期及時間： 不適用
日期 時間

c. ~~本許可證可夾附經監督認可的地盤圖則，以顯示本許可證准予進行訂明建築工程的地點。該地盤圖則須存放於建築地盤供監督隨時查看。~~

d. 規限進行訂明建築工程的其他條件：

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處，給予公眾人士參閱。

日期：2019 年 10 月 30 日

簽署：

監督
(鄧慧敏 代行)

* 刪去不適用者

Sheet Attached to Construction Noise Permit
No. GW-RE0880-19

3.a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)		*Description of item of powered mechanical equipment*	*No. of units*
Group A	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A)	One
	---	Piling, vibrating hammer	One
	CNP 048	Crane, mobile (diesel)	One
	---	Welding machine (electric)	One
	---	Air blower (electric)	One
	---	Power pack (diesel)	One
	CNP 283	Water pump, submersible (electric)	Eight
	---	Wastewater treatment plant	One
Group B	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A)	One
	CNP 081	Excavator, tracked	One
	CNP 283	Water pump, submersible (electric)	Eight
	---	Wastewater treatment plant	One
	---	Dump truck with grab, 5.5 tonne<gross vehicle weight≦38 tonne	One
	---	Welding machine (electric)	One
	CNP 048	Crane, mobile (diesel)	One
Group C	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A)	Three
	CNP 283	Water pump, submersible (electric)	Twelve
	---	Wastewater treatment plant	Two

Signed :
(TANG Wai-man, Lisa)
for Authority

建築噪音許可證
編號 GW-RE0880-19 的附頁

3.a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼 (如適用的話)		*各項機動設備的說明*	*數目*
A 組	---	發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A)	壹
	---	打樁機，震動鎚	壹
	CNP 048	起重機，流動 (油渣)	壹
	---	焊接機 (電動)	壹
	---	吹風機 (電動)	壹
	---	油渣動力供應器	壹
	CNP 283	潛水泵 (電動)	捌
	---	污水處理器	壹
B 組	---	發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A)	壹
	CNP 081	挖土機，履帶式	壹
	CNP 283	潛水泵 (電動)	捌
	---	污水處理器	壹
	---	抓斗卸土車，5.5 噸<總重量≦38 噸	壹
	---	焊接機 (電動)	壹
	CNP 048	起重機，流動 (油渣)	壹
C 組	---	發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A)	叁
	CNP 283	潛水泵 (電動)	拾貳
	---	污水處理器	貳

簽署：_____

監督

(鄧慧敏 代行)

Sheet Attached to Construction Noise Permit

No. GW-RE0880-19

3.d. Other conditions imposed on the use of the powered mechanical equipment:

1. The powered mechanical equipment listed in condition 3.a shall only be operated during the hours shown below:

Group A and Group B	General holiday including Sunday	0700 – 1900 hours
	Any day not being a general holiday	1900 – 2300 hours
Group C	General holiday including Sunday	0000 – 2400 hours
	Any day not being a general holiday	0000 – 0700 hours AND 1900 – 2400 hours

2. Only one group of the powered mechanical equipment listed in condition 3.a shall be allowed to operate at any time.

Signed : _____

(TANG Wai-man, Lisa)

for Authority

建築噪音許可證
編號 GW-RE0880-19 的附頁

3. d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件 3. a 內的機動設備：

A組 及 B組	公眾假日包括星期日	上午七時 至下午七時
	公眾假日以外的任何一日	下午七時 至 晚上十一時
C組	公眾假日包括星期日	凌晨零時至晚上十二時
	公眾假日以外的任何一日	凌晨零時至上午七時 及 下午七時至晚上十二時

2. 在任何時間內，祇可使用列在條件 3. a. 內其中一組機動設備。

簽署：

監督
(鄧慧敏 代行)

Photograph(s) attached to Construction Noise Permit No. GW-RE0880-19
建築噪音許可證編號：GW-RE0880-19 的照片

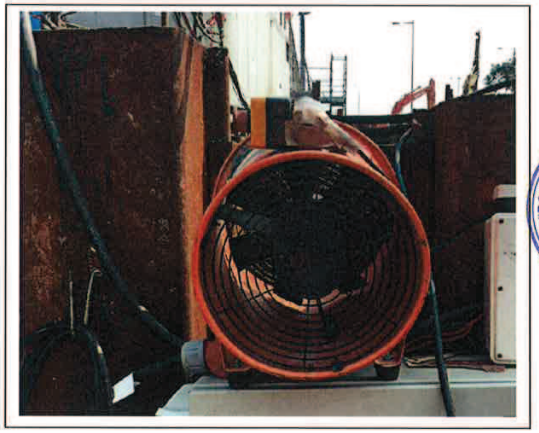
Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A)
發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A)

CNP 283 Water pump, submersible (electric)
潛水泵 (電動)

ENVIRONMENTAL PROTECTION DEPARTMENT
HONG KONG
環境保護署

Photograph(s) attached to Construction Noise Permit No. GW-RE0880-19
建築噪音許可證編號：GW-RE0880-19 的照片

Wastewater treatment plant
污水處理器



Air blower (electric)
吹風機 (電動)

Photograph(s) attached to Construction Noise Permit No. GW-RE0880-19
建築噪音許可證編號：GW-RE0880-19 的照片

Dump truck with grab, 5.5 tonne<gross vehicle weight≦38 tonne
抓斗卸土車， 5.5 噸< 總重量 ≦ 38 噸

CNP 081 Excavator, tracked
挖土機， 履帶式

Photograph(s) attached to Construction Noise Permit No. GW-RE0880-19
建築噪音許可證編號：GW-RE0880-19 的照片

Power pack (diesel)
油渣動力供應器

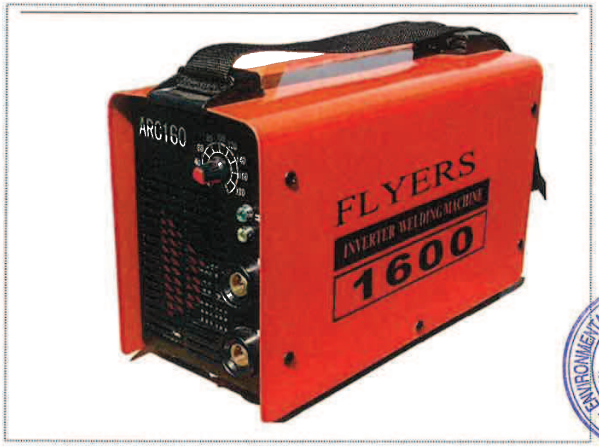
Piling, vibrating hammer
打樁機，震動錘

Photograph(s) attached to Construction Noise Permit No. GW-RE0880-19
建築噪音許可證編號：GW-RE0880-19 的照片

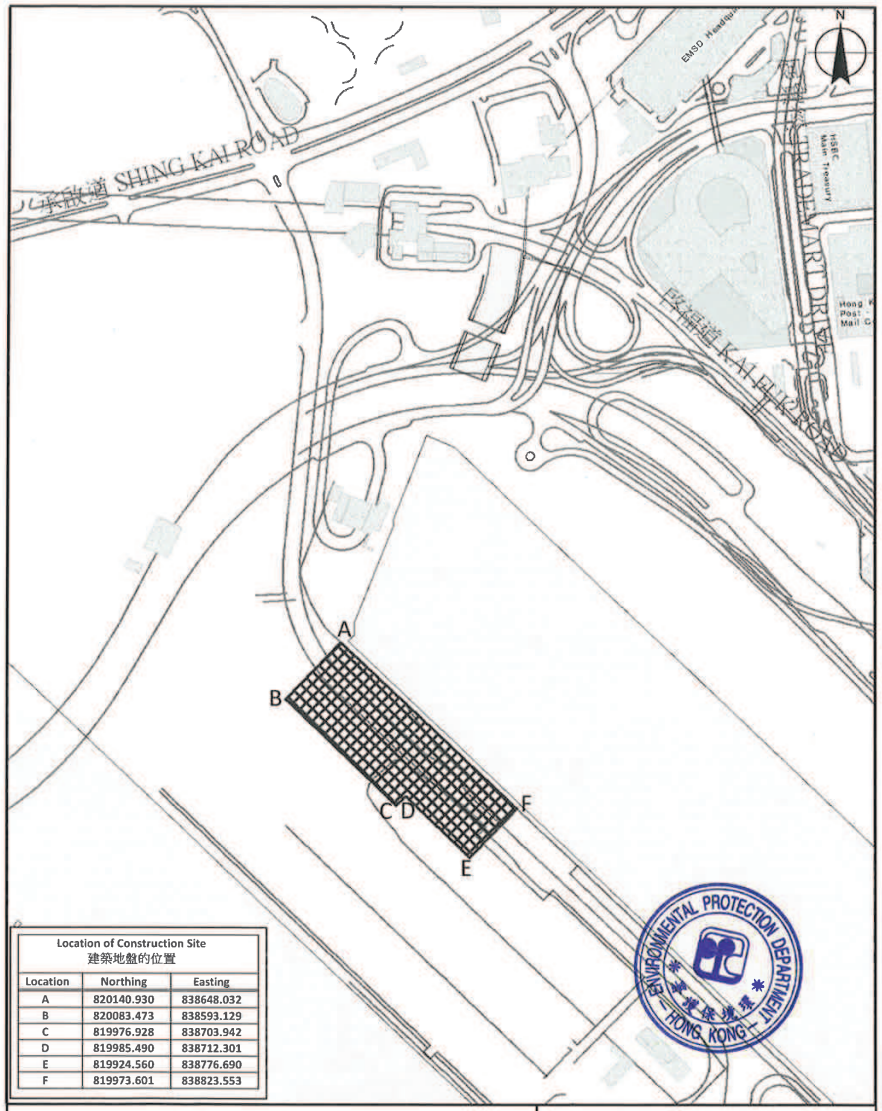
CNP 048 Crane, mobile (diesel) (1)
起重機，流動 (油渣) (1)

CNP 048 Crane, mobile (diesel) (2)
起重機，流動 (油渣) (2)

Photograph(s) attached to Construction Noise Permit No. GW-RE0880-19
建築噪音許可證編號：GW-RE0880-19 的照片



Welding machine (electric)
焊接機 (電動)



Location of Construction Site 建築地盤的位置		
Location	Northing	Easting
A	820140.930	838648.032
B	820083.473	838593.129
C	819976.928	838703.942
D	819985.490	838712.301
E	819924.560	838776.690
F	819973.601	838823.553

環境保護署 噪音管制監督

Environmental Protection Department Noise Control Authority

圖 例 Legend

建築地盤 Construction Site

建築噪音許可證編號 GW-RE0880-19 的附圖

Plan attached to Construction Noise Permit No. GW-RE0880-19

比例 Scale 1:5,000

米Meters

0 25 50 100 150

本署檔案
OUR REF : (4) in EP631/K19/RE452581-20
來函檔案
YOUR REF :
電　話
TEL NO : 2150 8081
圖文傳真
FAX NO : 2402 8275
網　址
HOMEPAGE : http://www.epd.gov.hk/

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
8/F., Cheung Sha Wan Government Offices,
303 Cheung Sha Wan Road,
Kowloon

環境保護署
環保法規管理科
區域辦事處(東)
九龍長沙灣道 303 號
長沙灣政府合署 8 樓

Registered Post

22 January 2020

To: PENTA – OCEAN CONSTRUCTION CO., LTD.
Flat 601, K.Wah Centre,
191 Java Road,
North Point, Hong Kong

PENTA-OCEAN
07 FEB 2020
RECEIVED

Dear Sir,

Notice of Issue of Construction Noise Permit pursuant to section 8(6) of the Noise Control Ordinance (Cap. 400)

I write to inform you that, under section 8(6) of the Noise Control Ordinance, the Authority has decided to issue a construction noise permit in respect of your application, which was received by the Authority on 8 January 2020 **for the use of powered mechanical equipment for carrying out construction work at Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Works Area Part 1), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01).**

The construction noise permit No. GW-RE0039-20 is enclosed.

You are advised to read the conditions of the permit carefully and to ensure compliance with these conditions. Any breaching of the conditions may lead to cancellation of the permit, **subsequent prosecution action** and the Authority's refusal to issue further permit for the above construction site.

Yours faithfully,

(TANG Wai-man, Lisa)
for Authority

Note:

Electronic submission of application for construction noise permit is available at Environmental Protection Department's website. File attachments with total size not exceeding 20 MB in acceptable format are allowed for electronic submission. Electronic application form can be downloaded from our website (https://epic.epd.gov.hk/eForm/ChangeLanguage.do?language=eng&url=/pages/datadownload/downloadMain.jsp) and an overview of application submission (https://epic.epd.gov.hk/eForm/introduce.html) is provided for more information.

(4) in EP631/K19/RE452581-20

2150 8081
2402 8275

掛號函件

致：　香港　北角
渣華道 191 號
嘉華國際中心 601 室
PENTA – OCEAN CONSTRUCTION CO., LTD.

執事先生：

根據《噪音管制條例(第 400 章)》第 8(6)條
發出的通知書 — 簽發「建築噪音許可證」

本監督於二零二零年一月八日，收到你擬於下述地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第一部分) (土木工程拓展署合約編號 ED/2018/01)，使用機動設備進行建築工程而提出的「建築噪音許可證」申請，現根據《噪音管制條例》第 8(6)條的規定通知你，上述的申請已被批准。

隨函附上「第 GW-RE0039-20 號建築噪音許可證」。

請細閱許可證各項條件，確保遵守，如有違反，本監督可撤銷許可證，提出檢控及拒絕再就上述地盤簽發任何「建築噪音許可證」。

監　督

(鄧慧敏　鄧慧敏　代行)

二零二零年一月二十二日

注意:
環境保護署提供網上申請「建築噪音許可證」服務。網上申請容許上傳檔案總容量不大於 20 MB 的有關文件。可於本署網頁下載電子表格 (https://epic.epd.gov.hk/eForm/ChangeLanguage.do?language=eng&url=/pages/datadownload/downloadMain.jsp)及參閱電子表格提交服務概覽(https://epic.epd.gov.hk/eForm/introduce.html)，了解更多資料。

FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. GW-RE0039-20

To : PENTA-OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed:

   Full address: Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Works Area Part 1), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No.: ---

   The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. *~~PART~~/WHOLE of the site falls * ~~WITHIN~~/OUTSIDE a designated area.

3. Powered Mechanical Equipment

   a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	*Description of item of powered mechanical equipment*	*No. of units*
	Refer to attached sheet.	

   b. Validity of the construction noise permit for the use of the powered mechanical equipment:

      Date and time of commencement : 24 January 2020 at 1900 hours

      Days and hours : 0000-2400 hours on general holidays (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].

      This part of the permit expires on : 23 March 2020 at 2300 hours

   c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.

   d. Other conditions imposed on the use of the powered mechanical equipment:

      1. The powered mechanical equipment listed in condition 3.a. shall only be operated during the hours shown below:

General holiday (including Sunday)	0900 - 2300 hours
Any day not being a general holiday	1900 - 2300 hours

      2. Only one group of the powered mechanical equipment listed in condition 3.a shall be allowed to operate at any time.

4. Prescribed Construction Work

   a. Type of prescribed construction work which may be carried out inside the site boundary:

Identification code of type of prescribed construction work	*Description of type of prescribed construction work*
	Not applicable

   b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

      Date and time of commencement : Not applicable at Not applicable

      Date and hours : Not applicable.

      This part of the permit expires on : Not applicable at Not applicable

   c. ~~Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.~~

   d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 22nd day of January 2020

Signed : .....
(TANG Wai-man, Lisa)
for Authority

* Delete as necessary

表格 3 [第5(a)條]

噪音管制條例
(第400章)
第8(9)條

建築噪音許可證
為進行建築工程（撞擊式打樁除外）
而使用機動設備及／或進行訂明建築工程

建築噪音許可證編號：GW-RE0039-20

致：PENTA-OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第8條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及／或進行訂明建築工程，但須受以下條件規限。若不按照該等條件進行建築工程，許可證可遭撤銷，而且會受到檢控。

條 件

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

詳細地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第一部分)(土木工程拓展署合約編號ED/2018/01)。 地段編號：---

地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上，而該圖則是本建築噪音許可證的一部分。

2. 該地盤~~部分~~／全部*位於指定範圍之~~內~~／外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼(如適用的話)	*各項機動設備的說明*	*數目*
	參見附頁。	

b. 可使用機動設備的建築噪音許可證有效期：

生效日期及時間：二零二零年一月二十四日下午七時

日期及時間：公眾假日(包括星期日)的凌晨零時至晚上十二時，公眾假日以外的任何一日凌晨零時至上午七時及下午七時至晚上十二時【但須注意條件3.d.1.有關可以使用上列機動設備的時間】。

此部分許可證屆滿日期及時間：二零二零年三月二十三日晚上十一時
日期 時間

c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀，供監督隨時查看；該等照片須經監督認可。

d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件3.a內的機動設備：

公眾假日包括星期日	上午九時至晚上十一時
公眾假日以外的任何一日	下午七時至晚上十一時

2. 在任何時間內，祇可使用列在條件3.a.內其中一組機動設備。

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

訂明建築工程的識辨代碼	*訂明建築工程的類別的說明*
	不適用

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間：不適用

日期及時間：不適用。

此部分許可證屆滿日期及時間：不適用
日期 時間

c. ~~本許可證可夾附經監督認可的地盤圖則，以顯示本許可證准予進行訂明建築工程的點。該地盤圖則須存放於建築地盤供監督隨時查看。~~

d. 規限進行訂明建築工程的其他條件：

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處，給予公眾人士參閱。

日期：2020 年 1 月 22 日

簽署：鄧慧敏
監督
(鄧慧敏 代行)

* 刪去不適用者

Sheet Attached to Construction Noise Permit
No. GW-RE0039-20

3.a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)		*Description of item of powered mechanical equipment*	*No. of units*
Group A	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦94 dB(A)	One
	CNP 166	Piling, large diameter bored, reverse circulation drill	Two
	---	Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104dB(A)	Two
	---	Power pack (diesel)	One
	---	Wastewater treatment plant	One
	CNP 283	Water pump, submersible (electric)	Four
Group B	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦94 dB(A)	One
	CNP 164	Piling, large diameter bored, grab and chisel	One
	CNP 048	Crane, mobile (diesel)	One
Group C	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦94 dB(A)	One
	---	Welding machine (electric)	Five
	CNP 048	Crane, mobile (diesel)	One
Group D	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦94 dB(A)	One
	---	Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104dB(A)	One
	CNP 048	Crane, mobile (diesel)	One
	---	Wastewater treatment plant	One
	CNP 283	Water pump, submersible (electric)	Four
Group E	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦94 dB(A)	One
	CNP 048	Crane, mobile (diesel)	One
	CNP 165	Piling, large diameter bored, oscillator	One
	CNP 044	Concrete lorry mixer	One
	CNP 283	Water pump, submersible (electric)	One
	---	Wastewater treatment plant	One

Signed :_____
(TANG Wai-man, Lisa)
for Authority

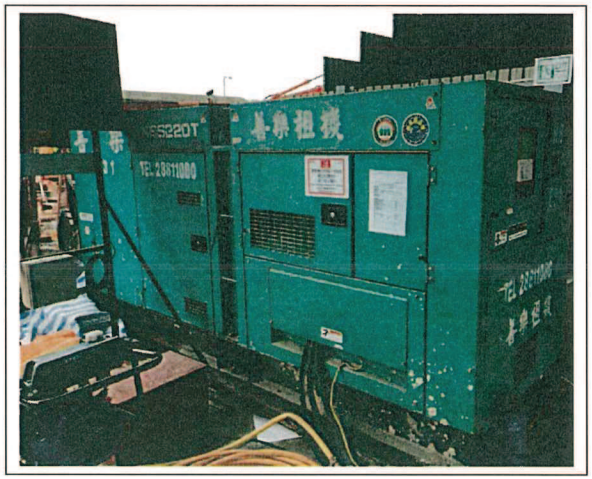
建築噪音許可證
編號 GW-RE0039-20 的附頁

3.a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼 (如適用的話)		*各項機動設備的說明*	*數目*
A 組	---	發電機，備有優質機動設備標籤顯示聲功率級≦94 分貝(A)	壹
	CNP 166	大直徑鑽孔樁，循環式鑽機	貳
	---	空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A)	貳
	---	油渣動力供應器	壹
	---	污水處理器	壹
	CNP 283	潛水泵 (電動)	肆
B 組	---	發電機，備有優質機動設備標籤顯示聲功率級≦94 分貝(A)	壹
	CNP 164	大直徑鑽孔樁，抓斗及鑿	壹
	CNP 048	起重機，流動 (油渣)	壹
C 組	---	發電機，備有優質機動設備標籤顯示聲功率級≦94 分貝(A)	壹
	---	焊接機 (電動)	伍
	CNP 048	起重機，流動 (油渣)	壹
D 組	---	發電機，備有優質機動設備標籤顯示聲功率級≦94 分貝(A)	壹
	---	空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A)	壹
	CNP 048	起重機，流動 (油渣)	壹
	---	污水處理器	壹
	CNP 283	潛水泵 (電動)	肆
E 組	---	發電機，備有優質機動設備標籤顯示聲功率級≦94 分貝(A)	壹
	CNP 048	起重機，流動 (油渣)	壹
	CNP 165	大直徑鑽孔樁，擺動機	壹
	CNP 044	混凝土攪拌車	壹
	---	污水處理器	壹
	CNP 283	潛水泵 (電動)	壹

簽署：_____
監督
(鄧慧敏 代行)

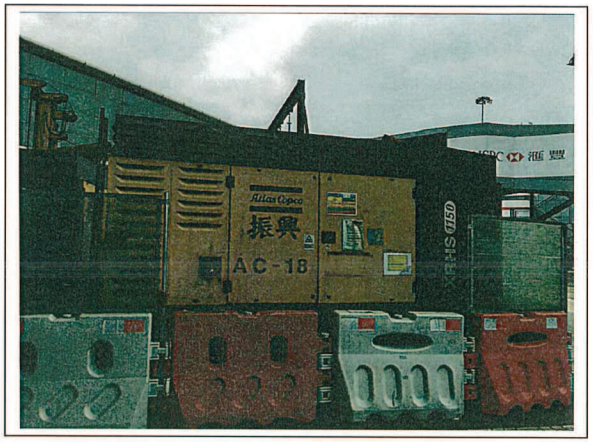
Photograph(s) attached to Construction Noise Permit No. GW-RE0039-20
建築噪音許可證編號：**GW-RE0039-20** 的照片



Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤94dB(A)
發電機，備有優質機動設備標籤顯示聲功率級≤94 分貝(A)

CNP 283 Water pump, submersible (electric)
潛水泵 (電動)

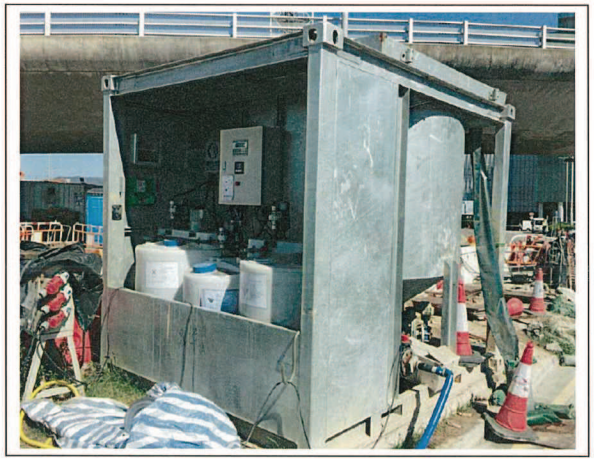
Photograph(s) attached to Construction Noise Permit No. GW-RE0039-20
建築噪音許可證編號：**GW-RE0039-20** 的照片



Air compressor, with Noise Emission Label showing a Sound Power Level of ≤104dB(A) (1)
空氣壓縮機，備有噪音標籤顯示聲功率級≤104 分貝(A) （一）

Air compressor, with Noise Emission Label showing a Sound Power Level of ≤104dB(A) (2)
空氣壓縮機，備有噪音標籤顯示聲功率級≤104 分貝(A) （二）

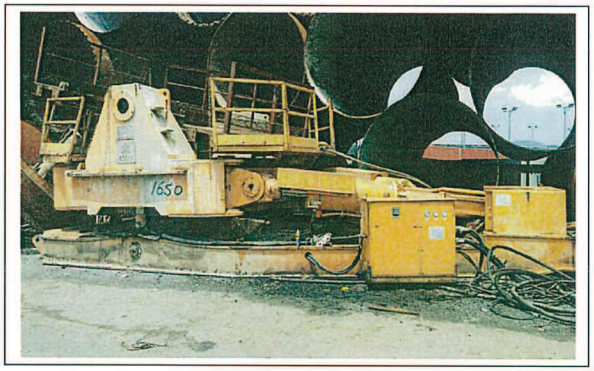
Photograph(s) attached to Construction Noise Permit No. GW-RE0039-20
建築噪音許可證編號：GW-RE0039-20 的照片



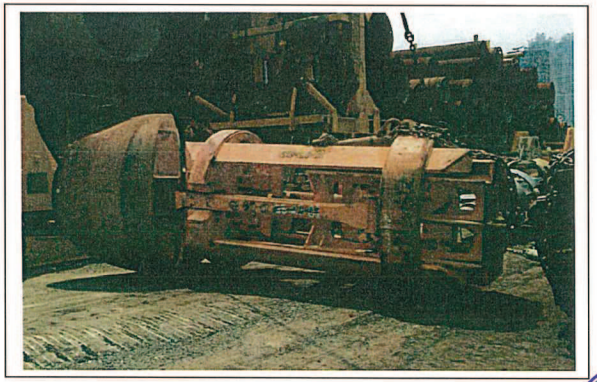
Wastewater treatment plant
污水處理器

Power pack (diesel)
油渣動力供應器

Photograph(s) attached to Construction Noise Permit No. GW-RE0039-20
建築噪音許可證編號：GW-RE0039-20 的照片



CNP 165 Piling, large diameter bored, oscillator
大直徑鑽孔樁，擺動機



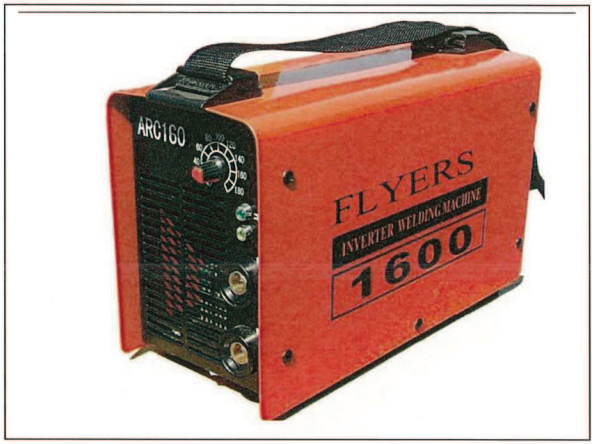
CNP 164 Piling, large diameter bored, grab and chisel
大直徑鑽孔樁，抓斗及鑿

Photograph(s) attached to Construction Noise Permit No. GW-RE0039-20
建築噪音許可證編號：GW-RE0039-20 的照片

CNP 048 Crane, mobile (diesel)
起重機，流動 (油渣)

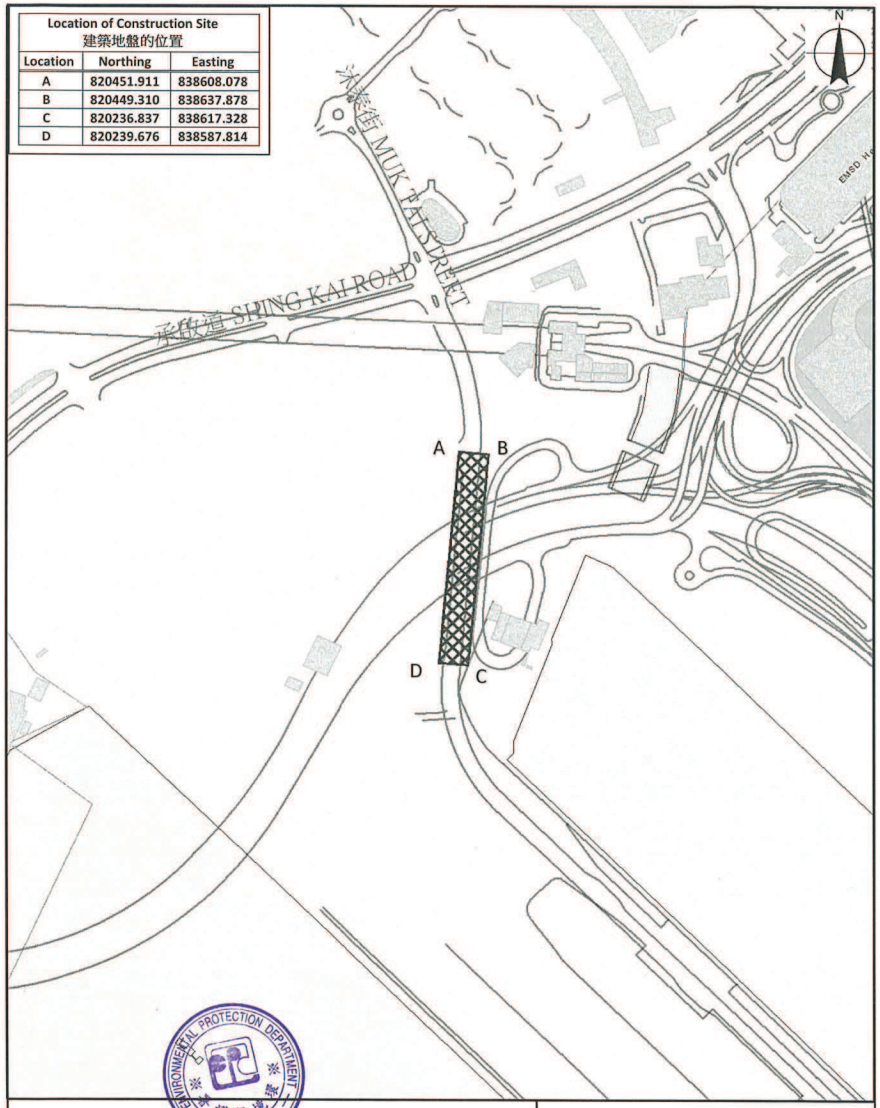
CNP 044 Concrete lorry mixer
混凝土攪拌車

Photograph(s) attached to Construction Noise Permit No. GW-RE0039-20
建築噪音許可證編號：GW-RE0039-20 的照片



Welding machine (electric)
焊接機 (電動)

CNP 166 Piling, large diameter bored, reverse circulation drill
大直徑鑽孔樁，循環式鑽機



本署檔號
OUR REF.: RE04380
來函檔號
YOUR REF.:
電話
TEL. NO.: 2872 1769
圖文傳真
FAX NO.: 2591 0361
網址
HOMEPAGE: http://www.epd.gov.hk

Environmental Protection Department
Environmental Infrastructure Division
88 Victoria Road,
Kennedy Town,
Hong Kong.

環境保護署
環境基建科
香港西環
堅尼地城
域多利道88號

PENTA-OCEAN CONSTRUCTION CO., LTD.
FLAT/ROOM 601, K. WAH CENTRE,
191 JAVA ROAD, NORTH POINT,
HONG KONG
Attn.: CHOI CHONG KEI

Friday, 28 June, 2019

RECEIVED
03 JUL 2019
PENTA-OCEAN

Dear Sir/Madam,

Waste Disposal (Charges for Disposal of Construction Waste) Regulation
Approval of Application for Billing Account
(Construction work contract with value of $1 million or above)
Application No.: RE04380

I am pleased to inform you that your application for billing account for disposal of construction waste under the following construction work contract has been approved under Section 6 and 9 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation:

Contract No.: ED/2018/01

Contract Name: KAI TAK DEVELOPMENT - STAGE 4 INFRASTRUCTURE AT THE FORMER RUNWAY AND SOUTH APRON

Construction Waste Generated Site: KAI TAK THE FORMER RUNWAY AND SOUTH APRON

The account number is **7034450**. Please quote this account number for enquiries in relation to the billing account.

You are bound by the "Basic Conditions" and "Conditions of Use" accompanied with this account for disposal of construction waste at the prescribed facilities. You shall ensure that (a) the billing account established solely for the contract as stated above is used for paying any prescribed charge payable in respect of construction waste generated from construction work undertaken under the above contract; and (b) that billing account is not used for paying any prescribed charge payable in respect of any other construction waste not generated from construction work undertaken under the contract as stated above.

Regarding your application for issuance of chits, a demand note for the deposit required will be sent to you accordingly. Request for additional chits can be made using "Form 4". Please note that one chit is required for each load of construction waste to be disposed of at prescribed facility.

Should you have any queries, please contact us at 2872 1769.

Yours faithfully,

(K O Yeung)
Principal Environmental Protection Officer
for Director of Environmental Protection

再造紙
RECYCLED PAPER

ISO 14001:2015
Certificate No:E103

本署檔號 Our Ref: 447046
來函檔號 Your Ref:
電　話 Tel. No.: 2117 7539
圖文傳真 Fax No.: 2756 8588
電子郵件 E-Mail:
網　址 Homepage: http://www.epd.gov.hk/

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
5th Floor, Nan Fung Commercial Centre,
19 Lam Lok Street, Kowloon Bay,
Kowloon, Hong Kong.

環境保護署
環保法規管理科
區域辦事處（東）
香港九龍九龍灣臨樂街
十九號南豐商業中心五樓

31 JUL 2019

By Registered Post

PENTA-OCEAN CONSTRUCTION CO., LTD.
FLAT 601, K. WAH CENTRE,
191 JAVA ROAD,
NORTH POINT, HONG KONG

PENTA-OCEAN
02 AUG 2019
RECEIVED

Dear Sir/Madam,

Waste Disposal Ordinance (Cap. 354)
Waste Disposal (Chemical Waste) (General) Regulation
Registration as a Chemical Waste Producer
Completion of Registration

I am pleased to inform you that your registration with this department as a chemical waste producer has been completed.

The assigned Waste Producer Number (WPN) and the particulars of your establishment are printed in the enclosed form (EPD 130). If you consider there are any discrepancies about the particulars, please notify me immediately, quoting the assigned WPN.

The "EPD 130" is an important document, please archive appropriately. This registration is not transferable and will be valid only in respect of the applicant and the premises registered. In future when there is change in the registration particulars, you should inform this department as soon as possible so that our record can be amended accordingly. Under section 7 of the above regulation, failure to notify this department of relevant changes is an offence and liable to a maximum fine of HK$10,000.

For enquiries, please contact us at Tel 2117 7546.

Yours faithfully,

(CHAN Wai-lun, William)
Environmental Protection Officer
for Director of Environmental Protection

Encl.

再造紙 RECYCLED PAPER

掛號函件

先生/女士:

香港法例第三五四章廢物處置條例
廢物處置(化學廢物)(一般)規例
化學廢物產生者
完成登記程序

本署已完成辦理 貴機構申請登記為「化學廢物產生者」。現隨信附上EPD 130表格;載有 貴機構的各項資料及你的「化學廢物產生者」編號。請即核對表格內的各項資料，如有錯漏，請即聯絡本署職員以便更正。通訊時請註明你的化學廢物產生者編號。

EPD 130 表格是一份重要文件，請妥善存檔。同時，是項登記，不得轉讓，並只適用於已登記的申請人／機構及有關地址。日後如果已申報的資料有變更，你應馬上通知本署，以便修正紀錄。按照上述規例第七條規定，任何人倘未有將變更資料及時呈報，乃屬違例行為，一經定罪，可被判罰款最高港幣一萬元正。

若有任何疑問，請致電 2117 7546 與本署職員聯絡。

環境保護署署長
(環境保護主任　陳偉麟　代行)

附件

Environmental Protection Department
環 境 保 護 署

Waste Disposal Ordinance (Chapter 354)
香港法例第354章廢物處置條例
Waste Disposal (Chemical Waste)(General) Regulation
廢物處置(化學廢物)(一般)規例

Registration of Waste Producer
廢物產生者登記證

To: 致

Chemical Waste Producer 化學廢物產生者

Full Name (English) 全 名 (英 文): PENTA-OCEAN CONSTRUCTION CO., LTD.

(Chinese) (中 文): ---

I.D. Card No. (if any) 身份證號碼 :(如有者): ---

Business Reg. Cert. No. (if any) 商業登記證號碼: (如有者): 07818486-000-05-18-7

Address for Correspondence 通訊地址: FLAT 601, K. WAH CENTRE, 191 JAVA ROAD, NORTH POINT, HONG KONG

Tel. No. 電話: 94332628

Fax No. 圖文傳真: 25724080

With reference to your application dated 09 / 07 / 2019 **for registration as a Waste Producer under the Waste Disposal (Chemical Waste) (General) Regulation, the Waste Producer Number, WPN** 5|2|1|8–2|8|6–P|3|1|8|2–0|3 **is assigned to you in respect of the location or premises listed below:—**

前於 2019 年 07 月 09 日 根據廢物處置(化學廢物)(一般)規例而來信，申請登記為廢物產生者，茲特配予廢物產生者編號第 5|2|1|8–2|8|6–P|3|1|8|2–0|3 號，予下開地點或處所: —

Location or Premises where the waste is produced 產生廢物的地點或處所

Name of Establishment 機構名稱: PENTA-OCEAN CONSTRUCTION CO., LTD.

Business Reg. Cert. No. (if any) 商業登記證號碼: (如有者): 07818486-000-05-18-7

Nature of Business 業務性質: CONSTRUCTION

Major chemical waste types 主要化學廢物種類: SPENT LUBRICATING OIL, SPENT MINERAL OIL, SURPLUS PAINT, SPENT BATTERY CELL CONTAINING HEAVY METALS, SPENT MIXING RESIDUE CONTAINING ACID AND ASBESTOS WASTE

Address 地址: CONSTRUCTION SITE OF KAI TAK DEVELOPMENT - STAGE 4 INFRASTRUCTURE AT THE FORMER RUNWAY AND SOUTH APRON, KOWLOON CITY, KOWLOON (CEDD CONTRACT NO. ED/2018/01)

ENVIRONMENTAL PROTECTION DEPARTMENT 環境保護署 HONG KONG

Chan Wai L

(CHAN Wai-lun, William)
for *Director of Environmental Protection*
環境保護署署長 (陳偉麟 代行)

Date 日期 18 / 07 / 2019

WARNING : **Any registered waste producer who fails to inform the Director of Environmental Protection of any change in his registration particulars commits an offence and is liable on conviction to a fine of $10,000.**

警 告 : 任何已登記的廢物產生者，若其登記資料有任何改變而不知會環境保護署署長，即屬違法，被定罪者最高罰款港幣10,000元。

EPD 130 (Nov 2012)

Appendix P – Environmental Mitigation Implementation Schedule (EMIS)

Implementation Schedule for Air Quality Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
S3.2		8 times daily watering of the work site with active dust emitting activities.	^
S3.2	S4.8	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.	
		- Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.	^
		- Misting for the dusty material should be carried out before being loaded into the vehicle.	^
		- Any vehicle with an open load carrying area should have properly fitted side and tail boards.	^
		- Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.	^
		- The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary, before transportation.	^
		- The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways insider the site. On- site unpaved roads should be compacted and kept free of lose materials.	^
		- Vehicle washing facilities should be provided at every vehicle exit point.	^
		- The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	^
		- Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	^
		- Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides.	NA
		- Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	^

Implementation Schedule for Noise Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
S3.3		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		Good Site Practice:	
S3.3		- 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.	^
		- Scheduling of Construction Works during School Examination Period	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
S3.4		<u>Construction Runoff</u> Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include:	
S3.4		- use of sediment traps.	^
S3.4		- adequate maintenance of drainage systems to prevent flooding	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
		and overflow.	
	S5.8	- Surface run-off from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins.	^
	S5.8	- Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels should be provided on site boundaries where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks.	^
	S5.8	- Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage should comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distance of 100 m should be maintained between the discharge points of construction site run-off and the existing saltwater intakes.	^
	S5.8	- 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.	^
	S5.8	- 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.	^
	S5.8	- Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms.	^
	S5.8	- Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must	NA

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
		always be prevented in order not to unduly overload the foul sewerage system.	
	S5.8	- Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis.	^
S3.4		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.	^
S3.4	S5.8	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means. If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm.	^
S3.4		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	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
		flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	
S3.4		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.	^
S3.4		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.	NA
S3.4		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.	^
S3.4		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.	NA
S3.4	S5.8	<u>Wheel Washing Water</u> 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.	^
S3.4		<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.	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
S3.4		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.	^
S3.4		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.	^
S3.4	S5.8	<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. Notices should be posted at conspicuous locations to remind the workers not to discharge 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		<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	^
S3.4		<u>Debris and Litter</u> In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
		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	Boring and Drilling Water 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.	^
	S5.8	Acid Cleaning, Etching and Pickling Wastewater 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.	NA
	S5.8	Effluent Discharge 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.	^
	S5.8	Accidental Spillage 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.	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
		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.	
	S5.8	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: - Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.	^
	S5.8	- Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.	^
	S5.8	- Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	^

Implementation Schedule for Waste Management Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
S3.5		<u>Good Site Practices</u> 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:	
S3.5		- 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.	^
	S6.7	- 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.	^

Implementation Schedule for Waste Management Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
S3.5	S6.7	- Training of site personnel in proper waste management and chemical waste handling procedures.	^
S3.5	S6.7	- Provision of sufficient waste disposal points and regular collection for disposal.	^
S3.5	S6.7	- Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	^
S3.5		- A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).	^
	S6.7	- Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.	^
	S6.7	- Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.	^
S3.5		<u>Waste Reduction Measures</u> 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:	^
S3.5	S6.7	- Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals.	^
S3.5	S6.7	- 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.	^
S3.5	S6.7	- 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.	^
S3.5		- Any unused chemicals or those with remaining functional capacity should be recycled.	^
S3.5	S6.7	- Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	^
S3.5		<u>Construction and Demolition Materials</u> 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:	

Implementation Schedule for Waste Management Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
S3.5		- 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.	^
S3.5		- Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric.	^
S3.5		- Skip hoist for material transport should be totally enclosed by impervious sheeting.	^
S3.5		- Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site.	^
S3.5		- 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.	^
S3.5		- 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.	^
S3.5		- All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet.	^
S3.5		- The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading.	^
S3.5		- 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.	^

Implementation Schedule for Waste Management Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
	S6.7	- Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.	^
S3.5		Chemical Waste After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation	^
	S6.7	Separation of chemical wastes for special handling and appropriate treatment.	^
S3.5		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.	^

Implementation Schedule for Landscape and Visual Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
S3.8.12		All existing trees should be carefully protected during construction	^
S3.8.12		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.	^
S3.8.12		Control of night-time lighting.	^
S3.8.12		Erection of decorative screen hoarding.	^
	S7.9	Construction Site Control - CM1 - Minimized construction area and contractor's temporary works areas.	^
		- CM2- Control of night-time lighting and glare by hooding all	^

Implementation Schedule for Landscape and Visual Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
		lights.	
		- CM3 - Erection of decorative mesh screens or construction hoardings around works areas in visually unobtrusive colours.	^
		- CM4 - Reduction of construction period to practical minimum.	^
		- CM5 - Limitation of / Ensuring no run-off into surrounding landscape and adjacent seawater areas.	^
		- CM6 - Temporary or advance landscape should be provided along the temporary access roads to the Cruise Terminal until such time as road D3 is open.	^

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

Mitigation Measures undertaken by the Contractor for site inspections

Date:	22 Jan 2020
Mitigation Measures:	Watering of the work site with active dust emitting activities.

Date:	22 Jan 2020
Mitigation Measures:	Quiet PME was used.

Date:	22 Jan 2020
Mitigation Measures:	Stockpile had been covered properly.

Appendix Q – Summaries of Environmental Complaint, Warning, Summon and Notification of Successful Prosecution

Reporting Month: January 2020

Contract No.	Record of Complaint (Yes/No)	Record of Warning (Yes/No)	Notification of Summons and Successful Prosecutions (Yes/No)
ED/2018/01	No	No	No

Cumulative Statistics on Complaints, Notification of Summons and Successful Prosecutions upto reporting month

Contract No.	Record of Complaint	Record of Warning	Notification of Summons and Successful Prosecutions
ED/2018/01	0	0	0

Complaint Log for ED/2018/01				
EPD Complaint Ref. No.	Date of Complaint	Description of Complaint	Investigation / Recommendations / Actions	Close-Out Date / Status
		No compliant was receipted in Jan 2020.		