

# FUGRO TECHNICAL SERVICES LIMITED

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## 69<sup>th</sup> CONSOLIDATED MONTHLY EM&A REPORT

July 2022

**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/1165

**Prepared by** : Toby Wan

**Reviewed by** : Cyrus Lai

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

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**EXECUTIVE SUMMARY**

- i. This is the 69<sup>th</sup> Consolidated Monthly EM&A Report which summaries the EM&A works undertaken by respective contract under EP-337/2009 within the period between 1 July and 31 July 2022.
- ii. The construction activities undertaken in the reporting month are summarized as follow:

**Contract No. KL/2014/01:**

- Architectural features works at landscaped deck and ground floor open space
- Defect work of pedestrian streets
- E&M works
- Laying of paving blocks for footpath
- Planting works along footpath and at deck level, and
- TTA implementation, minor works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road

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

- Install lift inside the lift shaft of LT1 at SKLR Playground
- Carry out finishing works & E&M works inside subway
- Carry out backfilling works above the subway at PERE
- Install glazing spiders to staircase cover of ST1 at SKLR Playground

**Contract No. ED/2018/01:**

- North Approach Ramp – Construction of utilities trough
- Bridge D3 – Construction of Bridge Deck and abutments
- North Depressed Road – Construction of wall & top slab
- Underpass – Construction of walls and roof slab
- South Approach Ramp – Construction of Permanent Structure
- District Cooling System seawater intake box culvert - reinstatement of the seawall and backfilling works
- Lift 3 – Modification works
- Lift 4 – Construction of linking platform, Installation of glass
- South Depressed Road – construction of permanent works
- Rising Main and Water Pipe – Laying of sewage
- Landscaped Deck – Construction of pile caps and installation of columns, construction of Landscaped Deck
- Transformer Room - Construction of permanent structure
- Shing Kai Road – Modification works, laying of storm water drainage pipes
- Lift 1 & 2 – Installation of ELS system
- CLP substation – Construction of wall & intermediate slab, permanent structure
- Noise Barrier – Remaining works, Bus lay-by construction
- Seawater Intake Box Culvert of Saltwater Pumping Station –Installation of sheetpiles and ELS system

**Contract No. ED/2018/05:**

- Pile column construction for PC9 and PC10 for Elevated Walkway LW-02
- ELS and excavation for PC11 for Elevated Walkway LW-02
- Erection of temporary decking across existing Kai Tak River
- Trial pit excavation and UU diversion at Sa Po Road under TTA Stage 2
- ELS, excavation and RC construction at launching shaft for subway SB-01
- RC construction at Launching Shaft for SB-01



- Construction works for Pedestrian Street No. 2 & No. 4
- Construction works for Road L16
- Construction of DCS
- ELS and excavation for Subway KS10 Lift and Staircase
- Renovation works for existing subways KS9 and KS32
- Twin rising main connection works

### **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 for Contract No. KL/2014/01, Contract No. KL/2015/02, Contract No. ED/2018/01 and Contract No. ED/2018/05 in this reporting month.

### **Reporting Changes**

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



**Future Key Issues**

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

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

Major Impact Prediction	Control Measures
<b>Contract No. KL/2014/01:</b>	
Air quality impact (dust)	<ul style="list-style-type: none"> <li>• Frequent watering of haul road and unpaved/exposed areas;</li> <li>• Frequent watering or covering stockpiles with tarpaulin or similar means; and</li> <li>• Watering of any earth moving activities.</li> </ul>
Water quality impact (surface run-off)	<ul style="list-style-type: none"> <li>• Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains;</li> <li>• Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge;</li> <li>• 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</li> <li>• Provision of measures to prevent discharge into the stream.</li> </ul>
Noise Impact	<ul style="list-style-type: none"> <li>• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation;</li> <li>• Controlling the number of plants use on site;</li> <li>• Regular maintenance of machines; and</li> <li>• Use of acoustic barriers if necessary.</li> </ul>
Waste/ Chemical Management	<ul style="list-style-type: none"> <li>• Maintenance involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.</li> <li>• Chemical wastes should be hold by suitable containers with clear label and stored at a safe location.</li> </ul>
<b>Contract No. KL/2015/02:</b>	
Air quality impact (dust)	<ul style="list-style-type: none"> <li>• Frequent watering of haul road and unpaved/exposed areas;</li> <li>• Frequent watering or covering stockpiles with tarpaulin or similar means; and</li> <li>• Watering of any earth moving activities.</li> </ul>
Water quality impact (surface run-off)	<ul style="list-style-type: none"> <li>• Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains;</li> <li>• Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge;</li> <li>• 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</li> <li>• Provision of measures to prevent discharge into the stream.</li> </ul>
Noise Impact	<ul style="list-style-type: none"> <li>• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation;</li> <li>• Controlling the number of plants use on site;</li> <li>• Regular maintenance of machines; and</li> <li>• Use of acoustic barriers if necessary.</li> </ul>
<b>Contract No. ED/2018/01:</b>	
Air Quality, Construction Noise, Water Quality, Chemical and	<ul style="list-style-type: none"> <li>• Sufficient watering of the works site with the active dust emitting activities,</li> <li>• Limitation of the speed for vehicles on unpaved site roads,</li> <li>• Properly cover the stockpiles,</li> <li>• Good maintenance to the plant and equipment,</li> <li>• Use of quieter plant and Quality Powered Mechanical Equipment (QPME),</li> </ul>

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Major Impact Prediction	Control Measures
Waste Management, Landscape and Visual	<ul style="list-style-type: none"> <li>• Provide movable noise barriers,</li> <li>• Appropriate desilting/ sedimentation devices provided on site for treatment before discharge,</li> <li>• Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall,</li> <li>• Onsite waste sorting and implementation of trip ticket system,</li> <li>• Good management and control on construction waste reduction,</li> <li>• Erection of decorative screen hoarding,</li> <li>• Strictly following the Environmental Permits and Licenses, and</li> <li>• Provide sufficient mitigation measures as recommended in Approved EIA Reports.</li> </ul>
<b>Contract No. ED/2018/05:</b>	
Air Quality, Construction Noise, Water Quality, Chemical and Waste Management, Landscape and Visual	<ul style="list-style-type: none"> <li>• Sufficient watering of the works site with the active dust emitting activities,</li> <li>• Limitation of the speed for vehicles on unpaved site roads,</li> <li>• Properly cover the stockpiles,</li> <li>• Good maintenance to the plant and equipment,</li> <li>• Use of quieter plant and Quality Powered Mechanical Equipment (QPME),</li> <li>• Provide movable noise barriers,</li> <li>• Appropriate desilting/ sedimentation devices provided on site for treatment before discharge,</li> <li>• Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall,</li> <li>• Onsite waste sorting and implementation of trip ticket system,</li> <li>• Good management and control on construction waste reduction,</li> <li>• Erection of decorative screen hoarding,</li> <li>• Strictly following the Environmental Permits and Licenses, and</li> <li>• Provide sufficient mitigation measures as recommended in Approved EIA Reports.</li> </ul>

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## 1. INTRODUCTION

### 1.1 Background

- 1.1.1 The Kai Tak Development is located in the south-eastern part of Kowloon Peninsula of the HKSAR, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling.
- 1.1.2 A study of environmental impact assessment (EIA) was undertaken to consider the key issues of air quality, noise, water quality, waste, land contamination, cultural heritage and landscape and visual impact, and identify possible mitigation measures associated with the works. EIA Report (Register No. AEIAR-130/2009) was approved by the Environmental Protection Department (EPD) on 4 March 2009.
- 1.1.3 The EP-337/2009 was issued on 23 April 2009 for the new distributor roads serving the planned Kai Tak Development to the following scale and slope:
- Road D1 – a dual 2-lane carriageway of approximately 1.3 km long.
  - Road D2 – a dual 3-lane carriageway of approximately 1.1 km long.
  - Road D3 – a dual 2-lane carriageway of approximately 2.3 km long.
  - Road D4 – a dual 2-lane carriageway of approximately 0.9 km long.
- 1.1.4 The Civil Engineering and Development Department HKSAR has appointed Fugro Technical Services Limited (FTS) to undertake the role of Independent Environmental Checker (IEC) for the Contract No. KL/2015/02.
- 1.1.5 This is the 69<sup>th</sup> Consolidated Monthly EM&A Report which summaries the EM&A works undertaken by respective contract under EP-337/2009 within the period between 1 July and 31 July 2022.

### 1.2 Summary of relevant Contract Information of Key Personnel

Party	Position	Name	Telephone	Fax
<b>Contract No. KL/2014/01:</b>				
Project Proponent (CEDD)	Engineer	Mr. Ricky Yu	3579 2124	3579 4516
Engineer's Representative (AECOM)	CRE	Mr. Clive Cheng	3746 1801	2798 0783
IEC (KSMC)	IEC	Dr. Douglas Wong	2618 2166	2120 7752
ET (Cinotech)	ET Leader	Mr. K.S Lee	2151 2091	3107 1388
	Audit Team Leader	Ms. Betty Choi	2151 2072	
Main Contractor (CCJV)	EO	Mr. Jack Lai	2960 1398	2960 1399
<b>Contract No. KL/2015/02:</b>				
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	Site Agent	Mr. W. M. Wong	6386 3535	2398 8301



Party	Position	Name	Telephone	Fax
(PWHJV)				
<b>Contract No. ED/2018/01:</b>				
Project Proponent (CEDD)	Senior Engineer	Mr. Alex Wong	3579 2452	2739 0076
	Engineer	Ms. Chan Ka Yan	3579 2458	2739 0076
Engineer's Representative (AECOM)	CRE	Mr. Clive Cheng	3911 4201	3911 4288
IEC (Ramboll)	IEC	Mr. Y H Hui	3465 2850	3465 2899
ET (Ka Shing)	ET Leader	Mr. Chan Pang	6082 2973	2120 7752
Main Contractor (Penta-Ocean)	EO	Mr. Lulu Mar	6845 0626	3465 8898
<b>Contract No. ED/2018/05:</b>				
Project Proponent (CEDD)	Permit Holder	Mr. Lam Shing Tim	3842 7090	2739 0076
Engineer's Representative (AECOM)	Supervisor's Delegate	Mr. Vincent Lee	2798 0771	2798 0783
IEC (Acuity)	IEC	Mr. Kevin Li	9779 2247	2698 9383
ET (Ka Shing)	ET Leader	Mr. Chan Pang	6082 2973	2120 7752
Main Contractor (BK- STEC)	EO	Mr. Rex Lau	6282 5154	3850 8508

**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 report.

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

**Contract No. KL/2014/01:**

- Architectural features works at landscaped deck and ground floor open space
- Defect work of pedestrian streets
- E&M works
- Laying of paving blocks for footpath
- Planting works along footpath and at deck level, and
- TTA implementation, minor works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road

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

- Install lift inside the lift shaft of LT1 at SKLR Playground
- Carry out finishing works & E&M works inside subway
- Carry out backfilling works above the subway at PERE
- Install glazing spiders to staircase cover of ST1 at SKLR Playground

**Contract No. ED/2018/01:**

- North Approach Ramp – Construction of utilities trough
- Bridge D3 – Construction of Bridge Deck and abutments
- North Depressed Road – Construction of wall & top slab
- Underpass – Construction of walls and roof slab
- South Approach Ramp – Construction of Permanent Structure



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- District Cooling System seawater intake box culvert – reinstatement of the seawall and backfilling works
- Lift 3 – Modification works
- Lift 4 – Construction of linking platform, Installation of glass
- South Depressed Road – construction of permanent works
- Rising Main and Water Pipe – Laying of sewage
- Landscaped Deck – Construction of pile caps and installation of columns
- Transformer Room – Construction of permanent structure
- Shing Kai Road – Modification works, laying of storm water drainage pipes
- Lift 1 & 2 – Installation of ELS system
- CLP substation – Construction of wall & intermediate slab, permeant struction
- Noise Barrier – Remaining works, Bus lay-by construction
- Seawater Intake Box Culvert of Saltwater Pumping Station –Installation of sheetpiles and ELS system

### **Contract No. ED/2018/05:**

- Pile column construction for PC9 and PC10 for Elevated Walkway LW-02
- ELS and excavation for PC11 for Elevated Walkway LW-02
- Erection of temporary decking across existing Kai Tak River
- Trial pit excavation and UU diversion at Sa Po Road under TTA Stage 2
- ELS, excavation and RC construction at launching shaft for subway SB-01
- RC construction at Launching Shaft for SB-01
- Construction works for Road L16
- Construction of DCS
- ELS and excavation for Subway KS10 Lift and Staircase
- Renovation works for existing subways KS9 and KS32
- Construction works for Pedestrian Street No. 2 & No. 4
- Twin rising main connection works



**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
<b>Contract No. KL/2014/01:</b>	
Noise, dust impact, water quality and waste generation	<ul style="list-style-type: none"> <li>• Sufficient watering of the works site with active dust emitting activities;</li> <li>• Properly cover the stockpiles;</li> <li>• On-site waste sorting and implementation of trip ticket system</li> <li>• Appropriate desilting/sedimentation devices provided on site for treatment before discharge;</li> <li>• Use of quiet plant and well-maintained construction plant;</li> <li>• Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall;</li> <li>• Provide mitigation measure to temporary use of chemicals;</li> <li>• Provide sufficient mitigation measures as recommended in Approved EIA Report/Lease requirement.</li> </ul>
<b>Contract No. KL/2015/02:</b>	
Noise, dust impact, water quality and waste generation	<ul style="list-style-type: none"> <li>• Sufficient watering of the works site with active dust emitting activities;</li> <li>• Properly cover the stockpiles;</li> <li>• On-site waste sorting and implementation of trip ticket system</li> <li>• Appropriate desilting/sedimentation devices provided on site for treatment before discharge;</li> <li>• Use of quiet plant and well-maintained construction plant;</li> <li>• Provide movable noise barrier;</li> <li>• Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall;</li> <li>• Provide sufficient mitigation measures as recommended in Approved EIA Report/Lease requirement.</li> </ul>
<b>Contract No. ED/2018/01:</b>	
The mitigation measures for environmental impact including Air Quality, Construction Noise, Water Quality, Chemical and Waste Management, Landscape and Visual shall be implemented:	<ul style="list-style-type: none"> <li>• Sufficient watering of the works site with the active dust emitting activities,</li> <li>• Limitation of the speed for vehicles on unpaved site roads,</li> <li>• Properly cover the stockpiles,</li> <li>• Good maintenance to the plant and equipment,</li> <li>• Use of quieter plant and Quality Powered Mechanical Equipment (QPME),</li> <li>• Provide movable noise barriers,</li> <li>• Appropriate desilting/ sedimentation devices provided on site for treatment before discharge,</li> <li>• Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall,</li> <li>• Onsite waste sorting and implementation of trip ticket system,</li> <li>• Good management and control on construction waste reduction,</li> <li>• Erection of decorative screen hoarding,</li> <li>• Strictly following the Environmental Permits and Licenses,</li> </ul>

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Major Environmental Impact	Control Measures
	and • Provide sufficient mitigation measures as recommended in Approved EIA Reports.
<b>Contract No. ED/2018/05:</b>	
The mitigation measures for environmental impact including Air Quality, Construction Noise, Water Quality, Chemical and Waste Management, Landscape and Visual shall be implemented:	<ul style="list-style-type: none"> <li>• Sufficient watering of the works site with the active dust emitting activities,</li> <li>• Limitation of the speed for vehicles on unpaved site roads,</li> <li>• Properly cover the stockpiles,</li> <li>• Good maintenance to the plant and equipment,</li> <li>• Use of quieter plant and Quality Powered Mechanical Equipment (QPME),</li> <li>• Provide movable noise barriers,</li> <li>• Appropriate desilting/ sedimentation devices provided on site for treatment before discharge,</li> <li>• Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall,</li> <li>• Onsite waste sorting and implementation of trip ticket system,</li> <li>• Good management and control on construction waste reduction,</li> <li>• Erection of decorative screen hoarding,</li> <li>• Strictly following the Environmental Permits and Licenses, and</li> <li>• Provide sufficient mitigation measures as recommended in Approved EIA Reports.</li> </ul>

## 1.5 Summary Status of Environmental Licences, Notifications and Permits

1.5.1 Detailed relevant environmental licenses, permits and/or notifications on environmental protection for this EP are presented in the appendices of the corresponding Monthly EM&A report.



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

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

Parameter	Monitoring Station	Average ( $\mu\text{g}/\text{m}^3$ )	Range ( $\mu\text{g}/\text{m}^3$ )	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )
<b>Contract No. KL/2014/01:</b>					
N.A (No air quality monitoring is required for the Project)					
<b>Contract No. KL/2015/02:</b>					
1-hr TSP	AM2	35.4	12.6 – 66.0	346	500
24-hr TSP	AM2(A)	41.2	30.1 – 55.1	157	260
<b>Contract No. ED/2018/01:</b>					
24-hr TSP	AM3	49	31 – 75	182	260
	AM4(A)	55	39 – 70	187	
	AM7	54	20 – 86	181	
1-hr TSP	AM3	41	27 – 62	297	500
	AM4(A)	46	31 – 64	326	
	AM7	45	22 – 71	315	
<b>Contract No. ED/2018/05:</b>					
24-hr TSP	AM2(A)	24	17 – 36	175	260
	AM3	49	31 – 75	172	
1-hr TSP	AM2(A)	24	17 – 33	302	500
	AM3	41	27 – 62	301	

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

Noise



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

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 report.

**Table 2.2 Summary of Noise Impact Monitoring Results**

Monitoring Stations	Construction Noise Level Leq <sub>(30min)</sub> dB(A) (Range)	Action Level	Limit Level dB (A)	
<b>Contract No. KL/2014/01:</b>				
N.A (No Construction noise monitoring is required for the Project.)		When one documented complaint is received.	NA	
<b>Contract No. KL/2015/02:</b>				
M3(A)	59.3 – 76.1 #		75	
M4	72.6 – 75.7 #		70*	
M5(C)	72.0 – 78.8 #		75	
<b>Contract No. ED/2018/01:</b>				
M11	59.5 – 68.0		75	
M12	63.2 – 70.7		75	
<b>Contract No. ED/2018/05:</b>				
M4(A)	69.5 – 70.0		75	
M5(A)	72.3 – 72.7	75		

(\*) Noise Limit Level is 65 dB(A) during school examination periods. The noise Limit Level of M4 was lowered to 65 dB(A) from 4 to 14 July 2022 as school examination was conducted in Lee Kau Yan Memorial School at the concerned period.

(#) 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 report.

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 report.

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 report.

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### **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.
- 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 Report.



#### 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 are shown as **Table 4.1**.

Table 4.1 Summary of Complaints, Notification of Summons and Prosecution

Event	No. of Event This Month	Remark
<b>Contract No. KL/2014/01:</b>		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA
<b>Contract No. KL/2015/02:</b>		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA
<b>Contract No. ED/2018/01:</b>		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA
<b>Contract No. ED/2018/05:</b>		
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 report.

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### **5. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES**

#### **5.1 Implementation Status**

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

#### **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 report.





## 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/2014/01:**

- Architectural features works at landscaped deck and ground floor open space;
- Defect work of pedestrian streets;
- E&M works;
- Laying of paving blocks for footpath;
- Noise barrier modification
- Planting works along footpath and at deck level, and;
- TTA implementation, minor works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road.

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

- Install glazing panels to staircase cover of ST1 at SKLR Playground
- Install lifts and carry out T&C at Lift LT1 in SKLR Playground
- Carry out finishing works & E&M works inside subway
- Reinstate the road and drain at TTA stage 3 & Stage 4-3 of PERE
- Relocation material storage yard and workshop

#### **Contract No. ED/2018/01:**

- North Approach Ramp – Construction of utilities trough
- Bridge D3 – Construction of Bridge Deck and abutments
- North Depressed Road – Construction of wall & top slab
- Underpass – Construction of walls and roof slab
- South Approach Ramp – Construction of Permanent Structure
- District Cooling System seawater intake box culvert - reinstatement of the seawall and backfilling works
- Lift 3 – Modification works
- Lift 4 – Construction of linking platform, Installation of glass
- South Depressed Road – construction of permanent works
- Rising Main and Water Pipe – Laying of sewage
- Landscaped Deck – Construction of pile caps and installation of columns, construction of Landscaped Deck
- Transformer Room - Construction of permanent structure
- Shing Kai Road – Modification works, laying of storm water drainage pipes
- Lift 1 & 2 – Installation of ELS system
- CLP substation – Construction of wall & intermediate slab, permeant struction
- Noise Barrier – Remaining works, Bus lay-by construction
- Seawater Intake Box Culvert of Saltwater Pumping Station –Installation of sheetpiles and ELS system

#### **Contract No. ED/2018/05:**

- Pile cap and column construction for Pier 9 and Pier 10 at Elevated Walkway LW-02
- ELS and excavation for PC11 for Elevated Walkway LW-02
- Construction of Crowd Dispersal Route
- Construction of Road L16
- Construction of DCS
- Construction of Pedestrian Street No. 2 & No.4
- UU diversion works at Sa Po Road
- ELS installation for temporary retrieving shaft at Sa Po Road



- RC construction for launching shaft for subway SB-01
- Renovation works for existing subway KS9 and KS32

6.1.2 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
<b>Contract No. KL/2014/01:</b>	
Air quality impact (dust)	<ul style="list-style-type: none"> <li>• Frequent watering of haul road and unpaved/exposed areas;</li> <li>• Frequent watering or covering stockpiles with tarpaulin or similar means; and</li> <li>• Watering of any earth moving activities.</li> </ul>
Water quality impact (surface run-off)	<ul style="list-style-type: none"> <li>• Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains;</li> <li>• Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge;</li> <li>• 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</li> <li>• Provision of measures to prevent discharge into the stream.</li> </ul>
Noise Impact	<ul style="list-style-type: none"> <li>• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation;</li> <li>• Controlling the number of plants use on site;</li> <li>• Regular maintenance of machines; and</li> <li>• Use of acoustic barriers if necessary.</li> </ul>
Waste/ Chemical Management	<ul style="list-style-type: none"> <li>• Maintenance involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.</li> <li>• Chemical wastes should be hold by suitable containers with clear label and stored at a safe location.</li> </ul>
<b>Contract No. KL/2015/02:</b>	
Air quality impact (dust)	<ul style="list-style-type: none"> <li>• Frequent watering of haul road and unpaved/exposed areas;</li> <li>• Frequent watering or covering stockpiles with tarpaulin or similar means; and</li> <li>• Watering of any earth moving activities.</li> </ul>
Water quality impact (surface run-off)	<ul style="list-style-type: none"> <li>• Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains;</li> <li>• Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge;</li> <li>• 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</li> <li>• Provision of measures to prevent discharge into the stream.</li> </ul>
Noise Impact	<ul style="list-style-type: none"> <li>• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation;</li> <li>• Controlling the number of plants use on site;</li> <li>• Regular maintenance of machines; and</li> <li>• Use of acoustic barriers if necessary.</li> </ul>
<b>Contract No. ED/2018/01:</b>	
Air Quality, Construction Noise, Water Quality, Chemical and	<ul style="list-style-type: none"> <li>• Sufficient watering of the works site with the active dust emitting activities,</li> <li>• Limitation of the speed for vehicles on unpaved site roads,</li> <li>• Properly cover the stockpiles,</li> <li>• Good maintenance to the plant and equipment,</li> <li>• Use of quieter plant and Quality Powered Mechanical Equipment (QPME),</li> </ul>



Major Impact Prediction	Control Measures
Waste Management, Landscape and Visual	<ul style="list-style-type: none"> <li>• Provide movable noise barriers,</li> <li>• Appropriate desilting/ sedimentation devices provided on site for treatment before discharge,</li> <li>• Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall,</li> <li>• Onsite waste sorting and implementation of trip ticket system,</li> <li>• Good management and control on construction waste reduction,</li> <li>• Erection of decorative screen hoarding,</li> <li>• Strictly following the Environmental Permits and Licenses, and</li> <li>• Provide sufficient mitigation measures as recommended in Approved EIA Reports.</li> </ul>
<b>Contract No. ED/2018/05:</b>	
Air Quality, Construction Noise, Water Quality, Chemical and Waste Management, Landscape and Visual	<ul style="list-style-type: none"> <li>• Sufficient watering of the works site with the active dust emitting activities,</li> <li>• Limitation of the speed for vehicles on unpaved site roads,</li> <li>• Properly cover the stockpiles,</li> <li>• Good maintenance to the plant and equipment,</li> <li>• Use of quieter plant and Quality Powered Mechanical Equipment (QPME),</li> <li>• Provide movable noise barriers,</li> <li>• Appropriate desilting/ sedimentation devices provided on site for treatment before discharge,</li> <li>• Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall,</li> <li>• Onsite waste sorting and implementation of trip ticket system,</li> <li>• Good management and control on construction waste reduction,</li> <li>• Erection of decorative screen hoarding,</li> <li>• Strictly following the Environmental Permits and Licenses, and</li> <li>• Provide sufficient mitigation measures as recommended in Approved EIA Reports.</li> </ul>

**6.2 Monitoring Schedules for the Next Three Months**

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

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### 7. CONCLUSIONS

- 7.1.1 No Action / Limit Level exceedance was recorded for 24-hr TSP monitoring in the reporting month.
- 7.1.2 No Action / Limit Level exceedance was recorded for 1-hr TSP monitoring in the reporting month.
- 7.1.3 No Action / Limit Level exceedance was recorded for noise monitoring in the reporting month.
- 7.1.4 No complaint, notification of summons or prosecution was received for Contract No. KL/2014/01, Contract No. KL/2015/02, Contract No. ED/2018/01 and Contract No. ED/2018/05 in this reporting month.
- 7.1.5 The potential environmental impacts arising from the coming two months of major construction activities and the control measures are shown in **Table 6.1**.

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## Appendix A

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

# Civil Engineering and Development Department

**EP-337/2009 & EP-445/2013/B**

**Contract No. KL/2014/01**

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

Monthly EM&A Report

July 2022

(Version 1.0)

Approved By



(Environmental Team Leader)

REMARKS:

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

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

## **CINOTECH CONSULTANTS LTD**

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Supervising Officer Representative

Aecom Asia Co Ltd.

8/F Grand Central Plaza Tower 2

138 Shatin Rural Committee Road

Sha Tin, N.T. Hong Kong

(Attn: Mr. Cheng Chi Hung)

Dear Mr. Cheng,

**Re: Contract No. KL/2014/01 (Environmental Permit Nos. EP-337/2009 and EP-445/2013/A)**

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

**Monthly EM&A report for July 2022 (version 1.0)**

Reference is made to the Environmental Team's submission of the draft Monthly EM&A Report (version 1.0) for July 2022 provided to Independent Environmental Checker (IEC) via email dated on 8-8-2022 for review and comment.

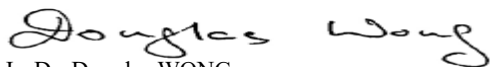
Please be informed that IEC has no adverse comment on the captioned submission. IEC writes to verify the captioned submission in accordance with Specific Condition 2.2 of the Environmental Permit No. 337/2009 and 445/2013/B.

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



Ir. Dr. Douglas WONG

Independent Environmental Checker

c.c.	CEDD	Mr. Patrick Lee	(By email: <a href="mailto:patricksllee@cedd.gov.hk">patricksllee@cedd.gov.hk</a> )
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	CEC-CCC	Mr. Eric Fong	(By email: <a href="mailto:eric-cs-fong@continental-engineering.com">eric-cs-fong@continental-engineering.com</a> )
	Cinotech	Mr. K.S Lee	(By email: <a href="mailto:ks.lee@cinotech.com.hk">ks.lee@cinotech.com.hk</a> )

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## EXECUTIVE SUMMARY

### Introduction

1. This is the 76<sup>th</sup> 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/B (“Kai Tak Development – Roads D3A & D4A”) respectively. This report documents the findings of EM&A Works conducted in July 2022.
2. 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 while 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 2018, the hospital is considered as the only relevant monitoring location and therefore the monitoring is required.
3. The major site activities undertaken in the reporting month included:
  - Architectural features works at landscaped deck and ground floor open space;
  - Defect work of pedestrian streets;
  - E&M works;
  - Laying of paving blocks for footpath;
  - Planting works along footpath and at deck level, and;
  - TTA implementation, minor works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road.

### 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; further amendment of Environmental Permit (No.: EP-445/2013/B) issued on 3 May 2022).
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-RE0442-20, GW-RE0639-20, GW-RE0045-21, GW-RE0717-21 & GW-RE0656-21)

**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:

- Architectural features works at landscaped deck and ground floor open space;
- Defect work of pedestrian streets;
- E&M works;
- Laying of paving blocks for footpath;
- Noise barrier modification
- Planting works along footpath and at deck level, and;
- TTA implementation, minor works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road.

### **Reporting Changes**

14. Since the major parts of Works under Contract no. KL/2014/03 has been completed, the environmental monitoring works of EM&A monitoring station, KTD1a, was then handed over to the ET of Contract no. ED/2018/04 in August, 2020. In order to obtain the environmental impact monitoring data with higher representativeness based on several factors, such as distance between monitoring location and the sensitive receiver, non-project related interference, obstruction to the construction works on site and the power supply problem, the monitoring location KTD1a was relocated to the original location as proposed in the EM&A manual (AEIAR-174/2013), and renamed as KTD1 on 3 August 2020.

## 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. The Environmental Permit (No.: EP-445/2013/A) was further amended and the Environmental Permit (No.: EP-445/2013/B) was issued on 3 May 2022.
- 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/B).
- 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 76<sup>th</sup> Monthly EM&A report summarizing the EM&A works for the Project in July 2022.
- 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: [https://www.epd.gov.hk/eia/english/register/index8/vep4492014\\_content.html](https://www.epd.gov.hk/eia/english/register/index8/vep4492014_content.html)

## 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 III**.

**Table III Key Project Contacts**

Party	Role	Contact Person	Position	Phone No.	Fax No.
CEDD	Project Proponent	Mr. Ricky Yu	Engineer	3579 2124	3579 4516
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. Douglas Wong	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:
- Architectural features works at landscaped deck and ground floor open space;
  - Defect work of pedestrian streets;
  - E&M works;
  - Laying of paving blocks for footpath;
  - Planting works along footpath and at deck level, and;
  - TTA implementation, minor works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road.

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

**Table IV 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 2018, 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 (KTD1), the corresponding monitoring results for July 2022 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. No Action/Limit Level exceedance at KTD1 was recorded. The summary of exceedance record in reporting month is shown in **Appendix B**.
- 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 2018, 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 (KTD1), the corresponding monitoring results for July 2022 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 at KTD1 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 7, 15, 22 & 27 July 2022 in the reporting month. IEC joint site inspection was conducted on 27 July 2022. 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 V**.

**Table V Summary of Environmental Licensing and Permit Status**

Permit No.	Valid Period		Details	Status
	From	To		
<b>Environmental Permit (EP)</b>				
EP-337/2009	23 Apr 2009	N/A	Construction of new distributor roads serving the planned Kai Tak development.	Valid
EP-445/2013/A	13 Aug 2014	N/A	Construction of Kai Tak Development roads D3A and D4A	Valid
<b>Effluent Discharge License</b>				
WT00023634-2016	--	31 Mar 2021	Wastewater from the construction site including effluent treated by screen and sedimentation tank; There are no more need for the license after 31 March 2021 as the project is close to completion and no significant waste water is being generated from site.	Expired on 31 Mar 2021
<b>Registration of Chemical Waste Producer</b>				
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
<b>Construction Noise Permit (CNP)</b>				
GW-RE0442-20	14 Jun 2020	13 Dec 2020	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work other than percussive piling and performing prescribed construction work. Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work other than percussive piling and performing prescribed construction work.	Expired on 13 Dec 2020
GW-RE0639-20	3 Aug 2020	19 Jan 2021		Expired on 19 Feb 2021
GW-RE0045-21	20 Jan 2021	19 Jul 2021		Expired on 19 Jul 2021
GW-RE0656-21	9 Jul 2021	30 Sep 2021		Expired on 30 Sep 2021
GW-RE0717-21	30 Jul 2021	19 Jan 2022		Expired on 19 Jan 2022

### 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 VI**.

**Table VI Observations and Recommendations of Site Inspections**

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	--	--	--
<i>Air Quality</i>	--	--	--
<i>Noise</i>	--	--	--
<i>Waste/ Chemical Management</i>	--	--	--
<i>Landscape and Visual</i>	--	--	--
<i>Permits/ Licenses</i>	--	--	--

### **Summary of Mitigation Measures Implemented**

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

### **Implementation Status of Event Action Plans**

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

#### Construction Dust

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

#### Construction Noise

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

#### Landscape and visual

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

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

- 5.12 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:

- Architectural features works at landscaped deck and ground floor open space;
- Defect work of pedestrian streets;
- E&M works;
- Laying of paving blocks for footpath;
- Noise barrier modification
- Planting works along footpath and at deck level, and;
- TTA implementation, minor works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road.

### 6.2 Key environmental issues in the coming month include:

- Wastewater and runoff discharge from site;
- 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;
- Dust generating activity and on haul road;
- Storage of construction materials on site;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Accumulation of general and construction waste on site

6.3 The tentative program of major site activities and the impact prediction and control measures for the coming two months, i.e. August and September 2022 are summarized as follows:

<b>Construction Works</b>	<b>Major Impact Prediction</b>	<b>Control Measures</b>
As mentioned in Section 6.1	Air quality impact (dust)	<ul style="list-style-type: none"> <li>a) Frequent watering of haul road and unpaved/exposed areas;</li> <li>b) Frequent watering or covering stockpiles with tarpaulin or similar means; and</li> <li>c) Watering of any earth moving activities.</li> </ul>
	Water quality impact (surface run-off)	<ul style="list-style-type: none"> <li>a) Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains;</li> <li>b) Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge;</li> <li>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</li> <li>d) Provision of measures to prevent discharge into the stream.</li> </ul>
	Noise Impact	<ul style="list-style-type: none"> <li>a) Scheduling of noisy construction activities if necessary to avoid persistent noisy operation;</li> <li>b) Controlling the number of plants use on site;</li> <li>c) Regular maintenance of machines; and</li> <li>d) Use of acoustic barriers if necessary.</li> </ul>
	Waste/ Chemical Management	<ul style="list-style-type: none"> <li>a) Maintenance involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.</li> <li>b) Chemical wastes should be hold by suitable containers with clear label and stored at a safe location.</li> </ul>



## 7. CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

- 7.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken in July 2022.

#### 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:

#### *Waste/ chemical management*

- To avoid the accumulation of general refuse.

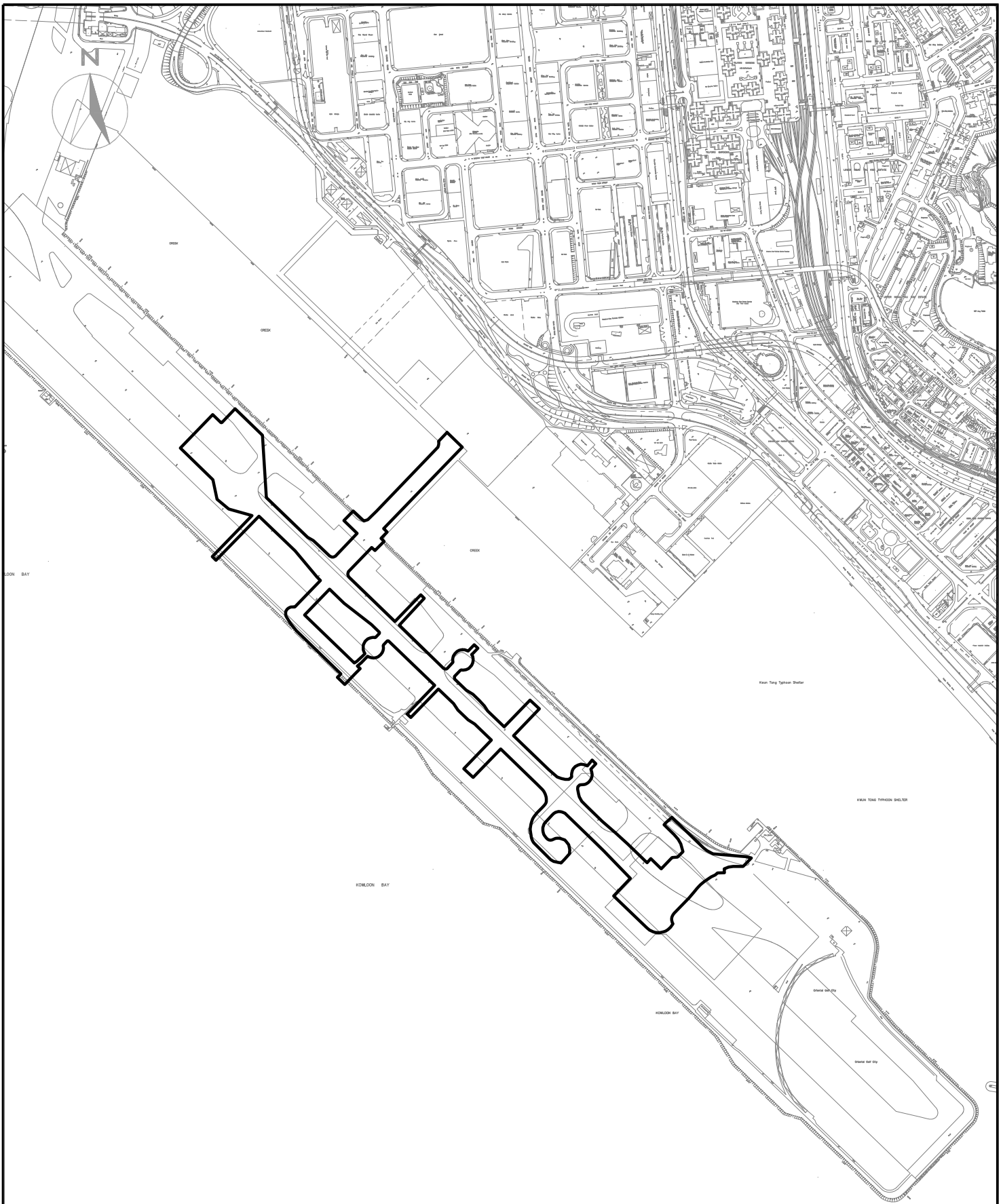
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## FIGURES

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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	-

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**APPENDIX A  
ACTION AND LIMIT LEVELS**

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## Appendix A - Action and Limit Levels

**Table A-1 Action and Limit Levels for Air Quality Monitoring**

Monitoring Station	Parameter	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level <sup>(1)(2)</sup> ( $\mu\text{g}/\text{m}^3$ )
KTD1	24-hr TSP	177	260
KTD1*	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 <sup>(1)(2)</sup>
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.

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**APPENDIX B**  
**SUMMARY OF EXCEEDANCE**

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**Contract No. KL/2014/01**

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

**Appendix B – Summary of Exceedance**

**Exceedance Record for Contract No. KL/2014/01**

Reporting Month: July 2022

**(A) Exceedance Record for Construction Dust**

**(NIL in the reporting month)**

**(B) Exceedance Record for Construction Noise**

**(NIL in the reporting month)**

**(C) Exceedance Record for Landscape and Visual**

**(NIL in the reporting month)**

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**APPENDIX C**  
**SITE AUDIT SUMMARY**

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**Contract No. KL/2014/01**



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

**EP-337/2009 & EP-445/2013/B**

**Weekly Site Inspection Record Summary**  
**Inspection Information**

Checklist Reference Number	220707
Date	7 July 2022 (Thursday)
Time	13:30 – 14:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Water Quality</b>	
	• No environmental deficiency was identified during site inspection	
	<b>C. Air Quality</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>D. Noise</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>E. Waste / Chemical Management</b>	
	• No environmental deficiency was identified during site inspection.	
	• <b>F. Visual and Landscape</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>G. Permits /Licenses</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>H. Others</b>	
	No follow-up items are required from the previous site inspection (ref no.: 220629).	

	Name	Signature	Date
Recorded by	Echo Hung		7 July 2022
Checked by	Colman Wong		8 July 2022

**Contract No. KL/2014/01**

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


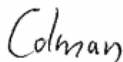
**EP-337/2009 & EP-445/2013/B**

**Weekly Site Inspection Record Summary**

**Inspection Information**

Checklist Reference Number	220715
Date	15 July 2022 (Friday)
Time	13:30 – 14:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Water Quality</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection</li></ul>	
	<b>C. Air Quality</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>D. Noise</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>E. Waste / Chemical Management</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>F. Visual and Landscape</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>G. Permits /Licenses</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>H. Others</b>	
	No follow-up items are required from the previous site inspection (ref no.: 220707).	

	Name	Signature	Date
Recorded by	Echo Hung		15 July 2022
Checked by	Colman Wong		18 July 2022

**Contract No. KL/2014/01**

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


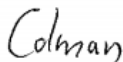
**EP-337/2009 & EP-445/2013/B**

**Weekly Site Inspection Record Summary**

**Inspection Information**

Checklist Reference Number	220722
Date	22 July 2022 (Friday)
Time	15:00 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Water Quality</b>	
	• No environmental deficiency was identified during site inspection	
	<b>C. Air Quality</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>D. Noise</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>E. Waste / Chemical Management</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>F. Visual and Landscape</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>G. Permits /Licenses</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>H. Others</b>	
	No follow-up items are required from the previous site inspection (ref no.: 220715).	

	Name	Signature	Date
Recorded by	Echo Hung		22 July 2022
Checked by	Colman Wong		25 July 2022

**Contract No. KL/2014/01**

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


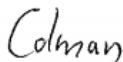
**EP-337/2009 & EP-445/2013/B**

**Weekly Site Inspection Record Summary**

**Inspection Information**

Checklist Reference Number	220727
Date	27 July 2022 (Wednesday)
Time	14:30 – 15:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Water Quality</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection</li></ul>	
	<b>C. Air Quality</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>D. Noise</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>E. Waste / Chemical Management</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>F. Visual and Landscape</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>G. Permits /Licenses</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>H. Others</b>	
	No follow-up items are required from the previous site inspection (ref no.: 220722).	

	Name	Signature	Date
Recorded by	Echo Hung		27 July 2022
Checked by	Colman Wong		28 July 2022

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**APPENDIX D**  
**EVENT ACTION PLANS**

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## Appendix D - Event Action Plans

### Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded	<ol style="list-style-type: none"> <li>4. Notify ER, IEC and Contractor;</li> <li>5. Carry out investigation;</li> <li>6. Report the results of investigation to the IEC, ER and Contractor;</li> <li>7. Discuss with the IEC and Contractor on remedial measures required;</li> <li>8. Increase monitoring frequency to check mitigation effectiveness.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> <li>1. Review the investigation results submitted by the ET;</li> <li>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly;</li> <li>3. Advise the ER on the effectiveness of the proposed remedial measures.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Supervise the implementation of remedial measures.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to IEC and ER;</li> <li>2. Implement noise mitigation proposals.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>
Limit Level being exceeded	<ol style="list-style-type: none"> <li>1. Inform IEC, ER, Contractor and EPD;</li> <li>2. Repeat measurements to confirm findings;</li> <li>3. Increase monitoring frequency;</li> <li>4. Identify source and investigate the cause of exceedance;</li> <li>5. Carry out analysis of Contractor's working procedures;</li> <li>6. Discuss with the IEC, Contractor and ER on remedial measures required;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Supervise the implementation of remedial measures;</li> <li>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.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Submit further proposal if problem still not under control;</li> <li>5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>

# Appendix D - Event Action Plans

## Event/Action Plan for Landscape and Visual

EVENT ACTION LEVEL	ACTION			
	ET	IEC	ER	CONTRACTOR
Design Check	<ul style="list-style-type: none"> <li>Check final design conforms to the requirements of EP and prepare report.</li> </ul>	<ul style="list-style-type: none"> <li>Check report.</li> <li>Recommend remedial design if necessary</li> </ul>	<ul style="list-style-type: none"> <li>Undertake remedial design if necessary</li> </ul>	
Non-conformity on one occasion	<ul style="list-style-type: none"> <li>Identify Source</li> <li>Inform IEC and ER</li> <li>Discuss remedial actions with IEC, ER and Contractor</li> <li>Monitor remedial actions until rectification has been completed</li> </ul>	<ul style="list-style-type: none"> <li>Check report</li> <li>Check Contractor's working method</li> <li>Discuss with ET and Contractor on possible remedial measures</li> <li>Advise ER on effectiveness of proposed remedial measures.</li> <li>Check implementation of remedial measures.</li> </ul>	<ul style="list-style-type: none"> <li>Notify Contractor</li> <li>Ensure remedial measures are properly implemented</li> </ul>	<ul style="list-style-type: none"> <li>Amend working methods</li> <li>Rectify damage and undertake any necessary replacement</li> </ul>
Repeated Non-conformity	<ul style="list-style-type: none"> <li>Identify Source</li> <li>Inform IEC and ER</li> <li>Increase monitoring frequency</li> <li>Discuss remedial actions with IEC, ER and Contractor</li> <li>Monitor remedial actions until rectification has been completed</li> <li>If non-conformity stops, cease additional monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Check monitoring report</li> <li>Check Contractor's working method</li> <li>Discuss with ET and Contractor on possible remedial measures</li> <li>Advise ER on effectiveness of proposed remedial measures</li> <li>Supervise implementation of remedial measures.</li> </ul>	<ul style="list-style-type: none"> <li>Notify Contractor</li> <li>Ensure remedial measures are properly implemented</li> </ul>	<ul style="list-style-type: none"> <li>Amend working methods</li> <li>Rectify damage and undertake any necessary replacement</li> </ul>

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**APPENDIX E  
ENVIRONMENTAL MITIGATION  
IMPLEMENTATION SCHEDULE (EMIS)**

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

EIA Ref.	Mitigation Measures	Status
<b>Construction Air Quality</b>		
S3.2 (AEIAR-130/2009)	8 times daily watering of the work site with active dust emitting activities.	^
S4.8 (AEIAR-170/2013)	Control measures stipulated in the approved KTD Schedule 3 EIA Report should be strictly followed.	^
S3.2 (AEIAR-130/2009) and S4.8 (AEIAR-170/2013)	<p>Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.</p> <ul style="list-style-type: none"> <li>● Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.</li> <li>● Misting for the dusty material should be carried out before being loaded into the vehicle.</li> <li>● Any vehicle with an open load carrying area should have properly fitted side and tail boards.</li> <li>● 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.</li> <li>● 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.</li> <li>● 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.</li> <li>● Vehicle washing facilities should be provided at every vehicle exit point.</li> </ul>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

EIA Ref.	Mitigation Measures	Status
	<ul style="list-style-type: none"> <li>● 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.</li> <li>● 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.</li> <li>● 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</li> <li>● Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.</li> </ul>	<p>^</p> <p>^</p> <p>^</p> <p>^</p>
<b>Construction Noise</b>		
S3.3 (AEIAR-130/2009)	Use of quiet PME, movable barriers barrier for Asphalt Paver, Breaker, Excavator and Hand-held breaker and full enclosure for Air Compressor, Bar Bender, Concrete Pump, Generator and Water Pump.	^
S3.3 (AEIAR-130/2009)	<p>Good Site Practice:</p> <ul style="list-style-type: none"> <li>● Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.</li> <li>● Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program.</li> <li>● Mobile plant, if any, should be sited as far away from NSRs as possible.</li> <li>● 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.</li> <li>● 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.</li> <li>● Material stockpiles and other structures should be effectively utilized, wherever</li> </ul>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

EIA Ref.	Mitigation Measures	Status
	practicable, in screening noise from on-site construction activities.	
S3.3 (AEIAR-130/2009)	Scheduling of Construction Works during School Examination Period	N/A
S3.8 (AEIAR-170/2013)	Provision of a landscaped deck along Roads D3A & D4A.	N/A
S3.8 (AEIAR-170/2013)	<ul style="list-style-type: none"> <li>● Provision of about 1090 m length of vertical noise barrier (connected to the deck) at Roads D3A &amp; D4A;</li> <li>● Provision of about 60 m length of overhang vertical noise barrier (connected to the deck) at Road D4A; and</li> <li>● Provision of staircases with noise barriers next to Sites 4A1 and 4B1</li> </ul> <p>It should be noted that the exact length of the mitigation measures would be subject to minor refinement during the detailed design stage.</p>	N/A N/A N/A
S3.8 (AEIAR-170/2013)	Non-noise sensitive use areas within Sites 4A1 and 4B1.	N/A
S3.8 (AEIAR-170/2013)	Avoid sensitive façade with openable window facing Road D3A.	N/A
<b>Construction Water Quality</b>		
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	<p><u>Construction Runoff</u></p> <p>Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include:</p> <ul style="list-style-type: none"> <li>● use of sediment traps</li> <li>● adequate maintenance of drainage systems to prevent flooding and overflow</li> </ul>	^ ^

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 <sup>3</sup> 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 <sup>3</sup> should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	^
	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.	^
S3.4 (AEIAR-130/2009)	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events.	^
	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	^
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting	^

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

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

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



EIA Ref.	Mitigation Measures	Status
	<p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows:</p> <ul style="list-style-type: none"> <li>● Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.</li> <li>● Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.</li> <li>● Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.</li> </ul>	<p>^</p> <p>^</p> <p>^</p> <p>^</p>
<b>Construction Waste Management</b>		
<p>S6.7 (AEIAR-170/2013)</p>	<p>Prepare a Waste Management Plan, which becomes a part of the Environmental Management Plan, in accordance with the requirements stipulated in ETWB TC (W) No. 19/2005, approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites.</p>	<p>^</p>
<p>S3.5 (AEIAR-130/2009) and S6.7 (AEIAR-170/2013)</p>	<p><b>Good Site Practices</b> It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. Recommendations for good site practices during construction activities include:</p> <ul style="list-style-type: none"> <li>● 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</li> <li>● Training of site personnel in proper waste management and chemical waste handling procedures</li> <li>● Provision of sufficient waste disposal points and regular collection for disposal</li> </ul>	<p>^</p> <p>^</p>

EIA Ref.	Mitigation Measures	Status
	<ul style="list-style-type: none"> <li>● Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers</li> <li>● A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites)</li> <li>● Regular cleaning and maintenance systems, sumps and oil interceptors</li> <li>● Separation of chemical wastes for special handling and appropriate treatment</li> </ul>	<p>^</p> <p>^</p> <p>^</p> <p>^</p>
	<p>Waste Reduction Measures</p> <p>Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> <li>● Sort C&amp;D waste from demolition of the remaining structures to recover recyclable portions such as metals</li> <li>● 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</li> <li>● 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</li> <li>● Any unused chemicals or those with remaining functional capacity should be recycled</li> <li>● Proper storage and site practices to minimise the potential for damage or contamination of construction materials</li> <li>● Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste</li> <li>● Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.</li> </ul>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

EIA Ref.	Mitigation Measures	Status
<p>S3.5 (AEIAR-130/2009)</p>	<p>Construction and Demolition Materials</p> <p>Mitigation measures and good site practices should be incorporated in the contract document to control potential environmental impact from handling and transportation of C&amp;D material. The mitigation measures include:</p> <ul style="list-style-type: none"> <li>● Where it is unavoidable to have transient stockpiles of C&amp;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.</li> <li>● Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric.</li> <li>● Skip hoist for material transport should be totally enclosed by impervious sheeting.</li> <li>● Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site.</li> <li>● 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.</li> <li>● 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.</li> <li>● All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet.</li> <li>● The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading.</li> </ul> <p>When delivering inert C&amp;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&amp;D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 “Trip Ticket</p>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

EIA Ref.	Mitigation Measures	Status
	System for Disposal of Construction and Demolition Materials” should be included as one of the contractual requirement sand implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.	
S3.5 (AEIAR-130/2009)	<p>General Refuse</p> <p>General refuse should be stored in enclosed bins or compaction units separate from C&amp;D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&amp;D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem</p>	^
<b>Construction Landscape and Visual</b>		
S3.8.12 (AEIAR-130/2009) and S7.9 (AEIAR-170/2013)	<ul style="list-style-type: none"> <li>● Minimized construction area and contractor’s temporary works areas.</li> <li>● All existing trees should be carefully protected during construction.</li> <li>● 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.</li> <li>● Control of night-time lighting.</li> <li>● Erection of decorative screen hoarding.</li> <li>● Reduction of construction period to practical minimum.</li> <li>● Limitation of / Ensuring no run-off into surrounding landscape and adjacent seawater areas.</li> <li>● Temporary or advance landscape should be provided along the temporary access roads to the Cruise Terminal until such time as road D3 is open.</li> </ul>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

Remarks:	EIA Report (AEIAR-130/2009) – Kai Tak Development	
	EIA Report (AEIAR-170/2013) – Kai Tak Development – Roads D3A & D4A	
	^ Compliance of mitigation measure;	X Non-compliance of mitigation measure;
	N/A Not Applicable at this stage; N/A(1) Not observed;	• Non-compliance but rectified by the contractor;
* Recommendation was made during site audit but improved/rectified by the contractor.	# Recommendation was made during site audit but not yet improved/rectified by the contractor.	

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

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**Contract No. KL/2014/01**

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

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

**Reporting Month: July 2022**

**Contract No. KL/2014/01**

<b>Log Ref.</b>	<b>Location</b>	<b>Received Date</b>	<b>Details of Complaint/warning/summon and prosecution</b>	<b>Investigation/Mitigation Action</b>	<b>Status</b>
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.

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**APPENDIX G**  
**WASTE GENERATED QUANTITY**

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### Appendix G. Monthly Summary Waste Flow Table

Name of Department: CEDD

Contract No: KL/2014/01

#### Monthly Summary Waste Flow Table for 2022

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	43.77	0	0	0	0.00	0	0	0	0	0	43.77
Feb	58.14	0	0	0	0.00	0	0	0	0	0	58.14
Mar	87.83	0	0	0	0.00	0	0	0	0	0	87.83
Apr	247.25	0	0	0	0.00	0	0	0	0	0	247.25
May	173.63	0	0	0	0.00	0	0	0	0	0	173.63
June	114.17	0	0	0	0.00	0	0	0	0	0	114.17
Sub-total	724.79	0	0	0	0.00	0	0	0	0	0	724.79
July	154.61	0	0	0	154.61	0	0	0	0	0	15.99
Aug		0	0	0		0	0	0	0	0	
Sept		0	0	0		0	0	0	0	0	
Oct		0	0	0		0	0	0	0	0	
Nov		0	0	0		0	0	0	0	0	
Dec		0	0	0		0	0	0	0	0	
Total	879.40	0	0	0	154.61	0	0	0	0	0	740.78

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

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## Appendix B

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

# Civil Engineering and Development Department


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

**Contract No. KLN/2016/04  
Environmental Monitoring Works for  
Contract No. KL/2015/02  
Kai Tak Development – Stage 5A Infrastructure  
at Former North Apron Area**

Monthly EM&A Report

July 2022

(Version 1.1)

Certified By	 _____ (Environmental Team Leader)
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REMARKS:

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

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

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

Date 9 August 2022  
Our Ref. MCL/ED/0297/2022/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 July 2022**

We refer to your emails dated 9 August 2022 for the captioned report 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 me on 3565 4114 or our Cyrus Lai on 3565 4442.

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/cl

c.c. CEDD – Attn.: Mr. Ricky Chan  
Attn.: Mr. Vincent Yip  
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## EXECUTIVE SUMMARY

### Introduction

1. This is the 67<sup>th</sup> Monthly Environmental Monitoring and Audit Report prepared by Cinotech Consultants Ltd. for “Contract No. KL/2015/02 - Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area” (Hereafter referred to as “the Project”). This contract comprises one Schedule 2 designated project (DP), namely the new distributor road D1 serving the planned KTD. The DP is part of the designated project under Environmental Permit (EP) No.: EP-337/2009 (“New distributor roads serving the planned Kai Tak Development”) respectively. This report documents the findings of EM&A Works conducted during July 2022.
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
<b>Air Quality Monitoring Stations</b>		
AM2 - Lee Kau Yan Memorial School	Yes (1-hour TSP)	N/A
	No (24-hour TSP)	AM2(A) – Ng Wah Catholic Secondary School
<b>Noise Monitoring Stations</b>		
M3 - Cognito College	No	M3(A) – The Bridge connecting The Latitude
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:

- Install lift inside the lift shaft of LT1 at SKLR Playground
- Carry out finishing works & E&M works inside subway
- Carry out backfilling works above the subway at PERE
- Install glazing spiders to staircase cover of ST1 at SKLR Playground

### **Environmental Monitoring Works**

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

**Table II Non-compliance Recorded for the Project in the Reporting Month**

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

#### *1-hour & 24-hour TSP Monitoring*

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

#### *Construction Noise Monitoring*

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



### Environmental Licenses and Permits

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

- Billing Account for Construction Waste Disposal (A/C# 7026164).
- Registration of Chemical Waste Producer (WPN5213-286-P3271-01).

### 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 two months include:

- Dust generation from stockpiles of dusty materials, exposed site area, excavation
- Works and rock breaking activities;
- Water spraying for dust generating activity and on haul road;
- Proper storage of construction materials on site;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Accumulation of general and construction waste on site;
- Noise from operation of the equipment, especially for rock-breaking activities,
- Piling works and machinery on-site; and
- Wastewater and runoff discharge from 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 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	Senior Resident Engineer	2798 0771	2210 6110
Cinotech	Environmental Team	Mr. K.S Lee	Environmental Team Leader	2151 2091	3107 1388
		Ms. Betty Choi	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:

- Install lift inside the lift shaft of LT1 at SKLR Playground
- Carry out finishing works & E&M works inside subway
- Carry out backfilling works above the subway at PERE
- Install glazing spiders to staircase cover of ST1 at SKLR Playground

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	<ul style="list-style-type: none"> <li>• Sufficient watering of the works site with active dust emitting activities;</li> <li>• Properly cover the stockpiles;</li> <li>• On-site waste sorting and implementation of trip ticket system</li> <li>• Appropriate desilting/sedimentation devices provided on site for treatment before discharge;</li> <li>• Use of quiet plant and well-maintained construction plant;</li> <li>• Provide movable noise barrier;</li> <li>• Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall;</li> <li>• Provide sufficient mitigation measures as recommended in Approved EIA Report/Lease requirement.</li> </ul>

### 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 the reporting month.

## 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. No Action/Limit Level exceedance was recorded.
- 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	1
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 m<sup>3</sup>/min. and 1.4 m<sup>3</sup>/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 (High Precision Chemical Testing 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 throughout all stages of the air quality monitoring.



## Results and Observations

- 2.20. All 1-hour and 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 2.21. The weather information for the reporting month is summarized in **Appendix C**.
- 2.22. The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendices E and F** respectively.
- 2.23. The summary of exceedance record in reporting month is shown in **Appendix H**. No exceedance was recorded for the air quality monitoring.
- 2.24. According to our field observations during the monitoring, the major dust source identified at the two designated air quality monitoring stations are road traffic dust, exposed site area and open stockpiles, excavation works and site vehicle movements.
- 2.25. The summary of 1-hour and 24-hour TSP air quality monitoring results during the reporting month are shown in **Appendix E** and **Appendix F** respectively.

### 3 NOISE

#### Monitoring Requirements

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

#### Monitoring Locations

- 3.2. Three designated monitoring stations were selected for noise monitoring programme. Noise monitoring was conducted at three designated monitoring stations (M3(A), 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(A)	The Bridge connecting The Latitide	In the middle of the foot bridge connecting The Latitide
M4	Lee Kau Yan Memorial School	Rooftop (about 7/F) Area
M5(C)	Mercy Grace's Home	Ground in front of the building entrance facing Prince Edward Road East (noise monitoring is not allowed on the rooftop from 27 February 2020, due to the coronavirus countermeasure in Mercy Grace's Home)

#### 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	• BSW Atech BSWA 308	3
Calibrator	• SOUNDTEK ST-120	2

**Monitoring Parameters, Frequency and Duration**

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

**Table 3.3 Noise Monitoring Parameters, Frequency and Duration**

Monitoring Stations	Parameter	Period	Frequency	Measurement
M3(A) M4 M5(C)	L <sub>10</sub> (30 min.) dB(A) L <sub>90</sub> (30 min.) dB(A) L <sub>eq</sub> (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<sub>eq</sub>, L<sub>90</sub> and L<sub>10</sub> 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(A)	The Bridge connecting The Latitude	Traffic Noise Site vehicle movement
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(A)	N/A <sup>(1)</sup> (at 0700 – 1900 hrs on normal weekdays)	75 (at 0700 – 1900 hrs on normal weekdays)
M4	76.7 <sup>(2)</sup> (at 0700 – 1900 hrs on normal weekdays)	70 <sup>(*)</sup> (at 0700 – 1900 hrs on normal weekdays)
M5(C)	N/A <sup>(1)</sup> (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. The noise Limit Level of M4 was lowered to 65 dB(A) from 4 to 14 July 2022 as school examination was conducted in Lee Kau Yan Memorial School at the concerned period.

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:

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

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), $\mu\text{g}/\text{m}^3$	Scenario2 (Mid 2013 to Late 2016), $\mu\text{g}/\text{m}^3$	Reporting Month (July 2022), $\mu\text{g}/\text{m}^3$	
			Average	Range
AM2 – Lee Kau Yan Memorial School	290	312	35.4	12.6 – 66.0

**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), $\mu\text{g}/\text{m}^3$	Scenario2 (Mid 2013 to Late 2016), $\mu\text{g}/\text{m}^3$	Reporting Month (July 2022), $\mu\text{g}/\text{m}^3$	
			Average	Range
AM2(A) – Ng Wah Catholic Secondary School	145	169	41.2	30.1 – 55.1

**Table 4.3 Comparison of Noise Monitoring Data with EIA predictions**

Stations	Predicted Mitigated Construction Noise Levels during Normal Working Hour ( $L_{\text{eq}}(30\text{min})$ dB(A))	Reporting Month (July 2022), $L_{\text{eq}}(30\text{min})$ dB(A)
M3(A) – The Bridge connecting The Latitude	Not predicted in EIA Report	59.3 - 76.1 <sup>(2)</sup>
M4 – Lee Kau Yan Memorial School	47 – 74	72.6 - 75.7 <sup>(1)</sup>
M5(C) – Mercy Grace's Home	Not predicted in EIA Report	72.0 - 78.8 <sup>(2)</sup>

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 M4 were slightly higher than the range of the predicted mitigated construction noise levels in the EIA Report.
- 4.5. Construction noise levels at M3(A) and 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 5, 13, 19 & 26 July 2022 in the reporting month. A joint site inspection with the representative of IEC, ER, the Contractor and the ET was conducted on 13 July 2022. 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	
<b>Environmental Permit (EP)</b>			
EP-337/2009	23 Apr 2009	N/A	Valid
<b>Effluent Discharge License</b>			
WT00027495-2017	28 Mar 2017	31 Mar 2022	Expired
<b>Billing Account for Construction Waste Disposal</b>			
A/C# 7026164	20 Oct 2016	N/A	Valid
<b>Registration of Chemical Waste Producer</b>			
WPN5213-229-P3271-01	14 Aug 2017	N/A	Valid
<b>Construction Noise Permit (CNP)</b>			
GW-RE0915-19	8 Nov 2019	4 May 2020	Expired
GW-RE0984-19	15 Dec 2019	24 Feb 2020	Expired
GW-RE0083-20	1 Mar 2020	1 June 2020	Expired
GW-RE0266-20	2 May 2020	31 Jul 2020	Expired
GW-RE0779-21	30 Jul 2021	30 Nov 2021	Expired
GW-RE0858-21	31 Jul 2021	30 Aug 2021	Expired

**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**

<b>Parameters</b>	<b>Date</b>	<b>Observations and Recommendations</b>	<b>Follow-up/Rectification</b>
<i>Water Quality</i>	N/A	No environmental deficiency was identified in the reporting period.	N/A
<i>Air Quality</i>	N/A	No environmental deficiency was identified in the reporting period.	N/A
<i>Noise</i>	N/A	No environmental deficiency was identified in the reporting period.	N/A
<i>Waste/ Chemical Management</i>	N/A	No environmental deficiency was identified in the reporting period.	N/A
<i>Landscape and Visual</i>	N/A	No environmental deficiency was identified in the reporting period.	N/A
<i>Permits/ Licenses</i>	N/A	No environmental deficiency was identified in the reporting period.	N/A

### Summary of Mitigation Measures Implemented

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

### Implementation Status of Event Action Plans

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

#### 1-hr TSP Monitoring

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

#### 24-hr TSP Monitoring

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

#### Construction Noise

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

Landscape and visual

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

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

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

## **7 FUTURE KEY ISSUES**

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

- Install glazing panels and glass balustrade at Staircase ST1 at SKLR Playground
- Install lifts and carry out T&C at Lift LT1 in SKLR Playground
- Carry out finishing works & E&M works inside subway
- Reinstate the road and drain at TTA stage 3 & Stage 4-3 of PERE
- Relocation material storage yard and workshop

### **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:

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 runoff)

- 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 public drainage gully within the construction site shall be bounded by sand bags.

### *Air Quality*

- The Contractor should cover the dusty material by dust screen.

### *Waste/Chemical Management*

- The Contractor should store the construction/chemical material at the proper place.
- The Contractor was reminded to remove accumulated waste from the site.



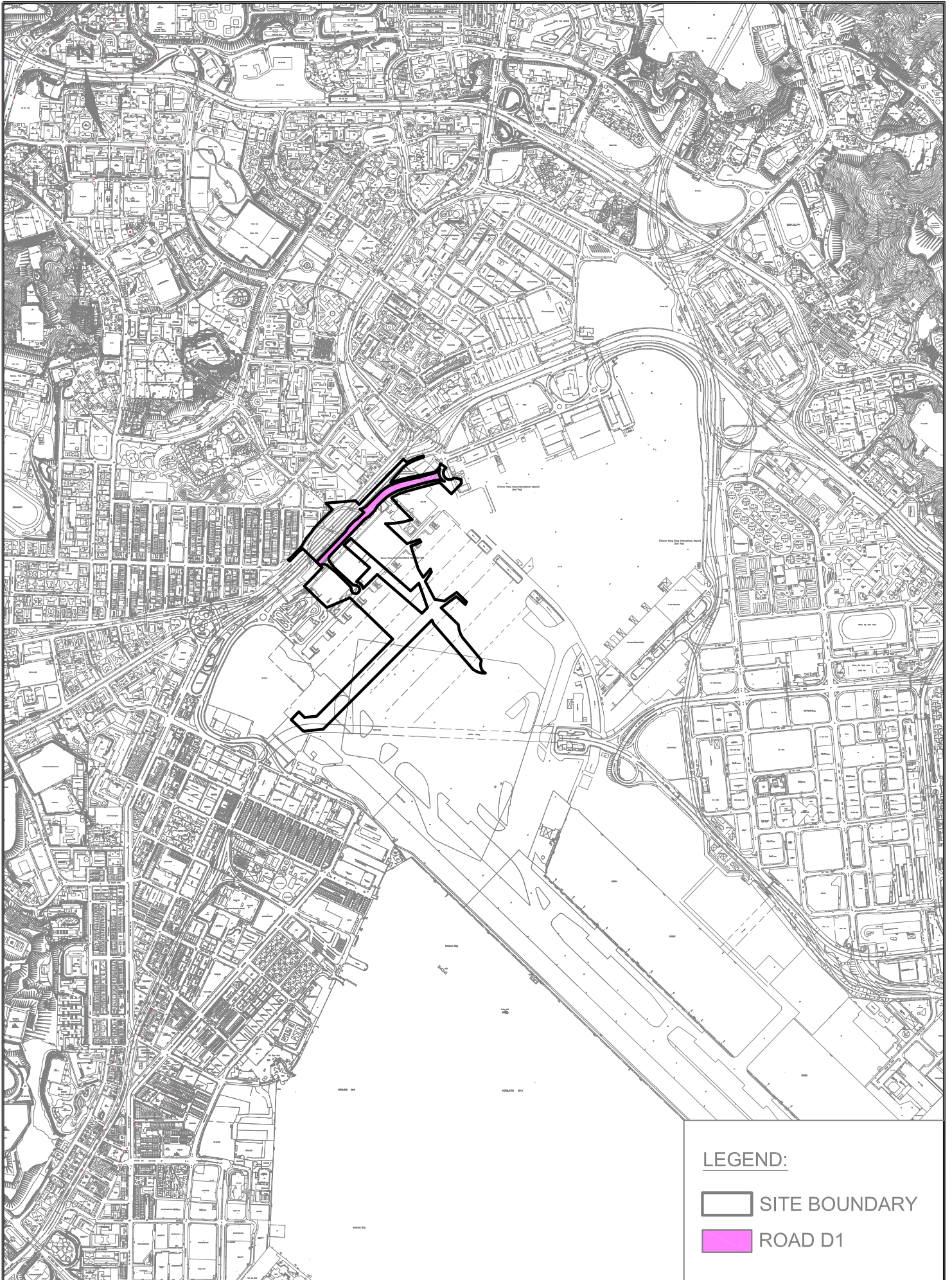
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## FIGURES

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**LEGEND:**

 SITE BOUNDARY

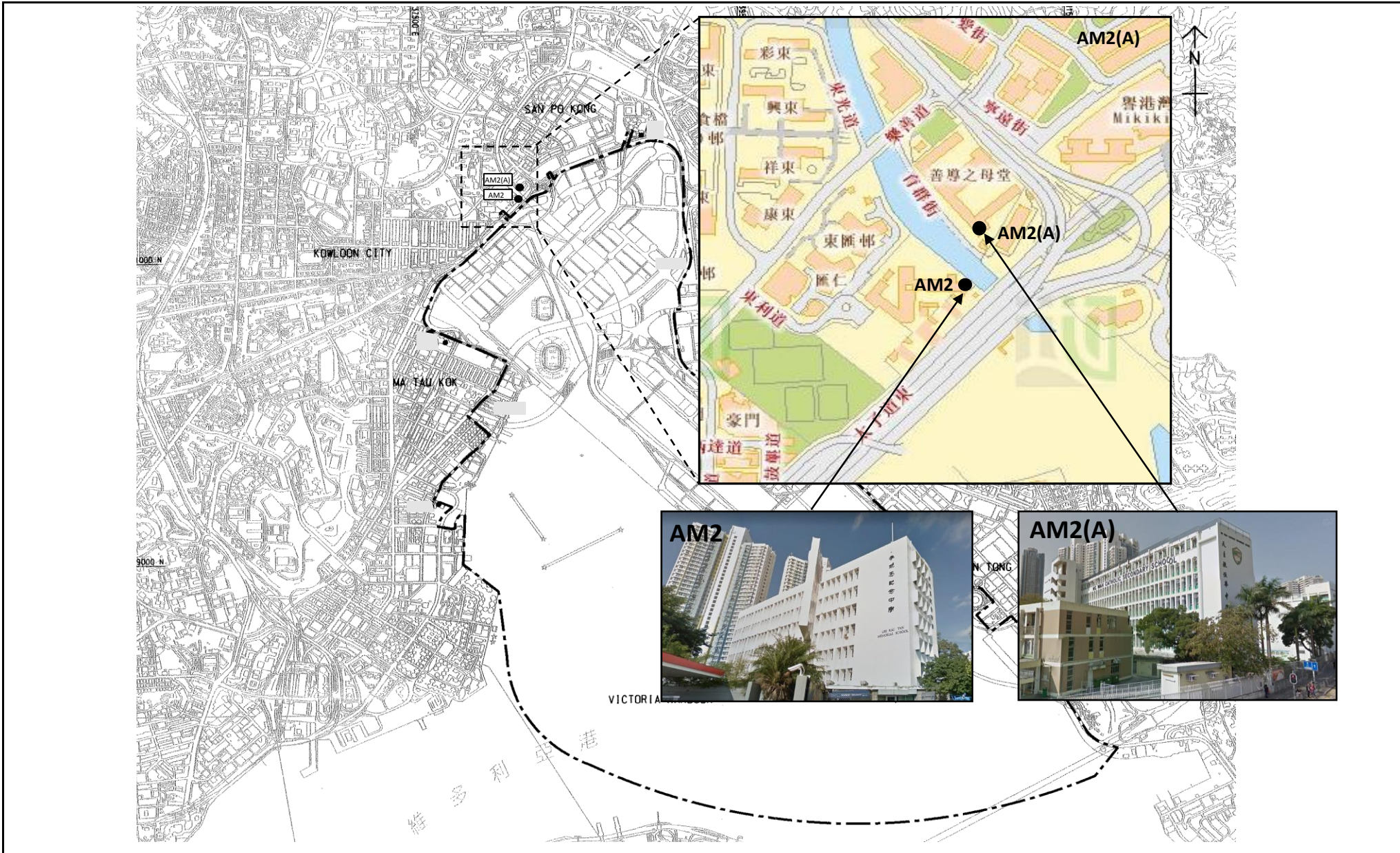
 ROAD D1




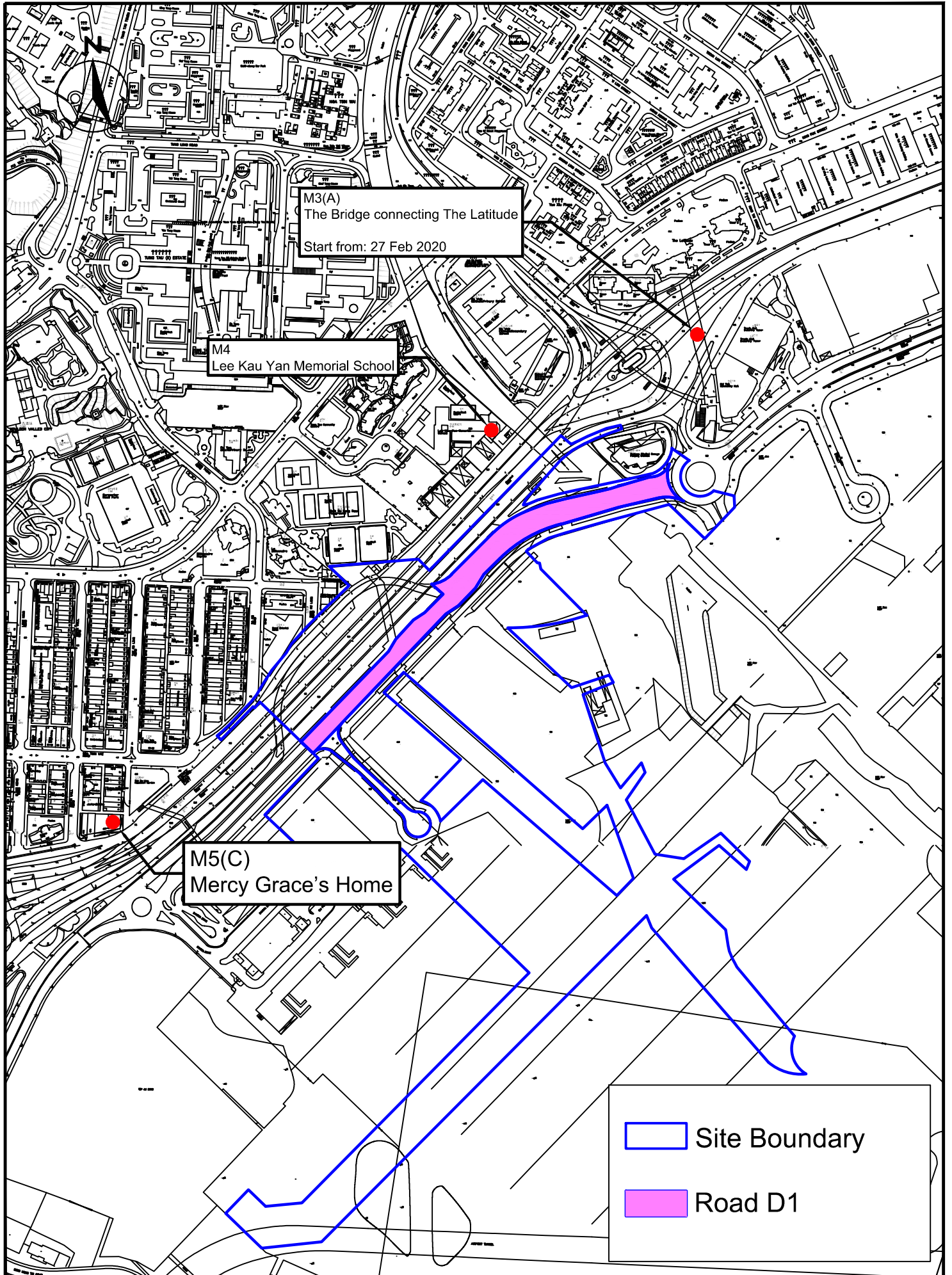
KL/2015/02 KAI TAK - STAGE 5A INFRASTRUCTURE  
AT FORMER NORTH APRON AREA

**SITE LAYOUT PLAN**

SCALE	1:1500@A4	DATE	DEC 2016
CHECK	KC	DRAWN	JW
JOB No.	MA16043	FIGURE NO.	1
		REV	-

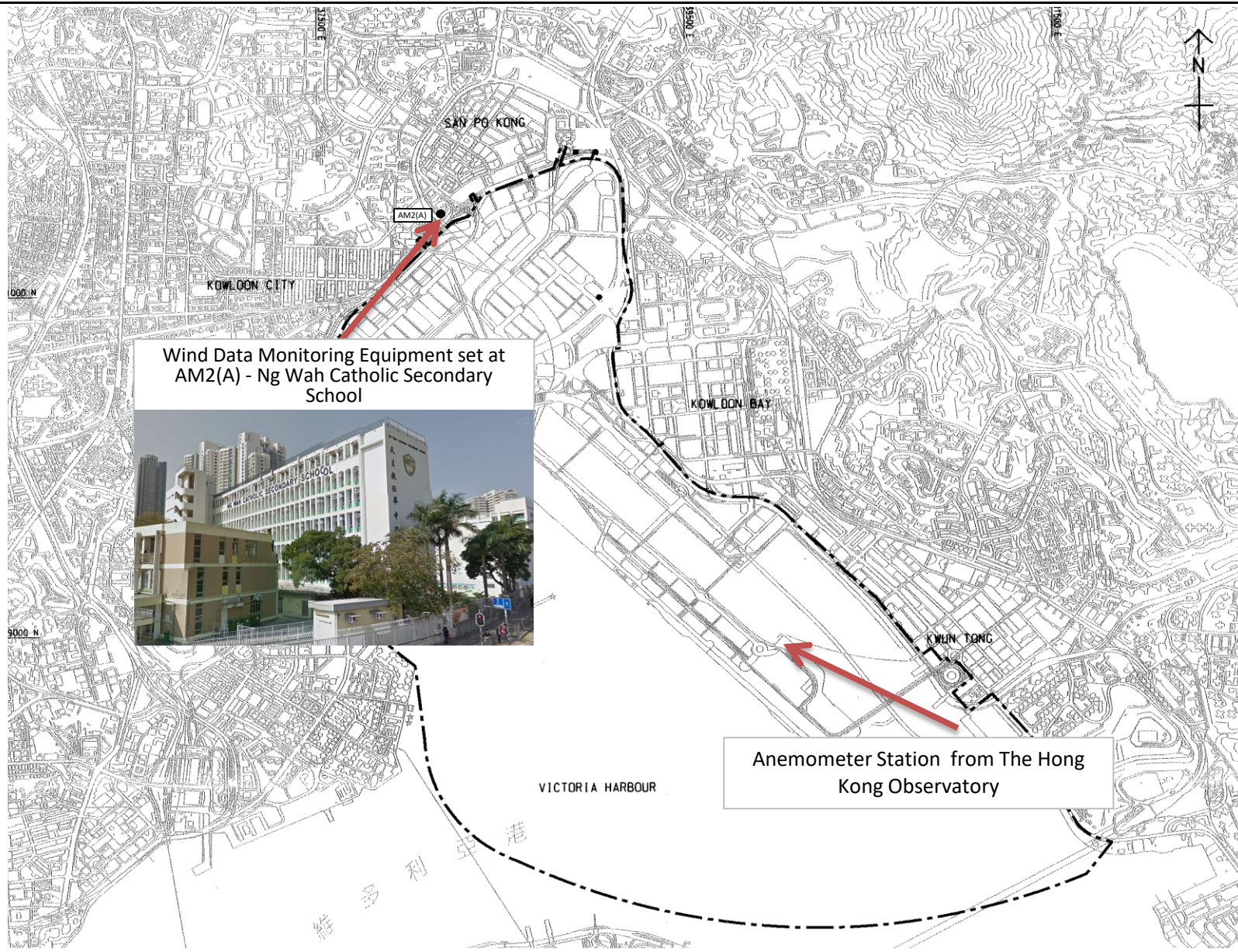


Title Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area Location of Air Quality Monitoring Stations	Scale	Project	
	Date	Figure	
	N.T.S	No. MA16043	
	Aug-17	2	



Site Boundary  
 Road D1

SCALE	1:5000@A4	DATE	Mar 2020
CHECK	KC	DRAWN	CC
JOB No.	MA16043	FIGURE NO.	3
		REV	-



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



Anemometer Station from The Hong Kong Observatory

Title	Contract No. KLN/2016/04		Scale	Project No.	CINOTECH
	Environmental Monitoring Works for Contract No. KL/2015/02				
	Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area		Date	Figure	
Location of Wind Data Monitoring Equipment		Aug-17	4		

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**APPENDIX A  
ACTION AND LIMIT LEVELS FOR AIR  
QUALITY AND NOISE**

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## Appendix A - Action and Limit Levels

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

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM2	346	500

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

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM2(A)	157	260

**Table A-3 Action and Limit Levels for Construction Noise**

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

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

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**APPENDIX B-1  
COPIES OF CALIBRATION  
CERTIFICATES (AIR)**

---



**Certificate 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 29-May-22  
 Manufacturer: Sibata Scientific Technology LTD. Validity of Calibration Record 29-Jul-22  
 Model No.: LD-5R  
 Serial No.: 972780  
 Equipment No.: SA-01-09 Sensitivity 0.001 mg/m3  
 High Volume Sampler No.: A-01-03 Before Sensitivity Adjustment 739 CPM  
 Tisch Calibration Orifice No.: 3864 After Sensitivity Adjustment 739 CPM

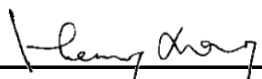
Calibration of 1 hr TSP		
Calibration Point	Laser Dust Monitor	HVS
	Mass Concentration (µg/m <sup>3</sup> ) X-axis	Mass concentration (µg/m <sup>3</sup> ) Y-axis
1	73.0	163.0
2	65.5	147.0
3	52.0	117.0
<b>Average</b>	<b>63.5</b>	<b>142.3</b>
<b>By Linear Regression of Y on X</b> Slope , mw = <u>2.1943</u> Intercept, bw = <u>2.9978</u> Correlation coefficient* = <u>0.9999</u>		
Set Correlation Factor		
Particulate Concentration by High Volume Sampler (µg/m <sup>3</sup> )	142.3	
Particulate Concentration by Dust Meter (µg/m <sup>3</sup> )	63.5	
Measureing time, (min)	60.0	
Set Correlation Factor , SCF		
SCF = [ K=High Volume Sampler / Dust Meter, (µg/m <sup>3</sup> ) ]	<u>2.2</u>	

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 (HPCT Litimed)**

Calibrated by:   
 Technical Officer (Wong Shing Kwai)

Approved by:   
 Project Manager (Henry Leung)



<b>RECALIBRATION</b>
<b>DUE DATE:</b>
<b>January 31, 2023</b>

# Certificate of Calibration

Calibration Certification Information			
Cal. Date: January 31, 2022	Rootsmeter S/N: 438320	Ta: 294	°K
Operator: Jim Tisch		Pa: 752.6	mm Hg
Calibration Model #: TE-5025A	Calibrator S/N: <b>3864</b>		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4490	3.2	2.00
2	3	4	1	1.0320	6.4	4.00
3	5	6	1	0.9160	7.9	5.00
4	7	8	1	0.8730	8.8	5.50
5	9	10	1	0.7230	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)	$\sqrt{\Delta H \left( \frac{Ta}{Pa} \right)}$ (y-axis)
0.9995	0.6898	1.4169	0.9957	0.6872	0.8839
0.9952	0.9643	2.0037	0.9915	0.9608	1.2500
0.9932	1.0843	2.2402	0.9895	1.0802	1.3976
0.9920	1.1363	2.3496	0.9883	1.1321	1.4658
0.9868	1.3649	2.8337	0.9831	1.3598	1.7678
<b>QSTD</b>	m=	<b>2.09281</b>	<b>QA</b>	m=	<b>1.31048</b>
	b=	<b>-0.02426</b>		b=	<b>-0.01514</b>
	r=	<b>0.99993</b>		r=	<b>0.99993</b>

Calculations	
Vstd= $\Delta Vol \left( \frac{Pa - \Delta P}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)$	Va= $\Delta Vol \left( \frac{Pa - \Delta P}{Pa} \right)$
Qstd= $Vstd / \Delta Time$	Qa= $Va / \Delta Time$
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= $1/m \left( \left( \sqrt{\Delta H \left( \frac{Ta}{Pa} \right)} \right) - b \right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg
<b>Key</b>	
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

# High-Volume TSP Sampler

## 5-POINT CALIBRATION DATA SHEET



File No. MA16043/13/0030

Project No. AM2(A) - Ng Wah Catholic Secondary School  
 Date: 5-May-22 Next Due Date: 5-Jul-22 Operator: SK  
 Equipment No.: A-01-13 Model No.: TE-5170 Serial No. 1352

Ambient Condition			
Temperature, Ta (K)	<b>298.2</b>	Pressure, Pa (mmHg)	<b>759.3</b>

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05922	Intercept, bc	-0.02420
Last Calibration Date:	31-Jan-22	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	31-Jan-23	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	DW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<b>13.2</b>	3.63	61.71	<b>10.9</b>	3.30
2	<b>11.3</b>	3.36	57.13	<b>8.6</b>	2.93
3	<b>8.3</b>	2.88	49.02	<b>6.0</b>	2.45
4	<b>5.7</b>	2.39	40.69	<b>3.4</b>	1.84
5	<b>3.6</b>	1.90	32.42	<b>1.9</b>	1.38

**By Linear Regression of Y on X**  
 Slope, mw = 0.0655 Intercept, bw : -0.7792  
 Correlation coefficient\* = 0.9989  
 \*If Correlation Coefficient < 0.990, check and recalibrate.

**Set Point Calculation**

From the TSP Field Calibration Curve, take Qstd = 43 CFM  
 From the Regression Equation, the "Y" value according to

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

Therefore, Set Point; W =  $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$  4.16

Remarks: \_\_\_\_\_

Conducted by: Wong Shing Kwai Signature:  Date: 5-May-22  
 Checked by: Henry Leung Signature:  Date: 5-May-22

# High-Volume TSP Sampler

## 5-POINT CALIBRATION DATA SHEET



File No. MA16043/13/0031

Project No. AM2(A) - Ng Wah Catholic Secondary School  
 Date: 5-Jul-22 Next Due Date: 4-Sep-22 Operator: SK  
 Equipment No.: A-01-13 Model No.: TE-5170 Serial No. 1352

Ambient Condition			
Temperature, Ta (K)	<b>302</b>	Pressure, Pa (mmHg)	<b>753.2</b>

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05922	Intercept, bc	-0.02420
Last Calibration Date:	31-Jan-22	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	31-Jan-23	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	DW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<b>12.8</b>	3.54	60.15	<b>10.7</b>	3.23
2	<b>11.0</b>	3.28	55.79	<b>8.4</b>	2.87
3	<b>8.1</b>	2.81	47.93	<b>5.8</b>	2.38
4	<b>5.5</b>	2.32	39.57	<b>3.2</b>	1.77
5	<b>3.3</b>	1.80	30.74	<b>1.8</b>	1.33

**By Linear Regression of Y on X**

Slope, mw = 0.0651 Intercept, bw : -0.7326

Correlation coefficient\* = 0.9974

\*If Correlation Coefficient < 0.990, check and recalibrate.

**Set Point Calculation**

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

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

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

Therefore, Set Point; W =  $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$  4.36

Remarks: \_\_\_\_\_

Conducted by: Wong Shing Kwai Signature:  Date: 5-Jul-22

Checked by: Henry Leung Signature:  Date: 5-Jul-22

## Certificate of Calibration - Wind Monitoring Station

Description: Ng Wah Catholic Secondary School - Weather Stations  
 Manufacturer: Davis Instruments  
 Model No.: Davis 6152, Vantage Pro2  
 Serial No.: BC180522050  
 Equipment No.: SA-03-03  
 Date of Calibration: 8-Apr-2022  
 Next Due Date: 8-Oct-2022

### 1. Performance check of Wind Speed

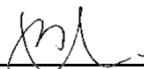
Wind Speed, m/s		Difference D (m/s)
Wind Speed Reading (V1)	Anemometer Value (V1)	$D = V1 - V2$
0.0	0.0	0.0
1.5	1.5	0.0
2.0	2.0	0.0
3.3	3.4	-0.1

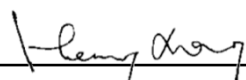
### 2. Performance check of Wind Direction

Wind Direction (°)		Difference D (°)
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

1. Performance check of anemometer

Air Velocity, m/s		Difference D (m/s)
Instrument Reading (V1)	Reference Value (V1)	$D = V1 - V2$
2	2	0

2. Performance check of wind direction sensor

Wind Direction (°)		Difference D (°)
Instrument Reading (W1)	Reference Value (W2)	$D = W1 - W2$
0	0	0
45	45	0
90.2	90	0.2
135.3	135	0.3
180	180	0
225.1	225	0.1
270.3	270	0.3
315	315	0
360	360	0

---

**APPENDIX B-2  
COPIES OF CALIBRATION  
CERTIFICATES (NOISE)**

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## High Precision Chemical Testing Ltd.

Rm 1904, Technology Park  
18 On Lai Street, Shatin  
NT, Hong Kong  
Tel: +852 3841 4388 Website: <https://www.hpct.com.hk>



Report No. : 00152  
Application No. : HP00034

Issue Date : 19 Nov 2021

### Certificate of Calibration

Applicant : Cinotech Consultants Limited  
RM 1710, Technology Park,  
18 On Lai Street,  
Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Integrating Sound Level Meter.

Equipment No.: : N-12-01

Manufacturer: : BSWA Technology

Other information :

Model No.	BSWA 308
Serial No.	570183
Microphone No.	570605

Date Received : 10 Nov 2021

Test Period : 10 Nov 2021 to 17 Nov 2021

Test Requested : Performance checking for Sound Level Meter

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

Test conditions : Room Temperature: 22-25 degree Celsius  
Relative Humidity: 35-70%

Test Result : Refer to the test result(s) on page 2.

Remark : 1. Information of the sample description provided by the Applicant.  
2. The result(s) relate only to the items tested or calibrated.

*For and on behalf of*  
**HIGH PRECISION CHEMICAL TESTING LIMITED**

A handwritten signature in black ink, appearing to read 'Lee Wai Kit', is written over a horizontal line.

Lee Wai Kit  
Laboratory Manager



## High Precision Chemical Testing Ltd.

Rm 1904, Technology Park  
18 On Lai Street, Shatin  
NT, Hong Kong  
Tel: +852 3841 4388 Website: <https://www.hpct.com.hk>



Report No. : 00152  
Application No. : HP00034

Issue Date : 19 Nov 2021

### Certificate of Calibration

Measuring equipment :

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

Test Result :

Reference value, dB	Indication value, dB	Deviation, dB	Allowed deviation, dB
94.0	94.1	+0.1	± 1.5
114.0	114.0	0.0	± 1.5

- Note** : 1. "Instrument Readings" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.  
2. The indication value was obtained from the average of ten replicated measurement.

- End of report -

## High Precision Chemical Testing Ltd.

Rm 1904, Technology Park  
18 On Lai Street, Shatin  
NT, Hong Kong  
Tel: +852 3841 4388 Website: <https://www.hpct.com.hk>



Report No. : 00145  
Application No. : HP00029

Issue Date : 04 Nov 2021

### Certificate of Calibration

Applicant : Cinotech Consultants Limited  
RM 1710, Technology Park,  
18 On Lai Street,  
Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Integrating Sound Level Meter.

Equipment No.: : N-12-03  
Manufacturer: : BSWA Technology

Other information	Model No.	BSWA 308
	Serial No.	570188
	Microphone No.	570608

Date Received : 26 Oct 2021

Test Period : 26 Oct 2021 to 02 Nov 2021

Test Requested : Performance checking for Sound Level Meter

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

Test conditions : Room Temperature: 22-25 degree Celsius  
Relative Humidity: 35-70%

Test Result : Refer to the test result(s) on page 2.

Remark : 1. Information of the sample description provided by the Applicant.  
2. The result(s) relate only to the items tested or calibrated.

*For and on behalf of*  
**HIGH PRECISION CHEMICAL TESTING LIMITED**

A handwritten signature in black ink, appearing to be 'Lee Wai Kit', written over a horizontal line.

Lee Wai Kit  
Laboratory Manager

## High Precision Chemical Testing Ltd.

Rm 1904, Technology Park  
18 On Lai Street, Shatin  
NT, Hong Kong  
Tel: +852 3841 4388 Website: <https://www.hpct.com.hk>



Report No. : 00145  
Application No. : HP00029

Issue Date : 04 Nov 2021

### Certificate of Calibration

Measuring equipment :	Description	Sound Calibrator
	Manufacturer	Brüel & Kjær
	Model No.	TYPE 4231
	Serial No.	2326353
	Equipment No.	N-02-01

Test Result :

Reference value, dB	Indication value, dB	Deviation, dB	Allowed deviation, dB
94.0	93.9	-0.1	± 1.5
114.0	114.0	0.0	± 1.5

- Note** : 1. "Instrument Readings" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.  
2. The indication value was obtained from the average of ten replicated measurement.

- End of report -

## High Precision Chemical Testing Ltd.

Rm 1904, Technology Park  
18 On Lai Street, Shatin  
NT, Hong Kong  
Tel: +852 3841 4388 Website: <https://www.hpct.com.hk>



Report No. : 00149  
Application No. : HP00031

Issue Date : 16 Nov 2021

### Certificate of Calibration

Applicant : Cinotech Consultants Limited  
RM 1710, Technology Park,  
18 On Lai Street,  
Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Integrating Sound Level Meter.

Equipment No.: : N-12-04

Manufacturer: : BSWA Technology

Other information :

Model No.	BSWA 308
Serial No.	580238
Microphone No.	590073

Date Received : 05 Nov 2021

Test Period : 08 Nov 2021 to 12 Nov 2021

Test Requested : Performance checking for Sound Level Meter

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

Test conditions : Room Temperature: 22-25 degree Celsius  
Relative Humidity: 35-70%

Test Result : Refer to the test result(s) on page 2.

Remark : **1. Information of the sample description provided by the Applicant.**  
**2. The result(s) relate only to the items tested or calibrated.**

*For and on behalf of*  
**HIGH PRECISION CHEMICAL TESTING LIMITED**

A handwritten signature in black ink, appearing to be 'Lee Wai Kit', written over a horizontal line.

Lee Wai Kit  
Laboratory Manager

## High Precision Chemical Testing Ltd.

Rm 1904, Technology Park  
18 On Lai Street, Shatin  
NT, Hong Kong  
Tel: +852 3841 4388 Website: <https://www.hpct.com.hk>



Report No. : 00149

Issue Date : 16 Nov 2021

Application No. : HP00031

### Certificate of Calibration

Measuring equipment :	Description	Sound Calibrator
	Manufacturer	Brüel & Kjær
	Model No.	TYPE 4231
	Serial No.	2326353
	Equipment No.	N-02-01

Test Result :

Reference value, dB	Indication value, dB	Deviation, dB	Allowed deviation, dB
94.0	93.7	-0.3	± 1.5
114.0	114.0	0.0	± 1.5

- Note** : 1. "Instrument Readings" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.  
2. The indication value was obtained from the average of ten replicated measurement.

- End of report -

**High Precision Chemical Testing Ltd.**

Rm 1904, Technology Park  
18 On Lai Street, Shatin  
NT, Hong Kong  
Tel: +852 3841 4388 Website: <https://www.hpct.com.hk>



Report No. : 00150  
Application No. : HP00032

Issue Date : 16 Nov 2021

**Certificate of Calibration**

Applicant : Cinotech Consultants Limited  
RM 1710, Technology Park,  
18 On Lai Street,  
Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Sound Level Calibrator.

Equipment No.: : N-13-01

Manufacturer: : SOUNDTEK

Other information :

Model No.	ST-120
Serial No.	181001608

Date Received : 05 Nov 2021

Test Period : 08 Nov 2021 to 12 Nov 2021

Test Requested : Performance checking for Sound Level Calibrator

Test Method : The Sound Level Meter and Calibrator has been calibrated in accordance with the documented procedures and using standard and instrument which are recommended by the manufacturer, or equivalent.

Test conditions : Room Temperature: 22-25 degree Celsius  
Relative Humidity: 35-70%

Test Result : Refer to the test result(s) on page 2.

Remark : **1. Information of the sample description provided by the Applicant.**  
**2. The result(s) relate only to the items tested or calibrated.**

*For and on behalf of*  
**HIGH PRECISION CHEMICAL TESTING LIMITED**

Lee Wai Kit  
Laboratory Manager

## High Precision Chemical Testing Ltd.

Rm 1904, Technology Park  
18 On Lai Street, Shatin  
NT, Hong Kong  
Tel: +852 3841 4388 Website: <https://www.hpct.com.hk>



Report No. : 00150  
Application No. : HP00032

Issue Date : 16 Nov 2021

### Certificate of Calibration

Measuring equipment :

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

Description	Sound Meter
Manufacturer	BSWA Technology
Model No.	BSWA 308
Serial No.	570188
Microphone No.	570608
Equipment No.	N-12-03

Test Result :

Reference value, dB	Indication value, dB	Deviation, dB	Allowed deviation, dB
94.0	94.1	+0.1	± 0.3
114.0	114.0	0.0	± 0.5

**Note** : 1. "Instrument Readings" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.  
2. The indication value was obtained from the average of ten replicated measurement.

- End of report -

## High Precision Chemical Testing Ltd.

Rm 1904, Technology Park  
18 On Lai Street, Shatin  
NT, Hong Kong  
Tel: +852 3841 4388 Website: <https://www.hpct.com.hk>



Report No. : 00151  
Application No. : HP00033

Issue Date : 16 Nov 2021

### Certificate of Calibration

Applicant : Cinotech Consultants Limited  
RM 1710, Technology Park,  
18 On Lai Street,  
Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Sound Level Calibrator.

Equipment No.: : N-13-02

Manufacturer: : SOUNDTEK

Other information :

Model No.	ST-120
Serial No.	181001636

Date Received : 05 Nov 2021

Test Period : 08 Nov 2021 to 12 Nov 2021

Test Requested : Performance checking for Sound Level Calibrator

Test Method : The Sound Level Meter and Calibrator has been calibrated in accordance with the documented procedures and using standard and instrument which are recommended by the manufacturer, or equivalent.

Test conditions : Room Temperature: 22-25 degree Celsius  
Relative Humidity: 35-70%

Test Result : Refer to the test result(s) on page 2.

Remark : **1. Information of the sample description provided by the Applicant.**  
**2. The result(s) relate only to the items tested or calibrated.**

*For and on behalf of*  
**HIGH PRECISION CHEMICAL TESTING LIMITED**

A handwritten signature in black ink, appearing to read 'Lee Wai Kit', is written over a horizontal line.

Lee Wai Kit  
Laboratory Manager



## High Precision Chemical Testing Ltd.

Rm 1904, Technology Park  
18 On Lai Street, Shatin  
NT, Hong Kong  
Tel: +852 3841 4388 Website: <https://www.hpct.com.hk>



Report No. : 00151  
Application No. : HP00033

Issue Date : 16 Nov 2021

### Certificate of Calibration

Measuring equipment :

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

Description	Sound Meter
Manufacturer	BSWA Technology
Model No.	BSWA 308
Serial No.	570188
Microphone No.	570608
Equipment No.	N-12-03

Test Result :

Reference value, dB	Indication value, dB	Deviation, dB	Allowed deviation, dB
94.0	94.0	0.0	± 0.3
114.0	114.1	+0.1	± 0.5

**Note** : 1. "Instrument Readings" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.  
2. The indication value was obtained from the average of ten replicated measurement.

- End of report -

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**APPENDIX C**  
**WEATHER INFORMATION**

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APPENDIX C - WEATHERING CONDITINS DURING MONITORING PERIOD

July 2022

Date	Mean Pressure (hPa)	Air Temperature	Mean Relative Humidity (%)	Precipitation (mm)
		Mean (°C)		
1-Jul-22	1000.7	27.2	85	63
2-Jul-22	999.1	26.9	89	72.4
3-Jul-22	1001.5	29.0	82	0
4-Jul-22	1002.2	28.8	83	0.4
5-Jul-22	1004.2	29.0	82	0.2
6-Jul-22	1005.7	28.8	81	0.5
7-Jul-22	1007.3	28.7	86	13.1
8-Jul-22	1007.4	30.0	79	Trace
9-Jul-22	1005.7	29.9	81	Trace
10-Jul-22	1006.5	30.5	77	Trace
11-Jul-22	1007.3	30.9	73	0
12-Jul-22	1006.9	31.1	72	0
13-Jul-22	1005.9	31.0	71	0
14-Jul-22	1005.6	30.4	75	0
15-Jul-22	1006.5	30.4	77	0.2
16-Jul-22	1006.0	30.5	77	1.5
17-Jul-22	1005.7	30.5	76	1.2
18-Jul-22	1004.9	30.4	78	2.7
19-Jul-22	1006.6	30.8	75	Trace
20-Jul-22	1009.8	30.8	76	0.6
21-Jul-22	1012.0	30.9	74	0.3
22-Jul-22	1010.8	31.2	72	0
23-Jul-22	1008.7	31.4	74	0
24-Jul-22	1007.1	32.0	72	0
25-Jul-22	1007.6	32.0	74	0
26-Jul-22	1007.7	31.2	71	0
27-Jul-22	1007.1	31.0	69	0
28-Jul-22	1006.2	31.2	73	0
29-Jul-22	1004.7	31.7	74	0
30-Jul-22	1004.3	29.5	81	2.4
31-Jul-22	1004.3	30.8	76	0

APPENDIX C - WEATHERING CONDITINS DURING MONITORING PERIOD

July 2022			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m/s	Direction
1-Jul-22	0:00	0.4	NE
1-Jul-22	1:00	0.4	ESE
1-Jul-22	2:00	0.4	ESE
1-Jul-22	3:00	0.4	ESE
1-Jul-22	4:00	0.1	SW
1-Jul-22	5:00	0.4	SE
1-Jul-22	6:00	0.4	ESE
1-Jul-22	7:00	0.4	SE
1-Jul-22	8:00	0.4	ESE
1-Jul-22	9:00	1.3	ESE
1-Jul-22	10:00	1.3	ESE
1-Jul-22	11:00	1.3	SE
1-Jul-22	12:00	1.3	ESE
1-Jul-22	13:00	1.8	SSW
1-Jul-22	14:00	1.8	ESE
1-Jul-22	15:00	1.8	SSW
1-Jul-22	16:00	0.4	SW
1-Jul-22	17:00	0.4	SSW
1-Jul-22	18:00	0.4	SSW
1-Jul-22	19:00	0.4	SSW
1-Jul-22	20:00	0.4	SW
1-Jul-22	21:00	0.4	SW
1-Jul-22	22:00	0.9	ESE
1-Jul-22	23:00	0.4	ESE
2-Jul-22	0:00	0.4	SSW
2-Jul-22	1:00	0.4	SW
2-Jul-22	2:00	0.9	ESE
2-Jul-22	3:00	0.4	ESE
2-Jul-22	4:00	0.4	ESE
2-Jul-22	5:00	0.9	ESE
2-Jul-22	6:00	0.9	SE
2-Jul-22	7:00	0.4	ESE
2-Jul-22	8:00	0.9	ESE
2-Jul-22	9:00	0.9	E
2-Jul-22	10:00	0.9	ESE
2-Jul-22	11:00	0.9	E
2-Jul-22	12:00	0.9	SE
2-Jul-22	13:00	0.9	SE
2-Jul-22	14:00	0.9	ESE
2-Jul-22	15:00	0.4	SE
2-Jul-22	16:00	0.1	ESE
2-Jul-22	17:00	0.1	SW
2-Jul-22	18:00	0.1	SW
2-Jul-22	19:00	0.4	SE
2-Jul-22	20:00	0.4	E
2-Jul-22	21:00	0.4	E
2-Jul-22	22:00	0.4	E
2-Jul-22	23:00	0.4	ESE

July 2022			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m/s	Direction
3-Jul-22	0:00	0.4	ESE
3-Jul-22	1:00	0.4	ESE
3-Jul-22	2:00	0.1	ESE
3-Jul-22	3:00	0.4	S
3-Jul-22	4:00	0.4	SSW
3-Jul-22	5:00	0.4	SW
3-Jul-22	6:00	0.4	E
3-Jul-22	7:00	1.3	SE
3-Jul-22	8:00	0.9	SE
3-Jul-22	9:00	1.3	ESE
3-Jul-22	10:00	1.8	E
3-Jul-22	11:00	1.8	ESE
3-Jul-22	12:00	1.8	E
3-Jul-22	13:00	0.9	SW
3-Jul-22	14:00	0.4	ESE
3-Jul-22	15:00	0.1	S
3-Jul-22	16:00	0.4	SSE
3-Jul-22	17:00	0.4	S
3-Jul-22	18:00	0.1	S
3-Jul-22	19:00	0.1	SSE
3-Jul-22	20:00	0.1	SSE
3-Jul-22	21:00	0.1	S
3-Jul-22	22:00	0.1	SE
3-Jul-22	23:00	0.1	SSW
4-Jul-22	0:00	0.1	SE
4-Jul-22	1:00	0.1	SE
4-Jul-22	2:00	0.1	SE
4-Jul-22	3:00	0.4	ESE
4-Jul-22	4:00	0.4	ESE
4-Jul-22	5:00	0.4	E
4-Jul-22	6:00	0.9	ESE
4-Jul-22	7:00	0.4	ESE
4-Jul-22	8:00	1.3	ESE
4-Jul-22	9:00	1.3	ESE
4-Jul-22	10:00	0.4	ESE
4-Jul-22	11:00	1.3	ESE
4-Jul-22	12:00	0.9	E
4-Jul-22	13:00	1.3	SE
4-Jul-22	14:00	0.9	ESE
4-Jul-22	15:00	0.9	SE
4-Jul-22	16:00	0.4	ESE
4-Jul-22	17:00	0.9	SE
4-Jul-22	18:00	0.4	SE
4-Jul-22	19:00	0.4	ESE
4-Jul-22	20:00	0.9	SE
4-Jul-22	21:00	0.9	SE
4-Jul-22	22:00	0.9	SE
4-Jul-22	23:00	0.4	ESE

APPENDIX C - WEATHERING CONDITINS DURING MONITORING PERIOD

July 2022			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m/s	Direction
5-Jul-22	0:00	0.4	SE
5-Jul-22	1:00	0.4	ESE
5-Jul-22	2:00	0.4	ESE
5-Jul-22	3:00	0.4	SE
5-Jul-22	4:00	0.9	SE
5-Jul-22	5:00	0.9	SE
5-Jul-22	6:00	1.8	ESE
5-Jul-22	7:00	1.8	SW
5-Jul-22	8:00	1.8	SW
5-Jul-22	9:00	1.8	ESE
5-Jul-22	10:00	1.8	SSW
5-Jul-22	11:00	2.2	SSW
5-Jul-22	12:00	1.8	ESE
5-Jul-22	13:00	1.8	ESE
5-Jul-22	14:00	1.8	ESE
5-Jul-22	15:00	1.8	SW
5-Jul-22	16:00	1.3	SE
5-Jul-22	17:00	0.9	ESE
5-Jul-22	18:00	0.9	SE
5-Jul-22	19:00	1.3	ESE
5-Jul-22	20:00	1.3	ESE
5-Jul-22	21:00	0.9	ESE
5-Jul-22	22:00	1.8	SE
5-Jul-22	23:00	1.3	ESE
6-Jul-22	0:00	1.3	SSW
6-Jul-22	1:00	0.9	ESE
6-Jul-22	2:00	0.9	SSW
6-Jul-22	3:00	0.9	SW
6-Jul-22	4:00	1.8	SSW
6-Jul-22	5:00	1.8	SSW
6-Jul-22	6:00	1.8	SSW
6-Jul-22	7:00	1.8	SW
6-Jul-22	8:00	1.3	SW
6-Jul-22	9:00	2.2	ESE
6-Jul-22	10:00	2.7	ESE
6-Jul-22	11:00	2.2	SSW
6-Jul-22	12:00	1.8	SW
6-Jul-22	13:00	1.8	ESE
6-Jul-22	14:00	2.2	ESE
6-Jul-22	15:00	1.8	ESE
6-Jul-22	16:00	1.8	ESE
6-Jul-22	17:00	1.8	SE
6-Jul-22	18:00	1.3	ESE
6-Jul-22	19:00	1.3	SE
6-Jul-22	20:00	1.3	ESE
6-Jul-22	21:00	1.8	ESE
6-Jul-22	22:00	1.3	ESE
6-Jul-22	23:00	1.3	SW

July 2022			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m/s	Direction
7-Jul-22	0:00	1.3	ESE
7-Jul-22	1:00	1.3	SSW
7-Jul-22	2:00	1.3	SSW
7-Jul-22	3:00	1.3	SSW
7-Jul-22	4:00	1.3	SSW
7-Jul-22	5:00	1.3	SSW
7-Jul-22	6:00	1.8	ESE
7-Jul-22	7:00	2.2	SSW
7-Jul-22	8:00	2.2	ESE
7-Jul-22	9:00	2.7	ESE
7-Jul-22	10:00	2.7	SSW
7-Jul-22	11:00	2.2	ESE
7-Jul-22	12:00	2.2	ESE
7-Jul-22	13:00	1.8	ESE
7-Jul-22	14:00	1.8	SSW
7-Jul-22	15:00	1.3	ESE
7-Jul-22	16:00	1.3	SSW
7-Jul-22	17:00	1.8	SSW
7-Jul-22	18:00	1.3	SSW
7-Jul-22	19:00	1.8	SSW
7-Jul-22	20:00	1.3	ESE
7-Jul-22	21:00	1.8	SSW
7-Jul-22	22:00	1.8	SSW
7-Jul-22	23:00	1.8	SW
8-Jul-22	0:00	1.3	SW
8-Jul-22	1:00	1.8	SSW
8-Jul-22	2:00	2.2	S
8-Jul-22	3:00	2.2	SSW
8-Jul-22	4:00	2.2	SW
8-Jul-22	5:00	3.1	SW
8-Jul-22	6:00	3.1	SSW
8-Jul-22	7:00	2.7	SSW
8-Jul-22	8:00	2.7	SW
8-Jul-22	9:00	3.1	SSW
8-Jul-22	10:00	3.1	SSW
8-Jul-22	11:00	3.6	SSW
8-Jul-22	12:00	3.6	SSW
8-Jul-22	13:00	3.6	SSW
8-Jul-22	14:00	3.1	SSW
8-Jul-22	15:00	3.1	SSW
8-Jul-22	16:00	3.1	SSW
8-Jul-22	17:00	2.7	SW
8-Jul-22	18:00	2.7	SW
8-Jul-22	19:00	2.7	SSW
8-Jul-22	20:00	2.2	SSW
8-Jul-22	21:00	2.7	SW
8-Jul-22	22:00	2.2	SSW
8-Jul-22	23:00	2.7	SW

APPENDIX C - WEATHERING CONDITINS DURING MONITORING PERIOD

July 2022			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m/s	Direction
9-Jul-22	0:00	2.2	SW
9-Jul-22	1:00	3.1	SW
9-Jul-22	2:00	2.7	SSW
9-Jul-22	3:00	3.1	SW
9-Jul-22	4:00	2.2	SSW
9-Jul-22	5:00	3.1	SSW
9-Jul-22	6:00	3.6	SSW
9-Jul-22	7:00	4.0	SW
9-Jul-22	8:00	3.6	ESE
9-Jul-22	9:00	3.6	ESE
9-Jul-22	10:00	3.6	ESE
9-Jul-22	11:00	3.1	SW
9-Jul-22	12:00	3.6	SE
9-Jul-22	13:00	2.7	ESE
9-Jul-22	14:00	2.2	SE
9-Jul-22	15:00	3.1	ESE
9-Jul-22	16:00	2.7	ESE
9-Jul-22	17:00	2.7	ESE
9-Jul-22	18:00	2.7	SE
9-Jul-22	19:00	2.2	ESE
9-Jul-22	20:00	2.7	SSW
9-Jul-22	21:00	2.2	ESE
9-Jul-22	22:00	2.2	SSW
9-Jul-22	23:00	2.2	SW
10-Jul-22	0:00	1.8	SSW
10-Jul-22	1:00	2.2	SSW
10-Jul-22	2:00	2.2	SSW
10-Jul-22	3:00	2.2	SW
10-Jul-22	4:00	2.2	SW
10-Jul-22	5:00	2.7	ESE
10-Jul-22	6:00	2.7	ESE
10-Jul-22	7:00	2.7	SSW
10-Jul-22	8:00	3.1	SW
10-Jul-22	9:00	3.6	ESE
10-Jul-22	10:00	3.1	ESE
10-Jul-22	11:00	3.1	ESE
10-Jul-22	12:00	2.7	ESE
10-Jul-22	13:00	2.7	SE
10-Jul-22	14:00	2.2	ESE
10-Jul-22	15:00	1.8	ESE
10-Jul-22	16:00	1.8	ESE
10-Jul-22	17:00	1.8	ESE
10-Jul-22	18:00	1.8	ESE
10-Jul-22	19:00	0.9	E
10-Jul-22	20:00	1.3	ESE
10-Jul-22	21:00	1.8	ESE
10-Jul-22	22:00	1.8	ESE
10-Jul-22	23:00	2.2	ESE

July 2022			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m/s	Direction
11-Jul-22	0:00	2.2	ESE
11-Jul-22	1:00	2.2	E
11-Jul-22	2:00	1.8	E
11-Jul-22	3:00	2.2	ESE
11-Jul-22	4:00	2.7	ESE
11-Jul-22	5:00	2.7	ESE
11-Jul-22	6:00	1.8	E
11-Jul-22	7:00	3.6	ESE
11-Jul-22	8:00	2.7	ESE
11-Jul-22	9:00	2.7	ESE
11-Jul-22	10:00	2.7	ESE
11-Jul-22	11:00	2.7	E
11-Jul-22	12:00	2.2	ESE
11-Jul-22	13:00	1.8	SE
11-Jul-22	14:00	1.3	SE
11-Jul-22	15:00	1.3	ESE
11-Jul-22	16:00	1.3	E
11-Jul-22	17:00	1.3	ESE
11-Jul-22	18:00	0.9	ESE
11-Jul-22	19:00	0.4	S
11-Jul-22	20:00	0.9	SE
11-Jul-22	21:00	1.3	ESE
11-Jul-22	22:00	1.3	SE
11-Jul-22	23:00	0.9	ESE
12-Jul-22	0:00	0.9	ESE
12-Jul-22	1:00	1.3	ESE
12-Jul-22	2:00	1.3	ESE
12-Jul-22	3:00	0.9	SSW
12-Jul-22	4:00	0.9	SSW
12-Jul-22	5:00	0.9	SSW
12-Jul-22	6:00	0.9	SSW
12-Jul-22	7:00	0.9	ESE
12-Jul-22	8:00	1.3	SSW
12-Jul-22	9:00	1.3	SE
12-Jul-22	10:00	1.8	ESE
12-Jul-22	11:00	1.3	ESE
12-Jul-22	12:00	1.3	ESE
12-Jul-22	13:00	0.9	E
12-Jul-22	14:00	0.4	SE
12-Jul-22	15:00	0.9	ESE
12-Jul-22	16:00	0.4	SE
12-Jul-22	17:00	0.4	SE
12-Jul-22	18:00	0.4	ESE
12-Jul-22	19:00	0.9	ESE
12-Jul-22	20:00	0.4	SE
12-Jul-22	21:00	0.4	SE
12-Jul-22	22:00	0.4	SSW
12-Jul-22	23:00	0.4	SE

APPENDIX C - WEATHERING CONDITINS DURING MONITORING PERIOD

July 2022			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m/s	Direction
13-Jul-22	0:00	0.4	SE
13-Jul-22	1:00	0.4	SSE
13-Jul-22	2:00	0.1	SSE
13-Jul-22	3:00	0.4	SSW
13-Jul-22	4:00	0.4	WSW
13-Jul-22	5:00	0.4	SSW
13-Jul-22	6:00	0.4	SW
13-Jul-22	7:00	1.3	SW
13-Jul-22	8:00	1.3	WSW
13-Jul-22	9:00	1.3	SSW
13-Jul-22	10:00	1.3	SW
13-Jul-22	11:00	1.8	SSW
13-Jul-22	12:00	1.8	SSW
13-Jul-22	13:00	1.8	SW
13-Jul-22	14:00	1.8	SSW
13-Jul-22	15:00	0.9	ESE
13-Jul-22	16:00	1.3	ESE
13-Jul-22	17:00	1.3	ESE
13-Jul-22	18:00	1.3	SW
13-Jul-22	19:00	2.2	SE
13-Jul-22	20:00	2.2	ESE
13-Jul-22	21:00	1.8	SE
13-Jul-22	22:00	2.2	ESE
13-Jul-22	23:00	2.7	ESE
14-Jul-22	0:00	2.2	ESE
14-Jul-22	1:00	1.8	SE
14-Jul-22	2:00	2.2	ESE
14-Jul-22	3:00	1.8	SSW
14-Jul-22	4:00	1.8	ESE
14-Jul-22	5:00	1.8	SSW
14-Jul-22	6:00	1.3	SW
14-Jul-22	7:00	1.3	SSW
14-Jul-22	8:00	1.3	SSW
14-Jul-22	9:00	1.3	SSW
14-Jul-22	10:00	1.8	SW
14-Jul-22	11:00	1.8	SW
14-Jul-22	12:00	1.8	ESE
14-Jul-22	13:00	1.8	ESE
14-Jul-22	14:00	2.2	SSW
14-Jul-22	15:00	2.2	SW
14-Jul-22	16:00	2.2	ESE
14-Jul-22	17:00	3.1	ESE
14-Jul-22	18:00	2.2	ESE
14-Jul-22	19:00	2.2	ESE
14-Jul-22	20:00	2.2	SE
14-Jul-22	21:00	2.7	WSW
14-Jul-22	22:00	2.7	WSW
14-Jul-22	23:00	2.7	WSW

July 2022			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m/s	Direction
15-Jul-22	0:00	2.7	WSW
15-Jul-22	1:00	2.7	WSW
15-Jul-22	2:00	3.6	SW
15-Jul-22	3:00	3.6	SW
15-Jul-22	4:00	3.6	SW
15-Jul-22	5:00	3.6	SW
15-Jul-22	6:00	2.7	WSW
15-Jul-22	7:00	0.4	WSW
15-Jul-22	8:00	0.4	WSW
15-Jul-22	9:00	0.4	SW
15-Jul-22	10:00	0.1	SSW
15-Jul-22	11:00	0.4	SSW
15-Jul-22	12:00	0.4	SSW
15-Jul-22	13:00	0.4	SSW
15-Jul-22	14:00	0.4	SSW
15-Jul-22	15:00	1.3	SSW
15-Jul-22	16:00	1.3	SSW
15-Jul-22	17:00	1.3	SW
15-Jul-22	18:00	1.3	SW
15-Jul-22	19:00	1.8	SSW
15-Jul-22	20:00	1.8	SSW
15-Jul-22	21:00	1.8	SSW
15-Jul-22	22:00	1.8	SSW
15-Jul-22	23:00	2.2	ESE
16-Jul-22	0:00	2.2	ESE
16-Jul-22	1:00	2.7	SSW
16-Jul-22	2:00	2.7	SW
16-Jul-22	3:00	2.2	SW
16-Jul-22	4:00	1.8	WSW
16-Jul-22	5:00	1.8	SW
16-Jul-22	6:00	2.2	SSW
16-Jul-22	7:00	2.7	SSW
16-Jul-22	8:00	2.2	SSW
16-Jul-22	9:00	2.2	SW
16-Jul-22	10:00	2.7	SSW
16-Jul-22	11:00	3.1	SW
16-Jul-22	12:00	2.7	SSW
16-Jul-22	13:00	2.7	SSW
16-Jul-22	14:00	2.2	ESE
16-Jul-22	15:00	1.8	SSW
16-Jul-22	16:00	1.8	ESE
16-Jul-22	17:00	2.2	ESE
16-Jul-22	18:00	1.8	SSW
16-Jul-22	19:00	1.3	SSW
16-Jul-22	20:00	1.3	SW
16-Jul-22	21:00	1.3	ESE
16-Jul-22	22:00	0.9	SSW
16-Jul-22	23:00	0.9	SSW

APPENDIX C - WEATHERING CONDITINS DURING MONITORING PERIOD

July 2022			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m/s	Direction
17-Jul-22	0:00	1.3	S
17-Jul-22	1:00	1.3	SSW
17-Jul-22	2:00	1.3	SSW
17-Jul-22	3:00	1.3	SSW
17-Jul-22	4:00	0.9	SSW
17-Jul-22	5:00	1.8	SW
17-Jul-22	6:00	1.3	SSW
17-Jul-22	7:00	1.3	S
17-Jul-22	8:00	2.2	SW
17-Jul-22	9:00	2.7	SSW
17-Jul-22	10:00	2.7	SW
17-Jul-22	11:00	2.7	SSW
17-Jul-22	12:00	1.8	ESE
17-Jul-22	13:00	2.2	ESE
17-Jul-22	14:00	1.8	ESE
17-Jul-22	15:00	1.3	ESE
17-Jul-22	16:00	1.3	SE
17-Jul-22	17:00	0.9	E
17-Jul-22	18:00	0.9	E
17-Jul-22	19:00	1.3	ESE
17-Jul-22	20:00	0.9	E
17-Jul-22	21:00	1.3	E
17-Jul-22	22:00	1.8	ESE
17-Jul-22	23:00	1.8	SW
18-Jul-22	0:00	2.2	ESE
18-Jul-22	1:00	2.2	SW
18-Jul-22	2:00	1.8	SW
18-Jul-22	3:00	1.8	SSW
18-Jul-22	4:00	1.8	SW
18-Jul-22	5:00	1.8	SW
18-Jul-22	6:00	1.8	SW
18-Jul-22	7:00	2.2	SSW
18-Jul-22	8:00	1.8	SW
18-Jul-22	9:00	2.7	SW
18-Jul-22	10:00	2.2	SSW
18-Jul-22	11:00	2.2	SW
18-Jul-22	12:00	1.8	SSW
18-Jul-22	13:00	1.3	ESE
18-Jul-22	14:00	1.8	ESE
18-Jul-22	15:00	1.8	ESE
18-Jul-22	16:00	1.3	ESE
18-Jul-22	17:00	1.3	ESE
18-Jul-22	18:00	1.3	ESE
18-Jul-22	19:00	0.4	ESE
18-Jul-22	20:00	0.9	E
18-Jul-22	21:00	0.9	ESE
18-Jul-22	22:00	1.8	SSW
18-Jul-22	23:00	1.8	SE

July 2022			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m/s	Direction
19-Jul-22	0:00	1.8	ESE
19-Jul-22	1:00	2.2	SW
19-Jul-22	2:00	1.8	SW
19-Jul-22	3:00	1.8	SW
19-Jul-22	4:00	1.8	SSW
19-Jul-22	5:00	1.8	SSW
19-Jul-22	6:00	2.2	SW
19-Jul-22	7:00	1.8	SSW
19-Jul-22	8:00	1.8	SSW
19-Jul-22	9:00	2.2	ESE
19-Jul-22	10:00	1.8	E
19-Jul-22	11:00	1.8	E
19-Jul-22	12:00	1.8	ESE
19-Jul-22	13:00	1.8	ESE
19-Jul-22	14:00	1.3	ESE
19-Jul-22	15:00	1.3	ESE
19-Jul-22	16:00	1.3	SE
19-Jul-22	17:00	0.9	ESE
19-Jul-22	18:00	0.9	ESE
19-Jul-22	19:00	0.9	ESE
19-Jul-22	20:00	0.9	ESE
19-Jul-22	21:00	1.3	ESE
19-Jul-22	22:00	0.9	SW
19-Jul-22	23:00	0.9	SE
20-Jul-22	0:00	0.9	ESE
20-Jul-22	1:00	0.9	SE
20-Jul-22	2:00	0.4	ESE
20-Jul-22	3:00	0.1	ESE
20-Jul-22	4:00	0.4	ESE
20-Jul-22	5:00	0.4	SE
20-Jul-22	6:00	0.4	ESE
20-Jul-22	7:00	0.4	SSW
20-Jul-22	8:00	0.1	ESE
20-Jul-22	9:00	0.4	SSW
20-Jul-22	10:00	0.4	SW
20-Jul-22	11:00	0.4	SSW
20-Jul-22	12:00	0.4	SSW
20-Jul-22	13:00	1.3	SSW
20-Jul-22	14:00	1.3	SW
20-Jul-22	15:00	1.3	SW
20-Jul-22	16:00	1.3	ESE
20-Jul-22	17:00	1.8	ESE
20-Jul-22	18:00	1.8	SSW
20-Jul-22	19:00	1.8	SW
20-Jul-22	20:00	0.1	ESE
20-Jul-22	21:00	0.1	ESE
20-Jul-22	22:00	0.4	ESE
20-Jul-22	23:00	0.4	ESE



APPENDIX C - WEATHERING CONDITINS DURING MONITORING PERIOD

July 2022			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m/s	Direction
21-Jul-22	0:00	0.4	SE
21-Jul-22	1:00	0.1	SE
21-Jul-22	2:00	0.4	SE
21-Jul-22	3:00	0.4	SSW
21-Jul-22	4:00	0.4	S
21-Jul-22	5:00	0.4	S
21-Jul-22	6:00	1.3	SSW
21-Jul-22	7:00	1.3	SSW
21-Jul-22	8:00	1.3	SW
21-Jul-22	9:00	1.3	SSW
21-Jul-22	10:00	1.8	SW
21-Jul-22	11:00	1.8	SSW
21-Jul-22	12:00	1.8	SW
21-Jul-22	13:00	0.9	SSW
21-Jul-22	14:00	0.4	SW
21-Jul-22	15:00	0.4	S
21-Jul-22	16:00	0.1	S
21-Jul-22	17:00	0.1	SSW
21-Jul-22	18:00	0.1	S
21-Jul-22	19:00	0.1	S
21-Jul-22	20:00	0.4	S
21-Jul-22	21:00	0.4	S
21-Jul-22	22:00	0.4	SW
21-Jul-22	23:00	0.9	WSW
22-Jul-22	0:00	0.4	ESE
22-Jul-22	1:00	0.1	NE
22-Jul-22	2:00	0.1	NE
22-Jul-22	3:00	0.1	ENE
22-Jul-22	4:00	0.4	NE
22-Jul-22	5:00	0.4	ENE
22-Jul-22	6:00	0.4	ENE
22-Jul-22	7:00	0.4	NE
22-Jul-22	8:00	0.4	ENE
22-Jul-22	9:00	0.9	E
22-Jul-22	10:00	0.9	WSW
22-Jul-22	11:00	1.3	E
22-Jul-22	12:00	1.3	E
22-Jul-22	13:00	0.9	E
22-Jul-22	14:00	0.9	ESE
22-Jul-22	15:00	0.9	ESE
22-Jul-22	16:00	0.4	ESE
22-Jul-22	17:00	0.4	SW
22-Jul-22	18:00	0.4	SE
22-Jul-22	19:00	0.4	ESE
22-Jul-22	20:00	0.4	SE
22-Jul-22	21:00	0.4	ESE
22-Jul-22	22:00	0.4	ESE
22-Jul-22	23:00	0.4	ESE

July 2022			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m/s	Direction
23-Jul-22	0:00	0.1	SE
23-Jul-22	1:00	0.4	ESE
23-Jul-22	2:00	0.1	SSW
23-Jul-22	3:00	0.1	ESE
23-Jul-22	4:00	0.1	SSW
23-Jul-22	5:00	0.4	SW
23-Jul-22	6:00	0.4	SSW
23-Jul-22	7:00	0.4	SSW
23-Jul-22	8:00	0.9	SSW
23-Jul-22	9:00	0.9	SW
23-Jul-22	10:00	1.3	SW
23-Jul-22	11:00	1.3	ESE
23-Jul-22	12:00	1.3	ESE
23-Jul-22	13:00	0.9	SSW
23-Jul-22	14:00	0.9	SW
23-Jul-22	15:00	0.4	ESE
23-Jul-22	16:00	0.4	ESE
23-Jul-22	17:00	0.4	ESE
23-Jul-22	18:00	0.4	ESE
23-Jul-22	19:00	0.9	SE
23-Jul-22	20:00	1.3	SSW
23-Jul-22	21:00	1.3	SSW
23-Jul-22	22:00	0.4	SSW
23-Jul-22	23:00	0.9	SW
24-Jul-22	0:00	0.9	WSW
24-Jul-22	1:00	0.9	SSW
24-Jul-22	2:00	0.4	SSW
24-Jul-22	3:00	0.4	SW
24-Jul-22	4:00	0.4	WSW
24-Jul-22	5:00	0.4	SW
24-Jul-22	6:00	0.0	SSW
24-Jul-22	7:00	0.4	SW
24-Jul-22	8:00	0.4	WSW
24-Jul-22	9:00	0.4	WSW
24-Jul-22	10:00	0.4	S
24-Jul-22	11:00	1.3	S
24-Jul-22	12:00	1.3	SSW
24-Jul-22	13:00	1.3	SSW
24-Jul-22	14:00	1.3	SSW
24-Jul-22	15:00	1.8	SSW
24-Jul-22	16:00	1.8	SSW
24-Jul-22	17:00	1.8	SSW
24-Jul-22	18:00	1.8	SSW
24-Jul-22	19:00	2.7	SSW
24-Jul-22	20:00	1.8	SSW
24-Jul-22	21:00	1.8	SW
24-Jul-22	22:00	2.2	WSW
24-Jul-22	23:00	2.2	WSW

APPENDIX C - WEATHERING CONDITINS DURING MONITORING PERIOD

July 2022			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m/s	Direction
25-Jul-22	0:00	2.2	WSW
25-Jul-22	1:00	1.8	WSW
25-Jul-22	2:00	1.8	WSW
25-Jul-22	3:00	1.8	WSW
25-Jul-22	4:00	2.2	WSW
25-Jul-22	5:00	2.2	WSW
25-Jul-22	6:00	1.8	WSW
25-Jul-22	7:00	1.8	WSW
25-Jul-22	8:00	1.3	SSW
25-Jul-22	9:00	1.3	WSW
25-Jul-22	10:00	1.3	SSW
25-Jul-22	11:00	1.3	SSW
25-Jul-22	12:00	1.3	SW
25-Jul-22	13:00	1.8	SW
25-Jul-22	14:00	1.8	SSW
25-Jul-22	15:00	2.2	SSW
25-Jul-22	16:00	1.8	SSW
25-Jul-22	17:00	2.2	SSW
25-Jul-22	18:00	1.8	SSW
25-Jul-22	19:00	1.8	SSW
25-Jul-22	20:00	1.8	SSW
25-Jul-22	21:00	1.3	SSW
25-Jul-22	22:00	1.8	SSW
25-Jul-22	23:00	0.4	SSW
26-Jul-22	0:00	0.4	SW
26-Jul-22	1:00	0.4	SSW
26-Jul-22	2:00	0.0	SSW
26-Jul-22	3:00	0.4	SSW
26-Jul-22	4:00	0.4	SSW
26-Jul-22	5:00	0.4	SW
26-Jul-22	6:00	0.4	WSW
26-Jul-22	7:00	1.3	WSW
26-Jul-22	8:00	1.3	WSW
26-Jul-22	9:00	1.3	WSW
26-Jul-22	10:00	1.3	W
26-Jul-22	11:00	1.8	SSW
26-Jul-22	12:00	1.8	ESE
26-Jul-22	13:00	1.8	SE
26-Jul-22	14:00	2.2	SSW
26-Jul-22	15:00	1.8	SSW
26-Jul-22	16:00	1.3	SSW
26-Jul-22	17:00	2.2	SSW
26-Jul-22	18:00	1.3	SSW
26-Jul-22	19:00	1.3	SSW
26-Jul-22	20:00	1.3	SSW
26-Jul-22	21:00	1.8	SSW
26-Jul-22	22:00	1.3	SSW
26-Jul-22	23:00	1.3	SSW

July 2022			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m/s	Direction
27-Jul-22	0:00	1.3	SSW
27-Jul-22	1:00	1.8	SSW
27-Jul-22	2:00	1.3	SW
27-Jul-22	3:00	1.3	ESE
27-Jul-22	4:00	0.9	SSW
27-Jul-22	5:00	1.3	SSW
27-Jul-22	6:00	1.8	ESE
27-Jul-22	7:00	1.8	SW
27-Jul-22	8:00	1.8	SSW
27-Jul-22	9:00	1.8	ESE
27-Jul-22	10:00	1.8	SSW
27-Jul-22	11:00	1.8	ESE
27-Jul-22	12:00	2.2	ESE
27-Jul-22	13:00	1.8	SE
27-Jul-22	14:00	1.8	ESE
27-Jul-22	15:00	1.3	SSW
27-Jul-22	16:00	0.9	SE
27-Jul-22	17:00	0.9	ESE
27-Jul-22	18:00	0.4	SSW
27-Jul-22	19:00	0.9	SSW
27-Jul-22	20:00	1.3	SSW
27-Jul-22	21:00	0.9	SSW
27-Jul-22	22:00	0.9	ESE
27-Jul-22	23:00	0.4	ESE
28-Jul-22	0:00	0.4	ESE
28-Jul-22	1:00	0.4	SSW
28-Jul-22	2:00	0.9	SSW
28-Jul-22	3:00	0.4	S
28-Jul-22	4:00	0.4	SW
28-Jul-22	5:00	0.4	WSW
28-Jul-22	6:00	0.9	WSW
28-Jul-22	7:00	0.9	WSW
28-Jul-22	8:00	1.3	WSW
28-Jul-22	9:00	1.3	SW
28-Jul-22	10:00	1.3	WSW
28-Jul-22	11:00	1.8	E
28-Jul-22	12:00	1.8	ESE
28-Jul-22	13:00	1.8	ESE
28-Jul-22	14:00	1.8	ESE
28-Jul-22	15:00	1.3	SW
28-Jul-22	16:00	0.9	SE
28-Jul-22	17:00	0.4	ESE
28-Jul-22	18:00	0.9	SE
28-Jul-22	19:00	0.9	ESE
28-Jul-22	20:00	0.9	ESE
28-Jul-22	21:00	0.4	ESE
28-Jul-22	22:00	1.3	SE
28-Jul-22	23:00	0.9	ESE

APPENDIX C - WEATHERING CONDITINS DURING MONITORING PERIOD

July 2022			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m/s	Direction
29-Jul-22	0:00	0.9	SSW
29-Jul-22	1:00	0.9	ESE
29-Jul-22	2:00	0.9	SSW
29-Jul-22	3:00	0.9	SW
29-Jul-22	4:00	0.4	SSW
29-Jul-22	5:00	0.4	SSW
29-Jul-22	6:00	0.4	SSW
29-Jul-22	7:00	0.4	SW
29-Jul-22	8:00	0.9	SW
29-Jul-22	9:00	0.4	ESE
29-Jul-22	10:00	0.9	ESE
29-Jul-22	11:00	1.3	SSW
29-Jul-22	12:00	1.3	SW
29-Jul-22	13:00	0.9	ESE
29-Jul-22	14:00	0.9	ESE
29-Jul-22	15:00	0.4	ESE
29-Jul-22	16:00	0.4	ESE
29-Jul-22	17:00	0.4	SE
29-Jul-22	18:00	0.9	SW
29-Jul-22	19:00	1.3	SSW
29-Jul-22	20:00	0.9	SW
29-Jul-22	21:00	0.9	SW
29-Jul-22	22:00	0.9	NE
29-Jul-22	23:00	0.9	ENE
30-Jul-22	0:00	0.9	NE
30-Jul-22	1:00	0.9	NE
30-Jul-22	2:00	0.9	NE
30-Jul-22	3:00	0.4	ENE
30-Jul-22	4:00	0.9	NE
30-Jul-22	5:00	0.9	ENE
30-Jul-22	6:00	1.3	NE
30-Jul-22	7:00	0.9	ENE
30-Jul-22	8:00	1.3	ENE
30-Jul-22	9:00	1.8	ENE
30-Jul-22	10:00	1.8	ENE
30-Jul-22	11:00	1.8	E
30-Jul-22	12:00	0.9	NE
30-Jul-22	13:00	1.8	SW
30-Jul-22	14:00	1.3	SW
30-Jul-22	15:00	0.9	SSW
30-Jul-22	16:00	0.4	E
30-Jul-22	17:00	0.9	ENE
30-Jul-22	18:00	0.9	NE
30-Jul-22	19:00	1.3	NE
30-Jul-22	20:00	0.9	NE
30-Jul-22	21:00	0.9	NE
30-Jul-22	22:00	1.3	NE
30-Jul-22	23:00	1.3	NNE

July 2022			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m/s	Direction
31-Jul-22	0:00	1.3	NNE
31-Jul-22	1:00	1.3	NE
31-Jul-22	2:00	0.9	S
31-Jul-22	3:00	1.8	NE
31-Jul-22	4:00	0.4	WSW
31-Jul-22	5:00	0.4	SW
31-Jul-22	6:00	0.4	E
31-Jul-22	7:00	0.1	NE
31-Jul-22	8:00	0.4	SW
31-Jul-22	9:00	0.4	ENE
31-Jul-22	10:00	0.4	NE
31-Jul-22	11:00	0.4	NE
31-Jul-22	12:00	1.3	NE
31-Jul-22	13:00	1.3	NE
31-Jul-22	14:00	1.3	ENE
31-Jul-22	15:00	1.3	WSW
31-Jul-22	16:00	1.8	WSW
31-Jul-22	17:00	1.8	SW
31-Jul-22	18:00	1.8	WSW
31-Jul-22	19:00	2.7	WSW
31-Jul-22	20:00	3.1	SW
31-Jul-22	21:00	2.7	WSW
31-Jul-22	22:00	2.7	W
31-Jul-22	23:00	2.2	W

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**APPENDIX D  
ENVIRONMENTAL MONITORING  
SCHEDULES**

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**Contract No. KLN/2016/04**  
**Environmental Monitoring Works for Contract No. KL/2015/02**  
**Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area**  
**Impact Air and Noise Monitoring Schedule for July 2022**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					<b>1-Jul</b>	2-Jul
<b>3-Jul</b>	<b>4-Jul</b>	5-Jul	6-Jul	7-Jul	8-Jul	9-Jul
	24-hr TSP [AM2(A)]	1-hr TSP x 3 [AM2] Noise [M3(A), M4 & M5(C)]				24-hr TSP [AM2(A)]
<b>10-Jul</b>	11-Jul	12-Jul	13-Jul	14-Jul	15-Jul	16-Jul
	1-hr TSP x 3 [AM2] Noise [M3(A), M4 & M5(C)]			24-hr TSP [AM2(A)]	1-hr TSP x 3 [AM2]	
<b>17-Jul</b>	18-Jul	19-Jul	20-Jul	21-Jul	22-Jul	23-Jul
			24-hr TSP [AM2(A)]	1-hr TSP x 3 [AM2] Noise [M3(A), M4 & M5(C)]		
<b>24-Jul</b>	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul	30-Jul
		24-hr TSP [AM2(A)]	1-hr TSP x 3 [AM2] Noise [M3(A), M4 & M5(C)]			
<b>31-Jul</b>						

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(A) - The Bridge connecting The Latitude  
 M4 - Lee Kau Yan Memorial School  
 M5(C) - Mercy Grace's Home

**Contract No. KLN/2016/04**  
**Environmental Monitoring Works for Contract No. KL/2015/02**  
**Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area**  
**Tentative Impact Air and Noise Monitoring Schedule for August 2022**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug	6-Aug
	24-hr TSP [AM2(A)]	1-hr TSP x 3 [AM2] Noise [M3(A), M4 & M5(C)]				24-hr TSP [AM2(A)]
7-Aug	8-Aug	9-Aug	10-Aug	11-Aug	12-Aug	13-Aug
	1-hr TSP x 3 [AM2] Noise [M3(A), M4 & M5(C)]			24-hr TSP [AM2(A)]	1-hr TSP x 3 [AM2]	
14-Aug	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug	20-Aug
			24-hr TSP [AM2(A)]	1-hr TSP x 3 [AM2] Noise [M3(A), M4 & M5(C)]		
21-Aug	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug	27-Aug
		24-hr TSP [AM2(A)]	1-hr TSP x 3 [AM2] Noise [M3(A), M4 & M5(C)]			
28-Aug	29-Aug	30-Aug	31-Aug			
	24-hr TSP [AM2(A)]	1-hr TSP x 3 [AM2] Noise [M3(A), 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(A) - The Bridge connecting The Latitude  
M4 - Lee Kau Yan Memorial School  
M5(C) - Mercy Grace's Home

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

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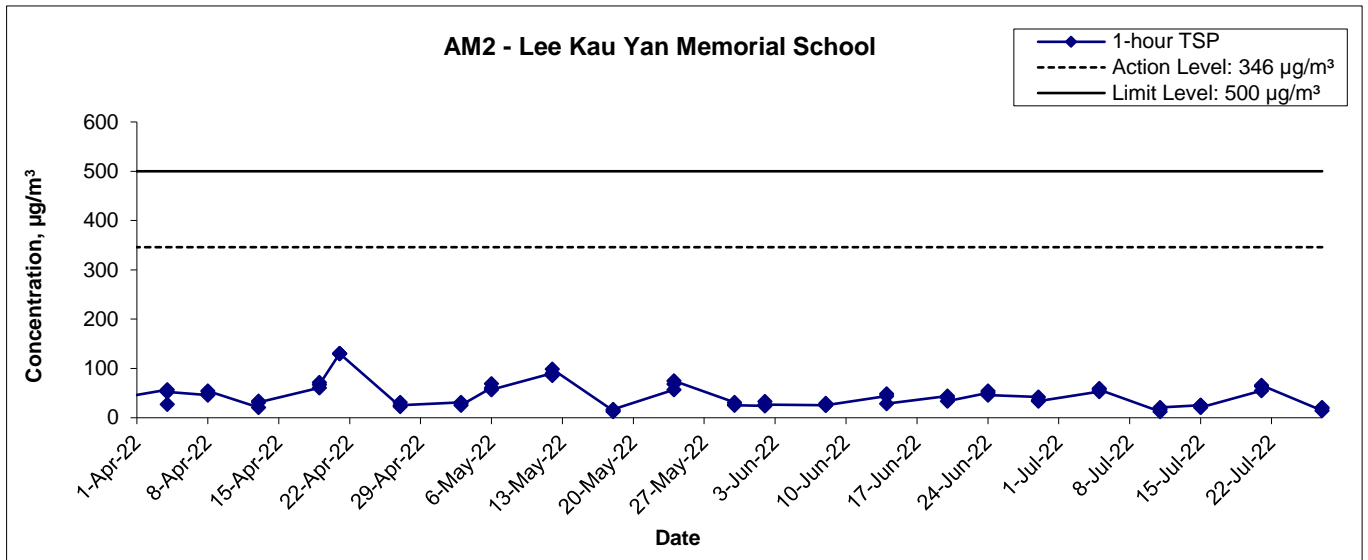
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## Appendix E - 1-hour TSP Monitoring Results

Location AM2 - Lee Kau Yan Memorial School			
Date	Time	Weather	Particulate Concentration ( $\mu\text{g}/\text{m}^3$ )
5-Jul-22	13:15	Cloudy	52.8
5-Jul-22	14:15	Cloudy	59.4
5-Jul-22	15:15	Cloudy	57.2
11-Jul-22	13:00	Sunny	12.6
11-Jul-22	14:00	Sunny	16.8
11-Jul-22	15:00	Sunny	21.0
15-Jul-22	9:00	Sunny	25.2
15-Jul-22	10:00	Sunny	25.2
15-Jul-22	11:00	Sunny	21.0
21-Jul-22	9:00	Sunny	55.0
21-Jul-22	10:00	Sunny	63.8
21-Jul-22	11:00	Sunny	66.0
27-Jul-22	13:00	Sunny	14.7
27-Jul-22	14:00	Sunny	18.9
27-Jul-22	15:00	Sunny	21.0
		Average	35.4
		Maximum	66.0
		Minimum	12.6



### 1-hr TSP Concentration Levels



Title Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S	Project No. MA16043	
	Date Jul 22	Appendix E	

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

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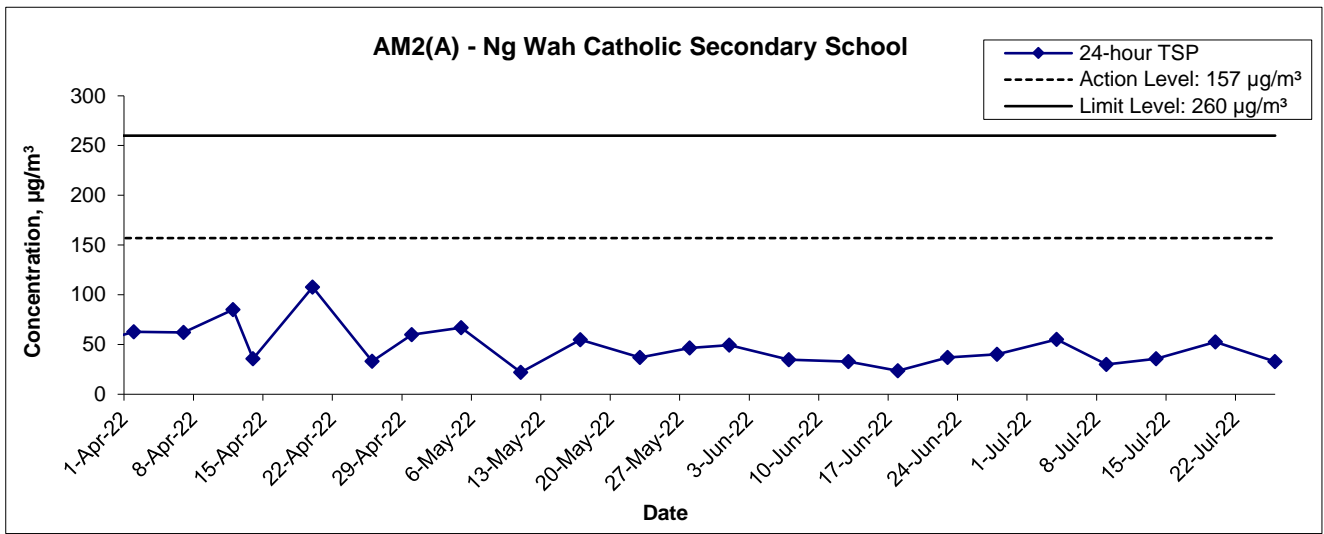
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## Appendix F - 24-hour TSP Monitoring Results

### Location AM2(A) - Ng Wah Catholic Secondary School

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (hrs.)	Flow Rate (m <sup>3</sup> /min.)		Av. Flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Conc. (µg/m <sup>3</sup> )
				Initial	Final		Initial	Final		Initial	Final			
4-Jul-22	Cloudy	301.9	753.4	3.3704	3.4663	0.0959	9394.8	9418.8	24.0	1.21	1.21	1.21	1740.1	55.1
9-Jul-22	Sunny	303.2	755.6	3.3819	3.4346	0.0526	9418.8	9442.8	24.0	1.22	1.22	1.22	1750.7	30.1
14-Jul-22	Sunny	303.4	755.5	3.3781	3.4406	0.0625	9442.8	9466.8	24.0	1.22	1.22	1.22	1750.2	35.7
20-Jul-22	Sunny	303.9	759.2	3.3190	3.4109	0.0919	9466.8	9490.8	24.0	1.22	1.22	1.22	1752.4	52.5
26-Jul-22	Sunny	304.1	756.5	3.3110	3.3682	0.0573	9490.8	9514.8	24.0	1.21	1.22	1.21	1750.3	32.7
													Min	30.1
													Max	55.1
													Average	41.2

### 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	CINOTECH
	Date	Jul 22	Appendix	F	

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

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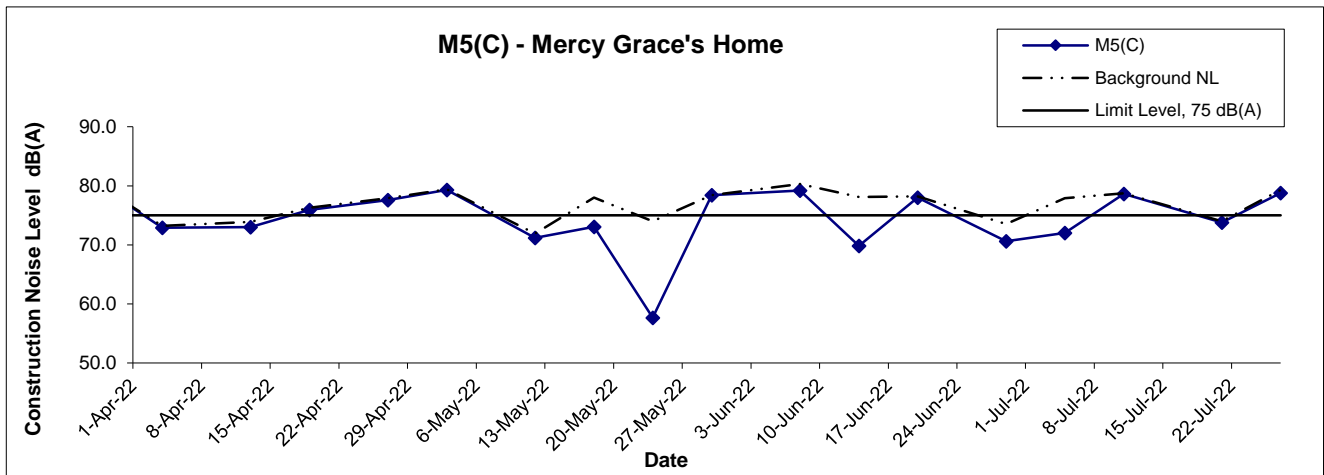
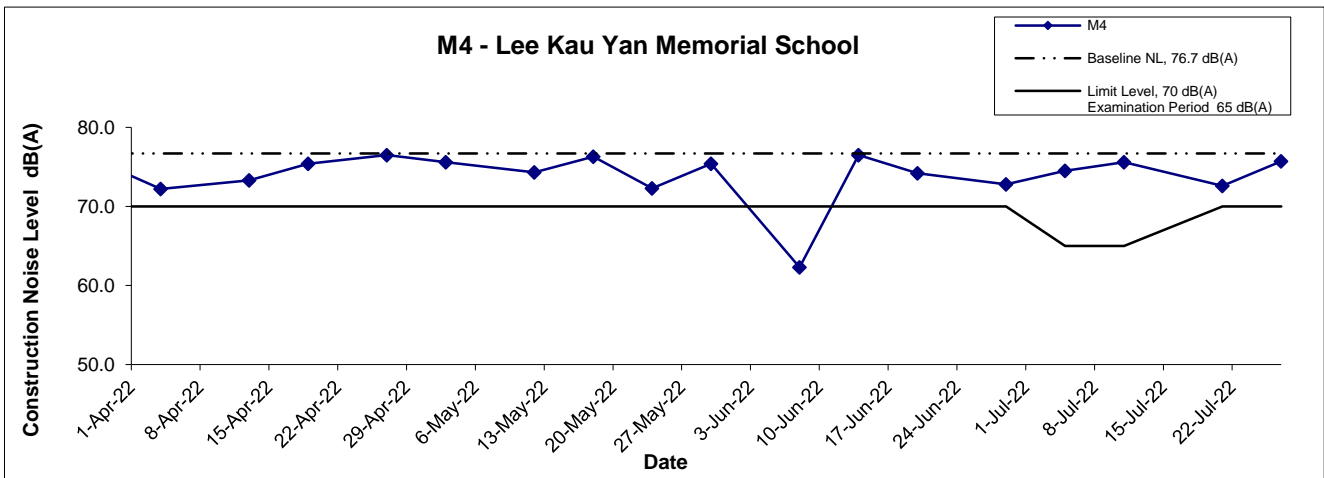
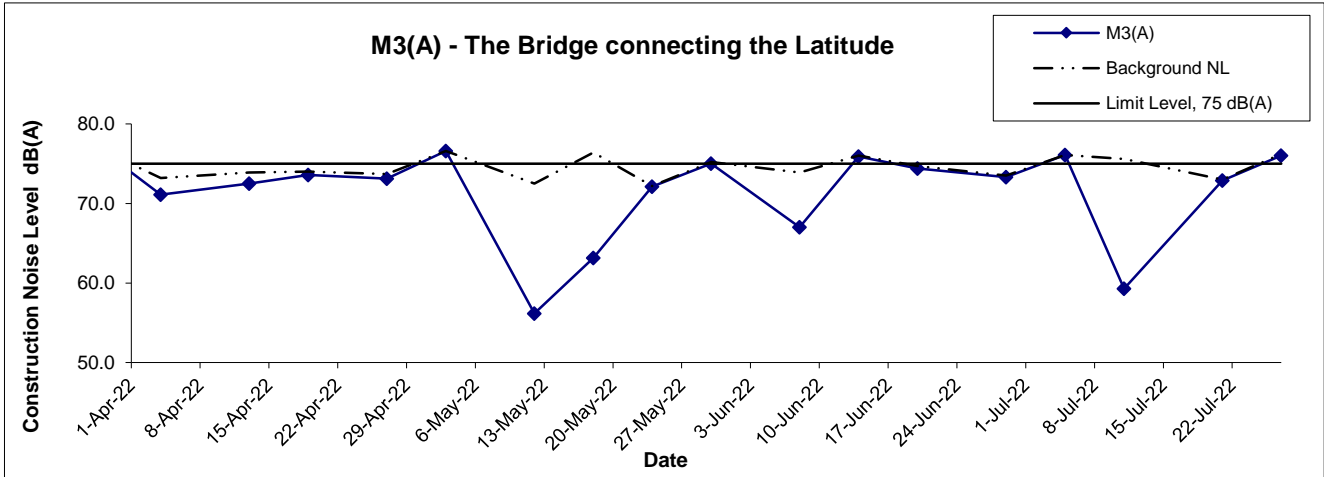
## Appendix G - Noise Monitoring Results

Location M3(A) - The Bridge connecting The Latitude									
Date	Time	Weather	Unit: dB (A) (30-min)						
			Measured Noise Level			Background Noise	Construction Noise Level		
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>	L <sub>eq</sub>		
5-Jul-22	11:50	Cloudy	76.1	77.8	73.8	76.1	76.1	Measured ≤ Background	
11-Jul-22	11:28	Sunny	75.7	77.5	73.3	75.6	59.3		
21-Jul-22	11:30	Sunny	72.9	74.7	70.5	73.0	72.9	Measured ≤ Background	
27-Jul-22	11:30	Sunny	76.0	77.9	73.3	76.2	76.0	Measured ≤ Background	

Location M4 - Lee Kau Yan Memorial School									
Date	Time	Weather	Unit: dB (A) (30-min)						
			Measured Noise Level			Baseline Level	Construction Noise Level		
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>	L <sub>eq</sub>		
5-Jul-22	14:30	Cloudy	74.5	76.6	62.4	76.7	74.5	Measured ≤ Baseline	
11-Jul-22	15:05	Sunny	75.6	76.9	74.0		75.6	Measured ≤ Baseline	
21-Jul-22	10:00	Sunny	72.6	74.4	70.3		72.6	Measured ≤ Baseline	
27-Jul-22	15:41	Sunny	75.7	77.1	74.1		75.7	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 <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>	L <sub>eq</sub>		
5-Jul-22	15:45	Cloudy	78.9	81.1	75.2	77.9	72.0		
11-Jul-22	16:05	Sunny	78.6	80.9	75.1	78.7	78.6	Measured ≤ Background	
21-Jul-22	13:00	Sunny	73.8	76.2	71.4	74.0	73.8	Measured ≤ Background	
27-Jul-22	15:41	Sunny	78.8	81.1	75.0	79.3	78.8	Measured ≤ Background	

## Noise Levels



Remarks: <sup>[1]</sup> 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	Project No.	MA16043	CINOTECH
	Date	Jul 2022	Appendix	G	

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**APPENDIX H**  
**SUMMARY OF EXCEEDANCE**

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## **Appendix H – Summary of Exceedance**

**Exceedance Record for Contract No. KL/2015/02**

**Reporting Month: July 2022**

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

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

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

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**APPENDIX I  
SITE AUDIT SUMMARY**

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**Contract No. KLN/2016/04**


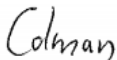
**Environmental Monitoring Works for Contract No. KL/2015/02**

**Kai Tak Development - Stage 5A Infrastructure at Former North Apron Area**

**Weekly Site Inspection Record Summary  
Inspection Information**

Checklist Reference Number	220705
Date	5 July 2022 (Tuesday)
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b><i>B. Water Quality</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>C. Air Quality</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>D. Noise</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>E. Waste / Chemical Management</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>F. Visual and Landscape</i></b>	
	• No environmental deficiency was identified during site inspection	
	<b><i>G. Permits /Licences</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>H. Others</i></b>	
	No follow-up items are required from the previous site inspection (ref no.: 220628).	

	Name	Signature	Date
Recorded by	Echo Hung		5 July 2022
Checked by	Colman Wong		6 July 2022

**Contract No. KLN/2016/04**


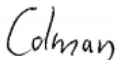
**Environmental Monitoring Works for Contract No. KL/2015/02**

**Kai Tak Development - Stage 5A Infrastructure at Former North Apron Area**

**Weekly Site Inspection Record Summary  
Inspection Information**

Checklist Reference Number	220713
Date	13 July 2022 (Wednesday)
Time	9:30 – 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b><i>B. Water Quality</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>C. Air Quality</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>D. Noise</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>E. Waste / Chemical Management</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>F. Visual and Landscape</i></b>	
	• No environmental deficiency was identified during site inspection	
	<b><i>G. Permits /Licences</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>H. Others</i></b>	
	No follow-up items are required from the previous site inspection (ref no.: 220705).	

	Name	Signature	Date
Recorded by	Echo Hung		13 July 2022
Checked by	Colman Wong		14 July 2022

**Contract No. KLN/2016/04**


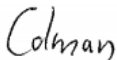
**Environmental Monitoring Works for Contract No. KL/2015/02**

**Kai Tak Development - Stage 5A Infrastructure at Former North Apron Area**

**Weekly Site Inspection Record Summary  
Inspection Information**

Checklist Reference Number	220719
Date	19 July 2022 (Tuesday)
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b><i>B. Water Quality</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>C. Air Quality</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>D. Noise</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>E. Waste / Chemical Management</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>F. Visual and Landscape</i></b>	
	• No environmental deficiency was identified during site inspection	
	<b><i>G. Permits /Licences</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>H. Others</i></b>	
	No follow-up items are required from the previous site inspection (ref no.: 220713).	

	Name	Signature	Date
Recorded by	Echo Hung		19 July 2022
Checked by	Colman Wong		20 July 2022

**Contract No. KLN/2016/04**


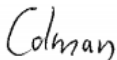
**Environmental Monitoring Works for Contract No. KL/2015/02**

**Kai Tak Development - Stage 5A Infrastructure at Former North Apron Area**

**Weekly Site Inspection Record Summary  
Inspection Information**

Checklist Reference Number	220726
Date	26 July 2022 (Tuesday)
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b><i>B. Water Quality</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>C. Air Quality</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>D. Noise</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>E. Waste / Chemical Management</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>F. Visual and Landscape</i></b>	
	• No environmental deficiency was identified during site inspection	
	<b><i>G. Permits /Licences</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>H. Others</i></b>	
	No follow-up items are required from the previous site inspection (ref no.: 220719).	

	Name	Signature	Date
Recorded by	Echo Hung		26 July 2022
Checked by	Colman Wong		27 July 2022

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**APPENDIX J**  
**EVENT ACTION PLANS**

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## Appendix J - Event Action Plans

### Event/Action Plan for Air Quality

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



## Appendix J - Event Action Plans

	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	<ol style="list-style-type: none"> <li>1. Notify IEC, ER, Contractor and EPD;</li> <li>2. Repeat measurement to confirm findings;</li> <li>3. Carry out analysis of Contractor's working procedures to identify source and investigate the causes of exceedance;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Arrange meeting with IEC, ER and Contractor to discuss the remedial actions to be taken;</li> <li>6. Assess effectiveness of Contractor's remedial actions and keep EPD, IEC and ER informed of the results;</li> <li>7. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Supervise implementation of remedial measures;</li> <li>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.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Discuss with ET, ER and IEC on proper remedial actions;</li> <li>3. Submit proposals for remedial actions to IEC within three working days of notification;</li> <li>4. Implement the agreed proposals;</li> <li>5. Submit further remedial actions if problem still not under control;</li> <li>6. Stop the relevant portion of works as instructed by the ER until the exceedance is abated.</li> </ol>

## Appendix J - Event Action Plans

### Event/Action Plan for Construction Noise

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

## Appendix J - Event Action Plans

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

### Event/Action Plan for Landscape and Visual

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

## Appendix J - Event Action Plans

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

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

EIA Ref.	Recommended Mitigation Measures	Implementation Status
<b><i>Construction Air Quality</i></b>		
S6.5	8 times daily watering of the work site with active dust emitting activities.	^
S6.8	<p>Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.</p> <ul style="list-style-type: none"> <li>• Stockpiling site(s) should be lined with impermeable sheeting and banded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.</li> <li>• 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.</li> <li>• 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.</li> <li>• The tarpaulin should be properly secured and should extend at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation.</li> <li>• The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways inside the site. Onsite unpaved roads should be compacted and kept free of loose materials.</li> <li>• Vehicle washing facilities should be provided at every vehicle exit point.</li> <li>• 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 hardcore.</li> <li>• Every main haul road should be sealed with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.</li> <li>• 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.</li> <li>• Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.</li> </ul>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

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

<p>S6.8</p>	<ul style="list-style-type: none"> <li>• <u>DWFI compound for JVBC:</u> A DWFI compound is proposed at the downstream of JVC to contain pollution in drainage systems entering the KTAC and KTTS by interception facilities until the ultimate removal of the pollution sources. Tidal barriers and desilting facilities will form part of the compounds to prevent any accumulation of sediment within the downstream section of JVBC and hence fully mitigate the potential odour emissions from the headspace of JVBC near the existing discharge locations. The odour generating operations within the proposed desilting compound will be fully enclosed and the odorous air will be collected and treated by high efficiency deodorizers before discharge to the atmosphere.</li> <li>• <u>Desilting compound for KTN:</u> Two desilting compounds are proposed for KTN (at Site 1D6 and Site 1P1) to contain pollution in drainage systems entering the KTAC and KTTS by interception facilities until the ultimate removal of the pollution sources. Tidal barriers and desilting facilities will form part of the compounds to prevent any accumulation of sediment within the downstream section of KTN and hence fully mitigate the potential odour emissions from the headspace of KTN near the existing discharge locations. The odour generating operations within the proposed desilting compound will be fully enclosed and the odorous air will be collected and treated by high efficiency deodorizers before discharge to the atmosphere.</li> <li>• <u>Decking or reconstruction of KTN within apron area:</u> It is proposed to deck the KTN or reconstruct the KTN within the former Apron area into Kai Tak River from the south of Road D1 to the north of Road D2 along the existing alignment of KTN. The Kai Tak River will compose of a number of channels flowing with nonodorous fresh water and THEES effluent. The channel flowing with THEES effluent will be designed with the width of water surface of not more than 16m.</li> <li>• <u>Localised maintenance dredging:</u> Localised maintenance dredging should be conducted to provide water depth of not less than 3.5m over the whole of KTAC and KTTS. With reference to the water depth data recorded during the odour survey, only some of the areas in the northern part of KTAC (i.e. to the north of taxiway bridge) including the area near the northern edge of KTAC, the area near western bank of KTAC, and the area near the JVC discharge have water depths shallower than 3.5m. The area involved would be about 40% of the northern KTAC and the dredging depth required would be from about 2.7m to less than 1m. The maintenance dredging to be carried out prior to the occupation of any new development in the immediate vicinity of KTAC to avoid potential localized odour impacts at the future ASRs during the maintenance</li> </ul>	<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>
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## Appendix K – Summary of Implementation Schedule of Mitigation Measures for Construction Phase

	<p>dredging operation.</p> <ul style="list-style-type: none"> <li>• <u>Improvement of water circulation in KTAC and KTTS:</u> 600m gap opening at the northern part of the former Kai Tak runway, the water circulation in KTAC and KTTS would be substantially improved. Together with the improvement in water circulation, the DO level in KTAC and KTTS would also be increased.</li> <li>• <u>In-situ sediment treatment by bioremediation:</u> Bioremediation would be applied to the entire KTAC and KTTS.</li> </ul>	N/A
<b>Construction Noise</b>		
S7.8	Use of quiet PME, movable barriers barrier for Asphalt Paver, Breaker, Excavator and Hand-held breaker and full enclosure for Air Compressor, Bar Bender, Concrete Pump, Generator and Water Pump.	^
S7.9	<p>Good Site Practice:</p> <ul style="list-style-type: none"> <li>• Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.</li> <li>• Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program.</li> <li>• Mobile plant, if any, should be sited as far away from NSRs as possible.</li> <li>• 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.</li> <li>• 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.</li> <li>• Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.</li> </ul>	^ ^ ^ ^ ^
S7.9	Scheduling of Construction Works during School Examination Period	^
S7.8	(i) Provision of low noise surfacing in a section of Road L2; and	N/A
	(ii) Provision of structural fins	N/A
S7.8	(i) Avoid the sensitive façade of class room facing Road L2 and L4; and	N/A
	(ii) Provision of low noise surfacing in a section of Road L2 & L4	N/A

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

S7.8	(i) Provision of low noise surfacing in a section of Road L4 before occupation of Site 111; and (ii) Setback of building about 5m from site boundary.	N/A N/A
S7.8	Setback of building about 35m to the northwest direction at 1L3 and 5m at Site 1L2.	N/A
S7.8	(i) avoid any sensitive façades with openable window facing the existing Kowloon City Road network; and Avoid the sensitive façade of class room facing Road L2 and L4; and (ii) for the sensitive facades facing the To Kwa Wan direction, either setback the facades by about 5m to the northeast direction or do not provide the facades with openable window.	N/A N/A
S7.8	(i) avoid any sensitive facades with openable window facing the existing To Kwa Wan Road or (ii) provision of 17.5m high noise tolerant building fronting To Kwa Wan Road and restrict the height of the residential block(s) located at less than 55m away from To Kwa Wan Road to no more than 25m above ground	N/A N/A
S7.8	(i) avoid any sensitive facades with openable window facing the slip road connecting Prince Edward Road East and San Po Kong or other alternative mitigation measures and at-source mitigation measures for the surrounding new local roads to minimise the potential traffic noise impacts from the slip road	^
S7.8	All the ventilation fans installed in the below will be provided with silencers or acoustics treatment. (i) SPS (ii) ESS (iii) Tunnel Ventilation Shaft (iv) EFTS depot	N/A N/A N/A N/A
S7.8	Installation of retractable roof or other equivalent measures	N/A
<b>Construction Water Quality</b>		
S8.8	The following mitigation measures are proposed to be incorporated in the design of the SPS at KTD, including: <ul style="list-style-type: none"> <li>Dual power supply or emergency generator should be provided at all the SPSs to secure electrical power supply;</li> <li>Standby pumps should be provided at all SPSs to ensure smooth operation of the SPS during maintenance of the duty pumps;</li> <li>An alarm should be installed to signal emergency high water level in the wet well at all SPSs; and</li> <li>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</li> </ul>	N/A N/A N/A N/A

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

S8.8	<p><b>Construction Phase</b></p> <p><u>Marine-based Construction</u></p> <p><i>Capital and Maintenance Dredging for Cruise Terminal</i></p> <p>Mitigation measures for construction of the proposed cruise terminal should follow those recommended in the approved EIA for CT Dredging.</p>	N/A
S8.8	<p><i>Fireboat Berth, Runway Opening and Road T2</i></p> <p>Silt curtains should be deployed around the close grab dredger to minimize release of sediment and other contaminants for any dredging and filling activities in open water.</p>	N/A
S8.8	<p>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<sup>3</sup> per day using one grab dredger.</p>	N/A
S8.8	<p>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<sup>3</sup> per day using one grab dredger.</p>	N/A
8.8	<p>Dredging for Road T2 should be conducted at a maximum rate of 8,000m<sup>3</sup> per day (using four grab dredgers) whereas the sand filling should be conducted at a maximum rate of 2,000m<sup>3</sup> per day (using two grab dredgers).</p>	N/A
8.8	<p>Silt screens shall be applied to seawater intakes at WSD seawater intake.</p>	N/A

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

S8.8	<p><u>Land-based Construction</u></p> <p><i>Construction Runoff</i></p> <p>Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include:</p> <ul style="list-style-type: none"> <li>• use of sediment traps</li> <li>• adequate maintenance of drainage systems to prevent flooding and overflow</li> </ul>	<p style="text-align: center;">^</p> <p style="text-align: center;">^</p>
S8.8	<p>Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.</p>	<p style="text-align: center;">^</p>
S8.8	<p>Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.</p>	<p style="text-align: center;">^</p>
S8.8	<p>Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m<sup>3</sup> capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.</p>	<p style="text-align: center;">^</p>
S8.8	<p>Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m<sup>3</sup> should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.</p>	<p style="text-align: center;">^</p>
S8.8	<p>Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.</p>	<p style="text-align: center;">^</p>
S8.8	<p>Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarized in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty</p>	<p style="text-align: center;">^</p>

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

	surface runoff during storm events.	
S8.8	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	N/A(1)
S8.8	All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	^
S8.8	<i>Drainage</i>  It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea	^
S8.8	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	^
S8.8	All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour WCZ.	^
S8.8	<i>Sewage Effluent</i>  Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	^

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

S8.8	<i>Stormwater Discharges</i>  Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes	^
S8.8	<i>Debris and Litter</i>  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	<i>Construction Works at or in Close Proximity of Storm Culvert or Seafront</i>  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
<b><i>Construction Waste Management</i></b>		
S9.5	<p>Good Site Practices</p> <p>It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. Recommendations for good site practices during the dredging activities include:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Training of site personnel in proper waste management and chemical waste handling procedures.</li> <li>• Provision of sufficient waste disposal points and regular collection for disposal.</li> <li>• Appropriate measure to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.</li> <li>• A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).</li> </ul>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
S9.5	<p>Waste Reduction Measures</p> <p>Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> <li>• Sort C&amp;D waste from demolition of the remaining structures to recover recyclable portions such as metals</li> <li>• 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</li> <li>• 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</li> <li>• Any unused chemicals or those with remaining functional capacity should be recycled</li> <li>• Proper storage and site practices to minimise the potential for damage or contamination of construction materials</li> </ul>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

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

S9.5	<p>Dredged Marine Sediment</p> <p>The basic requirements and procedures for dredged mud disposal are specified under the ETWB TCW No. 34/2002. The management of the dredging, use and disposal of marine mud is monitored by the MFC, while the licensing of marine dumping is required under the Dumping at Sea Ordinance and is the responsibility of the Director of Environmental Protection (DEP)</p>	N/A
S9.5	<p>The dredged marine sediments would be loaded onto barges and transported to the designated disposal sites allocated by the MFC depending on their level of contamination. Sediment classified as Category L would be suitable for Type 1 - Open Sea Disposal. Contaminated sediment would require either Type 1 – Open Sea Disposal (Dedicated Sites), Type 2 - Confined Marine Disposal, or Type 3 – Special Treatment / Disposal and must be dredged and transported with great care in accordance with ETWB TCW No. 34/2002. Subject to the final allocation of the disposal sites by MFC, the dredged contaminated sediment must be effectively isolated from the environment and disposed properly at the designated disposal site</p>	N/A
S9.5	<p>It will be the responsibility of the contractor to satisfy the appropriate authorities that the contamination levels of the marine sediment to be dredged have been analysed and recorded. According to the ETWB TCW No. 34/2002, this will involve the submission of a formal Sediment Quality Report to the DEP, prior to the dredging contract being tendered. The contractor for the dredging works should apply for allocation of marine disposal sites and all necessary permits from relevant authorities for the disposal of dredged sediment. During transportation and disposal of the dredged marine sediments requiring Type 1, Type 2, or Type 3 disposal, the following measures should be taken to minimise potential impacts on water quality:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• 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</li> <li>• 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</li> </ul>	<p>N/A</p> <p>N/A</p> <p>N/A</p>
S9.5	<p>Construction and Demolition Material</p> <p>Mitigation measures and good site practices should be incorporated into contract document to control potential environmental impact from handling and transportation of C&amp;D material. The mitigation measures include:</p> <ul style="list-style-type: none"> <li>• Where it is unavoidable to have transient stockpiles of C&amp;D material within the Project work site pending collection for disposal, the</li> </ul>	^



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

	<p>transient stockpiles should be located away from waterfront or storm drains as far as possible</p> <ul style="list-style-type: none"> <li>• Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric</li> <li>• Skip hoist for material transport should be totally enclosed by impervious sheeting</li> <li>• Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site</li> <li>• 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</li> <li>• 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</li> <li>• All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet</li> <li>• The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading</li> </ul> <p>When delivering inert C&amp;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&amp;D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 “Trip Ticket System for Disposal of Construction and Demolition Materials” should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.</p>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
S9.5	<p>Chemical Waste</p> <p>After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the <i>Waste Disposal (Chemical Waste) (General) Regulation</i></p>	<p>^</p>

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

S9.5	<p>General Refuse</p> <p>General refuse should be stored in enclosed bins or compaction units separate from C&amp;D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&amp;D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem</p>	^
<b><i>Construction Landscape and Visual</i></b>		
S13.9	<p>CM1 All existing trees should be carefully protected during construction.</p> <p>CM2 Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work.</p> <p>CM3 Control of night-time lighting.</p> <p>CM4 Erection of decorative screen hoarding.</p>	<p>^</p> <p>^</p> <p>N/A(1)</p> <p>^</p>

### 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

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

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**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.	<p>In accordance with the information gathered in the investigation, construction activities were conducted with proper mitigation measures to minimize the dust impact arise from the construction site to the vicinity of this Project.</p> <p>Regular water spraying was provided to haul roads and unpaved areas within the site areas to reduce the dust impact arise from the construction site to the vicinity of this Project. The Contractor had also ensured vehicles and plants were wheel washed to be cleaned of mud and debris before leaving the construction site area. Therefore, the complaint is considered as non-project related.</p> <p>The following recommendations were made to further enhance the mitigation measures:</p> <ul style="list-style-type: none"> <li>● 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;</li> <li>● Frequent checking and repair the gaps or broken tarpaulin sheets; and</li> <li>● To provide a hard-surfaced road between any cleaning facility and the public Road</li> </ul>	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**

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

**Remarks:** No warning/summon and prosecution was received in the reporting month.

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**APPENDIX M  
SUMMARY OF WASTE GENERATION  
AND DISPOSAL RECORDS**

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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 2022**

As at 1 Aug 2022

Month	Quantities of Inert C & D Materials Generated Monthly						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 <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
Jan	0	0	0	0	0	0	0	0	0	0	0.014
Feb	0	0	0	0	0	0	0	0	0	0	0
Mar	0	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0	0.007
May	0	0	0	0	0	0	0	0	0	0	0.007
June	0	0	0	0	0	0	0	0	0	0	0.007
Sub-total	68.229	0	0	0.406	68.229	0	0	0	0	0	2.751
July	0	0	0	0	0	0	0	0	0	0	0.014
Aug											
Sept											
Oct											
Nov											
Dec											
Total	68.229	0	0	0.406	68.229	0	0	0	0	0	2.765

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 <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )	
67	0	0	1	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 forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,00 m<sup>3</sup>. (PS Clause 25.02A(7) refers).

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**APPENDIX N  
CONSTRUCTION PROGRAMME**

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KL/2015/02  
Construction Programme

Works	Commence	Finish	2016				2017				2018				2019				2020				2021				2022				2023													
			9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2
Subways Construction	Dec-16	Mar-23	[Blue bar spanning from Dec-16 to Mar-23]																																									
Road Works (D1 and L7)	Feb-19	Mar-22	[Blue bar spanning from Feb-19 to Mar-22]																																									
Landscape	Mar-21	Sep-22	[Blue bar spanning from Mar-21 to Sep-22]																																									

# FUGRO TECHNICAL SERVICES LIMITED

Fugro Development Centre,  
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## Appendix C

### Monthly EM&A Report For

Contract No. ED/2018/01

**Kai Tak Development – Stage 4 infrastructure at the former runway and south apron**

**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**

July 2022

(Version 1.2)

Certified By: \_\_\_\_\_



(Environmental Team Leader)

Ref.: CEDKTDS4EM00\_0\_0242L.22

12 August 2022

AECOM Asia Company Limited  
12/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 July 2022**

Reference is made to the Environmental Team's submission of the Monthly EM&A Report for July 2022 (Version 1.2) certified by the ET Leader and provided to us via email on 11 August 2022.

Please be informed that we have no adverse comment on the captioned submission. We hereby verify the captioned submission in accordance with Condition 3.3 of EP-337/2009 and Condition 3.2 of EP-445/2013/B.

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



Y H Hui

Independent Environmental Checker

c.c.	CEDD	Attn.: Mr. Alex Wong	Fax: 2739 0076
	Ka Shing	Attn.: Mr. Chan Pang	By email
	Penta-Ocean	Attn.: Mr. Daniel Ho	Fax: 2572 4080

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## EXECUTIVE SUMMARY

This is the 31<sup>st</sup> Monthly Environmental Monitoring & Audit (EM&A) report which summaries the findings of the EM&A Programme during the reporting period from 1 to 31 July 2022.

### **Breaches of Action and Limit Levels**

- 1) 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 2) 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 3) Construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 4) 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**

- 5) 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 complaint received	Date of complaint	Description of complaint	Investigation / Recommendations / Action take	Close-out date / Status
No complaint	N/A	N/A	N/A	N/A

Date of complaint received	Date of complaint	Description of complaint	Investigation / Recommendations / Action take	Close-out date / Status
was received in the reporting month.				

**Notifications of summons and successful prosecutions**

- 6) 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**

- 7) There was no reporting change in the reporting month.

### **Key construction works in the reporting month**

8) Major construction activities undertaken during the reporting month included:

- North Approach Ramp – Construction of utilities trough
- Bridge D3 – Construction of Bridge Deck and abutments
- North Depressed Road – Construction of wall & top slab
- Underpass – Construction of walls and roof slab
- South Approach Ramp – Construction of Permanent Structure
- District Cooling System seawater intake box culvert - reinstatement of the seawall and backfilling works
- Lift 3 – Modification works
- Lift 4 – Construction of linking platform, Installation of glass
- South Depressed Road – construction of permanent works
- Rising Main and Water Pipe – Laying of sewage
- Landscaped Deck – Construction of pile caps and installation of columns, construction of Landscaped Deck
- Transformer Room - Construction of permanent structure
- Shing Kai Road – Modification works, laying of storm water drainage pipes
- Lift 1 & 2 – Installation of ELS system
- CLP substation – Construction of wall & intermediate slab, permanent structure
- Noise Barrier – Remaining works, Bus lay-by construction
- Seawater Intake Box Culvert of Saltwater Pumping Station –Installation of sheetpiles and ELS system

### **Future key issues**

9) 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
North Approach Ramp – Construction of utilities trough	Noise and Air Quality, Chemical and Waste Management
Bridge D3 – Construction of Bridge Deck and abutments	Noise and Air Quality, Landscape and Visual
North Depressed Road – Construction of walls & top slab	Noise and Air Quality, Chemical and Waste Management
Underpass – Construction of walls and roof slab	Noise and Air Quality, Chemical and Waste Management
South Approach Ramp – Construction of Permanent Structure	Noise and Air Quality, Chemical and Waste Management
District Cooling System seawater intake box culvert –	Noise, Air and Water Quality

Future key issues in the coming month	Potential impact
reinstatement of the seawall and backfilling works	
Lift 3 – Modification works	Noise and Air Quality, Chemical and Waste Management
Lift 4 – Construction of linking platform, Installation of glass	Noise and Air Quality, Chemical and Waste Management
South Depressed Road – construction of permanent works	Noise and Air Quality, Chemical and Waste Management
Rising Main and Water Pipe – Laying of sewage	Noise, Air and Water Quality
Landscaped Deck – Construction of pile caps and installation of columns	Noise, Air and Water Quality
Transformer Room – Construction of permanent structure	Noise, Air and Water Quality
Shing Kai Road – Modification works, laying of storm water drainage pipes	Noise, Air and Water Quality
Lift 1 & 2 – Installation of ELS system	Noise and Air Quality, Chemical and Waste Management
CLP substation – Construction of wall & intermediate slab, permeant struction	Noise, Air and Water Quality
Noise Barrier – Remaining works, Bus lay-by construction	Noise, Air and Water Quality
Seawater Intake Box Culvert of Saltwater Pumping Station – Installation of sheetpiles and ELS system	Noise, Air and Water 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 and Variation to the EP (VEP) No. EP-445/2013/B.
- 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. Alex Wong	Senior Engineer	3579 2452	2739 0076
		Ms. Chan Ka Yan	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. Y H Hui	IEC	3465 2850	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. Lulu Mar	Environmental Officer	6845 0626	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*

North Approach Ramp – Construction of utilities trough	Bridge D3 – Construction of Bridge Deck and abutments
North Depressed Road – Construction of walls & top slab	Underpass – Construction of walls and roof slab
South Approach Ramp – Construction of Permanent Structure	District Cooling System seawater intake box culvert - reinstatement of the seawall and backfilling works
Rising Main and Water Pipe – Laying of sewage	Lift 3 – Modification works
Lift 4 – Construction of linking platform, Installation of glass	South Depressed Road – construction of permanent works
Landscaped Deck – Construction of pile caps and installation of columns, construction of Landscaped Deck	Transformer Room – Construction of permanent structure
Shing Kai Road – Modification works, laying of storm water drainage	Lift 1 & 2 – Installation of ELS system
CLP substation – Construction of wall & intermediate slab, permeant struction	Noise Barrier – Remaining works, Bus lay-by construction
Seawater Intake Box Culvert of Saltwater Pumping Station – Installation of sheetpiles and ELS system	

## **Submission Status under the Environmental Permits**

1.9 The status of required submission under Environmental Permit (EP) conditions under EP-337/2009 and Variation to the EP (VEP) No. EP-445/2013/B 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/B	Submission	Submission Date
Condition 1.11	Condition 1.12	Notification of Commencement Date of Construction of the Project	6 Jan 2020
Condition 2.3	Condition 2.3	Management Organization of Main	9 Sep 2019

EP Condition EP-337/2009	EP Condition EP-445/2013/B	Submission	Submission Date
		Construction Companies	
Condition 2.3	Condition 2.3	Updated Management Organization of Main Construction Companies	17 Aug 2021
Condition 2.4	Condition 2.4	Design Drawings	6 Jan 2020
Condition 2.11	Condition 2.5	Landscape Mitigation Plans	13 Nov 2020
Condition 2.1	Condition 2.5	Landscape Mitigation Plans (Revision 2)	18 May 2021
Condition 3.2	NA	Baseline Monitoring Report	2 Jan 2020
Condition 3.2	NA	Revised Baseline Monitoring Report	28 Mar 2020
Condition 3.3	Condition 3.2	Monthly EM&A Report (June 2022)	13 July 2022



## 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 days 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	- Once every 6 days
AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	Rooftop		- 1 hour	- Three times every 6 days
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.
- 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<sup>3</sup>/min. and 1.7 m<sup>3</sup>/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 and then placed 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 HOKLAS accredited or other internationally accredited laboratory for weighting.

#### Maintenance/Calibration

2.18 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

- 2.19 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, spot check reading at each sampling location for data processing.
- Recorded any activities that may generate dust during measurement period.

### Maintenance/Calibration

2.20 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

2.21 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.

2.22 The wind data was captured by a data logger and the data was downloaded at least once per month for analysis.

2.23 The wind data monitoring equipment will be re-calibrated at least once every six months.

2.24 Wind direction is divided into 16 sectors of 22.5 degrees each.

2.25 Details of weather information during the monitoring period are shown in Appendix F.

### Action and Limit Levels

2.26 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, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
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, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
1-hour average TSP	AM3	297	500
	AM4(A)	326	500
	AM7	315	500

### **Impact Air Quality Monitoring results**

2.27 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, $\mu\text{g}/\text{m}^3$	Range, $\mu\text{g}/\text{m}^3$	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM3	49	31 – 75	182	260
AM4(A)	55	39 – 70	187	260
AM7	54	20 – 86	181	260

*Table 2.7 Summary of 1-hour average TSP Monitoring Data during the reporting month*

Air Monitoring Station	Average TSP Concentration, $\mu\text{g}/\text{m}^3$	Range, $\mu\text{g}/\text{m}^3$	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM3	41	27 – 62	297	500
AM4(A)	46	31 – 64	326	500
AM7	45	22 – 71	315	500

2.28 There was no Action and Limit Level exceedance of 24-hour average TSP and 1-hour average TSP levels recorded during the reporting month.

2.29 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.

2.30 The Event and Action Plan is provided in Appendix I.

2.31 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 <sub>Aeq</sub> , L <sub>A10</sub> and L <sub>A90</sub>	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
Sound Level Calibrator	RION NC 75	1
Air Flowmeter	TSI TA440 Air Velocity	2

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 <sup>^</sup>
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 $L_{Aeq, 30-min}$ , Average, dB(A)	Measured $L_{Aeq, 30-min}$ , Range, dB(A)	Action Level	Limit Level <sup>^</sup>
M11	66.2	59.5 – 68.0	When one documented complaint is received	75 dB(A)
M12	67.3	63.2 – 70.7		

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 were no action level exceedance of noise monitoring and limit level exceedance of  $L_{Aeq, 30min}$  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 (July 2022) $\mu\text{g}/\text{m}^3$
		Scenario 1 (Mid 2009 to Mid 2013), $\mu\text{g}/\text{m}^3$	Scenario 2 (Mid 2013 to Late 2016), $\mu\text{g}/\text{m}^3$	
AM3 - Sky Tower	A40 <sup>^</sup>	106	138	31 – 75
AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	A43 <sup>^</sup>	123	195	39 – 70
AM7 – Hong Kong Children's Hospital	PA60	NA	NA	20 – 86

Note:

<sup>^</sup> 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 (July 2022) $\mu\text{g}/\text{m}^3$
		Scenario 1 (Mid 2009 to Mid 2013), $\mu\text{g}/\text{m}^3$	Scenario 2 (Mid 2013 to Late 2016), $\mu\text{g}/\text{m}^3$	
AM3 - Sky Tower	A40	217 <sup>^</sup>	247 <sup>^</sup>	27 – 62
AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop*	A43	283 <sup>^</sup>	409 <sup>^</sup>	31 – 64
AM7 – Hong Kong Children's Hospital	PA60	NA	NA	22 – 71

Note:

<sup>^</sup> 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 <sub>Aeq, 30min</sub> , dB(A)	Measured Noise Level in Reporting Month (July 2022) L <sub>Aeq, 30min</sub> , dB(A)
M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	N18	50 – 76*	59.5 – 68.0
M12 - Hong Kong Children's Hospital	PN83, PN84, PN84A	NA	63.2 – 70.7

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 and AM4(A) were recorded lower than the prediction 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 No prediction in the EIA Report for 24-hour TSP monitoring results at AM7.
- 4.4 1-hour TSP monitoring results at AM3 and AM4(A) were recorded lower than the prediction 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.
- 4.5 No prediction in the EIA Report for 1-hour TSP monitoring results at AM7.
- 4.6 Noise monitoring results at M11 were recorded lower than the prediction 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.
- 4.7 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 7, 12, 21 and 28 July 2022 in the reporting month.

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
7 July 2022	No	NA	NA
12 July 2022	No	NA	NA
21 July 2022	No	NA	NA
28 July 2022	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 7, 12, 21 and 28 July 2022 in the reporting month.

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
7 July 2022	 <p>Observation: The accumulated waste should be removed.</p>	 <p>Action Taken: The waste has been removed.</p>	Closed-out on 12 July 2022
12 July 2022	 <p>Observation: The chemical used for wastewater treatment should be stored in proper area with cover.</p>	 <p>Action Taken: The chemical used for wastewater treatment has been removed.</p>	Closed-out on 21 July 2022

Inspection Date	Key Observations	Recommendations / Actions	Close-out Date / Status
21 July 2022	 <p>Observation: Secondary container should be provided for the diesel drum to prevent soil contamination in D3 Bridge.</p>	 <p>Action Taken: Secondary container was provided.</p>	Closed-out on 28 July 2022
28 July 2022	 <p>Observation: The accumulated waste should be removed.</p>	 <p>Action Taken: The accumulated waste was cleared.</p>	Closed-out on 04 August 2022

### **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.

*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/B	3 May 2022	N/A
Construction Dust Notification under APCO	445956	6 June 2019	N/A
Wastewater Discharge License under WPCO	WT00034610-2019	26 Sep 2019	30 Sep 2024
Waste Disposal Billing Account	7034450	28 June 2019	N/A
Registration as a Chemical Waste Producer	5218-286-P3182-03	18 Jul 2019	N/A
Construction Noise Permit	GW-RE0206-22	20 Mar 2022	19 Sep 2022
	GW-RE0309-22	14 Apr 2022	13 Oct 2022
	GW-RE0503-22	02 Jun 2022	01 Dec 2022
	GW-RE0539-22	11 Jun 2022	09 Dec 2022
	GW-RE0580-22	18 Jun 2022	16 Dec 2022

**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 O.

6.8 In response to the site audit findings, the Contractor carried out corrective actions with summary given in Appendix O.

**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 complaint received	Date of complaint	Description of complaint	Investigation / Recommendations / Action take	Close-out date / Status
No complaint was received in	NA	NA	NA	NA

Date of complaint received	Date of complaint	Description of complaint	Investigation / Recommendations / Action take	Close-out date / Status
the reporting month.				

6.10 Complaint log and Complaint Investigation report are shown in Appendix P.

**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 P.

## 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
North Approach Ramp – Construction of utilities trough	Noise and Air Quality, Chemical and Waste Management
Bridge D3 – Construction of Bridge Deck and abutments	Noise and Air Quality, Landscape and Visual
North Depressed Road – Construction of walls & top slab	Noise and Air Quality, Chemical and Waste Management
Underpass – Construction of walls and roof slab	Noise and Air Quality, Chemical and Waste Management
South Approach Ramp – Construction of Permanent Structure	Noise and Air Quality, Chemical and Waste Management
District Cooling System seawater intake box culvert – reinstatement of the seawall and backfilling works	Noise, Air and Water Quality
Lift 3 – Modification works	Noise and Air Quality, Chemical and Waste Management
Lift 4 – Construction of linking platform, Installation of glass	Noise and Air Quality, Chemical and Waste Management
South Depressed Road –construction of permanent works	Noise and Air Quality, Chemical and Waste Management
Rising Main and Water Pipe – Laying of sewage	Noise, Air and Water Quality
Landscaped Deck – Construction of pile caps and installation of columns	Noise, Air and Water Quality
Transformer Room – Construction of permanent structure	Noise, Air and Water Quality
Shing Kai Road – Modification works, laying of storm water drainage pipes	Noise, Air and Water Quality
Lift 1 & 2 – Installation of ELS system	Noise and Air Quality, Chemical and Waste Management
CLP substation – Construction of wall & intermediate slab, permeant struction	Noise, Air and Water Quality
Noise Barrier – Remaining works, Bus lay-by construction	Noise, Air and Water Quality
Seawater Intake Box Culvert of Saltwater Pumping Station – Installation of sheetpiles and ELS system	Noise, Air and Water 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),
- Provide movable noise barriers,
- 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,
- Onsite waste sorting and implementation of trip ticket system,
- Good management and control on construction waste reduction,
- 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**

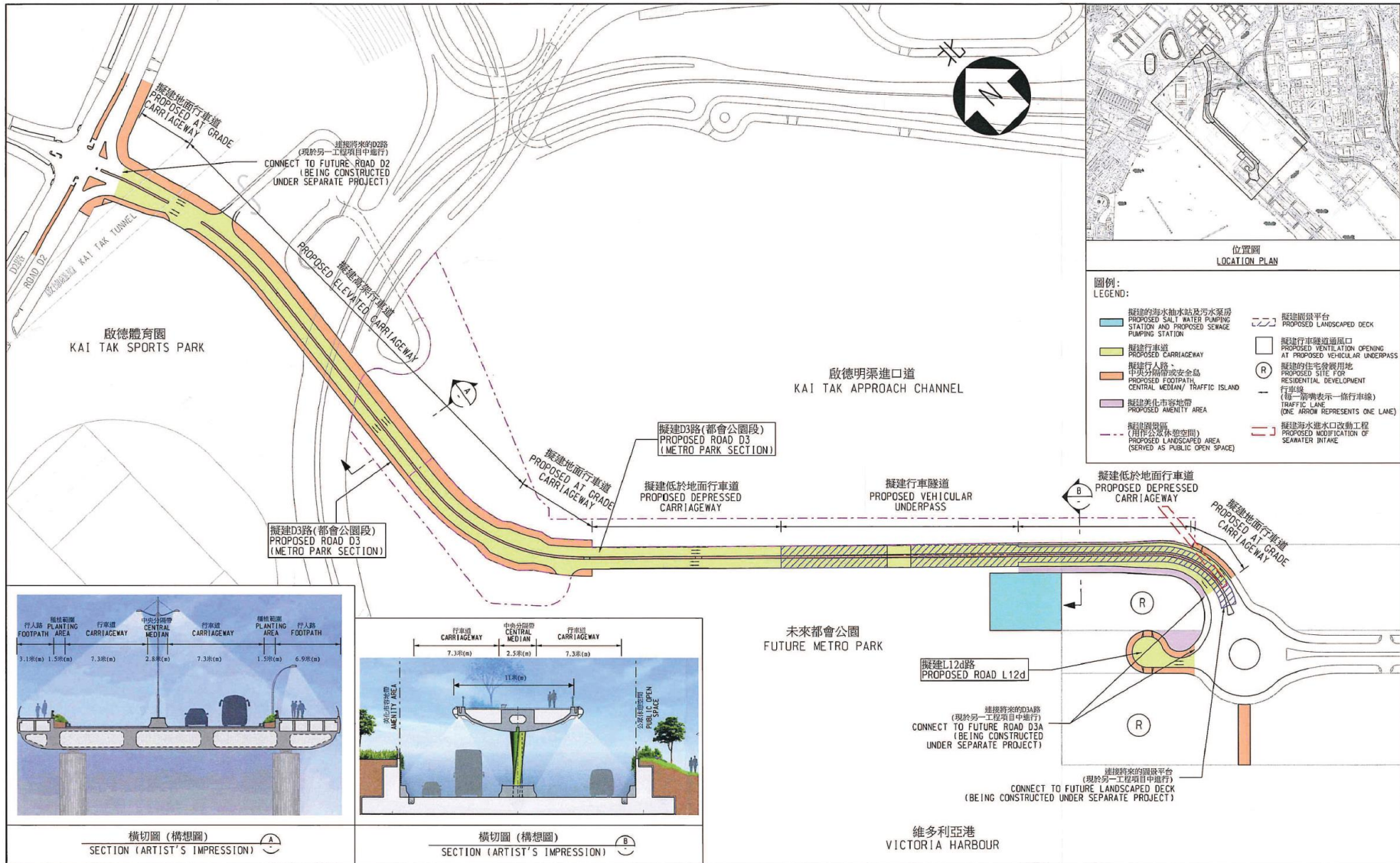


Figure 1 – Proposed works of Contract No. ED/2018/01

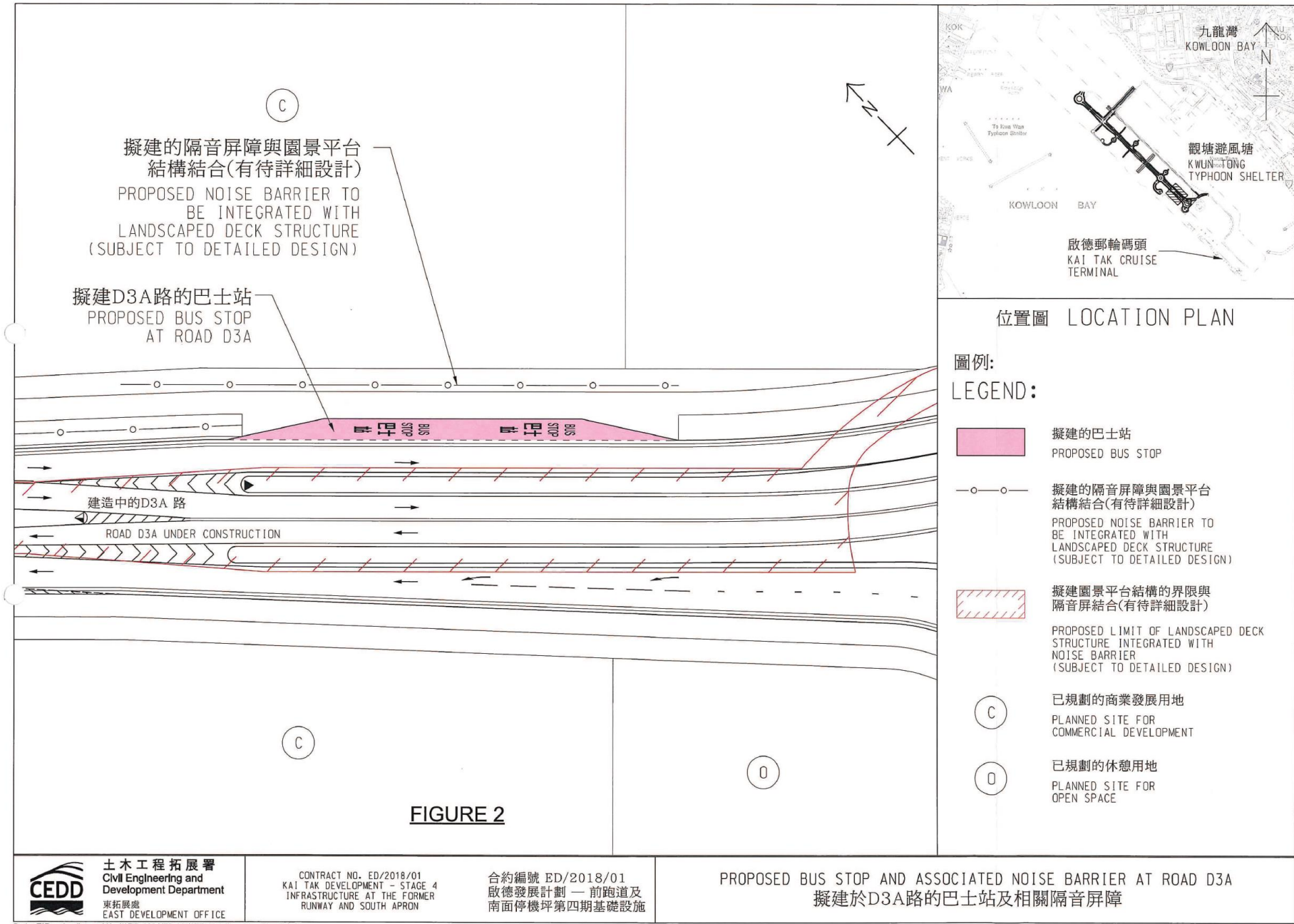
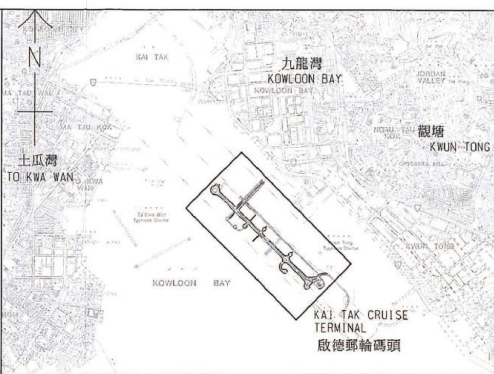
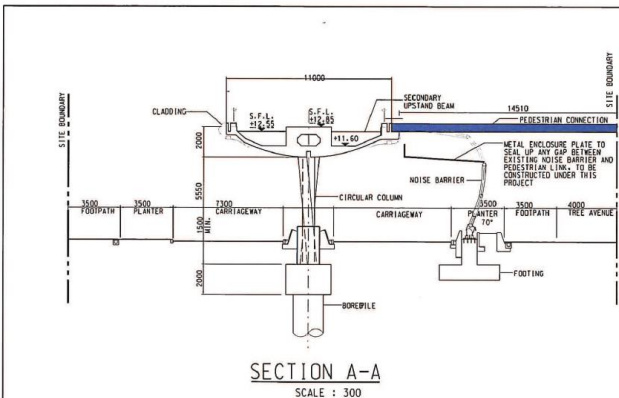
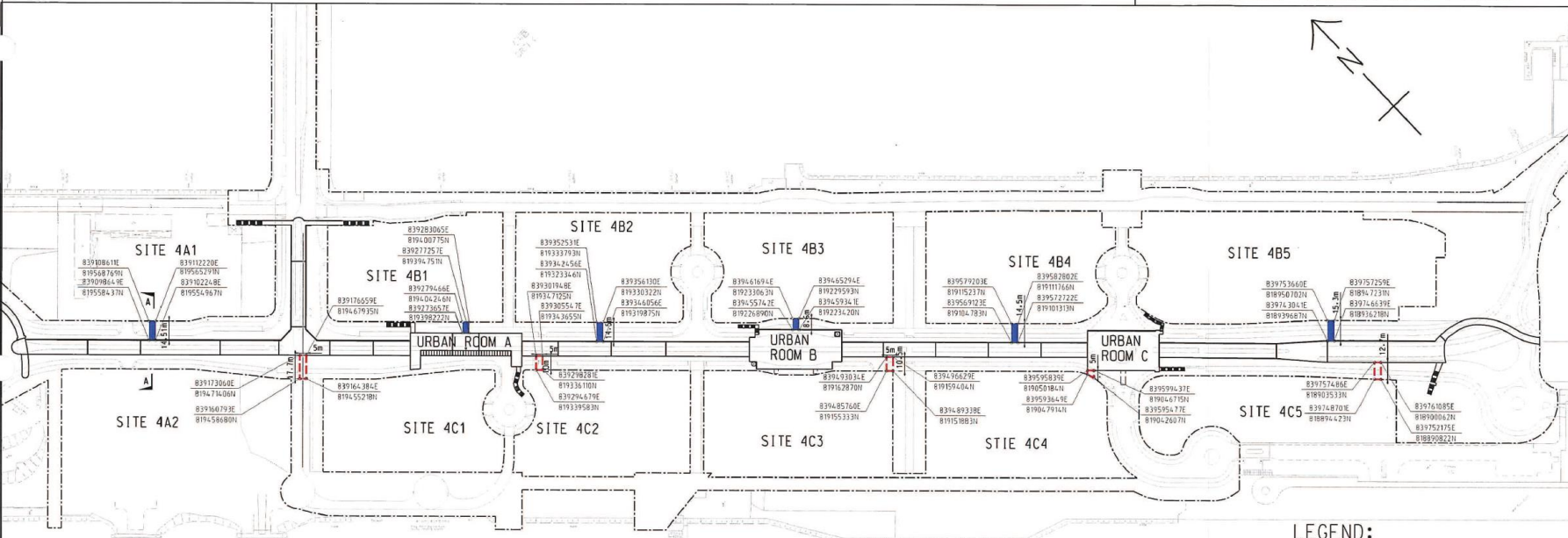


Figure 2 – Proposed Bus Stop And Associated Noise Barrier At Road D3A





位置圖 LOCATION PLAN



- LEGEND:**
- SITE BOUNDARY
  - FUTURE LANDSCAPED PEDESTRIAN CONNECTION
  - FUTURE LANDSCAPED PEDESTRIAN CONNECTION (FOR INFORMATION ONLY)
  - LANDSCAPED DECK

**CEDD** 土木工程拓展署  
Civil Engineering and  
Development Department  
東拓展處  
EAST DEVELOPMENT OFFICE

FUTURE PEDESTRIAN CONNECTION BETWEEN LANDSCAPED DECK AND PRIVATE DEVELOPMENTS

SCALE	1 : 3000 (A3)	DATE	3 MAR 2018
DRAWN BY	JY	CHECKED BY	AL
		APPROVED BY	CC
FIGURE 3			REV -

Path : Z:\KL20140110 Team\Drawing (Internal Use)\KTD-400-KTD-499\KTD-414 (PL Location).dgn

Print Date : 7/3/2019

Figure 3 – Future Pedestrian Connection Between Landscaped Deck And Private Developments

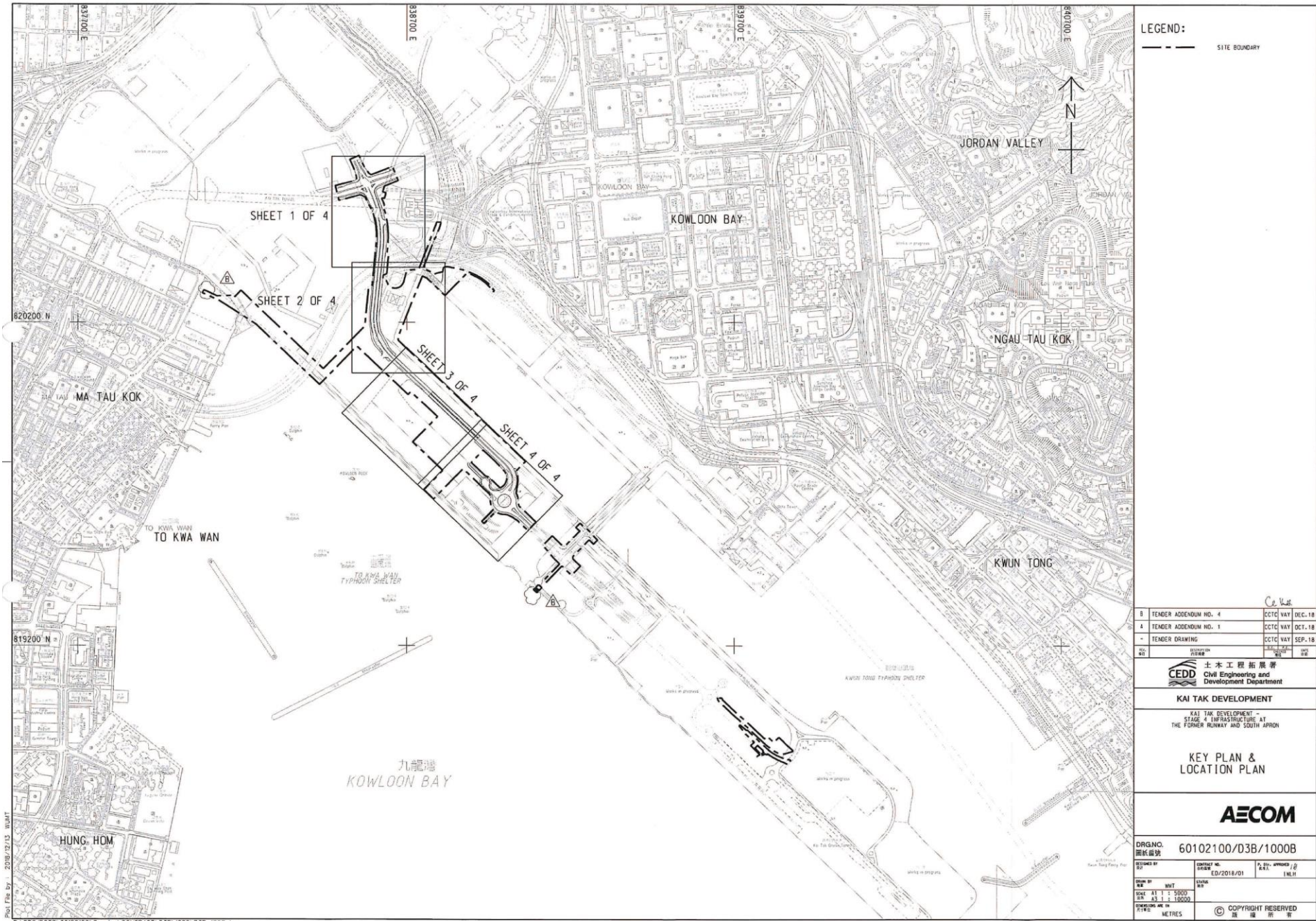


Figure 4 – Site Layout Plan

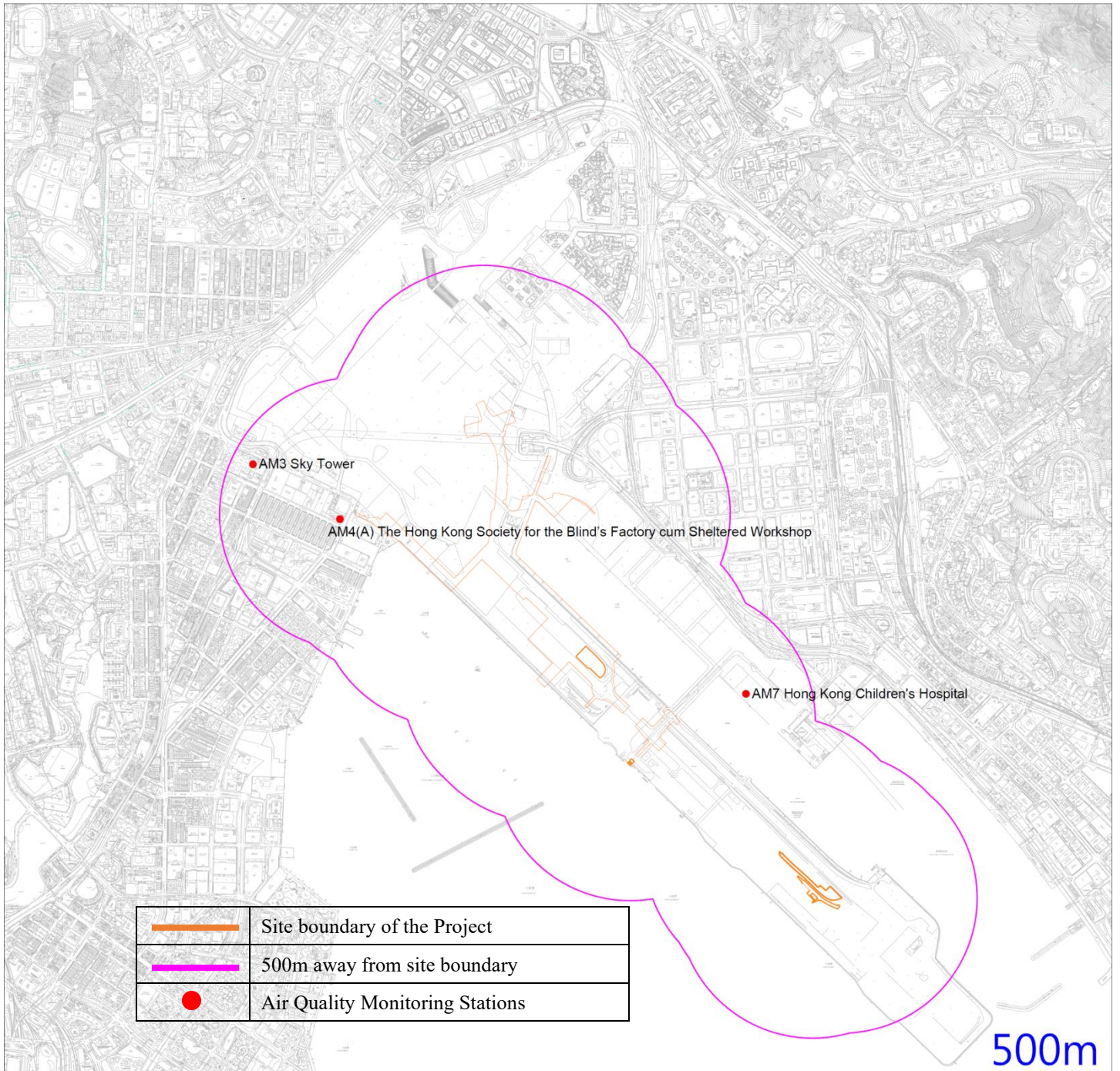


Figure 5 – Air Quality Monitoring Stations

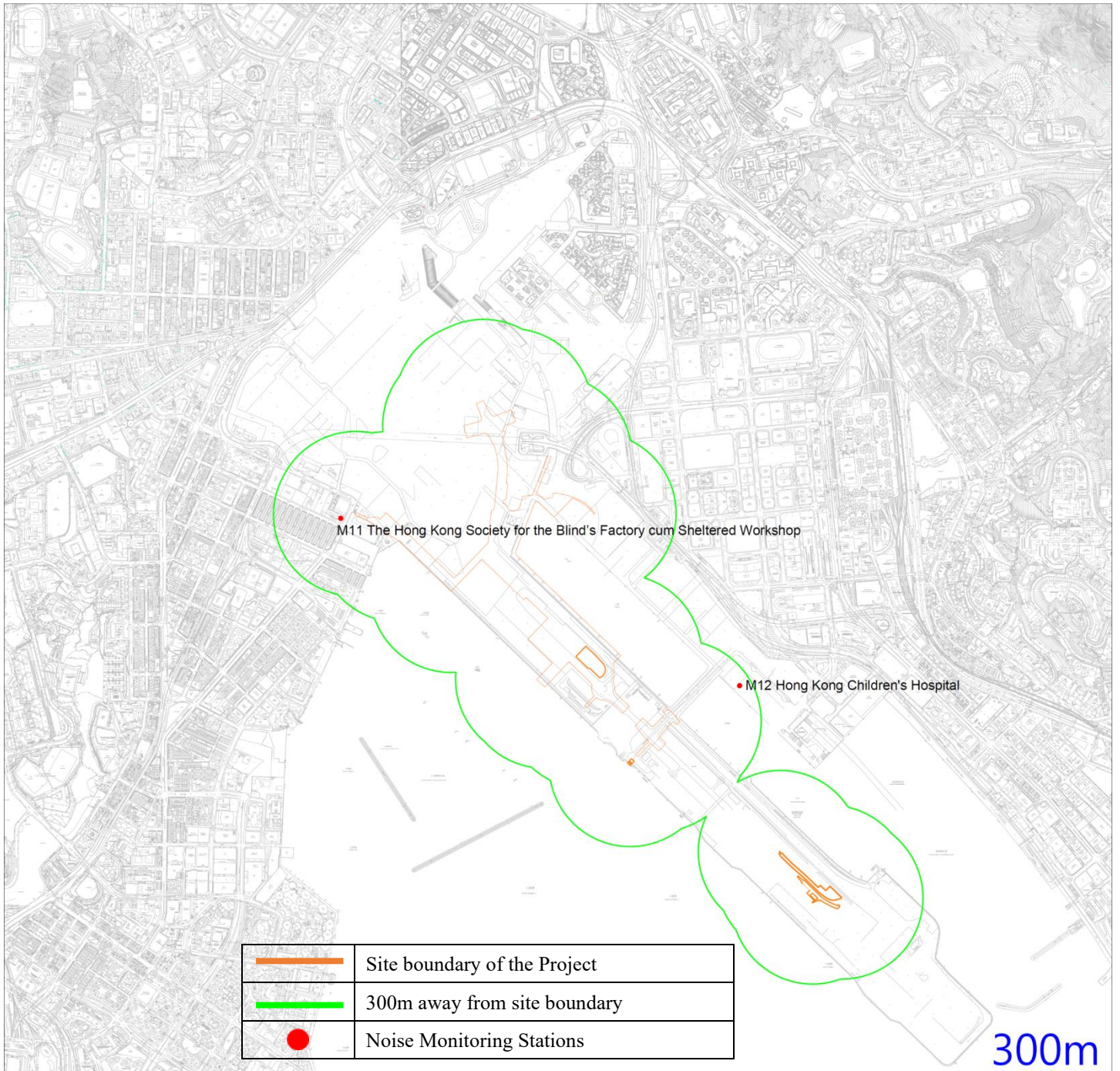
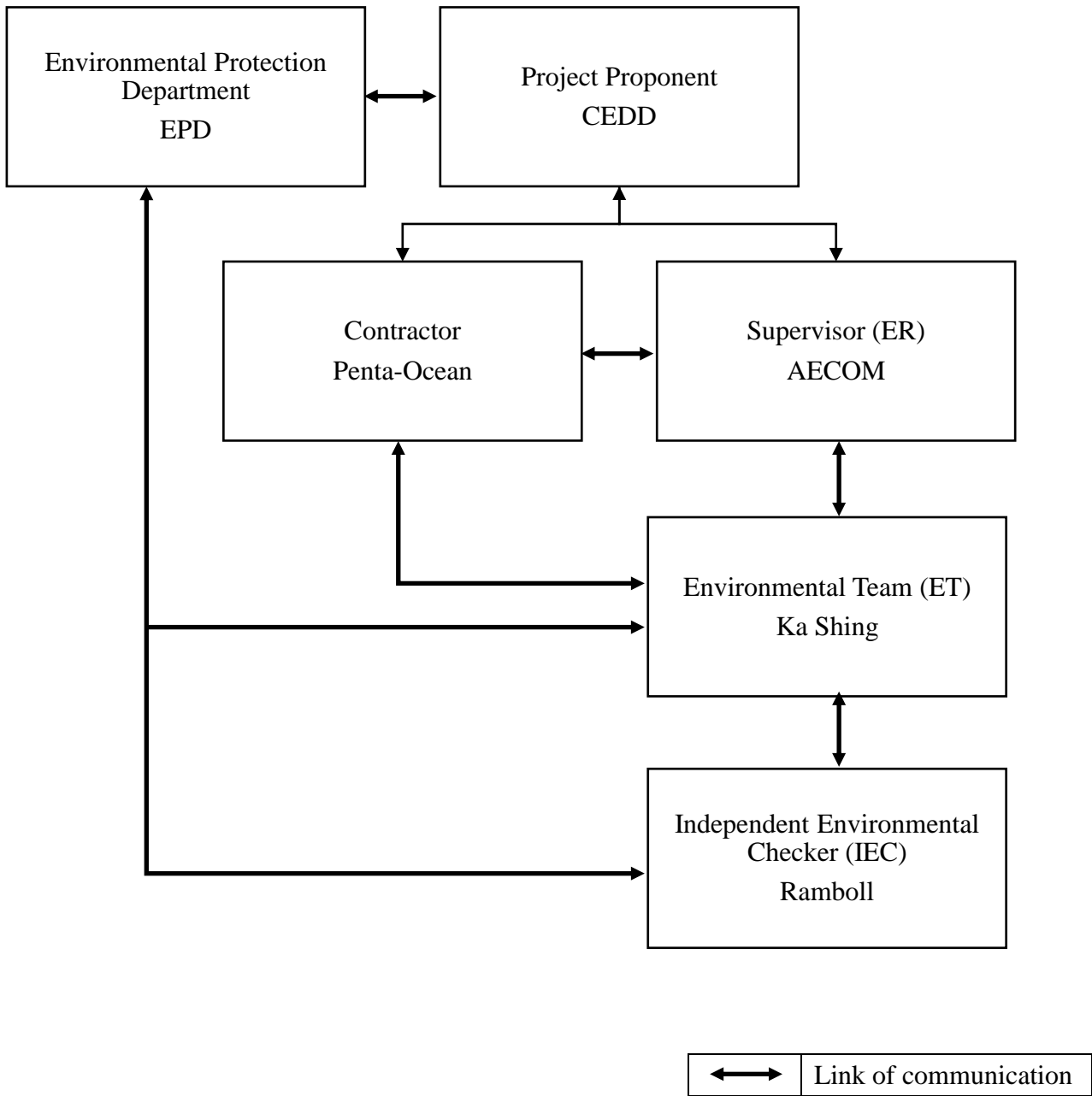


Figure 6 – Noise Monitoring Stations

**Appendix A – Organization Chart of EM&A Team**



# **Appendix B – Construction Programme**





Contract No. ED/2018/01 KTD Project																																			
ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020		2021				2022				2023				20						
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2				
46	District Council Consultation	0 days	0 days	0 days	0%	Mon 14/9/20	Mon 14/9/20	NA	NA	Mon 14/9/20	Mon 14/9/20	0 days																							
47	Project Manager's Instruction	8 days	8 days	0 days	0%	Thu 20/2/20	Fri 28/2/20	Thu 20/2/20	Fri 28/2/20	Thu 20/2/20	Fri 28/2/20	0 days																							
48	PMI No. 001 - BIM Promenade Walk-through Video for Infrastructure in Kai Tak Stage 4	0 days	0 days	0 days	100%	Thu 20/2/20	Thu 20/2/20	Thu 20/2/20	Thu 20/2/20	Thu 20/2/20	Thu 20/2/20	0 days																							
49	PMI No. 002 - Arrangement of Restricting Site Activities due to Spread of the Noval Coronavirus Between 29 January 2020 to 02 February 2020	0 days	0 days	0 days	100%	Fri 28/2/20	Fri 28/2/20	Fri 28/2/20	Fri 28/2/20	Fri 28/2/20	Fri 28/2/20	0 days																							
50	Compensation Event	16 days	16 days	0 days	0%	Mon 10/2/20	Wed 26/2/20	Mon 10/2/20	Wed 26/2/20	Mon 10/2/20	Wed 26/2/20	0 days																							
51	CE/001: BIM Promenade Walk-through Video for Infrastructure in Kai Tak Stage 4	0 days	0 days	0 days	100%	Mon 10/2/20	Mon 10/2/20	Mon 10/2/20	Mon 10/2/20	Mon 10/2/20	Mon 10/2/20	0 days																							
52	CE/002 - Arrangement of Restricting Site Activities due to Spread of the Noval Coronavirus Between 29 January 2020 to 02 February 2020	0 days	0 days	0 days	100%	Wed 26/2/20	Wed 26/2/20	Wed 26/2/20	Wed 26/2/20	Wed 26/2/20	Wed 26/2/20	0 days																							
53	Early Warning	257 days	257 days	0 days	0%	Wed 10/7/19	Mon 23/3/20	Wed 10/7/19	Mon 23/3/20	Wed 10/7/19	Mon 23/3/20	0 days																							
54	EW No. 001: CLP's 11kV and 132kV Cable Routing across Utility Trough of Bridge D3 and Alongside Road D3 (Metro Park Section)	0 days	0 days	0 days	100%	Wed 10/7/19	Wed 10/7/19	Wed 10/7/19	Wed 10/7/19	Wed 10/7/19	Wed 10/7/19	0 days																							
55	EW No. 002: Deep Excavation Basement Construction Works from CKR-BEM Contract	0 days	0 days	0 days	100%	Thu 5/9/19	Thu 5/9/19	Thu 5/9/19	Thu 5/9/19	Thu 5/9/19	Thu 5/9/19	0 days																							
56	EW No. 003: Overhang Cables of CLP Delay the Northern Depressed Road	0 days	0 days	0 days	100%	Wed 11/9/19	Wed 11/9/19	Wed 11/9/19	Wed 11/9/19	Wed 11/9/19	Wed 11/9/19	0 days																							
57	EW No. 004: Late Commencement on Noise and Air Baseline Monitoring Delay the Northern Depressed Road CH1560 to 1720	0 days	0 days	0 days	100%	Mon 4/11/19	Mon 4/11/19	Mon 4/11/19	Mon 4/11/19	Mon 4/11/19	Mon 4/11/19	0 days																							
58	EW No. 005: Maintain the SCL RoW which should have been diverted to the RoW Constructed by KTSP caused Disruption to the Construction of North Approach Ramp especially affect the KTD1	0 days	0 days	0 days	100%	Wed 13/11/19	Wed 13/11/19	Wed 13/11/19	Wed 13/11/19	Wed 13/11/19	Wed 13/11/19	0 days																							
59	EW No. 006: Deferral of Design Deliverables	0 days	0 days	0 days	100%	Mon 16/12/19	Mon 16/12/19	Mon 16/12/19	Mon 16/12/19	Mon 16/12/19	Mon 16/12/19	0 days																							
60	EW No. 007: Delay on Driven H-piles by KTSP may affect the KD1	0 days	0 days	0 days	100%	Fri 20/12/19	Fri 20/12/19	Fri 20/12/19	Fri 20/12/19	Fri 20/12/19	Fri 20/12/19	0 days																							
61	EW No. 008: Not Allow to Extract Sheetpiles of North Approach Ramp beside Kai Tak Sport Park as Discussed at the Interface Meeting	0 days	0 days	0 days	100%	Fri 27/12/19	Fri 27/12/19	Fri 27/12/19	Fri 27/12/19	Fri 27/12/19	Fri 27/12/19	0 days																							
62	EW No. 010: Existing 150mm Fresh Water Pipe clashing with Bridge D3 and South Approach Ramp	0 days	0 days	0 days	100%	Wed 8/1/20	Wed 8/1/20	Wed 8/1/20	Wed 8/1/20	Wed 8/1/20	Wed 8/1/20	0 days																							
63	EW No. 011: Additional Requirement for Special Arrangement for Design and Construction of Noise Barrier for Future Connection of Footbridge FB10 from Development Site 4B5	0 days	0 days	0 days	100%	Tue 14/1/20	Tue 14/1/20	Tue 14/1/20	Tue 14/1/20	Tue 14/1/20	Tue 14/1/20	0 days																							
64	EW No. 014: Planning of the Works in Revised Programme (Rev. 6)	0 days	0 days	0 days	100%	Mon 10/2/20	Mon 10/2/20	Mon 10/2/20	Mon 10/2/20	Mon 10/2/20	Mon 10/2/20	0 days																							
65	EW No. 015: Outbreak of Novel Coronavirus (Constraints on Working Time)	0 days	0 days	0 days	100%	Tue 11/2/20	Tue 11/2/20	Tue 11/2/20	Tue 11/2/20	Tue 11/2/20	Tue 11/2/20	0 days																							
66	EW No. 016: Outbreak of Novel Coronavirus (Late Supply of Aggregate)	0 days	0 days	0 days	100%	Wed 19/2/20	Wed 19/2/20	Wed 19/2/20	Wed 19/2/20	Wed 19/2/20	Wed 19/2/20	0 days																							
67	EW No. 020: GEO Audit for Underpass D3	0 days	0 days	0 days	100%	Fri 13/3/20	Fri 13/3/20	Fri 13/3/20	Fri 13/3/20	Fri 13/3/20	Fri 13/3/20	0 days																							
68	EW No. 021: Unforeseen Underground Water at North Approach Ramp Bay 6	0 days	0 days	0 days	100%	Thu 12/3/20	Thu 12/3/20	Thu 12/3/20	Thu 12/3/20	Thu 12/3/20	Thu 12/3/20	0 days																							
69	EW No. 022:Deferral of Interface Management Plan Submission for Noise Barrier Works	0 days	0 days	0 days	100%	Fri 13/3/20	Fri 13/3/20	Fri 13/3/20	Fri 13/3/20	Fri 13/3/20	Fri 13/3/20	0 days																							
70	EW No. 023:Disruption of the Works due to Stockpile was not allowed to dispose to the Proposed Disposal Ground	0 days	0 days	0 days	100%	Mon 16/3/20	Mon 16/3/20	Mon 16/3/20	Mon 16/3/20	Mon 16/3/20	Mon 16/3/20	0 days																							
71	EW No. 025: Broken Steel Casing for Bored Pile P02-BP2	0 days	0 days	0 days	100%	Mon 23/3/20	Mon 23/3/20	Mon 23/3/20	Mon 23/3/20	Mon 23/3/20	Mon 23/3/20	0 days																							
72	<b>Contractor's Notification of Compensation Event</b>	14 days	0 days	14 days	0%	Thu 28/5/20	Thu 11/6/20	NA	NA	Tue 9/6/20	Tue 7/7/20	12 days																							
73	Compensation Event (CNCE) No. 009 - Inclement Weather in April 2020	0 days	0 days	0 days	0%	Thu 28/5/20	Thu 28/5/20	NA	NA	Tue 7/7/20	Tue 7/7/20	40 days																							
74	Compensation Event - Inclement Weather in May 2020	0 days	0 days	0 days	0%	Thu 11/6/20	Thu 11/6/20	NA	NA	Tue 9/6/20	Tue 9/6/20	-2 days																							
75	Project Submission	1457 days	401.03 days	1055.97 days	0%	Thu 16/5/19	Thu 11/5/23	Thu 16/5/19	NA	Thu 16/5/19	Thu 11/5/23	0 days	0 days																						
76	Submit Third Parties Insurance	71 days	71 days	0 days	100%	Tue 18/6/19	Tue 27/8/19	Tue 18/6/19	Tue 27/8/19	Tue 18/6/19	Tue 27/8/19	0 days	0 days	4																					
77	Works Programme	160 days	160 days	0 days	0%	Thu 16/5/19	Tue 22/10/19	Thu 16/5/19	Thu 15/8/19	Thu 16/5/19	Tue 22/10/19	0 days																							
78	Submit First Programme	20 days	20 days	0 days	100%	Thu 16/5/19	Tue 4/6/19	Thu 16/5/19	Tue 4/6/19	Thu 16/5/19	Tue 4/6/19	0 days	0 days	2																					
79	Review and Comment by Project Manager	9 days	9 days	0 days	100%	Wed 5/6/19	Thu 13/6/19	Wed 5/6/19	Thu 13/6/19	Wed 5/6/19	Thu 13/6/19	0 days	0 days	78																					
80	Revise and Resubmission of Works Programme	42 days	42 days	0 days	100%	Fri 14/6/19	Thu 25/7/19	Fri 14/6/19	Thu 25/7/19	Fri 14/6/19	Thu 25/7/19	0 days	0 days	79																					
81	Final Review and Acceptance of the First Programme by Project Manager	20 days	20 days	0 days	100%	Sat 27/7/19	Thu 15/8/19	Sat 27/7/19	Thu 15/8/19	Sat 27/7/19	Thu 15/8/19	0 days	0 days	80																					
82	Submit Health and Safety Management Plan (ACC Cl. D6(2))	6 days	6 days	0 days	100%	Thu 30/5/19	Tue 4/6/19	Thu 30/5/19	Tue 4/6/19	Thu 30/5/19	Tue 4/6/19	0 days	0.5 day	4																					
83	Submit Detailed Programme for Safety Risk (ER Part 7, Cl. 7.3.4)	34 days	34 days	0 days	100%	Mon 9/12/19	Sat 11/1/20	Mon 9/12/19	Sat 11/1/20	Mon 9/12/19	Sat 11/1/20	0 days	0.5 day	4																					
84	Submit Environmental Management Plan (ACC Cl. D20(2))	6 days	6 days	0 days	100%	Thu 30/5/19	Tue 4/6/19	Thu 30/5/19	Tue 4/6/19	Thu 30/5/19	Tue 4/6/19	0 days	0.5 day	4																					
85	Submit BIM Models Deliverables	262 days	262 days	0 days	0%	Tue 13/8/19	Thu 30/4/20	Tue 13/8/19	Thu 30/4/20	Tue 13/8/19	Thu 30/4/20	0 days																							

**Title:** Rev.11 Prog with Progress as of 22-May-20

Task		Summary		Inactive Milestone		Duration-only		Start-only		External Milestone		Critical Split	
Split		Project Summary		Inactive Summary		Manual Summary Rollup		Finish-only		Deadline		Progress	
Milestone		Inactive Task		Manual Task		Manual Summary		External Tasks		Critical		Manual Progress	

Contract No. ED/2018/01 KTD Project

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020		2021				2022				2023				20			
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3		Q4	Q1	Q2
86	Existing Site Model (Topography)	46 days	46 days	0 days	100%	Tue 13/8/19	Fri 27/9/19	Tue 13/8/19	Fri 27/9/19	Tue 13/8/19	Fri 27/9/19	0 days	1 day																			
87	Existing Underground Utilities (UU) Model	33 days	33 days	0 days	100%	Mon 26/8/19	Fri 27/9/19	Mon 26/8/19	Fri 27/9/19	Mon 26/8/19	Fri 27/9/19	0 days	1 day																			
88	3D Digital Survey For Existing Conditions	44 days	44 days	0 days	100%	Mon 2/9/19	Tue 15/10/19	Mon 2/9/19	Tue 15/10/19	Mon 2/9/19	Tue 15/10/19	0 days	1 day																			
89	3D Photogrametry Model	46 days	46 days	0 days	100%	Mon 16/9/19	Thu 31/10/19	Mon 16/9/19	Thu 31/10/19	Mon 16/9/19	Thu 31/10/19	0 days	1 day																			
90	AIP Model	16.92 day	16.92 days	0 days	100%	Fri 6/9/19	Sun 22/9/19	Fri 6/9/19	Sun 22/9/19	Fri 6/9/19	Sun 22/9/19	0 days	1 day																			
91	Interfacing Contract Model	53 days	53 days	0 days	100%	Mon 9/9/19	Thu 31/10/19	Mon 9/9/19	Thu 31/10/19	Mon 9/9/19	Thu 31/10/19	0 days	1 day																			
92	Monthly Updated BIM Model	1 day	1 day	0 days	100%	Thu 31/10/19	Thu 31/10/19	Thu 31/10/19	Thu 31/10/19	Thu 31/10/19	Thu 31/10/19	0 days	1 day																			
93	4D Model Linked Up with Programme	0 days	0 days	0 days	100%	Thu 30/4/20	Thu 30/4/20	Thu 30/4/20	Thu 30/4/20	Thu 30/4/20	Thu 30/4/20	0 days	1 day																			
94	Construction Method Simulation (CMS) in 3D Model	0 days	0 days	0 days	100%	Wed 22/4/20	Wed 22/4/20	Wed 22/4/20	Wed 22/4/20	Wed 22/4/20	Wed 22/4/20	0 days	1 day																			
95	BIM Deliverables Schedule	896 days	3.72 days	892.28 days	0%	Thu 16/5/19	Wed 27/10/21	Thu 16/5/19	NA	Thu 16/5/19	Tue 11/1/22	76 days																				
96	Establish BIM Team	0 days	0 days	0 days	100%	Sat 3/8/19	Sat 3/8/19	Sat 3/8/19	Sat 3/8/19	Sat 3/8/19	Sat 3/8/19	0 days	1 day																			
97	BIM Execution Plan	0 days	0 days	0 days	100%	Sat 31/8/19	Sat 31/8/19	Sat 31/8/19	Sat 31/8/19	Sat 31/8/19	Sat 31/8/19	0 days	1 day																			
98	BIM Submission Schedule	0 days	0 days	0 days	100%	Fri 16/8/19	Fri 16/8/19	Fri 16/8/19	Fri 16/8/19	Fri 16/8/19	Fri 16/8/19	0 days	1 day																			
99	BIM 360 License	0 days	0 days	0 days	100%	Sat 31/8/19	Sat 31/8/19	Sat 31/8/19	Sat 31/8/19	Sat 31/8/19	Sat 31/8/19	0 days	1 day																			
100	BIM/Drawing Management Software System	0 days	0 days	0 days	100%	Sat 31/8/19	Sat 31/8/19	Sat 31/8/19	Sat 31/8/19	Sat 31/8/19	Sat 31/8/19	0 days	1 day																			
101	CDE Setup	1 day	1 day	0 days	100%	Sat 31/8/19	Mon 9/9/19	Sat 31/8/19	Mon 9/9/19	Sat 31/8/19	Mon 9/9/19	0 days	1 day																			
102	Clash Report Format	0 days	0 days	0 days	100%	Thu 12/9/19	Thu 12/9/19	Thu 12/9/19	Thu 12/9/19	Thu 12/9/19	Thu 12/9/19	0 days	1 day																			
103	Monthly Report Format	0 days	0 days	0 days	100%	Thu 12/9/19	Thu 12/9/19	Thu 12/9/19	Thu 12/9/19	Thu 12/9/19	Thu 12/9/19	0 days	1 day																			
104	Quality Assurance Plan for BIM	0 days	0 days	0 days	100%	Mon 30/9/19	Mon 30/9/19	Mon 30/9/19	Mon 30/9/19	Mon 30/9/19	Mon 30/9/19	0 days	1 day																			
105	BIM Training Plan	0 days	0 days	0 days	100%	Thu 10/10/19	Thu 10/10/19	Thu 10/10/19	Thu 10/10/19	Thu 10/10/19	Thu 10/10/19	0 days	1 day																			
106	BIM Training Schedule for CIC Training	0 days	0 days	0 days	100%	Mon 30/9/19	Mon 30/9/19	Mon 30/9/19	Mon 30/9/19	Mon 30/9/19	Mon 30/9/19	0 days	1 day																			
107	Monthly BIM Progress Report	0 days	0 days	0 days	100%	Thu 16/5/19	Tue 31/12/19	Thu 16/5/19	Tue 31/12/19	Thu 16/5/19	Tue 31/12/19	0 days	1 day																			
108	Monthly Clash Report	1 day	1 day	0 days	100%	Tue 31/3/20	Tue 31/3/20	Tue 31/3/20	Tue 31/3/20	Tue 31/3/20	Tue 31/3/20	0 days	1 day																			
109	BIM Object Libraries	1 day	1 day	0 days	100%	Thu 12/9/19	Thu 12/9/19	Thu 12/9/19	Thu 12/9/19	Thu 12/9/19	Thu 12/9/19	0 days	1 day																			
110	Trees Preservation and Removal Proposal (TPRP) for tress along promenade open space Submission	0 days	0 days	0 days	0%	Mon 2/11/20	Mon 2/11/20	NA	NA	Sun 17/1/21	Sun 17/1/21	63 days	1 day																			
111	Trees Preservation and Removal Proposal (TPRP) for tress along promenade open space Submission Comment & Approval by Relevant Government Authorities	360 days	0 days	360 days	0%	Mon 2/11/20	Wed 27/10/21	NA	NA	Sun 17/1/21	Tue 11/1/22	76 days	1 day	110																		
112	Trees Preservation and Removal Proposal (TPRP) for tress along Sing Kai Submission	0 days	0 days	0 days	0%	Fri 31/7/20	Fri 31/7/20	NA	NA	Wed 30/9/20	Wed 30/9/20	52 days	1 day																			
113	Trees Preservation and Removal Proposal (TPRP) for tress along Sing Kai Road Submission Comment & Approval by Relevant Government Authorities	360 days	0 days	360 days	0%	Fri 31/7/20	Sun 25/7/21	NA	NA	Wed 30/9/20	Fri 24/9/21	61 days	1 day	112																		
114	Temporary Traffic Management	478 days	447.84 days	30.16 days	0%	Thu 30/5/19	Fri 18/9/20	Thu 30/5/19	NA	Thu 30/5/19	Fri 25/9/20	7 days																				
115	Submit Traffic Engineering Consultant and TTM Team Leader (PS1.16(3))	14 days	14 days	0 days	100%	Thu 30/5/19	Wed 12/6/19	Thu 30/5/19	Wed 12/6/19	Thu 30/5/19	Wed 12/6/19	0 days	1 day	4																		
116	Submit EP Mgt System Co-ordinator (PS Cl. 1.18N(2))	7 days	7 days	0 days	100%	Thu 30/5/19	Wed 5/6/19	Thu 30/5/19	Wed 5/6/19	Thu 30/5/19	Wed 5/6/19	0 days	1 day	4																		
117	Approve of EP Co-ordinator by Project Manager (PS Cl. 1.18N(2))	14 days	14 days	0 days	100%	Thu 6/6/19	Wed 19/6/19	Thu 6/6/19	Wed 19/6/19	Thu 6/6/19	Wed 19/6/19	0 days	1 day	116																		
118	Submit UU detection equipment for Supervisor approval (PS Cl. 1.25A(1))	7 days	7 days	0 days	100%	Thu 30/5/19	Wed 5/6/19	Thu 30/5/19	Wed 5/6/19	Thu 30/5/19	Wed 5/6/19	0 days	1 day	4																		
119	Submit & obtain approval: site office's location and layout plan (PS Cl. 1.45(11)) (7d submission + 14d approval)	47 days	47 days	0 days	100%	Thu 30/5/19	Fri 18/10/19	Thu 30/5/19	Fri 18/10/19	Thu 30/5/19	Fri 18/10/19	0 days	1 day	4																		
120	Submit Site survey record (PS Cl.1.47(7))	34 days	34 days	0 days	100%	Thu 30/5/19	Tue 2/7/19	Thu 30/5/19	Tue 2/7/19	Thu 30/5/19	Tue 2/7/19	0 days	1 day	4																		
121	Submit & obtain approval: fencing & hoarding plan (PS Cl. 1.48(10))	40 days	0 days	40 days	0%	Mon 10/8/20	Fri 18/9/20	NA	NA	Mon 17/8/20	Fri 25/9/20	7 days	0.5 days	4																		
122	Submit site facilities (PS Cl. 1.50S)	65 days	65 days	0 days	100%	Thu 30/5/19	Fri 2/8/19	Thu 30/5/19	Fri 2/8/19	Thu 30/5/19	Fri 2/8/19	0 days	0.5 days	4																		
123	Submit security system (PS Cl. 1.53A(5))	36 days	36 days	0 days	100%	Thu 30/5/19	Thu 4/7/19	Thu 30/5/19	Thu 4/7/19	Thu 30/5/19	Thu 4/7/19	0 days	0.5 days	4																		
124	Submit Interface Management Plan (PS Cl. 1.89(2))	47 days	47 days	0 days	100%	Thu 30/5/19	Mon 15/7/19	Thu 30/5/19	Mon 15/7/19	Thu 30/5/19	Mon 15/7/19	0 days	0.5 days	4																		
125	Submit Subcontractor Management Plan (ACC Cl. C5(1))	13 days	13 days	0 days	100%	Thu 30/5/19	Tue 11/6/19	Thu 30/5/19	Tue 11/6/19	Thu 30/5/19	Tue 11/6/19	0 days	0.5 days	4																		
126	Submit Temporary Drainage and Sewerage Management Plan (PS Cl. 1.24A(1))	174 days	174 days	0 days	100%	Thu 30/5/19	Tue 19/11/19	Thu 30/5/19	Tue 19/11/19	Thu 30/5/19	Tue 19/11/19	0 days	1 day	4																		
127	Submit EM&A Manual (ER Part 8, Cl. 8.2)	6 days	6 days	0 days	100%	Thu 30/5/19	Tue 4/6/19	Thu 30/5/19	Tue 4/6/19	Thu 30/5/19	Tue 4/6/19	0 days	0 days	4																		
128	Submit Proposal of selection of suppliers of Plant and Materials (ACC Cl. C11(1))	80 days	80 days	0 days	100%	Thu 30/5/19	Sat 17/8/19	Thu 30/5/19	Sat 17/8/19	Thu 30/5/19	Sat 17/8/19	0 days	0 days	4																		
129	Submit Contractor's Management Team (ACC Cl. D1(3))	50 days	50 days	0 days	100%	Thu 30/5/19	Thu 18/7/19	Thu 30/5/19	Thu 18/7/19	Thu 30/5/19	Thu 18/7/19	0 days	0 days	4																		

Title: Rev.11 Prog with Progress as of 22-May-20

**Task**  
 Split: .....  
 Milestone: ◆

**Summary**  
 Project Summary: .....  
 Inactive Task: .....

**Inactive Milestone**  
 Inactive Summary: .....  
 Manual Task: .....

**Duration-only**  
 Manual Summary Rollup: .....  
 Manual Summary: .....

**Start-only**  
 Finish-only: .....  
 External Tasks: .....

**External Milestone**  
 Deadline: .....  
 Critical: .....

**Critical Split**  
 Progress: .....  
 Manual Progress: .....

Contract No. ED/2018/01 KTD Project

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020		2021				2022				2023				20				
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3		Q4	Q1	Q2	
130	Permanent Works Design Submission	1457 days	373.08 days	1083.92 days	0%	Thu 16/5/19	Thu 11/5/23	Thu 16/5/19	NA	Thu 16/5/19	Thu 11/5/23	0 days																					
131	General Design Submission	1443 days	955.46 days	487.54 days	0%	Thu 30/5/19	Thu 11/5/23	Thu 30/5/19	NA	Thu 30/5/19	Thu 11/5/23	0 days		4																			
132	Project Design Plan (Draft)	16 days	16 days	0 days	100%	Thu 30/5/19	Fri 14/6/19	Thu 30/5/19	Fri 14/6/19	Thu 30/5/19	Fri 14/6/19	0 days	1 day	4																			
133	Project Design Plan (Draft) Comment by PM	14 days	14 days	0 days	100%	Sat 15/6/19	Fri 28/6/19	Sat 15/6/19	Fri 28/6/19	Sat 15/6/19	Fri 28/6/19	0 days	1 day																				
134	Address Comments	120 days	66 days	54 days	55%	Tue 2/7/19	Wed 15/7/20	Tue 2/7/19	NA	Tue 2/7/19	Thu 11/5/23	1030 d...	1 days	132																			
135	Project Design Plan (Final)	54 days	54 days	0 days	100%	Thu 5/9/19	Tue 29/10/19	Thu 5/9/19	Tue 29/10/19	Thu 5/9/19	Tue 29/10/19	0 days	1 days	134																			
136	Design Memorandum (include E&M Provision) (Draft)	26 days	26 days	0 days	100%	Tue 4/6/19	Sat 29/6/19	Tue 4/6/19	Sat 29/6/19	Tue 4/6/19	Sat 29/6/19	0 days	1 days	132																			
137	Address Comments	15 days	15 days	0 days	100%	Thu 1/8/19	Thu 15/8/19	Thu 1/8/19	Thu 15/8/19	Thu 1/8/19	Thu 15/8/19	0 days	1 days	136																			
138	Design Memorandum Include E&M Provision (Final)	59 days	59 days	0 days	100%	Tue 23/7/19	Sun 17/11/19	Tue 23/7/19	Sun 17/11/19	Tue 23/7/19	Sun 17/11/19	0 days	1 days	137																			
139	Traffic Impact Assessment(Draft)	62 days	62 days	0 days	100%	Wed 18/9/19	Mon 18/11/19	Wed 18/9/19	Mon 18/11/19	Wed 18/9/19	Mon 18/11/19	0 days	1 day	4																			
140	Address Comments	16 days	16 days	0 days	100%	Mon 18/11/19	Wed 4/12/19	Mon 18/11/19	Wed 4/12/19	Mon 18/11/19	Wed 4/12/19	0 days	0.5 days	139																			
141	Traffic Impact Assessment(Final)	30 days	0 days	30 days	0%	Mon 3/8/20	Tue 1/9/20	NA	NA	Sat 24/4/21	Sun 23/5/21	264 days	0.5 days	140																			
142	ACABAS (Draft)	69 days	69 days	0 days	100%	Thu 30/5/19	Tue 6/8/19	Thu 30/5/19	Tue 6/8/19	Thu 30/5/19	Tue 6/8/19	0 days	2 days	4																			
143	Address Committee's comments	30 days	30 days	0 days	100%	Wed 7/8/19	Thu 5/9/19	Wed 7/8/19	Thu 5/9/19	Wed 7/8/19	Thu 5/9/19	0 days	2 days	142																			
144	ACABAS Re-submission Preparation & Submission	61 days	61 days	0 days	100%	Fri 6/9/19	Tue 5/11/19	Fri 6/9/19	Tue 5/11/19	Fri 6/9/19	Tue 5/11/19	0 days	2 days	143																			
145	ACABAS Submission Approved	63 days	63 days	0 days	100%	Wed 6/11/19	Tue 7/1/20	Wed 6/11/19	Tue 7/1/20	Wed 6/11/19	Tue 7/1/20	0 days	2 days	144																			
146	VCAB and DAP Submission	22 days	22 days	0 days	100%	Mon 10/2/20	Mon 2/3/20	Mon 10/2/20	Mon 2/3/20	Mon 10/2/20	Mon 2/3/20	0 days	2 days	4																			
147	Comment by PM and Relevant Authorities	21 days	21 days	0 days	100%	Tue 3/3/20	Mon 23/3/20	Tue 3/3/20	Mon 23/3/20	Tue 3/3/20	Mon 23/3/20	0 days	2 days	146																			
148	Stage 1: VCAB and DAP Submission	50 days	0 days	50 days	0%	Fri 12/6/20	Fri 31/7/20	NA	NA	Sat 4/7/20	Sat 22/8/20	22 days	2 days	147,44FF+21 da																			
149	Comment by PM and Relevant Authorities	50 days	0 days	50 days	0%	Sat 1/8/20	Sat 19/9/20	NA	NA	Sun 23/8/20	Sun 11/10/20	22 days	2 days	148																			
150	Stage 2: VCAB and DAP Submission	30 days	0 days	30 days	0%	Sun 20/9/20	Mon 19/10/20	NA	NA	Fri 13/11/20	Sat 12/12/20	54 days		149																			
151	Comment by PM and Relevant Authorities	50 days	0 days	50 days	0%	Tue 20/10/20	Tue 8/12/20	NA	NA	Sun 13/12/20	Sun 31/1/21	54 days		150																			
152	Draft Utility Report Submission	19 days	19 days	0 days	100%	Mon 2/9/19	Fri 20/9/19	Mon 2/9/19	Fri 20/9/19	Mon 2/9/19	Fri 20/9/19	0 days	2 days																				
153	Draft Utility Report Comment & Approval	17 days	17 days	0 days	100%	Sat 21/9/19	Mon 7/10/19	Sat 21/9/19	Mon 7/10/19	Sat 21/9/19	Mon 7/10/19	0 days	2 days																				
154	Final Utility Report Submission	52 days	52 days	0 days	100%	Mon 2/12/19	Wed 22/1/20	Mon 2/12/19	Wed 22/1/20	Mon 2/12/19	Wed 22/1/20	0 days	2 days																				
155	Final Utility Report Submission Comment & Approval	38 days	0 days	38 days	0%	Thu 30/1/20	Mon 29/6/20	Thu 30/1/20	NA	Thu 30/1/20	Tue 1/3/22	610 days	2 days	154																			
156	Operational and Maintenance Manual (Draft) Submission	14 days	0 days	14 days	0%	Mon 19/12/22	Sun 1/1/23	NA	NA	Sat 25/2/23	Fri 10/3/23	68 days	2 days	1556																			
157	Operational and Maintenance Manual (Final) Submission	32 days	0 days	32 days	0%	Wed 1/2/23	Sat 4/3/23	NA	NA	Mon 10/4/23	Thu 11/5/23	68 days	2 days	156FS+30 days																			
158	As-built and As-fabrication Drawing Submission	0 days	0 days	0 days	0%	Thu 11/5/23	Thu 11/5/23	NA	NA	Thu 11/5/23	Thu 11/5/23	0 days	2 days	1558																			
159	Site Investigation	561 days	167.98 days	393.02 days	0%	Sat 1/6/19	Sat 12/12/20	Sat 1/6/19	NA	Sat 1/6/19	Tue 1/3/22	444 days																					
160	Ground Investigation Proposal (Draft)	56 days	56 days	0 days	100%	Sat 1/6/19	Fri 26/7/19	Sat 1/6/19	Fri 26/7/19	Sat 1/6/19	Fri 26/7/19	0 days	1 days	4																			
161	Submit & endorse by Gov. Depts and PM	6 days	6 days	0 days	100%	Sat 27/7/19	Thu 1/8/19	Sat 27/7/19	Thu 1/8/19	Sat 27/7/19	Thu 1/8/19	0 days	1 days	160																			
162	Ground Investigation Proposal (Final)	30 days	0 days	30 days	0%	Tue 1/9/20	Wed 30/9/20	NA	NA	Mon 20/12/21	Tue 18/1/22	475 days	1 days	161																			
163	Submit and endorse by Gov. Depts and PM	14 days	0 days	14 days	0%	Thu 1/10/20	Wed 14/10/20	NA	NA	Wed 19/1/22	Tue 1/2/22	475 days	1 days	162																			
164	Supervise the SI Carry Out on Site	199 days	44 days	155 days	22%	Sat 10/8/19	Sat 24/10/20	Sat 10/8/19	NA	Sat 10/8/19	Tue 11/1/22	444 days	4 days	161																			
165	Submit SI Report(Draft) for Comment	21 days	0 days	21 days	0%	Sun 25/10/20	Sat 14/11/20	NA	NA	Wed 12/1/22	Tue 1/2/22	444 days	1 days	164																			
166	Submit and endorse SI Report(Final) by Project Manager	28 days	0 days	28 days	0%	Sun 15/11/20	Sat 12/12/20	NA	NA	Wed 2/2/22	Tue 1/3/22	444 days	1 days	165,163																			
167	Lifts (LT3 & LT4),Staircase and Associated Works (Structure)	431 days	165.12 days	265.88 days	0%	Thu 12/9/19	Sun 15/11/20	Thu 12/9/19	NA	Thu 12/9/19	Thu 3/12/20	18 days																					
168	Prepare AIP Submission with E&M provision (Draft)	75 days	75 days	0 days	100%	Thu 12/9/19	Mon 25/11/19	Thu 12/9/19	Mon 25/11/19	Thu 12/9/19	Mon 25/11/19	0 days	3 days																				
169	Submit & endorse by PM and Statutory Authorities/Gov. Dept	21 days	21 days	0 days	100%	Tue 26/11/19	Mon 16/12/19	Tue 26/11/19	Mon 16/12/19	Tue 26/11/19	Mon 16/12/19	0 days	0.5 days	168																			
170	Submit & endorse by Statutory Authorities/Gov. Dept	22 days	22 days	0 days	100%	Fri 28/2/20	Fri 20/3/20	Fri 28/2/20	Fri 20/3/20	Fri 28/2/20	Fri 20/3/20	0 days	2 days	168																			
171	Prepare AIP and ICE certification (Final)	25 days	0 days	25 days	0%	Mon 29/6/20	Thu 23/7/20	NA	NA	Fri 10/7/20	Mon 3/8/20	11 days	0 days	168,169,170,44F																			
172	Prepare DDA and ICE certification (Draft)	50 days	0 days	50 days	0%	Thu 4/6/20	Thu 23/7/20	NA	NA	Mon 15/6/20	Mon 3/8/20	11 days	4 days	168,171FF																			
173	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Fri 24/7/20	Fri 11/9/20	NA	NA	Tue 4/8/20	Tue 22/9/20	11 days	3 days	172																			
174	Prepare DDA for and ICE certification (Final)	15 days	0 days	15 days	0%	Sat 12/9/20	Sat 26/9/20	NA	NA	Wed 30/9/20	Wed 14/10/20	18 days	1 days	173,145FF,171F																			

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Contract No. ED/2018/01 KTD Project

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020				2021				2022				2023							
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2			
175	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Sun 27/9/20	Sun 15/11/20	NA	NA	Thu 15/10/20	Thu 3/12/20	18 days	3 days	174																				
176	Noise barrier fronting to 4B5 at Rd D3A & Bus Lay By (Section 5&9)	338 days	215.23 days	122.77 days	0%	Mon 4/11/19	Tue 6/10/20	Mon 4/11/19	NA	Mon 4/11/19	Wed 7/10/20	1 day																						
177	Prepare AIP Submission (Draft)	38 days	38 days	0 days	100%	Mon 4/11/19	Wed 11/12/19	Mon 4/11/19	Wed 11/12/...	Mon 4/11/19	Wed 11/12/19	0 days	2 days																					
178	Submit & endorse by PM and Statutory Authorities/Gov. Dept	167 days	162 days	5 days	97%	Thu 12/12/19	Tue 26/5/20	Thu 12/12/19	NA	Thu 12/12/19	Wed 27/5/20	1 day																						
179	Prepare AIP and ICE certification (Final)	56 days	31 days	25 days	55%	Wed 22/4/20	Tue 16/6/20	Wed 22/4/20	NA	Wed 22/4/20	Wed 17/6/20	1 day		178FF+21 days																				
180	Prepare DDA Subm (Draft)	18 days	18 days	0 days	100%	Wed 1/4/20	Sat 18/4/20	Wed 1/4/20	Sat 18/4/20	Wed 1/4/20	Sat 18/4/20	0 days	0.5 days																					
181	Submit & endorse by PM	55 days	35 days	20 days	64%	Sat 18/4/20	Thu 11/6/20	Sat 18/4/20	NA	Sat 18/4/20	Thu 6/8/20	56 days		180																				
182	Submit & endorse by Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Wed 17/6/20	Wed 5/8/20	NA	NA	Thu 18/6/20	Thu 6/8/20	1 day		180,179																				
183	Prepare DDA for and ICE certification (Final) (Original Contract Scope)	12 days	0 days	12 days	0%	Thu 6/8/20	Mon 17/8/20	NA	NA	Fri 7/8/20	Tue 18/8/20	1 day	1 days	181,182																				
184	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Tue 18/8/20	Tue 6/10/20	NA	NA	Wed 19/8/20	Wed 7/10/20	1 day	1 days	183																				
185	Decking for Underpass (Rd L14)	304 days	0 days	304 days	0%	Mon 20/7/20	Wed 19/5/21	NA	NA	Fri 31/7/20	Sun 30/5/21	11 days																						
186	Structure Prepare AIP and ICE certification (Draft)	25 days	0 days	25 days	0%	Mon 20/7/20	Thu 13/8/20	NA	NA	Fri 31/7/20	Mon 24/8/20	11 days	3 days	44FF+12 days																				
187	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Fri 14/8/20	Fri 2/10/20	NA	NA	Tue 25/8/20	Tue 13/10/20	11 days	0.5 days	186																				
188	Prepare AIP and ICE certification (Final)	15 days	0 days	15 days	0%	Sat 3/10/20	Sat 17/10/20	NA	NA	Wed 14/10/20	Wed 28/10/20	11 days	1 day	186,187																				
189	Prepare DDA and ICE certification (Draft)	89 days	0 days	89 days	0%	Sun 18/10/20	Thu 14/1/21	NA	NA	Thu 29/10/20	Mon 25/1/21	11 days	1 day	186,188																				
190	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Fri 15/1/21	Fri 5/3/21	NA	NA	Tue 26/1/21	Tue 16/3/21	11 days	0.5 days	189																				
191	Prepare DDA and ICE certification (Final)	25 days	0 days	25 days	0%	Sat 6/3/21	Tue 30/3/21	NA	NA	Wed 17/3/21	Sat 10/4/21	11 days	2 days	190																				
192	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Wed 31/3/21	Wed 19/5/21	NA	NA	Sun 11/4/21	Sun 30/5/21	11 days	1 day	191																				
193	Road D3 Bridge & Approach Ramps	439 days	358.08 days	80.92 days	0%	Thu 30/5/19	Mon 10/8/20	Thu 30/5/19	NA	Thu 30/5/19	Thu 8/10/20	59 days		4																				
194	D3 Bridge Substructure	439 days	358.08 days	80.92 days	0%	Thu 30/5/19	Mon 10/8/20	Thu 30/5/19	NA	Thu 30/5/19	Thu 8/10/20	59 days																						
195	Prepare AIP and ICE certification (Draft)	66 days	66 days	0 days	100%	Thu 30/5/19	Sat 3/8/19	Thu 30/5/19	Sat 3/8/19	Thu 30/5/19	Sat 3/8/19	0 days	3 days	4																				
196	Submit & endorse by PM and Statutory Authorities/Gov. Dept	15 days	15 days	0 days	100%	Mon 5/8/19	Mon 19/8/19	Mon 5/8/19	Mon 19/8/19	Mon 5/8/19	Mon 19/8/19	0 days	1 days	195,138																				
197	Prepare AIP and ICE certification (Final)	30 days	30 days	0 days	100%	Mon 23/12/19	Tue 21/1/20	Mon 23/12/19	Tue 21/1/20	Mon 23/12/19	Tue 21/1/20	0 days	0 days	195,196																				
198	Prepare DDA and ICE certification (Draft)	106 days	106 days	0 days	100%	Fri 19/7/19	Sun 17/11/19	Fri 19/7/19	Sun 17/11/19	Fri 19/7/19	Sun 17/11/19	0 days	5 days	195																				
199	Submit & endorse by PM	17 days	17 days	0 days	100%	Wed 20/11/19	Fri 6/12/19	Wed 20/11/19	Fri 6/12/19	Wed 20/11/19	Fri 6/12/19	0 days	3 days	198																				
200	Submit & endorse by Statutory Authorities/Gov. Dept	45 days	45 days	0 days	100%	Fri 24/1/20	Wed 18/3/20	Fri 24/1/20	Wed 18/3/20	Fri 24/1/20	Wed 18/3/20	0 days	1 days	198																				
201	Prepare DDA for and ICE certification (Include P02-BP2 Remedial Pile) (Contractor Bear DDA Approval Risk)	105 days	75 days	30 days	71%	Mon 9/3/20	Sun 21/6/20	Mon 9/3/20	NA	Mon 9/3/20	Wed 19/8/20	59 days	1 days	200																				
202	Submit & endorse by PM and Statutory Authorities/Gov. Dept (Contractor Bear DDA Approval Risk)	50 days	0 days	50 days	0%	Mon 22/6/20	Mon 10/8/20	NA	NA	Thu 20/8/20	Thu 8/10/20	59 days	1 days	201																				
203	D3 Bridge Superstructure	728 days	370.67 days	357.33 days	0%	Thu 30/5/19	Wed 26/5/21	Thu 30/5/19	NA	Thu 30/5/19	Wed 21/7/21	56 days																						
204	Prepare AIP and ICE certification (Draft)	101 days	101 days	0 days	100%	Thu 30/5/19	Sat 7/9/19	Thu 30/5/19	Sat 7/9/19	Thu 30/5/19	Sat 7/9/19	0 days	1 day																					
205	Submit & endorse by PM and Statutory Authorities/Gov. Dept	19 days	19 days	0 days	100%	Mon 9/9/19	Fri 27/9/19	Mon 9/9/19	Fri 27/9/19	Mon 9/9/19	Fri 27/9/19	0 days	1 day	204																				
206	Prepare AIP and ICE certification (Final)	135 days	135 days	0 days	100%	Wed 20/11/19	Thu 2/4/20	Wed 20/11/19	Thu 2/4/20	Wed 20/11/19	Thu 2/4/20	0 days	3 days	205																				
207	Prepare DDA and ICE certification (Draft)	222 days	222 days	0 days	100%	Fri 19/7/19	Tue 25/2/20	Fri 19/7/19	Tue 25/2/20	Fri 19/7/19	Tue 25/2/20	0 days	3 days	205																				
208	Submit & endorse by PM	23 days	23 days	0 days	100%	Wed 26/2/20	Thu 19/3/20	Wed 26/2/20	Thu 19/3/20	Wed 26/2/20	Thu 19/3/20	0 days	2 days	207																				
209	Submit & endorse by Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Mon 29/6/20	Mon 17/8/20	NA	NA	Thu 16/7/20	Thu 3/9/20	17 days	2 days	207,206FF+12 d																				
210	Prepare DDA for and ICE certification (Final)	21 days	0 days	21 days	0%	Tue 18/8/20	Mon 7/9/20	NA	NA	Fri 4/9/20	Thu 24/9/20	17 days	1 days	208,206,209																				
211	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Tue 8/9/20	Tue 27/10/20	NA	NA	Fri 25/9/20	Fri 13/11/20	17 days	2 days	210																				
212	Prepare AIP (E&M works) and ICE certification (Draft)	32 days	0 days	32 days	0%	Thu 2/7/20	Sun 2/8/20	NA	NA	Thu 27/8/20	Sun 27/9/20	56 days	2 days																					
213	Submit & endorse by PM and Statutory Authorities/Gov. Dept	62 days	0 days	62 days	0%	Mon 3/8/20	Sat 3/10/20	NA	NA	Mon 28/9/20	Sat 28/11/20	56 days	2 days	212																				
214	Prepare AIP (E&M works) and ICE certification (Final)	32 days	0 days	32 days	0%	Sun 4/10/20	Wed 4/11/20	NA	NA	Sun 29/11/20	Wed 30/12/20	56 days	2 days	213																				
215	Submit & endorse by PM and Statutory Authorities/Gov. Dept	62 days	0 days	62 days	0%	Thu 5/11/20	Tue 5/1/21	NA	NA	Thu 31/12/20	Tue 2/3/21	56 days	2 days	214																				
216	Prepare DDA (E&M works) and ICE certification (Draft)	32 days	0 days	32 days	0%	Sat 5/12/20	Tue 5/1/21	NA	NA	Sat 30/1/21	Tue 2/3/21	56 days	2 days	215FF																				
217	Submit & endorse by PM and Statutory Authorities/Gov. Dept	62 days	0 days	62 days	0%	Wed 6/1/21	Mon 8/3/21	NA	NA	Wed 3/3/21	Mon 3/5/21	56 days	2 days	216																				
218	Prepare DDA (E&M works) and ICE certification (Final)	17 days	0 days	17 days	0%	Tue 9/3/21	Thu 25/3/21	NA	NA	Tue 4/5/21	Thu 20/5/21	56 days	2 days	217																				
219	Submit & endorse by PM and Statutory Authorities/Gov. Dept	62 days	0 days	62 days	0%	Fri 26/3/21	Wed 26/5/21	NA	NA	Fri 21/5/21	Wed 21/7/21	56 days	2 days	218																				

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Task	Summary	Inactive Milestone	Manual Task	Duration-only	Start-only	External Milestone	Critical Split
Split	Project Summary	Inactive Summary	Manual Summary Rollup	Manual Summary	Finish-only	Deadline	Progress
Milestone	Inactive Task	Manual Milestone	Manual Milestone	Manual Summary	External Tasks	Critical	Manual Progress

Table with 20 columns: ID, Task Name, Duration, Actual Duration, Remaining Duration, Physical % Complete, Early Start, Early Finish, Actual Start, Actual Finish, Late Start, Late Finish, Total Slack, TRA, Predecessors, and quarterly breakdowns for 2020, 2021, 2022, and 2023.

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Contract No. ED/2018/01 KTD Project

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020				2021				2022				2023				20						
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2						
265	Submit & endorse by PM and Statutory Authorities/Gov. Dept	62 days	0 days	62 days	0%	Fri 6/11/20	Wed 6/1/21	NA	NA	Sat 12/12/20	Thu 11/2/21	36 days	2 days	264																							
266	Prepare AIP (E&M works) and ICE certification (Final)	32 days	0 days	32 days	0%	Thu 7/1/21	Sun 7/2/21	NA	NA	Fri 12/2/21	Mon 15/3/21	36 days	2 days	265																							
267	Submit & endorse by PM and Statutory Authorities/Gov. Dept	62 days	0 days	62 days	0%	Mon 8/2/21	Sat 10/4/21	NA	NA	Tue 16/3/21	Sun 16/5/21	36 days	2 days	266																							
268	Prepare DDA (E&M works) and ICE certification (Draft)	32 days	0 days	32 days	0%	Wed 10/3/21	Sat 10/4/21	NA	NA	Thu 15/4/21	Sun 16/5/21	36 days	2 days	267FF																							
269	Submit & endorse by PM and Statutory Authorities/Gov. Dept	62 days	0 days	62 days	0%	Sun 11/4/21	Fri 11/6/21	NA	NA	Mon 17/5/21	Sat 17/7/21	36 days	2 days	268																							
270	Prepare DDA (E&M works) and ICE certification (Final)	17 days	0 days	17 days	0%	Sat 12/6/21	Mon 28/6/21	NA	NA	Sun 18/7/21	Tue 3/8/21	36 days	2 days	269																							
271	Submit & endorse by PM and Statutory Authorities/Gov. Dept	62 days	0 days	62 days	0%	Tue 29/6/21	Sun 29/8/21	NA	NA	Wed 4/8/21	Mon 4/10/21	36 days	2 days	270																							
272	Prepare AIP (E&M works) and Architectural Finishes of Underpass (Road L14) and ICE certification (Draft)	31 days	0 days	31 days	0%	Mon 3/8/20	Wed 2/9/20	NA	NA	Thu 31/3/22	Sat 30/4/22	605 days	1 day																								
273	Submit & endorse by PM and Statutory Authorities/Gov. Dept	51 days	0 days	51 days	0%	Thu 3/9/20	Fri 23/10/20	NA	NA	Sun 1/5/22	Mon 20/6/22	605 days	1 day	272																							
274	Prepare AIP (E&M works) and Architectural Finishes of Underpass (Road L14) and ICE certification (Final)	14 days	0 days	14 days	0%	Sat 24/10/20	Fri 6/11/20	NA	NA	Tue 21/6/22	Mon 4/7/22	605 days	2 days	273																							
275	Submit & endorse by PM and Statutory Authorities/Gov. Dept	74 days	0 days	74 days	0%	Sat 7/11/20	Tue 19/1/21	NA	NA	Tue 5/7/22	Fri 16/9/22	605 days	1 day	274																							
276	Prepare DDA (E&M works) and Architectural Finishes of Underpass (Road L14) and ICE certification (Draft)	31 days	0 days	31 days	0%	Sun 20/12/20	Tue 19/1/21	NA	NA	Wed 17/8/22	Fri 16/9/22	605 days	1 day	275FF																							
277	Submit & endorse by PM and Statutory Authorities/Gov. Dept	51 days	0 days	51 days	0%	Wed 20/1/21	Thu 11/3/21	NA	NA	Sat 17/9/22	Sun 6/11/22	605 days	1 day	276																							
278	Prepare DDA (E&M works) and Architectural Finishes of Underpass (Road L14) and ICE certification (Final)	15 days	0 days	15 days	0%	Fri 12/3/21	Fri 26/3/21	NA	NA	Mon 7/11/22	Mon 21/11/22	605 days	1 day	277																							
279	Submit & endorse by PM and Statutory Authorities/Gov. Dept	51 days	0 days	51 days	0%	Sat 27/3/21	Sun 16/5/21	NA	NA	Tue 22/11/22	Wed 11/1/23	605 days	1 day	278																							
280	E&M Work for Pump House of Underpass D3	364 days	83.71 days	280.29 days	0%	Mon 24/2/20	Sun 21/2/21	Mon 24/2/20	NA	Mon 24/2/20	Wed 18/8/21	178 days																									
281	Prepare AIP (E&M works) Submission (Draft)	11 days	11 days	0 days	0%	Mon 24/2/20	Thu 5/3/20	Mon 24/2/20	Thu 5/3/20	Mon 24/2/20	Thu 5/3/20	0 days	2 days																								
282	Submit & endorse by PM and Statutory Authorities/Gov. Dept	160 days	78 days	82 days	49%	Fri 6/3/20	Wed 12/8/20	Fri 6/3/20	NA	Fri 6/3/20	Sat 15/8/20	3 days	2 days	281																							
283	Prepare AIP (E&M works) and ICE certification (Final)	21 days	0 days	21 days	0%	Thu 13/8/20	Wed 2/9/20	NA	NA	Sun 16/8/20	Sat 5/9/20	3 days	2 days	282,44FF+12 da																							
284	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Thu 3/9/20	Thu 22/10/20	NA	NA	Sun 6/9/20	Sun 25/10/20	3 days	2 days	283																							
285	Prepare DDA (E&M works) and ICE certification (Draft)	30 days	0 days	30 days	0%	Wed 30/9/20	Thu 29/10/20	NA	NA	Sat 3/10/20	Sun 1/11/20	3 days	2 days	284FF+7 days																							
286	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Fri 30/10/20	Fri 18/12/20	NA	NA	Mon 2/11/20	Mon 21/12/20	3 days	2 days	285																							
287	Prepare DDA (E&M works) and ICE certification (Final)	15 days	0 days	15 days	0%	Sat 19/12/20	Sat 2/1/21	NA	NA	Tue 22/12/20	Tue 5/1/21	3 days	2 days	286																							
288	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Sun 3/1/21	Sun 21/2/21	NA	NA	Wed 30/6/21	Wed 18/8/21	178 days	2 days	287																							
289	Depressed Road (North) Structure	463 days	335.18 days	127.82 days	0%	Thu 16/5/19	Thu 20/8/20	Thu 16/5/19	NA	Thu 16/5/19	Thu 11/5/23	994 days																									
290	Prepare AIP and ICE certification (Draft)	65 days	65 days	0 days	100%	Thu 16/5/19	Fri 2/8/19	Thu 16/5/19	Fri 2/8/19	Thu 16/5/19	Fri 2/8/19	0 days	1 days	4																							
291	Submit & endorse by PM and Statutory Authorities/Gov. Dept	33 days	33 days	0 days	100%	Sat 3/8/19	Wed 4/9/19	Sat 3/8/19	Wed 4/9/19	Sat 3/8/19	Wed 4/9/19	0 days	2 days	290																							
292	Prepare AIP and ICE certification (Final)	44 days	44 days	0 days	100%	Mon 9/12/19	Tue 21/1/20	Mon 9/12/19	Tue 21/1/20	Mon 9/12/19	Tue 21/1/20	0 days	0 days	291																							
293	Prepare DDA and ICE certification (Draft)	57 days	57 days	0 days	100%	Tue 24/9/19	Tue 19/11/19	Tue 24/9/19	Tue 19/11/19	Tue 24/9/19	Tue 19/11/19	0 days	5 days	290																							
294	Submit & endorse by PM	17 days	17 days	0 days	100%	Tue 19/11/19	Thu 5/12/19	Tue 19/11/19	Thu 5/12/19	Tue 19/11/19	Thu 5/12/19	0 days	1 day	293																							
295	Submit & endorse by Statutory Authorities/Gov. Dept	20 days	20 days	0 days	100%	Wed 19/2/20	Mon 9/3/20	Wed 19/2/20	Mon 9/3/20	Wed 19/2/20	Mon 9/3/20	0 days	1 day	293																							
296	Prepare DDA for and ICE certification (Final)	30 days	0 days	30 days	0%	Sat 23/5/20	Sun 21/6/20	NA	NA	Sat 11/2/23	Sun 12/3/23	994 days	3 days	294,292FF,295																							
297	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	0 days	60 days	0%	Mon 22/6/20	Thu 20/8/20	NA	NA	Mon 13/3/23	Thu 11/5/23	994 days	5 days	296																							
298	Depressed Road (North) E&M Works	322 days	0 days	322 days	0%	Mon 21/9/20	Sun 8/8/21	NA	NA	Tue 17/11/20	Mon 4/10/21	57 days																									
299	Prepare AIP (E&M works) and ICE certification (Draft)	31 days	0 days	31 days	0%	Mon 21/9/20	Wed 21/10/20	NA	NA	Tue 17/11/20	Thu 17/12/20	57 days	1 day																								
300	Submit & endorse by PM and Statutory Authorities/Gov. Dept	61 days	0 days	61 days	0%	Thu 22/10/20	Mon 21/12/20	NA	NA	Fri 18/12/20	Tue 16/2/21	57 days	1 day	299																							
301	Prepare AIP (E&M works) and ICE certification (Final)	31 days	0 days	31 days	0%	Tue 22/12/20	Thu 21/1/21	NA	NA	Wed 17/2/21	Fri 19/3/21	57 days	1 day	300																							
302	Submit & endorse by PM and Statutory Authorities/Gov. Dept	61 days	0 days	61 days	0%	Fri 22/1/21	Tue 23/3/21	NA	NA	Sat 20/3/21	Wed 19/5/21	57 days	1 day	301																							
303	Prepare DDA (E&M works) and ICE certification (Draft)	31 days	0 days	31 days	0%	Sun 21/2/21	Tue 23/3/21	NA	NA	Mon 19/4/21	Wed 19/5/21	57 days	1 day	302FF																							
304	Submit & endorse by PM and Statutory Authorities/Gov. Dept	61 days	0 days	61 days	0%	Wed 24/3/21	Sun 23/5/21	NA	NA	Thu 20/5/21	Mon 19/7/21	57 days	1 day	303																							
305	Prepare DDA (E&M works) and ICE certification (Final)	16 days	0 days	16 days	0%	Mon 24/5/21	Tue 8/6/21	NA	NA	Tue 20/7/21	Wed 4/8/21	57 days	1 day	304																							
306	Submit & endorse by PM and Statutory Authorities/Gov. Dept	61 days	0 days	61 days	0%	Wed 9/6/21	Sun 8/8/21	NA	NA	Thu 5/8/21	Mon 4/10/21	57 days	1 day	305																							
307	Depressed Road (South) and Substructure of Elevated Landscape Deck	463 days	333.16 days	129.84 days	0%	Mon 10/6/19	Mon 14/9/20	Mon 10/6/19	NA	Mon 10/6/19	Thu 15/10/20	31 days																									
308	Prepare AIP and ICE certification (Draft)	54 days	54 days	0 days	100%	Mon 10/6/19	Fri 2/8/19	Mon 10/6/19	Fri 2/8/19	Mon 10/6/19	Fri 2/8/19	0 days	1 days																								
309	Submit & endorse by PM and Statutory Authorities/Gov. Dept	81 days	81 days	0 days	100%	Sat 3/8/19	Tue 22/10/19	Sat 3/8/19	Tue 22/10/19	Sat 3/8/19	Tue 22/10/19	0 days	2 days	308																							

Contract No. ED/2018/01 KTD Project

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020				2021				2022				2023								
															Q2	Q3	Q4		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
310	Prepare AIP and ICE certification (Final)	270 days	222 days	48 days	82%	Tue 15/10/19	Fri 10/7/20	Tue 15/10/19	NA	Tue 15/10/19	Mon 10/8/20	31 days	0 days	309,44FF+12 da																					
311	Prepare DDA certification (Draft)	27 days	27 days	0 days	100%	Mon 10/2/20	Sat 7/3/20	Mon 10/2/20	Sat 7/3/20	Mon 10/2/20	Sat 7/3/20	0 days	5 days	308																					
312	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	24 days	51 days	32%	Wed 29/4/20	Thu 16/7/20	Wed 29/4/20	NA	Wed 29/4/20	Sun 16/8/20	31 days	1 days	311,310FF+6 days																					
313	Prepare DDA for and ICE certification (Final)	10 days	0 days	10 days	0%	Fri 17/7/20	Sun 26/7/20	NA	NA	Mon 17/8/20	Wed 26/8/20	31 days	0.5 days	312																					
314	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Mon 27/7/20	Mon 14/9/20	NA	NA	Thu 27/8/20	Thu 15/10/20	31 days	0.5 days	313																					
315	South Depressed Road (E&M Works)	382 days	0 days	382 days	0%	Mon 7/9/20	Thu 23/9/21	NA	NA	Fri 18/9/20	Mon 4/10/21	11 days																							
316	Prepare AIP (E&M works) and ICE certification (Draft)	31 days	0 days	31 days	0%	Mon 7/9/20	Wed 7/10/20	NA	NA	Fri 18/9/20	Sun 18/10/20	11 days	1 day																						
317	Submit & endorse by PM and Statutory Authorities/Gov. Dept	76 days	0 days	76 days	0%	Thu 8/10/20	Tue 22/12/20	NA	NA	Mon 19/10/20	Sat 2/1/21	11 days	1 day	316																					
318	Prepare AIP (E&M works) and ICE certification (Final)	31 days	0 days	31 days	0%	Wed 23/12/20	Fri 22/1/21	NA	NA	Sun 3/1/21	Tue 2/2/21	11 days	1 day	317																					
319	Submit & endorse by PM and Statutory Authorities/Gov. Dept	76 days	0 days	76 days	0%	Sat 23/1/21	Thu 8/4/21	NA	NA	Wed 3/2/21	Mon 19/4/21	11 days	1 day	318																					
320	Prepare DDA (E&M works) and ICE certification (Draft)	31 days	0 days	31 days	0%	Tue 9/3/21	Thu 8/4/21	NA	NA	Sat 20/3/21	Mon 19/4/21	11 days	1 day	319FF																					
321	Submit & endorse by PM and Statutory Authorities/Gov. Dept	76 days	0 days	76 days	0%	Fri 9/4/21	Wed 23/6/21	NA	NA	Tue 20/4/21	Sun 4/7/21	11 days	1 day	320																					
322	Prepare DDA (E&M works) and ICE certification (Final)	16 days	0 days	16 days	0%	Thu 24/6/21	Fri 9/7/21	NA	NA	Mon 5/7/21	Tue 20/7/21	11 days	1 day	321																					
323	Submit & endorse by PM and Statutory Authorities/Gov. Dept	76 days	0 days	76 days	0%	Sat 10/7/21	Thu 23/9/21	NA	NA	Wed 21/7/21	Mon 4/10/21	11 days	1 day	322																					
324	Road Works (Civil Works)	662 days	196.01 days	465.99 days	0%	Tue 13/8/19	Fri 4/6/21	Tue 13/8/19	NA	Tue 13/8/19	Tue 14/12/21	193 days																							
325	Prepare AIP for At-grade Road D3 and ICE certification (Draft)	57 days	57 days	0 days	100%	Tue 13/8/19	Tue 8/10/19	Tue 13/8/19	Tue 8/10/19	Tue 13/8/19	Tue 8/10/19	0 days	1 day	293SS+75 days																					
326	Submit & endorse by PM	21 days	21 days	0 days	100%	Wed 9/10/19	Tue 29/10/19	Wed 9/10/19	Tue 29/10/19	Wed 9/10/19	Tue 29/10/19	0 days	0.5 days	325																					
327	Submit & endorse by Statutory Authorities/Gov. Dept	24 days	24 days	0 days	100%	Wed 30/10/19	Fri 22/11/19	Wed 30/10/19	Fri 22/11/19	Wed 30/10/19	Fri 22/11/19	0 days	1 day	325																					
328	Prepare AIP for At-grade Road D3 and ICE certification (Final)	57 days	57 days	0 days	100%	Thu 5/3/20	Mon 4/5/20	Thu 5/3/20	Mon 4/5/20	Thu 5/3/20	Mon 4/5/20	0 days	0 days	326FS+12 days,327,44FF+																					
329	Prepare DDA for At-grade Road D3 and ICE certification (Draft)	210 days	0 days	210 days	0%	Sat 23/5/20	Fri 18/12/20	NA	NA	Wed 2/12/20	Tue 29/6/21	193 days	5 days	325FS+100 days,328FF+6																					
330	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Sat 19/12/20	Wed 3/3/21	NA	NA	Wed 30/6/21	Sun 12/9/21	193 days	0.5 days	329																					
331	Prepare DDA for At-grade Road D3 and ICE certification (Final)	16 days	0 days	16 days	0%	Thu 4/3/21	Fri 19/3/21	NA	NA	Mon 13/9/21	Tue 28/9/21	193 days	1 day	330																					
332	Submit & endorse by PM and Statutory Authorities/Gov. Dept	77 days	0 days	77 days	0%	Sat 20/3/21	Fri 4/6/21	NA	NA	Wed 29/9/21	Tue 14/12/21	193 days	2 days	331																					
333	Remaining Road Works (E&M Works)	382 days	0 days	382 days	0%	Mon 5/10/20	Thu 21/10/21	NA	NA	Sat 13/2/21	Tue 1/3/22	131 days																							
334	Prepare AIP (E&M works) and ICE certification (Draft)	31 days	0 days	31 days	0%	Mon 5/10/20	Wed 4/11/20	NA	NA	Sat 13/2/21	Mon 15/3/21	131 days	1 day																						
335	Submit & endorse by PM and Statutory Authorities/Gov. Dept	76 days	0 days	76 days	0%	Thu 5/11/20	Tue 19/1/21	NA	NA	Tue 16/3/21	Sun 30/5/21	131 days	1 day	334																					
336	Prepare AIP (E&M works) and ICE certification (Final)	31 days	0 days	31 days	0%	Wed 20/1/21	Fri 19/2/21	NA	NA	Mon 31/5/21	Wed 30/6/21	131 days	1 day	335																					
337	Submit & endorse by PM and Statutory Authorities/Gov. Dept	76 days	0 days	76 days	0%	Sat 20/2/21	Thu 6/5/21	NA	NA	Thu 1/7/21	Tue 14/9/21	131 days	1 day	336																					
338	Prepare DDA (E&M works) and ICE certification (Draft)	31 days	0 days	31 days	0%	Tue 6/4/21	Thu 6/5/21	NA	NA	Sun 15/8/21	Tue 14/9/21	131 days	1 day	337FF																					
339	Submit & endorse by PM and Statutory Authorities/Gov. Dept	76 days	0 days	76 days	0%	Fri 7/5/21	Wed 21/7/21	NA	NA	Wed 15/9/21	Mon 29/11/21	131 days	1 day	338																					
340	Prepare DDA (E&M works) and ICE certification (Final)	16 days	0 days	16 days	0%	Thu 22/7/21	Fri 6/8/21	NA	NA	Tue 30/11/21	Wed 15/12/21	131 days	1 day	339																					
341	Submit & endorse by PM and Statutory Authorities/Gov. Dept	76 days	0 days	76 days	0%	Sat 7/8/21	Thu 21/10/21	NA	NA	Thu 16/12/21	Tue 1/3/22	131 days	1 day	340																					
342	Road L12d Works (Roadworks)	791 days	261.27 days	529.73 days	0%	Tue 6/8/19	Mon 4/10/21	Tue 6/8/19	NA	Tue 6/8/19	Tue 28/2/23	512 days																							
343	Prepare AIP for Road L12d Submission (Draft)	64 days	64 days	0 days	100%	Tue 6/8/19	Tue 8/10/19	Tue 6/8/19	Tue 8/10/19	Tue 6/8/19	Tue 8/10/19	0 days	1 day	325																					
344	Submit & endorse by PM and Statutory Authorities/Gov. Dept	377 days	227 days	150 days	60%	Wed 9/10/19	Mon 19/10/20	Wed 9/10/19	NA	Wed 9/10/19	Tue 15/3/22	512 days																							
345	Prepare AIP for Road L12d (Include E&M Provision Works) and ICE certification (Final)	120 days	0 days	120 days	0%	Tue 20/10/20	Tue 16/2/21	NA	NA	Wed 16/3/22	Wed 13/7/22	512 days	0 days	343,44FF+12 days,344																					
346	Prepare DDA for Road L12d (Include E&M Provision Works) and ICE certification (Draft)	120 days	0 days	120 days	0%	Thu 19/11/20	Thu 18/3/21	NA	NA	Fri 15/4/22	Fri 12/8/22	512 days	1 day	343FS+260 days,345FF+30																					
347	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Fri 19/3/21	Tue 1/6/21	NA	NA	Sat 13/8/22	Wed 26/10/22	512 days	0.5 days	346																					
348	Prepare DDA for Road L12d (Include E&M Provision Works) and ICE certification (Final)	50 days	0 days	50 days	0%	Wed 2/6/21	Wed 21/7/21	NA	NA	Thu 27/10/22	Thu 15/12/22	512 days	0 days	347,345FF																					
349	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Thu 22/7/21	Mon 4/10/21	NA	NA	Fri 16/12/22	Tue 28/2/23	512 days	0 days	348																					
350	Road Lighting of Road D3 (E&M)	469 days	129.19 days	339.81 days	0%	Mon 6/1/20	Sun 18/4/21	Mon 6/1/20	NA	Mon 6/1/20	Sun 1/8/21	105 days																							
351	Prepare AIP (E&M works) Submission (Draft)	30 days	30 days	0 days	100%	Mon 6/1/20	Tue 4/2/20	Mon 6/1/20	Tue 4/2/20	Mon 6/1/20	Tue 4/2/20	0 days	2 days																						
352	Submit & endorse by Statutory Authorities/Gov. Dept and PM	190 days	108 days	82 days	57%	Wed 5/2/20	Wed 12/8/20	Wed 5/2/20	NA	Wed 5/2/20	Wed 25/11/20	105 days		351																					
353	Prepare AIP (E&M works) and ICE certification (Final)	32 days	0 days	32 days	0%	Thu 13/8/20	Sun 13/9/20	NA	NA	Thu 26/11/20	Sun 27/12/20	105 days	2 days	352																					
354	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	0 days	60 days	0%	Mon 14/9/20	Thu 12/11/20	NA	NA	Mon 28/12/20	Thu 25/2/21	105 days	2 days	353																					

**Title: Rev.11 Prog with Progress as of 22-May-20**

- Task █ Summary  Inactive Milestone ◇ Duration-only  Start-only  External Milestone  Critical Split ⋮
- Split  Project Summary  Inactive Summary

**Contract No. ED/2018/01 KTD Project**

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020		2021				2022				2023				20												
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2										
355	Prepare DDA (E&M works) and ICE certification (Draft)	32 days	0 days	32 days	0%	Mon 12/10/20	Thu 12/11/20	NA	NA	Mon 25/1/21	Thu 25/2/21	105 days	2 days	354FF																											
356	Submit & endorse by PM and Statutory Authorities/Gov. Dept	77 days	0 days	77 days	0%	Fri 13/1/20	Thu 28/1/21	NA	NA	Fri 26/2/21	Thu 13/5/21	105 days	2 days	355																											
357	Prepare DDA (E&M works) and ICE certification (Final)	3 days	0 days	3 days	0%	Fri 29/1/21	Sun 31/1/21	NA	NA	Fri 14/5/21	Sun 16/5/21	105 days	2 days	356																											
358	Submit & endorse by PM and Statutory Authorities/Gov. Dept	77 days	0 days	77 days	0%	Mon 1/2/21	Sun 18/4/21	NA	NA	Mon 17/5/21	Sun 1/8/21	105 days	2 days	357																											
359	Road L12d Works (E&M Works)	329 days	0 days	329 days	0%	Mon 5/10/20	Sun 29/8/21	NA	NA	Mon 1/2/21	Sun 26/12/21	119 days																													
360	Prepare AIP (E&M works) and ICE certification (Draft)	32 days	0 days	32 days	0%	Mon 5/10/20	Thu 5/11/20	NA	NA	Mon 1/2/21	Thu 4/3/21	119 days	2 days																												
361	Submit & endorse by PM and Statutory Authorities/Gov. Dept	62 days	0 days	62 days	0%	Fri 6/11/20	Wed 6/1/21	NA	NA	Fri 5/3/21	Wed 5/5/21	119 days	2 days	360																											
362	Prepare AIP (E&M works) and ICE certification (Final)	32 days	0 days	32 days	0%	Thu 7/1/21	Sun 7/2/21	NA	NA	Thu 6/5/21	Sun 6/6/21	119 days	2 days	361																											
363	Submit & endorse by PM and Statutory Authorities/Gov. Dept	62 days	0 days	62 days	0%	Mon 8/2/21	Sat 10/4/21	NA	NA	Mon 7/6/21	Sat 7/8/21	119 days	2 days	362																											
364	Prepare DDA (E&M works) and ICE certification (Draft)	32 days	0 days	32 days	0%	Wed 10/3/21	Sat 10/4/21	NA	NA	Wed 7/7/21	Sat 7/8/21	119 days	2 days	363FF																											
365	Submit & endorse by PM and Statutory Authorities/Gov. Dept	62 days	0 days	62 days	0%	Sun 11/4/21	Fri 11/6/21	NA	NA	Sun 8/8/21	Fri 8/10/21	119 days	2 days	364																											
366	Prepare DDA (E&M works) and ICE certification (Final)	17 days	0 days	17 days	0%	Sat 12/6/21	Mon 28/6/21	NA	NA	Sat 9/10/21	Mon 25/10/21	119 days	2 days	365																											
367	Submit & endorse by PM and Statutory Authorities/Gov. Dept	62 days	0 days	62 days	0%	Tue 29/6/21	Sun 29/8/21	NA	NA	Tue 26/10/21	Sun 26/12/21	119 days	2 days	366																											
368	Roadworks other than at-grade Road D3 and Road L12d (Civil Works)	609 days	238.54 days	370.46 days	0%	Mon 2/9/19	Sun 2/5/21	Mon 2/9/19	NA	Mon 2/9/19	Sun 23/5/21	21 days																													
369	AIP for Roadworks - Roadworks other than at-grade Road D3 and Road L12d (Draft)	36 days	36 days	0 days	100%	Mon 2/9/19	Mon 7/10/19	Mon 2/9/19	Mon 7/10/19	Mon 2/9/19	Mon 7/10/19	0 days	0.5 days																												
370	Submit & endorse by PM and Statutory Authorities/Gov. Dept	288 days	228 days	60 days	79%	Tue 8/10/19	Tue 21/7/20	Tue 8/10/19	NA	Tue 8/10/19	Tue 11/8/20	21 days	0.5 days	369																											
371	AIP for Roadworks - Roadworks other than at-grade Road D3 and Road L12d (Final)	75 days	0 days	75 days	0%	Wed 22/7/20	Sun 4/10/20	NA	NA	Wed 12/8/20	Sun 25/10/20	21 days	0.5 days	370,44FF+12 days																											
372	DDA for Roadworks - Roadworks other than at-grade Road D3 and Road L12d (Draft)	95 days	0 days	95 days	0%	Sat 1/8/20	Tue 3/11/20	NA	NA	Sat 22/8/20	Tue 24/11/20	21 days	1 day	371FF+30 days																											
373	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Wed 4/11/20	Sun 17/1/21	NA	NA	Wed 25/11/20	Sun 7/2/21	21 days	0.5 days	372																											
374	DDA for Roadworks - Roadworks other than at-grade Road D3 and Road L12d (Final)	30 days	0 days	30 days	0%	Mon 18/1/21	Tue 16/2/21	NA	NA	Mon 8/2/21	Tue 9/3/21	21 days	0.5 days	371,372,373																											
375	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Wed 17/2/21	Sun 2/5/21	NA	NA	Wed 10/3/21	Sun 23/5/21	21 days	0.5 days	374																											
376	Roadworks - EVA to Sewerage and Saltwater Pumping Station (Civil Works)	413 days	68.26 days	344.74 days	0%	Wed 4/3/20	Tue 20/4/21	Wed 4/3/20	NA	Wed 4/3/20	Fri 17/2/23	668 days																													
377	AIP for Roadworks - EVA to Sewerage and Saltwater Pumping Station (Draft)	46 days	46 days	0 days	100%	Wed 4/3/20	Sat 18/4/20	Wed 4/3/20	Sat 18/4/20	Wed 4/3/20	Sat 18/4/20	0 days	0.5 days																												
378	Submit & endorse by PM and Statutory Authorities/Gov. Dept	82 days	33 days	49 days	40%	Sat 18/4/20	Wed 8/7/20	Sat 18/4/20	NA	Sat 18/4/20	Mon 23/5/22	684 days		377																											
379	AIP for Roadworks - EVA to Sewerage and Saltwater Pumping Station (Final)	75 days	0 days	75 days	0%	Thu 9/7/20	Mon 21/9/20	NA	NA	Tue 24/5/22	Sat 6/8/22	684 days	0.5 days	378																											
380	DDA for Roadworks - EVA to Sewerage and Saltwater Pumping Station (Draft)	95 days	0 days	95 days	0%	Mon 20/7/20	Thu 22/10/20	NA	NA	Thu 19/5/22	Sun 21/8/22	668 days	1 day	379FF+15 days																											
381	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Fri 23/10/20	Tue 5/1/21	NA	NA	Mon 22/8/22	Fri 4/1/22	668 days	0.5 days	380																											
382	DDA for Roadworks - EVA to Sewerage and Saltwater Pumping Station (Final)	30 days	0 days	30 days	0%	Wed 6/1/21	Thu 4/2/21	NA	NA	Sat 5/11/22	Sun 4/12/22	668 days	0.5 days	379,380,381																											
383	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Fri 5/2/21	Tue 20/4/21	NA	NA	Mon 5/12/22	Fri 17/2/23	668 days	0.5 days	382																											
384	Road Lighting of Road other than Road D3 (E&M)	356 days	0 days	356 days	0%	Fri 29/5/20	Wed 19/5/21	NA	NA	Tue 2/6/20	Sun 23/5/21	4 days																													
385	Prepare AIP (E&M works) and ICE certification (Draft)	38 days	0 days	38 days	0%	Fri 29/5/20	Sun 5/7/20	NA	NA	Tue 2/6/20	Thu 9/7/20	4 days	2 days																												
386	Submit & endorse by PM and Statutory Authorities/Gov. Dept	77 days	0 days	77 days	0%	Mon 6/7/20	Sun 20/9/20	NA	NA	Fri 10/7/20	Thu 24/9/20	4 days	2 days	385																											
387	Prepare AIP (E&M works) and ICE certification (Final)	32 days	0 days	32 days	0%	Mon 21/9/20	Thu 22/10/20	NA	NA	Fri 25/9/20	Mon 26/10/20	4 days	2 days	386																											
388	Submit & endorse by PM and Statutory Authorities/Gov. Dept	62 days	0 days	62 days	0%	Fri 23/10/20	Wed 23/12/20	NA	NA	Tue 27/10/20	Sun 27/12/20	4 days	2 days	387																											
389	Prepare DDA (E&M works) and ICE certification (Draft)	32 days	0 days	32 days	0%	Sun 22/11/20	Wed 23/12/20	NA	NA	Thu 26/11/20	Sun 27/12/20	4 days	2 days	388FF																											
390	Submit & endorse by PM and Statutory Authorities/Gov. Dept	62 days	0 days	62 days	0%	Thu 24/12/20	Tue 23/2/21	NA	NA	Mon 28/12/20	Sat 27/2/21	4 days	2 days	389																											
391	Prepare DDA (E&M works) and ICE certification (Final)	23 days	0 days	23 days	0%	Wed 24/2/21	Thu 18/3/21	NA	NA	Sun 28/2/21	Mon 22/3/21	4 days	2 days	390																											
392	Submit & endorse by PM and Statutory Authorities/Gov. Dept	62 days	0 days	62 days	0%	Fri 19/3/21	Wed 19/5/21	NA	NA	Tue 23/3/21	Sun 23/5/21	4 days	2 days	391																											
393	Roadworks other than at-grade Road D3 and Road L12d (E&M Works)	322 days	0 days	322 days	0%	Thu 2/7/20	Wed 19/5/21	NA	NA	Mon 6/7/20	Sun 23/5/21	4 days																													
394	Prepare AIP (E&M works) and ICE certification (Draft)	31 days	0 days	31 days	0%	Thu 2/7/20	Sat 1/8/20	NA	NA	Mon 6/7/20	Wed 5/8/20	4 days	1 day																												
395	Submit & endorse by PM and Statutory Authorities/Gov. Dept	61 days	0 days	61 days	0%	Sun 2/8/20	Thu 1/10/20	NA	NA	Thu 6/8/20	Mon 5/10/20	4 days	1 day	394																											
396	Prepare AIP (E&M works) and ICE certification (Final)	31 days	0 days	31 days	0%	Fri 2/10/20	Sun 1/11/20	NA	NA	Tue 6/10/20	Thu 5/11/20	4 days	1 day	395																											
397	Submit & endorse by PM and Statutory Authorities/Gov. Dept	61 days	0 days	61 days	0%	Mon 2/11/20	Fri 1/1/21	NA	NA	Fri 6/11/20	Tue 5/1/21	4 days	1 day	396																											
398	Prepare DDA (E&M works) and ICE certification (Draft)	31 days	0 days	31 days	0%	Wed 2/12/20	Fri 1/1/21	NA	NA	Sun 6/12/20	Tue 5/1/21	4 days	1 day	397FF																											
399	Submit & endorse by PM and Statutory Authorities/Gov. Dept	61 days	0 days	61 days	0%	Sat 2/1/21	Wed 3/3/21	NA	NA	Wed 6/1/21	Sun 7/3/21	4 days	1 day	398																											

Title: Rev.11 Prog with Progress as of 22-May-20

Task	<
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Contract No. ED/2018/01 KTD Project

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020		2021				2022				2023							
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
400	Prepare DDA (E&M works) and ICE certification (Final)	16 days	0 days	16 days	0%	Thu 4/3/21	Fri 19/3/21	NA	NA	Mon 8/3/21	Tue 23/3/21	4 days	1 day	399																		
401	Submit & endorse by PM and Statutory Authorities/Gov. Dept	61 days	0 days	61 days	0%	Sat 20/3/21	Wed 19/5/21	NA	NA	Wed 24/3/21	Sun 23/5/21	4 days	1 day	400																		
402	DCS Seawater & Intake Box Culverts (approx 88m) (Section 2)	479 days	304.41 days	174.59 days	0%	Tue 13/8/19	Thu 3/12/20	Tue 13/8/19	NA	Tue 13/8/19	Tue 3/8/21	243 days																				
403	Prepare AIP Subm with ICE certification (Draft)	165 days	165 days	0 days	100%	Tue 13/8/19	Fri 24/1/20	Tue 13/8/19	Fri 24/1/20	Tue 13/8/19	Fri 24/1/20	0 days	3 days																			
404	Submit & endorse by PM	85 days	85 days	0 days	100%	Thu 23/1/20	Thu 16/4/20	Thu 23/1/20	Thu 16/4/20	Thu 23/1/20	Thu 16/4/20	0 days	1 day	403																		
405	Submit & endorse by Statutory Authorities/Gov. Dept	90 days	90 days	0 days	100%	Fri 24/1/20	Mon 27/4/20	Fri 24/1/20	Mon 27/4/20	Fri 24/1/20	Mon 27/4/20	0 days	1 day	403																		
406	Prepare AIP and ICE certification (Final)	0 days	0 days	0 days	100%	Thu 23/4/20	Mon 27/4/20	Thu 23/4/20	Mon 27/4/20	Thu 23/4/20	Mon 27/4/20	0 days	1 days	403,405,404																		
407	Prepare DDA and ICE certification	80 days	0 days	80 days	0%	Sat 23/5/20	Mon 10/8/20	NA	NA	Thu 21/1/21	Sat 10/4/21	243 days	5 days	403SS,406FF+15																		
408	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Tue 11/8/20	Tue 29/9/20	NA	NA	Sun 11/4/21	Sun 30/5/21	243 days	3 days	407																		
409	Prepare DDA for and ICE certification (Final)	15 days	0 days	15 days	0%	Wed 30/9/20	Wed 14/10/20	NA	NA	Mon 31/5/21	Mon 14/6/21	243 days	1 day	408																		
410	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Thu 15/10/20	Thu 3/12/20	NA	NA	Tue 15/6/21	Tue 3/8/21	243 days	2 days	409																		
411	Seawater & Intake Box Culverts Diversion	248 days	49.98 days	198.02 days	0%	Wed 1/4/20	Fri 4/12/20	Wed 1/4/20	NA	Wed 1/4/20	Wed 6/10/21	306 days																				
412	Prepare AIP Subm (Draft)	32 days	32 days	0 days	100%	Wed 1/4/20	Sat 2/5/20	Wed 1/4/20	Sat 2/5/20	Wed 1/4/20	Sat 2/5/20	0 days	3 days																			
413	Submit & endorse by PM and Statutory Authorities/Gov. Dept	51 days	21 days	30 days	41%	Sat 2/5/20	Mon 22/6/20	Sat 2/5/20	NA	Sat 2/5/20	Tue 17/11/20	148 days	3 days	412																		
414	Prepare AIP and ICE certification (Final)	15 days	0 days	15 days	0%	Tue 23/6/20	Tue 7/7/20	NA	NA	Wed 18/11/20	Wed 2/12/20	148 days	1 days	412,413																		
415	Prepare DDA and ICE certification	50 days	0 days	50 days	0%	Tue 23/6/20	Tue 11/8/20	NA	NA	Sun 25/4/21	Sun 13/6/21	306 days	5 days	412SS,413FF+50																		
416	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Wed 12/8/20	Wed 30/9/20	NA	NA	Mon 14/6/21	Mon 2/8/21	306 days	3 days	415																		
417	Prepare DDA for and ICE certification (Final)	15 days	0 days	15 days	0%	Thu 1/10/20	Thu 15/10/20	NA	NA	Tue 3/8/21	Tue 17/8/21	306 days	1 day	416																		
418	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Fri 16/10/20	Fri 4/12/20	NA	NA	Wed 18/8/21	Wed 6/10/21	306 days	2 days	417																		
419	Rising Main (Sewerage Works)	402 days	134 days	268 days	0%	Thu 2/1/20	Sat 6/2/21	Thu 2/1/20	NA	Thu 2/1/20	Sun 7/3/21	29 days																				
420	Prepare AIP (Draft)	35 days	35 days	0 days	100%	Thu 2/1/20	Wed 5/2/20	Thu 2/1/20	Wed 5/2/20	Thu 2/1/20	Wed 5/2/20	0 days	3 days	4																		
421	Submit & endorse by PM	19 days	19 days	0 days	100%	Thu 6/2/20	Mon 24/2/20	Thu 6/2/20	Mon 24/2/20	Thu 6/2/20	Mon 24/2/20	0 days	1 day																			
422	Submit & endorse by PM and Statutory Authorities/Gov. Dept	56 days	56 days	0 days	100%	Thu 27/2/20	Fri 22/5/20	Thu 27/2/20	Fri 22/5/20	Thu 27/2/20	Fri 22/5/20	0 days	2 days	420																		
423	Prepare AIP and ICE certification (Final)	75 days	0 days	75 days	0%	Thu 2/7/20	Mon 14/9/20	NA	NA	Fri 31/7/20	Tue 13/10/20	29 days	0 days	420,422,421																		
424	Prepare DDA and ICE certification (Draft)	30 days	0 days	30 days	0%	Tue 15/9/20	Wed 14/10/20	NA	NA	Wed 14/10/20	Thu 12/11/20	29 days	4 days	420SS,423																		
425	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Thu 15/10/20	Thu 3/12/20	NA	NA	Fri 13/11/20	Fri 1/1/21	29 days	3 days	424,420																		
426	Prepare DDA and ICE certification (Final)	15 days	0 days	15 days	0%	Fri 4/12/20	Fri 18/12/20	NA	NA	Sat 2/1/21	Sat 16/1/21	29 days	0 days	425																		
427	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Sat 19/12/20	Sat 6/2/21	NA	NA	Sun 17/1/21	Sun 7/3/21	29 days	3 days	426,423																		
428	Stormwater, Sewage, Salt Water and Fresh Water Works for Underpass and Depressed Road	641 days	151.9 days	489.1 days	0%	Fri 13/9/19	Mon 14/6/21	Fri 13/9/19	NA	Fri 13/9/19	Mon 28/6/21	14 days																				
429	Stormwater Drainage AIP for Underpass and Depressed Roads and ICE certification (Draft)	72 days	72 days	0 days	100%	Mon 2/12/19	Tue 11/2/20	Mon 2/12/19	Tue 11/2/20	Mon 2/12/19	Tue 11/2/20	0 days	1 day																			
430	Submit & endorse by PM	51 days	51 days	0 days	30%	Wed 12/2/20	Thu 2/4/20	Wed 12/2/20	Thu 2/4/20	Wed 12/2/20	Thu 2/4/20	0 days	0.5 days	429																		
431	Submit & endorse by Statutory Authorities/Gov. Dept	139 days	64 days	75 days	46%	Fri 20/3/20	Wed 5/8/20	Fri 20/3/20	NA	Fri 20/3/20	Fri 30/10/20	86 days		429																		
432	Prepare AIP and ICE certification (Final)	150 days	50 days	100 days	33%	Fri 3/4/20	Sun 30/8/20	Fri 3/4/20	NA	Fri 3/4/20	Sat 14/11/20	76 days		431FF+15 days																		
433	Prepare DDA and ICE certification (Draft)	150 days	0 days	150 days	0%	Sat 23/5/20	Mon 19/10/20	NA	NA	Sat 18/7/20	Mon 14/12/20	56 days	1 day	429,432FF+30 d																		
434	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	0 days	90 days	0%	Tue 20/10/20	Sun 17/1/21	NA	NA	Tue 15/12/20	Sun 14/3/21	56 days	0.5 days	433																		
435	Prepare DDA and ICE certification (Final)	31 days	0 days	31 days	0%	Mon 18/1/21	Wed 17/2/21	NA	NA	Mon 15/3/21	Wed 14/4/21	56 days	1 day	434																		
436	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Thu 18/2/21	Mon 3/5/21	NA	NA	Thu 15/4/21	Mon 28/6/21	56 days	5 days	435																		
437	Fresh and Salt Water Works AIP for Underpass, Depressed Road and ICE certification (Draft)	51 days	51 days	0 days	100%	Tue 8/10/19	Wed 27/11/19	Tue 8/10/19	Wed 27/11/19	Tue 8/10/19	Wed 27/11/19	0 days	1 day																			
438	Submit & endorse by PM	26 days	26 days	0 days	100%	Thu 28/11/19	Mon 23/12/19	Thu 28/11/19	Mon 23/12/19	Thu 28/11/19	Mon 23/12/19	0 days	0.5 days	437																		
439	Submit & endorse by Statutory Authorities/Gov. Dept	14 days	14 days	0 days	100%	Wed 8/4/20	Fri 24/4/20	Wed 8/4/20	Fri 24/4/20	Wed 8/4/20	Fri 24/4/20	0 days	3 days	437																		
440	Prepare AIP for Underpass, Depressed Road and ICE certification (Final)	22 days	22 days	0 days	100%	Sat 25/4/20	Sat 16/5/20	Sat 25/4/20	Sat 16/5/20	Sat 25/4/20	Sat 16/5/20	0 days	0 days	438,439																		
441	Prepare DDA for Underpass, Depressed Road and ICE certification (Draft)	90 days	0 days	90 days	0%	Sun 17/5/20	Fri 14/8/20	NA	NA	Fri 2/10/20	Wed 30/12/20	138 days	1 day	440																		
442	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Sat 15/8/20	Wed 28/10/20	NA	NA	Thu 31/12/20	Mon 15/3/21	138 days	0.5 days	441																		
443	Prepare DDA for Underpass, Depressed Road and ICE certification (Final)	30 days	0 days	30 days	0%	Thu 29/10/20	Fri 27/11/20	NA	NA	Tue 16/3/21	Wed 14/4/21	138 days	0 days	442																		
444	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Sat 28/11/20	Wed 10/2/21	NA	NA	Thu 15/4/21	Mon 28/6/21	138 days	0 days	443																		

Title: Rev.11 Prog with Progress as of 22-May-20	Task		Summary		Inactive Milestone		Start-only		External Milestone		Critical Split
	Split										



Contract No. ED/2018/01 KTD Project

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2023 Q2	2023 Q3	2023 Q4	2024 Q1	2024 Q2
490	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	0 days	60 days	0%	Wed 3/2/21	Sat 3/4/21	NA	NA	Sun 8/8/21	Wed 6/10/21	186 days	0.5 days	489																	
491	AIP for Saltwater & Freshwater - Road L12d (Draft)	40 days	40 days	0 days	100%	Fri 1/11/19	Tue 10/12/19	Fri 1/11/19	Tue 10/12/19	Fri 1/11/19	Tue 10/12/19	0 days	1 day																		
492	Submit & endorse by PM	31 days	31 days	0 days	100%	Wed 11/12/19	Fri 10/1/20	Wed 11/12/19	Fri 10/1/20	Wed 11/12/19	Fri 10/1/20	0 days	0.5 days	491																	
493	Submit & endorse by Statutory Authorities/Gov. Dept	14 days	14 days	0 days	100%	Thu 9/4/20	Wed 6/5/20	Thu 9/4/20	Wed 6/5/20	Thu 9/4/20	Wed 6/5/20	0 days	1 day	491																	
494	AIP for Saltwater & Freshwater Works - Road L12d (Final)	12 days	12 days	0 days	100%	Thu 7/5/20	Mon 18/5/20	Thu 7/5/20	Mon 18/5/20	Thu 7/5/20	Mon 18/5/20	0 days	0.5 days	491,492,493																	
495	DDA for Saltwater & Freshwater Works - Road L12d (Draft)	60 days	0 days	60 days	0%	Tue 19/5/20	Fri 17/7/20	NA	NA	Thu 11/3/21	Sun 9/5/21	296 days	1 day	491,494																	
496	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	0 days	60 days	0%	Sat 18/7/20	Tue 15/9/20	NA	NA	Mon 10/5/21	Thu 8/7/21	296 days	0.5 days	495																	
497	DDA for Saltwater & Freshwater Works - Road L12d (Final)	30 days	0 days	30 days	0%	Wed 16/9/20	Thu 15/10/20	NA	NA	Fri 9/7/21	Sat 7/8/21	296 days	1 day	494,495,496																	
498	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	0 days	60 days	0%	Fri 16/10/20	Mon 14/12/20	NA	NA	Sun 8/8/21	Wed 6/10/21	296 days	0.5 days	497																	
499	Fresh and Salt Works AIP - Waterfront Promenade and at grade Open Space (Draft)	40 days	40 days	0 days	100%	Fri 1/11/19	Tue 10/12/19	Fri 1/11/19	Tue 10/12/19	Fri 1/11/19	Tue 10/12/19	0 days	1 day																		
500	Submit & endorse by PM	31 days	31 days	0 days	100%	Wed 11/12/19	Fri 10/1/20	Wed 11/12/19	Fri 10/1/20	Wed 11/12/19	Fri 10/1/20	0 days	0.5 days	499																	
501	Submit & endorse by PM/Statutory Authorities/Gov. Dept	14 days	14 days	0 days	100%	Thu 9/4/20	Mon 18/5/20	Thu 9/4/20	Mon 18/5/20	Thu 9/4/20	Mon 18/5/20	0 days	0.5 days																		
502	Fresh and Salt Works AIP - Waterfront Promenade and at grade Open Space (Final)	0 days	0 days	0 days	100%	Mon 11/5/20	Mon 18/5/20	Mon 11/5/20	Mon 18/5/20	Mon 11/5/20	Mon 18/5/20	0 days	0.5 days	499,500,501																	
503	Fresh and Salt Works DDA - Waterfront Promenade and at grade Open Space (Draft)	90 days	0 days	90 days	0%	Tue 19/5/20	Sun 16/8/20	NA	NA	Sat 19/12/20	Thu 18/3/21	214 days	1 day	499,502																	
504	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Mon 17/8/20	Fri 30/10/20	NA	NA	Fri 19/3/21	Tue 1/6/21	214 days	0.5 days	503																	
505	Fresh and Salt Works DDA - Waterfront Promenade and at grade Open Space (Final)	52 days	0 days	52 days	0%	Sat 31/10/20	Mon 21/12/20	NA	NA	Wed 2/6/21	Fri 23/7/21	214 days	1 day	502,503,504																	
506	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Tue 22/12/20	Sat 6/3/21	NA	NA	Sat 24/7/21	Wed 6/10/21	214 days	0.5 days	505																	
507	AIP for Water Works - Remaining Fresh Water and Salt Water works (Draft)	40 days	40 days	0 days	100%	Fri 1/11/19	Tue 10/12/19	Fri 1/11/19	Tue 10/12/19	Fri 1/11/19	Tue 10/12/19	0 days	1 day	499SS																	
508	Submit & endorse by PM	31 days	31 days	0 days	100%	Wed 11/12/19	Fri 10/1/20	Wed 11/12/19	Fri 10/1/20	Wed 11/12/19	Fri 10/1/20	0 days	0.5 days	507																	
509	Submit & endorse by PM/Statutory Authorities/Gov. Dept	14 days	14 days	0 days	100%	Thu 9/4/20	Thu 7/5/20	Thu 9/4/20	Thu 7/5/20	Thu 9/4/20	Thu 7/5/20	0 days	2 days	507																	
510	AIP for Water Works - Remaining Fresh Water and Salt Water works (Final)	11 days	11 days	0 days	100%	Thu 7/5/20	Mon 18/5/20	Thu 7/5/20	Mon 18/5/20	Thu 7/5/20	Mon 18/5/20	0 days	0.5 days	507,508,509																	
511	DDA for Water Works - Remaining Fresh Water and Salt Water works (Draft)	50 days	0 days	50 days	0%	Mon 8/6/20	Mon 27/7/20	NA	NA	Fri 19/2/21	Fri 9/4/21	256 days	1 day	507,510																	
512	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Tue 28/7/20	Sat 10/10/20	NA	NA	Sat 10/4/21	Wed 23/6/21	256 days	0.5 days	511																	
513	DDA for Water Works - Remaining Fresh Water and Salt Water works (Final)	30 days	0 days	30 days	0%	Sun 11/10/20	Mon 9/11/20	NA	NA	Thu 24/6/21	Fri 23/7/21	256 days	1 day	510,511,512																	
514	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Tue 10/11/20	Sat 23/1/21	NA	NA	Sat 24/7/21	Wed 6/10/21	256 days	0.5 days	513																	
515	Pumping Stations, Box Culverts and Intake Structures	845 days	100.29 days	744.71 days	0%	Mon 2/12/19	Fri 25/3/22	Mon 2/12/19	NA	Mon 2/12/19	Thu 5/5/22	41 days																			
516	Prepare AIP for Salt Water and Sewage Pumping Structures (Draft)	29 days	29 days	0 days	100%	Mon 2/12/19	Mon 30/12/19	Mon 2/12/19	Mon 30/12/19	Mon 2/12/19	Mon 30/12/19	0 days	1 day	4																	
517	Submit & endorse by PM	11 days	11 days	0 days	100%	Tue 31/12/19	Fri 10/1/20	Tue 31/12/19	Fri 10/1/20	Tue 31/12/19	Fri 10/1/20	0 days	0.5 days	516																	
518	Submit & endorse by Statutory Authorities/Gov. Dept	27 days	27 days	0 days	100%	Fri 27/3/20	Wed 29/4/20	Fri 27/3/20	Wed 29/4/20	Fri 27/3/20	Wed 29/4/20	0 days	2 days																		
519	Prepare AIP for Salt Water & Sewage Pumping Structures and ICE certification (Final)	36 days	0 days	36 days	0%	Thu 2/7/20	Thu 6/8/20	NA	NA	Thu 10/6/21	Thu 15/7/21	343 days	1 day	516,517,518FF+ days																	
520	Prepare DDA for Salt Water & Sewage Pumping Structures and ICE certification (Draft)	45 days	0 days	45 days	0%	Tue 1/9/20	Thu 15/10/20	NA	NA	Tue 10/8/21	Thu 23/9/21	343 days	1 day	516,518FF+21 days,519FF+70 days																	
521	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Fri 16/10/20	Fri 4/12/20	NA	NA	Fri 24/9/21	Fri 12/11/21	343 days	0.5 days	520																	
522	Prepare DDA for Salt Water & Sewage Pumping Structures and ICE certification (Final)	45 days	0 days	45 days	0%	Sat 5/12/20	Mon 18/1/21	NA	NA	Sat 13/11/21	Mon 27/12/21	343 days	0.5 days	521,519FF																	
523	Submit & endorse by PM and Statutory Authorities/Gov. Dept	50 days	0 days	50 days	0%	Tue 19/1/21	Tue 9/3/21	NA	NA	Tue 28/12/21	Tue 15/2/22	343 days		522																	
524	Prepare E&M Works AIP for Sewage Pumping Station (Draft)	29 days	29 days	0 days	100%	Tue 7/1/20	Tue 4/2/20	Tue 7/1/20	Tue 4/2/20	Tue 7/1/20	Tue 4/2/20	0 days	2 days																		
525	Submit & endorse by PM	10 days	10 days	0 days	100%	Wed 5/2/20	Fri 14/2/20	Wed 5/2/20	Fri 14/2/20	Wed 5/2/20	Fri 14/2/20	0 days	0.5 days	516,524																	
526	Submit & endorse by Statutory Authorities/Gov. Dept	55 days	30 days	25 days	55%	Thu 23/4/20	Tue 16/6/20	Thu 23/4/20	NA	Thu 23/4/20	Sun 13/9/20	89 days	2 days	524,525																	
527	Prepare AIP for Sewage Pumping Station E&M works and ICE certification (Final)	77 days	0 days	77 days	0%	Wed 17/6/20	Tue 1/9/20	NA	NA	Mon 14/9/20	Sun 29/11/20	89 days	2 days	526																	
528	Prepare DDA for Sewage Pumping Station E&M works and ICE certification (Draft)	120 days	0 days	120 days	0%	Wed 24/6/20	Wed 21/10/20	NA	NA	Mon 21/9/20	Mon 18/1/21	89 days	1 day	516,526FF,527FF days																	
529	Submit & endorse by PM and Statutory Authorities/Gov. Dept	70 days	0 days	70 days	0%	Thu 22/10/20	Wed 30/12/20	NA	NA	Tue 19/1/21	Mon 29/3/21	89 days	1 day	528																	
530	Prepare DDA for Sewage Pumping Station and ICE certification (Final)	31 days	0 days	31 days	0%	Thu 31/12/20	Sat 30/1/21	NA	NA	Tue 30/3/21	Thu 29/4/21	89 days	1 day	529,527FF+6 days																	
531	Submit & endorse by PM and Statutory Authorities/Gov. Dept	91 days	0 days	91 days	0%	Sun 31/1/21	Sat 1/5/21	NA	NA	Fri 30/4/21	Thu 29/7/21	89 days	1 day	530																	
532	Prepare E&M Works AIP for Salt Water Pumping (Draft)	29 days	29 days	0 days	100%	Tue 7/1/20	Tue 4/2/20	Tue 7/1/20	Tue 4/2/20	Tue 7/1/20	Tue 4/2/20	0 days	2 days																		
533	Submit & endorse by PM	10 days	10 days	0 days	100%	Wed 5/2/20	Fri 14/2/20	Wed 5/2/20	Fri 14/2/20	Wed 5/2/20	Fri 14/2/20	0 days	0.5 days	532,516																	
534	Submit & endorse by Statutory Authorities/Gov. Dept	60 days	24 days	36 days	40%	Wed 29/4/20	Sat 27/6/20	Wed 29/4/20	NA	Wed 29/4/20	Sat 12/9/20	77 days	2 days	532,533																	

**Title: Rev.11 Prog with Progress as of 22-May-20**

Task	Summary	Inactive Milestone	Duration-only	Start-only	External Milestone	Critical Split
Split	Project Summary	Inactive Summary	Manual Summary Rollup	Finish-only	Deadline	Progress
Milestone	Inactive Task	Manual Task	Manual Summary	External Tasks	Critical	Manual Progress





Contract No. ED/2018/01 KTD Project

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020		2021				2022				2023													
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2							
620	Submit & endorse by PM and Statutory Authorities/Gov. Dept	63 days	0 days	63 days	0%	Thu 20/8/20	Wed 21/10/20	NA	NA	Mon 21/9/20	Sun 22/11/20	32 days	3 days	619																								
621	AIP for Cladding Design of Landscape Deck, Lifts and associated Works (Final)	52 days	0 days	52 days	0%	Thu 22/10/20	Sat 12/12/20	NA	NA	Mon 23/11/20	Wed 13/1/21	32 days	2 days	619,620																								
622	DDA for Cladding Design of Landscape Deck, Lifts and associated Works (Draft)	61 days	0 days	61 days	0%	Thu 12/11/20	Mon 11/1/21	NA	NA	Mon 14/12/20	Fri 12/2/21	32 days	1 day	619,621FF+30 days																								
623	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	0 days	60 days	0%	Tue 12/1/21	Fri 12/3/21	NA	NA	Sat 13/2/21	Tue 13/4/21	32 days	1 day	622																								
624	DDA for Cladding Design of Landscape Deck, Lifts and associated Works (Final)	21 days	0 days	21 days	0%	Sat 13/3/21	Fri 2/4/21	NA	NA	Wed 14/4/21	Tue 4/5/21	32 days	1 day	621FF,622,623																								
625	Submit & endorse by PM and Statutory Authorities/Gov. Dept	62 days	0 days	62 days	0%	Sat 3/4/21	Thu 3/6/21	NA	NA	Wed 5/5/21	Mon 5/7/21	32 days	2 days	624																								
626	AIP for Balustrade and Railing of Promenade, Open Space and Associated Works (Draft)	30 days	0 days	30 days	0%	Sat 1/8/20	Sun 30/8/20	NA	NA	Tue 29/9/20	Wed 28/10/20	59 days	1 day																									
627	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	0 days	60 days	0%	Mon 31/8/20	Thu 29/10/20	NA	NA	Thu 29/10/20	Sun 27/12/20	59 days	1 day	626																								
628	AIP for Balustrade and Railing of Promenade, Open Space and Associated Works (Final)	25 days	0 days	25 days	0%	Fri 30/10/20	Mon 23/11/20	NA	NA	Mon 28/12/20	Thu 21/1/21	59 days	0.5 days	626,627																								
629	DDA for Balustrade and Railing of Promenade, Open Space and Associated Works (Draft)	50 days	0 days	50 days	0%	Wed 4/11/20	Wed 23/12/20	NA	NA	Sat 2/1/21	Sat 20/2/21	59 days	1 day	626,628FF+30 days																								
630	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	0 days	60 days	0%	Thu 24/12/20	Sun 21/2/21	NA	NA	Sun 21/2/21	Wed 21/4/21	59 days	0 days	629																								
631	DDA for Balustrade and Railing of Promenade, Open Space and Associated Works (Final)	15 days	0 days	15 days	0%	Mon 22/2/21	Mon 8/3/21	NA	NA	Thu 22/4/21	Thu 6/5/21	59 days	1 day	628,629,630																								
632	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	0 days	60 days	0%	Tue 9/3/21	Fri 7/5/21	NA	NA	Fri 7/5/21	Mon 5/7/21	59 days	0 days	631																								
633	Prepare AIP for Permanent Building Works (i.e. Amphitheater, Observation Tower, Toilet Block, Light Refreshment Kiosk, Refuse Collection Block, Back of House Building Blocks) and ICE certification (Draft)	60 days	0 days	60 days	0%	Wed 29/7/20	Sat 26/9/20	NA	NA	Thu 20/8/20	Sun 18/10/20	22 days	1 day	149FF+7 days																								
634	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	0 days	60 days	0%	Sun 27/9/20	Wed 25/11/20	NA	NA	Tue 3/11/20	Fri 1/1/21	37 days	0.5 days	633																								
635	Prepare AIP for Permanent Building Works (i.e. Amphitheater, Observation Tower, Toilet Block, Light Refreshment Kiosk, Refuse Collection Block, Back of House Building Blocks) and ICE certification (Final)	30 days	0 days	30 days	0%	Thu 26/11/20	Fri 25/12/20	NA	NA	Sat 2/1/21	Sun 31/1/21	37 days	0 days	633,634																								
636	Prepare DDA for Permanent Building Works (i.e. Amphitheater, Observation Tower, Toilet Block, Light Refreshment Kiosk, Refuse Collection Block, Back of House Building Blocks) and ICE certification (Draft)	100 days	0 days	100 days	0%	Fri 2/10/20	Sat 9/1/21	NA	NA	Sun 8/11/20	Mon 15/2/21	37 days	1 day	633,635FF+15 days,151FF+15 days																								
637	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Sun 10/1/21	Thu 25/3/21	NA	NA	Tue 16/2/21	Sat 1/5/21	37 days	0.5 days	635,636																								
638	Prepare DDA for Permanent Building Works (i.e. Amphitheater, Observation Tower, Toilet Block, Light Refreshment Kiosk, Refuse Collection Block, Back of House Building Blocks) and ICE certification (Final)	30 days	0 days	30 days	0%	Fri 26/3/21	Sat 24/4/21	NA	NA	Sun 2/5/21	Mon 31/5/21	37 days	0 days	637																								
639	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Sun 25/4/21	Thu 8/7/21	NA	NA	Tue 1/6/21	Sat 14/8/21	37 days	0.5 days	635,636,638																								
640	Prepare AIP for Permanent Building E&M Works (i.e. Amphitheater, Observation Tower, Toilet Block, Light Refreshment Kiosk, Refuse Collection Block, Back of House Building Blocks) and ICE certification (Draft)	75 days	0 days	75 days	0%	Tue 14/7/20	Sat 26/9/20	NA	NA	Wed 5/8/20	Sun 18/10/20	22 days	1 day	149FF+7 days																								
641	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	0 days	60 days	0%	Sun 27/9/20	Wed 25/11/20	NA	NA	Mon 19/10/20	Thu 17/12/20	22 days	0.5 days	640																								
642	Prepare AIP for Permanent Building E&M Works (i.e. Observation Tower, Toilet Block, Light Refreshment Kiosk, Refuse Collection Block, Back of House Building Blocks) and ICE certification (Final)	30 days	0 days	30 days	0%	Thu 26/11/20	Fri 25/12/20	NA	NA	Fri 18/12/20	Sat 16/1/21	22 days	0 days	640,641																								
643	Prepare DDA for Permanent Building E&M Works (i.e. Amphitheater, Observation Tower, Toilet Block, Light Refreshment Kiosk, Refuse Collection Block, Back of House Building Blocks) and ICE (Include E&M Provision Works) certification (Draft)	120 days	0 days	120 days	0%	Sun 27/9/20	Sun 24/1/21	NA	NA	Mon 19/10/20	Mon 15/2/21	22 days	1 day	640,642FF+30 days,151FF+15 days																								
644	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	0 days	60 days	0%	Mon 25/1/21	Thu 25/3/21	NA	NA	Tue 16/2/21	Fri 16/4/21	22 days	0.5 days	642,643																								
645	Prepare DDA for Permanent Building E&M Works (i.e. Amphitheater, Observation Tower, Toilet Block, Light Refreshment Kiosk, Refuse Collection Block, Back of House Building Blocks) and ICE certification (Final)	30 days	0 days	30 days	0%	Fri 26/3/21	Sat 24/4/21	NA	NA	Sat 17/4/21	Sun 16/5/21	22 days	0 days	644																								
646	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	0 days	90 days	0%	Sun 25/4/21	Fri 23/7/21	NA	NA	Mon 17/5/21	Sat 14/8/21	22 days	0.5 days	642,643,645																								
647	Prepare AIP for Temporary Building Works (i.e. temporary management office and toilet blocks) and ICE certification (Draft)	75 days	0 days	75 days	0%	Mon 3/8/20	Fri 16/10/20	NA	NA	Thu 20/8/20	Mon 2/11/20	17 days	1 day	149FF+7 days																								
648	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Sat 17/10/20	Wed 30/12/20	NA	NA	Tue 3/11/20	Sat 16/1/21	17 days	0 days	647																								
649	Prepare AIP for Temporary Building Works (i.e. temporary management office and toilet blocks) and ICE certification (Final)	30 days	0 days	30 days	0%	Thu 31/12/20	Fri 29/1/21	NA	NA	Sun 17/1/21	Mon 15/2/21	17 days	0 days	633,634,648,640																								
650	Prepare DDA for AIP for Temporary Building Works (i.e. temporary management office and toilet blocks) and ICE (Include E&M Provision Works) and ICE certification (Draft)	150 days	0 days	150 days	0%	Fri 2/10/20	Sun 28/2/21	NA	NA	Mon 19/10/20	Wed 17/3/21	17 days	1 day	633,640,649FF+ days,151FF+15 days																								
651	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Mon 1/3/21	Fri 14/5/21	NA	NA	Thu 18/3/21	Mon 31/5/21	17 days	0.5 days	649,650																								
652	Prepare DDA for AIP for Temporary Building Works (i.e. temporary management office and toilet blocks) and ICE (Final)	30 days	0 days	30 days	0%	Sat 15/5/21	Sun 13/6/21	NA	NA	Tue 1/6/21	Wed 30/6/21	17 days	0 days	651																								
653	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	0 days	90 days	0%	Mon 14/6/21	Sat 11/9/21	NA	NA	Thu 1/7/21	Tue 28/9/21	17 days	0 days	652																								

<b>Title: Rev.11 Prog with Progress as of 22-May-20</b>	Task		Summary		Inactive Milestone		Duration-only		Start-only		External Milestone		Critical Split
	Split		Project Summary		Inactive Summary		Manual Summary Rollup		Finish-only		Deadline		Progress
	Milestone		Inactive Task		Manual Task		Manual Summary		External Tasks		Critical		Manual Progress

**Contract No. ED/2018/01 KTD Project**

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020				2021				2022				2023			
															Q2	Q3	Q4		Q1	Q2	Q3	Q4		Q1	Q2	Q3	Q4		Q1	Q2
654	Prepare AIP for Temporary Building E&M Works (i.e. temporary management office and toilet blocks) and ICE certification (Draft)	75 days	0 days	75 days	0%	Mon 3/8/20	Fri 16/10/20	NA	NA	Thu 20/8/20	Mon 2/11/20	17 days	1 day	149FF+7 days																
655	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Sat 17/10/20	Wed 30/12/20	NA	NA	Tue 3/11/20	Sat 16/1/21	17 days	0 days	654																
656	Prepare AIP for Temporary Building E&M Works (i.e. temporary management office and toilet blocks) and ICE certification (Final)	30 days	0 days	30 days	0%	Thu 31/12/20	Fri 29/1/21	NA	NA	Sun 17/1/21	Mon 15/2/21	17 days	0 days	655,633,634,640																
657	Prepare DDA for AIP for Temporary Building E&M Works (i.e. temporary management office and toilet blocks) and ICE (Include E&M Provision Works) and ICE certification (Draft)	150 days	0 days	150 days	0%	Fri 2/10/20	Sun 28/2/21	NA	NA	Mon 19/10/20	Wed 17/3/21	17 days	1 day	633,640,656FF+ days,151FF+15 days																
658	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Mon 1/3/21	Fri 14/5/21	NA	NA	Thu 18/3/21	Mon 31/5/21	17 days	0.5 days	656,657																
659	Prepare DDA for AIP for Temporary Building E&M Works (i.e. temporary management office and toilet blocks) and ICE (Final)	30 days	0 days	30 days	0%	Sat 15/5/21	Sun 13/6/21	NA	NA	Tue 1/6/21	Wed 30/6/21	17 days	0 days	658																
660	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	0 days	90 days	0%	Mon 14/6/21	Sat 11/9/21	NA	NA	Thu 1/7/21	Tue 28/9/21	17 days	0 days	659																
661	Landscaping and Irrigation works	858 days	23.33 days	834.67 days	0%	Wed 1/4/20	Sat 6/8/22	Wed 1/4/20	NA	Wed 1/4/20	Sun 23/10/22	78 days																		
662	Prepare AIP for Roadside Landscaping Softworks and ICE certification (Draft)	38 days	38 days	0 days	100%	Wed 1/4/20	Fri 8/5/20	Wed 1/4/20	Fri 8/5/20	Wed 1/4/20	Fri 8/5/20	0 days	1 day																	
663	Submit & endorse by PM and Statutory Authorities/Gov. Dept	113 days	13 days	100 days	12%	Sat 9/5/20	Sat 29/8/20	Sat 9/5/20	NA	Sat 9/5/20	Mon 20/9/21	387 days	0.5 days	662																
664	Prepare AIP for roadside landscaping softworks and ICE certification (Final)	30 days	0 days	30 days	0%	Sun 30/8/20	Mon 28/9/20	NA	NA	Tue 21/9/21	Wed 20/10/21	387 days	0 days	662,663																
665	Prepare DDA for Roadside Landscaping Softworks and ICE certification (Draft)	95 days	0 days	95 days	0%	Sun 26/7/20	Wed 28/10/20	NA	NA	Tue 17/8/21	Fri 19/11/21	387 days	1 day	662,664FF+30 days																
666	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	0 days	90 days	0%	Thu 29/10/20	Tue 26/1/21	NA	NA	Sat 20/11/21	Thu 17/2/22	387 days	0.5 days	665																
667	Prepare DDA for Roadside Landscaping Softworks and ICE certification (Final)	30 days	0 days	30 days	0%	Wed 27/1/21	Thu 25/2/21	NA	NA	Fri 18/2/22	Sat 19/3/22	387 days	0 days	666,664FF+15 days																
668	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	0 days	90 days	0%	Fri 26/2/21	Wed 26/5/21	NA	NA	Sun 20/3/22	Fri 17/6/22	387 days	0 days	667																
669	Prepare AIP for irrigation system for all landscaping works and ICE certification (Draft)	60 days	0 days	60 days	0%	Tue 13/7/21	Fri 10/9/21	NA	NA	Wed 29/9/21	Sat 27/11/21	78 days	1 day																	
670	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Sat 11/9/21	Wed 24/11/21	NA	NA	Sun 28/11/21	Thu 10/2/22	78 days	0.5 days	669																
671	Prepare AIP for irrigation system for all landscaping works and ICE certification (Final)	60 days	0 days	60 days	0%	Thu 25/11/21	Sun 23/1/22	NA	NA	Fri 11/2/22	Mon 11/4/22	78 days	0 days	669,670																
672	Prepare DDA for irrigation system for all landscaping works and ICE certification (Draft)	90 days	0 days	90 days	0%	Thu 25/11/21	Tue 22/2/22	NA	NA	Fri 11/2/22	Wed 11/5/22	78 days	1 day	669,671FF+30 days																
673	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	0 days	60 days	0%	Wed 23/2/22	Sat 23/4/22	NA	NA	Thu 12/5/22	Sun 10/7/22	78 days	0.5 days	672																
674	Prepare DDA for irrigation system for all landscaping works and ICE certification (Final)	30 days	0 days	30 days	0%	Sun 24/4/22	Mon 23/5/22	NA	NA	Mon 11/7/22	Tue 9/8/22	78 days	0 days	673,671FF+15 days																
675	Submit & endorse by PM and Statutory Authorities/Gov. Dept	75 days	0 days	75 days	0%	Tue 24/5/22	Sat 6/8/22	NA	NA	Wed 10/8/22	Sun 23/10/22	78 days	0 days	674																
676	Prepare AIP for Soft Landscaping works and ICE certification (Draft)	45 days	0 days	45 days	0%	Mon 12/4/21	Wed 26/5/21	NA	NA	Tue 14/9/21	Thu 28/10/21	155 days	1 day																	
677	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	0 days	90 days	0%	Thu 27/5/21	Tue 24/8/21	NA	NA	Fri 29/10/21	Wed 26/1/22	155 days	0.5 days	676																
678	Prepare AIP for soft landscaping and ICE certification (Final)	30 days	0 days	30 days	0%	Wed 25/8/21	Thu 23/9/21	NA	NA	Thu 27/1/22	Fri 25/2/22	155 days	0 days	676,677																
679	Prepare DDA for Soft Landscaping and ICE certification (Draft)	95 days	0 days	95 days	0%	Wed 21/7/21	Sat 23/10/21	NA	NA	Thu 23/12/21	Sun 27/3/22	155 days	1 day	676,678FF+30 days																
680	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	0 days	90 days	0%	Sun 24/10/21	Fri 21/1/22	NA	NA	Mon 28/3/22	Sat 25/6/22	155 days	0.5 days	679																
681	Prepare DDA for Soft Landscaping and ICE certification (Final)	30 days	0 days	30 days	0%	Sat 22/1/22	Sun 20/2/22	NA	NA	Sun 26/6/22	Mon 25/7/22	155 days	0 days	678FF+15 days,680																
682	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	0 days	90 days	0%	Mon 21/2/22	Sat 21/5/22	NA	NA	Tue 26/7/22	Sun 23/10/22	155 days	0 days	681																
683	Prepare AIP for Hard Landscaping and ICE certification (Draft)	45 days	0 days	45 days	0%	Mon 12/4/21	Wed 26/5/21	NA	NA	Tue 14/9/21	Thu 28/10/21	155 days	1 day																	
684	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	0 days	90 days	0%	Thu 27/5/21	Tue 24/8/21	NA	NA	Fri 29/10/21	Wed 26/1/22	155 days	0.5 days	683																
685	Prepare AIP for Hard landscaping and ICE certification (Final)	30 days	0 days	30 days	0%	Wed 25/8/21	Thu 23/9/21	NA	NA	Thu 27/1/22	Fri 25/2/22	155 days	0 days	683,684																
686	Prepare DDA for Hard Landscaping and ICE certification (Draft)	95 days	0 days	95 days	0%	Wed 21/7/21	Sat 23/10/21	NA	NA	Thu 23/12/21	Sun 27/3/22	155 days	1 day	683,685FF+30 days																
687	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	0 days	90 days	0%	Sun 24/10/21	Fri 21/1/22	NA	NA	Mon 28/3/22	Sat 25/6/22	155 days	0.5 days	686																
688	Prepare DDA for Hard Landscaping and ICE certification (Final)	30 days	0 days	30 days	0%	Sat 22/1/22	Sun 20/2/22	NA	NA	Sun 26/6/22	Mon 25/7/22	155 days	0 days	685FF+15 days,687																
689	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	0 days	90 days	0%	Mon 21/2/22	Sat 21/5/22	NA	NA	Tue 26/7/22	Sun 23/10/22	155 days	0 days	688																
690	Work Stage/ Phase - Planned Completion	1387 days	0 days	1387 days	0%	Tue 11/8/20	Wed 29/5/24	NA	NA	Fri 7/8/20	Wed 29/5/24	-4 days																		
691	Section 1	0 days	0 days	0 days	0%	Mon 14/3/22	Mon 14/3/22	NA	NA	Tue 1/3/22	Tue 1/3/22	-13 days	0 days	1105FF,1438,73																
692	Section 2	0 days	0 days	0 days	0%	Wed 2/6/21	Wed 2/6/21	NA	NA	Wed 2/6/21	Wed 2/6/21	0 days	0 days	1127																
693	Section 3	0 days	0 days	0 days	0%	Tue 26/10/21	Tue 26/10/21	NA	NA	Tue 2/11/21	Tue 2/11/21	7 days	0 days	1172FF																
694	Section 4	0 days	0 days	0 days	0%	Wed 17/5/23	Wed 17/5/23	NA	NA	Tue 30/5/23	Tue 30/5/23	13 days	0 days	1133FF																
695	Section 5	0 days	0 days	0 days	0%	Sat 3/7/21	Sat 3/7/21	NA	NA	Mon 5/7/21	Mon 5/7/21	2 days	0 days	1222																

**Title: Rev.11 Prog with Progress as of 22-May-20**

- Task Summary Inactive Milestone Duration-only Start-only External Milestone Critical Split
- Split Project Summary Inactive Summary Manual Summary Rollup Finish-only Deadline Progress
- Milestone Inactive Task Manual Task Manual Summary External Tasks Critical Manual Progress





Contract No. ED/2018/01 KTD Project

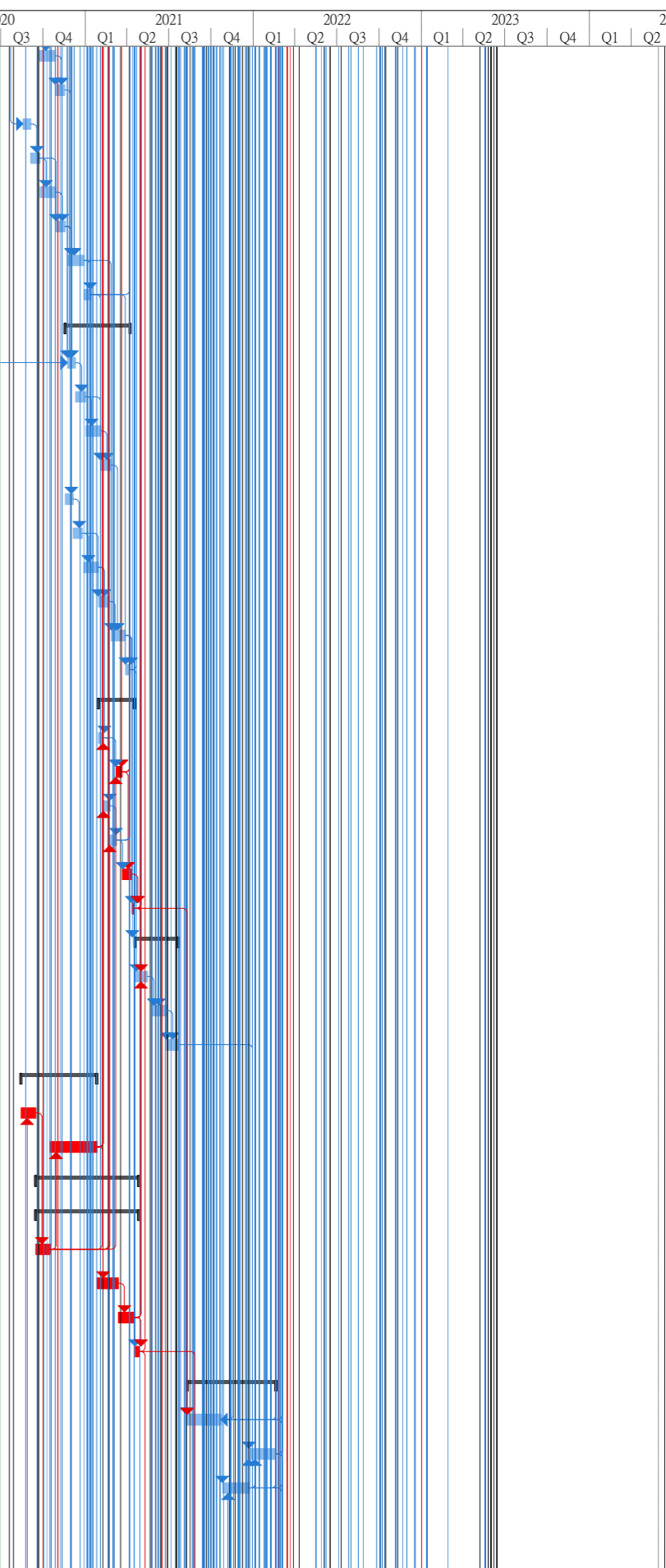
ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020				2021				2022				2023							
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2			
740	Sheetpile Driven along Western ELS Cofferdam (assume 105m long)	8 days	8 days	0 days	100%	Tue 11/2/20	Wed 19/2/20	Tue 11/2/20	Wed 19/2/20	Tue 11/2/20	Wed 19/2/20	0 days	0.5 day	737,739																				
741	Excavation with Shoring and Waling Installation with Rock Fill Replacement include Sand Replacement Test with PWRL for KD1	44 days	44 days	0 days	100%	Thu 20/2/20	Wed 15/4/20	Thu 20/2/20	Wed 15/4/20	Thu 20/2/20	Wed 15/4/20	0 days	1 day																					
742	Remaining Excavation with Shoring and Waling Installation with Rock Fill Replacement include Sand Replacement Test with PWRL	37 days	0 days	37 days	0%	Tue 6/10/20	Wed 18/11/20	NA	NA	Tue 13/10/20	Wed 25/11/20	6 days	2 days	741,761																				
743	North Approach Ramp (Bays No.2,3,4&5) (Next to BEM) (KD1)	106 days	34.01 days	71.99 days	0%	Wed 1/4/20	Tue 11/8/20	Wed 1/4/20	NA	Wed 1/4/20	Fri 7/8/20	-3 days																						
744	Bay No.3 Base Slab with Blinding (1)+(2)	15 days	15 days	0 days	100%	Wed 1/4/20	Wed 22/4/20	Wed 1/4/20	Wed 22/4/20	Wed 1/4/20	Wed 22/4/20	0 days	0.5 days	741SS+35 days																				
745	Bay No.3: Wall & Column with Soffit (upto +4.6mPD) (include Wall Former)	42 days	22 days	20 days	45%	Wed 22/4/20	Thu 11/6/20	Wed 22/4/20	NA	Wed 22/4/20	Thu 11/6/20	-3 days		744																				
746	May 2020 Inclement Weather	3 days	0 days	3 days	0%	Fri 12/6/20	Mon 15/6/20	NA	NA	Tue 9/6/20	Thu 11/6/20	-3 days		745,74SS																				
747	Bay No. 3: Wall & Column Casted and Formwork & Falsework upto Soffit of Top Slab(6)+(7)	15 days	0 days	15 days	0%	Tue 16/6/20	Sat 4/7/20	NA	NA	Fri 12/6/20	Tue 30/6/20	-3 days	1 day	745,746																				
748	Bay No. 3: Top Slab Construction with Formwork & Falsework Erection(8)	12 days	0 days	12 days	0%	Mon 6/7/20	Sat 18/7/20	NA	NA	Thu 2/7/20	Wed 15/7/20	-3 days	1 day	747																				
749	Bay No.2 Base Slab with Blinding (1)+(2)	11 days	11 days	0 days	100%	Tue 28/4/20	Tue 12/5/20	Tue 28/4/20	Tue 12/5/20	Tue 28/4/20	Tue 12/5/20	0 days	1 day	741FS+2 days																				
750	Bay No.2: Wall & Column with Soffit (upto +4.6mPD) (include Wall Former) (3)+(4)+(5)	23 days	6 days	17 days	25%	Sat 16/5/20	Thu 11/6/20	Sat 16/5/20	NA	Sat 16/5/20	Thu 11/6/20	-1 day	1 day	749																				
751	Bay No. 2: Wall & Column Casted and Formwork & Falsework upto Soffit of Top Slab (6)+(7)	18 days	0 days	18 days	0%	Fri 12/6/20	Sat 4/7/20	NA	NA	Thu 11/6/20	Fri 3/7/20	-1 day	1 day	750																				
752	Bay No. 2: Top Slab Construction with Formwork & Falsework Erection(8)	12 days	0 days	12 days	0%	Wed 8/7/20	Tue 21/7/20	NA	NA	Sat 4/7/20	Fri 17/7/20	-3 days	1 day	751,748FF+2 days																				
753	Bay No.4 Base Slab with Blinding (1)+(2)	15 days	15 days	0 days	100%	Wed 1/4/20	Wed 13/5/20	Wed 1/4/20	Wed 13/5/20	Wed 1/4/20	Wed 13/5/20	0 days	1 day	741SS+35 days																				
754	Bay No.4: Wall & Column with Soffit (upto +4.6mPD) (include Wall Former) (3)+(4)+(5)	22 days	8 days	14 days	36%	Thu 14/5/20	Tue 9/6/20	Thu 14/5/20	NA	Thu 14/5/20	Tue 9/6/20	-3 days	1 day	753,750SS+7 days																				
755	Bay No. 4: Wall & Column Casted and Formwork & Falsework upto Soffit of Top Slab (6)+(7)	20 days	0 days	20 days	0%	Wed 10/6/20	Sat 4/7/20	NA	NA	Sat 6/6/20	Tue 30/6/20	-3 days	1 day	754																				
756	Bay No. 4: Top Slab Construction with Formwork & Falsework Erection (8)	14 days	0 days	14 days	0%	Mon 6/7/20	Tue 21/7/20	NA	NA	Thu 2/7/20	Fri 17/7/20	-3 days	1 day	755,751SS+4 days																				
757	Backfill (9)	12 days	0 days	12 days	0%	Wed 22/7/20	Tue 4/8/20	NA	NA	Sat 18/7/20	Fri 31/7/20	-3 days	0.5 days	756,752,748																				
758	Sheetpile Extraction and Road Reinstatement (10) (KD1)	6 days	0 days	6 days	0%	Wed 5/8/20	Tue 11/8/20	NA	NA	Sat 1/8/20	Fri 7/8/20	-3 days	0.5 days	757																				
759	North Approach Ramp (Bays No.5 & 6) (Next to BEM)	92 days	0 days	92 days	0%	Mon 24/8/20	Mon 23/11/20	NA	NA	Thu 27/8/20	Thu 17/12/20	3 days																						
760	Bay No.5 Base Slab with Blinding (1+2)	8 days	0 days	8 days	0%	Thu 10/9/20	Fri 18/9/20	NA	NA	Mon 14/9/20	Tue 22/9/20	3 days	1 day	749,753SS+4 da																				
761	Bay No.5: Wall & Column with Soffit (upto +4.6mPD) (include Wall Former) (3+4+5)	12 days	0 days	12 days	0%	Sat 19/9/20	Mon 5/10/20	NA	NA	Wed 23/9/20	Thu 8/10/20	3 days	1 day	760																				
762	Bay No. 5: Wall & Column Casted and Formwork & Falsework upto Soffit of Top Slab (6)+(7)	20 days	0 days	20 days	0%	Tue 6/10/20	Thu 29/10/20	NA	NA	Fri 9/10/20	Mon 2/11/20	3 days	1 day	761,755SS+4 days																				
763	Bay No. 5: Top Slab Construction with Formwork & Falsework Erection & Removal (8)	12 days	0 days	12 days	0%	Fri 30/10/20	Thu 12/11/20	NA	NA	Tue 3/11/20	Mon 16/11/20	3 days	1 day	762,227FF																				
764	Bay No.6 Base Slab with Blinding (1)+(2)	15 days	0 days	15 days	0%	Mon 24/8/20	Wed 9/9/20	NA	NA	Thu 27/8/20	Sat 12/9/20	3 days	1 day	741SS+35 days																				
765	Bay No.6: Wall & Column with Soffit (upto +4.6mPD) (include Wall Former) (3)+(4)+(5)	17 days	0 days	17 days	0%	Thu 10/9/20	Tue 29/9/20	NA	NA	Wed 7/10/20	Tue 27/10/20	21 days	1 day	764																				
766	Bay No. 6: Wall & Column Casted and Formwork & Falsework upto Soffit of Top Slab(6)+(7)	27 days	0 days	27 days	0%	Wed 30/9/20	Tue 3/11/20	NA	NA	Wed 28/10/20	Fri 27/11/20	21 days	1 day	765																				
767	Bay No. 6: Top Slab Construction with Formwork & Falsework Erection & Removal (8)	17 days	0 days	17 days	0%	Wed 4/11/20	Mon 23/11/20	NA	NA	Sat 28/11/20	Thu 17/12/20	21 days	1 day	765,766																				
768	North Approach Ramp (Bays 7&8) (Next to BEM)	56 days	0 days	56 days	0%	Tue 26/1/21	Wed 7/4/21	NA	NA	Tue 26/1/21	Sat 17/4/21	0 days																						
769	Bay 7: Blinding	1 day	0 days	1 day	0%	Tue 26/1/21	Tue 26/1/21	NA	NA	Tue 26/1/21	Tue 26/1/21	0 days	0.5 days	816,767																				
770	Bay 7: Base slab	9 days	0 days	9 days	0%	Wed 27/1/21	Fri 5/2/21	NA	NA	Wed 27/1/21	Fri 5/2/21	0 days	1 day	816,769																				
771	Bay 7: Wall	13 days	0 days	13 days	0%	Sat 6/2/21	Wed 24/2/21	NA	NA	Wed 31/3/21	Sat 17/4/21	42 days	1 day	819,770																				
772	Bay 8: Blinding	1 day	0 days	1 day	0%	Wed 27/1/21	Wed 27/1/21	NA	NA	Fri 5/2/21	Fri 5/2/21	8 days	0.5 days	769																				
773	Bay 8: Base slab	9 days	0 days	9 days	0%	Sat 6/2/21	Fri 19/2/21	NA	NA	Sat 6/2/21	Fri 19/2/21	0 days	1 day	816,770,772																				
774	Bay 8: Wall	13 days	0 days	13 days	0%	Sat 20/2/21	Sat 6/3/21	NA	NA	Sat 20/2/21	Sat 6/3/21	0 days	1 day	773,819																				
775	Bays No.7&8: Backfilling	15 days	0 days	15 days	0%	Mon 8/3/21	Wed 24/3/21	NA	NA	Thu 18/3/21	Wed 7/4/21	9 days	1 day	774,767																				
776	Bays No.7&8: Extract Sheetpile	9 days	0 days	9 days	0%	Thu 25/3/21	Wed 7/4/21	NA	NA	Thu 8/4/21	Sat 17/4/21	9 days	0.5 days	775																				
777	North Approach Ramp (Bays No.2,3,4) (Next to KTSP)	149 days	0 days	149 days	0%	Mon 17/8/20	Tue 12/1/21	NA	NA	Tue 25/8/20	Fri 5/2/21	8 days																						
778	Bay No.3 Base Slab with Blinding (1)+(2)	15 days	0 days	15 days	0%	Mon 24/8/20	Wed 9/9/20	NA	NA	Tue 1/9/20	Thu 17/9/20	7 days	1 day																					
779	Bay No.3: Wall & Column with Soffit (upto +4.6mPD) (include Wall Former) (3)+(4)+(5)	17 days	0 days	17 days	0%	Thu 10/9/20	Tue 29/9/20	NA	NA	Wed 7/10/20	Tue 27/10/20	21 days	1 day	778																				
780	Bay No. 3: Wall & Column Casted and Formwork & Falsework upto Soffit of Top Slab(6)+(7)	27 days	0 days	27 days	0%	Wed 30/9/20	Tue 3/11/20	NA	NA	Wed 28/10/20	Fri 27/11/20	21 days	1 day	779																				
781	Bay No. 3: Top Slab Construction with Formwork & Falsework Erection & Removal (8)	17 days	0 days	17 days	0%	Wed 4/11/20	Mon 23/11/20	NA	NA	Sat 28/11/20	Thu 17/12/20	21 days	1 day	779,780																				
782	Bay No.2 Base Slab with Blinding (1)+(2)	15 days	0 days	15 days	0%	Mon 17/8/20	Wed 2/9/20	NA	NA	Tue 25/8/20	Thu 10/9/20	7 days	1 day	778FS-21 days																				
783	Bay No.2: Wall & Column with Soffit (upto +4.6mPD) (include Wall Former) (3)+(4)+(5)	17 days	0 days	17 days	0%	Thu 3/9/20	Tue 22/9/20	NA	NA	Wed 7/10/20	Tue 27/10/20	27 days	1 day	782																				

**Title: Rev.11 Prog with Progress as of 22-May-20**

Task		Summary		Inactive Milestone		Duration-only		Start-only		External Milestone		Critical Split	
Split		Project Summary		Inactive Summary		Manual Summary Rollup		Finish-only					

Contract No. ED/2018/01 KTD Project

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020				2021				2022				2023			
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
784	Bay No. 2: Wall & Column Casted and Formwork & Falsework upto Soffit of Top Slab(6)+(7)	27 days	0 days	27 days	0%	Wed 23/9/20	Tue 27/10/20	NA	NA	Wed 28/10/20	Fri 27/11/20	27 days	1 day	783																
785	Bay No. 2: Top Slab Construction with Formwork & Falsework Erection & Removal (8)	17 days	0 days	17 days	0%	Wed 28/10/20	Mon 16/11/20	NA	NA	Sat 28/11/20	Thu 17/12/20	27 days	1 day	783,784																
786	Bay No.4 Base Slab with Blinding (1)+(2)	15 days	0 days	15 days	0%	Tue 18/8/20	Thu 3/9/20	NA	NA	Wed 26/8/20	Fri 11/9/20	7 days	1 day	782SS+1 day																
787	Bay No.4: Wall & Column with Soffit (upto +4.6mPD) (include Wall Former) (3)+(4)+(5)	17 days	0 days	17 days	0%	Fri 4/9/20	Wed 23/9/20	NA	NA	Sat 12/9/20	Sat 3/10/20	7 days	1 day	786																
788	Bay No. 4: Wall & Column Casted and Formwork & Falsework upto Soffit of Top Slab(6)+(7)	27 days	0 days	27 days	0%	Thu 24/9/20	Wed 28/10/20	NA	NA	Mon 5/10/20	Thu 5/11/20	7 days	1 day	787																
789	Bay No. 4: Top Slab Construction with Formwork & Falsework Erection & Removal (8)	17 days	0 days	17 days	0%	Thu 29/10/20	Tue 17/11/20	NA	NA	Fri 6/11/20	Wed 25/11/20	7 days	1 day	787,788																
790	Bay No.2,3&4: Backfilling upto +3.0mPD	28 days	0 days	28 days	0%	Tue 24/11/20	Mon 28/12/20	NA	NA	Fri 18/12/20	Fri 22/1/21	21 days	1 day	789,785,781,767																
791	Bay No.4: Sheetpile Extraction (KD2)	12 days	0 days	12 days	0%	Tue 29/12/20	Tue 12/1/21	NA	NA	Sat 23/1/21	Fri 5/2/21	21 days	0.5 days	790																
792	North Approach Ramp (Bays No.5,6) (Next to KTSP)	141 days	0 days	141 days	0%	Wed 18/11/20	Wed 7/4/21	NA	NA	Thu 26/11/20	Sat 10/4/21	3 days																		
793	Bay No.5 Base Slab with Blinding (1)+(2)	15 days	0 days	15 days	0%	Mon 23/11/20	Wed 9/12/20	NA	NA	Thu 26/11/20	Sat 12/12/20	3 days	1 day	741SS+35 days,																
794	Bay No.5: Wall & Column with Soffit (upto +4.6mPD) (include Wall Former) (3)+(4)+(5)	17 days	0 days	17 days	0%	Thu 10/12/20	Thu 31/12/20	NA	NA	Mon 14/12/20	Tue 5/1/21	3 days	1 day	793																
795	Bay No. 5: Wall & Column Casted and Formwork & Falsework upto Soffit of Top Slab(6)+(7)	27 days	0 days	27 days	0%	Sat 2/1/21	Tue 2/2/21	NA	NA	Wed 6/1/21	Fri 5/2/21	3 days	1 day	794																
796	Bay No. 5: Top Slab Construction with Formwork & Falsework Erection & Removal (8)	17 days	0 days	17 days	0%	Wed 3/2/21	Thu 25/2/21	NA	NA	Sat 6/2/21	Mon 1/3/21	3 days	1 day	794,795,791																
797	Bay No.6 Base Slab with Blinding (1)+(2)	15 days	0 days	15 days	0%	Wed 18/11/20	Fri 4/12/20	NA	NA	Thu 26/11/20	Sat 12/12/20	7 days	1 day	789																
798	Bay No.6: Wall & Column with Soffit (upto +4.6mPD) (include Wall Former) (3)+(4)+(5)	17 days	0 days	17 days	0%	Sat 5/12/20	Thu 24/12/20	NA	NA	Mon 14/12/20	Tue 5/1/21	7 days	1 day	797																
799	Bay No. 6: Wall & Column Casted and Formwork & Falsework upto Soffit of Top Slab(6)+(7)	27 days	0 days	27 days	0%	Mon 28/12/20	Thu 28/1/21	NA	NA	Wed 6/1/21	Fri 5/2/21	7 days	1 day	798																
800	Bay No. 6: Top Slab Construction with Formwork & Falsework Erection & Removal (8)	17 days	0 days	17 days	0%	Fri 29/1/21	Sat 20/2/21	NA	NA	Sat 6/2/21	Mon 1/3/21	7 days	1 day	798,799																
801	Bay No.5&6: Backfilling upto +3.0mPD	26 days	0 days	26 days	0%	Fri 26/2/21	Sat 27/3/21	NA	NA	Tue 2/3/21	Wed 31/3/21	3 days	1 day	790,800,796																
802	Bay No.5&6: Sheetpile Extraction (KD2)	6 days	0 days	6 days	0%	Mon 29/3/21	Wed 7/4/21	NA	NA	Thu 1/4/21	Sat 10/4/21	3 days	0.5 days	801,791																
803	North Approach Ramp (Bays 7&8) (Next to KTSP)	79 days	0 days	79 days	0%	Fri 29/1/21	Sat 17/4/21	NA	NA	Thu 11/2/21	Sat 17/4/21	0 days																		
804	Bay 7: Base slab	9 days	0 days	9 days	0%	Fri 29/1/21	Mon 8/2/21	NA	NA	Thu 11/2/21	Wed 24/2/21	11 days	0.5 days	816,799																
805	Bay 7: Wall	12 days	0 days	12 days	0%	Mon 8/3/21	Sat 20/3/21	NA	NA	Mon 8/3/21	Sat 20/3/21	0 days	1 day	804,819,774																
806	Bay 8: Base slab	9 days	0 days	9 days	0%	Tue 9/2/21	Mon 22/2/21	NA	NA	Thu 25/2/21	Sat 6/3/21	11 days	0.5 days	804,816																
807	Bay 8: Wall	12 days	0 days	12 days	0%	Tue 23/2/21	Mon 8/3/21	NA	NA	Mon 8/3/21	Sat 20/3/21	11 days	1 day	806,819																
808	Bays No.7&8: Backfilling	15 days	0 days	15 days	0%	Mon 22/3/21	Sat 10/4/21	NA	NA	Mon 22/3/21	Sat 10/4/21	0 days	1 day	807,805																
809	Bays No.7&8: Extract Sheetpile	6 days	0 days	6 days	0%	Mon 12/4/21	Sat 17/4/21	NA	NA	Mon 12/4/21	Sat 17/4/21	0 days	1 day	808,801,802																
810	CH1087-1189 (100m): North Approach Ramp: Parapet, Central Median & Furniture	77 days	0 days	77 days	0%	Mon 19/4/21	Wed 21/7/21	NA	NA	Thu 23/9/21	Tue 14/12/21	122 days		718																
811	CH1087-1189: Parapet (28m per day per team) x 1 team + 6 day concreting	23 days	0 days	23 days	0%	Mon 19/4/21	Sat 15/5/21	NA	NA	Thu 23/9/21	Thu 21/10/21	130 days	2 day	809,776,821																
812	CH1087-1189: Central Median and Utilities Trough (6m per day per team) x 1 team	25 days	0 days	25 days	0%	Thu 27/5/21	Fri 25/6/21	NA	NA	Fri 22/10/21	Fri 19/11/21	122 days	1 day	811,236																
813	CH1087-1189: Road Furniture	21 days	0 days	21 days	0%	Sat 26/6/21	Wed 21/7/21	NA	NA	Sat 20/11/21	Tue 14/12/21	122 days	3 days	812,358																
814	North Approach Ramp: Bay No. 1	135 days	0 days	135 days	0%	Fri 14/8/20	Mon 25/1/21	NA	NA	Fri 14/8/20	Mon 25/1/21	0 days																		
815	Bay 1: Base slab	27 days	0 days	27 days	0%	Fri 14/8/20	Mon 14/9/20	NA	NA	Fri 14/8/20	Mon 14/9/20	0 days	0.5 days	834																
816	Bay 1: Wall	83 days	0 days	83 days	0%	Fri 16/10/20	Mon 25/1/21	NA	NA	Fri 16/10/20	Mon 25/1/21	0 days	3 days	819																
817	Part 3G - CH1189.4 to CH1229 North Abutment	180 days	0 days	180 days	0%	Tue 15/9/20	Mon 26/4/21	NA	NA	Tue 15/9/20	Mon 26/4/21	0 days																		
818	North Abutment	180 days	0 days	180 days	0%	Tue 15/9/20	Mon 26/4/21	NA	NA	Tue 15/9/20	Mon 26/4/21	0 days																		
819	North Abutment - Base Slab	25 days	0 days	25 days	0%	Tue 15/9/20	Thu 15/10/20	NA	NA	Tue 15/9/20	Thu 15/10/20	0 days	1 day	815																
820	North Abutment Wall (3.85m thk)	37 days	0 days	37 days	0%	Tue 26/1/21	Fri 12/3/21	NA	NA	Tue 26/1/21	Fri 12/3/21	0 days	1 day	816																
821	North Abutment Wall (0.5m thk) (KD2) (KD3)	28 days	0 days	28 days	0%	Sat 13/3/21	Sat 17/4/21	NA	NA	Sat 13/3/21	Sat 17/4/21	0 days	1 day	820																
822	Install bridge bearing	7 days	0 days	7 days	0%	Mon 19/4/21	Mon 26/4/21	NA	NA	Mon 19/4/21	Mon 26/4/21	0 days	0.5 days	821,736																
823	At Grade Road Works CH1000-2124	157 days	0 days	157 days	0%	Tue 10/8/21	Fri 18/2/22	NA	NA	Thu 4/11/21	Tue 1/3/22	9 days																		
824	CH1000-1087 At grade road works	60 days	0 days	60 days	0%	Tue 10/8/21	Thu 21/10/21	NA	NA	Wed 15/12/21	Tue 1/3/22	106 days	1 day	776,809,332,341																
825	CH1444.7-1560 At grade road works	45 days	0 days	45 days	0%	Wed 22/12/21	Fri 18/2/22	NA	NA	Wed 5/1/22	Tue 1/3/22	9 days	1 day	1293,826,219																
826	Ch2050 to 2124: At grade road works	50 days	0 days	50 days	0%	Mon 25/10/21	Tue 21/12/21	NA	NA	Thu 4/11/21	Tue 4/1/22	9 days	1 day	1438,219																
827	Bridge D3 Bored Pile	17 days	17 days	0 days	0%	Tue 19/11/19	Thu 5/12/19	Tue 19/11/19	Thu 5/12/19	Tue 19/11/19	Thu 5/12/19	0 days																		
828	Pre-drilling Works	15 days	15 days	0 days	100%	Tue 19/11/19	Thu 5/12/19	Tue 19/11/19	Thu 5/12/19	Tue 19/11/19	Thu 5/12/19	0 days	0.5 day																	



Title: Rev.11 Prog with Progress as of 22-May-20

Task	Summary	Inactive Milestone	Duration-only	Start-only	External Milestone	Critical Split
Split	Project Summary	Inactive Summary	Manual Summary Rollup	Finish-only	Deadline	Progress
Milestone	Inactive Task	Manual Task	Manual Summary	External Tasks	Critical	Manual Progress





Contract No. ED/2018/01 KTD Project

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020	2021	2022	2023	20									
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
919	Allow access to CKR-KTW contractor for sheet pile wall installation. PS App.1.18 2.7(A)(c)	60 days	0 days	60 days	0%	Thu 22/10/20	Sun 20/12/20	NA	NA	Thu 22/10/20	Sun 20/12/20	0 days	0 days	917,918														
920	Pier - Temp. Works Design and Method Statement Submission	0 days	0 days	0 days	0%	Mon 12/10/20	Mon 12/10/20	NA	NA	Mon 16/11/20	Mon 16/11/20	35 days	1 day															
921	Pier - Temp. Works Design and Method Statement Comment & Approval	35 days	0 days	35 days	0%	Mon 12/10/20	Sun 15/11/20	NA	NA	Mon 16/11/20	Sun 20/12/20	35 days	1 day	920														
922	Pier P03 @ CH1311	49 days	0 days	49 days	0%	Mon 21/12/20	Mon 22/2/21	NA	NA	Mon 21/12/20	Mon 22/2/21	0 days	1 day	916,919,850SS+														
923	Pre-drilling Works	15 days	15 days	0 days	100%	Wed 4/12/19	Wed 18/12/19	Wed 4/12/19	Wed 18/12/19	Wed 4/12/19	Wed 18/12/19	0 days	0.5 days															
924	Diversion of existing 150mm dia. Watermain (agreed)	54 days	42 days	12 days	78%	Sat 28/3/20	Fri 5/6/20	Sat 28/3/20	NA	Sat 28/3/20	Sat 14/11/20	134 days	2 days															
925	Bored pile (P04-BP2) @ CH1351 (Rig 2)	52 days	1 day	51 days	0%	Fri 22/5/20	Wed 21/10/20	Fri 22/5/20	NA	Fri 22/5/20	Tue 19/1/21	73 days	3 days	923,856														
926	Bored pile (P04-BP1) @ CH1351 (Rig 2)	53 days	0 days	53 days	0%	Tue 11/8/20	Tue 13/10/20	NA	NA	Mon 16/11/20	Tue 19/1/21	80 days	3 days	202,924,923,925														
927	Pile Testing (14d curing & 14 test)	35 days	0 days	35 days	0%	Thu 22/10/20	Wed 2/12/20	NA	NA	Wed 20/1/21	Thu 4/3/21	73 days	3 days	926,925														
928	Proof-drilling Works	11 days	0 days	11 days	0%	Thu 3/12/20	Tue 15/12/20	NA	NA	Fri 5/3/21	Wed 17/3/21	73 days	2 days	927														
929	Pile Cap P04 @ CH1351 with ELS	47 days	0 days	47 days	0%	Wed 16/12/20	Thu 11/2/21	NA	NA	Thu 1/4/21	Mon 31/5/21	85 days		933SS,928														
930	Pile Cap @ CH1351	97 days	0 days	97 days	0%	Mon 2/11/20	Mon 1/3/21	NA	NA	Tue 16/2/21	Mon 31/5/21	73 days																
931	Pilecap ELS- Design and Method Statement Submission	0 days	0 days	0 days	0%	Mon 2/11/20	Mon 2/11/20	NA	NA	Tue 16/2/21	Tue 16/2/21	106 days	1 day															
932	Pilecap ELS - Design and Method Statement Comment & Appraoval	30 days	0 days	30 days	0%	Mon 2/11/20	Tue 1/12/20	NA	NA	Tue 16/2/21	Wed 17/3/21	106 days	1 day	931														
933	Drive sheetpile (~75m). Prod. Rate: 10m/day/side/team	10 days	0 days	10 days	0%	Wed 16/12/20	Tue 29/12/20	NA	NA	Thu 18/3/21	Mon 29/3/21	73 days	2 days	932,928														
934	Excavation with Shoring Installation ~2600m3 Prod. Rate: 160m3/day/team	19 days	0 days	19 days	0%	Wed 30/12/20	Thu 21/1/21	NA	NA	Tue 30/3/21	Fri 23/4/21	73 days	2 day	933														
935	Pilecap Formwork- Design and Method Statement Submission	0 days	0 days	0 days	0%	Tue 1/12/20	Tue 1/12/20	NA	NA	Thu 25/3/21	Thu 25/3/21	114 days	1 day															
936	Pilecap Formworks - Design and Method Statement Comment & Appraoval	30 days	0 days	30 days	0%	Tue 1/12/20	Wed 30/12/20	NA	NA	Thu 25/3/21	Fri 23/4/21	114 days	1 day	935														
937	Pile Cap structure	19 days	0 days	19 days	0%	Fri 22/1/21	Tue 16/2/21	NA	NA	Sat 24/4/21	Mon 17/5/21	73 days	1 day	846,936,934														
938	Backfill and extract sheet pile	11 days	0 days	11 days	0%	Wed 17/2/21	Mon 1/3/21	NA	NA	Tue 18/5/21	Mon 31/5/21	73 days	2 days	937														
939	Pier - Temporary Design and Method Statement Submission	0 days	0 days	0 days	0%	Mon 4/1/21	Mon 4/1/21	NA	NA	Sun 2/5/21	Sun 2/5/21	118 days	1 day															
940	Pier - Temporary Design and Method Statement Comment & Appraoval	30 days	0 days	30 days	0%	Mon 4/1/21	Tue 2/2/21	NA	NA	Sun 2/5/21	Mon 31/5/21	118 days	1 day	939														
941	Pier P04 @ CH1351	49 days	0 days	49 days	0%	Tue 2/3/21	Fri 30/4/21	NA	NA	Tue 1/6/21	Thu 29/7/21	73 days	1 day	938,922,211,940														
942	Stage 3: Bridge deck between CH1311-1351	145 days	0 days	145 days	0%	Fri 30/7/21	Fri 21/1/22	NA	NA	Fri 30/7/21	Sat 29/1/22	0 days	1 day															
943	CH1311-1351: Deck Falsework erection	21 days	0 days	21 days	0%	Fri 30/7/21	Mon 23/8/21	NA	NA	Fri 30/7/21	Mon 23/8/21	0 days	3 days	941,922,879														
944	CH1311-1351: Structure deck	30 days	0 days	30 days	0%	Tue 24/8/21	Tue 28/9/21	NA	NA	Tue 24/8/21	Tue 28/9/21	0 days	5 days	475,483,736,896														
945	CH1311-1351: Prestressing	21 days	0 days	21 days	0%	Mon 18/10/21	Wed 10/11/21	NA	NA	Mon 18/10/21	Wed 10/11/21	0 days	3 days	944FS+14 days,8														
946	CH1311-1351: Utility Trough (0.67m per day per team) x 4 team	30 days	0 days	30 days	0%	Thu 11/11/21	Wed 15/12/21	NA	NA	Fri 26/11/21	Mon 3/1/22	13 days	0.5 day	219,880,945														
947	CH1311-1351: Central Median (6m per day per team) x 2 team	15 days	0 days	15 days	0%	Thu 11/11/21	Sat 27/11/21	NA	NA	Wed 5/1/22	Fri 21/1/22	44 days	3 days	945														
948	CH1311-1351: Parapet (28m per day per team) x 2 team + 6 day concreting	16 days	0 days	16 days	0%	Thu 23/12/21	Thu 13/1/22	NA	NA	Tue 4/1/22	Fri 21/1/22	7 days	1 day	945,888,890,946														
949	CH1311-1351: Road Furniture	7 days	0 days	7 days	0%	Fri 14/1/22	Fri 21/1/22	NA	NA	Sat 22/1/22	Sat 29/1/22	7 days	1 day	947,358,948														
950	Part 1 - CH1372 to CH1386	149 days	0 days	149 days	0%	Mon 23/8/21	Tue 22/2/22	NA	NA	Mon 23/8/21	Tue 1/3/22	0 days																
951	Bridge deck between CH1351-1386	149 days	0 days	149 days	0%	Mon 23/8/21	Tue 22/2/22	NA	NA	Mon 23/8/21	Tue 1/3/22	0 days																
952	CH1351-1386: Deck Falsework erection	22 days	0 days	22 days	0%	Mon 23/8/21	Thu 16/9/21	NA	NA	Mon 23/8/21	Thu 16/9/21	0 days	4 days	941,922,898FS+														
953	CH1351-1386: Structure deck	30 days	0 days	30 days	0%	Fri 17/9/21	Mon 25/10/21	NA	NA	Fri 17/9/21	Mon 25/10/21	0 days	5 days	952,736,976														
954	CH1351-1386: Prestressing	14 days	0 days	14 days	0%	Thu 11/11/21	Fri 26/11/21	NA	NA	Thu 11/11/21	Fri 26/11/21	0 days	5 days	953FS+14 days,9														
955	CH1351 - CH1386: Utility Trough (0.67m per day per team) x 4 team	30 days	0 days	30 days	0%	Sat 27/11/21	Tue 4/1/22	NA	NA	Sat 27/11/21	Tue 4/1/22	0 days	3 days	219,954														
956	CH1351 - CH1386: Central Median (6m per day per team) x 1 team	15 days	0 days	15 days	0%	Sat 27/11/21	Tue 14/12/21	NA	NA	Sat 27/11/21	Tue 14/12/21	0 days	3 days	954														
957	CH1351 - CH1386: Parapet (28m per day per team) x 1 team + 6 day concreting	20 days	0 days	20 days	0%	Wed 5/1/22	Thu 27/1/22	NA	NA	Wed 12/1/22	Mon 7/2/22	6 days	4 days	955														
958	CH1351-1386 Falsework removal	19 days	0 days	19 days	0%	Fri 28/1/22	Tue 22/2/22	NA	NA	Tue 8/2/22	Tue 1/3/22	6 days	1 day	955,957														
959	CH1351 - CH1386: Road Furniture (Section 1)	8 days	0 days	8 days	0%	Fri 28/1/22	Wed 9/2/22	NA	NA	Mon 14/2/22	Tue 22/2/22	11 days	2 day	956,358,957														
960	Part 1 - CH1386 to CH1394 South Abutment	352 days	0 days	352 days	0%	Fri 3/7/20	Sat 4/9/21	NA	NA	Sat 25/7/20	Thu 16/9/21	10 days																
961	Bored Pile (A02-BP2) @ CH1386 by Rig 1	42 days	0 days	42 days	0%	Fri 3/7/20	Thu 20/8/20	NA	NA	Sat 25/7/20	Fri 11/9/20	19 days	3 days	831FS+12 days														
962	Bored Pile (A02-BP1) @ CH1386 by Rig 1	63 days	0 days	63 days	0%	Tue 28/7/20	Sat 10/10/20	NA	NA	Wed 19/8/20	Tue 3/11/20	19 days	3 days	202FF,961FF+4														
963	Pile Testing	35 days	0 days	35 days	0%	Mon 12/10/20	Sat 21/11/20	NA	NA	Wed 4/11/20	Mon 14/12/20	19 days	4 days	962														

**Title: Rev.11 Prog with Progress as of 22-May-20**

Task	Summary	Inactive Milestone	Duration-only	Start-only	External Milestone	Critical Split
Split	Project Summary	Inactive Summary	Manual Summary Rollup	Finish-only	Deadline	Progress
Milestone	Inactive Task	Manual Task	Manual Summary	External Tasks	Critical	Manual Progress



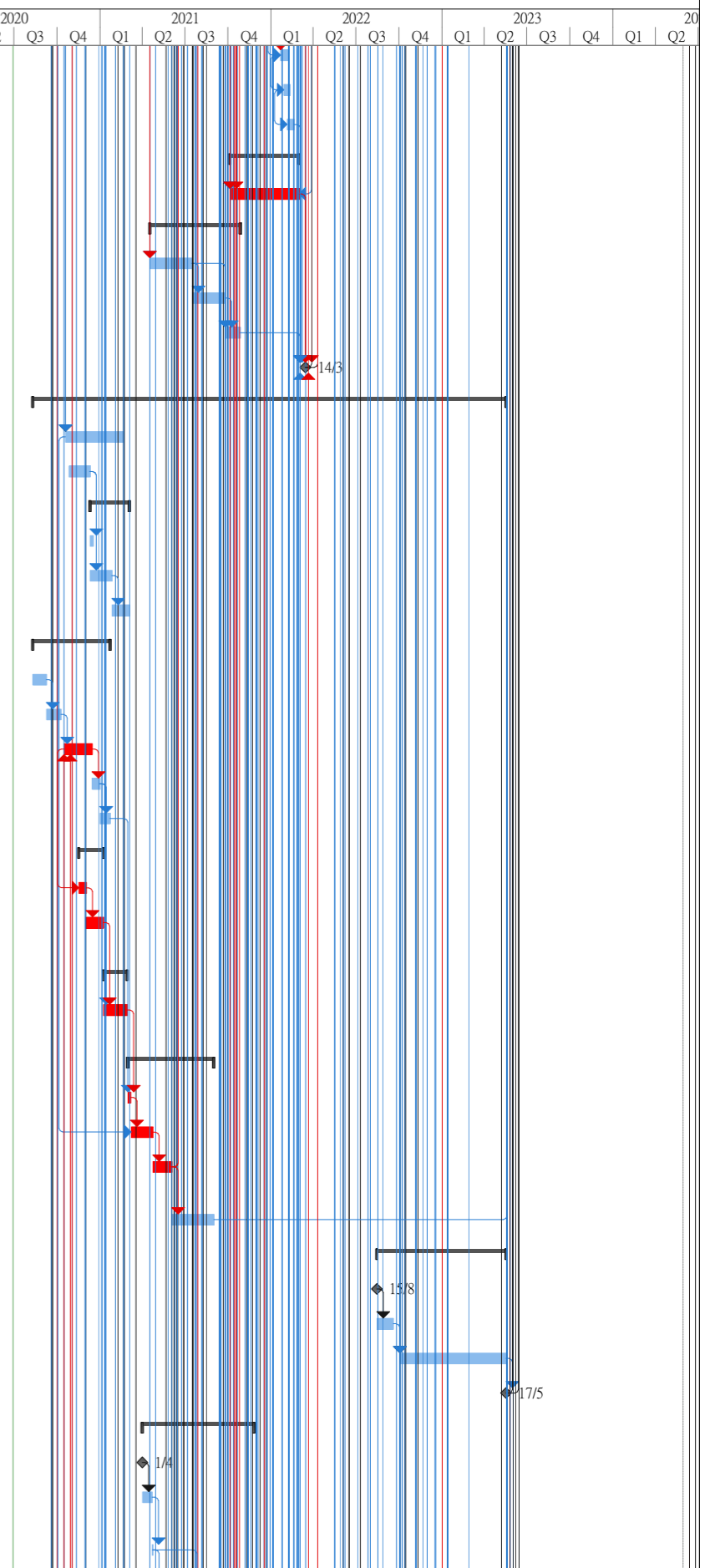






Contract No. ED/2018/01 KTD Project

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020				2021				2022				2023			
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
1096	HGC	15 days	0 days	15 days	0%	Fri 21/1/22	Fri 4/2/22	NA	NA	Tue 1/2/22	Tue 15/2/22	11 days	1 day	1095SS+7 days,																
1097	CATV	13 days	0 days	13 days	0%	Fri 28/1/22	Wed 9/2/22	NA	NA	Tue 8/2/22	Sun 20/2/22	11 days	1 day	1096SS+7 days																
1098	Towngas telecom	15 days	0 days	15 days	0%	Fri 4/2/22	Fri 18/2/22	NA	NA	Tue 15/2/22	Tue 1/3/22	11 days	1 day	1097SS+7 days																
1099	North & South Depress Raod and Underpass: Finishing and E&M Works	120 days	0 days	120 days	0%	Tue 5/10/21	Tue 1/3/22	NA	NA	Tue 5/10/21	Tue 1/3/22	0 days																		
1100	Finishing & Fitting Out Work, and E&M Works Installation	120 days	0 days	120 days	0%	Tue 5/10/21	Tue 1/3/22	NA	NA	Tue 5/10/21	Tue 1/3/22	0 days	8 days	306,271,323,108																
1101	Pump Room Next to Underpass: Finishing and E&M Works	158 days	0 days	158 days	0%	Sat 17/4/21	Tue 26/10/21	NA	NA	Thu 19/8/21	Tue 1/3/22	102 days																		
1102	Finishing Works and E&M installation	73 days	0 days	73 days	0%	Sat 17/4/21	Thu 15/7/21	NA	NA	Thu 19/8/21	Mon 15/11/21	102 days	3 days	1042FS+36 days																
1103	Pump Installation	60 days	0 days	60 days	0%	Fri 16/7/21	Fri 24/9/21	NA	NA	Tue 16/11/21	Thu 27/1/22	102 days	2 days	1102																
1104	Testing and Commissioning	25 days	0 days	25 days	0%	Sat 25/9/21	Tue 26/10/21	NA	NA	Fri 28/1/22	Tue 1/3/22	102 days	1 days	1102,1103																
1105	Planned Completion for Section 1	0 days	0 days	0 days	0%	Mon 14/3/22	Mon 14/3/22	NA	NA	Tue 1/3/22	Tue 1/3/22	-13 days		1408,1414,1068,																
1106	Sections 2,4 and 8	824 days	0 days	824 days	0%	Mon 10/8/20	Wed 17/5/23	NA	NA	Mon 17/8/20	Wed 29/5/24	6 days																		
1107	Offsite 14 units of precast box culvert with outfall fabrication	100 days	0 days	100 days	0%	Mon 19/10/20	Fri 19/2/21	NA	NA	Thu 3/12/20	Thu 8/4/21	38 days	30 days	406,414																
1108	MDN application	45 days	0 days	45 days	0%	Mon 26/10/20	Wed 9/12/20	NA	NA	Sun 21/1/24	Tue 5/3/24	1182 d...	1 days																	
1109	Demolition of Existing Seawall an Construction of Water Channel (Ch 0 to Ch30)	67 days	0 days	67 days	0%	Thu 10/12/20	Thu 4/3/21	NA	NA	Wed 6/3/24	Wed 29/5/24	962 days																		
1110	Installation of Silt Curtain with Concrete Sinkers	6 days	0 days	6 days	0%	Thu 10/12/20	Wed 16/12/20	NA	NA	Thu 23/5/24	Wed 29/5/24	1023 d...	1 day	1108																
1111	Demolition of Existing Seawall	37 days	0 days	37 days	0%	Thu 10/12/20	Mon 25/1/21	NA	NA	Wed 6/3/24	Mon 22/4/24	962 days	1 day	1108																
1112	Grade 200 rock filling and placing levelling stone	30 days	0 days	30 days	0%	Tue 26/1/21	Thu 4/3/21	NA	NA	Tue 23/4/24	Wed 29/5/24	962 days	1 day	1111																
1113	CH86 to CH70 ELS Works	136 days	0 days	136 days	0%	Mon 10/8/20	Thu 21/1/21	NA	NA	Mon 17/8/20	Sat 27/2/21	6 days																		
1114	Temporary Works Design Preparation	25 days	0 days	25 days	0%	Mon 10/8/20	Mon 7/9/20	NA	NA	Mon 17/8/20	Mon 14/9/20	6 days	1 days																	
1115	Comment by PM	25 days	0 days	25 days	0%	Tue 8/9/20	Thu 8/10/20	NA	NA	Tue 15/9/20	Thu 15/10/20	6 days	1 days	1114																
1116	Sheetpiling Installation with Grouting & Pumping Test (56m long on plan)	50 days	0 days	50 days	0%	Fri 16/10/20	Mon 14/12/20	NA	NA	Fri 16/10/20	Mon 14/12/20	0 days	1 day	1420,1423,1115																
1117	Excavation with Shoring Installation (1350 cu.m., 150 cu.m./d)	12 days	0 days	12 days	0%	Tue 15/12/20	Wed 30/12/20	NA	NA	Tue 22/12/20	Thu 7/1/21	6 days	3 day	1116																
1118	Preparation of formation and laying of blinding layer	18 days	0 days	18 days	0%	Thu 31/12/20	Thu 21/1/21	NA	NA	Thu 4/2/21	Sat 27/2/21	29 days	0.5 day	1117																
1119	CH70 to CH30 ELS Works	43 days	0 days	43 days	0%	Mon 16/11/20	Thu 7/1/21	NA	NA	Mon 16/11/20	Thu 7/1/21	0 days																		
1120	Sheetpiling Installation (80m on plan)	14 days	0 days	14 days	0%	Mon 16/11/20	Tue 1/12/20	NA	NA	Mon 16/11/20	Tue 1/12/20	0 days	0.5 day	1116SS+25 days																
1121	Excavation with Shoring Installation (4500 cu.m., 160 cu.m./d x 1 team) and Preparation of Formation and Laying of Blinding Layer	29 days	0 days	29 days	0%	Wed 2/12/20	Thu 7/1/21	NA	NA	Wed 2/12/20	Thu 7/1/21	0 days	1 day	1120																
1122	DCS Seawater Intake (Insitu Section Bay 15)	41 days	0 days	41 days	0%	Fri 8/1/21	Sat 27/2/21	NA	NA	Fri 8/1/21	Sat 27/2/21	0 days	1 days																	
1123	Construction of Cast in-situ Box Culvert with feeder pipe installation with Connection to Existing Box Culvert(Bay 15, approx. 12m long)	41 days	0 days	41 days	0%	Fri 8/1/21	Sat 27/2/21	NA	NA	Fri 8/1/21	Sat 27/2/21	0 days	1 day	1117,1121																
1124	Precast Units Installation	151 days	0 days	151 days	0%	Mon 1/3/21	Tue 31/8/21	NA	NA	Mon 1/3/21	Tue 30/5/23	0 days																		
1125	Preparation for Connecting Precast Units and Cast In-situ Bay 15	6 days	0 days	6 days	0%	Mon 1/3/21	Sat 6/3/21	NA	NA	Mon 1/3/21	Sat 6/3/21	0 days	1 days	1123,1118																
1126	Installation of 14 precast units with feeder pipe installation (2.5 days per unit)	37 days	0 days	37 days	0%	Mon 8/3/21	Thu 22/4/21	NA	NA	Mon 8/3/21	Thu 22/4/21	0 days	2 days	1125,1107SS+75 days																
1127	Inspection Shaft Construction and Backfilling Upto +2.0mPD + Feeder Pipe Laying + Backfilling upto Final Formation Level	33 days	0 days	33 days	0%	Fri 23/4/21	Wed 2/6/21	NA	NA	Fri 23/4/21	Wed 2/6/21	0 days	0.5 day	1126																
1128	Seawall Reinstatement	75 days	0 days	75 days	0%	Thu 3/6/21	Tue 31/8/21	NA	NA	Sat 25/2/23	Tue 30/5/23	518 days	2 days	1127																
1129	Section 4: Part 2E	225 days	0 days	225 days	0%	Mon 15/8/22	Wed 17/5/23	NA	NA	Sat 10/9/22	Tue 30/5/23	10 days																		
1130	Abandon Existing DCS - Temp. Works Design and Method Statement Submission	0 days	0 days	0 days	0%	Mon 15/8/22	Mon 15/8/22	NA	NA	Sat 10/9/22	Sat 10/9/22	26 days	1 day																	
1131	Abandon Existing DCS - Temp. Works Design and Method Statement Comment & Approval	35 days	0 days	35 days	0%	Mon 15/8/22	Sun 18/9/22	NA	NA	Sat 10/9/22	Fri 14/10/22	26 days	1 day	1130																
1132	Part 2E - Abandon of existing DCS	185 days	0 days	185 days	0%	Mon 3/10/22	Wed 17/5/23	NA	NA	Sat 15/10/22	Tue 30/5/23	10 days	9 days	20,1131																
1133	Planned Completion for Section 4	0 days	0 days	0 days	0%	Wed 17/5/23	Wed 17/5/23	NA	NA	Tue 30/5/23	Tue 30/5/23	10 days		1132																
1134	Section 8: Part 2A - Diversion & abandon of extg DCS box culvert	194 days	0 days	194 days	0%	Thu 1/4/21	Wed 24/11/21	NA	NA	Fri 9/4/21	Thu 2/12/21	4 days																		
1135	Diversion & Abandon of Existing DCS Box Culvert - Temp. Works Design and Method Statement Submission	0 days	0 days	0 days	0%	Thu 1/4/21	Thu 1/4/21	NA	NA	Fri 9/4/21	Fri 9/4/21	8 days	1 day																	
1136	Diversion & Abandon of Existing DCS Box Box Culvert - Temp. Works Design and Method Statement Comment & Approval	21 days	0 days	21 days	0%	Thu 1/4/21	Wed 21/4/21	NA	NA	Fri 9/4/21	Thu 29/4/21	8 days	1 day	1135																
1137	TTA Implementation	1 day	0 days	1 day	0%	Thu 22/4/21	Thu 22/4/21	NA	NA	Fri 30/4/21	Fri 30/4/21	7 days	0.5 day	1136																



**Title: Rev.11 Prog with Progress as of 22-May-20**

Task		Summary		Inactive Milestone		Duration-only		Start-only		External Milestone		Critical Split	
Split		Project Summary		Inactive Summary		Manual Summary Rollup		Finish-only		Deadline		Progress	
Milestone		Inactive Task		Manual Task		Manual Summary		External Tasks		Critical		Manual Progress	

Contract No. ED/2018/01 KTD Project

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020		2021				2022				2023															
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2									
1138	Sheetpile Installation	25 days	0 days	25 days	0%	Fri 23/4/21	Mon 24/5/21	NA	NA	Mon 3/5/21	Tue 1/6/21	7 days	1 day	1137																										
1139	Excavation with Shoring	52 days	0 days	52 days	0%	Tue 25/5/21	Mon 26/7/21	NA	NA	Wed 2/6/21	Tue 3/8/21	7 days	1 day	1138																										
1140	Diversion of existing DCS box culvert	26 days	0 days	26 days	0%	Tue 27/7/21	Wed 25/8/21	NA	NA	Wed 4/8/21	Thu 2/9/21	7 days	2 days	1137,410,1139																										
1141	Break up existing box culvert (4 walls) + top slab	35 days	0 days	35 days	0%	Thu 26/8/21	Thu 7/10/21	NA	NA	Fri 3/9/21	Sat 16/10/21	7 days	2 days	1140																										
1142	Construct new walls at existing box culvert	20 days	0 days	20 days	0%	Fri 8/10/21	Mon 1/11/21	NA	NA	Mon 18/10/21	Tue 9/11/21	7 days	1 days	1141																										
1143	Abandon existing DCS box culvert	20 days	0 days	20 days	0%	Tue 2/11/21	Wed 24/11/21	NA	NA	Wed 10/11/21	Thu 2/12/21	7 days	1 days	1142																										
1144	Planned Completion for Section 8	0 days	0 days	0 days	0%	Wed 24/11/21	Wed 24/11/21	NA	NA	Thu 2/12/21	Thu 2/12/21	7 days	0 days	1143																										
1145	Section 3	729 days	0 days	729 days	0%	Thu 16/5/19	Tue 26/10/21	NA	NA	Tue 2/6/20	Tue 2/11/21	6 days																												
1146	Part 2C - Lift LT3 & LT4	729 days	0 days	729 days	0%	Thu 16/5/19	Tue 26/10/21	NA	NA	Tue 2/6/20	Tue 2/11/21	6 days																												
1147	Access Date - Part 2A,2C	0 days	0 days	0 days	0%	Tue 2/6/20	Tue 2/6/20	NA	NA	Tue 2/6/20	Tue 2/6/20	0 days	0 days	4FS+369 days																										
1148	Mobilization of plant and materials	15 days	0 days	15 days	0%	Thu 16/5/19	Sat 1/6/19	NA	NA	Sat 4/7/20	Tue 21/7/20	337 days	1 days																											
1149	TTA implementation	4 days	0 days	4 days	0%	Tue 2/6/20	Fri 5/6/20	NA	NA	Fri 17/7/20	Tue 21/7/20	37 days	1 day	1147																										
1150	Carry out Titpit and Identify Underground Utilities location	12 days	0 days	12 days	0%	Mon 15/6/20	Fri 26/6/20	NA	NA	Mon 22/6/20	Fri 3/7/20	7 days																												
1151	Discuss with Relevant Utilities Undertakers	18 days	0 days	18 days	0%	Sat 27/6/20	Tue 14/7/20	NA	NA	Sat 4/7/20	Tue 21/7/20	7 days		1150																										
1152	Slew CLP Cable and Abandon Telecom Cable (tentative)	75 days	0 days	75 days	0%	Wed 15/7/20	Mon 12/10/20	NA	NA	Wed 22/7/20	Mon 19/10/20	6 days	4 days	1148,1149,1151																										
1153	Lift Tower Foundation - Temp. Works Design and Method Statement Submission	0 days	0 days	0 days	0%	Tue 4/8/20	Tue 4/8/20	NA	NA	Tue 15/9/20	Tue 15/9/20	42 days	1 day																											
1154	Lift Tower Foundation - Temp. Works Design and Method Statement Comment & Approval	35 days	0 days	35 days	0%	Tue 4/8/20	Mon 7/9/20	NA	NA	Tue 15/9/20	Mon 19/10/20	42 days	1 day	1153																										
1155	Intall Sheetpile, ELS, Excavation and Temp. Works Installation (Shoring, Drainage & Slope Protection)	38 days	0 days	38 days	0%	Tue 13/10/20	Thu 26/11/20	NA	NA	Tue 20/10/20	Thu 3/12/20	6 days	2 days	1154,1152																										
1156	Foundation Construction (Pad Footing include blinding layer, formwork erection, rebar fixing & concreting)	38 days	0 days	38 days	0%	Fri 27/11/20	Wed 13/1/21	NA	NA	Fri 4/12/20	Wed 20/1/21	6 days	2 days	1148,1152,175,1																										
1157	Sheepile Extraction & Backfilling	13 days	0 days	13 days	0%	Thu 14/1/21	Thu 28/1/21	NA	NA	Thu 21/1/21	Thu 4/2/21	6 days	1 day	1156																										
1158	Lift Tower - Temp. Works Design and Method Statement Submission	0 days	0 days	0 days	0%	Mon 2/11/20	Mon 2/11/20	NA	NA	Fri 1/1/21	Fri 1/1/21	60 days	1 day																											
1159	Lift Tower - Temp. Works Design and Method Statement Comment & Approval	35 days	0 days	35 days	0%	Mon 2/11/20	Sun 6/12/20	NA	NA	Fri 1/1/21	Thu 4/2/21	60 days	1 day	1158																										
1160	Lift Shaft Tower: 3 Lifts x 20 day/Lift, Falsework & Formwork Erection, Rebar Fixing & Concreting	63 days	0 days	63 days	0%	Fri 29/1/21	Mon 19/4/21	NA	NA	Fri 5/2/21	Mon 26/4/21	6 days	3 days	1156,1159,1157																										
1161	Lift installation (LT3 & LT4)	90 days	0 days	90 days	0%	Tue 20/4/21	Fri 6/8/21	NA	NA	Tue 27/4/21	Fri 13/8/21	6 days	5 days	1160,713																										
1162	E & M installation	30 days	0 days	30 days	0%	Sat 7/8/21	Fri 10/9/21	NA	NA	Sat 14/8/21	Fri 17/9/21	6 days	3 days	1161																										
1163	Louvers and Glazing Installation	26 days	0 days	26 days	0%	Fri 21/5/21	Mon 21/6/21	NA	NA	Sat 14/8/21	Mon 13/9/21	71 days	2 days	1160FS+25 days																										
1164	Parapet Installation and Finishing Works	40 days	0 days	40 days	0%	Tue 22/6/21	Sat 7/8/21	NA	NA	Tue 14/9/21	Tue 2/11/21	71 days	4 days	1163																										
1165	CLP Meter Installation	0 days	0 days	0 days	0%	Mon 1/2/21	Mon 1/2/21	NA	NA	Fri 20/8/21	Fri 20/8/21	200 days	0.5 day																											
1166	EMSD Submission Form 5 for Lift Inspection	0 days	0 days	0 days	0%	Mon 1/3/21	Mon 1/3/21	NA	NA	Fri 20/8/21	Fri 20/8/21	172 days	0.5 day	1165																										
1167	EMSD Lift Inspection	0 days	0 days	0 days	0%	Sun 14/3/21	Sun 14/3/21	NA	NA	Fri 3/9/21	Fri 3/9/21	172 days	0.5 day	1166FS+14 days																										
1168	Issuance of Lift Use Permit	0 days	0 days	0 days	0%	Mon 29/3/21	Mon 29/3/21	NA	NA	Sat 18/9/21	Sat 18/9/21	172 days	0.5 day	1167FS+15 days																										
1169	Testing & commissioning with Statutory Inspection	36 days	0 days	36 days	0%	Sat 11/9/21	Tue 26/10/21	NA	NA	Sat 18/9/21	Tue 2/11/21	6 days	1 days	1162,1168																										
1170	Footpath	28 days	0 days	28 days	0%	Tue 20/4/21	Mon 24/5/21	NA	NA	Tue 8/6/21	Mon 12/7/21	40 days	1 days	1160																										
1171	Open Space within Part 2C	94 days	0 days	94 days	0%	Tue 25/5/21	Mon 13/9/21	NA	NA	Tue 13/7/21	Tue 2/11/21	40 days	4 days	1170,1230																										
1172	Planned Completion for Section 3	0 days	0 days	0 days	0%	Tue 26/10/21	Tue 26/10/21	NA	NA	Tue 2/11/21	Tue 2/11/21	6 days	0 days	1171,1168,1169																										
1173	Sections 5 and 9: Noise Barrier Installation	380 days	6.83 days	373.17 days	0%	Fri 20/3/20	Sat 3/7/21	Fri 20/3/20	NA	Fri 20/3/20	Mon 5/7/21	1 day	1 day																											
1174	1.0 Noise Barrier Shop Drawing Preparation, Offsite Fabrication	141 days	20.86 days	120.14 days	0%	Mon 6/4/20	Thu 24/9/20	Mon 6/4/20	NA	Mon 6/4/20	Mon 7/12/20	60 days																												
1175	CNP and TTA available	0 days	0 days	0 days	0%	Wed 24/6/20	Wed 24/6/20	NA	NA	Thu 20/8/20	Thu 20/8/20	47 days	1 day																											
1176	Expose the Existing Noise Barrier Foundation	70 days	25 days	45 days	36%	Mon 6/4/20	Fri 3/7/20	Mon 6/4/20	NA	Mon 6/4/20	Tue 7/7/20	3 days	1 day																											
1177	Implement TTA	2 days	0 days	2 days	0%	Mon 13/7/20	Tue 14/7/20	NA	NA	Wed 18/11/20	Thu 19/11/20	107 days	0.5 day																											
1178	Expose the Existing Noise Barrier Foundation under Existing Footpath	15 days	0 days	15 days	0%	Wed 15/7/20	Fri 31/7/20	NA	NA	Fri 20/11/20	Mon 7/																													

Contract No. ED/2018/01 KTD Project

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	Gantt Chart (2020-2023)																				
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
1183	PMAA Panel Material Comment and Approval by PM	18 days	0 days	18 days	0%	Sat 2/5/20	Fri 22/5/20	NA	NA	Sat 6/6/20	Sat 27/6/20	30 days	1 days	1182	[Gantt Bar]																				
1184	PMAA Panel Material Coloring Sample Submission	0 days	0 days	0 days	0%	Thu 4/6/20	Thu 4/6/20	NA	NA	Mon 29/6/20	Mon 29/6/20	20 days	1 days	1183	[Gantt Bar]																				
1185	PMAA Panel Material Coloring Sample Comment and Approval by PM	10 days	0 days	10 days	0%	Thu 4/6/20	Mon 15/6/20	NA	NA	Mon 29/6/20	Fri 10/7/20	20 days	1 days	1184	[Gantt Bar]																				
1186	Material Testing and Offsite Fabrication	247 days	0 days	247 days	0%	Mon 1/6/20	Tue 2/2/21	NA	NA	Wed 10/6/20	Wed 17/2/21	9 days			[Gantt Bar]																				
1187	Holding Down Bolt Procurement	61 days	0 days	61 days	0%	Fri 5/6/20	Tue 4/8/20	NA	NA	Wed 10/6/20	Sun 9/8/20	5 days	1 days		[Gantt Bar]																				
1188	Holding Down Bolt Testing	45 days	0 days	45 days	0%	Wed 5/8/20	Fri 18/9/20	NA	NA	Mon 10/8/20	Wed 23/9/20	5 days	1 day	1187	[Gantt Bar]																				
1189	Structural Steelwork Procurement	81 days	0 days	81 days	0%	Mon 1/6/20	Thu 20/8/20	NA	NA	Sat 13/6/20	Tue 1/9/20	12 days	1 day		[Gantt Bar]																				
1190	Structural Steel Frame Material Testing	46 days	0 days	46 days	0%	Fri 21/8/20	Mon 5/10/20	NA	NA	Wed 2/9/20	Sat 17/10/20	12 days	1 day	1189	[Gantt Bar]																				
1191	Structural Steel Frame Fabrication and Delivery	120 days	0 days	120 days	0%	Tue 6/10/20	Tue 2/2/21	NA	NA	Sun 18/10/20	Sun 14/2/21	12 days	1 day	1181,1190	[Gantt Bar]																				
1192	Structural Steel Frame Start Delivery to Site	0 days	0 days	0 days	0%	Wed 25/11/20	Wed 25/11/20	NA	NA	Tue 8/12/20	Tue 8/12/20	12 days	1 day	1191SS+51 days	[Gantt Bar]																				
1193	Polymethyl Methacrylate (PMMA) and Associated Aluminium Sub-frame Procurement	121 days	0 days	121 days	0%	Tue 16/6/20	Wed 14/10/20	NA	NA	Sat 11/7/20	Sun 8/11/20	25 days	1 day	1185	[Gantt Bar]																				
1194	Polymethyl Methacrylate (PMMA) panel fabrication and delivery	101 days	0 days	101 days	0%	Thu 15/10/20	Sat 23/1/21	NA	NA	Mon 9/11/20	Wed 17/2/21	25 days	30 days	1193,1181	[Gantt Bar]																				
1195	Temp Works Design for Noise Barrier	106 days	0 days	106 days	0%	Sat 13/6/20	Mon 19/10/20	NA	NA	Fri 19/6/20	Sat 24/10/20	5 days			[Gantt Bar]																				
1196	ELS Design Preparation for Noise Barrier with ICE	18 days	0 days	18 days	0%	Wed 17/6/20	Thu 9/7/20	NA	NA	Tue 23/6/20	Wed 15/7/20	5 days	1 day		[Gantt Bar]																				
1197	ELS Design for Noise Barrier Comment by AECOM	21 days	0 days	21 days	0%	Fri 10/7/20	Thu 30/7/20	NA	NA	Thu 16/7/20	Wed 5/8/20	6 days	1 day	1196	[Gantt Bar]																				
1198	Temporary Works Platform Design Preparation	36 days	0 days	36 days	0%	Sat 13/6/20	Mon 27/7/20	NA	NA	Fri 19/6/20	Sat 1/8/20	5 days	1 day		[Gantt Bar]																				
1199	Temporary Working Platform Design Submit for AECOM Comment	19 days	0 days	19 days	0%	Tue 28/7/20	Tue 18/8/20	NA	NA	Mon 3/8/20	Mon 24/8/20	5 days	1 day	1198	[Gantt Bar]																				
1200	Temporary Working Platform Fabrication	51 days	0 days	51 days	0%	Wed 19/8/20	Mon 19/10/20	NA	NA	Tue 25/8/20	Sat 24/10/20	5 days	1 day	1199	[Gantt Bar]																				
1201	2.0 Noise Barrier Footing and Modification Existing Column Stud	184 days	2.71 days	181.29 days	0%	Fri 20/3/20	Sat 19/9/20	Fri 20/3/20	NA	Fri 20/3/20	Wed 23/9/20	4 days			[Gantt Bar]																				
1202	Take up the Works Area	1 day	1 day	0 days	0%	Fri 20/3/20	Fri 20/3/20	Fri 20/3/20	Fri 20/3/20	Fri 20/3/20	Fri 20/3/20	0 days			[Gantt Bar]																				
1203	Ground Investigation Works	25 days	0 days	25 days	0%	Sat 4/7/20	Sat 1/8/20	NA	NA	Wed 8/7/20	Wed 5/8/20	3 days	1 day	1176	[Gantt Bar]																				
1204	Diversion of Existing Utilities and ELS Construction	42 days	0 days	42 days	0%	Mon 3/8/20	Sat 19/9/20	NA	NA	Thu 6/8/20	Wed 23/9/20	3 days	1 day	1197,1203	[Gantt Bar]																				
1205	Footing with Column Stud Construction	61 days	0 days	61 days	0%	Wed 23/9/20	Sat 5/12/20	NA	NA	Thu 24/9/20	Mon 7/12/20	1 day			[Gantt Bar]																				
1206	Bay 1 & 3 Footing with Column Stud and Modification of Existing Column Stud along Bay 1 & 3	10 days	0 days	10 days	0%	Wed 23/9/20	Tue 6/10/20	NA	NA	Thu 24/9/20	Wed 7/10/20	1 day	1 day	1188,1204,184F	[Gantt Bar]																				
1207	Bay 2 & 4 Footing with Column Stud and Modification of Existing Column Stud along Bay 2&4	10 days	0 days	10 days	0%	Wed 7/10/20	Sat 17/10/20	NA	NA	Thu 8/10/20	Mon 19/10/20	1 day	1 day	1206	[Gantt Bar]																				
1208	Bay 5 & 7 Footing with Column Stud, Modification of Existing Stud along Bay 5&7	10 days	0 days	10 days	0%	Mon 19/10/20	Fri 30/10/20	NA	NA	Tue 20/10/20	Sat 31/10/20	1 day	1 day	1207	[Gantt Bar]																				
1209	Bay 6 Footing with Column Stud, Modification of Existing Stud along Bay 6	10 days	0 days	10 days	0%	Sat 31/10/20	Wed 11/11/20	NA	NA	Mon 2/11/20	Thu 12/11/20	1 day	1 day	1208	[Gantt Bar]																				
1210	Backfill and extract sheet pile	21 days	0 days	21 days	0%	Thu 12/11/20	Sat 5/12/20	NA	NA	Fri 13/11/20	Mon 7/12/20	1 day	1 day	1209	[Gantt Bar]																				
1211	Modification of Remaining Column Stud	50 days	0 days	50 days	0%	Mon 7/12/20	Fri 5/2/21	NA	NA	Tue 8/12/20	Sat 6/2/21	1 day	1 day		[Gantt Bar]																				
1212	Modification of Remaining Column Stud	50 days	0 days	50 days	0%	Mon 7/12/20	Fri 5/2/21	NA	NA	Tue 8/12/20	Sat 6/2/21	1 day	1 day	1210,1178	[Gantt Bar]																				
1213	Noise Barrier Installation	258 days	0 days	258 days	0%	Wed 19/8/20	Sat 3/7/21	NA	NA	Sat 26/9/20	Mon 5/7/21	1 day	1 day		[Gantt Bar]																				
1214	CNP Application	31 days	0 days	31 days	0%	Wed 19/8/20	Fri 18/9/20	NA	NA	Sat 26/9/20	Mon 26/10/20	38 days	1 day	1199	[Gantt Bar]																				
1215	Temporary Platform Delivery to Site	0 days	0 days	0 days	0%	Mon 19/10/20	Mon 19/10/20	NA	NA	Tue 27/10/20	Tue 27/10/20	5 days	0.5 day	1200	[Gantt Bar]																				
1216	Temporary Platform On-site Assembly (Night Time)	36 days	0 days	36 days	0%	Tue 20/10/20	Tue 1/12/20	NA	NA	Tue 27/10/20	Mon 7/12/20	5 days	0.5 day	1214,1215	[Gantt Bar]																				
1217	Structural Steel Frame Installation	119 days	0 days	119 days	0%	Mon 7/12/20	Wed 5/5/21	NA	NA	Tue 8/12/20	Thu 6/5/21	1 day	1 day	1192,1212SS,12	[Gantt Bar]																				
1218	PMMA and Associated Aluminum Sub-frame Installation	117 days	0 days	117 days	0%	Fri 8/1/21	Wed 2/6/21	NA	NA	Sat 9/1/21	Thu 3/6/21	1 day	1 day	1194SS+50 days	[Gantt Bar]																				
1219	Lighting Installation	25 days	0 days	25 days	0%	Thu 3/6/21	Sat 3/7/21	NA	NA	Fri 4/6/21	Mon 5/7/21	1 day	1 day	1218FF+25 days	[Gantt Bar]																				
1220	Rainwater downpipe	25 days	0 days	25 days	0%	Thu 3/6/21	Sat 3/7/21	NA	NA	Fri 4/6/21	Mon 5/7/21	1 day	1 day	1218FF+25 days	[Gantt Bar]																				
1221	Bus Lay-by	25 days	0 days	25 days	0%	Thu 3/6/21	Sat 3/7/21	NA	NA	Fri 4/6/21	Mon 5/7/21	1 day		1218FF+25 days	[Gantt Bar]																				
1222	Planned Completion for Section 5 & Section 9	0 days	0 days	0 days	0%	Sat 3/7/21	Sat 3/7/21	NA	NA	Mon 5/7/21	Mon 5/7/21	1 day	0 days	1218,1219,1220	[Gantt Bar]																				
1223	Section 6	1201 days	8.73 days	1192.27 days?	0%	Thu 16/5/19	Tue 30/5/23	Thu 16/5/19	NA	Thu 16/5/19	Wed 29/5/24	298 da...			[Gantt Bar]																				
1224	Fencing (15m/d) & Hoarding Erection (10m/d)	915 days	185.72 days	729.28 days	0%	Tue 15/10/19	Thu 10/11/22	Tue 15/10/19	NA	Tue 15/10/19	Fri 30/12/22	42 days			[Gantt Bar]																				
1225	Hoarding - Part 1 (~57m)	51 days	0 days	51 days	0%	Tue 1/12/20	Mon 1/2/21	NA	NA	Wed 21/9/22	Mon 21/11/22	536 days	1 day	121,8	[Gantt Bar]																				
1226	Fencing - Part 1 (758m)	6 days	0 days	6 days	0%	Sat 19/9/20	Fri 25/9/20	NA	NA	Mon 1/3/21	Sat 6/3/21	130 days	0 days	121,8	[Gantt Bar]																				
1227	Fencing - Part 2A (~458m) - 4 team	12 days	0 days	12 days	0%	Wed 3/2/21	Fri 19/2/21	NA	NA	Sat 5/2/22	Fri 18/2/22	296 days	1 days	9,121,1147,1445	[Gantt Bar]																				

Title: Rev.11 Prog with Progress as of 22-May-20

Task		Summary		Inactive Milestone		Duration-only		Start-only		External Milestone		Critical Split	
Split		Project Summary		Inactive Summary		Manual Summary Rollup		Finish-only		Deadline		Progress	
Milestone		Inactive Task		Manual Task		Manual Summary		External Tasks		Critical		Manual Progress	

Contract No. ED/2018/01 KTD Project

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020	2021	2022	2023	20												
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
1228	Hoarding - Part 2A (~379m) - 4 team	12 days	0 days	12 days	0%	Mon 2/11/20	Sat 14/11/20	NA	NA	Sat 5/2/22	Fri 18/2/22	373 days	1 days	9,121,1147,1445																	
1229	Fencing - Part 2B (~132m)	9 days	0 days	9 days	0%	Sat 20/2/21	Tue 2/3/21	NA	NA	Sat 19/2/22	Tue 1/3/22	296 days	0 days	10,121,1227,122																	
1230	Hoarding - Part 2C (~106m)	9 days	0 days	9 days	0%	Sat 19/9/20	Tue 29/9/20	NA	NA	Fri 2/7/21	Mon 12/7/21	229 days	1 days	9,121,1147,1445																	
1231	Hoarding - Part 2E (~37m)	4 days	0 days	4 days	0%	Mon 3/10/22	Fri 7/10/22	NA	NA	Tue 22/11/22	Fri 25/11/22	42 days	0 days	11,121,1225																	
1232	Fencing - Part 3A (~326m)	24 days	0 days	24 days	0%	Fri 14/10/22	Thu 10/11/22	NA	NA	Fri 2/12/22	Fri 30/12/22	42 days	2 days	12,121,1235																	
1233	Fencing - Part 3D (~29m)	2 days	0 days	2 days	0%	Sat 19/9/20	Mon 21/9/20	NA	NA	Sat 12/6/21	Tue 15/6/21	214 days	0 days	14,121																	
1234	Fencing - Part 3E (~23m)	2 days	0 days	2 days	0%	Wed 13/1/21	Thu 14/1/21	NA	NA	Wed 16/6/21	Thu 17/6/21	123 days	0 days	14,121,1236,123																	
1235	Fencing - Part 3F (~62m)	5 days	0 days	5 days	0%	Sat 8/10/22	Thu 13/10/22	NA	NA	Sat 26/11/22	Thu 1/12/22	42 days	0 days	15,121,1231,123																	
1236	Fencing - Part 3G (~69m)	5 days	0 days	5 days	0%	Tue 5/1/21	Sat 9/1/21	NA	NA	Mon 7/6/21	Fri 11/6/21	123 days	0 days	14,121																	
1237	Fencing - Part 3I (~19m)	2 days	0 days	2 days	0%	Mon 11/1/21	Tue 12/1/21	NA	NA	Sat 12/6/21	Tue 15/6/21	123 days	0 days	14,121,1236																	
1238	Fencing - Part 4 (~180m)	14 days	0 days	14 days	0%	Fri 5/3/21	Sat 20/3/21	NA	NA	Tue 24/5/22	Thu 9/6/22	361 days	2 days	121,13,1237																	
1239	Fencing - Part 6A (~19m)	2 days	0 days	2 days	0%	Sat 19/9/20	Mon 21/9/20	NA	NA	Sat 26/9/20	Mon 28/9/20	6 days	0 days	8,121,1241																	
1240	Fencing - Part 6B (~23m)	2 days	0 days	2 days	0%	Tue 22/9/20	Wed 23/9/20	NA	NA	Tue 29/9/20	Wed 30/9/20	6 days	0 days	8,121,1239																	
1241	Hoarding - WA1 (~300m)	41 days	41 days	0 days	70%	Tue 15/10/19	Sat 30/11/19	Tue 15/10/19	Sat 30/11/19	Tue 15/10/19	Sat 30/11/19	0 days	0.5 days	18,121																	
1242	Fencing (15m/d) & Hoarding Erection (10m/d) - Upon Works Completion	100 days	0 days	100 days	0%	Tue 5/7/22	Tue 1/11/22	NA	NA	Fri 5/8/22	Fri 2/12/22	27 days																			
1243	Fencing - ~1437m	100 days	0 days	100 days	0%	Tue 5/7/22	Tue 1/11/22	NA	NA	Fri 5/8/22	Fri 2/12/22	27 days	5 days	1527																	
1244	Hoarding - ~260m	28 days	0 days	28 days	0%	Tue 5/7/22	Fri 5/8/22	NA	NA	Mon 19/9/22	Sat 22/10/22	64 days	2 days	1527																	
1245	Demolition Work - Extg Fire Service Station	89 days	89 days	0 days	0%	Fri 16/8/19	Sat 30/11/19	Fri 16/8/19	Sat 30/11/19	Fri 16/8/19	Sat 30/11/19	0 days																			
1246	Asbestos Survey (PS Cl. 2.04(9))	8 days	8 days	0 days	100%	Fri 16/8/19	Fri 23/8/19	Fri 16/8/19	Fri 23/8/19	Fri 16/8/19	Fri 23/8/19	0 days	0.5 days	1226																	
1247	Demolish of abandoned Fire Service Station	11 days	11 days	0 days	100%	Tue 19/11/19	Sat 30/11/19	Tue 19/11/19	Sat 30/11/19	Tue 19/11/19	Sat 30/11/19	0 days	0.5 days	1246																	
1248	Rising Main	623 days	0 days	623 days	0%	Tue 1/12/20	Tue 3/1/23	NA	NA	Mon 1/2/21	Tue 30/5/23	50 days																			
1249	Rising Main - Method Statement Submission	0 days	0 days	0 days	0%	Tue 1/12/20	Tue 1/12/20	NA	NA	Mon 1/2/21	Mon 1/2/21	62 days	0.5 days																		
1250	Rising Main Method Statement Comment & Appraoval	35 days	0 days	35 days	0%	Tue 1/12/20	Mon 4/1/21	NA	NA	Mon 1/2/21	Sun 7/3/21	62 days	0.5 days	1249																	
1251	Part 1 - CHA660-1097.77 - 2x160mm dia (~438m)	95 days	0 days	95 days	0%	Mon 8/2/21	Mon 7/6/21	NA	NA	Mon 8/3/21	Sat 3/7/21	21 days	14 day	8,1226,427,419,																	
1252	Part 9A - CHA32-71 - 2x160mm dia (~39m) (KD5)	15 days	0 days	15 days	0%	Tue 8/6/21	Fri 25/6/21	NA	NA	Mon 5/7/21	Wed 21/7/21	21 days	7 day	8,1251																	
1253	Part 9B Rising Main	36 days	0 days	36 days	0%	Sat 26/6/21	Sat 7/8/21	NA	NA	Thu 22/7/21	Wed 1/9/21	21 days	10 days	1252																	
1254	Part 3B - CHA418-443 - 2x160mm dia (~25m) (KD7)	10 days	0 days	10 days	0%	Mon 9/8/21	Thu 19/8/21	NA	NA	Thu 2/9/21	Mon 13/9/21	21 days	5 days	13,1252SS,1253																	
1255	Part 9 - CHA0-363 & 71-363 - 2x160mm dia. (~655m) (KD4)	124 days	0 days	124 days	0%	Tue 31/8/21	Fri 28/1/22	NA	NA	Thu 2/9/21	Mon 31/1/22	2 days	3 days	16,1254SS																	
1256	Part 8 - CHA363-418&443-452 - 2x160mm dia (~64m)	20 days	0 days	20 days	0%	Sat 29/1/22	Thu 24/2/22	NA	NA	Thu 9/3/23	Fri 31/3/23	330 days	8 days	1255																	
1257	Part 3A - CH452-660 - 2x160mm dia (~208m)	45 days	0 days	45 days	0%	Fri 11/1/22	Tue 3/1/23	NA	NA	Sat 1/4/23	Tue 30/5/23	117 days	6 days	12,1232,1256																	
1258	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	0 days	0%	Tue 3/1/23	Tue 3/1/23	NA	NA	Tue 30/5/23	Tue 30/5/23	147 days		1257																	
1259	Underground Drainage (Stormwater & Sewerage Drainage)	496 days	0 days	496 days	0%	Tue 1/12/20	Wed 3/8/22	NA	NA	Wed 31/3/21	Wed 5/10/22	51 days																			
1260	Procurement of Stormwater Drainage Pipes	90 days	0 days	90 days	0%	Tue 16/2/21	Sun 16/5/21	NA	NA	Wed 31/3/21	Mon 28/6/21	43 days	1 day																		
1261	Stormwater Drainage	299 days	0 days	299 days	0%	Tue 15/6/21	Wed 15/6/22	NA	NA	Tue 29/6/21	Wed 21/9/22	12 days		428,465,1260																	
1262	Stormwater Drainage - ELS Temp. Works Design and Method Statement Submission	0 days	0 days	0 days	0%	Tue 15/6/21	Tue 15/6/21	NA	NA	Tue 29/6/21	Tue 29/6/21	14 days	1 day																		
1263	Stormwater Drainage - ELS Temp. Works Design and Method Statement Comment & Appraoval	35 days	0 days	35 days	0%	Tue 15/6/21	Mon 19/7/21	NA	NA	Tue 29/6/21	Mon 2/8/21	14 days	1 day	1262																	
1264	CH1000 - CH1087 (~92.5m, 2 M/H)	16 days	0 days	16 days	0%	Tue 20/7/21	Fri 6/8/21	NA	NA	Tue 3/8/21	Fri 20/8/21	12 days	1 days	1263																	
1265	CH1087 - CH1189.4 (~210m, 9 M/H)	24 days	0 days	24 days	0%	Sat 7/8/21	Fri 3/9/21	NA	NA	Sat 21/8/21	Fri 17/9/21	12 days	1 days	1264																	
1266	CH1189.4 - CH1394 (~167m, 3 MH) - Bridge D3	24 days	0 days	24 days	0%	Tue 24/8/21	Mon 20/9/21	NA	NA	Tue 9/11/21	Mon 6/12/21	63 days	0.5 days	944SS																	
1267	CH1394 - CH1444.7 (~40m, 3 M/H) - S. Ramp	21 days	0 days	21 days	0%	Tue 7/9/21	Sat 2/10/21	NA	NA	Tue 9/11/21	Thu 2/12/21	51 days	1 days	1266SS,988SS+																	
1268	CH1444.7 - CH1560 (~222m, 10 M/H) - Rd D3	38 days	0 days	38 days	0%	Wed 23/6/21	Fri 6/8/21	NA	NA	Mon 21/2/22	Wed 6/4/22	198 days	3 days	987																	
1269	CH1560 - CH1720 (~239m, 8 M/H) - N.D. Rd	14 days	0 days	14 days	0%	Sat 7/8/21	Mon 23/8/21	NA	NA	Thu 7/4/22	Tue 26/4/22	198 days	1 days	1263,1268,436																	
1270	CH1720 - CH1920 (~450.7m, 13 M/H) Underpass	96 days	0 days	96 days	0%	Tue 24/8/21	Thu 16/12/21	NA	NA	Wed 27/4/22	Thu 18/8/22	198 days	6 days	1269																	
1271	CH1920 - CH2000 (~160m, 6 M/H) S.D. Rd	14 days	0 days	14 days	0%	Fri 17/12/21	Wed 5/1/22	NA	NA	Fri 19/8/22	Sat 3/9/22	198 days	1 days	1270																	

Title: Rev.11 Prog with Progress as of 22-May-20













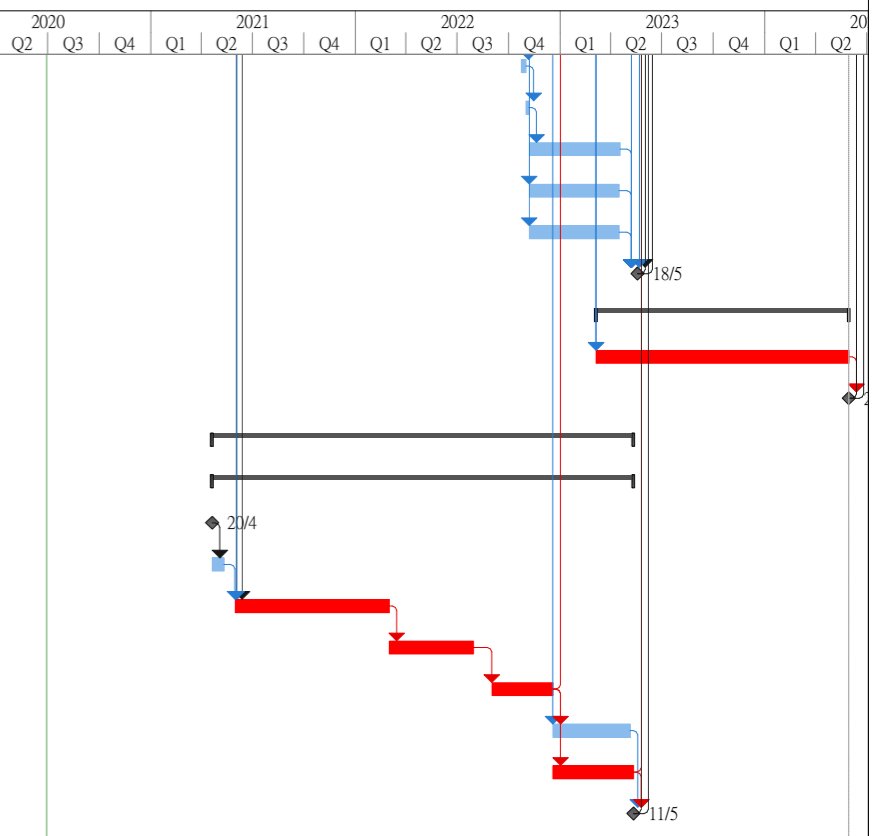
Contract No. ED/2018/01 KTD Project

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020												2021				2022				2023																
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4														
1451	Lift Pilecap and ELS - Temp. Works Foundation Design and Method Statement Comment & Approval	30 days	0 days	30 days	0%	Mon 21/12/20	Tue 19/1/21	NA	NA	Tue 16/11/21	Wed 15/12/21	330 days	0.5 day	1450																																					
1452	Intall Sheetpile, ELS, Excavation and Temp. Works Installation (Shoring, Drainage & Slope Protection)	38 days	0 days	38 days	0%	Tue 2/2/21	Sat 20/3/21	NA	NA	Thu 16/12/21	Fri 4/2/22	259 days	2 days	1447,1451																																					
1453	Footing Construction	75 days	0 days	75 days	0%	Thu 13/5/21	Wed 11/8/21	NA	NA	Sat 5/2/22	Sat 7/5/22	218 days	2 days	1452,1449,587																																					
1454	Sheepile Extraction & Backfilling	25 days	0 days	25 days	0%	Thu 12/8/21	Thu 9/9/21	NA	NA	Mon 9/5/22	Tue 7/6/22	218 days	1 day	1453																																					
1455	Lift Structure - Temp. Works Design and Method Statement Submission	0 days	0 days	0 days	0%	Tue 1/6/21	Tue 1/6/21	NA	NA	Tue 3/5/22	Tue 3/5/22	336 days	0.5 day																																						
1456	Lift Structure - Temp. Works Design and Method Statement Comment & Appraoval	36 days	0 days	36 days	0%	Tue 1/6/21	Tue 6/7/21	NA	NA	Tue 3/5/22	Tue 7/6/22	336 days	0.5 day	1455																																					
1457	Lift Tower: Falsework & Formwork Erection, Rebar Fixing & Concreting	63 days	0 days	63 days	0%	Fri 10/9/21	Thu 11/11/21	NA	NA	Wed 8/6/22	Tue 9/8/22	271 days	3 days	1454,1157,1456																																					
1458	Lift installation (LT1 & LT2)	90 days	0 days	90 days	0%	Fri 24/12/21	Tue 19/4/22	NA	NA	Fri 11/11/22	Tue 28/2/23	261 days	1 day	1457FS+36 days																																					
1459	E & M installation	33 days	0 days	33 days	0%	Wed 20/4/22	Fri 27/5/22	NA	NA	Wed 1/3/23	Wed 12/4/23	261 days	3 days	1458																																					
1460	Louvers and Glazing Installation	27 days	0 days	27 days	0%	Sat 11/12/21	Fri 14/1/22	NA	NA	Thu 8/9/22	Wed 12/10/22	220 days	3 days	1457FS+25 days																																					
1461	Parapet Installation and Finishing Works	40 days	0 days	40 days	0%	Sat 15/1/22	Sat 5/3/22	NA	NA	Thu 13/10/22	Mon 28/11/22	220 days	3 days	1460																																					
1462	Testing & commissioning	15 days	0 days	15 days	0%	Sat 28/5/22	Wed 15/6/22	NA	NA	Thu 13/4/23	Sat 29/4/23	261 days	0.5 days	1459																																					
1463	CLP Meter Installation	0 days	0 days	0 days	0%	Mon 18/4/22	Mon 18/4/22	NA	NA	Mon 18/4/22	Mon 18/4/22	0 days	0.5 day																																						
1464	EMSD Submission Form 5 for Lift Inspection	0 days	0 days	0 days	0%	Wed 15/6/22	Wed 15/6/22	NA	NA	Tue 2/5/23	Tue 2/5/23	320 days	0.5 day	1458,1462																																					
1465	EMSD Lift Inspection	0 days	0 days	0 days	0%	Wed 29/6/22	Wed 29/6/22	NA	NA	Tue 16/5/23	Tue 16/5/23	320 days	0.5 day	1464FS+14 days																																					
1466	Issuance of Lift Use Permit	0 days	0 days	0 days	0%	Thu 14/7/22	Thu 14/7/22	NA	NA	Tue 30/5/23	Tue 30/5/23	320 days	0.5 day	1465FS+15 days																																					
1467	Staircase ST1	100 days	0 days	100 days	0%	Fri 12/11/21	Tue 15/3/22	NA	NA	Fri 25/11/22	Sat 25/3/23	309 days	5 days	587,367,1457																																					
1468	Finishing and E&M Works	50 days	0 days	50 days	0%	Wed 16/3/22	Tue 17/5/22	NA	NA	Mon 27/3/23	Tue 30/5/23	309 days	0.5 day	1467,367																																					
1469	L12d Underground Drainage and Utilities Laying	75 days	0 days	75 days	0%	Mon 7/3/22	Tue 7/6/22	NA	NA	Tue 29/11/22	Tue 28/2/23	220 days	1 day	1457,1460,1461																																					
1470	L12d Roadworks and Pedestrian, with Light Pole	36 days	0 days	36 days	0%	Wed 8/6/22	Wed 20/7/22	NA	NA	Wed 1/3/23	Sat 15/4/23	220 days	1 day	1469,349																																					
1471	L12d Roadworks and Pedestrian	36 days	0 days	36 days	0%	Thu 21/7/22	Wed 31/8/22	NA	NA	Mon 17/4/23	Tue 30/5/23	220 days	1 day	1470																																					
1472	Open Space & Promenade	564 days	0 days	564 days	0%	Mon 28/6/21	Thu 18/5/23	NA	NA	Sun 1/8/21	Tue 30/5/23	9 days																																							
1473	Open Space & Promenade (From Northern End - CH1720)	564 days	0 days	564 days	0%	Mon 28/6/21	Thu 18/5/23	NA	NA	Sun 15/8/21	Tue 30/5/23	9 days																																							
1474	Observation Deck	358 days	0 days	358 days	0%	Tue 1/3/22	Fri 12/5/23	NA	NA	Fri 6/5/22	Tue 30/5/23	14 days																																							
1475	Foundation - Temp. Works Design and Method Statement Submission	0 days	0 days	0 days	0%	Tue 1/3/22	Tue 1/3/22	NA	NA	Fri 6/5/22	Fri 6/5/22	66 days	0.5 day																																						
1476	Foundation - Temp. Works Design and Method Statement Comment & Approval	45 days	0 days	45 days	0%	Tue 1/3/22	Thu 14/4/22	NA	NA	Fri 6/5/22	Sun 19/6/22	66 days	0.5 day	1475,639,646																																					
1477	G.I. works for LT5	12 days	0 days	12 days	0%	Sat 4/6/22	Fri 17/6/22	NA	NA	Mon 20/6/22	Mon 4/7/22	13 days	2 days	1447,611,604,15																																					
1478	Design Verification	25 days	0 days	25 days	0%	Sat 18/6/22	Mon 18/7/22	NA	NA	Tue 5/7/22	Tue 2/8/22	13 days	1 day	1477																																					
1479	Predrilling works for Socket H- pile	12 days	0 days	12 days	0%	Tue 19/7/22	Sat 30/7/22	NA	NA	Wed 3/8/22	Sun 14/8/22	15 days		1478																																					
1480	Socket H-pile Installation	37 days	0 days	37 days	0%	Mon 1/8/22	Tue 13/9/22	NA	NA	Mon 15/8/22	Tue 27/9/22	12 days	2 days	367,1155,726,14																																					
1481	Pile Testing	43 days	0 days	43 days	0%	Wed 14/9/22	Fri 4/11/22	NA	NA	Wed 28/9/22	Fri 18/11/22	12 days	1 day	1480																																					
1482	Structure & Lift Core - Temp. Works Design and Method Statement Submission	0 days	0 days	0 days	0%	Mon 20/6/22	Mon 20/6/22	NA	NA	Wed 5/10/22	Wed 5/10/22	107 days	0.5 day																																						
1483	Structure & Lift Core - Temp. Works Design and Method Statement Comment & Approval	45 days	0 days	45 days	0%	Mon 20/6/22	Wed 3/8/22	NA	NA	Wed 5/10/22	Fri 18/11/22	107 days	0.5 day	1482																																					
1484	Trech Excavation for Pipe Laying Works	30 days	0 days	30 days	0%	Sat 4/6/22	Sat 9/7/22	NA	NA	Wed 15/6/22	Wed 20/7/22	9 days	2 days	15																																					
1485	Pipe laying works, Cable Laying and Drawpits	36 days	0 days	36 days	0%	Mon 11/7/22	Sat 20/8/22	NA	NA	Thu 21/7/22	Wed 31/8/22	9 days	5 days	15,1484																																					
1486	Observation Deck: Substructure with Excavation/ELS works	36 days	0 days	36 days	0%	Sat 5/11/22	Fri 16/12/22	NA	NA	Sat 19/11/22	Sat 31/12/22	12 days	1 day	163,506,1483,14																																					
1487	Observation Deck: Superstructure with Lift Core and Staircase work	72 days	0 days	72 days	0%	Sat 17/12/22	Sun 26/2/23	NA	NA	Mon 2/1/23	Tue 14/3/23	16 days	1 day	1486																																					
1488	LT5: Lift installation with T&C and Statutory Inspection	60 days	0 days	60 days	0%	Mon 27/2/23	Fri 12/5/23	NA	NA	Wed 15/3/23	Tue 30/5/23	14 days	1 day	713,1487																																					
1489	E&M and ABWF works, Landscaping and paving works	110 days	0 days	110 days	0%																																														



Contract No. ED/2018/01 KTD Project

ID	Task Name	Duration	Actual Duration	Remaining Duration	Physical % Complete	Early Start	Early Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Slack	TRA	Predecessors	2020		2021				2022				2023											
															Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2					
1541	Concrete infill between profile barrier	7 days	0 days	7 days	0%	Mon 24/10/22	Mon 31/10/22	NA	NA	Sat 3/12/22	Sat 10/12/22	35 days	0 days	1540																						
1542	Road pavement	5 days	0 days	5 days	0%	Tue 1/11/22	Sat 5/11/22	NA	NA	Mon 12/12/22	Fri 16/12/22	35 days	0 days	1541																						
1543	Install street furniture (Part 1, 2A, 2B - Road L12)	131 days	0 days	131 days	0%	Mon 7/11/22	Mon 17/4/23	NA	NA	Sat 17/12/22	Tue 30/5/23	35 days	6 days	1542																						
1544	Planting Works for Underpass, South Depress Road and At-Grade Road	130 days	0 days	130 days	0%	Mon 7/11/22	Sat 15/4/23	NA	NA	Mon 19/12/22	Tue 30/5/23	36 days	10 days	668																						
1545	Landscaping Works for Underpass, South Depress Road and At-Grade	130 days	0 days	130 days	0%	Mon 7/11/22	Sat 15/4/23	NA	NA	Mon 19/12/22	Tue 30/5/23	36 days	10 days	668																						
1546	Planned Completion for Section 6	0 days	0 days	0 days	0%	Thu 18/5/23	Thu 18/5/23	NA	NA	Tue 30/5/23	Tue 30/5/23	9 days	0 days	1533,1543,1532																						
1547	Section 7	365 days	0 days	365 days	0%	Mon 6/3/23	Wed 29/5/24	NA	NA	Mon 6/3/23	Wed 29/5/24	0 days																								
1548	Establishment work for landscape softwork	365 days	0 days	365 days	0%	Mon 6/3/23	Wed 29/5/24	NA	NA	Mon 6/3/23	Wed 29/5/24	0 days	10 days	1533,1534																						
1549	Planned Completion for Section 7	0 days	0 days	0 days	0%	Wed 29/5/24	Wed 29/5/24	NA	NA	Wed 29/5/24	Wed 29/5/24	0 days		1548,6																						
1550	Section 10 (Subject to Excision)	614 days	0 days	614 days	0%	Tue 20/4/21	Thu 11/5/23	NA	NA	Mon 10/5/21	Tue 30/5/23	15 days																								
1551	Decking for Underpass (Rd L14)	614 days	0 days	614 days	0%	Tue 20/4/21	Thu 11/5/23	NA	NA	Mon 10/5/21	Tue 30/5/23	15 days																								
1552	Deck for Underpass (Road L14) - Temp. Works Design and Method Statement Submission	0 days	0 days	0 days	0%	Tue 20/4/21	Tue 20/4/21	NA	NA	Mon 10/5/21	Mon 10/5/21	20 days	0.5 day																							
1553	Deck for Underpass (Road L14) - Temp. Works Design and Method Statement Comment & Appraoval	21 days	0 days	21 days	0%	Tue 20/4/21	Mon 10/5/21	NA	NA	Mon 10/5/21	Sun 30/5/21	20 days	0.5 day	1552																						
1554	Support along U-through	225 days	0 days	225 days	0%	Mon 31/5/21	Tue 1/3/22	NA	NA	Mon 31/5/21	Tue 1/3/22	0 days	10 days	23,185,1553,192																						
1555	Plinth installation along support	123 days	0 days	123 days	0%	Wed 2/3/22	Fri 29/7/22	NA	NA	Wed 2/3/22	Fri 29/7/22	0 days	6 days	1554																						
1556	Placing of beam along underpass	90 days	0 days	90 days	0%	Thu 1/9/22	Sun 18/12/22	NA	NA	Thu 1/9/22	Mon 19/12/22	0 days	4 days	1555FS+28 days																						
1557	Finishing and E&M Works	110 days	0 days	110 days	0%	Mon 19/12/22	Fri 5/5/23	NA	NA	Thu 12/1/23	Tue 30/5/23	20 days		1556,279																						
1558	Cover-up (Roof)	115 days	0 days	115 days	0%	Mon 19/12/22	Thu 11/5/23	NA	NA	Mon 19/12/22	Thu 11/5/23	0 days	5 days	1556																						
1559	Planned Completion for Section 10	0 days	0 days	0 days	0%	Thu 11/5/23	Thu 11/5/23	NA	NA	Tue 30/5/23	Tue 30/5/23	19 days	0.5 days	1558,158,1557																						



**Title: Rev.11 Prog with Progress as of 22-May-20**

Task		Summary		Inactive Milestone		Duration-only		Start-only		External Milestone		Critical Split	
Split		Project Summary		Inactive Summary		Manual Summary Rollup		Finish-only		Deadline		Progress	
Milestone		Inactive Task		Manual Task		Manual Summary		External Tasks		Critical		Manual Progress	

**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 July 2022

July 2022

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	7 Weekly Site Inspection	8	9 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7
10	11	12 Weekly Site Inspection+ SSMC meeting	13	14	15 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	16
17	18	19	20	21 Weekly Site Inspection 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 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	28 Weekly Site Inspection	29	30
31						

**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  
Tentative Environmental Monitoring and Weekly Site Inspection Schedule for August 2022

August 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	3	4 Weekly Site Inspection	5	6
7	8 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	9	10	11	12 Weekly Site Inspection + SSMC meeting	13 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7
14	15	16	17	18 Weekly Site Inspection	19 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	20
21	22	23	24	25 Weekly Site Inspection 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	26	27
28	29	30	31 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12			

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**

Impact Air Quality Monitoring



Measurement setup at AM3



Measurement setup at AM4(A)



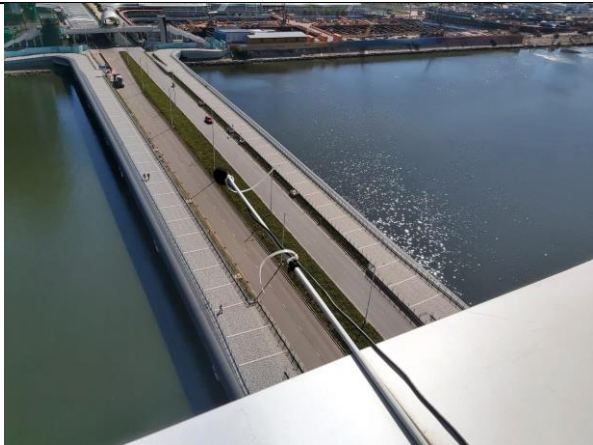
Measurement setup at AM7



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**

## Catalogue of High Volume Sampler (HVS)



### 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.

**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.

- ✔ 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

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Tisch Environmental  
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Cleveland, OH 45002  
513-467-9000  
sales@tisch-env.com



## 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<sup>3</sup>M-1.68M<sup>3</sup>M  
**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

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## Calibration Certificate of HVS

### Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2022062901 Date of calibration : 29/06/2022  
 Location : Sky Tower Sampler : TE-5170X

**Calibration Data**

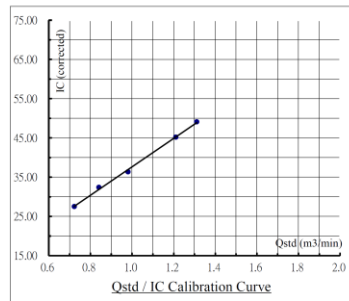
Ambient barometric pressure, Pa = 751.6 ( mmHg ) Ambient temperature, Ta = 305.65 ( deg K )  
 Qstd Slope, m = 2.06418 Qstd Intercept, b = -0.035930

**Calibration Curve**

Plate No.	H <sub>2</sub> O ( in )	Qstd ( m <sup>3</sup> / min )	I ( chart )	IC ( corrected )
18	7.40	1.311	50.0	49.10
13	6.30	1.211	46.0	45.17
10	4.10	0.981	37.0	36.33
7	3.00	0.841	33.0	32.40
5	2.20	0.723	28.0	27.49

**Subsequent calculation of sampler flow**

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Qstd = 1/m [ (1) ( \text{Sqrt} ( ( Pa / 760 ) ( 298 / Ta ) ) ) - b ]$	36.223	1.3899	0.9989



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

Remark :  $Qstd ( m^3 / min ) = 1/m [ \text{Sqrt} ( H_2O ( Pa / 760 ) ( 298 / Ta ) ) - b ]$   
 $IC ( corrected ) = I [ \text{Sqrt} ( ( Pa / 760 ) ( 298 / Ta ) ) ]$   
 $FLOW ( corrected ) = \text{Sqrt} ( FLOW ( mano ) ( Pa / 760 ) ( 298 / Ta ) )$

Calibrated by : Poon Tsz Wing Checked by : Wong Yin Tong  
 Name : ( Poon Tsz Wing ) Name : ( Wong Yin Tong )

Form No. DNS-HVS-CAL dtd 16 01 2020

### Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2022062902 Date of calibration : 29/06/2022  
 Location : The Hong Kong Society for the Blind's Factory cum Sheltered Workshop Sampler : TE-5170X

**Calibration Data**

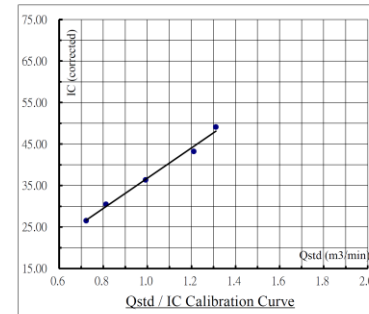
Ambient barometric pressure, Pa = 751.6 ( mmHg ) Ambient temperature, Ta = 305.65 ( deg K )  
 Qstd Slope, m = 2.06418 Qstd Intercept, b = -0.035930

**Calibration Curve**

Plate No.	H <sub>2</sub> O ( in )	Qstd ( m <sup>3</sup> / min )	I ( chart )	IC ( corrected )
18	7.40	1.311	50.0	49.10
13	6.30	1.211	44.0	43.21
10	4.20	0.992	37.0	36.33
7	2.80	0.813	31.0	30.44
5	2.20	0.723	27.0	26.51

**Subsequent calculation of sampler flow**

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Qstd = 1/m [ (1) ( \text{Sqrt} ( ( Pa / 760 ) ( 298 / Ta ) ) ) - b ]$	36.456	0.2973	0.9958



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

Remark :  $Qstd ( m^3 / min ) = 1/m [ \text{Sqrt} ( H_2O ( Pa / 760 ) ( 298 / Ta ) ) - b ]$   
 $IC ( corrected ) = I [ \text{Sqrt} ( ( Pa / 760 ) ( 298 / Ta ) ) ]$   
 $FLOW ( corrected ) = \text{Sqrt} ( FLOW ( mano ) ( Pa / 760 ) ( 298 / Ta ) )$

Calibrated by : Poon Tsz Wing Checked by : Wong Yin Tong  
 Name : ( Poon Tsz Wing ) Name : ( Wong Yin Tong )

Form No. DNS-HVS-CAL dtd 16 01 2020

## Calibration Certificate of HVS

### Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2022062903 Date of calibration : 29/06/2022

Location : Hong Kong Children's Hospital Sampler : TE-5170X

**Calibration Data**

Ambient barometric pressure, Pa = 751.6 ( mmHg ) Ambient temperature, Ta = 305.65 ( deg K )

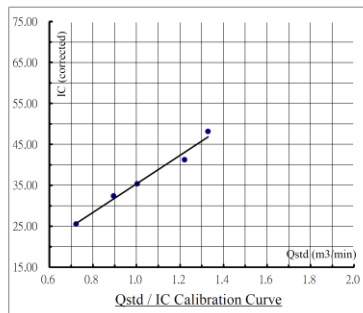
Qstd Slope, m = 2.06418 Qstd Intercept, b = -0.035930

**Calibration Curve**

Plate No.	H <sub>2</sub> O (in)	Qstd (m <sup>3</sup> /min)	I (chart)	IC (corrected)
18	7.60	1.329	49.0	48.12
13	6.40	1.221	42.0	41.24
10	4.30	1.004	36.0	35.35
7	3.40	0.895	33.0	32.40
5	2.20	0.723	26.0	25.53

**Subsequent calculation of sampler flow**

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Qstd = 1/m [ ( I ) ( \text{Sqrt} ( ( Pa / 760 ) ( 298 / Ta ) ) ) - b ]$	34.864	0.4644	0.9906



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

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

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

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

Calibrated by :   
Name : ( Poon Tsz Wing )

Checked by :   
Name : ( Wong Yin Tong )

Form No. DNS-HVS-CAL-01/16/01/2020

### Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2022062001 Date of calibration : 20/06/2022

Model no : GS2310 Serial number : 10346

**Calibration Data**

Ambient barometric pressure, Pa = 753.1 ( mmHg ) Ambient temperature, Ta = 303.35 ( deg K )

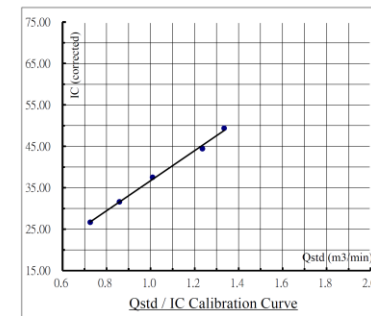
Qstd Slope, m = 2.06418 Qstd Intercept, b = -0.035930

**Calibration Curve**

Plate No.	H <sub>2</sub> O (in)	Qstd (m <sup>3</sup> /min)	I (chart)	IC (corrected)
18	7.60	1.335	50.0	49.33
13	6.50	1.236	45.0	44.40
10	4.30	1.009	38.0	37.49
7	3.10	0.859	32.0	31.57
5	2.20	0.726	27.0	26.64

**Subsequent calculation of sampler flow**

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Qstd = 1/m [ ( I ) ( \text{Sqrt} ( ( Pa / 760 ) ( 298 / Ta ) ) ) - b ]$	36.268	0.4215	0.9982



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

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

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

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

Calibrated by :   
Name : ( Poon Tsz Wing )

Checked by :   
Name : ( Wong Yin Tong )

Form No. DNS-HVS-CAL-01/16/01/2020

# Orifice Transfer Standard Certification Worksheet TE-5025A



<b>RECALIBRATION DUE DATE:</b>
<b>May 16, 2023</b>

## Certificate of Calibration

Calibration Certification Information			
Cal. Date:	May 16, 2022	Rootsmerter S/N:	438320
Operator:	Jim Tisch	Ta:	296 °K
Calibration Model #:	TE-5025A	Pa:	746.8 mm Hg
		Calibrator S/N:	<b>0006</b>

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4050	3.2	2.00
2	3	4	1	1.0020	6.4	4.00
3	5	6	1	0.8930	7.9	5.00
4	7	8	1	0.8550	8.7	5.50
5	9	10	1	0.7030	12.8	8.00

Data Tabulation					
Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left( \frac{Pa}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left( \frac{Ta}{Pa} \right)}$ (y-axis)
0.9850	0.7011	1.4066	0.9957	0.7087	0.8904
0.9807	0.9788	1.9892	0.9914	0.9895	1.2592
0.9788	1.0960	2.2240	0.9894	1.1080	1.4078
0.9777	1.1435	2.3325	0.9883	1.1560	1.4765
0.9723	1.3830	2.8131	0.9829	1.3981	1.7807
<b>QSTD</b>	m=	<b>2.06418</b>	<b>QA</b>	m=	<b>1.29255</b>
	b=	<b>-0.03593</b>		b=	<b>-0.02274</b>
	r=	<b>0.99993</b>		r=	<b>0.99993</b>

Calculations	
Vstd= ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	Va= ΔVol((Pa-ΔP)/Pa)
Qstd= Vstd/ΔTime	Qa= Va/ΔTime
For subsequent flow rate calculations:	
$Qstd = 1/m \left( \sqrt{\Delta H \left( \frac{Pa}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)} - b \right)$	$Qa = 1/m \left( \sqrt{\Delta H \left( \frac{Ta}{Pa} \right)} - b \right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg
<b>Key</b>	
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](http://www.tisch-env.com)  
TOLL FREE: (877)263-7610  
FAX: (513)467-9009

## Catalogue of Dust Meter (TSI Sidepak AM510)

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 AMS10 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/m<sup>3</sup>) 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 AMS10

#### SidePak Personal Aerosol Monitor

#### Sensitivity

Sensor Type	90° light scattering, 670 nm laser diode
Aerosol Concentration Range	0.001 to 20 mg/m <sup>3</sup> (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/m <sup>3</sup>
Zero stability	±0.001 mg/m <sup>3</sup> over 24 hours using 10-second time-constant
Temperature Coefficient	Approximately +0.0005 mg/m <sup>3</sup> 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 Sidepak 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

Environment Conditions		<b>Model</b>	<b>AM510</b>
Temperature	72.48 (22.5) °F (°C)	<b>Serial Number</b>	<b>11506009</b>
Relative Humidity	17.3 %RH		
Barometric Pressure	29.42 (996.3) inHg (hPa)		

As Left       In Tolerance  
 As Found       Out of Tolerance

### Concentration Linearity Plot

System ID: DT1101-02

CONCENTRATION						Unit: mg/m3	
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	1.162	1.122	1.046-1.278	3	0.045	0.047	0.031-0.059
2	0.168	0.169	0.143-0.193	4	12.701	12.744	11.431-13.971

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
DC Voltage	E003314	01-11-21	01-31-22	Photometer	E003319	08-30-21	02-28-22
Microbalance	M001324	01-29-21	01-31-23	Pressure	E003511	10-26-21	10-31-22
Flowmeter	E005626	03-09-21	03-31-22	DC Voltage	E003315	01-11-21	01-31-22

November 2, 2021  

  
 Calibrated Date

## Personal Aerosol Monitor Performance check with High Volume Sampler

Performance Check ref. No. AS0220624-1 Report Issue Date 24/06/2022  
 Date of performance check 23/06/2022

**Objective:**

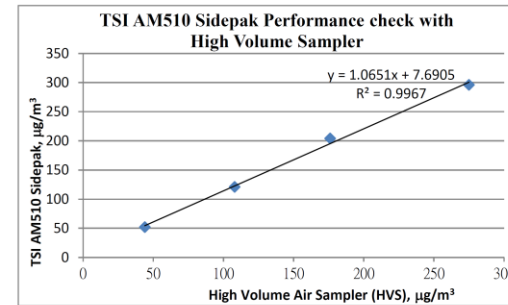
A dust meter and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

**Equipment Used:**

Equipment	Manufacturer and Model	Serial Number
Personal Aerosol Monitor	TSI AM510 Sidepak	11506009
Total Suspended Particulate High Volume Air Sampler	GS2310	10346

**Results:**

Equipment	Measurement Result, µg/m <sup>3</sup>			
TSI AM510 Sidepak	52	121	204	296
High Volume Air Sampler (HVS)	44	108	176	275



Tested by: BT #               Checked by: W  
 Name: ( Poon Tsz Wing )      Name: ( Wong Yin Tong )

Form No. ENV CAL SAMPLER CC1 d412/12/2003



## Calibration Certificate of Dust Meter (TSI Sidepak AM510)

<b>TSI</b>				<b>CERTIFICATE OF CALIBRATION AND TESTING</b>			
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			Model		AM510		
Temperature	75.26 (24.0)	°F (°C)	Serial Number		11108001		
Relative Humidity	21.5	%RH					
Barometric Pressure	29.25 (990.5)	inHg (hPa)					
<input checked="" type="checkbox"/> As Left <input type="checkbox"/> As Found		<input checked="" type="checkbox"/> In Tolerance <input type="checkbox"/> Out of Tolerance					
<b>Concentration Linearity Plot</b> 							
System ID: DTH101-02							
<b>CONCENTRATION</b> <span style="float: right;">Unit: mg/m<sup>3</sup></span>							
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	4.199	4.027	3.779-4.619	3	0.161	0.158	0.113-0.209
2	0.543	0.549	0.462-0.624	4	13.855	14.276	12.469-15.241
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
DC Voltage	E003314	01-11-21	01-31-22	Photometer	E003319	08-30-21	02-28-22
Microbalance	M001324	01-29-21	01-31-22	Pressure	E003511	10-26-21	10-31-22
Flowmeter	E005626	03-09-21	03-31-22	DC Voltage	E003315	01-11-21	01-31-22
				December 17, 2021			
Calibrated				Date			

### Personal Aerosol Monitor Performance check with High Volume Sampler

Performance Check ref. No. AS0220624-2      Report Issue Date 24/06/2022  
 Date of performance check 23/06/2022

**Objective:**

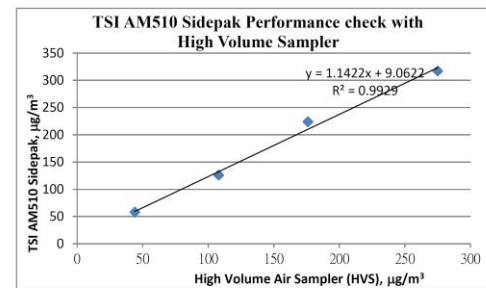
A dust meter and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

**Equipment Used:**

Equipment	Manufacturer and Model	Serial Number
Personal Aerosol Monitor	TSI AM510 Sidepak	11108001
Total Suspended Particulate High Volume Air Sampler	GS2310	10346

**Results:**

Equipment	Measurement Result, µg/m <sup>3</sup>			
TSI AM510 Sidepak	58	126	224	317
High Volume Air Sampler (HVS)	44	108	176	275



Tested by:   P   #  
 Name: ( Poon Tsz Wing )  
 Checked by:   W    
 Name: ( Wong Yin Tong )

Form No. ENV CAL SAMPLER CC1 04/12/12/2003

# Catalogue of Weather Station

## 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 (61 m/s); at 240' (73 m), the maximum wind speed displayed is 100 mph (44 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 <sup>2</sup> (214 cm <sup>2</sup> ) 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-Aspirated 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

DS6152C, 6162C Rev. W 12/7/18

1

**7**  
**Vantage Pro2™**

### 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

<b>Wind Chill (Calculated)</b>	
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 Certificate of Weather Station

*Actual calibration date: 10 Mar 2022*



**Cal Lab Limited 校正實驗室有限公司**  
 Room 2103, Technology Plaza, 29-35 Sha Tsui Road,  
 Tsuen Wan, NT, Hong Kong  
 Tel: +852 25680106 Email: info@callab.com.hk  
 Fax: +852 30116194 Website: www.callab.com.hk

**Calibration Certificate No.: CC0012203**

**Customer Information**

Customer: Castco Testing Centre Limited  
 Address: 33, On Kui Street, Fanling, N.T.

**Equipment Identification**

Equipment Description	Manufacturer	Model No.	Serial No.	Assigned equipment No.:
Weather Station	Davis Vantage PRO 2	6152CEU	AZ170710016	N/A

**Certificate Information**

Date of Receipt:	1 March 2022	Calibration Condition:	24.8°C, 55%RH, 1006hPa
Date of Calibration:	16 March 2022	Adjustment:	N/A
Due Date of Calibration:	N/A	Appearance:	Good
Calibration Procedure:	JJF 1183-2007, JJF 1076-2001, SOP-116	Remark:	N/A

**Reference Equipment Identification**

Equipment Description	Model	Serial No.	Expiration Date
Platinum resistance thermometer	KPPRHT-A-1	KCI I-1095, KCI P-1095	28 June 2023
Humidity sensor	KPPRHT-A-1	KCI I-1095, KCI P-1095	4 March 2022
Hot Wire Anemometer	9535	T95351316004	11 July 2022

- 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.

Approved By:

Rex Tse

Company Chop:



Certificate Issue Date: 18 March 2022

CT-BEG-03

1. The certificate shall not be reproduced except in full, without written approval of Cal Lab Calibration  
 2. The certificate is issued subject to the latest Terms and Conditions, available at our web site
- CC0012203  
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**Appendix F – Weather information**

General Information

Date	Absolute Daily Min Temperature (°C)	Absolute Daily Max Temperature (°C)	Total Rainfall (mm)
01/07/2022	25.4	29.7	63
02/07/2022	25.6	28.4	72.4
03/07/2022	28.2	30.3	0
04/07/2022	27.9	29.4	0.4
05/07/2022	28.4	29.7	0.2
06/07/2022	28	30.3	0.5
07/07/2022	27.2	31.6	13.1
08/07/2022	27.7	33.8	Trace
09/07/2022	28.6	33.3	Trace
10/07/2022	28.6	34.2	Trace
11/07/2022	28.5	35.1	0
12/07/2022	28.6	35.2	0
13/07/2022	28.4	35.2	0
14/07/2022	28.5	33.1	0
15/07/2022	28.6	34.3	0.2
16/07/2022	28.8	33.3	1.5
17/07/2022	28.8	32.6	1.2
18/07/2022	28.5	32.7	2.7
19/07/2022	29.1	33.7	Trace
20/07/2022	29.2	34.2	0.6
21/07/2022	28.1	35.2	0.3
22/07/2022	28.2	35.6	0
23/07/2022	29.2	34.9	0
24/07/2022	29.5	36.1	0
25/07/2022	29.9	35.8	0
26/07/2022	29.1	35.2	0
27/07/2022	29	34.2	0
28/07/2022	28.8	35.3	0
29/07/2022	29.7	35.3	0
30/07/2022	26.5	31.2	2.4
31/07/2022	28.3	34	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=2022&m=07>

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	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
01/07/2022	0:00	1.3	45	02/07/2022	0:00	0.9	67.5	03/07/2022	0:00	0.4	112.5	04/07/2022	0:00	0.4	90
01/07/2022	1:00	1.8	135	02/07/2022	1:00	1.3	67.5	03/07/2022	1:00	0.9	90	04/07/2022	1:00	0.4	67.5
01/07/2022	2:00	1.3	67.5	02/07/2022	2:00	0.9	90	03/07/2022	2:00	0.9	112.5	04/07/2022	2:00	0.9	90
01/07/2022	3:00	1.3	90	02/07/2022	3:00	0.9	90	03/07/2022	3:00	1.3	90	04/07/2022	3:00	0.4	112.5
01/07/2022	4:00	1.3	225	02/07/2022	4:00	0.9	67.5	03/07/2022	4:00	1.3	90	04/07/2022	4:00	0.9	67.5
01/07/2022	5:00	1.3	112.5	02/07/2022	5:00	0.4	112.5	03/07/2022	5:00	0.9	112.5	04/07/2022	5:00	1.3	112.5
01/07/2022	6:00	1.3	112.5	02/07/2022	6:00	0.4	90	03/07/2022	6:00	0.9	90	04/07/2022	6:00	1.3	90
01/07/2022	7:00	1.3	180	02/07/2022	7:00	0.9	112.5	03/07/2022	7:00	0.9	112.5	04/07/2022	7:00	1.3	112.5
01/07/2022	8:00	0.9	135	02/07/2022	8:00	0.9	90	03/07/2022	8:00	1.3	90	04/07/2022	8:00	0.9	112.5
01/07/2022	9:00	0.9	90	02/07/2022	9:00	1.3	112.5	03/07/2022	9:00	1.3	67.5	04/07/2022	9:00	0.4	90
01/07/2022	10:00	1.3	180	02/07/2022	10:00	1.3	67.5	03/07/2022	10:00	1.8	135	04/07/2022	10:00	0.4	90
01/07/2022	11:00	1.3	157.5	02/07/2022	11:00	1.3	112.5	03/07/2022	11:00	1.8	135	04/07/2022	11:00	0.4	67.5
01/07/2022	12:00	1.3	90	02/07/2022	12:00	1.3	90	03/07/2022	12:00	1.8	90	04/07/2022	12:00	0.4	45
01/07/2022	13:00	1.3	90	02/07/2022	13:00	1.3	67.5	03/07/2022	13:00	2.2	135	04/07/2022	13:00	0.9	90
01/07/2022	14:00	1.3	135	02/07/2022	14:00	1.3	67.5	03/07/2022	14:00	1.8	135	04/07/2022	14:00	0.9	67.5
01/07/2022	15:00	1.3	112.5	02/07/2022	15:00	1.3	67.5	03/07/2022	15:00	2.7	90	04/07/2022	15:00	0.9	45
01/07/2022	16:00	1.3	112.5	02/07/2022	16:00	1.3	90	03/07/2022	16:00	1.3	112.5	04/07/2022	16:00	0.9	67.5
01/07/2022	17:00	0.9	112.5	02/07/2022	17:00	1.3	112.5	03/07/2022	17:00	0.9	90	04/07/2022	17:00	0.9	112.5
01/07/2022	18:00	0.9	135	02/07/2022	18:00	1.3	112.5	03/07/2022	18:00	0.9	90	04/07/2022	18:00	0.4	22.5
01/07/2022	19:00	1.3	135	02/07/2022	19:00	1.3	90	03/07/2022	19:00	0.4	90	04/07/2022	19:00	0.4	270
01/07/2022	20:00	0.9	157.5	02/07/2022	20:00	0.9	90	03/07/2022	20:00	0.9	67.5	04/07/2022	20:00	0.9	90
01/07/2022	21:00	0.9	157.5	02/07/2022	21:00	0.9	112.5	03/07/2022	21:00	0.9	90	04/07/2022	21:00	0.9	202.5
01/07/2022	22:00	0.9	112.5	02/07/2022	22:00	0.9	90	03/07/2022	22:00	0.9	45	04/07/2022	22:00	0.4	247.5
01/07/2022	23:00	0.4	112.5	02/07/2022	23:00	0.9	112.5	03/07/2022	23:00	0.4	112.5	04/07/2022	23:00	0.9	225

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	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
05/07/2022	0:00	0.4	135	06/07/2022	0:00	0.4	90	07/07/2022	0:00	0.9	135	08/07/2022	0:00	1.3	135
05/07/2022	1:00	0.4	112.5	06/07/2022	1:00	0.9	67.5	07/07/2022	1:00	0.9	157.5	08/07/2022	1:00	1.3	112.5
05/07/2022	2:00	0.4	112.5	06/07/2022	2:00	0.9	135	07/07/2022	2:00	0.9	90	08/07/2022	2:00	0.9	112.5
05/07/2022	3:00	0.9	90	06/07/2022	3:00	0.9	135	07/07/2022	3:00	0.9	135	08/07/2022	3:00	0.9	90
05/07/2022	4:00	0.4	90	06/07/2022	4:00	0.9	90	07/07/2022	4:00	0.9	270	08/07/2022	4:00	0.9	112.5
05/07/2022	5:00	0.4	112.5	06/07/2022	5:00	0.9	135	07/07/2022	5:00	0.9	225	08/07/2022	5:00	0.4	112.5
05/07/2022	6:00	0.4	112.5	06/07/2022	6:00	0.9	270	07/07/2022	6:00	0.9	270	08/07/2022	6:00	0.4	112.5
05/07/2022	7:00	0.9	112.5	06/07/2022	7:00	0.4	202.5	07/07/2022	7:00	0.4	225	08/07/2022	7:00	0.4	112.5
05/07/2022	8:00	0.9	112.5	06/07/2022	8:00	0.9	202.5	07/07/2022	8:00	1.3	112.5	08/07/2022	8:00	0.4	135
05/07/2022	9:00	0.9	67.5	06/07/2022	9:00	0.9	202.5	07/07/2022	9:00	0.9	202.5	08/07/2022	9:00	0.9	112.5
05/07/2022	10:00	1.3	67.5	06/07/2022	10:00	0.4	225	07/07/2022	10:00	1.3	90	08/07/2022	10:00	0.4	112.5
05/07/2022	11:00	1.3	90	06/07/2022	11:00	0.4	225	07/07/2022	11:00	1.8	202.5	08/07/2022	11:00	1.3	112.5
05/07/2022	12:00	0.9	112.5	06/07/2022	12:00	0.4	225	07/07/2022	12:00	2.2	202.5	08/07/2022	12:00	1.3	90
05/07/2022	13:00	1.3	90	06/07/2022	13:00	0.4	90	07/07/2022	13:00	1.8	112.5	08/07/2022	13:00	1.3	22.5
05/07/2022	14:00	0.9	67.5	06/07/2022	14:00	0.4	247.5	07/07/2022	14:00	1.3	45	08/07/2022	14:00	0.9	315
05/07/2022	15:00	0.9	67.5	06/07/2022	15:00	0.4	247.5	07/07/2022	15:00	1.8	270	08/07/2022	15:00	1.3	315
05/07/2022	16:00	1.3	67.5	06/07/2022	16:00	0.4	247.5	07/07/2022	16:00	2.2	270	08/07/2022	16:00	1.3	112.5
05/07/2022	17:00	0.4	45	06/07/2022	17:00	0.4	225	07/07/2022	17:00	1.3	135	08/07/2022	17:00	1.3	112.5
05/07/2022	18:00	0.9	135	06/07/2022	18:00	0.4	225	07/07/2022	18:00	1.8	225	08/07/2022	18:00	0.9	112.5
05/07/2022	19:00	0.9	135	06/07/2022	19:00	0.4	157.5	07/07/2022	19:00	1.8	202.5	08/07/2022	19:00	0.4	67.5
05/07/2022	20:00	0.4	225	06/07/2022	20:00	0.4	135	07/07/2022	20:00	1.3	225	08/07/2022	20:00	1.3	247.5
05/07/2022	21:00	0.4	247.5	06/07/2022	21:00	0.9	135	07/07/2022	21:00	1.8	247.5	08/07/2022	21:00	1.3	22.5
05/07/2022	22:00	0.4	247.5	06/07/2022	22:00	0.9	135	07/07/2022	22:00	1.8	292.5	08/07/2022	22:00	0.4	90
05/07/2022	23:00	0.9	270	06/07/2022	23:00	0.9	112.5	07/07/2022	23:00	0.9	135	08/07/2022	23:00	0.4	45

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	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
09/07/2022	0:00	1.3	157.5	10/07/2022	0:00	0.9	135	11/07/2022	0:00	0.9	112.5	12/07/2022	0:00	0.4	90
09/07/2022	1:00	0.9	112.5	10/07/2022	1:00	1.3	112.5	11/07/2022	1:00	0.4	90	12/07/2022	1:00	0.9	112.5
09/07/2022	2:00	0.9	135	10/07/2022	2:00	1.8	135	11/07/2022	2:00	0.9	90	12/07/2022	2:00	0.9	112.5
09/07/2022	3:00	0.9	112.5	10/07/2022	3:00	1.3	135	11/07/2022	3:00	1.3	112.5	12/07/2022	3:00	0.9	112.5
09/07/2022	4:00	1.3	112.5	10/07/2022	4:00	1.3	112.5	11/07/2022	4:00	0.9	112.5	12/07/2022	4:00	0.4	112.5
09/07/2022	5:00	1.3	112.5	10/07/2022	5:00	0.9	90	11/07/2022	5:00	0.9	67.5	12/07/2022	5:00	0.9	135
09/07/2022	6:00	1.8	112.5	10/07/2022	6:00	0.9	112.5	11/07/2022	6:00	0.9	90	12/07/2022	6:00	0.9	90
09/07/2022	7:00	0.9	90	10/07/2022	7:00	1.3	90	11/07/2022	7:00	0.9	112.5	12/07/2022	7:00	1.3	112.5
09/07/2022	8:00	1.3	135	10/07/2022	8:00	1.3	112.5	11/07/2022	8:00	0.9	135	12/07/2022	8:00	2.2	90
09/07/2022	9:00	0.9	112.5	10/07/2022	9:00	1.3	112.5	11/07/2022	9:00	0.9	135	12/07/2022	9:00	1.8	112.5
09/07/2022	10:00	0.9	90	10/07/2022	10:00	0.9	112.5	11/07/2022	10:00	1.3	112.5	12/07/2022	10:00	1.8	112.5
09/07/2022	11:00	0.9	112.5	10/07/2022	11:00	0.9	112.5	11/07/2022	11:00	0.9	112.5	12/07/2022	11:00	1.8	112.5
09/07/2022	12:00	1.3	90	10/07/2022	12:00	1.3	112.5	11/07/2022	12:00	0.9	112.5	12/07/2022	12:00	1.3	112.5
09/07/2022	13:00	1.3	112.5	10/07/2022	13:00	1.3	135	11/07/2022	13:00	1.3	112.5	12/07/2022	13:00	1.8	135
09/07/2022	14:00	0.9	90	10/07/2022	14:00	0.9	112.5	11/07/2022	14:00	1.3	90	12/07/2022	14:00	1.8	135
09/07/2022	15:00	0.9	67.5	10/07/2022	15:00	0.9	112.5	11/07/2022	15:00	1.3	90	12/07/2022	15:00	1.3	112.5
09/07/2022	16:00	1.3	67.5	10/07/2022	16:00	1.3	112.5	11/07/2022	16:00	1.3	112.5	12/07/2022	16:00	0.9	135
09/07/2022	17:00	0.4	67.5	10/07/2022	17:00	0.9	112.5	11/07/2022	17:00	1.3	135	12/07/2022	17:00	1.3	112.5
09/07/2022	18:00	1.3	45	10/07/2022	18:00	0.9	135	11/07/2022	18:00	0.9	135	12/07/2022	18:00	1.3	90
09/07/2022	19:00	0.9	45	10/07/2022	19:00	0.9	112.5	11/07/2022	19:00	0.9	112.5	12/07/2022	19:00	1.3	135
09/07/2022	20:00	0.9	112.5	10/07/2022	20:00	0.9	135	11/07/2022	20:00	0.9	135	12/07/2022	20:00	0.9	112.5
09/07/2022	21:00	0.9	90	10/07/2022	21:00	1.3	90	11/07/2022	21:00	1.3	135	12/07/2022	21:00	0.4	112.5
09/07/2022	22:00	1.3	90	10/07/2022	22:00	1.3	112.5	11/07/2022	22:00	0.9	67.5	12/07/2022	22:00	0.9	90
09/07/2022	23:00	0.9	67.5	10/07/2022	23:00	1.3	112.5	11/07/2022	23:00	0.9	135	12/07/2022	23:00	0.4	135



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	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
13/07/2022	0:00	1.3	90	14/07/2022	0:00	0.4	112.5	15/07/2022	0:00	0.9	225	16/07/2022	0:00	0.9	225
13/07/2022	1:00	0.4	112.5	14/07/2022	1:00	0.4	112.5	15/07/2022	1:00	0.9	270	16/07/2022	1:00	1.3	247.5
13/07/2022	2:00	0.9	135	14/07/2022	2:00	0.4	135	15/07/2022	2:00	0.9	247.5	16/07/2022	2:00	0.9	247.5
13/07/2022	3:00	0.9	112.5	14/07/2022	3:00	1.3	135	15/07/2022	3:00	1.3	247.5	16/07/2022	3:00	0.9	247.5
13/07/2022	4:00	0.9	135	14/07/2022	4:00	1.3	135	15/07/2022	4:00	1.3	270	16/07/2022	4:00	0.9	270
13/07/2022	5:00	0.9	112.5	14/07/2022	5:00	1.3	247.5	15/07/2022	5:00	1.3	247.5	16/07/2022	5:00	1.3	247.5
13/07/2022	6:00	0.9	112.5	14/07/2022	6:00	0.9	157.5	15/07/2022	6:00	1.3	202.5	16/07/2022	6:00	1.3	247.5
13/07/2022	7:00	1.3	112.5	14/07/2022	7:00	1.3	157.5	15/07/2022	7:00	1.8	270	16/07/2022	7:00	0.9	247.5
13/07/2022	8:00	2.2	90	14/07/2022	8:00	1.3	157.5	15/07/2022	8:00	2.7	247.5	16/07/2022	8:00	1.8	247.5
13/07/2022	9:00	2.2	22.5	14/07/2022	9:00	1.3	180	15/07/2022	9:00	0.9	247.5	16/07/2022	9:00	1.3	270
13/07/2022	10:00	2.2	22.5	14/07/2022	10:00	1.3	225	15/07/2022	10:00	1.8	247.5	16/07/2022	10:00	1.3	247.5
13/07/2022	11:00	2.2	135	14/07/2022	11:00	0.4	225	15/07/2022	11:00	0.9	247.5	16/07/2022	11:00	0.9	270
13/07/2022	12:00	1.8	135	14/07/2022	12:00	0.9	270	15/07/2022	12:00	2.2	225	16/07/2022	12:00	1.3	247.5
13/07/2022	13:00	1.8	112.5	14/07/2022	13:00	0.4	292.5	15/07/2022	13:00	0.9	247.5	16/07/2022	13:00	2.7	225
13/07/2022	14:00	1.8	135	14/07/2022	14:00	0.9	270	15/07/2022	14:00	1.3	270	16/07/2022	14:00	3.1	270
13/07/2022	15:00	1.8	135	14/07/2022	15:00	1.3	292.5	15/07/2022	15:00	0.9	247.5	16/07/2022	15:00	2.7	247.5
13/07/2022	16:00	2.2	135	14/07/2022	16:00	1.8	270	15/07/2022	16:00	1.3	247.5	16/07/2022	16:00	3.6	270
13/07/2022	17:00	1.8	112.5	14/07/2022	17:00	1.3	270	15/07/2022	17:00	1.3	247.5	16/07/2022	17:00	1.8	270
13/07/2022	18:00	1.3	112.5	14/07/2022	18:00	1.3	90	15/07/2022	18:00	1.3	225	16/07/2022	18:00	1.3	270
13/07/2022	19:00	1.3	112.5	14/07/2022	19:00	0.9	112.5	15/07/2022	19:00	1.3	270	16/07/2022	19:00	0.9	292.5
13/07/2022	20:00	0.9	112.5	14/07/2022	20:00	0.9	270	15/07/2022	20:00	1.8	270	16/07/2022	20:00	0.9	225
13/07/2022	21:00	0.9	112.5	14/07/2022	21:00	0.4	112.5	15/07/2022	21:00	1.3	247.5	16/07/2022	21:00	0.9	247.5
13/07/2022	22:00	0.9	112.5	14/07/2022	22:00	0.4	135	15/07/2022	22:00	1.3	270	16/07/2022	22:00	0.9	247.5
13/07/2022	23:00	1.3	135	14/07/2022	23:00	0.4	112.5	15/07/2022	23:00	1.8	270	16/07/2022	23:00	0.4	292.5

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	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
17/07/2022	0:00	0.9	247.5	18/07/2022	0:00	0.9	270	19/07/2022	0:00	0.9	157.5	20/07/2022	0:00	1.8	112.5
17/07/2022	1:00	0.9	247.5	18/07/2022	1:00	1.3	247.5	19/07/2022	1:00	0.9	67.5	20/07/2022	1:00	1.8	112.5
17/07/2022	2:00	0.9	292.5	18/07/2022	2:00	1.3	270	19/07/2022	2:00	0.4	135	20/07/2022	2:00	2.2	112.5
17/07/2022	3:00	1.3	22.5	18/07/2022	3:00	0.9	270	19/07/2022	3:00	0.9	90	20/07/2022	3:00	1.8	135
17/07/2022	4:00	0.9	270	18/07/2022	4:00	0.9	292.5	19/07/2022	4:00	0.9	157.5	20/07/2022	4:00	1.8	112.5
17/07/2022	5:00	0.9	180	18/07/2022	5:00	0.9	270	19/07/2022	5:00	0.4	135	20/07/2022	5:00	1.8	90
17/07/2022	6:00	0.9	247.5	18/07/2022	6:00	0.4	180	19/07/2022	6:00	0.4	112.5	20/07/2022	6:00	1.8	112.5
17/07/2022	7:00	0.9	337.5	18/07/2022	7:00	0.9	135	19/07/2022	7:00	0.9	135	20/07/2022	7:00	2.2	112.5
17/07/2022	8:00	0.9	22.5	18/07/2022	8:00	0.9	270	19/07/2022	8:00	0.9	112.5	20/07/2022	8:00	2.2	112.5
17/07/2022	9:00	0.9	270	18/07/2022	9:00	0.9	247.5	19/07/2022	9:00	0.9	90	20/07/2022	9:00	1.8	112.5
17/07/2022	10:00	1.3	270	18/07/2022	10:00	0.9	247.5	19/07/2022	10:00	0.9	135	20/07/2022	10:00	1.8	90
17/07/2022	11:00	0.9	247.5	18/07/2022	11:00	0.9	67.5	19/07/2022	11:00	0.9	90	20/07/2022	11:00	2.2	112.5
17/07/2022	12:00	1.8	225	18/07/2022	12:00	0.4	135	19/07/2022	12:00	1.3	135	20/07/2022	12:00	1.8	112.5
17/07/2022	13:00	1.8	225	18/07/2022	13:00	0.9	90	19/07/2022	13:00	0.4	90	20/07/2022	13:00	1.3	112.5
17/07/2022	14:00	0.9	247.5	18/07/2022	14:00	0.9	157.5	19/07/2022	14:00	0.4	315	20/07/2022	14:00	1.8	112.5
17/07/2022	15:00	1.8	247.5	18/07/2022	15:00	0.9	157.5	19/07/2022	15:00	0.4	270	20/07/2022	15:00	1.3	112.5
17/07/2022	16:00	0.9	247.5	18/07/2022	16:00	0.9	135	19/07/2022	16:00	0.4	67.5	20/07/2022	16:00	1.8	112.5
17/07/2022	17:00	0.9	90	18/07/2022	17:00	0.4	90	19/07/2022	17:00	0.9	180	20/07/2022	17:00	1.8	135
17/07/2022	18:00	0.9	90	18/07/2022	18:00	0.4	135	19/07/2022	18:00	1.8	67.5	20/07/2022	18:00	1.8	112.5
17/07/2022	19:00	0.9	135	18/07/2022	19:00	0.4	270	19/07/2022	19:00	1.3	22.5	20/07/2022	19:00	1.3	90
17/07/2022	20:00	0.4	135	18/07/2022	20:00	0.4	270	19/07/2022	20:00	1.8	270	20/07/2022	20:00	1.3	135
17/07/2022	21:00	0.4	112.5	18/07/2022	21:00	0.9	292.5	19/07/2022	21:00	1.8	180	20/07/2022	21:00	1.3	112.5
17/07/2022	22:00	0.4	112.5	18/07/2022	22:00	0.9	112.5	19/07/2022	22:00	1.8	135	20/07/2022	22:00	0.9	292.5
17/07/2022	23:00	0.4	112.5	18/07/2022	23:00	0.9	157.5	19/07/2022	23:00	1.3	270	20/07/2022	23:00	1.3	292.5

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	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
21/07/2022	0:00	0.9	45	22/07/2022	0:00	0.4	247.5	23/07/2022	0:00	0.4	292.5	24/07/2022	0:00	0.9	157.5
21/07/2022	1:00	0.9	45	22/07/2022	1:00	0	247.5	23/07/2022	1:00	0.4	292.5	24/07/2022	1:00	0.9	247.5
21/07/2022	2:00	0.9	67.5	22/07/2022	2:00	0	225	23/07/2022	2:00	0.9	337.5	24/07/2022	2:00	1.3	270
21/07/2022	3:00	0.9	112.5	22/07/2022	3:00	0.4	225	23/07/2022	3:00	0.4	292.5	24/07/2022	3:00	1.8	247.5
21/07/2022	4:00	0.9	112.5	22/07/2022	4:00	1.3	247.5	23/07/2022	4:00	0.4	292.5	24/07/2022	4:00	0.9	247.5
21/07/2022	5:00	0.9	112.5	22/07/2022	5:00	1.3	247.5	23/07/2022	5:00	1.3	270	24/07/2022	5:00	1.3	202.5
21/07/2022	6:00	1.3	112.5	22/07/2022	6:00	1.8	225	23/07/2022	6:00	0.4	270	24/07/2022	6:00	1.3	247.5
21/07/2022	7:00	1.3	112.5	22/07/2022	7:00	1.3	225	23/07/2022	7:00	0.4	292.5	24/07/2022	7:00	2.2	292.5
21/07/2022	8:00	0.9	135	22/07/2022	8:00	0.9	292.5	23/07/2022	8:00	0.4	247.5	24/07/2022	8:00	1.3	270
21/07/2022	9:00	0.9	90	22/07/2022	9:00	1.3	112.5	23/07/2022	9:00	0.4	247.5	24/07/2022	9:00	0.9	202.5
21/07/2022	10:00	0.9	112.5	22/07/2022	10:00	1.8	135	23/07/2022	10:00	0.4	247.5	24/07/2022	10:00	0.9	247.5
21/07/2022	11:00	0.9	135	22/07/2022	11:00	0.9	135	23/07/2022	11:00	0.4	202.5	24/07/2022	11:00	1.3	270
21/07/2022	12:00	0.9	90	22/07/2022	12:00	1.3	247.5	23/07/2022	12:00	0.9	247.5	24/07/2022	12:00	1.3	315
21/07/2022	13:00	0.4	67.5	22/07/2022	13:00	0.4	270	23/07/2022	13:00	0.4	247.5	24/07/2022	13:00	0.4	292.5
21/07/2022	14:00	0.9	112.5	22/07/2022	14:00	0.9	292.5	23/07/2022	14:00	0.9	247.5	24/07/2022	14:00	0.4	292.5
21/07/2022	15:00	1.8	90	22/07/2022	15:00	0.9	292.5	23/07/2022	15:00	0.4	270	24/07/2022	15:00	0.4	22.5
21/07/2022	16:00	1.8	135	22/07/2022	16:00	0.4	292.5	23/07/2022	16:00	0.4	157.5	24/07/2022	16:00	0.4	67.5
21/07/2022	17:00	1.3	112.5	22/07/2022	17:00	0.4	225	23/07/2022	17:00	0.4	90	24/07/2022	17:00	0.4	45
21/07/2022	18:00	1.3	135	22/07/2022	18:00	0.4	270	23/07/2022	18:00	0.4	270	24/07/2022	18:00	0.4	270
21/07/2022	19:00	0.9	112.5	22/07/2022	19:00	0.9	90	23/07/2022	19:00	0.4	270	24/07/2022	19:00	0.4	225
21/07/2022	20:00	1.3	112.5	22/07/2022	20:00	0.9	112.5	23/07/2022	20:00	0.4	247.5	24/07/2022	20:00	0.4	270
21/07/2022	21:00	1.3	157.5	22/07/2022	21:00	0.9	292.5	23/07/2022	21:00	0.4	270	24/07/2022	21:00	0.4	247.5
21/07/2022	22:00	0.9	135	22/07/2022	22:00	0.9	270	23/07/2022	22:00	1.3	157.5	24/07/2022	22:00	0.4	225
21/07/2022	23:00	0.9	112.5	22/07/2022	23:00	0.9	270	23/07/2022	23:00	0.4	67.5	24/07/2022	23:00	0.4	270

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	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
25/07/2022	0:00	0.4	247.5	26/07/2022	0:00	0.4	135	27/07/2022	0:00	0.9	112.5	28/07/2022	0:00	0.9	157.5
25/07/2022	1:00	0.9	247.5	26/07/2022	1:00	0.9	135	27/07/2022	1:00	0.4	315	28/07/2022	1:00	1.3	90
25/07/2022	2:00	1.8	247.5	26/07/2022	2:00	0.9	112.5	27/07/2022	2:00	0.9	270	28/07/2022	2:00	0.4	315
25/07/2022	3:00	1.8	225	26/07/2022	3:00	0.4	135	27/07/2022	3:00	0.9	67.5	28/07/2022	3:00	1.3	270
25/07/2022	4:00	1.3	247.5	26/07/2022	4:00	0.4	90	27/07/2022	4:00	1.3	67.5	28/07/2022	4:00	1.3	270
25/07/2022	5:00	1.3	247.5	26/07/2022	5:00	0.4	112.5	27/07/2022	5:00	1.8	90	28/07/2022	5:00	1.3	225
25/07/2022	6:00	1.3	112.5	26/07/2022	6:00	0.4	135	27/07/2022	6:00	0.9	247.5	28/07/2022	6:00	0.9	135
25/07/2022	7:00	0.9	135	26/07/2022	7:00	0.4	135	27/07/2022	7:00	1.3	247.5	28/07/2022	7:00	0.4	112.5
25/07/2022	8:00	0.9	247.5	26/07/2022	8:00	0.4	135	27/07/2022	8:00	1.3	225	28/07/2022	8:00	0.9	157.5
25/07/2022	9:00	0.9	270	26/07/2022	9:00	0.9	112.5	27/07/2022	9:00	1.8	225	28/07/2022	9:00	0.9	135
25/07/2022	10:00	0.4	315	26/07/2022	10:00	0.4	135	27/07/2022	10:00	0.9	225	28/07/2022	10:00	0.9	135
25/07/2022	11:00	0.4	247.5	26/07/2022	11:00	0.9	135	27/07/2022	11:00	1.3	247.5	28/07/2022	11:00	1.3	270
25/07/2022	12:00	0.4	270	26/07/2022	12:00	0.4	112.5	27/07/2022	12:00	1.3	180	28/07/2022	12:00	1.3	22.5
25/07/2022	13:00	0.9	270	26/07/2022	13:00	0.4	112.5	27/07/2022	13:00	0.4	270	28/07/2022	13:00	1.3	67.5
25/07/2022	14:00	0.9	247.5	26/07/2022	14:00	0.4	247.5	27/07/2022	14:00	0.4	270	28/07/2022	14:00	0.9	270
25/07/2022	15:00	0.9	270	26/07/2022	15:00	0.9	292.5	27/07/2022	15:00	0.4	247.5	28/07/2022	15:00	0.9	247.5
25/07/2022	16:00	0.9	90	26/07/2022	16:00	0.4	247.5	27/07/2022	16:00	0.4	247.5	28/07/2022	16:00	0.4	270
25/07/2022	17:00	0.4	135	26/07/2022	17:00	0.9	270	27/07/2022	17:00	0.9	270	28/07/2022	17:00	0.4	112.5
25/07/2022	18:00	0.4	67.5	26/07/2022	18:00	0.9	247.5	27/07/2022	18:00	0.9	247.5	28/07/2022	18:00	0.4	180
25/07/2022	19:00	0.4	67.5	26/07/2022	19:00	0.9	292.5	27/07/2022	19:00	0.9	247.5	28/07/2022	19:00	0.4	45
25/07/2022	20:00	0.4	292.5	26/07/2022	20:00	0.9	135	27/07/2022	20:00	0.4	22.5	28/07/2022	20:00	0.4	225
25/07/2022	21:00	0.4	292.5	26/07/2022	21:00	0.4	270	27/07/2022	21:00	0.4	292.5	28/07/2022	21:00	0.4	270
25/07/2022	22:00	0.4	22.5	26/07/2022	22:00	0.4	247.5	27/07/2022	22:00	0.4	337.5	28/07/2022	22:00	0.4	135
25/07/2022	23:00	0.4	67.5	26/07/2022	23:00	0.4	292.5	27/07/2022	23:00	0.4	315	28/07/2022	23:00	0.4	315

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	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
29/07/2022	0:00	0	247.5	30/07/2022	0:00	0.9	90	31/07/2022	0:00	0.4	135				
29/07/2022	1:00	0	247.5	30/07/2022	1:00	1.3	90	31/07/2022	1:00	0.9	180				
29/07/2022	2:00	0	247.5	30/07/2022	2:00	0.9	90	31/07/2022	2:00	0.4	247.5				
29/07/2022	3:00	0	247.5	30/07/2022	3:00	0.4	90	31/07/2022	3:00	0.4	270				
29/07/2022	4:00	0.4	225	30/07/2022	4:00	0.4	90	31/07/2022	4:00	0.4	270				
29/07/2022	5:00	0.9	225	30/07/2022	5:00	1.3	67.5	31/07/2022	5:00	0.4	247.5				
29/07/2022	6:00	1.3	225	30/07/2022	6:00	1.3	112.5	31/07/2022	6:00	0.9	247.5				
29/07/2022	7:00	0.9	247.5	30/07/2022	7:00	2.2	22.5	31/07/2022	7:00	1.3	270				
29/07/2022	8:00	0.9	247.5	30/07/2022	8:00	1.3	270	31/07/2022	8:00	0.9	270				
29/07/2022	9:00	0.9	247.5	30/07/2022	9:00	1.3	270	31/07/2022	9:00	0.9	247.5				
29/07/2022	10:00	0.4	135	30/07/2022	10:00	0.4	337.5	31/07/2022	10:00	0.4	247.5				
29/07/2022	11:00	0.9	112.5	30/07/2022	11:00	1.3	270	31/07/2022	11:00	0.9	247.5				
29/07/2022	12:00	0.4	67.5	30/07/2022	12:00	0.9	247.5	31/07/2022	12:00	1.3	247.5				
29/07/2022	13:00	0.4	247.5	30/07/2022	13:00	0.4	225	31/07/2022	13:00	0.9	270				
29/07/2022	14:00	0.4	270	30/07/2022	14:00	0.4	180	31/07/2022	14:00	0.9	247.5				
29/07/2022	15:00	0.4	135	30/07/2022	15:00	0.4	180	31/07/2022	15:00	0.9	247.5				
29/07/2022	16:00	0.9	135	30/07/2022	16:00	0.4	225	31/07/2022	16:00	1.8	270				
29/07/2022	17:00	0.9	247.5	30/07/2022	17:00	0.9	225	31/07/2022	17:00	1.3	247.5				
29/07/2022	18:00	0.9	270	30/07/2022	18:00	1.3	135	31/07/2022	18:00	0.9	247.5				
29/07/2022	19:00	0	270	30/07/2022	19:00	1.8	247.5	31/07/2022	19:00	0.9	22.5				
29/07/2022	20:00	0.4	292.5	30/07/2022	20:00	1.3	247.5	31/07/2022	20:00	0.4	22.5				
29/07/2022	21:00	0	270	30/07/2022	21:00	0.9	135	31/07/2022	21:00	0.4	337.5				
29/07/2022	22:00	0	225	30/07/2022	22:00	0.4	135	31/07/2022	22:00	0.4	337.5				
29/07/2022	23:00	0.4	180	30/07/2022	23:00	0.4	135	31/07/2022	23:00	0.9	270				

# **Appendix G – 24-hr TSP monitoring results and graphical presentation**

Location: AM3 – Sky Tower

Start Date	Weather	Air Temp. (°C)	Atmospheric Pressure (hPa)	Filter weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (min)	Flow Rate (cfm)		Av. Flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Conc. (µg/m <sup>3</sup> )
				Initial	Final		Initial	Final		Initial	Final			
04/07/2022	Sunny	29.4	1002.2	15.3365	15.4413	0.1048	2022/7/4 9:22	2022/7/5 9:22	1440	50	50	1.32	1907	55
09/07/2022	Sunny	32.6	1005.7	15.5746	15.6454	0.0708	2022/7/9 13:30	2022/7/10 13:30	1440	50	50	1.32	1900	37
15/07/2022	Sunny	33.7	1006.5	15.0789	15.1362	0.0573	2022/7/15 13:08	2022/7/16 13:08	1440	48	48	1.26	1819	31
21/07/2022	Sunny	32.6	1012.1	15.5503	15.6935	0.1432	2022/7/21 9:15	2022/7/22 9:15	1440	50	50	1.32	1906	75
27/07/2022	Sunny	32.7	1006.2	18.9474	19.0387	0.0913	2022/7/27 13:10	2022/7/28 13:10	1440	50	50	1.32	1900	48
													Maximum	75
													Minimum	31
													Average	49
													Action Level	182
													Limit Level	260

Location: AM4(A) – The Hong Kong Society for the Blind's Factory cum Sheltered Workshop

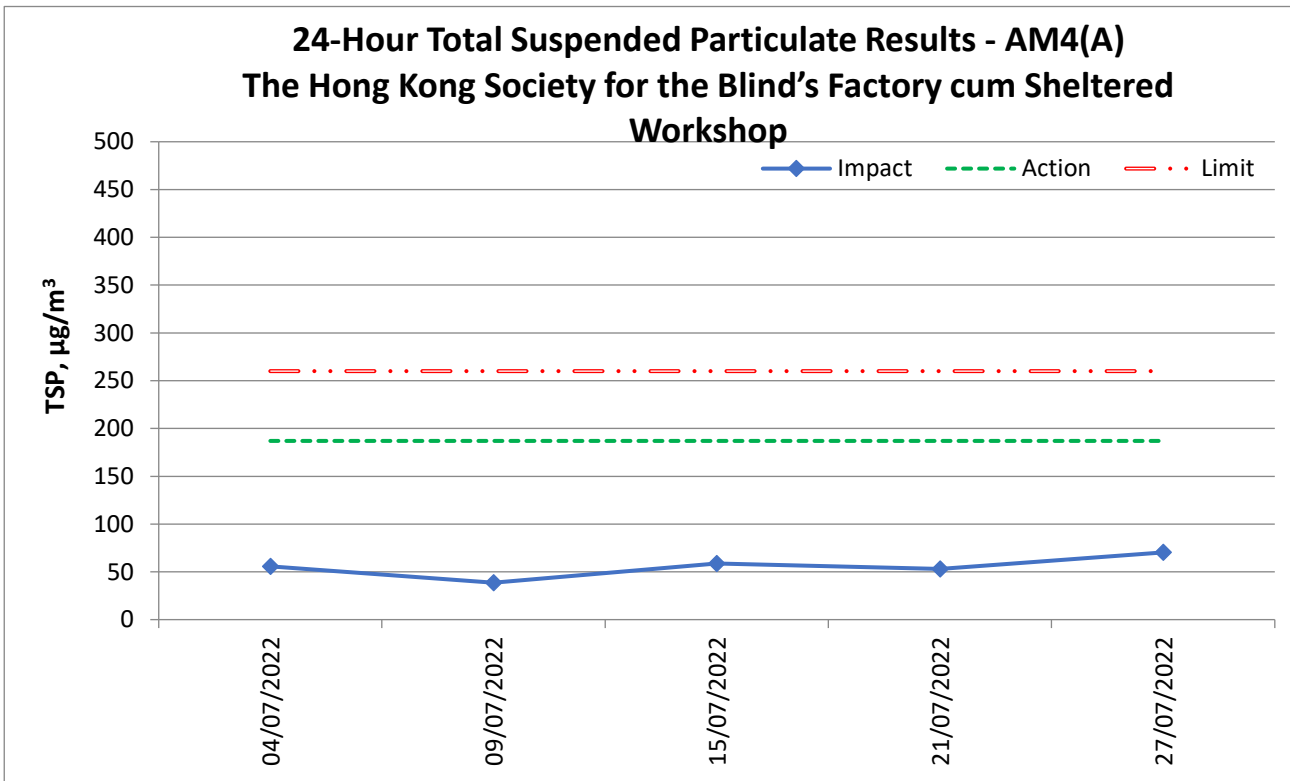
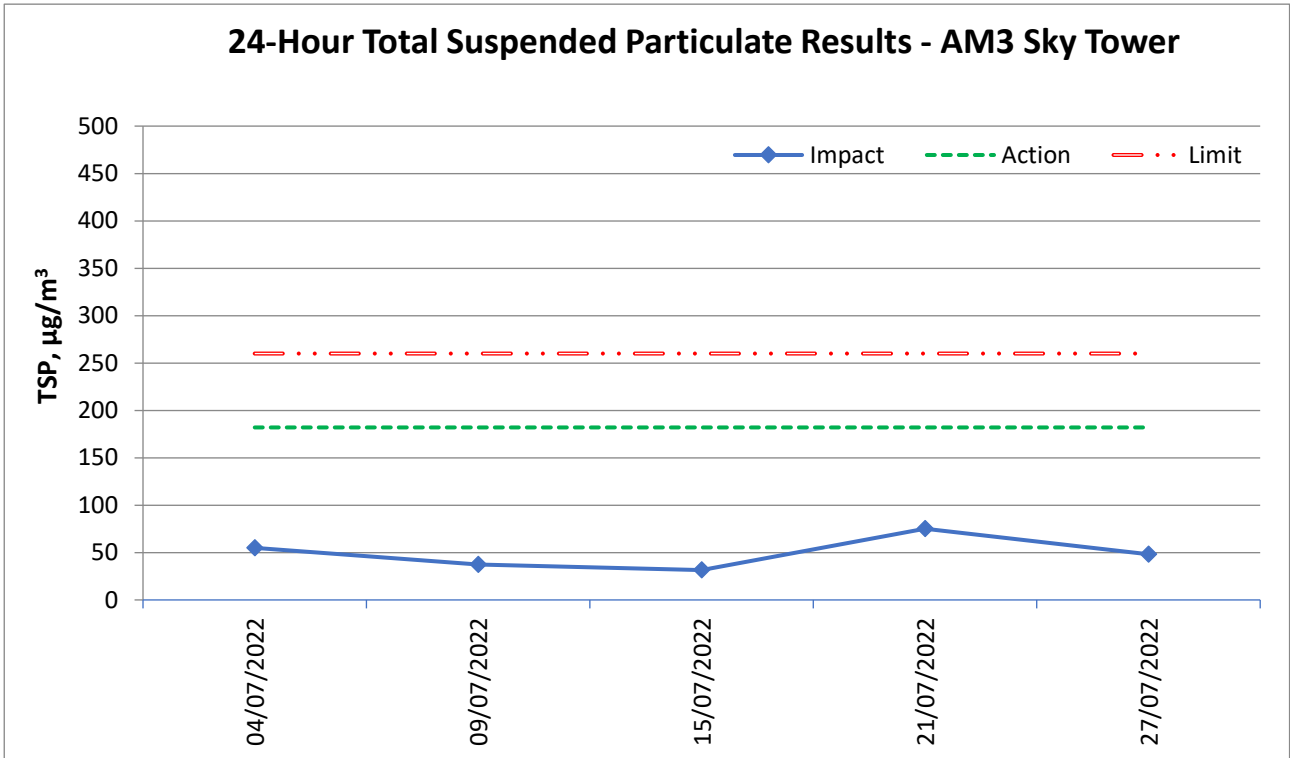
Start Date	Weather	Air Temp. (°C)	Atmospheric Pressure (hPa)	Filter weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (min)	Flow Rate (cfm)		Av. Flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Conc. (µg/m <sup>3</sup> )
				Initial	Final		Initial	Final		Initial	Final			
04/07/2022	Sunny	29.4	1002.2	15.8125	15.9204	0.1079	4085.34	4109.35	1441	50	50	1.35	1939	56
09/07/2022	Sunny	32.6	1005.7	15.8351	15.9097	0.0746	4110.46	4134.47	1441	50	50	1.34	1932	39
15/07/2022	Sunny	33.7	1006.5	14.8092	14.9134	0.1042	4134.73	4158.74	1441	46	46	1.23	1774	59
21/07/2022	Sunny	32.6	1012.1	14.8607	14.9555	0.0948	4159.07	4183.09	1441	46	46	1.24	1783	53
27/07/2022	Sunny	32.7	1006.2	19.1677	19.2926	0.1249	4184.36	4208.37	1441	46	46	1.23	1777	70
													Maximum	70
													Minimum	39
													Average	55
													Action Level	187
													Limit Level	260

Location: AM7 – Hong Kong Children’s Hospital

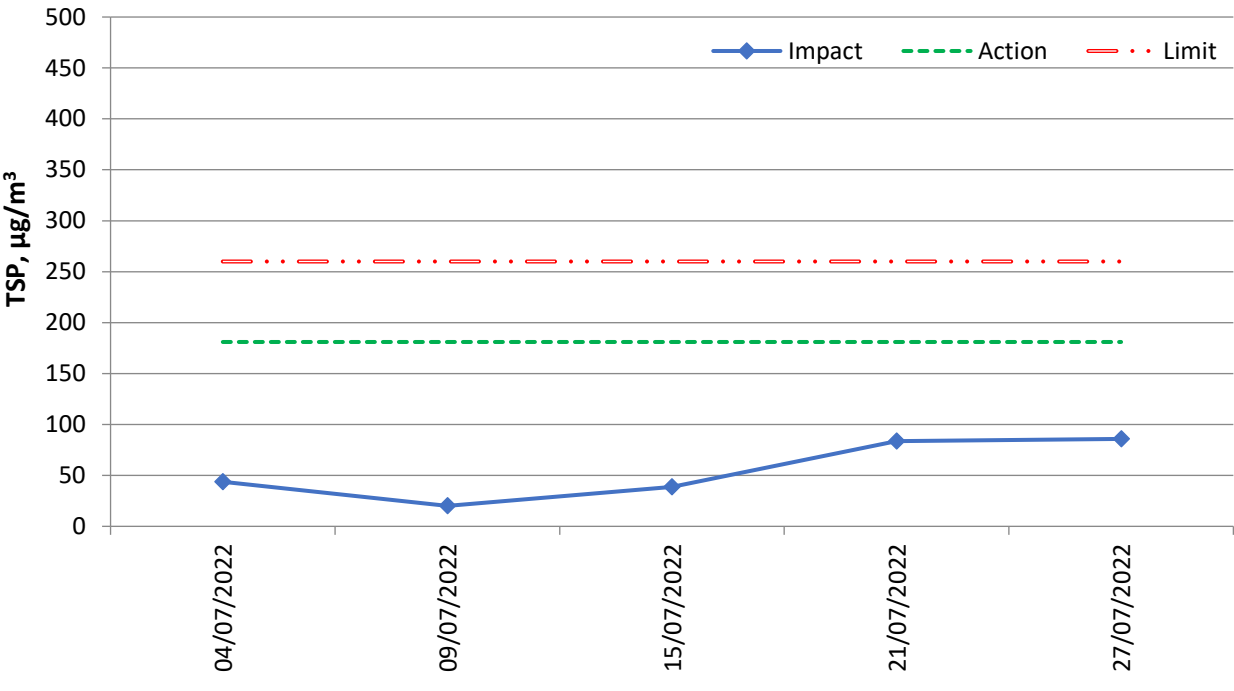
Start Date	Weather	Air Temp. (°C)	Atmospheric Pressure (hPa)	Filter weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (min)	Flow Rate (cfm)		Av. Flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Conc. (µg/m <sup>3</sup> )
				Initial	Final		Initial	Final		Initial	Final			
04/07/2022	Sunny	29.4	1002.2	15.3069	15.3954	0.0885	9259.74	9283.76	1441	50	50	1.40	2021	44
09/07/2022	Sunny	32.6	1005.7	15.3262	15.3667	0.0405	9284.12	9308.14	1441	50	50	1.40	2014	20
15/07/2022	Sunny	33.7	1006.5	14.9934	15.0712	0.0778	9309.34	9333.35	1441	50	50	1.40	2010	39
21/07/2022	Sunny	32.6	1012.1	14.4475	14.6231	0.1756	9333.81	9357.83	1441	52	52	1.46	2102	84
27/07/2022	Sunny	32.7	1006.2	19.2563	19.4291	0.1728	9358.17	9382.18	1441	50	50	1.40	2013	86
													Maximum	86
													Minimum	20
													Average	54
													Action Level	181
													Limit Level	260



24-hour average TSP



### 24-Hour Total Suspended Particulate Results - AM7 Hong Kong Children's Hospital



**Appendix H – 1-hr TSP monitoring results and graphical presentation**

Location:  
**AM3 -  
 Sky Tower**

Date	Measurement Period			1-hr TSP concentration, μg/m <sup>3</sup>	Weather
		-			
04/07/2022	9:00	-	10:00	38	Sunny
	10:00	-	11:00	40	
	11:00	-	12:00	41	
09/07/2022	13:00	-	14:00	27	Sunny
	14:00	-	15:00	29	
	15:00	-	16:00	30	
15/07/2022	13:00	-	14:00	32	Sunny
	14:00	-	15:00	34	
	15:00	-	16:00	37	
21/07/2022	9:00	-	10:00	55	Sunny
	10:00	-	11:00	58	
	11:00	-	12:00	62	
27/07/2022	13:00	-	14:00	37	Sunny
	14:00	-	15:00	42	
	15:00	-	16:00	46	
Maximum				62	
Minimum				27	
Average				41	
Action Level				297	
Limit Level				500	

Location:  
**AM4(A) -  
The Hong Kong  
Society for the  
Blind's Factory  
cum Sheltered  
Workshop**

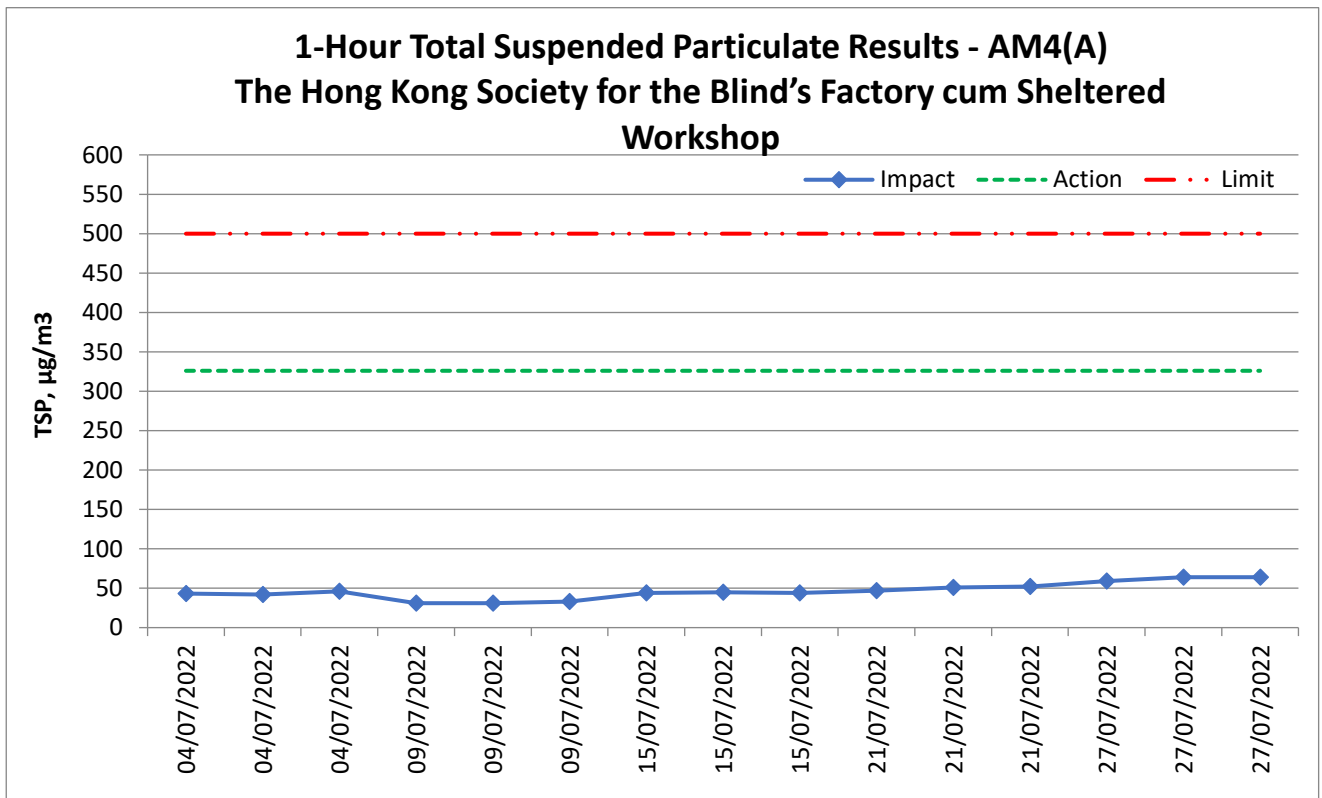
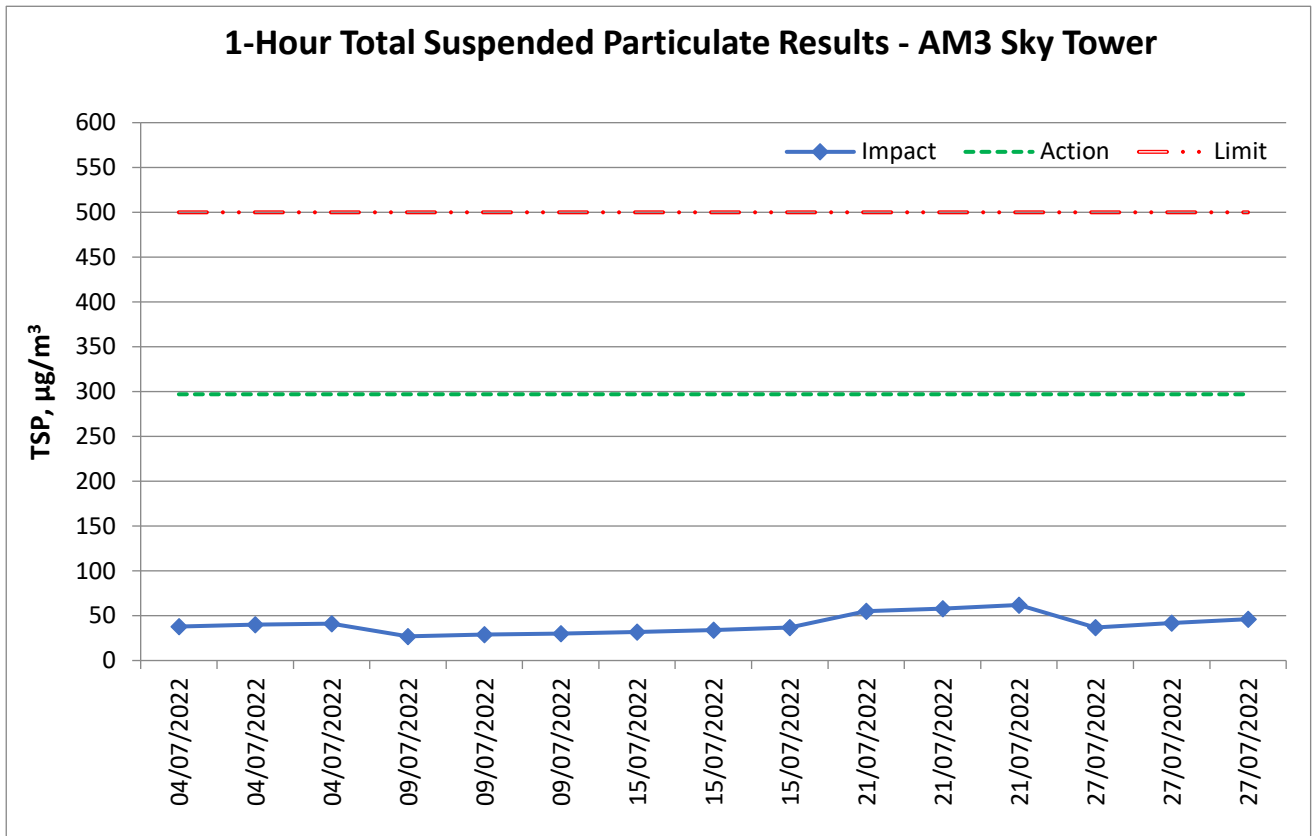
Date	Measurement Period			1-hr TSP concentration, μg/m <sup>3</sup>	Weather
	9:00	-	10:00		
04/07/2022	9:00	-	10:00	43	Sunny
	10:00	-	11:00	42	
	11:00	-	12:00	46	
09/07/2022	9:00	-	10:00	31	Sunny
	10:00	-	11:00	31	
	11:00	-	12:00	33	
15/07/2022	13:00	-	14:00	44	Sunny
	14:00	-	15:00	45	
	15:00	-	16:00	44	
21/07/2022	9:00	-	10:00	47	Sunny
	10:00	-	11:00	51	
	11:00	-	12:00	52	
27/07/2022	13:00	-	14:00	59	Sunny
	14:00	-	15:00	64	
	15:00	-	16:00	64	
Maximum				64	
Minimum				31	
Average				46	
Action Level				326	
Limit Level				500	

Location:  
**AM7 -  
 Hong  
 Children's  
 Hospital**

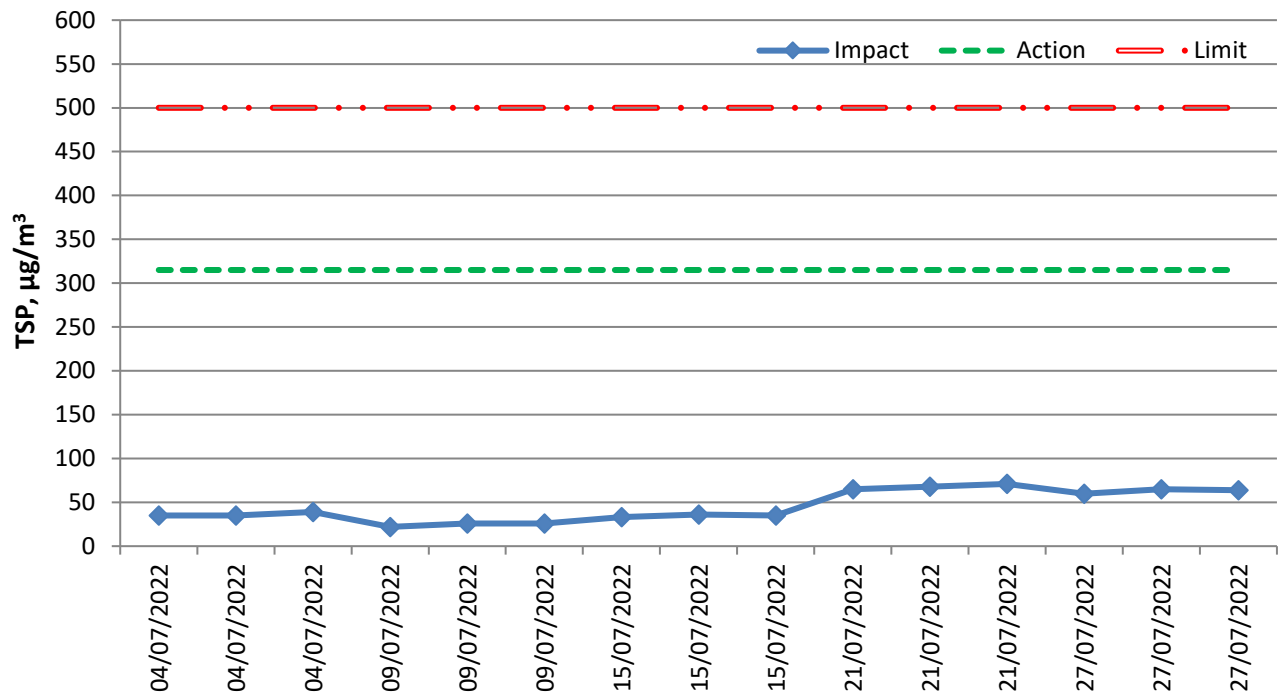
**Kong**

Date	Measurement Period			1-hr TSP concentration, μg/m <sup>3</sup>	Weather
		-			
04/07/2022	13:00	-	14:00	35	Sunny
	14:00	-	15:00	35	
	15:00	-	16:00	39	
09/07/2022	13:00	-	14:00	22	Sunny
	14:00	-	15:00	26	
	15:00	-	16:00	26	
15/07/2022	9:00	-	10:00	33	Sunny
	10:00	-	11:00	36	
	11:00	-	12:00	35	
21/07/2022	13:00	-	14:00	65	Sunny
	14:00	-	15:00	68	
	15:00	-	16:00	71	
27/07/2022	9:00	-	10:00	60	Sunny
	10:00	-	11:00	65	
	11:00	-	12:00	64	
Maximum				71	
Minimum				22	
Average				45	
Action Level				315	
Limit Level				500	

**1-hour average TSP**



### 1-Hour Total Suspended Particulate Results - AM7 Hong Kong Children's Hospital





**Appendix I – Event and Action Plan for air quality**

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

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.	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	<ol style="list-style-type: none"> <li>1. Notify IEC, Supervisor /ER, Contractor and EPD;</li> <li>2. Repeat measurement to confirm findings;</li> <li>3. Carry out analysis of Contractor's working procedures to identify source and investigate the causes of exceedance;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Arrange meeting with IEC, Supervisor /ER and Contractor to discuss the remedial action to be taken;</li> <li>6. Assess effectiveness of Contractor's remedial actions and keep EPD, IEC and Supervisor /ER informed of the results;</li> <li>7. If exceedance stop, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with Supervisor /ER, ET, and Contractor on the potential remedial actions;</li> <li>4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the Supervisor /ER accordingly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Supervise implementation of remedial measures;</li> <li>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.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Discuss with ET and IEC on proper remedial actions;</li> <li>3. Submit proposal for remedial actions to Supervisor /ER and IEC within three working days of notification;</li> <li>4. Implement the agreed proposals;</li> <li>5. Submit further remedial actions if problem still not under control;</li> <li>6. Stop the relevant portion of works as instructed by the Supervisor /ER until the exceedance is abated.</li> </ol>

**Appendix J – Calibration certificates, catalogue of noise monitoring equipment**

# Catalogue of Sound Level Meter

## Specifications



		<b>NL-52</b>	<b>NL-42</b>
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
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: $L_{min}$ Percentage 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: $L_{Zpeak}$			
1/1-time-weighted equivalent continuous sound level: $L_{A1eq}^{*2}$			
Maximum 1/1-time-weighted equivalent continuous sound level: $L_{A1max}^{*2}$			
The power average of the maximum level of each 5 second interval: $L_{A1a5}$			
The frequency weighting for the additional processing synchronizes with the frequency weighting of the sub-channel, so when the sub-channel has A-weighting, $L_{A1a5}$ 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	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
		C-weighting 25 dB or less	27 dB or less
		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 $\mu$ s ( $L_p$ , $L_{eq}$ , $L_E$ , $L_{max}$ , $L_{min}$ , $L_{peak}$ ): 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.	
		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.	
		LP sampling cycle 100 ms, 200 ms, 1 s, $L_{eq}$ 1 s	
		Leq 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	

\* Windows is a trademark of Microsoft Corporation.  
\* Specifications subject to change without notice.

Distributed by:

This product is environment-friendly. It does not include toxic chemicals on our policy.  
This product is certified as 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.

1011-4 212 P.D

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 *3 *4	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 $L_p$ 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	
Battery life (23 °C)	Four IEC R6 (size AA) batteries (alkaline or rechargeable batteries) or external power supply 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 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 x 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 I/O cable		CC-42R
USB cable		—
Sound calibrator		NC-74
All-weather windscreen		WS-15
Windscreen mounting adaptor		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).



**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

# Calibration Certificate of Sound Level Meter



中国赛宝实验室计量检测中心  
(工业和信息化部电子第五研究所计量检测中心)  
CHINA CEPREI LABORATORY CALIBRATION & TESTING CENTRE

## 校准证书 CALIBRATION CERTIFICATE

证书编号: 2HB21001749-0004  
Certificate No.



委托单位: Castco Testing Centre Limited  
Client  
仪器名称: Sound Level Meter  
Description  
型号规格: NL-52  
Model/Type  
制造商: RION  
Manufacturer  
机身号: 00921213  
Serial No.  
管理号: AAST-SLM-04  
Asset No.  
接收日期: 2021-08-05 校准日期: 2021-08-16  
Rec. Date Cal. Date  
签发日期: 2021-08-17 建议校准周期: 12个月(12 months)  
App. Date Reference Cal. Period  
结论: 所校准项目合格(Passed at Calibration Items)  
Conclusion

校准: 赵文彪  
Calibrated by  
签发: 郑木力  
Approved by

核验: 张毅  
Inspected by  
印章:   
Stamp

赛宝计量检测中心  
广州总部地址: 广州市增城区朱村街朱村大道西78号  
客服电话: 020-87237633 传真: 020-87236189  
投诉电话: 020-87236896  
邮件: cal@ceprei.com  
网址: www.ceprei-cal.com

CEPREI Calibration and Testing Centre  
HQ Addr: No.78,Zhucun Avenue West,Zengcheng District,Guangzhou,China  
Service Tel: 020-87237633 Fax: 020-87236189  
Complaint Tel: 020-87236896  
Email: cal@ceprei.com  
Website: www.ceprei-cal.com

证书编号(Certificate No.): 2HB21001383-0001

## 说明 DIRECTIONS

1. 本机构质量管理体系符合ISO/IEC 17025:2017标准的要求, 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 L13344。  
This laboratory quality management system meets the ISO/IEC 17025:2017 and is accredited by the China National Accreditation Service for Conformity Assessment, No. CNAS L13344.
2. 本次校准的技术依据及CNAS认可范围(Reference documents and CNAS accredited scopes):  
\* JJG 188-2017 声级计检定规程; Sound pressure level; (20~130)dB; Frequency Weighting: (20~130)dB@(10 Hz~20kHz).  
\* 详细内容请查看CNAS网站中注册编号为L13344的证书附件, 超出范围的内容未被认可, 其结果/结论所依据的合格评定活动不在认可范围内。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited, the conformity assessment activities on which the results/conclusions are based are outside the scope of accreditation.)

### 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)	测量范围 (Measuring Range)
正弦信号发生器	4GC20000427-0010/2021-11-04/赛宝(广州)	f: ±1mHz; 失真度 Distortion: <-70dB	f: 0.001Hz~200kHz; U : 100μV~5Vrms
数字多用表	4GC20000358-0060/2021-09-09/赛宝(广州)	DCV: ±0.0035%; ACV: ± 0.06%; DCI: ±0.05%; ACI : ±0.1%; R: ±0.01%; f: ±0.001%	DCV: 40~1000V; ACV (0.001~750V@(3Hz~ 300kHz); DCI: 40~3A ; ACI: (0~3)A@(3Hz~ 5kHz); R: (0~100)MΩ ; E3Hz~300kHz
步进衰减器	4GC21000155-0024/2022-04-29/赛宝(广州)	±3dB	(0~110) dB/10dB step (DC~1GHz)
PULSE分析系统	GFJGJL1001210202725/2022-03-03/航空 304所	频率: $f_{\text{err}}=0.001\%$ , $k=2$ ; 电压: $U_{\text{err}}=0.04\%$ , $k=2$	频率: 0.001Hz~51.2kHz; 电压: $1 \times 10^{-1} \sim 30$ V
标准传声器	LSsx2021-13180/2022-04-24/中国计量院	$U=(0.05-0.20)$ dB ( $k=2$ )	20Hz~20kHz
前置放大器	LSsx2021-11346/2022-03-07/中国计量院	$U=0.3$ dB ( $k=2$ )	(10~20000) Hz
功率放大器	4GC20000457-0065/2021-11-17/赛宝(广州)	频率响应: ±1dB, 失真度 : ≤0.2%	20Hz~20kHz
多功能声学校准器	4EC20000091-0005/2021-11-05/赛宝(广州)	1级	31.5Hz~16kHz

4. 校准地点(The calibration place):  
广州市增城区朱村街朱村大道西78号9栋110室
5. 环境条件(Environmental conditions):  
温度(Temperature): 23.4°C 相对湿度(Relative Humidity): 55.8%
6. 本证书中给出的扩展不确定度依据JJF1059.1-2012《测量不确定度的评定与表示》评定, 由合成标准不确定度乘以包含概率约为95%时对应的包含因子k得到。  
The extended uncertainty given in this certificate is evaluated according to JJF1059.1-2012 "Evaluation and Expression of Uncertainty in Measurement", and is calculated by multiplying the combined standard uncertainty by the coverage factor k which corresponding to the coverage probability about 95%.
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"不适用或技术指标暂时无法确认等"。本证书报告的结论仅供参考, 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 or The technical specification has not been confirmed etc". The 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. 建议校准周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校准周期。

# Calibration Certificate of Sound Level Meter



证书编号(Certificate No.): 2HB21001383-0001

**1 外观与工作正常性检查 (Appearance and Function Check)**

无影响证书中测量结果准确度的因素和缺陷。

There are no factor and defect that affect the measurement result accuracy of the certificate.

**2 指示声级调整 (Indication SPL Calibration)**

频率(Frequency)=1000Hz

传声器型号 (Microphone Type)	传声器编号 (Microphone SN.)	放大器型号 (Preamplifier Type)	放大器编号 (Preamplifier SN.)
UC-59	15764	NH-25	76321

声校准器型号 (Calibrator Type)	标准声压级 (Reference SPL) (dB)	校准前示值 (Before Calibration) (dB)	校准后示值 (After Calibration) (dB)	U (k=2) (dB)
4226	94.0	94.1	94.1	0.2

**3 级线性 (Level Linearity)**

**3.1 参考级量程 (Reference Range)**

频率(Frequency): 8000Hz

起始点指示声级(Sound Level Indication of Start Point):	90.0 dB
起始点以上间隔10dB点的最大误差(Maximum Error for each 10dB above Start Point):	-0.2 dB
U (k=2)	0.6 dB
上限以下5dB间隔1dB点的最大误差(Maximum Error for each 1dB below Upper Limit 5dB):	-0.2 dB
U (k=2)	0.6 dB
起始点以下间隔10dB点的最大误差(Maximum Error for each 10dB below Start Point):	-0.2 dB
U (k=2)	0.6 dB
下限以上5dB间隔1dB点的最大误差(Maximum Error for each 1dB above Lower Limit 5dB):	-0.2 dB
U (k=2)	0.6 dB

**3.2 其它级量程 (Other Range)**

频率(Frequency): 1000Hz

起始点指示声级(Sound Level Indication of Start Point):	90.0 dB
起始点以上间隔10dB点的最大误差(Maximum Error for each 10dB above Start Point):	-0.1 dB
U (k=2)	0.4 dB
上限以下5dB间隔1dB点的最大误差(Maximum Error for each 1dB below Upper Limit 5dB):	-0.1 dB
U (k=2)	0.4 dB
起始点以下间隔10dB点的最大误差(Maximum Error for each 10dB below Start Point):	-0.1 dB
U (k=2)	0.4 dB
下限以上5dB间隔1dB点的最大误差(Maximum Error for each 1dB above Lower Limit 5dB):	-0.1 dB
U (k=2)	0.4 dB

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证书编号(Certificate No.): 2HB21001383-0001

**4 A计权特性(A-Weighting Characteristic)**

频率 (Frequency) (Hz)	实测值 (Actual) (dB)	理论值 (Theoretical value) (dB)	误差 (Error) (dB)	允许误差 (Limit) (dB)	结论 (Pass/Fail) (P/F)	U (k=2) (dB)
20	-49.2	-50.5	1.3	±2.0	P	0.5
25	-44.2	-44.7	0.5	+2.0 ~ -1.5	P	0.5
31.5	-39.4	-39.4	0.0	±1.5	P	0.5
40	-34.4	-34.6	0.2	±1.0	P	0.5
50	-30.3	-30.2	-0.1	±1.0	P	0.5
63	-26.0	-26.2	0.2	±1.0	P	0.5
80	-22.4	-22.5	0.1	±1.0	P	0.5
100	-19.1	-19.1	0.0	±1.0	P	0.5
125	-16.0	-16.1	0.1	±1.0	P	0.5
160	-13.2	-13.4	0.2	±1.0	P	0.5
200	-10.8	-10.9	0.1	±1.0	P	0.5
250	-8.6	-8.6	0.0	±1.0	P	0.5
315	-6.6	-6.6	0.0	±1.0	P	0.4
400	-4.7	-4.8	0.1	±1.0	P	0.4
500	-3.3	-3.2	-0.1	±1.0	P	0.4
630	-1.9	-1.9	0.0	±1.0	P	0.4
800	-0.8	-0.8	0.0	±1.0	P	0.4
1000(Ref.)	0.0	0.0	0.0	±0.7	P	0.4
1250	0.5	0.6	-0.1	±1.0	P	0.6
1600	0.9	1.0	-0.1	±1.0	P	0.6
2000	1.1	1.2	-0.1	±1.0	P	0.6
2500	1.0	1.3	-0.3	±1.0	P	0.6
3150	0.9	1.2	-0.3	±1.0	P	0.6
4000	1.2	1.0	0.2	±1.0	P	0.6
5000	0.3	0.5	-0.2	±1.5	P	0.6
6300	-0.3	-0.1	-0.2	+1.5 ~ -2.0	P	0.6
8000	-0.6	-1.1	0.5	+1.5 ~ -2.5	P	0.6
10000	-2.4	-2.5	0.1	+2.0 ~ -3.0	P	0.6
12500	-4.3	-4.3	0.0	+2.0 ~ -5.0	P	1.0
16000	-8.5	-6.6	-1.9	+2.5 ~ -16.0	P	1.0
20000	-18.5	-9.3	-9.2	+3.0 ~ -∞	P	1.0

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## Calibration Certificate of Sound Level Meter



证书编号(Certificate No.): 2HB21001383-0001

### 5 计权特性(C-Weighting Characteristic)

频率 (Frequency)	实测值 (Actual)	理论值 (Theoretical value)	误差 (Error)	允许误差 (Limit)	结论 (Pass/Fail)	U (dB)
20	-6.6	-6.2	-0.4	±2.0	P	0.5
25	-4.5	-4.4	-0.1	+2.0 ~ -1.5	P	0.5
31.5	-2.9	-3.0	0.1	±1.5	P	0.5
40	-1.9	-2.0	0.1	±1.0	P	0.5
50	-1.3	-1.3	0.0	±1.0	P	0.5
63	-0.7	-0.8	0.1	±1.0	P	0.5
80	-0.5	-0.5	0.0	±1.0	P	0.5
100	-0.2	-0.3	0.1	±1.0	P	0.5
125	-0.1	-0.2	0.1	±1.0	P	0.5
160	-0.1	-0.1	0.0	±1.0	P	0.5
200	0.0	0.0	0.0	±1.0	P	0.5
250	0.0	0.0	0.0	±1.0	P	0.5
315	0.0	0.0	0.0	±1.0	P	0.4
400	0.1	0.0	0.1	±1.0	P	0.4
500	0.0	0.0	0.0	±1.0	P	0.4
630	0.0	0.0	0.0	±1.0	P	0.4
800	0.0	0.0	0.0	±1.0	P	0.4
1000(Ref.)	0.0	0.0	0.0	±0.7	P	0.4
1250	-0.1	0.0	-0.1	±1.0	P	0.6
1600	-0.2	-0.1	-0.1	±1.0	P	0.6
2000	-0.3	-0.2	-0.1	±1.0	P	0.6
2500	-0.6	-0.3	-0.3	±1.0	P	0.6
3150	-0.8	-0.5	-0.3	±1.0	P	0.6
4000	-0.6	-0.8	0.2	±1.0	P	0.6
5000	-1.6	-1.3	-0.3	±1.5	P	0.6
6300	-2.1	-2.0	-0.1	+1.5 ~ -2.0	P	0.6
8000	-2.5	-3.0	0.5	+1.5 ~ -2.5	P	0.6
10000	-4.3	-4.4	0.1	+2.0 ~ -3.0	P	0.6
12500	-6.3	-6.2	-0.1	+2.0 ~ -5.0	P	1.0
16000	-10.5	-8.5	-2.0	+2.5 ~ -16.0	P	1.0
20000	-20.4	-11.2	-9.2	+3.0 ~ -∞	P	1.0

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证书编号(Certificate No.): 2HB21001383-0001

### 6 自生噪声 (Autogenous noise)

计权 (Weighting)	实测值 (Actual)
A	15.3

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# Calibration Certificate of Sound Level Meter



**中国赛宝实验室计量检测中心**  
(工业和信息化部电子第五研究所计量检测中心)  
CHINA CEPREI LABORATORY CALIBRATION & TESTING CENTRE

## 校准证书

### CALIBRATION CERTIFICATE

证书编号: 2HB21001749-0003  
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.	01232551		
管理号: Asset No.	AAST-SLM-05		
接收日期: Rec. Date	2021-08-05	校准日期: Cal. Date	2021-08-16
签发日期: App. Date	2021-08-17	建议校准周期: Reference Cal. Period	12个月(12 months)
结论: Conclusion	所校准项目合格(Passed at Calibration Items)		



校准: Calibrated by 赵文钰	检验: Inspected by 张毅
签发: Approved by 郭木力	印章: Stamp

赛宝计量检测中心 广州总部地址: 广州市增城区朱村街朱村大道西78号 客服电话: 020-87237633 传真: 020-87236189 投诉电话: 020-87236896 邮件: cal@ceprei.com 网址: www.ceprei-cal.com	CEPREI Calibration and Testing Centre HQ Addr: No.78 Zhuaiun Avenue West,Zengcheng District,Guangzhou,China Service Tel: 020-87237633 Fax: 020-87236189 Complaint Tel: 020-87236896 Email: cal@ceprei.com Website: www.ceprei-cal.com
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证书编号(Certificate No.): 2HB21001370-0002


## 说明

### DIRECTIONS

- 本机构质量管理体系符合ISO/IEC 17025:2017标准的要求, 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 L13344。  
This laboratory quality management system meets the ISO/IEC 17025:2017 and is accredited by the China National Accreditation Service for Conformity Assessment, No. CNAS L13344.
- 本次校准的技术依据及CNAS认可范围(Reference documents and CNAS accredited scopes):
  - JJG 188-2017 声级计检定规程: Sound pressure level: (20~130)dB; Frequency Weighting: (20~130)dB@(10 Hz~20kHz).
  - 详细内容请查看CNAS网站中注册编号为L13344的证书附件, 超出范围的内容未被认可, 其结果/结论所依据的合格评定活动不在认可范围内。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited, the conformity assessment activities on which the results/conclusions are based are outside the scope of accreditation.)
- 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)	测量范围 (Measuring Range)
正弦信号发生器	4GC20000427-0010/2021-11-04/赛宝(广州)	f: ±1mHz; 失真度: <-70dB	f: 0.001Hz~200kHz; U: 100V~5Vrms
数字多用表	4GC20000358-0060/2021-09-09/赛宝(广州)	DCV: ±0.0035%; ACV: ±0.06%; DCI: ±0.05%; ACI: ±0.1%; R: ±0.01%; f: ±0.001%	(0.001~750)V@(3Hz~300kHz); DCI:(0~3)A; ACI:(0~3)A@(3Hz~5kHz); R:(0~100)MΩ; f:3Hz~300kHz
步进衰减器	4GC21000155-0024/2022-04-29/赛宝(广州)	±3dB	(0~110) dB/10dB step @DC~1GHz
PULSE分析系统	GFJGJL1001210202725/2022-03-03/航空304所	频率: $U_{in}=0.001\%k=2$ ; 电压: $U_{in}=0.04\%k=2$	频率:0.001Hz~51.2kHz; 电压:( $1 \times 10^{-3}$ ~30)V
标准传声器	LSX2021-13180/2022-04-24/中国计量院	$U=0.05-0.20$ dB (k=2)	20Hz~20kHz
前置放大器	LSX2021-11346/2022-03-07/中国计量院	$U=0.3$ dB (k=2)	(10~20000) Hz
功率放大器	4GC20000457-0065/2021-11-17/赛宝(广州)	频率响应: ±1dB, 失真度: ≤0.2%	20Hz~20kHz
多功能声学校准器	4EC20000091-0005/2021-11-05/赛宝(广州)	1级	31.5Hz~16kHz
- 校准地点(The calibration place):  
广州市增城区朱村街朱村大道西78号9栋110室
- 环境条件(Environmental conditions):  
温度(Temperature): 23.4°C 相对湿度(Relative Humidity): 55.8%
- 本证书中给出的扩展不确定度依据JJF1059.1-2012《测量不确定度的评定与表示》评定, 由合成标准不确定度乘以包含概率约为95%时对应的包含因子k得到。  
The extended uncertainty given in this certificate is evaluated according to JJF1059.1-2012 "Evaluation and Expression of Uncertainty in Measurement", and is calculated by multiplying the combined standard uncertainty by the coverage factor k which corresponding to the coverage probability about 95%.
- 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"不适用或技术指标暂时无法确认等"。本证书报告的结论仅供参考, 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 or The technical specification has not been confirmed etc".The 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.
- 建议校准周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校准周期。

## Calibration Certificate of Sound Level Meter


证书编号(Certificate No.): 2HB20001172-0004

1 外观与工作正常性检查 (Appearance and Function Check)  
无影响证书中校准结果准确度的因素和缺陷。  
There are no factor and defect that affect the calibration result accuracy of the certificate.

2 指示声级调整 (Indication SPL Calibration) 频率(Frequency)=1000Hz

传声器型号 (Microphone Type)	传声器编号 (Microphone SN.)	放大器型号 (Preamplifier Type)	放大器编号 (Preamplifier SN.)
UC-59	12133	NH-25	76321

声校准器型号 (Calibrator Type)	标准声压级 (Reference SPL) (dB)	校准前示值 (Before Calibration) (dB)	校准后示值 (After Calibration) (dB)	U (k=2) (dB)
4231	94.0	93.9	94.0	0.2

3 级线性 (Level Linearity)

3.1 参考级量程 (Reference Range) 频率(Frequency): 8000Hz

起始点指示声级(Sound Level Indication of Start Point): 90.0 dB

起始点以上间隔10dB点的最大误差(Maximum Error for each 10dB above Start Point): -0.1 dB

$U (k=2)$  0.6 dB

上限以下5dB间隔1dB点的最大误差(Maximum Error for each 1dB below Upper Limit 5dB): -0.1 dB

$U (k=2)$  0.6 dB

起始点以下间隔10dB点的最大误差(Maximum Error for each 10dB below Start Point): -0.1 dB

$U (k=2)$  0.6 dB

下限以上5dB间隔1dB点的最大误差(Maximum Error for each 1dB above Lower Limit 5dB): -0.1 dB

$U (k=2)$  0.6 dB

3.2 其它级量程 (Other Range) 频率(Frequency): 1000Hz

起始点指示声级(Sound Level Indication of Start Point): 90.0 dB

起始点以上间隔10dB点的最大误差(Maximum Error for each 10dB above Start Point): -0.2 dB

$U (k=2)$  0.4 dB

上限以下5dB间隔1dB点的最大误差(Maximum Error for each 1dB below Upper Limit 5dB): -0.2 dB

$U (k=2)$  0.4 dB


起始点以下间隔10dB点的最大误差(Maximum Error for each 10dB below Start Point): -0.1 dB

$U (k=2)$  0.4 dB

下限以上5dB间隔1dB点的最大误差(Maximum Error for each 1dB above Lower Limit 5dB): -0.1 dB

$U (k=2)$  0.4 dB

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证书编号(Certificate No.): 2HB20001302-0001

4 A计权特性(A-Weighting Characteristic)

频率 (Frequency) (Hz)	实测值 (Actual) (dB)	理论值 (Theoretical value) (dB)	误差 (Error) (dB)	允许误差 (Limit) (dB)	结论 (Pass/Fail) (P/F)	U (k=2) (dB)
20	-48.8	-50.5	1.7	±2.0	P	0.5
25	-44.1	-44.7	0.6	+2.0 ~ -1.5	P	0.5
31.5	-39.3	-39.4	0.1	±1.5	P	0.5
40	-34.4	-34.6	0.2	±1.0	P	0.5
50	-30.2	-30.2	0.0	±1.0	P	0.5
63	-26.2	-26.2	0.0	±1.0	P	0.5
80	-22.4	-22.5	0.1	±1.0	P	0.5
100	-19.1	-19.1	0.0	±1.0	P	0.5
125	-16.2	-16.1	-0.1	±1.0	P	0.5
160	-13.2	-13.4	0.2	±1.0	P	0.5
200	-10.8	-10.9	0.1	±1.0	P	0.5
250	-8.7	-8.6	-0.1	±1.0	P	0.5
315	-6.6	-6.6	0.0	±1.0	P	0.4
400	-4.8	-4.8	0.0	±1.0	P	0.4
500	-3.2	-3.2	0.0	±1.0	P	0.4
630	-1.9	-1.9	0.0	±1.0	P	0.4
800	-0.8	-0.8	0.0	±1.0	P	0.4
1000(Ref)	0.0	0.0	0.0	±0.7	P	0.4
1250	0.6	0.6	0.0	±1.0	P	0.6
1600	1.0	1.0	0.0	±1.0	P	0.6
2000	1.2	1.2	0.0	±1.0	P	0.6
2500	1.3	1.3	0.0	±1.0	P	0.6
3150	1.2	1.2	0.0	±1.0	P	0.6
4000	1.0	1.0	0.0	±1.0	P	0.6
5000	0.6	0.5	0.1	±1.5	P	0.6
6300	0.0	-0.1	0.1	+1.5 ~ -2.0	P	0.6
8000	-1.0	-1.1	0.1	+1.5 ~ -2.5	P	0.6
10000	-2.4	-2.5	0.1	+2.0 ~ -3.0	P	0.6
12500	-4.4	-4.3	-0.1	+2.0 ~ -5.0	P	1.0
16000	-8.0	-6.6	-1.4	+2.5 ~ -16.0	P	1.0
20000	-14.2	-9.3	-4.9	+3.0 ~ -∞	P	1.0

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Page of
数据页(Data sheet) ID: U071288

## Calibration Certificate of Sound Level Meter



证书编号(Certificate No.): 2HB20001302-0001

### 5 C计权特性(C-Weighting Characteristic)

频率 (Frequency)	实测值 (Actual)	理论值 (Theoretical value)	误差 (Error)	允许误差 (Limit)	结论 (Pass/Fail)	U (k=2)
20	-6.3	-6.2	-0.1	±2.0	P	0.5
25	-4.5	-4.4	-0.1	+2.0 ~ -1.5	P	0.5
31.5	-3.2	-3.0	-0.2	±1.5	P	0.5
40	-2.0	-2.0	0.0	±1.0	P	0.5
50	-1.4	-1.3	-0.1	±1.0	P	0.5
63	-0.8	-0.8	0.0	±1.0	P	0.5
80	-0.5	-0.5	0.0	±1.0	P	0.5
100	-0.3	-0.3	0.0	±1.0	P	0.5
125	-0.2	-0.2	0.0	±1.0	P	0.5
160	-0.1	-0.1	0.0	±1.0	P	0.5
200	0.0	0.0	0.0	±1.0	P	0.5
250	0.0	0.0	0.0	±1.0	P	0.5
315	0.0	0.0	0.0	±1.0	P	0.4
400	0.0	0.0	0.0	±1.0	P	0.4
500	0.0	0.0	0.0	±1.0	P	0.4
630	0.0	0.0	0.0	±1.0	P	0.4
800	0.0	0.0	0.0	±1.0	P	0.4
1000(Ref.)	0.0	0.0	0.0	±0.7	P	0.4
1250	0.0	0.0	0.0	±1.0	P	0.6
1600	-0.1	-0.1	0.0	±1.0	P	0.6
2000	-0.2	-0.2	0.0	±1.0	P	0.6
2500	-0.3	-0.3	0.0	±1.0	P	0.6
3150	-0.5	-0.5	0.0	±1.0	P	0.6
4000	-0.8	-0.8	0.0	±1.0	P	0.6
5000	-1.2	-1.3	0.1	±1.5	P	0.6
6300	-1.9	-2.0	0.1	+1.5 ~ -2.0	P	0.6
8000	-2.9	-3.0	0.1	+1.5 ~ -2.5	P	0.6
10000	-4.3	-4.4	0.1	+2.0 ~ -3.0	P	0.6
12500	-6.4	-6.2	-0.2	+2.0 ~ -5.0	P	1.0
16000	-9.9	-8.5	-1.4	+2.5 ~ -16.0	P	1.0
20000	-16.2	-11.2	-5.0	+3.0 ~ ∞	P	1.0

数据页(Data sheet) ID: U071288

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Page of



证书编号(Certificate No.): 2HB20001302-0001

### 6 自生噪声 (Autogenous noise)

计权 (Weighting)	实测值 (Actual)
A	18.3

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Page of

数据页(Data sheet) ID: U071288

## Catalogue of Sound Calibrator

Sound Calibrator NC-75



Compact and lightweight sound calibrator allows highly reliable and accurate measurement anywhere

# Sound Calibrator NC-75

Patent pending



- Integrated newly developed reference microphone enables feedback control that completely eliminates the need for atmospheric pressure and coupler volume correction, resulting in highly accurate and reliable calibration.

- Effective coupler sound insulation (30 dB or higher\*) permits calibration also in relatively noisy environments.

\* A-weighted sound level insulation performance measured with pink noise

- Each product comes standard with a JCSS Calibration Certificate, demonstrating high quality.

- Conforming with IEC 60942: 2017 class 1 and JIS C 1515: 2004 (Also complies with IEC 60942 Version 4 currently under revision)
- Supports calibration of RION sound level meters compliant with IEC 61672-1: 2013, JIS C 1509-1: 2017 and JIS C 1516: 2014.
- Supports calibration of RION microphones and microphones of other manufacturers meeting the size specifications of IEC 61094-4.
- Supports 1-inch, 1/2-inch, and 1/4-inch microphones (1/4 inch with optional adapter)

JCSS Calibration Certificate



JCSS Calibration Results



## Catalogue of Sound Calibrator



How to use the adapter

### 1-inch microphones

To use the sound calibrator with 1-inch diameter microphones, remove the 1/2-inch microphone adapter.



### 1/2-inch microphones

To use the sound calibrator with 1/2-inch diameter microphones, the supplied 1/2-inch microphone adapter must be in place.



Make sure the 1/2-inch adapter is locked.

### 1/4-inch microphones

To use the sound calibrator with 1/4-inch diameter microphones, use the supplied 1/2-inch microphone adapter together with the optional 1/4-inch adapter.



Usage example

Specifications (under standard ambient conditions\*)

Applicable standards	IEC 60942: 2017 class 1, ANSI/ASA S1.40-2008 class 1, JIS C 1515: 2004 class 1, CE marking, WEEE directive, Chinese RoHS
Supported microphones	Microphones made by RION and microphones made by other manufacturers that meet the IEC 61094-4 size specifications 1-inch microphones 1/2-inch microphones (with supplied adapter) 1/4-inch microphones (with optional adapter)
Nominal sound pressure level	94 dB
Sound pressure level tolerance	Max. ±0.20 dB
Nominal frequency	1,000 Hz
Frequency tolerance	Max. ±0.1%
THD + noise	Max. 1.0% (22.4 Hz to 22.4 kHz)
Dimensions and weight	Approx. 42 mm (H) x 77 mm (W) x 70 mm (D), approx. 200 g
Power supply	IEC LR6 (size AA) alkaline battery x 2 IEC LR6 (size AA) nickel-hydrate rechargeable battery ("enloop pro" supported) x 2
Battery life	50 hours or more (using two alkaline batteries, continuous use) 50 hours or more (using two nickel-hydrate rechargeable batteries (enloop pro), continuous use)
Supplied accessories	Soft case x 1, 1/2-inch microphone adapter x 1, IEC LR6 (size AA) alkaline battery x 2, hand strap x 1, JCSS Calibration Certificate x 1

\* RION standard ambient conditions: static pressure 101.325 kPa, ambient temperature 23 °C, relative humidity 50 %

Optional accessories | 1/4-inch microphone adapter NC-75-S11

Strap



Securely carry the unit with the supplied hand strap

Soft case



Calibration can be performed with the calibrator inserted in the soft case

### PISTONPHONE NC-72A

Specifications (under standard ambient conditions\*)

Applicable standards	IEC 60942: 2017 class L5/M, class 1/M, JIS C 1516: 2004 class L5/C, class 1/C
Nominal sound pressure level	114 dB, Sound pressure level tolerance ±0.10 dB



JCSS

JCSS 6197

RION CO., LTD. is recognized by the JCSS which uses ISO/IEC 17025 as an accreditation standard and bases its accreditation scheme on ISO/IEC 17031. JCSS is operated by the accreditation body (A Japan which is a sponsor) (ILAC). The Quality Assurance Section of RION CO., LTD. is an international ILAC compliant JCSS operator with the accreditation number JCSS 6197.

\* Windows is a trademark of Microsoft Corporation. \* Specifications subject to change without notice.

Distributed by:

**RION CO., LTD.**  
https://rion-sv.com/

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 leaflet is printed with environmentally friendly UV ink.

1709-5 1910(PD)

# Catalogue 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.

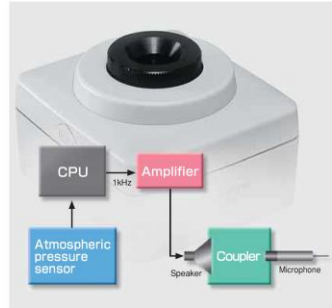


Usage example (NL series)

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.

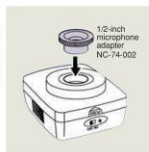
### Atmospheric pressure compensation principle

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 C1615:2004 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-58A UC-56 UC-26 UC-20 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	Class X 1	
	IEC LR6 (size AA) alkaline battery × 2 1/2-inch microphone adapter NC-74-002 × 1	

\* Specification subject to change without notice.

**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



ISO 14001 RION CO., LTD.  
ISO 9001 RION CO., LTD.

# Calibration Certificate of Sound Calibrator



中国赛宝实验室计量检测中心  
(工业和信息化部电子第五研究所计量检测中心)  
CHINA CEPREI LABORATORY CALIBRATION & TESTING CENTRE

## 校准证书 CALIBRATION CERTIFICATE

证书编号: 2HB21001749-0002  
Certificate No.



委托单位: Castco Testing Centre Limited  
Client  
仪器名称: Sound Level Calibrator  
Description  
型号规格: NC-75  
Model/Type  
制造商: RION  
Manufacturer  
机身号: 34280310  
Serial No.  
管理号: AAST-SLC-07  
Asset No.  
接收日期: 2021-08-05  
Rec. Date  
校准日期: 2021-08-17  
Cal. Date  
签发日期: 2021-08-18  
App. Date  
建议校准周期: 12个月(12 months)  
Reference Cal. Period  
结论: 所校准项目合格(Passed at Calibration Items)  
Conclusion

CEPREI

校准: 赵文钰  
Calibrated by

核校: 张毅  
Inspected by

签发: 郑木方  
Approved by

印章: Stamp

赛宝计量检测中心  
广州总部地址: 广州市增城区朱村街朱村大道西78号  
客服电话: 020-87237633 传真: 020-87236189  
投诉电话: 020-87236896  
邮箱: cal@ceprei.com  
网址: www.ceprei-cal.com

CEPREI Calibration and Testing Centre  
HQ Addr: No.78,Zhucun Avenue West,Zengcheng District,Guangzhou,China  
Service Tel: 020-87237633 Fax: 020-87236189  
Complaint Tel: 020-87236896  
Email: cal@ceprei.com  
Website: www.ceprei-cal.com

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# Calibration Certificate of Sound Calibrator

证书编号(Certificate No.): 2HB21001749-0002

## 说 明 DIRECTIONS

1. 本机构质量管理体系符合ISO/IEC 17025:2017标准的要求，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 L13344。  
This laboratory quality management system meets the ISO/IEC 17025:2017 and is accredited by the China National Accreditation Service for Conformity Assessment, No. CNAS L13344.
2. 本次校准的技术依据及CNAS认可范围(Reference documents and CNAS accredited scopes):  
  - JJG 176-2005 声校准器检定规程: Sound Pressure Level: 94dB、104dB、114dB、124dB(63Hz~8kHz); 94dB、104dB、114dB,(31.5Hz~16kHz); Frequency: 31.5Hz~16kHz; Harmonic Distortion: 0~10%, (20Hz~20 kHz).
  - 详细内容请查看CNAS网站中注册编号为L13344的证书附件，超出范围的内容未被认可，其结果结论所依据的合格评定活动不在认可范围内。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited, the conformity assessment activities on which the results/conclusions are based are outside the scope of accreditation.)
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)	测量范围 (Measuring Range)
标准传声器	LSx2021-13180/2022-04-24/中国计量院	$U=(0.05-0.20)\text{dB}$ ( $k=2$ )	10Hz~20kHz
PULSE分析系统	4GC21000026-0375/2022-01-21/赛宝(广州)	频率: $U_{\text{rep}}=0.001\%$ , $k=2$ ; 电压: $U_{\text{sig}}=0.04\%$ , $k=2$	频率:0.001Hz~51.2kHz
前置放大器	LSx2021-13000/2022-04-19/中国计量院	$U=0.3\text{dB}$ ( $k=2$ )	(10~50000) Hz
4. 校准地点(The calibration place):  
广州市增城区朱村街朱村大道西78号9栋110室
5. 环境条件(Environmental conditions):  
温度(Temperature): 22.9°C      相对湿度(Relative Humidity): 59.5%
6. 本证书中给出的扩展不确定度依据JJF1059.1-2012《测量不确定度的评定与表示》评定，由合成标准不确定度乘以包含概率约为95%时对应的包含因子 $k$ 得到。  
The extended uncertainty given in this certificate is evaluated according to JJF1059.1-2012 "Evaluation and Expression of Uncertainty in Measurement", and is calculated by multiplying the combined standard uncertainty by the coverage factor  $k$  which corresponding to the coverage probability about 95%.
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“不适用或技术指标暂时无法确认等”。本证书报告的结论仅供参考，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 or The technical specification has not been confirmed etc”.The 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. 建议校准周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校准周期。  
The reference calibration period is based on the reference documents and normal operating conditions of the calibrated instrument. It is only for reference. The client may decide the calibration period of the instrument according to the 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.)

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证书编号(Certificate No.): 2HB21001749-0002

### 1 外观与工作正常性检查 (Appearance and Function Check)

无影响证书中校准结果准确度的因素和缺陷。

There are no factor and defect that affect the calibration result accuracy of the certificate.

### 2 声压级 (Sound Pressure Level)

规定声压级 (Prescribed SPL)	测量声压级 (Measured SPL)	声压级差的绝对值 (Absolute value of SPL)	允许范围 (Limit)	结论 (Pass/Fail)	$U$ (dB)
94	94.12	0.12	$\leq 0.40$	P	0.10

### 3 频率 (Frequency)

规定频率 (Prescribed Fre.)	测量频率 (Measured Fre.)	频率误差的绝对值 (Absolute value of Fre.)	允许范围 (Limit)	结论 (Pass/Fail)	$U_{\text{rel}}$ (%)
1000	1000.0	0.00	$\leq 1.00$	P	0.10

### 4 总失真 (Distortion)

规定声压级 (Prescribed SPL)	规定频率 (Measured Fre.)	总失真 (Distortion)	允许范围 (Limit)	结论 (Pass/Fail)	$U_{\text{rel}}$ (%)
94	1000	0.15	$\leq 3.00$	P	5.0

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数据页(Data sheet) ID: 013393

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# Calibration Certificate of Sound Calibrator



中国赛宝实验室计量检测中心  
(工业和信息化部电子第五研究所计量检测中心)  
CHINA CEPREI LABORATORY CALIBRATION & TESTING CENTRE

## 校准证书 CALIBRATION CERTIFICATE

证书编号: 2HB21002020-0005  
Certificate No. 



委托单位: Castco Testing Centre Limited  
Client  
仪器名称: Sound Level Calibrator  
Description  
型号规格: NC-74  
Model/Type  
制造商: RION  
Manufacturer  
机身号: 34678556  
Serial No.  
管理号: AAST-SLC-06  
Asset No.  
接收日期: 2021-09-09 校准日期: 2021-09-18  
Rec. Date Cal. Date  
签发日期: 2021-09-18 建议校准周期: 12个月(12 months)  
App. Date Reference Cal. Period  
结论: 所校准项目合格(Passed at Calibration Items)  
Conclusion

校准: 赵文钰  
Calibrated by

核验: 张毅  
Inspected by

签发: 郑木力  
Approved by

印章:  
Stamp

赛宝计量检测中心  
广州总部地址: 广州市增城区朱村街朱村大道西78号  
客服电话: 020-87237633 传真: 020-87236189  
投诉电话: 020-87236896  
邮件: cal@ceprei.com  
网址: www.ceprei-cal.com

CEPREI Calibration and Testing Centre  
HQ Addr: No.78.Zhucun Avenue West,Zengcheng District,Guangzhou,China  
Service Tel: 020-87237633 Fax: 020-87236189  
Complaint Tel: 020-87236896  
Email: cal@ceprei.com  
Website: www.ceprei-cal.com

证书编号(Certificate No.): 2HB21001370-0004

## 说明 DIRECTIONS

1. 本机构质量管理体系符合ISO/IEC 17025:2017标准的要求, 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 L13344。  
This laboratory quality management system meets the ISO/IEC 17025:2017 and is accredited by the China National Accreditation Service for Conformity Assessment, No. CNAS L13344.

2. 本次校准的技术依据及CNAS认可范围(Reference documents and CNAS accredited scopes):  
▪ JJG 176-2005 声校准器检定规程: Sound Pressure Level: 94dB、104dB、114dB、124dB(63Hz~8kHz); 94dB、104dB、114dB(31.5Hz~16kHz); Frequency: 31.5Hz~16kHz; Harmonic Distortion: 0~10%, (20Hz~20 kHz).  
▪ 详细内容请查看CNAS网站中注册编号为L13344的证书附件, 超出范围的内容未被认可, 其结果/结论所依据的合格评定活动不在认可范围内。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited, the conformity assessment activities on which the results/conclusions are based are outside the scope of accreditation.)

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)	测量范围 (Measuring Range)
PULSE分析系统	4GC21000026-0375/2023-01-21/赛宝(广州)	频率: $U_{10}=0.001\%$ , $k=2$ ; 电压: $U_{10}=0.04\%$ , $k=2$	频率: 0.001Hz~51.2kHz, 电压: $(1 \times 10^{-3} \sim 30)$ V
标准传声器	LSx2021-13180/2022-04-24/中国计量院	$U=0.05 \sim 0.20$ dB ( $k=2$ )	20Hz~20kHz
前置放大器	LSx2021-13000/2022-04-19/中国计量院	$U=0.3$ dB ( $k=2$ )	(10~50000) Hz

4. 校准地点(The calibration place):  
广州市增城区朱村街朱村大道西78号9栋110室

5. 环境条件(Environmental conditions):  
温度(Temperature): 23.3°C 相对湿度(Relative Humidity): 59.6%

6. 本证书中给出的扩展不确定度依据JJF1059.1-2012《测量不确定度的评定与表示》评定, 由合成标准不确定度乘以包含概率约为95%时对应的包含因子 $k$ 得到。  
The extended uncertainty given in this certificate is evaluated according to JJF1059.1-2012 "Evaluation and Expression of Uncertainty in Measurement", and is calculated by multiplying the combined standard uncertainty by the coverage factor  $k$  which corresponding to the coverage probability about 95%.

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"不适用或技术指标暂时无法确认等"。本证书报告的结论仅供参考, 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 or The technical specification has not been confirmed etc". The 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. 建议校准周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校准周期。  
The reference calibration period is based on the reference documents and normal operating conditions of the calibrated instrument. It is only for reference. The client may decide the calibration period of the instrument according to the 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 Calibrator



证书编号(Certificate No.): 2HB21001370-0004

## 1 外观与工作正常性检查 (Appearance and Function Check)

无影响证书中校准结果准确度的因素和缺陷。

There are no factor and defect that affect the calibration result accuracy of the certificate.

## 2 声压级 (Sound Pressure Level)

规定声压级 (Prescribed SPL)	测量声压级 (Measured SPL)	声压级差的绝对值 (Absolute value of SPL)	允许范围 (Limit)	结论 (Pass/Fail)	$U$ (k=2)
(dB)	(dB)	(dB)	(dB)		(dB)
94	94.29	0.29	≤0.40	P	0.10

## 3 频率 (Frequency)

规定频率 (Prescribed Fre.)	测量频率 (Measured Fre.)	频率误差的绝对值 (Absolute value of Fre.)	允许范围 (Limit)	结论 (Pass/Fail)	$U_{rel}$ (k=2)
(Hz)	(Hz)	(%)	(%)		(%)
1000	1002.1	0.21	≤1.00	P	0.10

## 4 总失真 (Distortion)

规定声压级 (Prescribed SPL)	规定频率 (Measured Fre.)	总失真 (Distortion)	允许范围 (Limit)	结论 (Pass/Fail)	$U_{rel}$ (k=2)
(dB)	(Hz)	(%)	(%)		(%)
94	1000	1.34	≤3.00	P	5.0

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数据页(Data sheet) ID: 013393

第 5 页,共 5 页  
Page of

# Catalogue of Air Flow Meter (TSI TA440)

## 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) <sup>1a2</sup>	±5% of reading or ±0.025 m/s (±5 ft/min), whichever is greater
Accuracy (TA430, TA440) <sup>1a2</sup>	±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 <sup>3</sup>	±0.3°C (±0.5°F)
Resolution	0.1°C (0.1°F)

#### Relative Humidity (TA440 only)

Range	5 to 95% RH
Accuracy <sup>4</sup>	±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
--	--------------------

Specifications subject to change without notice.

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Visit our website at [www.airflowinstruments.co.uk](http://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

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#### 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	+	+	+

<sup>1</sup> Temperature compensated over an air temperature range of 5 to 65°C (40 to 150°F).

<sup>2</sup> 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.

<sup>3</sup> Accuracy with instrument case at 25°C (77°F), add uncertainty of 0.03°C (0.05°F) for change in instrument temperature.

<sup>4</sup> 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.



## Calibration Certificate of Air Flow Meter



**Cal Lab Limited 校正實驗室有限公司**  
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 Tsuen Wan, NT, Hong Kong  
 Tel: +852 25680106 Email: info@callab.com.hk  
 Fax: +852 30116194 Website: www.callab.com.hk



**Calibration Certificate No.: CC0322201**

**Customer Information**

Customer: Castco Testing Centre Limited  
 Address: 33 On Kui Street, Fanling, N.T., Hong Kong

**Equipment Identification**

Equipment Description	Manufacturer	Model No.	Serial No.	Assigned equipment No.:
Air Velocity Meter	TSI	TA440	TA4401232005	AAST-FLOW-02

**Certificate Information**

Date of Receipt:	21 January 2022	Calibration Condition:	24.3°C, 53%RH, 1008hPa
Date of Calibration:	25 January 2022	Adjustment:	N/A
Due Date of Calibration:	N/A	Appearance:	Good
Calibration Procedure:	SOP-116	Remark:	N/A

**Reference Equipment Identification**

Equipment Description	Model	Serial No.	Expiration Date
Hot Wire Anemometer	9535	T95351316004	11 July 2022

**Result of Calibration**

Reference Reading (m/s)	Measured Reading (m/s)	Error (%)	Uncertainty (%FS)	Technical Requirement	Technical Reference Doc.
0.00	0.00	N/A	3.6	± 3%	Mfr's Spec.
0.51	0.50	-2.0	3.6	± 3%	Mfr's Spec.
5.02	4.89	-2.6	3.6	± 3%	Mfr's Spec.
10.03	9.74	-2.9	3.6	± 3%	Mfr's Spec.

CT-AFR-01

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:

*Rex Tse*  
 Rex Tse

Checked and Approved By:

*Warren Yeung*  
 Warren Yeung

Company Chop:



Certificate Issue Date: 25 January 2022

CT-BEG-03

\*\*\* End of Certificate \*\*\*

1. The certificate shall not be reproduced except in full, without written approval of Cal Lab Calibration CC0322201  
 2. The certificate is issued subject to the latest Terms and Conditions, available at our web site Page 1 of 1



**Cal Lab Limited 校正實驗室有限公司**  
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 Tsuen Wan, NT, Hong Kong  
 Tel: +852 25680106 Email: info@callab.com.hk  
 Fax: +852 30116194 Website: www.callab.com.hk



**Calibration Certificate No.: CC0332201**

**Customer Information**

Customer: Castco Testing Centre Limited  
 Address: 33 On Kui Street, Fanling, N.T., Hong Kong

**Equipment Identification**

Equipment Description	Manufacturer	Model No.	Serial No.	Assigned equipment No.:
Air Velocity Meter	TSI	TA440	TA4401706003	AAST-FLOW-03

**Certificate Information**

Date of Receipt:	21 January 2022	Calibration Condition:	24.3°C, 53%RH, 1008hPa
Date of Calibration:	25 January 2022	Adjustment:	N/A
Due Date of Calibration:	N/A	Appearance:	Good
Calibration Procedure:	SOP-116	Remark:	N/A

**Reference Equipment Identification**

Equipment Description	Model	Serial No.	Expiration Date
Hot Wire Anemometer	9535	T95351316004	11 July 2022

**Result of Calibration**

Reference Reading (m/s)	Measured Reading (m/s)	Error (%)	Uncertainty (%FS)	Technical Requirement	Technical Reference Doc.
0.00	0.00	N/A	3.6	± 3%	Mfr's Spec.
0.51	0.50	-2.0	3.6	± 3%	Mfr's Spec.
5.02	4.89	-2.6	3.6	± 3%	Mfr's Spec.
10.03	10.05	2.0	3.6	± 3%	Mfr's Spec.

CT-AFR-01

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:

*Rex Tse*  
 Rex Tse

Checked and Approved By:

*Warren Yeung*  
 Warren Yeung

Company Chop:



Certificate Issue Date: 25 January 2022

CT-BEG-03

\*\*\* End of Certificate \*\*\*

1. The certificate shall not be reproduced except in full, without written approval of Cal Lab Calibration CC0332201  
 2. The certificate is issued subject to the latest Terms and Conditions, available at our web site Page 1 of 1

**Appendix K – Noise monitoring results and graphical presentation**

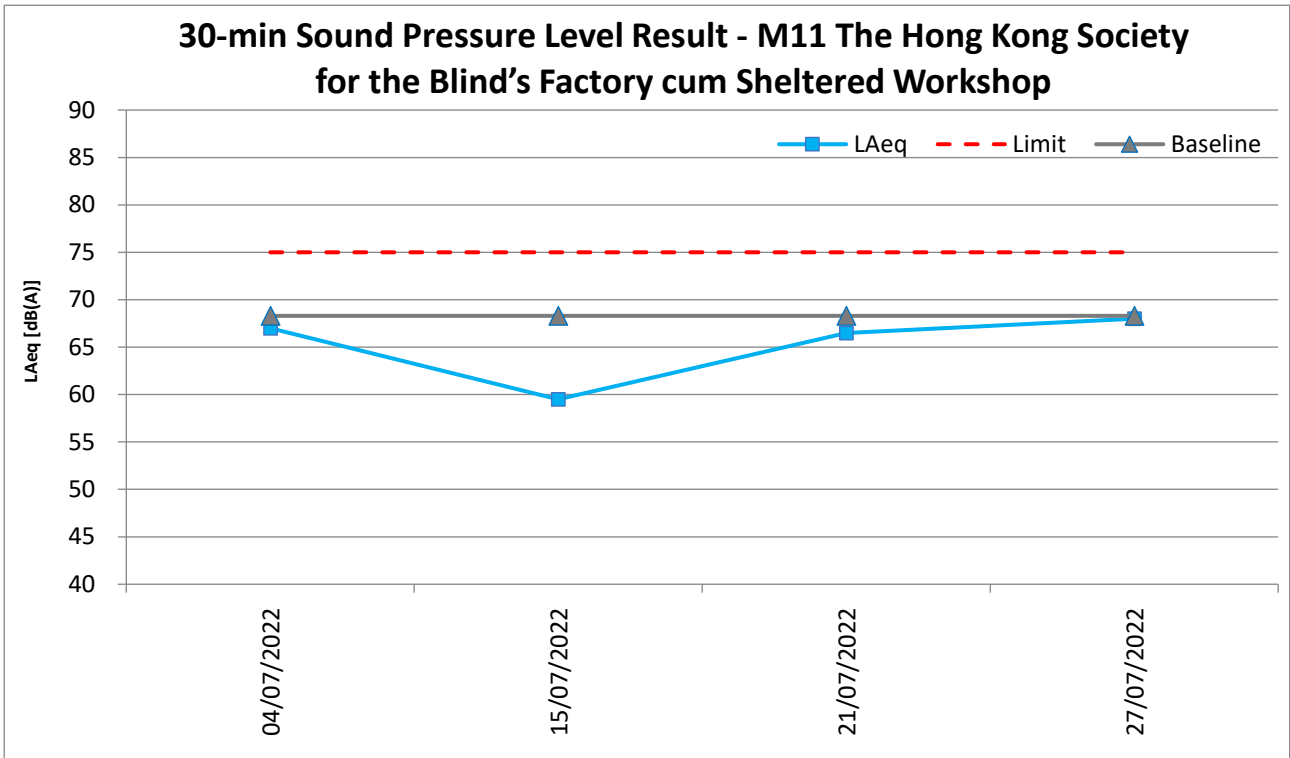
**M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop**

Date	Temp (°C)	Weather	Measured Noise Level at M11, dB(A)							Limit
			Time		Baseline	L <sub>Aeq</sub>	L <sub>A10</sub>	L <sub>A90</sub>		
04/07/2022	29.4	Sunny	11:15	-	11:45	68.3	67.0	70.1	60.6	75
15/07/2022	33.7	Sunny	15:04	-	15:34	68.3	59.5	60.7	58.9	75
21/07/2022	32.6	Sunny	10:00	-	10:30	68.3	66.5	69.4	62.0	75
27/07/2022	32.7	Sunny	13:09	-	13:39	68.3	68.0	70.7	63.2	75
							Maximum	68.0		
							Minimum	59.5		
							Average	66.2		

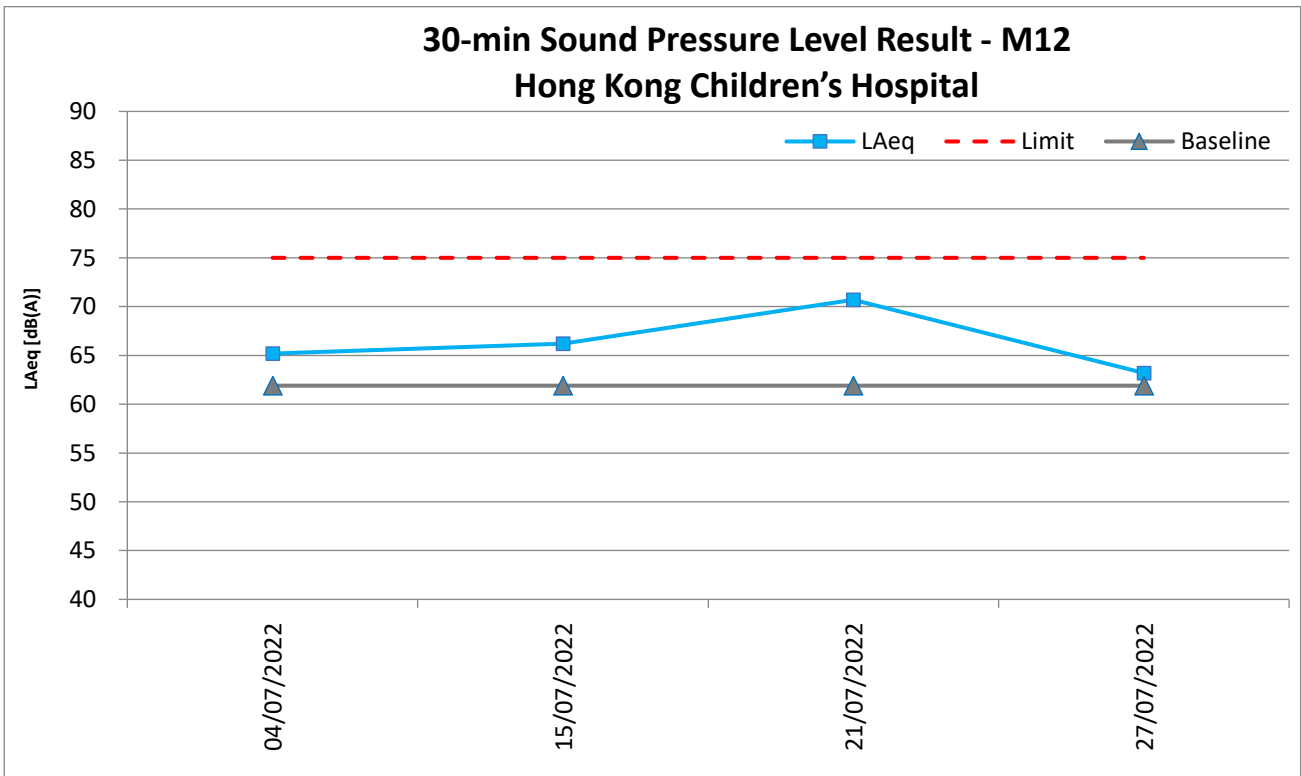
**M12 - Hong Kong Children's Hospital**

Date	Temp (°C)	Weather	Measured Noise Level at M12, dB(A)							Limit
			Time		Baseline	L <sub>Aeq</sub>	L <sub>A10</sub>	L <sub>A90</sub>		
04/07/2022	29.4	Sunny	15:00	-	15:30	61.9	65.2	67.0	63.1	75
15/07/2022	33.7	Sunny	10:02	-	10:32	61.9	66.2	68.5	62.5	75
21/07/2022	32.6	Sunny	14:00	-	14:30	61.9	70.7	72.5	69.4	75
27/07/2022	32.7	Sunny	10:39	-	11:09	61.9	63.2	65.0	60.9	75
							Maximum	70.7		
							Minimum	63.2		
							Average	67.3		

**L<sub>Aeq</sub>, 30-min graphical results of M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop**



**L<sub>Aeq</sub>, 30-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	<ol style="list-style-type: none"> <li>1. Notify Supervisor / ER, IEC and Contractor;</li> <li>2. Carry out investigation;</li> <li>3. Report the results of investigation to the IEC, Supervisor / ER and Contractor;</li> <li>4. Discuss with the IEC and Contractor on remedial measures required;</li> <li>5. Increase monitoring frequency to check mitigation effectiveness.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified.)</p>	<ol style="list-style-type: none"> <li>1. Review the investigation results submitted by the ET;</li> <li>2. Review the proposed remedial measures submitted by the Contractor and advise the ER accordingly;</li> <li>3. Advise the Supervisor / ER on the proposed remedial measures.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified.)</p>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Supervise the implementation of remedial measures.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified.)</p>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposal to IEC and Supervisor / ER;</li> <li>2. Implement noise mitigation proposals.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified.)</p>
Limit Level being exceeded	<ol style="list-style-type: none"> <li>1. Inform IEC, Supervisor /ER, Contractor and EPD;</li> <li>2. Repeat measurement to confirm findings;</li> <li>3. Increase monitoring frequency;</li> <li>4. Identify source and investigate the cause of exceedance;</li> <li>5. Carry out analysis of Contract's working procedure;</li> <li>6. Discuss remedial measures required with the IEC, Contractor and Supervisor /ER;</li> <li>7. Assess effectiveness of</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss the potential remedial actions with Supervisor /ER, ET and Contractor;</li> <li>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the Supervisor /ER accordingly.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified.)</p>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Supervise the implementation of remedial measures;</li> <li>5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC and Supervisor /ER within 3 working days of notification;</li> <li>3. Implement the agreed proposal;</li> <li>4. Submit further proposal if problem still not under control;</li> <li>5. Stop the relevant portion of works as instructed by the Supervisor /ER until the exceedance is abated.</li> </ol> <p>(The above actions should be</p>

Event	Action			
	ET	IEC	Supervisor / ER	Contractor
	<p>Contractor's remedial actions and keep IEC, EPD, and Supervisor /ER informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified.)</p>		<p>exceedance until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified.)</p>	<p>taken within 2 working days after the exceedance is identified.)</p>

**Appendix M – Event and Action Plan for Landscape and Visual Impact**



Event	Action			
	ET	IEC	Supervisor / ER	Contractor
Design Check	<ol style="list-style-type: none"> <li>1. Check final design conforms to the requirements of EP and prepare report.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check report.</li> <li>2. Recommend remedial design if necessary.</li> </ol>	<ol style="list-style-type: none"> <li>1. Undertake remedial design if necessary.</li> </ol>	
Non-conformity on one occasion	<ol style="list-style-type: none"> <li>1. Identify Source.</li> <li>2. Inform IEC and Supervisor /ER.</li> <li>3. Discuss remedial actions with IEC, Supervisor /ER and Contractor.</li> <li>4. Monitor remedial actions until rectification has been completed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check report.</li> <li>2. Check Contractor's working method.</li> <li>3. Discuss with ET and Contractor on possible remedial measures.</li> <li>4. Advise Supervisor /ER on effectiveness of proposed remedial measures.</li> <li>5. Check implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify Contractor.</li> <li>2. Ensure remedial measures are properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Amend working methods.</li> <li>2. Rectify damage and undertake any necessary replacement.</li> </ol>
Repeated Non-conformity	<ol style="list-style-type: none"> <li>1. Identify Source.</li> <li>2. Inform IEC and Supervisor /ER.</li> <li>3. Increase monitoring frequency.</li> <li>4. Discuss remedial actions with IEC, Supervisor /ER and Contractor.</li> <li>5. Monitor remedial actions until rectification has been completed.</li> <li>6. If non-conformity stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring report.</li> <li>2. Check Contractor's working method.</li> <li>3. Discuss with ET and Contractor on possible remedial measures.</li> <li>4. Advise Supervisor /ER on effectiveness of proposed remedial measures.</li> <li>5. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify Contractor.</li> <li>2. Ensure remedial measures are properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Amend working methods.</li> <li>2. Rectify damage and undertake any necessary replacement.</li> </ol>

**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 June 2022**

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 <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
Jan	0.832	--	--	--	0.832	--	--	0.100	--	--	0.144
Feb	0.749	--	0.450	--	0.299	--	--	--	--	--	0.124
Mar	0.768	--	--	--	0.768	--	--	--	--	--	0.154
Apr	0.488	--	--	--	0.488	--	--	--	--	--	0.167
May	2.374	--	--	--	2.374	--	--	--	--	--	0.190
Jun	3.799	--	0.442	--	1.857	1.500	--	--	--	--	0.174
<b>Sub-total</b>	<b>9.010</b>	<b>--</b>	<b>0.892</b>	<b>--</b>	<b>6.618</b>	<b>1.500</b>	<b>--</b>	<b>0.100</b>	<b>--</b>	<b>--</b>	<b>0.953</b>
July	3.255	--	--	--	3.255	--	--	--	--	--	0.158
Aug											
Sep											
Oct											
Nov											
Dec											
<b>Total</b>	<b>12.265</b>	<b>--</b>	<b>0.892</b>	<b>--</b>	<b>9.873</b>	<b>1.500</b>	<b>--</b>	<b>0.100</b>	<b>--</b>	<b>--</b>	<b>1.111</b>
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 <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )	
<b>195.01</b>	<b>2.103</b>	<b>10.2</b>	<b>140</b>	<b>19.81</b>	<b>25</b>	<b>200</b>	<b>0.8</b>	<b>0.1</b>	<b>--</b>	<b>3.4</b>	

- 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 and water barrier  
(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<sup>3</sup> (**ER Part 8 Clause 8.7.5(d)**(ii) refers)  
(5) Assume inert C&D materials density and non-inert C&D materials are 1.9 m<sup>3</sup>/ton and 1.5 m<sup>3</sup>/ton

**Appendix O – Environmental Mitigation Implementation Schedule  
(EMIS)**

<b>Implementation Schedule for Air Quality Measures</b>			
<b>EIA for KTD Development Ref.</b>	<b>EIA for KTD – Roads D3A &amp; D4A Ref.</b>	<b>Environmental Protection Measures / Mitigation Measures</b>	<b>Status</b>
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 extend at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary, before transportation.	^
		- The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways inside the site. On-site unpaved roads should be compacted and kept free of loose 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 hardcore.	^
		- Every main haul road should be sealed with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	^
		- 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.	^

<b>Implementation Schedule for Noise Measures</b>			
<b>EIA for KTD Development Ref.</b>	<b>EIA for KTD – Roads D3A &amp; D4A Ref.</b>	<b>Environmental Protection Measures / Mitigation Measures</b>	<b>Status</b>
S3.3		Use of quiet PME, movable barriers 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	N/A

<b>Implementation Schedule for Water Quality Measures</b>			
<b>EIA for KTD Development Ref.</b>	<b>EIA for KTD – Roads D3A &amp; D4A Ref.</b>	<b>Environmental Protection Measures / Mitigation Measures</b>	<b>Status</b>
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 and overflow.	^

<b>Implementation Schedule for Water Quality Measures</b>			
<b>EIA for KTD Development Ref.</b>	<b>EIA for KTD – Roads D3A &amp; D4A Ref.</b>	<b>Environmental Protection Measures / Mitigation Measures</b>	<b>Status</b>
	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 always be prevented in order not to unduly overload the foul	^

<b>Implementation Schedule for Water Quality Measures</b>			
<b>EIA for KTD Development Ref.</b>	<b>EIA for KTD – Roads D3A &amp; D4A Ref.</b>	<b>Environmental Protection Measures / Mitigation Measures</b>	<b>Status</b>
		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 <sup>3</sup> 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	^



<b>Implementation Schedule for Water Quality Measures</b>			
<b>EIA for KTD Development Ref.</b>	<b>EIA for KTD – Roads D3A &amp; D4A Ref.</b>	<b>Environmental Protection Measures / Mitigation Measures</b>	<b>Status</b>
		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 <sup>3</sup> 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.	^
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.	^
S3.4		All temporary and permanent drainage pipes and culverts provided	^

<b>Implementation Schedule for Water Quality Measures</b>			
<b>EIA for KTD Development Ref.</b>	<b>EIA for KTD – Roads D3A &amp; D4A Ref.</b>	<b>Environmental Protection Measures / Mitigation Measures</b>	<b>Status</b>
		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	<p><u>Sewage Effluent</u></p> <p>Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.</p> <p>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.</p>	^
S3.4		<p><u>Stormwater Discharges</u></p> <p>Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes</p>	^
S3.4		<p><u>Debris and Litter</u></p> <p>In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised</p>	^

<b>Implementation Schedule for Water Quality Measures</b>			
<b>EIA for KTD Development Ref.</b>	<b>EIA for KTD – Roads D3A &amp; D4A Ref.</b>	<b>Environmental Protection Measures / Mitigation Measures</b>	<b>Status</b>
		and that disposal of any solid materials, litter or wastes to marine waters does not occur.	
	S5.8	<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.	^
	S5.8	<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.	NA
	S5.8	<u>Effluent Discharge</u> 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	<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	^*

<b>Implementation Schedule for Water Quality Measures</b>			
<b>EIA for KTD Development Ref.</b>	<b>EIA for KTD – Roads D3A &amp; D4A Ref.</b>	<b>Environmental Protection Measures / Mitigation Measures</b>	<b>Status</b>
		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.	^

<b>Implementation Schedule for Waste Management Measures</b>			
<b>EIA for KTD Development Ref.</b>	<b>EIA for KTD – Roads D3A &amp; D4A Ref.</b>	<b>Environmental Protection Measures / Mitigation Measures</b>	<b>Status</b>
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.	^
S3.5	S6.7	- Training of site personnel in proper waste management and chemical waste handling procedures.	^

<b>Implementation Schedule for Waste Management Measures</b>			
<b>EIA for KTD Development Ref.</b>	<b>EIA for KTD – Roads D3A &amp; D4A Ref.</b>	<b>Environmental Protection Measures / Mitigation Measures</b>	<b>Status</b>
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.	NA
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:	
S3.5		- Where it is unavoidable to have transient stockpiles of C&D material within the Project work site pending collection for	^

<b>Implementation Schedule for Waste Management Measures</b>			
<b>EIA for KTD Development Ref.</b>	<b>EIA for KTD – Roads D3A &amp; D4A Ref.</b>	<b>Environmental Protection Measures / Mitigation Measures</b>	<b>Status</b>
		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.	^
	S6.7	- Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation	^

<b>Implementation Schedule for Waste Management Measures</b>			
<b>EIA for KTD Development Ref.</b>	<b>EIA for KTD – Roads D3A &amp; D4A Ref.</b>	<b>Environmental Protection Measures / Mitigation Measures</b>	<b>Status</b>
		of waste.	
S3.5		<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.	^
	S6.7	Separation of chemical wastes for special handling and appropriate treatment.	^
S3.5		<u>General Refuse</u> General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem.	^

<b>Implementation Schedule for Landscape and Visual Measures</b>			
<b>EIA for KTD Development Ref.</b>	<b>EIA for KTD – Roads D3A &amp; D4A Ref.</b>	<b>Environmental Protection Measures / Mitigation Measures</b>	<b>Status</b>
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.	NA
S3.8.12		Control of night-time lighting.	^
S3.8.12		Erection of decorative screen hoarding.	^
	S7.9	<u>Construction Site Control</u> - CM1 - Minimized construction area and contractor's temporary works areas.	^
		- CM2- Control of night-time lighting and glare by hooding all lights.	^
		- CM3 - Erection of decorative mesh screens or construction	^

<b>Implementation Schedule for Landscape and Visual Measures</b>			
<b>EIA for KTD Development Ref.</b>	<b>EIA for KTD – Roads D3A &amp; D4A Ref.</b>	<b>Environmental Protection Measures / Mitigation Measures</b>	<b>Status</b>
		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.	NA

<b>Remarks:</b>			
^	Compliance of mitigation measure.	X	Non-compliance of mitigation measure.
N/A	Not Applicable at this stage.	●	Non-compliance but rectified by the contractor.
N/A (1)	Not observed.		
*	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:	07 July 2022	Date:	07 July 2022
Mitigation Measures:	Manholes have been adequately covered and temporarily sealed.	Mitigation Measures:	The portable toilets were provided in the construction site.
			
Date:	12 July 2022	Date:	28 July 2022
Mitigation Measures:	The open stockpiles of construction materials on sites were covered.	Mitigation Measures:	Haul road was sprayed with water to maintain the entire road surface wet.

**Appendix P – Summaries of Environmental Complaint, Warning,  
Summon and Notification of Successful Prosecution**

**Reporting Month: July 2022**

<b>Contract No.</b>	<b>Record of Complaint (Yes/No)</b>	<b>Record of Warning (Yes/No)</b>	<b>Notification of Summons and Successful Prosecutions (Yes/No)</b>
ED/2018/01	No	No	No

**Cumulative Statistics on Complaints, Notification of Summons and Successful Prosecutions upto reporting month**

<b>Contract No.</b>	<b>Record of Complaint</b>	<b>Record of Warning</b>	<b>Notification of Summons and Successful Prosecutions</b>
ED/2018/01	3	0	0

<b>Complaint Log for ED/2018/01</b>				
<b>Complaint Ref. No.</b>	<b>Date of Complaint</b>	<b>Description of Complaint</b>	<b>Investigation / Recommendations / Actions</b>	<b>Close-Out Date / Status</b>
C0001	A dust complaint was referred from the Contractor on 21 October 2020 regarding a public complaint via 1823 hotline (Case no. 3-6518939602) on 20 October 2020.	<ol style="list-style-type: none"> <li>1. The water spraying system was not operated in proper time.</li> <li>2. Stockpile was not covered properly.</li> <li>3. Haul road was not wetted.</li> <li>4. Materials transported on trucks were not provided with mechanical covers.</li> </ol>	<p><u>Investigation</u></p> <ol style="list-style-type: none"> <li>1. Based on the information provided by the Contractor on 22 October 2020, the water sprinklers system was sprayed every 15 minutes with 70 seconds interval automatically. For the area that water sprinklers system was not covered, manual water spraying was provided. Dump trucks were covered with mechanical cover after loading the materials. The stockpile area was covered by the tarpaulin during night time.</li> <li>2. Based on the monitoring results on 16 October 2020, the 1-hour and 24-hour TSP results were below the Action Levels and Limit Levels.</li> <li>3. Regular site inspection was conducted by ET on 22 October 2020, no adverse observation against the dust impact was recorded.</li> </ol> <p><u>Recommendations</u></p> <p>To minimize the impact for air quality, mitigation measures should be enhanced specially in dry seasons are recommended:</p> <ol style="list-style-type: none"> <li>1. Increase the frequency and duration for automatic water spraying system.</li> <li>2. Main haul road and the area that water sprinklers system was not covered in the construction site should be wetted by water trucks or manually in regular basis.</li> <li>3. Ensure stockpiling sites should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting at all time except during working process.</li> </ol> <p><u>Action taken</u></p>	<ul style="list-style-type: none"> <li>- Closed-out on 5 Nov 2020</li> <li>- No further complaint was received.</li> </ul>

Complaint Log for ED/2018/01				
Complaint Ref. No.	Date of Complaint	Description of Complaint	Investigation / Recommendations / Actions	Close-Out Date / Status
			As per the Contractor, the water sprinkler are now adjusted to start at 8:00am and end at 6:00pm for Monday to Saturday while from 8:00am to 5:00pm on Sunday. Water spraying are set with 5-minute time interval with duration 30-60 seconds.	
C0002	A dust complaint was referred from the Contractor on 8 September 2021 through E-Mail regarding a complaint received by EPD (EPD ref.: K19/RE/00021205-21) on 7 September 2021.	Complaint of dust problem at the pavement of Muk Tai Street near Sports Park.	<p><u>Investigation</u></p> <p>As per contractor, part of the complaint area was within the site boundary of the project.</p> <ul style="list-style-type: none"> <li>- Manual water spraying was provided.</li> <li>- The exposed surface and stockpile areas were covered by the impermeable tarpaulin sheet.</li> </ul> <p><u>Recommendations</u></p> <p>There was no direct evidence showing that the dust nuisance was caused by the contractor at the complaint area, however the contractor is recommended to implement the following measures to minimize the impact for air quality:</p> <ol style="list-style-type: none"> <li>1. Ensure stockpiling sites should be lined with impermeable sheeting and bunded.</li> <li>2. Stockpiles should be fully covered by impermeable sheeting at all time except during working process.</li> <li>3. Ensure the work fulfill the relevant statutory requirements on control of air pollution.</li> <li>4. Take necessary measures to minimize the environmental nuisance arising from the construction site.</li> </ol> <p><u>Action taken</u></p> <p>The exposed surface and stockpile area was covered by the impermeable tarpaulin sheet.</p>	<ul style="list-style-type: none"> <li>- Closed-out on 4 Oct 2021</li> <li>- No further complaint was received.</li> </ul>
C0003	A water discharge complaint was referred from the Contractor on	Complaint of muddy water being discharged into the sea of To Kwa Wan Typhoon Shelter via a DSD outfall near the roundabout of Shing Fung Road.	<p><u>Investigation</u></p> <p>Joint site inspection was conducted by ER, IEC, ET and the contractor on 14 December 2021, no</p>	<ul style="list-style-type: none"> <li>- Closed-out on 5 Jan 2022</li> </ul>

Complaint Log for ED/2018/01				
Complaint Ref. No.	Date of Complaint	Description of Complaint	Investigation / Recommendations / Actions	Close-Out Date / Status
	10 December 2021 through E-Mail regarding a complaint received by EPD (ref.: K19/RE/00029046-21) on 9 December 2021.		<p>adverse observation against the water impact was recorded.</p> <ul style="list-style-type: none"> <li>- There was no muddy water discharge to DSD outfall near the roundabout of Shing Fung Road.</li> <li>- The sand bag with layers and filter were provided at the manholes.</li> </ul> <p><u>Recommendations</u></p> <p>There was no direct evidence showing that the water nuisance was caused by the contractor at the complaint area.</p> <p>Some of muddy water generated from wheel washing might be flow to the outfall inside the site boundary, however the contractor had taken the mitigation measure by using sand bag and filter to ease the nuisance. The contractor is recommended to implement the following measures to minimize the impact for waste water:</p> <ul style="list-style-type: none"> <li>- Enhance the sand bag with several layers instead of one layer only and replace the filter frequently.</li> <li>- Modify the wheel washing area such that the muddy water will be directly flow to the pit and then waste water treatment facility.</li> <li>- Take necessary measures to minimize the environmental nuisance arising from the construction site.</li> </ul> <p><u>Action taken</u></p> <ul style="list-style-type: none"> <li>- Sand bags and filter were used to block the manholes.</li> <li>- Manholes had been adequately covered and replace the filter frequently.</li> </ul>	- No further complaint was received.

# FUGRO TECHNICAL SERVICES LIMITED

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## Appendix D

### Monthly EM&A Report For

Contract No. ED/2018/05


Kai Tak Development – Stage 5B infrastructure works at the former north apron area

**Environmental Monitoring and Audit Report**  
**for**  
**Contract No. ED/2018/05 –**  
**Kai Tak Development – Stage 5B infrastructure**  
**works at the former north apron area**

**Contract No.: EDO 2/2020**

July 2022

(Version 1.1)

Certified By:  \_\_\_\_\_

(Environmental Team Leader)



Date: 10 August 2022  
Your ref:  
Our ref: PL-202208011

AECOM Asia Company Limited  
12/F, Grand Central Plaza, Tower 2,  
138 Shatin Rural Committee Road,  
Shatin, New Territories,  
Hong Kong

**Attn.: Mr. Mavis Law, SRE**

Dear Ms. Law,

**Re: Agreement No. EDO 6/2019  
Independent Environmental Checker for Contract No. ED/2018/05 Kai Tak Development –  
Stage 5B Infrastructure Works at the Former North Apron Area  
Verification of Monthly EM&A Report (July 2022)**

Reference is made to the Monthly EM&A Report (July 2022) (Version 1.1) issued by the Environmental Team on 10 August 2022.

Please be informed that we have no adverse comment on the captioned submission. We hereby verify the Monthly EM&A Report (July 2022) in accordance with Condition 3.3 of Environmental Permit No. EP-337/2009.

Thank you for your attention.

Yours sincerely,  
For and on behalf of  
Acuity Sustainability Consulting Limited



Kevin Li  
Independent Environmental Checker

c.c.	CEDD	Attn.: Mr. Albert Tse	By email
	Ka Shing	Attn.: Mr. Chan Pang (ETL)	By email

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## EXECUTIVE SUMMARY

1. This is the 18<sup>th</sup> Monthly Environmental Monitoring & Audit (EM&A) report which summarises the findings of the EM&A Programme during the reporting period from 1 to 31 July 2022.

### **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 complaint received	Date of complaint	Description of complaint	Recommendations / Action taken	Close-out date / Status
No complaint was received in the reporting month.	NA	NA	NA	NA

### **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 taken	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:
- Pile column construction for PC9 and PC10 for Elevated Walkway LW-02
  - ELS and excavation for PC11 for Elevated Walkway LW-02
  - Erection of temporary decking across existing Kai Tak River
  - Trial pit excavation and UU diversion at Sa Po Road under TTA Stage 2
  - ELS, excavation and RC construction at launching shaft for subway SB-01

- RC construction at Launching Shaft for SB-01
- Construction works for Pedestrian Street No. 2 & No. 4
- Construction works for Road L16
- Construction of DCS
- ELS and excavation for Subway KS10 Lift and Staircase
- Renovation works for existing subways KS9 and KS32
- Twin rising main connection works

**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
Pile column construction for Pier 9 and Pier 10 at Elevated Walkway LW-02	Noise and Air Quality
ELS and excavation for PC11 for Elevated Walkway LW-02	Noise and Air Quality
Construction of Crowd Dispersal Route	Noise and Air Quality
Construction of Road L16	Noise and Air Quality
Construction of DCS	Noise and Air Quality
Construction works for Pedestrian Street No. 2 & No.4	Noise and Air Quality
UU diversion works at Sa Po Road	Noise and Air Quality
ELS installation for temporary retrieving shaft at Sa Po Road	Noise and Air Quality
RC construction for launching shaft for subway SB-01	Noise and Air Quality
Renovation works for existing subway KS9 and KS32	Noise and Air Quality



# 1. INTRODUCTION

## **Project Background**

- 1.1 The Kai Tak Development (KTD) is located in the southern 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/2018/05 - Kai Tak Development – stage 5B infrastructure works at the former north apron area (The Project), comprises mainly the design and construction of a section of dual two-lane Road D1; single two-lane Road L9 and Road L16; a single-lane slip road S14; a pedestrian subway SB-01; an elevated walkway LW-02; renovation of the existing pedestrian subways KS9, KS10 and KS32, as well as modification of the southern end of the existing pedestrian subway KS10; associated footpaths, street lighting, traffic aids, drainage, sewerage, water mains, landscaping, electrical and mechanical works, and ancillary works. The proposed works are shown in Figure 1 and Figure 2. The proposed works and site boundary are shown in Figure 3 and Figure 4. Civil Engineering and Development Department (CEDD) had completed an Environmental Impact Assessment (EIA) and is the Permit Holder.
- 1.3 In accordance with the approved EIA Reports, Environmental Monitoring and Audit (EM&A) programmes are recommended to ensure compliance with the EIA study recommendations. The project proponent was the Civil Engineering and Development Department (CEDD). AECOM Asia Co. Ltd. (AECOM) was commissioned by CEDD as Supervisor (act as Engineers' Representative (ER) listed in EM&A Manual). Acuity Sustainability Consulting Limited (Acuity) was commissioned as the Independent Environmental Checker (IEC). Build King – STEC Joint Venture (Build King) was appointed as the main Contractor for the construction works of Contract No. ED/2018/05. Ka Shing was commissioned by CEDD to undertake the role of the Environmental Team (ET) to implement the EM&A programme for The Project.
- 1.4 The construction work under ED/2018/05 comprises the EM&A Manual (EIA Register No. AEIAR-130/2009 for Kai Tak Development) and Environmental Permit No. EP- 337/2009.
- 1.5 Air quality and noise monitoring has been proposed in the EM&A Manual with EIA Register No. AEIAR-130/2009 for Kai Tak Development.

## **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.	E-mail
Civil Engineering and Development Department (CEDD)	Project Proponent	Mr. Lam Shing Tim	Permit Holder	3842 7090	st_lam@cedd.gov.hk
AECOM Asia Co. Ltd. (AECOM)	Supervisor (act as Engineers' Representative (ER) listed in EM&A Manual)	Mr. Vincent Lee	Supervisor's Delegate	2798 0771	sre2@ktd-stage5.com
Acuity Sustainability Consulting Limited (Acuity)	Independent Environmental Checker (IEC)	Mr. Kevin Li	IEC	9779 2247	kli@acuityhk.com
Ka Shing Management Consultant Limited (Ka Shing)	Environmental Team (ET)	Mr. Pang Chan	ET Leader	6082 2973	stage5b@ka-shing.net
Build King – STEC Joint Venture (BK-STECC)	Contractor	Mr. Rex Lau	Contractor's Representative	6282 5154	rex.lau@buildking.hk

## **Works Area and Construction Programme**

1.7 The construction works commenced on 16 February 2021. 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*

Pile column construction for PC9 and PC10 for Elevated Walkway LW-02	Construction works for Road L16
ELS and excavation for PC11 for Elevated Walkway LW-02	Construction of DCS
Erection of temporary decking across existing Kai Tak River	ELS and excavation for Subway KS10 Lift and Staircase
Trial pit excavation and UU diversion at Sa Po Road under TTA Stage 2	Renovation works for existing subways KS9 and KS32
ELS, excavation and RC construction at launching shaft for subway SB-01	Construction works for Pedestrian Street No. 2 & No. 4
RC construction at Launching Shaft for SB-01	Twin rising main connection works

## **Submission Status under the Environmental Permits**

1.9 The status of required submission under Environmental Permit (EP) conditions under EP-337/2009 are summarized in Table 1.3.

*Table 1.3 Summary of Status of Required Submission of EPs*

EP Condition EP-337/2009	Submission	Submission Date
Condition 1.11	Notification of Commencement Date of Construction of the Project	12 Jan 2021
Condition 2.3	Management Organization of Main Construction Companies	21 Sep 2020
Condition 2.3	Updated Management Organization of Main Construction Companies	4 July 2022
Condition 2.4	Design Drawings	12 Jan 2021
Condition 2.11	Landscape Mitigation Plans	17 Dec 2020
Condition 3.2	Baseline Monitoring Report	12 Jan 2021
Condition 3.3	Monthly EM&A Report (June 2022)	12 July 2022

## 2. AIR QUALITY MONITORING

### Monitoring Requirements

2.1 In accordance with EM&A Manual (EIA Register No. 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 days 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 Two designated monitoring stations were selected for air quality monitoring programme. Impact air quality monitoring was conducted at two 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
AM2(A) – Ng Wah Catholic Secondary School	Rooftop
AM3 – Sky Tower	Podium floor near T7

### 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
AM2(A) – Ng Wah Catholic Secondary School	Rooftop	- 24-hour average TSP	- 24 hours	- Once every 6 days
AM3 – Sky Tower	Podium Floor near Tower 7	- 1-hour average TSP	- 1 hour	- Three times every 6 days

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	Calibration Interval
HVS Sampler	TE-5170 X c/w of TSP sampling inlet	2	2 months
HVS Calibrator	TISCH TE-5025A	1	1 year
1-hour TSP Dust Meter	TSI Model AM510 SidePak Personal Aerosol Monitor	2	1 year
Weather Station	Davis Vantage Pro2 Weather Station	1	6 months

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.
- 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<sup>3</sup>/min. and 1.7 m<sup>3</sup>/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" having 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 and then placed 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 HOKLAS accredited or other internationally accredited laboratory for weighting.

#### Maintenance/Calibration

2.18 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

2.19 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, spot check reading at each sampling location for data processing.
- Recorded any activities that may generate dust during measurement period.

#### Maintenance/Calibration

2.20 The following maintenance/calibration are required for the direct dust meters:

- To validate the accuracy of dust meter, compare the results measured by dust meter and HVS every 12 months throughout all stages of the air quality monitoring.

### **Wind Data Monitoring**

2.21 Wind Anemometer was installed at the roof-top of AM2(A) – Ng Wah Catholic Secondary School with 10m above ground and clear of constructions or turbulence caused by the buildings.

2.22 The wind data was captured by a data logger and the data was downloaded at least once per month for analysis.

2.23 The wind data monitoring equipment will be re-calibrated at least once every six months.

2.24 Wind direction is divided into 16 sectors of 22.5 degrees each.

2.25 Details of weather information during the monitoring period are shown in Appendix F.

### **Action and Limit Levels**

2.26 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, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
24-hour average TSP	AM2(A)	175	260
	AM3	172	260

*Table 2.5 Action and Limit Levels of 1-hour average TSP for Construction Dust Monitoring*

Parameter	Air Monitoring Station	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
1-hour average TSP	AM2(A)	302	500
	AM3	301	500



## **Impact Air Quality Monitoring results**

2.27 Impact monitoring results for 24-hour average TSP and 1-hour average TSP levels at the designated 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, $\mu\text{g}/\text{m}^3$	Range, $\mu\text{g}/\text{m}^3$	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM2(A)	24	17 – 36	175	260
AM3	49	31 – 75	172	260

*Table 2.7 Summary of 1-hour average TSP Monitoring Data during the reporting month*

Air Monitoring Station	Average TSP Concentration, $\mu\text{g}/\text{m}^3$	Range, $\mu\text{g}/\text{m}^3$	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM2(A)	24	17 – 33	302	500
AM3	41	27 – 62	301	500

2.28 There was no Action and Limit Level exceedance of 24-hour average TSP and 1-hour average TSP levels recorded during the reporting month.

2.29 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.

2.30 The Event and Action Plan is provided in Appendix I.

2.31 Non-project related construction activities in the adjacent construction sites were observed during the reporting period and may affect the monitoring results.

2.32 Weather conditions during the monitoring periods were generally fine and did not affect the monitoring results.

### 3. NOISE MONITORING

#### **Monitoring Requirements**

- 3.1 In accordance with EM&A Manual (EIA Register No. 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 hrs on normal weekdays.
- 3.3 If construction works are extended to include works during 1900 – 0700 hrs 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
M4(A) – Le Billionnaire	Podium (Façade)
M5(A) – Prince Ritz	Podium (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
M4(A) – Le Billionnaire	Podium (Façade)	L <sub>Aeq</sub> , L <sub>A10</sub> and L <sub>A90</sub>	30-minute measurement at each monitoring station between 0700 – 1900 hrs on normal weekdays (Monday to Saturday) at frequency of once per week.
M5(A) – Prince Ritz	Podium (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 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	Calibration Interval
Sound Level Meter	RION NL52	1	1 year
Sound Level Calibrator	RION NC 75	1	1 year
Air Flowmeter	TSI TA440 Air Velocity	1	1 year

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 of the sound level meter and calibrator were 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 <sup>^</sup>
0700 – 1900 hrs on normal weekdays	M4(A)	69.5	When one documented complaint is received.	75 dB(A)
	M5(A)	72.5		

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 designated 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 $L_{Aeq, 30-min}$ , Average, dB(A)	Measured $L_{Aeq, 30-min}$ , Range, dB(A)	Action Level	Limit Level <sup>^</sup>
M4(A)	69.7	69.5 – 70.0	When one documented complaint is received	75 dB(A)
M5(A)	72.5	72.3 – 72.7		

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  $L_{Aeq, 30-min}$  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.

3.25 Weather conditions during the monitoring periods were generally fine and did not 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 No. 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 (July 2022) $\mu\text{g}/\text{m}^3$
		Scenario 1 (Mid 2009 to Mid 2013), $\mu\text{g}/\text{m}^3$	Scenario 2 (Mid 2013 to Late 2016), $\mu\text{g}/\text{m}^3$	
AM2(A) - Ng Wah Catholic Secondary School	NA	NA	NA	17 – 36
AM3 - Sky Tower	A40 <sup>^</sup>	106 <sup>^</sup>	138 <sup>^</sup>	31 – 75

Note:

<sup>^</sup> Prediction results are given in the Table 3.13 of the EIA report EIA Register No. 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 (July 2022) $\mu\text{g}/\text{m}^3$
		Scenario 1 (Mid 2009 to Mid 2013), $\mu\text{g}/\text{m}^3$	Scenario 2 (Mid 2013 to Late 2016), $\mu\text{g}/\text{m}^3$	
AM2(A) - Ng Wah Catholic Secondary School	NA	NA	NA	17 – 33
AM3 - Sky Tower	A40 <sup>^</sup>	217 <sup>^</sup>	247 <sup>^</sup>	27 – 62

Note:

<sup>^</sup> Prediction results are given in the Table 3.13 of the EIA report EIA Register No. 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 <sub>Aeq, 30min</sub> , dB(A)	Measured Noise Level in Reporting Month (July 2022) L <sub>Aeq, 30min</sub> , dB(A)
M4(A) – Le Billionnaire	NA	NA	69.5 – 70.0
M5(A) – Prince Ritz	NA	NA	72.3 – 72.7

- 4.2 No prediction in the EIA Report for 24-hour TSP monitoring results at AM2(A).
- 4.3 24-hour TSP monitoring results at AM3 was recorded lower than the prediction 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.
- 4.4 No prediction in the EIA Report for 1-hour TSP monitoring results at AM2(A).
- 4.5 1-hour TSP monitoring results at AM3 was recorded lower than the prediction 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.
- 4.6 No prediction in the EIA Report for noise monitoring results at M4(A) and M5(A).

## 5. LANDSCAPE AND VISUAL MONITORING

5.1 In accordance with EM&A Manual (EIA Register No. AEIAR-130/2009), 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 7, 14, 21 and 28 July 2022 in the reporting month.

5.4 The summary of site audits is 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
7 July 2022	No	NA	NA
14 July 2022	No	NA	NA
21 July 2022	No	NA	NA
28 July 2022	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


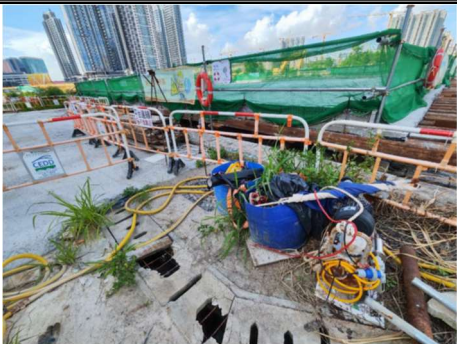
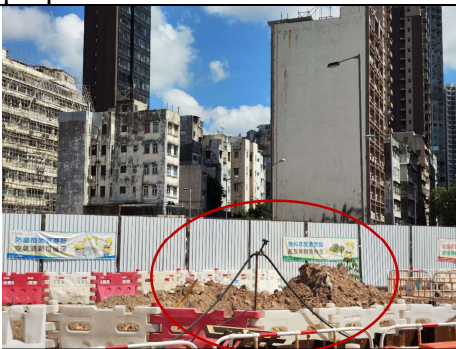

### Site Inspection





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 7, 14, 21 and 28 July 2022 in the reporting month.

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
7 July 2022	 <p>Observation: Vehicle battery shall be stored in proper area.</p>	 <p>Action Taken: Vehicle battery has been removed.</p>	Closed out on 14 July 2022
14 July 2022	 <p>Observation: Stockpiles should be fully covered by impermeable sheeting to reduce dust emissions in SB01.</p>	 <p>Action Taken: Stockpiles have been removed.</p>	Closed out on 21 July 2022

Inspection Date	Key Observations	Recommendations / Actions	Close-out Date / Status
21 July 2022	 <p>Observation: The QPME label for the generator is missing. Please ensure the label is properly demonstrated.</p>	 <p>Action taken: The QPME label has been display for the generator.</p>	Closed out on 28 July 2022
28 July 2022	 <p>Observation: Stockpiles should be fully covered by impermeable sheeting to reduce dust emission in SB01.</p>	 <p>Action Taken: Stockpiles have been removed.</p>	Closed out on 4 August 2022

**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.

*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
Construction Dust Notification under APCO	HA/1826/1	29 Dec 2020	N/A
Waste Disposal Billing Account	7038086	21 Aug 2020	N/A
Registration as a Chemical Waste Producer	5111-286-B2596-01	15 Sep 2020	N/A
Wastewater Discharge License under WPCO	WT00037618-2021	29 Mar 2021	31 Mar 2026
	WT00037370-2021		
	WT00038562-2021	15 Jul 2021	31 Jul 2026
Construction Noise Permit	GW-RE0614-22	22 Dec 2021	19 Jun 2022
	GW-RE1275-21	30 Dec 2021	19 Jun 2022
	GW-RE0291-22	6 Apr 2022	20 Jun 2022
	GW-RE0605-22	21 Jun 2022	20 Oct 2022
	GW-RE0614-22	22 Jun 2022	19 Dec 2022
	GW-RE0615-22	22 Jun 2022	19 Dec 2022

## **Implementation Status of Environmental Mitigation Measures**

6.7 The Contractor has implemented environmental mitigation measures and requires as stated in the EIA report, the EP and the EM&A Manual. The implementation status of the mitigation measures is summarized in Appendix O.

## **Environmental Complaint and Non-compliance**

6.8 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 complaint received	Date of complaint	Description of complaint	Recommendations / Action taken	Close-out date / Status
No complaint was received in the reporting month.	NA	NA	NA	NA

6.9 Complaint log is shown in Appendix P.

**Notifications of summons and successful prosecutions**

6.10 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 taken	Close-out date / Status
No notification of summons and successful prosecutions were received in the reporting month.	NA	NA	NA	NA

6.11 The summaries of cumulative environmental complaint, warning, summon and notification of successful prosecution for the Project is presented in Appendix P.

## 7. FUTURE KEY ISSUES

### Construction Programme in the coming month

7.1 The major construction activities and potential impacts in the next reporting month are as follows:

*Table 7.1 Summary of future key issues and potential impact in the coming month*

Future key issues in the coming month	Potential impact
Pile column construction for Pier 9 and Pier 10 at Elevated Walkway LW-02	Noise and Air Quality
ELS and excavation for PC11 for Elevated Walkway LW-02	Noise and Air Quality
Construction of Crowd Dispersal Route	Noise and Air Quality
Construction of Road L16	Noise and Air Quality
Construction of DCS	Noise and Air Quality
Construction works for Pedestrian Street No. 2 & No.4	Noise and Air Quality
UU diversion works at Sa Po Road	Noise and Air Quality
ELS installation for temporary retrieving shaft at Sa Po Road	Noise and Air Quality
RC construction for launching shaft for subway SB-01	Noise and Air Quality
Renovation works for existing subway KS9 and KS32	Noise and 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),
- Provide movable noise barriers,
- 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,
- Onsite waste sorting and implementation of trip ticket system,
- Good management and control on construction waste reduction,
- Erection of decorative screen hoarding,
- Strictly following the Environmental Permits and Licenses, and
- Provide sufficient mitigation measures as recommended in Approved EIA Reports.

7.3 The recommended environmental measures proposed in the EM&A Manual (EIA Register No. AEIAR-130/2009) shall be effectively implemented to minimize the potential environmental impacts. The Contractor is reminded to implement the mitigation measures properly.

**Environmental Site Inspection and Monitoring Schedule for next month**

7.4 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.
- 8.7 Based on the site inspection and audits, impact air quality and noise monitoring results, it was considered that the mitigation measures were effective to control the potential environmental impacts from the Project during the reporting period.

**Figure**



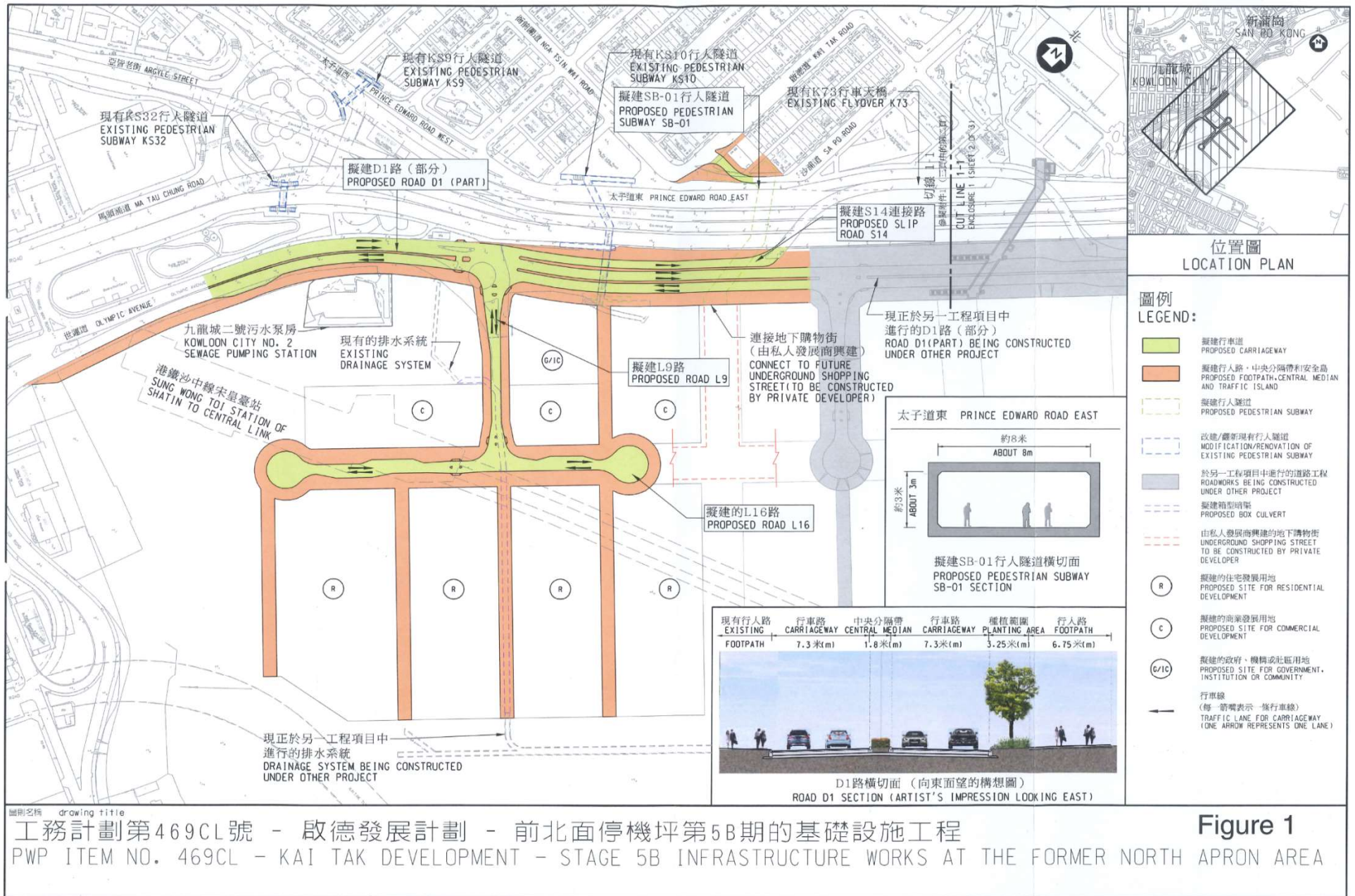


Figure 1 – Proposed works of Contract No. ED/2018/05

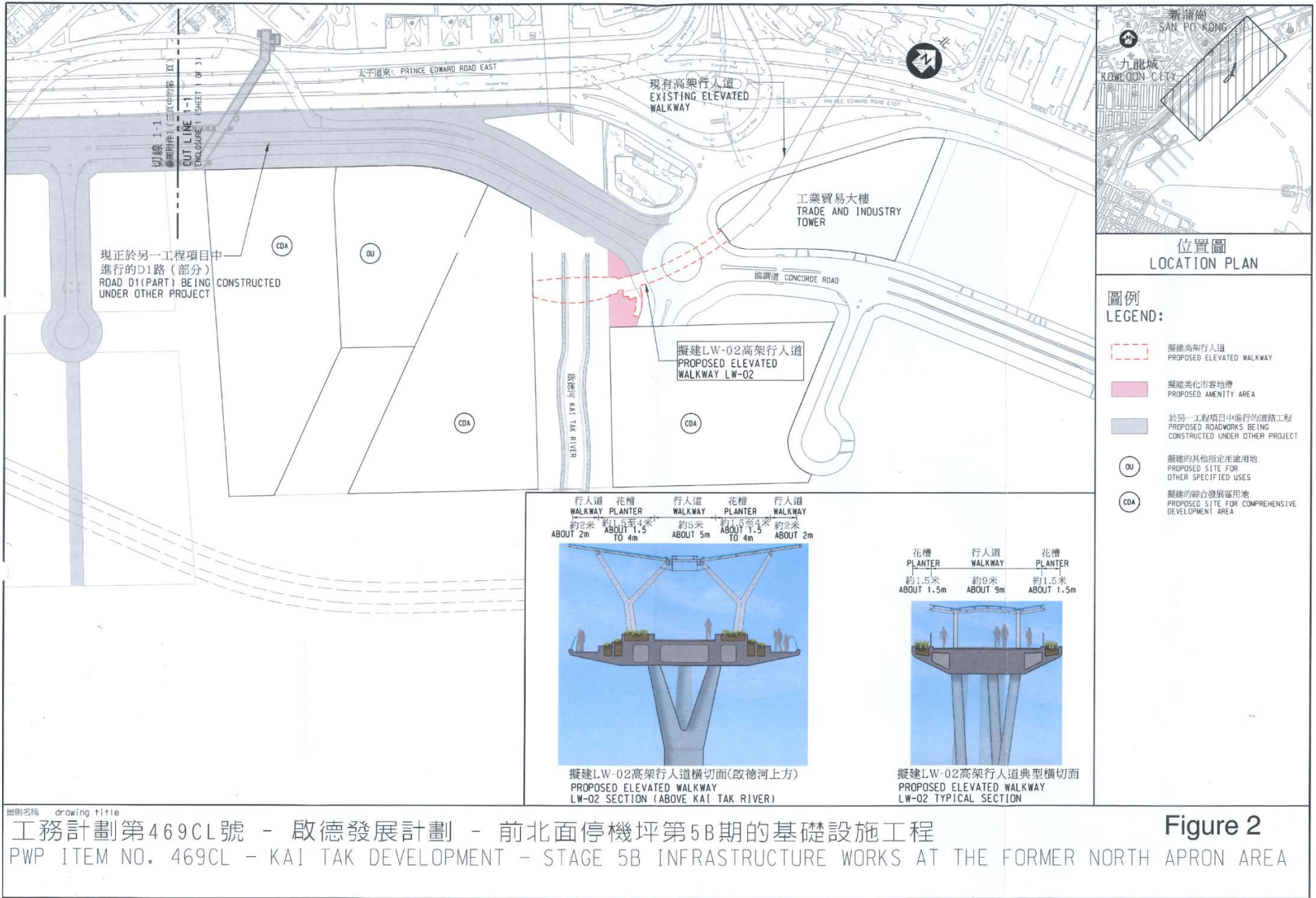


Figure 2

Figure 2 – Proposed works of Contract No. ED/2018/05

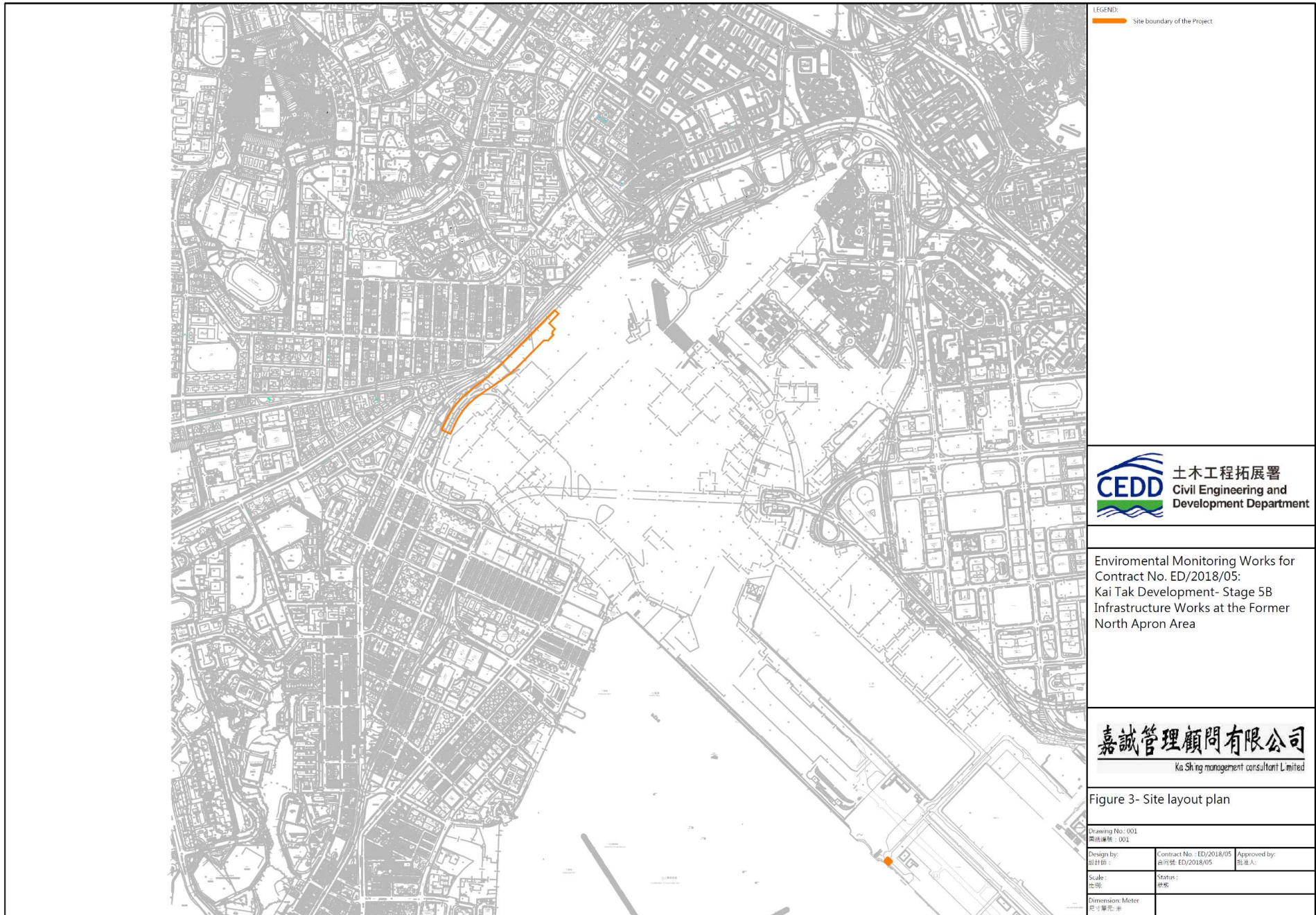


Figure 3 – D1 Road Site Layout Plan

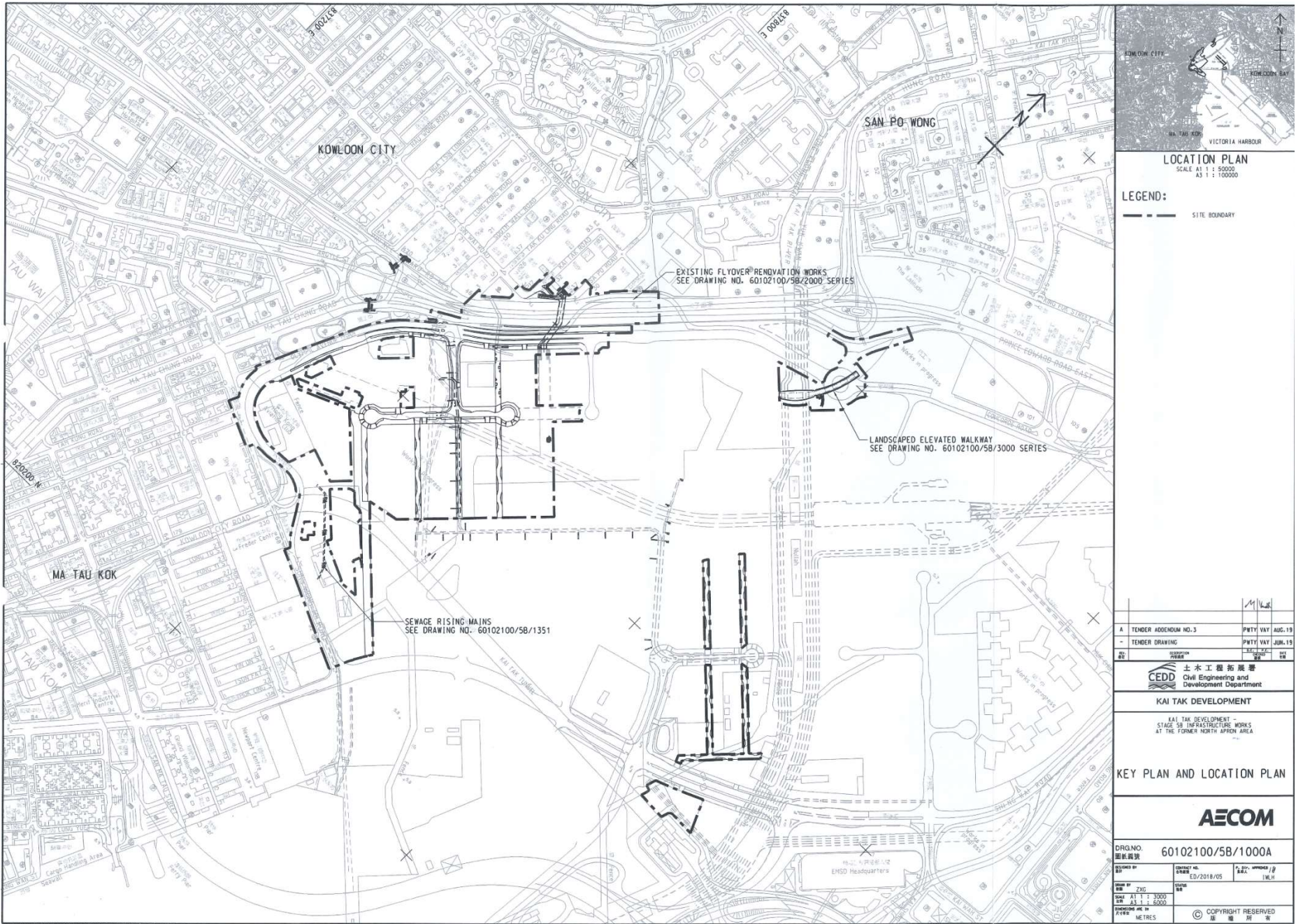


Figure 4 – Site Layout Plan

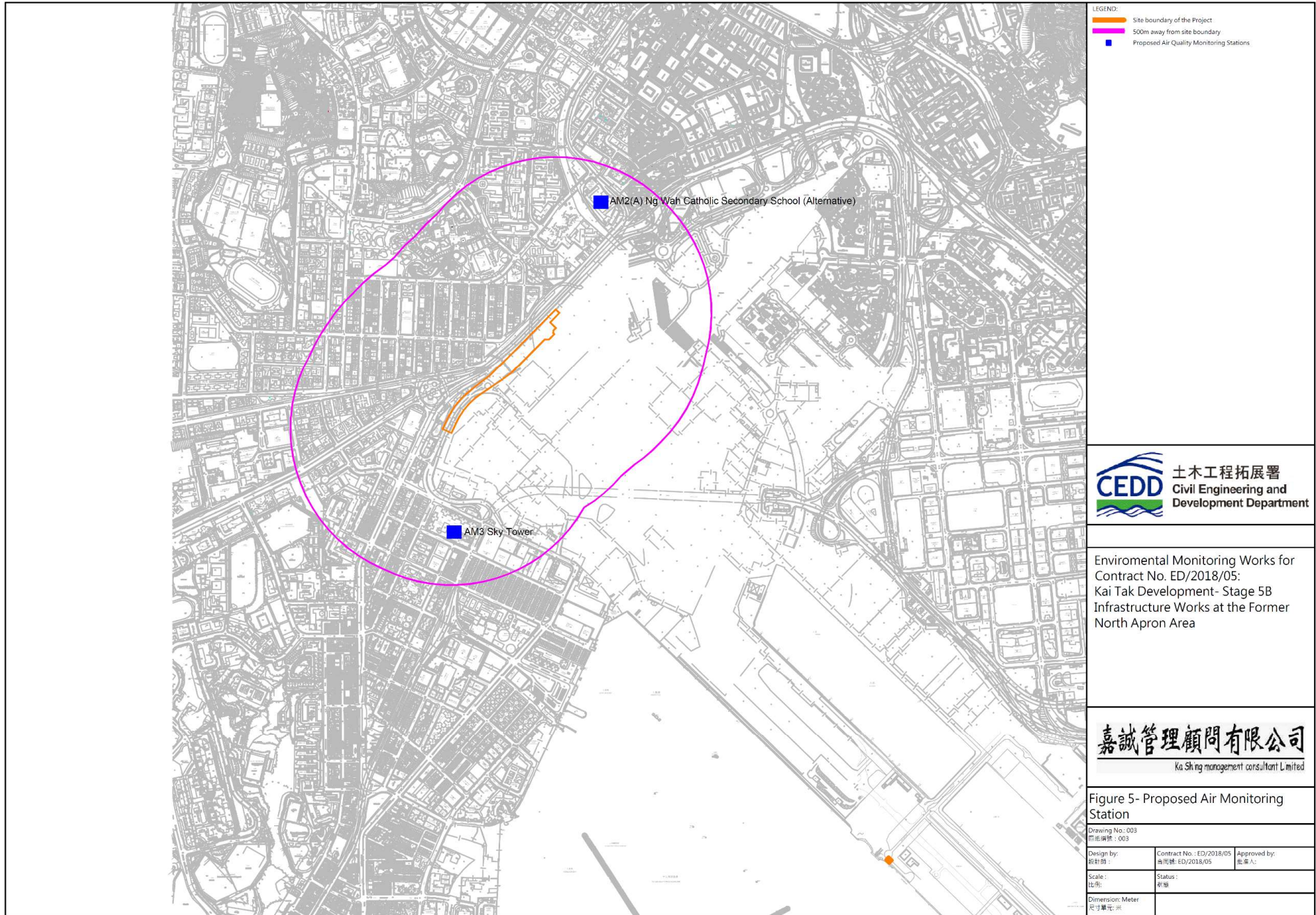


Figure 5 – Air Quality Monitoring Stations

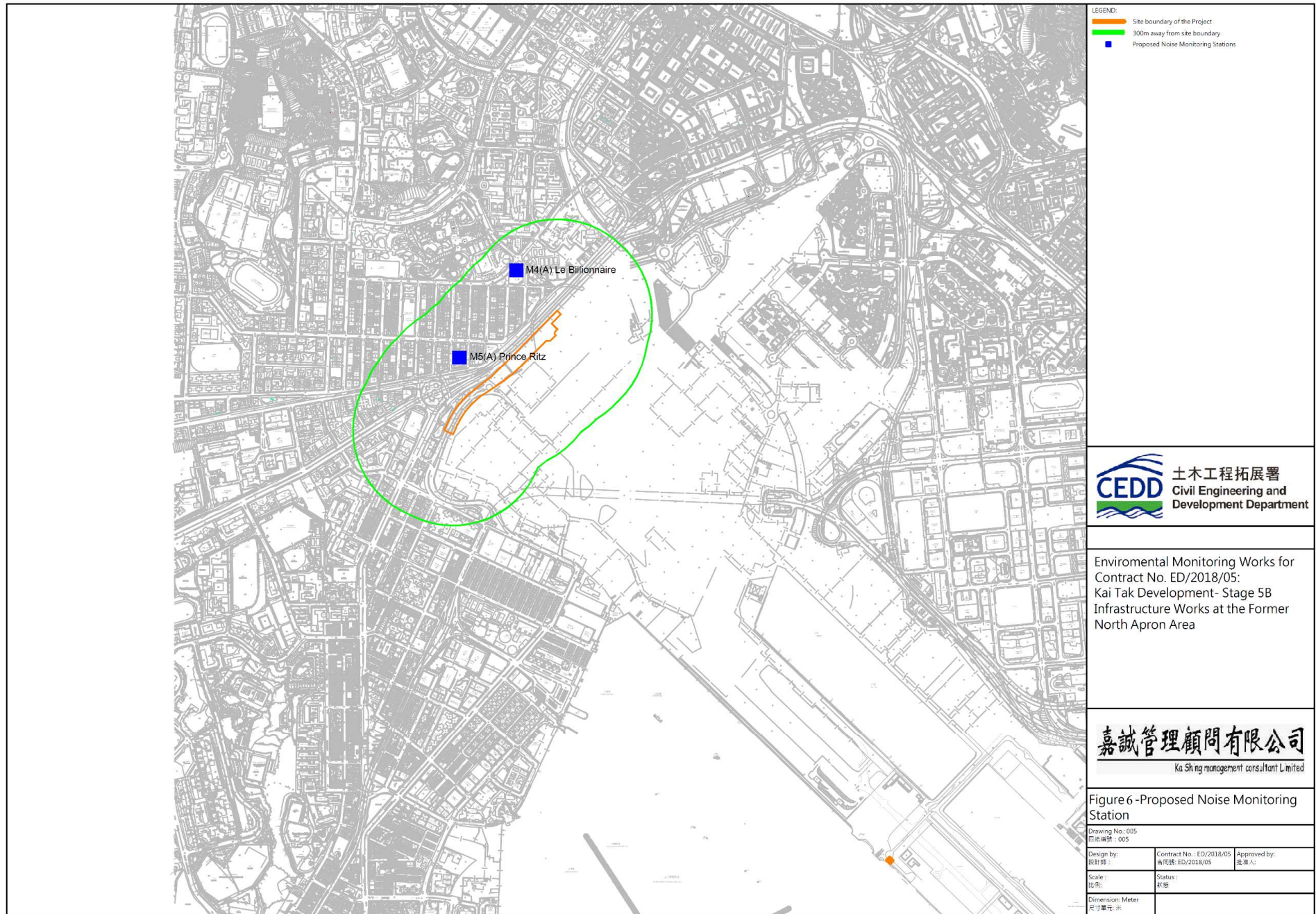
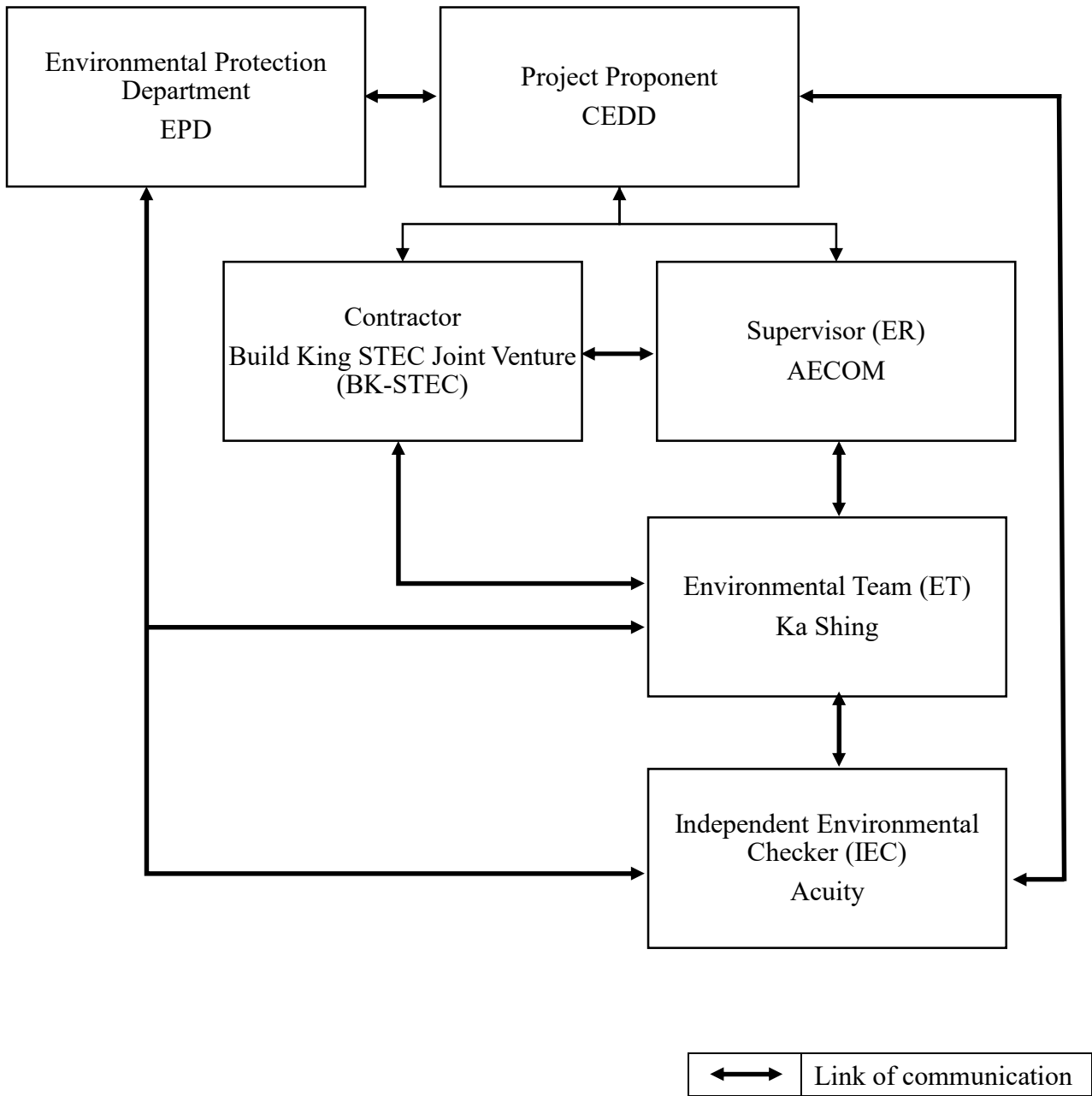


Figure 6 – Noise Monitoring Stations

**Appendix A – Organization Chart of EM&A Team**





# Appendix B – Construction Programme











**Appendix C – Environmental monitoring schedules**

Contract No. EDO 2/2020 Environmental Monitoring at Kai Tak Development – Stage 5B infrastructure works at the former north apron area  
 Environmental Monitoring and Weekly Site Inspection Schedule for July 2022

July 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	5	6	7 Weekly Site Inspection	8	9 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3
10	11	12	13	14 Weekly Site Inspection	15 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	16
17	18	19	20	21 Weekly Site Inspection 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	22	23
24	25	26	27 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	28 Weekly Site Inspection + SSMC meeting	29	30
31						

**Air Quality Monitoring Station**  
 AM2(A) Ng Wah Catholic Secondary School  
 AM3 - Sky Tower

**Noise Quality Monitoring Station**  
 M4(A) - Le Billionnaire  
 M5(A) - Prince Ritz



Contract No. EDO 2/2020 Environmental Monitoring at Kai Tak Development – Stage 5B infrastructure works at the former north apron area  
Tentative Environmental Monitoring and Weekly Site Inspection Schedule for August 2022

August 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	3	4 Weekly Site Inspection	5	6
7	8 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	9	10	11 Weekly Site Inspection	12	13 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3
14	15	16	17	18 Weekly Site Inspection	19 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	20
21	22	23	24	25 Weekly Site Inspection + SSMC meeting 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	26	27
28	29	30	31 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)			

**Air Quality Monitoring Station**  
AM2(A) Ng Wah Catholic Secondary School  
AM3 - Sky Tower

**Noise Quality Monitoring Station**  
M4(A) - Le Billionnaire  
M5(A) - Prince Ritz

**Appendix D – Photographic records**

Impact Air Quality Monitoring



Measurement setup at AM2(A)



Measurement setup at AM3



Weather Station at the rooftop of Ng Wah Catholic Secondary School

Impact Noise Monitoring



Measurement setup at M4(A)



Measurement setup at M5(A)

**Appendix E – Calibration certificates, catalogue of air quality  
monitoring equipment**

## Catalogue of High Volume Sampler (HVS)



### 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.

**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.

- ✔ 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

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513-487-9000  
sales@tisch-env.com



## 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<sup>3</sup>M-1.68M<sup>3</sup>M  
**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

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## Calibration Certificate of HVS

### Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2022062901      Date of calibration : 29/06/2022

Location : Sky Tower      Sampler : TE-5170X

Calibration Data      Serial Number : 4687

Ambient barometric pressure, Pa = 751.6 ( mmHg )      Ambient temperature, Ta = 305.65 ( deg K )

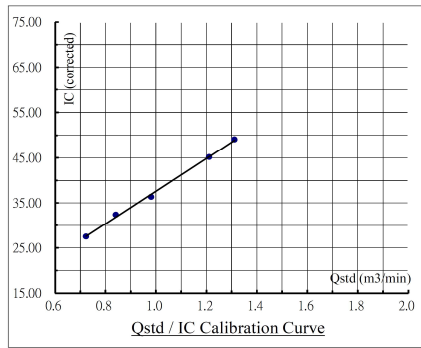
Qstd Slope, m = 2.06418      Qstd Intercept, b = -0.035930

Calibration Curve

Plate No.	H <sub>2</sub> O (in)	Qstd (m <sup>3</sup> /min)	I (chart)	IC (corrected)
18	7.40	1.311	50.0	49.10
13	6.30	1.211	46.0	45.17
10	4.10	0.981	37.0	36.33
7	3.00	0.841	33.0	32.40
5	2.20	0.723	28.0	27.49

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Qstd = 1 / m [ ( I ) ( \text{Sqrt} ( ( Pa / 760 ) ( 298 / Ta ) ) ) - b ]$	36.223	1.3899	0.9989



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

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

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

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

Calibrated by : Ben Poon      29/06/2022      Checked by : Tommy Wong      29/06/2022

Name : ( Ben Poon )      Name : ( Tommy Wong )

Form No. INS-HVS-CAL dd 16 01 2020

### Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2022062904      Date of calibration : 29/06/2022

Location : Ng Wah Catholic Secondary School      Sampler : TE-5170X

Calibration Data      Serial Number : 4360

Ambient barometric pressure, Pa = 751.6 ( mmHg )      Ambient temperature, Ta = 305.65 ( deg K )

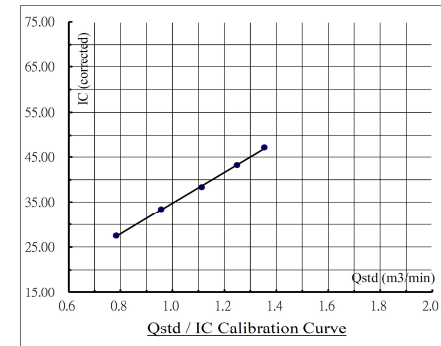
Qstd Slope, m = 2.06418      Qstd Intercept, b = -0.035930

Calibration Curve

Plate No.	H <sub>2</sub> O (in)	Qstd (m <sup>3</sup> /min)	I (chart)	IC (corrected)
18	7.90	1.354	48.0	47.13
13	6.70	1.249	44.0	43.21
10	5.30	1.113	39.0	38.30
7	3.90	0.957	34.0	33.39
5	2.60	0.784	28.0	27.49

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Qstd = 1 / m [ ( I ) ( \text{Sqrt} ( ( Pa / 760 ) ( 298 / Ta ) ) ) - b ]$	34.211	0.5666	0.9996



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

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

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

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

Calibrated by : Ben Poon      29/06/2022      Checked by : Tommy Wong      29/06/2022

Name : ( Ben Poon )      Name : ( Tommy Wong )

Form No. INS-HVS-CAL dd 16 01 2020

## Calibration Certificate of HVS used for performance check of Dust Meter

### Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2022062001 Date of calibration : 20/06/2022  
 Model no : GS2310 Serial number : 10346

#### Calibration Data

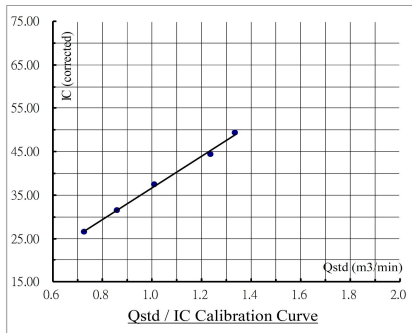
Ambient barometric pressure, Pa = 753.1 ( mmHg ) Ambient temperature, Ta = 303.35 ( deg K )  
 Qstd Slope, m = 2.06418 Qstd Intercept, b = -0.035930

#### Calibration Curve

Plate No.	H <sub>2</sub> O ( in )	Qstd ( m <sup>3</sup> / min )	I ( chart )	IC ( corrected )
18	7.60	1.335	50.0	49.33
13	6.50	1.236	45.0	44.40
10	4.30	1.009	38.0	37.49
7	3.10	0.859	32.0	31.57
5	2.20	0.726	27.0	26.64

#### Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Qstd = 1/m [ (1) ( \text{Sqrt} ( ( Pa / 760 ) ( 298 / Ta ) ) ) - b ]$	36.268	0.4215	0.9982



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

Remark :  $Qstd ( m^3 / min ) = 1/m [ \text{Sqrt} ( H_2O ( Pa / 760 ) ( 298 / Ta ) ) - b ]$   
 $IC ( \text{corrected} ) = 1 [ \text{Sqrt} ( ( Pa / 760 ) ( 298 / Ta ) ) ]$   
 $FLOW ( \text{corrected} ) = \text{Sqrt} ( FLOW ( \text{mano} ) ( Pa / 760 ) ( 298 / Ta ) )$

Calibrated by : Ben Poon 20/06/2022 Checked by : Tommy Wong 20/06/2022  
 Name : ( Ben Poon ) Name : ( Tommy Wong )

Form No. INS-HVS-CAL.dtl 16 01 2020

## Orifice Transfer Standard Certification Worksheet TE-5025A



**RECALIBRATION  
DUE DATE:**  
**May 16, 2023**

## Certificate of Calibration

Calibration Certification Information			
Cal. Date: May 16, 2022	Rootsmeter S/N: 438320	Ta: 296 °K	
Operator: Jim Tisch		Pa: 746.8 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	1.4050	3.2	2.00
2	3	4	1	1.0020	6.4	4.00
3	5	6	1	0.8930	7.9	5.00
4	7	8	1	0.8550	8.7	5.50
5	9	10	1	0.7030	12.8	8.00

Data Tabulation					
Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H ( \frac{Pa}{Pstd} ) ( \frac{Tstd}{Ta} )}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H ( Ta/Pa )}$ (y-axis)
0.9850	0.7011	1.4066	0.9957	0.7087	0.8904
0.9807	0.9788	1.9892	0.9914	0.9895	1.2592
0.9788	1.0960	2.2240	0.9894	1.1080	1.4078
0.9777	1.1435	2.3325	0.9883	1.1560	1.4765
0.9723	1.3830	2.8131	0.9829	1.3981	1.7807
<b>QSTD</b>	<b>m=</b>	<b>2.06418</b>	<b>QA</b>	<b>m=</b>	<b>1.29255</b>
	<b>b=</b>	<b>-0.03593</b>		<b>b=</b>	<b>-0.02274</b>
	<b>r=</b>	<b>0.99993</b>		<b>r=</b>	<b>0.99993</b>

Calculations	
$Vstd = \Delta Vol ( ( Pa - \Delta P ) / Pstd ) ( Tstd / Ta )$	$Va = \Delta Vol ( ( Pa - \Delta P ) / Pa )$
$Qstd = Vstd / \Delta Time$	$Qa = Va / \Delta Time$
For subsequent flow rate calculations:	
$Qstd = 1/m ( \sqrt{ \Delta H ( \frac{Pa}{Pstd} ) ( \frac{Tstd}{Ta} ) } - b )$	$Qa = 1/m ( \sqrt{ \Delta H ( Ta / Pa ) } - b )$

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



## Catalogue of Dust Meter (TSI Sidepak AM510)

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 AMS10 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/m<sup>3</sup>) 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 AMS10

#### SidePak Personal Aerosol Monitor

#### Sensitivity

Sensor Type 90° light scattering, 670 nm laser diode  
 Aerosol Concentration Range 0.001 to 20 mg/m<sup>3</sup> (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/m<sup>3</sup>  
 Zero stability ±0.001 mg/m<sup>3</sup> over 24 hours using 10-second time-constant  
 Temperature Coefficient Approximately +0.0005 mg/m<sup>3</sup> 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

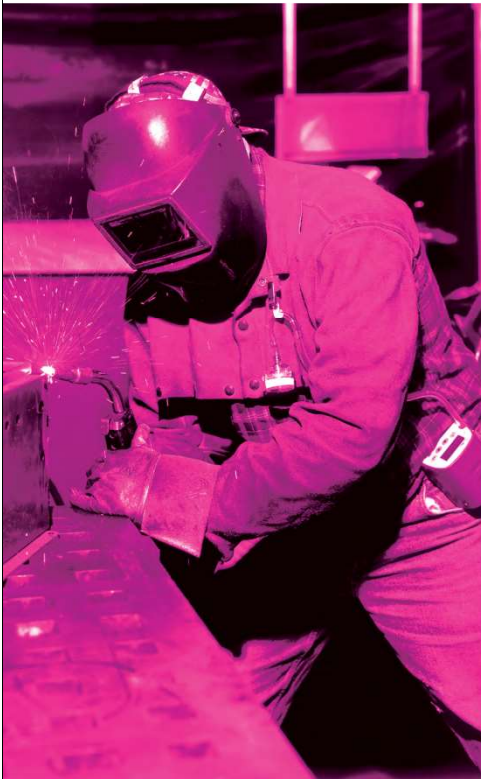
\*Of a fully depleted battery

\*\*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 Sidepak 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

Environment Conditions		Model	AM510
Temperature	73.83 (23.2) °F (°C)	Serial Number	11404005
Relative Humidity	26.8 %RH		
Barometric Pressure	28.49 (964.8) inHg (hPa)		

As Left       In Tolerance  
 As Found       Out of Tolerance

#### Concentration Linearity Plot

System ID: DTH101-02

CONCENTRATION				Unit: mg/m <sup>3</sup>			
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	1.261	1.239	1.135-1.387	3	0.046	0.050	0.032-0.060
2	0.173	0.184	0.147-0.199	4	12.363	12.493	11.127-13.599

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 every 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
DC Voltage	E003314	01-11-22	01-31-23	Photometer	E003319	02-22-22	08-31-22
Microbalance	M001324	01-29-21	01-31-23	Pressure	E003511	10-26-21	10-31-22
Flowmeter	E005626	03-04-22	03-31-23	DC Voltage	E003315	01-11-22	01-31-23

April 14, 2022

Calibrated: Date: \_\_\_\_\_

### Personal Aerosol Monitor Performance check with High Volume Sampler

Performance Check ref. No. AS0220427-1      Report Issue Date 27/04/2022  
 Date of performance check 26/04/2022

**Objective:**

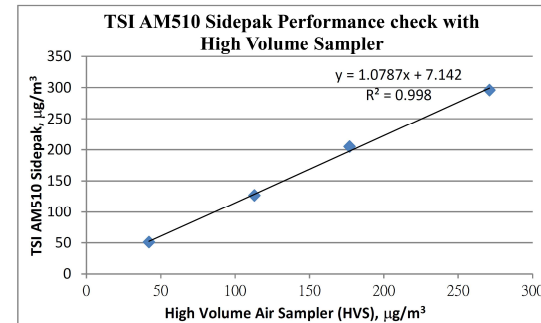
A dust meter and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

**Equipment Used:**

Equipment	Manufacturer and Model	Serial Number
Personal Aerosol Monitor	TSI AM510 Sidepak	11404005
Total Suspended Particulate High Volume Air Sampler	GS2310	10346

**Result:**

Equipment	Measurement Result, µg/m <sup>3</sup>			
TSI AM510 Sidepak	51	127	205	296
High Volume Air Sampler (HVS)	42	113	177	271



Tested by: 27/04/2022      Checked by: 27/04/2022  
 Name: ( Ben Poon )      Name: ( Tommy Wong )

Form No. ENV CAL SAMPLER CCI.dtl/12/2003

## Calibration Certificate of Dust Meter (TSI Sidepak 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

Environment Conditions		Model	<b>AM510</b>
Temperature	72.48 (22.5) °F (°C)	Serial Number	<b>11506009</b>
Relative Humidity	17.3 %RH		
Barometric Pressure	29.42 (996.3) inHg (hPa)		

As Left       In Tolerance  
 As Found       Out of Tolerance

#### Concentration Linearity Plot

System ID: DT1101-02

CONCENTRATION				Unit: mg/m <sup>3</sup>			
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	1.162	1.122	1.046-1.278	3	0.045	0.047	0.031-0.059
2	0.168	0.169	0.143-0.193	4	12.701	12.744	11.431-13.971

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. All 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
DC Voltage	E003314	01-11-21	01-31-22	Photometer	E003319	08-30-21	02-28-22
Microbalance	M001324	01-29-21	01-31-23	Pressure	E003311	10-26-21	10-31-22
Flowmeter	E005626	03-09-21	03-31-22	DC Voltage	E003315	01-11-21	01-31-22

November 2, 2021

Calibrated \_\_\_\_\_ Date \_\_\_\_\_

### Personal Aerosol Monitor Performance check with High Volume Sampler

Performance Check ref. No. : AS0211124-1      Report Issue Date: 24/11/2021  
 Date of performance check : 22/11/2021

**Objective:**

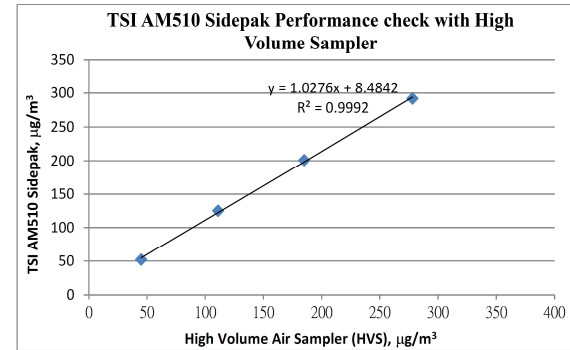
A dust meter and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

**Equipment Used:**

Equipment	Manufacturer and Model	Serial Number
Personal Aerosol Monitor	TSI AM510 Sidepak	11506009
Total Suspended Particulate High Volume Air Sampler	GS2310	10346

**Results:**

Equipment	Measurement Result, µg/m <sup>3</sup>			
TSI AM510 Sidepak	52	125	201	292
High Volume Air Sampler (HVS)	45	111	185	278



Tested by : 24/11/2021      Checked by : 24/11/2021  
 Name : ( Ben Poon )      Name : ( Tommy Wong )

Form No. ENV CAL SAMPLER CC1 d612/12.2003

# Catalogue of Weather Station

## 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 <sup>2</sup> (214 cm <sup>2</sup> ) 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-Aspirated 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

DS6152C, 6162C Rev. W 12/7/18  
1

7  
Vantage Pro2™

### 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 Certificate of Weather Station



## Cal Lab Limited 校正實驗室有限公司

Room 2103, Technology Plaza, 29-35 Sha Tsui Road,  
Tsuen Wan, NT, Hong Kong  
Tel: +852 25680106 Email: info@callab.com.hk  
Fax: +852 30116194 Website: www.callab.com.hk

AAST-WS-04, Cal: 15 Feb 2022

**Calibration Certificate No.: CC0012202**

**Customer Information**

Customer: Castco Testing Centre Limited  
Address: 33, On Kui Street, Fanling, N.T.

**Equipment Identification**

Equipment Description	Manufacturer	Model No.	Serial No.	Assigned equipment No.:
Weather Station	Davis Vantage PRO 2	6152CUK	BD181101023	N/A

**Certificate Information**

Date of Receipt:	10 February 2022	Calibration Condition:	23.6°C, 53%RH, 1008hPa
Date of Calibration:	15 February 2022	Adjustment:	N/A
Due Date of Calibration:	N/A	Appearance:	Good
Calibration Procedure:	JJF 1183-2007, JJF 1076-2001, SOP-116	Remark:	N/A

**Reference Equipment Identification**

Equipment Description	Model	Serial No.	Expiration Date
Platinum resistance thermometer	KPPRHT-A-1	KCI I-1095, KCI P-1095	28 June 2023
Humidity sensor	KPPRHT-A-1	KCI I-1095, KCI P-1095	4 March 2022
Hot Wire Anemometer	9535	T953S1316004	11 July 2022

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.

Approved By:

Wing Cheng

Company Chop:



Certificate Issue Date: 16 February 2022

CF-BEG-03

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2. The certificate is issued subject to the latest Terms and Conditions, available at our web site

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## Cal Lab Limited 校正實驗室有限公司

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Fax: +852 30116194 Website: www.callab.com.hk

**Result of Calibration**

**Temperature**

Reference reading (°C)	Reading (°C)	Error (°C)	Uncertainty (°C)
15.0	15	0.0	0.3
20.0	20	0.0	0.3
25.0	25	0.0	0.3
30.0	30	0.0	0.3

**Relative Humidity**

Reference reading (%RH)	Reading (%RH)	Error (%RH)	Uncertainty (%RH)
40.0	43	3.0	1.9
50.0	53	3.0	1.9
70.0	72	2.0	1.9

**Wind Speed**

Reference reading (m/s)	Measured reading (m/s)	Error (%)	Uncertainty (%)
0.0	0.0	N/A	3.6
2.0	2.1	5.0	3.6
5.0	5.3	6.0	3.6
8.0	8.2	2.5	3.6

**Wind Direction**

Reference reading	Measured reading	Error	Uncertainty
0°	0°	0°	5°
45°	45°	0°	5°
90°	90°	0°	5°
135°	135°	0°	5°
180°	180°	0°	5°
225°	225°	0°	5°
270°	270°	0°	5°
315°	315°	0°	5°

\*\*\* End of Certificate \*\*\*

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**Appendix F – Weather information**

## General Information

Date	Absolute Daily Min Temperature (°C)	Absolute Daily Max Temperature (°C)	Total Rainfall (mm)	Mean Relative Humidity (%)
01/07/2022	25.4	29.7	63.0	85
02/07/2022	25.6	28.4	72.4	89
03/07/2022	28.2	30.3	0.0	82
04/07/2022	27.9	29.4	0.4	83
05/07/2022	28.4	29.7	0.2	82
06/07/2022	28.0	30.3	0.5	81
07/07/2022	27.2	31.6	13.1	86
08/07/2022	27.7	33.8	Trace	79
09/07/2022	28.6	33.3	Trace	81
10/07/2022	28.6	34.2	Trace	77
11/07/2022	28.5	35.1	0.0	73
12/07/2022	28.6	35.2	0.0	72
13/07/2022	28.4	35.2	0.0	71
14/07/2022	28.5	33.1	0.0	75
15/07/2022	28.6	34.3	0.2	77
16/07/2022	28.8	33.3	1.5	77
17/07/2022	28.8	32.6	1.2	76
18/07/2022	28.5	32.7	2.7	78
19/07/2022	29.1	33.7	Trace	75
20/07/2022	29.2	34.2	0.6	76
21/07/2022	28.1	35.2	0.3	74
22/07/2022	28.2	35.6	0.0	72
23/07/2022	29.2	34.9	0.0	74
24/07/2022	29.5	36.1	0.0	72
25/07/2022	29.9	35.8	0.0	74
26/07/2022	29.1	35.2	0.0	71
27/07/2022	29.0	34.2	0.0	69
28/07/2022	28.8	35.3	0.0	73
29/07/2022	29.7	35.3	0.0	74
30/07/2022	26.5	31.2	2.4	81
31/07/2022	28.3	34.0	0.0	76

NOTE1: The above weather information was obtained from manned weather station of Hong Kong Observatory.

NOTE2: Trace means rainfall less than 0.07 mm

<https://www.hko.gov.hk/en/cis/dailyExtract.htm?y=2022&m=07>

Kai Tak Runway Park Information

Date	Absolute Daily Min Temperature (°C)	Absolute Daily Max Temperature (°C)
01/07/2022	25.1	30.0
02/07/2022	25.7	28.2
03/07/2022	28.0	30.5
04/07/2022	28.2	29.4
05/07/2022	28.0	29.5
06/07/2022	27.4	30.5
07/07/2022	26.9	29.8
08/07/2022	27.5	31.4
09/07/2022	28.5	32.6
10/07/2022	28.5	32.3
11/07/2022	28.4	33.0
12/07/2022	28.4	32.2
13/07/2022	28.2	32.5
14/07/2022	28.2	34.9
15/07/2022	28.3	33.7
16/07/2022	28.8	34.0
17/07/2022	28.9	32.9
18/07/2022	28.4	33.4
19/07/2022	27.3	33.2
20/07/2022	28.8	31.9
21/07/2022	28.6	32.6
22/07/2022	28.3	35.8
23/07/2022	29.1	35.9
24/07/2022	29.8	36.0
25/07/2022	30.0	36.0
26/07/2022	29.1	35.3
27/07/2022	28.9	35.4
28/07/2022	29.1	35.0
29/07/2022	29.8	36.2
30/07/2022	25.8	31.6
31/07/2022	28.0	35.5

NOTE1: The above weather information was obtained from manned weather station of Kai Tak Runway Park.

[https://i-lens.hk/hkweather/history\\_chart.php?date=2022-07-01&chart\\_type=DG\\_TEMP](https://i-lens.hk/hkweather/history_chart.php?date=2022-07-01&chart_type=DG_TEMP)



Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Ng Wah Catholic Secondary School

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
01/07/2022	0:00	0.9	90	02/07/2022	0:00	1.3	112.5	03/07/2022	0:00	0.9	90	04/07/2022	0:00	0.4	247.5
01/07/2022	1:00	1.3	135	02/07/2022	1:00	1.3	135	03/07/2022	1:00	0.4	67.5	04/07/2022	1:00	0.4	247.5
01/07/2022	2:00	1.3	45	02/07/2022	2:00	0.9	90	03/07/2022	2:00	0.9	112.5	04/07/2022	2:00	0.4	247.5
01/07/2022	3:00	0.9	45	02/07/2022	3:00	0.9	112.5	03/07/2022	3:00	1.3	90	04/07/2022	3:00	0.9	247.5
01/07/2022	4:00	1.8	45	02/07/2022	4:00	0.9	90	03/07/2022	4:00	0.9	112.5	04/07/2022	4:00	1.3	247.5
01/07/2022	5:00	1.3	135	02/07/2022	5:00	0.9	90	03/07/2022	5:00	0.9	90	04/07/2022	5:00	1.3	337.5
01/07/2022	6:00	1.3	90	02/07/2022	6:00	1.3	135	03/07/2022	6:00	0.9	90	04/07/2022	6:00	0.9	337.5
01/07/2022	7:00	1.8	45	02/07/2022	7:00	0.9	135	03/07/2022	7:00	0.9	67.5	04/07/2022	7:00	0.9	337.5
01/07/2022	8:00	2.2	67.5	02/07/2022	8:00	0.9	112.5	03/07/2022	8:00	0.4	112.5	04/07/2022	8:00	0.9	337.5
01/07/2022	9:00	1.8	112.5	02/07/2022	9:00	0.9	90	03/07/2022	9:00	0.4	135	04/07/2022	9:00	0.4	247.5
01/07/2022	10:00	1.3	90	02/07/2022	10:00	1.3	112.5	03/07/2022	10:00	0.4	112.5	04/07/2022	10:00	0.4	247.5
01/07/2022	11:00	1.8	112.5	02/07/2022	11:00	0.9	112.5	03/07/2022	11:00	0.9	112.5	04/07/2022	11:00	0.4	112.5
01/07/2022	12:00	1.3	135	02/07/2022	12:00	0.9	112.5	03/07/2022	12:00	0.9	112.5	04/07/2022	12:00	1.3	45
01/07/2022	13:00	0.9	90	02/07/2022	13:00	0.4	90	03/07/2022	13:00	0.9	90	04/07/2022	13:00	1.3	112.5
01/07/2022	14:00	0.4	247.5	02/07/2022	14:00	0.4	45	03/07/2022	14:00	0.9	112.5	04/07/2022	14:00	1.3	90
01/07/2022	15:00	0.4	112.5	02/07/2022	15:00	0.4	90	03/07/2022	15:00	0.4	112.5	04/07/2022	15:00	1.3	67.5
01/07/2022	16:00	1.3	45	02/07/2022	16:00	0.4	135	03/07/2022	16:00	0.4	45	04/07/2022	16:00	0.9	135
01/07/2022	17:00	1.3	112.5	02/07/2022	17:00	0.9	135	03/07/2022	17:00	0.9	337.5	04/07/2022	17:00	1.8	22.5
01/07/2022	18:00	1.3	90	02/07/2022	18:00	0.9	90	03/07/2022	18:00	1.3	112.5	04/07/2022	18:00	1.3	45
01/07/2022	19:00	1.3	67.5	02/07/2022	19:00	1.3	90	03/07/2022	19:00	0.9	112.5	04/07/2022	19:00	0.9	112.5
01/07/2022	20:00	0.9	135	02/07/2022	20:00	0.9	90	03/07/2022	20:00	1.3	337.5	04/07/2022	20:00	1.3	67.5
01/07/2022	21:00	1.8	22.5	02/07/2022	21:00	0.9	45	03/07/2022	21:00	0.9	45	04/07/2022	21:00	0.9	112.5
01/07/2022	22:00	1.3	45	02/07/2022	22:00	0.4	90	03/07/2022	22:00	0.9	337.5	04/07/2022	22:00	0.4	112.5
01/07/2022	23:00	0.9	112.5	02/07/2022	23:00	0.4	45	03/07/2022	23:00	0.9	112.5	04/07/2022	23:00	1.3	45

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Ng Wah Catholic Secondary School

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
05/07/2022	0:00	0.9	112.5	06/07/2022	0:00	0.9	135	07/07/2022	0:00	0.9	112.5	08/07/2022	0:00	0.4	90
05/07/2022	1:00	0.9	112.5	06/07/2022	1:00	1.3	112.5	07/07/2022	1:00	0.9	135	08/07/2022	1:00	0.4	22.5
05/07/2022	2:00	0.9	112.5	06/07/2022	2:00	1.3	112.5	07/07/2022	2:00	0.9	112.5	08/07/2022	2:00	1.3	90
05/07/2022	3:00	1.3	90	06/07/2022	3:00	1.3	112.5	07/07/2022	3:00	0.4	112.5	08/07/2022	3:00	0.9	112.5
05/07/2022	4:00	1.3	90	06/07/2022	4:00	1.3	112.5	07/07/2022	4:00	0.4	112.5	08/07/2022	4:00	0.9	112.5
05/07/2022	5:00	1.3	90	06/07/2022	5:00	0.9	135	07/07/2022	5:00	0.4	135	08/07/2022	5:00	0.9	135
05/07/2022	6:00	1.3	112.5	06/07/2022	6:00	0.9	135	07/07/2022	6:00	0.9	112.5	08/07/2022	6:00	0.9	90
05/07/2022	7:00	1.3	135	06/07/2022	7:00	0.9	112.5	07/07/2022	7:00	0.9	112.5	08/07/2022	7:00	0.9	112.5
05/07/2022	8:00	1.8	112.5	06/07/2022	8:00	1.3	112.5	07/07/2022	8:00	0.9	112.5	08/07/2022	8:00	1.8	112.5
05/07/2022	9:00	1.3	112.5	06/07/2022	9:00	1.3	90	07/07/2022	9:00	0.9	112.5	08/07/2022	9:00	1.3	112.5
05/07/2022	10:00	0.9	112.5	06/07/2022	10:00	1.3	112.5	07/07/2022	10:00	0.9	112.5	08/07/2022	10:00	0.9	90
05/07/2022	11:00	0.9	135	06/07/2022	11:00	1.8	90	07/07/2022	11:00	0.9	135	08/07/2022	11:00	1.8	90
05/07/2022	12:00	0.9	90	06/07/2022	12:00	0.9	90	07/07/2022	12:00	0.9	112.5	08/07/2022	12:00	1.3	45
05/07/2022	13:00	1.3	90	06/07/2022	13:00	1.3	202.5	07/07/2022	13:00	1.3	112.5	08/07/2022	13:00	1.3	337.5
05/07/2022	14:00	0.9	90	06/07/2022	14:00	0.9	202.5	07/07/2022	14:00	1.3	112.5	08/07/2022	14:00	1.3	67.5
05/07/2022	15:00	0.9	90	06/07/2022	15:00	0.9	202.5	07/07/2022	15:00	1.3	112.5	08/07/2022	15:00	1.3	67.5
05/07/2022	16:00	0.4	112.5	06/07/2022	16:00	0.4	67.5	07/07/2022	16:00	1.3	112.5	08/07/2022	16:00	0.9	315
05/07/2022	17:00	0.9	135	06/07/2022	17:00	0.4	225	07/07/2022	17:00	0.9	135	08/07/2022	17:00	1.3	112.5
05/07/2022	18:00	0.9	112.5	06/07/2022	18:00	0.4	135	07/07/2022	18:00	0.9	135	08/07/2022	18:00	0.4	0
05/07/2022	19:00	0.9	90	06/07/2022	19:00	0.4	202.5	07/07/2022	19:00	0.9	112.5	08/07/2022	19:00	0.4	270
05/07/2022	20:00	0.9	112.5	06/07/2022	20:00	0.4	135	07/07/2022	20:00	1.3	112.5	08/07/2022	20:00	0.9	112.5
05/07/2022	21:00	1.3	112.5	06/07/2022	21:00	0.4	135	07/07/2022	21:00	1.3	90	08/07/2022	21:00	0.9	135
05/07/2022	22:00	1.3	112.5	06/07/2022	22:00	1.3	202.5	07/07/2022	22:00	1.3	112.5	08/07/2022	22:00	1.3	45
05/07/2022	23:00	1.3	112.5	06/07/2022	23:00	0.9	202.5	07/07/2022	23:00	1.3	112.5	08/07/2022	23:00	1.3	337.5

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Ng Wah Catholic Secondary School

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
09/07/2022	0:00	1.3	90	10/07/2022	0:00	0.9	112.5	11/07/2022	0:00	1.3	112.5	12/07/2022	0:00	1.3	315
09/07/2022	1:00	1.3	112.5	10/07/2022	1:00	0.9	90	11/07/2022	1:00	1.3	112.5	12/07/2022	1:00	1.3	90
09/07/2022	2:00	1.3	112.5	10/07/2022	2:00	0.9	112.5	11/07/2022	2:00	0.9	112.5	12/07/2022	2:00	0.9	67.5
09/07/2022	3:00	1.8	67.5	10/07/2022	3:00	1.3	90	11/07/2022	3:00	0.9	135	12/07/2022	3:00	0.9	135
09/07/2022	4:00	1.3	225	10/07/2022	4:00	1.3	202.5	11/07/2022	4:00	0.9	135	12/07/2022	4:00	0.9	337.5
09/07/2022	5:00	1.3	112.5	10/07/2022	5:00	0.9	22.5	11/07/2022	5:00	0.9	247.5	12/07/2022	5:00	1.3	45
09/07/2022	6:00	0.9	90	10/07/2022	6:00	0.9	180	11/07/2022	6:00	0.4	225	12/07/2022	6:00	1.3	22.5
09/07/2022	7:00	0.9	90	10/07/2022	7:00	0.9	270	11/07/2022	7:00	0.4	157.5	12/07/2022	7:00	0.9	337.5
09/07/2022	8:00	1.3	112.5	10/07/2022	8:00	0.9	292.5	11/07/2022	8:00	0.4	202.5	12/07/2022	8:00	0.9	315
09/07/2022	9:00	1.3	90	10/07/2022	9:00	0.4	270	11/07/2022	9:00	0.9	202.5	12/07/2022	9:00	1.3	45
09/07/2022	10:00	0.9	90	10/07/2022	10:00	0.9	112.5	11/07/2022	10:00	0.4	45	12/07/2022	10:00	1.3	315
09/07/2022	11:00	0.9	247.5	10/07/2022	11:00	0.9	67.5	11/07/2022	11:00	0.4	112.5	12/07/2022	11:00	1.3	90
09/07/2022	12:00	0.4	135	10/07/2022	12:00	0.9	270	11/07/2022	12:00	1.3	112.5	12/07/2022	12:00	0.9	67.5
09/07/2022	13:00	0.9	22.5	10/07/2022	13:00	0.9	90	11/07/2022	13:00	1.3	315	12/07/2022	13:00	0.9	135
09/07/2022	14:00	0.9	247.5	10/07/2022	14:00	0.9	90	11/07/2022	14:00	1.3	90	12/07/2022	14:00	1.3	315
09/07/2022	15:00	0.4	270	10/07/2022	15:00	1.3	90	11/07/2022	15:00	0.9	67.5	12/07/2022	15:00	1.3	90
09/07/2022	16:00	0.4	90	10/07/2022	16:00	2.2	112.5	11/07/2022	16:00	0.9	135	12/07/2022	16:00	0.9	67.5
09/07/2022	17:00	0.9	112.5	10/07/2022	17:00	1.3	90	11/07/2022	17:00	0.9	337.5	12/07/2022	17:00	0.9	135
09/07/2022	18:00	0.9	112.5	10/07/2022	18:00	1.8	112.5	11/07/2022	18:00	1.3	45	12/07/2022	18:00	0.9	337.5
09/07/2022	19:00	1.8	67.5	10/07/2022	19:00	1.3	112.5	11/07/2022	19:00	1.3	22.5	12/07/2022	19:00	1.3	45
09/07/2022	20:00	1.3	0	10/07/2022	20:00	1.3	112.5	11/07/2022	20:00	0.9	337.5	12/07/2022	20:00	1.3	22.5
09/07/2022	21:00	2.2	90	10/07/2022	21:00	0.9	112.5	11/07/2022	21:00	0.9	315	12/07/2022	21:00	0.9	337.5
09/07/2022	22:00	1.3	90	10/07/2022	22:00	0.9	90	11/07/2022	22:00	1.3	45	12/07/2022	22:00	0.9	315
09/07/2022	23:00	1.3	90	10/07/2022	23:00	0.9	90	11/07/2022	23:00	1.3	315	12/07/2022	23:00	1.3	45

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Ng Wah Catholic Secondary School

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
13/07/2022	0:00	1.3	337.5	14/07/2022	0:00	1.3	337.5	15/07/2022	0:00	1.3	337.5	16/07/2022	0:00	0.4	90
13/07/2022	1:00	0.9	22.5	14/07/2022	1:00	0.9	22.5	15/07/2022	1:00	0.9	22.5	16/07/2022	1:00	0.4	157.5
13/07/2022	2:00	0.4	90	14/07/2022	2:00	0.4	90	15/07/2022	2:00	0.4	90	16/07/2022	2:00	0.9	112.5
13/07/2022	3:00	0.4	112.5	14/07/2022	3:00	0.4	112.5	15/07/2022	3:00	0.4	112.5	16/07/2022	3:00	0.4	112.5
13/07/2022	4:00	0.4	135	14/07/2022	4:00	0.4	135	15/07/2022	4:00	0.4	135	16/07/2022	4:00	0.4	90
13/07/2022	5:00	0.4	157.5	14/07/2022	5:00	0.4	157.5	15/07/2022	5:00	0.4	157.5	16/07/2022	5:00	0.4	112.5
13/07/2022	6:00	0.4	90	14/07/2022	6:00	0.4	90	15/07/2022	6:00	0.4	90	16/07/2022	6:00	0.9	135
13/07/2022	7:00	0.4	315	14/07/2022	7:00	0.4	315	15/07/2022	7:00	0.4	315	16/07/2022	7:00	1.3	157.5
13/07/2022	8:00	0.9	22.5	14/07/2022	8:00	0.9	22.5	15/07/2022	8:00	0.9	22.5	16/07/2022	8:00	1.3	112.5
13/07/2022	9:00	1.3	0	14/07/2022	9:00	1.3	0	15/07/2022	9:00	1.3	0	16/07/2022	9:00	1.3	112.5
13/07/2022	10:00	1.3	0	14/07/2022	10:00	1.3	0	15/07/2022	10:00	1.3	0	16/07/2022	10:00	1.3	157.5
13/07/2022	11:00	0.9	337.5	14/07/2022	11:00	0.9	337.5	15/07/2022	11:00	0.9	337.5	16/07/2022	11:00	1.3	135
13/07/2022	12:00	1.3	337.5	14/07/2022	12:00	0.4	0	15/07/2022	12:00	1.3	337.5	16/07/2022	12:00	0.4	90
13/07/2022	13:00	0.9	22.5	14/07/2022	13:00	0.9	90	15/07/2022	13:00	0.9	22.5	16/07/2022	13:00	0.4	112.5
13/07/2022	14:00	0.4	90	14/07/2022	14:00	1.3	337.5	15/07/2022	14:00	0.4	90	16/07/2022	14:00	0.9	45
13/07/2022	15:00	0.4	112.5	14/07/2022	15:00	0.9	22.5	15/07/2022	15:00	0.4	112.5	16/07/2022	15:00	1.3	45
13/07/2022	16:00	0.4	135	14/07/2022	16:00	0.4	90	15/07/2022	16:00	0.4	135	16/07/2022	16:00	1.3	45
13/07/2022	17:00	0.4	157.5	14/07/2022	17:00	0.4	112.5	15/07/2022	17:00	0.4	157.5	16/07/2022	17:00	0.9	45
13/07/2022	18:00	0.4	90	14/07/2022	18:00	0.4	135	15/07/2022	18:00	0.4	90	16/07/2022	18:00	0.9	270
13/07/2022	19:00	0.4	315	14/07/2022	19:00	0.4	157.5	15/07/2022	19:00	0.4	315	16/07/2022	19:00	0.9	247.5
13/07/2022	20:00	0.9	22.5	14/07/2022	20:00	0.4	90	15/07/2022	20:00	0.9	22.5	16/07/2022	20:00	1.3	225
13/07/2022	21:00	1.3	0	14/07/2022	21:00	0.4	315	15/07/2022	21:00	1.3	0	16/07/2022	21:00	0.9	45
13/07/2022	22:00	1.3	0	14/07/2022	22:00	0.9	22.5	15/07/2022	22:00	1.3	0	16/07/2022	22:00	0.9	45
13/07/2022	23:00	0.9	337.5	14/07/2022	23:00	1.3	0	15/07/2022	23:00	0.9	337.5	16/07/2022	23:00	0.9	45

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Ng Wah Catholic Secondary School

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
17/07/2022	0:00	0.9	90	18/07/2022	0:00	1.3	90	19/07/2022	0:00	0.9	45	20/07/2022	0:00	1.3	0
17/07/2022	1:00	0.4	112.5	18/07/2022	1:00	1.3	90	19/07/2022	1:00	1.3	90	20/07/2022	1:00	1.3	0
17/07/2022	2:00	0.4	112.5	18/07/2022	2:00	0.4	90	19/07/2022	2:00	0.9	67.5	20/07/2022	2:00	0.9	22.5
17/07/2022	3:00	0.9	90	18/07/2022	3:00	0.9	67.5	19/07/2022	3:00	0.9	90	20/07/2022	3:00	0.9	22.5
17/07/2022	4:00	0.9	67.5	18/07/2022	4:00	0.9	90	19/07/2022	4:00	0.9	45	20/07/2022	4:00	0.4	180
17/07/2022	5:00	0.9	67.5	18/07/2022	5:00	1.3	90	19/07/2022	5:00	0.9	90	20/07/2022	5:00	1.3	45
17/07/2022	6:00	0.9	67.5	18/07/2022	6:00	1.3	90	19/07/2022	6:00	0.9	67.5	20/07/2022	6:00	1.3	0
17/07/2022	7:00	0.9	90	18/07/2022	7:00	0.9	90	19/07/2022	7:00	0.9	90	20/07/2022	7:00	0.9	0
17/07/2022	8:00	0.9	67.5	18/07/2022	8:00	0.9	112.5	19/07/2022	8:00	0.9	90	20/07/2022	8:00	1.3	90
17/07/2022	9:00	0.9	67.5	18/07/2022	9:00	0.4	90	19/07/2022	9:00	0.9	90	20/07/2022	9:00	1.3	22.5
17/07/2022	10:00	1.3	67.5	18/07/2022	10:00	0.9	157.5	19/07/2022	10:00	0.9	90	20/07/2022	10:00	0.9	67.5
17/07/2022	11:00	0.9	67.5	18/07/2022	11:00	0.9	225	19/07/2022	11:00	0.9	45	20/07/2022	11:00	1.3	112.5
17/07/2022	12:00	1.3	67.5	18/07/2022	12:00	0.9	45	19/07/2022	12:00	1.3	0	20/07/2022	12:00	1.3	0
17/07/2022	13:00	1.3	112.5	18/07/2022	13:00	1.3	90	19/07/2022	13:00	1.3	0	20/07/2022	13:00	1.3	0
17/07/2022	14:00	1.3	90	18/07/2022	14:00	0.9	67.5	19/07/2022	14:00	0.9	22.5	20/07/2022	14:00	0.9	22.5
17/07/2022	15:00	1.3	112.5	18/07/2022	15:00	0.9	90	19/07/2022	15:00	0.9	22.5	20/07/2022	15:00	0.9	22.5
17/07/2022	16:00	1.3	90	18/07/2022	16:00	0.9	45	19/07/2022	16:00	0.4	180	20/07/2022	16:00	0.4	180
17/07/2022	17:00	1.3	112.5	18/07/2022	17:00	0.9	90	19/07/2022	17:00	1.3	45	20/07/2022	17:00	1.3	45
17/07/2022	18:00	1.8	112.5	18/07/2022	18:00	0.9	67.5	19/07/2022	18:00	1.3	0	20/07/2022	18:00	1.3	0
17/07/2022	19:00	1.3	135	18/07/2022	19:00	0.9	90	19/07/2022	19:00	0.9	0	20/07/2022	19:00	0.9	0
17/07/2022	20:00	1.8	112.5	18/07/2022	20:00	0.9	90	19/07/2022	20:00	1.3	90	20/07/2022	20:00	1.3	90
17/07/2022	21:00	1.8	90	18/07/2022	21:00	0.9	90	19/07/2022	21:00	1.3	22.5	20/07/2022	21:00	1.3	22.5
17/07/2022	22:00	1.3	112.5	18/07/2022	22:00	0.9	90	19/07/2022	22:00	0.9	67.5	20/07/2022	22:00	0.9	67.5
17/07/2022	23:00	1.8	112.5	18/07/2022	23:00	0.9	45	19/07/2022	23:00	1.3	112.5	20/07/2022	23:00	1.3	112.5

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Ng Wah Catholic Secondary School

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
21/07/2022	0:00	1.3	22.5	22/07/2022	0:00	0.9	180	23/07/2022	0:00	1.3	112.5	24/07/2022	0:00	1.3	90
21/07/2022	1:00	0.4	90	22/07/2022	1:00	0.9	202.5	23/07/2022	1:00	1.3	112.5	24/07/2022	1:00	1.3	0
21/07/2022	2:00	0.9	0	22/07/2022	2:00	1.3	180	23/07/2022	2:00	1.8	112.5	24/07/2022	2:00	0.9	22.5
21/07/2022	3:00	0.9	45	22/07/2022	3:00	0.4	180	23/07/2022	3:00	1.8	67.5	24/07/2022	3:00	1.8	112.5
21/07/2022	4:00	1.3	45	22/07/2022	4:00	1.3	180	23/07/2022	4:00	1.3	135	24/07/2022	4:00	1.8	112.5
21/07/2022	5:00	0.9	22.5	22/07/2022	5:00	1.8	135	23/07/2022	5:00	0.4	135	24/07/2022	5:00	1.8	22.5
21/07/2022	6:00	1.3	22.5	22/07/2022	6:00	0.9	135	23/07/2022	6:00	0.9	67.5	24/07/2022	6:00	1.8	90
21/07/2022	7:00	1.3	22.5	22/07/2022	7:00	0.9	135	23/07/2022	7:00	1.3	67.5	24/07/2022	7:00	2.2	112.5
21/07/2022	8:00	0.9	135	22/07/2022	8:00	0.4	112.5	23/07/2022	8:00	1.3	67.5	24/07/2022	8:00	2.2	112.5
21/07/2022	9:00	0.4	67.5	22/07/2022	9:00	0.4	112.5	23/07/2022	9:00	1.3	45	24/07/2022	9:00	2.2	112.5
21/07/2022	10:00	0.9	22.5	22/07/2022	10:00	0.4	112.5	23/07/2022	10:00	0.9	22.5	24/07/2022	10:00	1.3	90
21/07/2022	11:00	1.3	22.5	22/07/2022	11:00	0.4	247.5	23/07/2022	11:00	1.3	112.5	24/07/2022	11:00	1.3	112.5
21/07/2022	12:00	1.3	22.5	22/07/2022	12:00	0.9	90	23/07/2022	12:00	1.3	112.5	24/07/2022	12:00	1.3	90
21/07/2022	13:00	0.4	90	22/07/2022	13:00	0.9	67.5	23/07/2022	13:00	1.3	90	24/07/2022	13:00	0.4	67.5
21/07/2022	14:00	0.9	0	22/07/2022	14:00	0.4	45	23/07/2022	14:00	1.3	0	24/07/2022	14:00	0.9	247.5
21/07/2022	15:00	0.9	45	22/07/2022	15:00	0.4	67.5	23/07/2022	15:00	0.9	22.5	24/07/2022	15:00	0.4	337.5
21/07/2022	16:00	1.3	45	22/07/2022	16:00	0.9	90	23/07/2022	16:00	1.3	112.5	24/07/2022	16:00	0.4	45
21/07/2022	17:00	0.9	22.5	22/07/2022	17:00	0.9	90	23/07/2022	17:00	1.3	112.5	24/07/2022	17:00	0.9	22.5
21/07/2022	18:00	1.3	22.5	22/07/2022	18:00	0.4	90	23/07/2022	18:00	1.3	22.5	24/07/2022	18:00	0.9	337.5
21/07/2022	19:00	1.3	22.5	22/07/2022	19:00	0.9	67.5	23/07/2022	19:00	0.9	90	24/07/2022	19:00	0.4	22.5
21/07/2022	20:00	0.9	135	22/07/2022	20:00	0.9	112.5	23/07/2022	20:00	1.8	112.5	24/07/2022	20:00	0.4	22.5
21/07/2022	21:00	0.4	67.5	22/07/2022	21:00	0.9	67.5	23/07/2022	21:00	1.3	112.5	24/07/2022	21:00	0.4	45
21/07/2022	22:00	0.9	22.5	22/07/2022	22:00	0.9	67.5	23/07/2022	22:00	0.9	112.5	24/07/2022	22:00	0.4	67.5
21/07/2022	23:00	1.3	22.5	22/07/2022	23:00	0.4	67.5	23/07/2022	23:00	1.3	90	24/07/2022	23:00	0.9	247.5

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Ng Wah Catholic Secondary School

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
25/07/2022	0:00	0.9	225	26/07/2022	0:00	0.9	112.5	27/07/2022	0:00	0.4	90	28/07/2022	0:00	1.3	180
25/07/2022	1:00	0.9	135	26/07/2022	1:00	0.9	135	27/07/2022	1:00	0.4	112.5	28/07/2022	1:00	0.9	202.5
25/07/2022	2:00	0.9	90	26/07/2022	2:00	0.4	135	27/07/2022	2:00	0.9	112.5	28/07/2022	2:00	1.3	22.5
25/07/2022	3:00	1.3	45	26/07/2022	3:00	0.4	135	27/07/2022	3:00	0.4	157.5	28/07/2022	3:00	0.9	22.5
25/07/2022	4:00	0.9	337.5	26/07/2022	4:00	0.9	112.5	27/07/2022	4:00	0.9	90	28/07/2022	4:00	0.9	22.5
25/07/2022	5:00	0.9	22.5	26/07/2022	5:00	0.4	22.5	27/07/2022	5:00	0.9	90	28/07/2022	5:00	0.9	157.5
25/07/2022	6:00	0.4	157.5	26/07/2022	6:00	0.4	45	27/07/2022	6:00	1.3	112.5	28/07/2022	6:00	1.3	22.5
25/07/2022	7:00	0.9	112.5	26/07/2022	7:00	0.9	90	27/07/2022	7:00	0.9	90	28/07/2022	7:00	0.9	112.5
25/07/2022	8:00	0.9	22.5	26/07/2022	8:00	0.9	22.5	27/07/2022	8:00	0.9	112.5	28/07/2022	8:00	0.9	135
25/07/2022	9:00	0.9	135	26/07/2022	9:00	0.9	157.5	27/07/2022	9:00	0.4	90	28/07/2022	9:00	0.9	135
25/07/2022	10:00	1.3	112.5	26/07/2022	10:00	0.4	22.5	27/07/2022	10:00	0.4	90	28/07/2022	10:00	1.3	180
25/07/2022	11:00	1.3	67.5	26/07/2022	11:00	0.4	270	27/07/2022	11:00	0.9	90	28/07/2022	11:00	0.9	202.5
25/07/2022	12:00	0.9	90	26/07/2022	12:00	0.9	112.5	27/07/2022	12:00	0.4	90	28/07/2022	12:00	1.3	22.5
25/07/2022	13:00	0.9	67.5	26/07/2022	13:00	0.4	270	27/07/2022	13:00	0.4	90	28/07/2022	13:00	0.9	22.5
25/07/2022	14:00	1.3	337.5	26/07/2022	14:00	0.9	22.5	27/07/2022	14:00	1.3	180	28/07/2022	14:00	1.3	180
25/07/2022	15:00	1.3	112.5	26/07/2022	15:00	1.3	270	27/07/2022	15:00	0.9	202.5	28/07/2022	15:00	0.9	202.5
25/07/2022	16:00	1.3	22.5	26/07/2022	16:00	0.9	90	27/07/2022	16:00	1.3	22.5	28/07/2022	16:00	1.3	22.5
25/07/2022	17:00	1.3	67.5	26/07/2022	17:00	0.4	90	27/07/2022	17:00	0.9	22.5	28/07/2022	17:00	0.9	22.5
25/07/2022	18:00	1.8	45	26/07/2022	18:00	0.9	247.5	27/07/2022	18:00	0.9	22.5	28/07/2022	18:00	0.9	22.5
25/07/2022	19:00	1.3	90	26/07/2022	19:00	0.4	202.5	27/07/2022	19:00	0.9	157.5	28/07/2022	19:00	0.9	157.5
25/07/2022	20:00	0.9	112.5	26/07/2022	20:00	0.4	180	27/07/2022	20:00	1.3	22.5	28/07/2022	20:00	1.3	22.5
25/07/2022	21:00	1.3	90	26/07/2022	21:00	0.4	247.5	27/07/2022	21:00	0.9	112.5	28/07/2022	21:00	0.9	112.5
25/07/2022	22:00	1.3	112.5	26/07/2022	22:00	0.4	247.5	27/07/2022	22:00	0.9	135	28/07/2022	22:00	0.9	135
25/07/2022	23:00	0.9	67.5	26/07/2022	23:00	0.4	292.5	27/07/2022	23:00	0.9	135	28/07/2022	23:00	0.9	135

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Ng Wah Catholic Secondary School

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
29/07/2022	0:00	0.9	22.5	30/07/2022	0:00	0.4	315	31/07/2022	0:00	0.4	90	0.4	90		
29/07/2022	1:00	0.4	22.5	30/07/2022	1:00	0.9	45	31/07/2022	1:00	1.3	112.5	0.4	112.5		
29/07/2022	2:00	0.4	112.5	30/07/2022	2:00	0.9	45	31/07/2022	2:00	1.3	67.5	0.9	112.5		
29/07/2022	3:00	0.4	22.5	30/07/2022	3:00	0.9	180	31/07/2022	3:00	0.4	112.5	0.9	135		
29/07/2022	4:00	0.4	45	30/07/2022	4:00	1.3	90	31/07/2022	4:00	0.4	112.5	1.3	135		
29/07/2022	5:00	0.4	90	30/07/2022	5:00	1.3	45	31/07/2022	5:00	0.4	112.5	1.3	22.5		
29/07/2022	6:00	0.9	90	30/07/2022	6:00	0.9	45	31/07/2022	6:00	0.4	135	1.3	22.5		
29/07/2022	7:00	0.9	67.5	30/07/2022	7:00	0.9	270	31/07/2022	7:00	1.3	135	0.9	157.5		
29/07/2022	8:00	0.9	22.5	30/07/2022	8:00	0.9	337.5	31/07/2022	8:00	1.3	90	1.3	135		
29/07/2022	9:00	0.9	22.5	30/07/2022	9:00	0.4	45	31/07/2022	9:00	0.9	112.5	0.9	135		
29/07/2022	10:00	0.4	45	30/07/2022	10:00	0.9	247.5	31/07/2022	10:00	0.4	112.5	0.4	90		
29/07/2022	11:00	1.3	22.5	30/07/2022	11:00	0.4	315	31/07/2022	11:00	0.4	135	0.4	112.5		
29/07/2022	12:00	1.3	22.5	30/07/2022	12:00	0.4	157.5	31/07/2022	12:00	0.4	90	0.9	112.5		
29/07/2022	13:00	0.4	315	30/07/2022	13:00	1.3	112.5	31/07/2022	13:00	0.4	90	0.9	135		
29/07/2022	14:00	0.9	45	30/07/2022	14:00	1.8	112.5	31/07/2022	14:00	0.4	112.5	0.4	157.5		
29/07/2022	15:00	0.9	45	30/07/2022	15:00	1.3	112.5	31/07/2022	15:00	0.9	112.5	1.3	112.5		
29/07/2022	16:00	0.9	180	30/07/2022	16:00	0.9	112.5	31/07/2022	16:00	0.9	135	1.8	112.5		
29/07/2022	17:00	1.3	90	30/07/2022	17:00	0.4	112.5	31/07/2022	17:00	1.3	135	1.3	112.5		
29/07/2022	18:00	1.3	45	30/07/2022	18:00	0.4	112.5	31/07/2022	18:00	1.3	22.5	0.9	112.5		
29/07/2022	19:00	0.9	45	30/07/2022	19:00	0.9	112.5	31/07/2022	19:00	1.3	22.5	0.4	112.5		
29/07/2022	20:00	0.9	270	30/07/2022	20:00	0.9	135	31/07/2022	20:00	0.9	157.5	0.4	112.5		
29/07/2022	21:00	0.9	337.5	30/07/2022	21:00	1.3	112.5	31/07/2022	21:00	1.3	135	0.9	112.5		
29/07/2022	22:00	0.4	45	30/07/2022	22:00	1.3	112.5	31/07/2022	22:00	0.9	135	0.9	135		
29/07/2022	23:00	0.9	247.5	30/07/2022	23:00	0	90	31/07/2022	23:00	0.4	90	0.4	157.5		



# **Appendix G – 24-hr TSP monitoring results and graphical presentation**

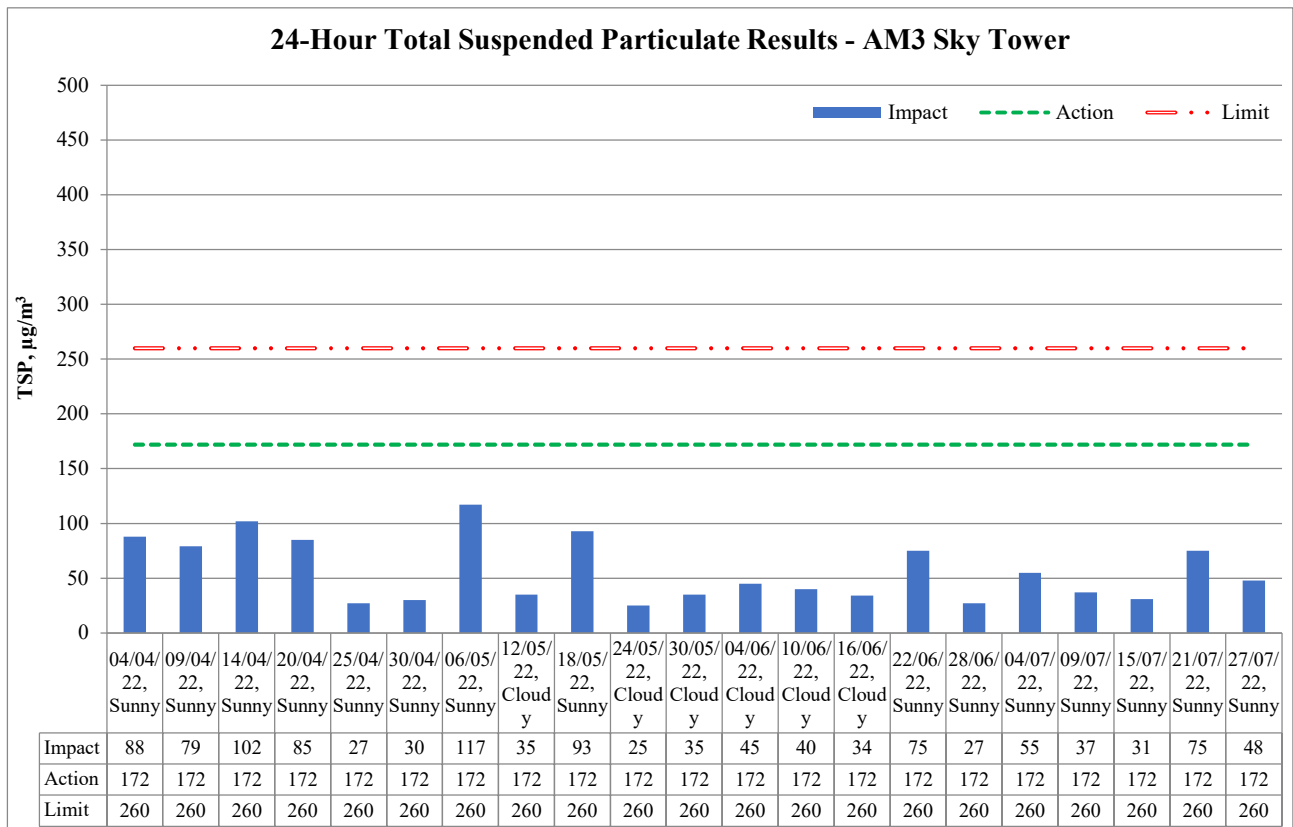
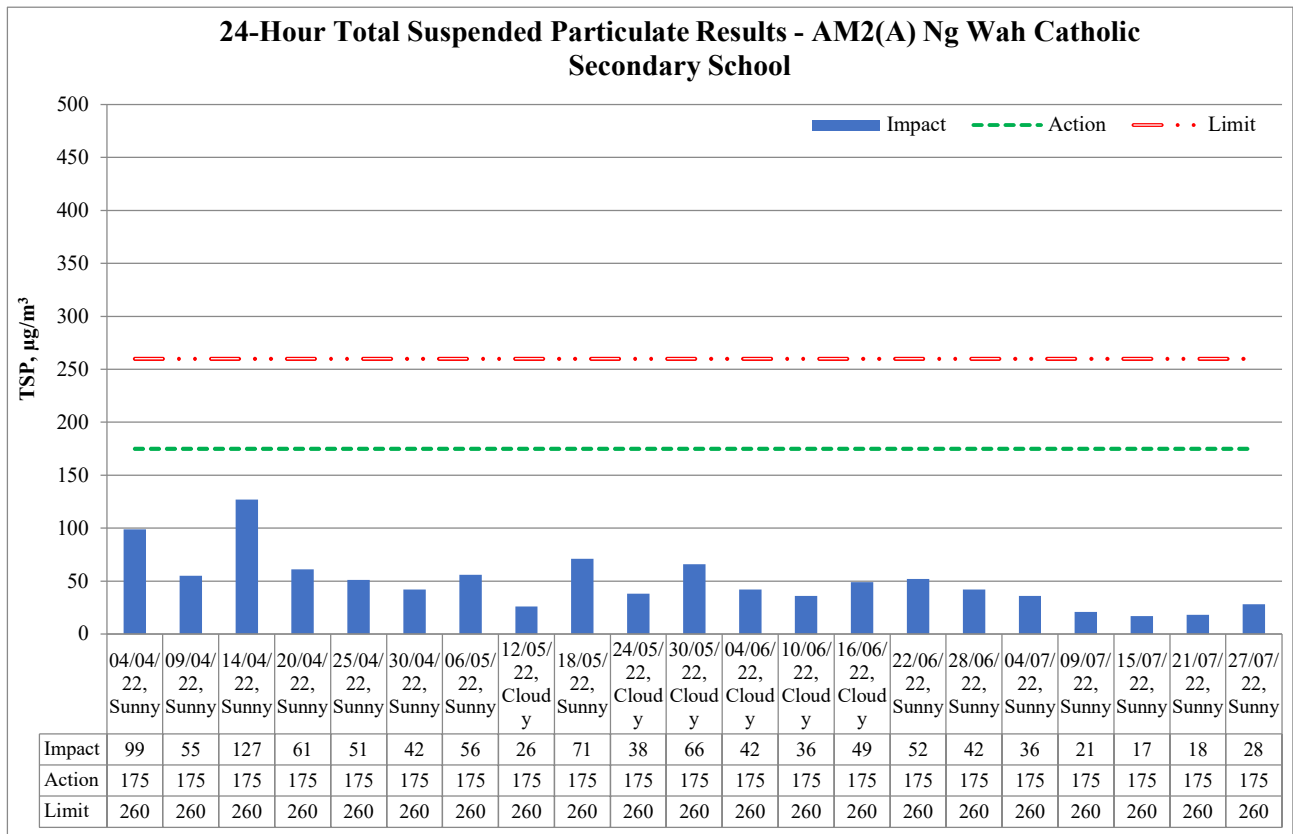
Location: AM2(A) – Ng Wah Catholic Secondary School

Start Date	Weather	Air Temp. (°C)	Atmospheric Pressure (hPa)	Filter weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (min)	Flow Rate (cfm)		Av. Flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Conc. (µg/m <sup>3</sup> )
				Initial	Final		Initial	Final		Initial	Final			
04/07/2022	Sunny	29.4	1002.2	19.0673	19.1412	0.0739	2022/7/4 13:15	2022/7/5 13:15	1440	50	50	1.43	2054	36
09/07/2022	Sunny	32.6	1005.7	15.2167	15.2595	0.0428	2022/7/9 9:10	2022/7/10 9:10	1440	50	50	1.42	2047	21
15/07/2022	Sunny	33.7	1006.5	18.3964	18.4311	0.0347	2022/7/15 13:05	2022/7/16 13:05	1440	50	50	1.42	2044	17
21/07/2022	Sunny	32.6	1012.1	15.5657	15.6017	0.0360	2022/7/21 9:05	2022/7/22 9:05	1440	50	50	1.43	2053	18
27/07/2022	Sunny	32.7	1006.2	15.0112	15.0713	0.0601	2022/7/27 9:18	2022/7/28 9:18	1440	52	52	1.48	2130	28
													Maximum	36
													Minimum	17
													Average	24
													Action Level	175
													Limit Level	260

Location: AM3 – Sky Tower

Start Date	Weather	Air Temp. (°C)	Atmospheric Pressure (hPa)	Filter weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (min)	Flow Rate (cfm)		Av. Flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Conc. (µg/m <sup>3</sup> )
				Initial	Final		Initial	Final		Initial	Final			
04/07/2022	Sunny	29.4	1002.2	15.3365	15.4413	0.1048	2022/7/4 9:22	2022/7/5 9:22	1440	50	50	1.32	1907	55
09/07/2022	Sunny	32.6	1005.7	15.5746	15.6454	0.0708	2022/7/9 13:30	2022/7/10 13:30	1440	50	50	1.32	1900	37
15/07/2022	Sunny	33.7	1006.5	15.0789	15.1362	0.0573	2022/7/15 13:08	2022/7/16 13:08	1440	48	48	1.26	1819	31
21/07/2022	Sunny	32.6	1012.1	15.5503	15.6935	0.1432	2022/7/21 9:15	2022/7/22 9:15	1440	50	50	1.32	1906	75
27/07/2022	Sunny	32.7	1006.2	18.9474	19.0387	0.0913	2022/7/27 13:10	2022/7/28 13:10	1440	50	50	1.32	1900	48
													Maximum	75
													Minimum	31
													Average	49
													Action Level	172
													Limit Level	260

**24-hour average TSP**



Major Construction Activities	Reporting Period			
	April 2022	May 2022	June 2022	July 2022
Construction of Crowd Dispersal Route	✓	✓		
ELS and excavation at Pier 9 for Elevated Walkway LW-02	✓			
Underground utility diversion works at Sa Po Road	✓			
ELS and excavation at launching shaft for subway SB-01	✓			
Construction of DCS	✓	✓	✓	✓
Construction works for Road L16	✓	✓	✓	✓
Renovation works for existing subways KS9 and KS32	✓	✓	✓	✓
Pile cap construction for PC9 and PC10 for Elevated Walkway LW-02	✓	✓		
Pile column construction for PC9 and PC10 for Elevated Walkway LW-02			✓	✓
Construction works for Pedestrian Street No. 1, No. 2, No. 3 & No. 4	✓	✓		
Post-pilling tests for H-piles at Subway KS10	✓			
Erection of temporary decking across existing Kai Tak River	✓	✓	✓	✓
ELS and excavation for Subway KS10 Lift and Staircase	✓	✓	✓	✓
Demolition works to existing subway KS10 staircase and ramp	✓	✓		
Road diversion works at Sa Po Road		✓		
ELS and excavation at launching shaft for subway SB-01		✓		
ELS and excavation for PC11 for Elevated Walkway LW-02			✓	✓
Trial pit excavation and UU diversion at Sa Po Road under TTA Stage 2			✓	✓
ELS, excavation and RC construction at launching shaft for subway SB-01			✓	✓
Construction works for Pedestrian Street No. 2 & No. 4			✓	✓
RC construction at Launching Shaft for SB-01				✓
Twin rising main connection works				✓

Factors might affect the monitoring results	Reporting Period			
	April 2022	May 2022	June 2022	July 2022
Non-project related construction activities in the adjacent construction sites were observed.	✓	✓	✓	✓

**Appendix H – 1-hr TSP monitoring results and graphical presentation**

Location:  
**AM2(A) –  
 Ng Wah Catholic  
 Secondary School**

Date	Measurement Period			1-hr TSP concentration, μg/m <sup>3</sup>	Weather
04/07/2022	13:00	-	14:00	30	Sunny
	14:00	-	15:00	33	
	15:00	-	16:00	32	
09/07/2022	9:00	-	10:00	19	Sunny
	10:00	-	11:00	30	
	11:00	-	12:00	28	
15/07/2022	13:00	-	14:00	20	Sunny
	14:00	-	15:00	22	
	15:00	-	16:00	18	
21/07/2022	9:00	-	10:00	18	Sunny
	10:00	-	11:00	17	
	11:00	-	12:00	21	
27/07/2022	9:00	-	10:00	22	Sunny
	10:00	-	11:00	30	
	11:00	-	12:00	25	
Maximum				33	
Minimum				17	
Average				24	
Action Level				302	
Limit Level				500	

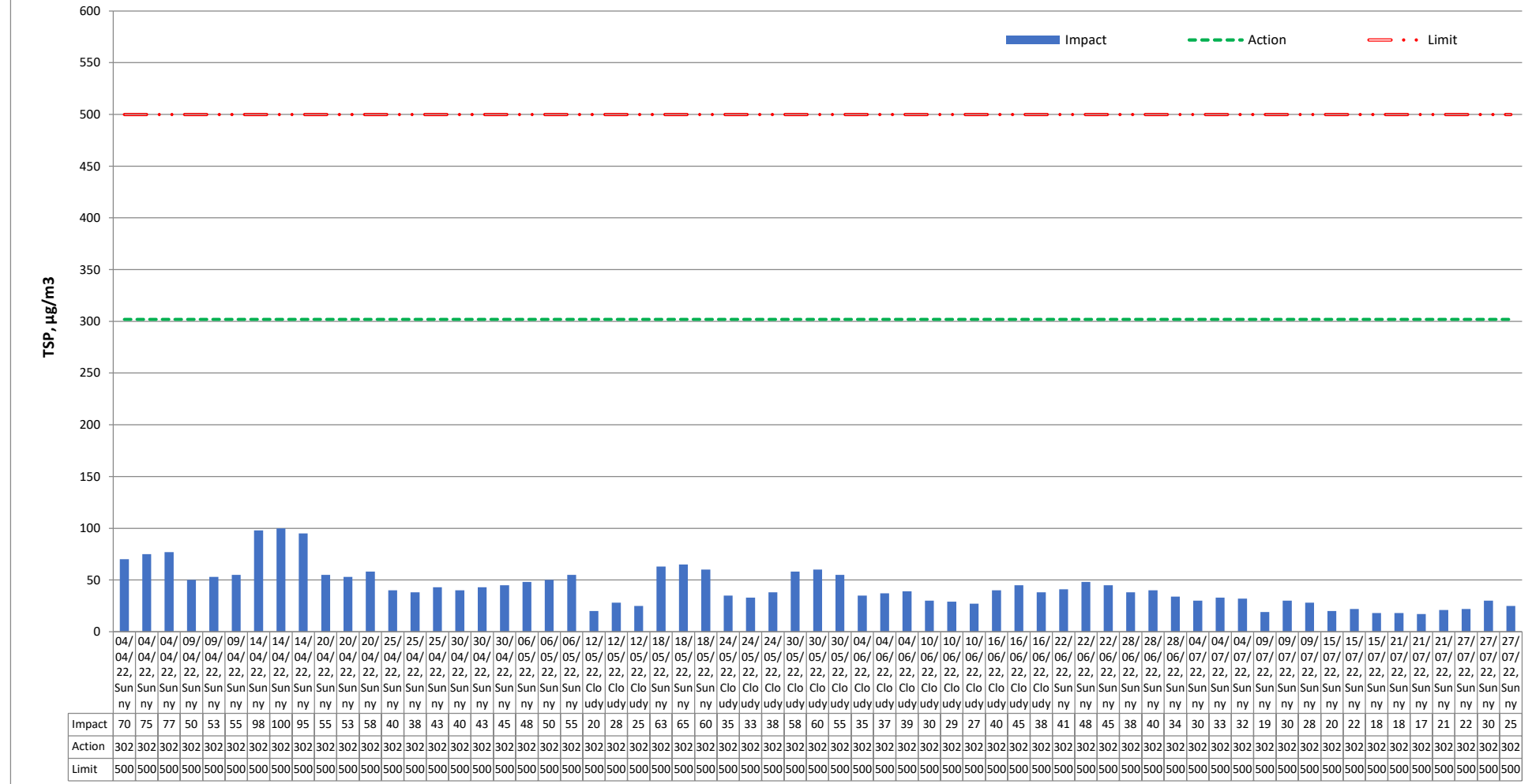
Location:  
**AM3 -  
 Sky Tower**

Date	Measurement Period			1-hr TSP concentration, $\mu\text{g}/\text{m}^3$	Weather
	9:00	-	10:00		
04/07/2022	9:00	-	10:00	38	Sunny
	10:00	-	11:00	40	
	11:00	-	12:00	41	
09/07/2022	13:00	-	14:00	27	Sunny
	14:00	-	15:00	29	
	15:00	-	16:00	30	
15/07/2022	13:00	-	14:00	32	Sunny
	14:00	-	15:00	34	
	15:00	-	16:00	37	
21/07/2022	9:00	-	10:00	55	Sunny
	10:00	-	11:00	58	
	11:00	-	12:00	62	
27/07/2022	13:00	-	14:00	37	Sunny
	14:00	-	15:00	42	
	15:00	-	16:00	46	
Maximum				62	
Minimum				27	
Average				41	
Action Level				301	
Limit Level				500	

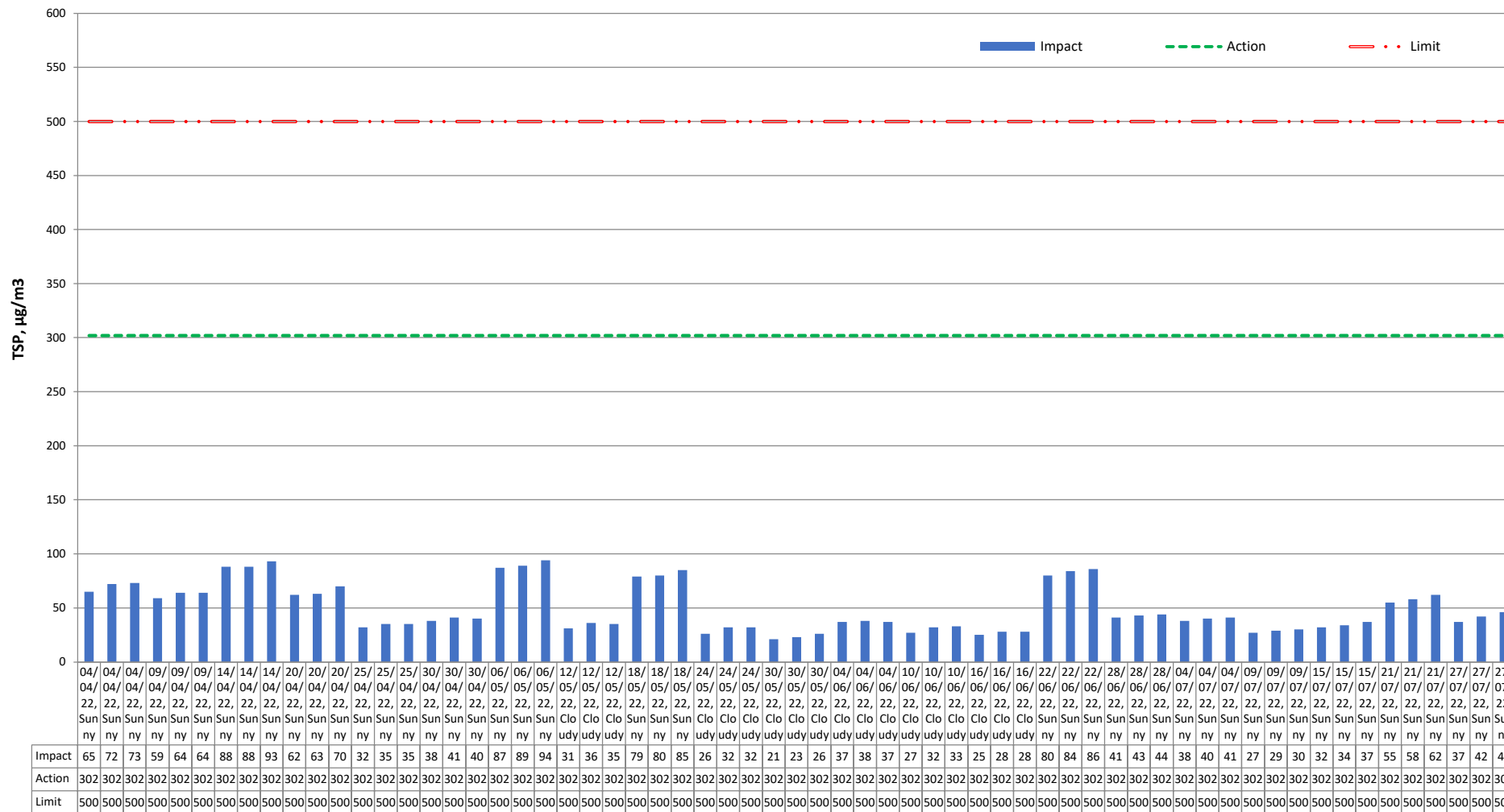


# 1-hour average TSP

## 1-Hour Total Suspended Particulate Results - AM2(A) Ng Wah Catholic Secondary School



### 1-Hour Total Suspended Particulate Results - AM3 Sky Tower



Major Construction Activities	Reporting Period			
	April 2022	May 2022	June 2022	July 2022
Construction of Crowd Dispersal Route	✓	✓		
ELS and excavation at Pier 9 for Elevated Walkway LW-02	✓			
Underground utility diversion works at Sa Po Road	✓			
ELS and excavation at launching shaft for subway SB-01	✓			
Construction of DCS	✓	✓	✓	✓
Construction works for Road L16	✓	✓	✓	✓
Renovation works for existing subways KS9 and KS32	✓	✓	✓	✓
Pile cap construction for PC9 and PC10 for Elevated Walkway LW-02	✓	✓		
Pile column construction for PC9 and PC10 for Elevated Walkway LW-02			✓	✓
Construction works for Pedestrian Street No. 1, No. 2, No. 3 & No. 4	✓	✓		
Post-pilling tests for H-piles at Subway KS10	✓			
Erection of temporary decking across existing Kai Tak River	✓	✓	✓	✓
ELS and excavation for Subway KS10 Lift and Staircase	✓	✓	✓	✓
Demolition works to existing subway KS10 staircase and ramp	✓	✓		
Road diversion works at Sa Po Road		✓		
ELS and excavation at launching shaft for subway SB-01		✓		
ELS and excavation for PC11 for Elevated Walkway LW-02			✓	✓
Trial pit excavation and UU diversion at Sa Po Road under TTA Stage 2			✓	✓
ELS, excavation and RC construction at launching shaft for subway SB-01			✓	✓
Construction works for Pedestrian Street No. 2 & No. 4			✓	✓
RC construction at Launching Shaft for SB-01				✓
Twin rising main connection works				✓

Factors might affect the monitoring results	Reporting Period			
	April 2022	May 2022	June 2022	July 2022
Non-project related construction activities in the adjacent construction sites were observed.	✓	✓	✓	✓

**Appendix I – Event and Action Plan for air quality**

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

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.	4. Implemented; 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	<ol style="list-style-type: none"> <li>1. Notify IEC, Supervisor /ER, Contractor and EPD;</li> <li>2. Repeat measurement to confirm findings;</li> <li>3. Carry out analysis of Contractor's working procedures to identify source and investigate the causes of exceedance;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Arrange meeting with IEC, Supervisor /ER and Contractor to discuss the remedial action to be taken;</li> <li>6. Assess effectiveness of Contractor's remedial actions and keep EPD, IEC and Supervisor /ER informed of the results;</li> <li>7. If exceedance stop, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with Supervisor /ER, ET, and Contractor on the potential remedial actions;</li> <li>4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the Supervisor /ER accordingly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Supervise implementation of remedial measures;</li> <li>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.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Discuss with ET and IEC on proper remedial actions;</li> <li>3. Submit proposal for remedial actions to Supervisor /ER and IEC within three working days of notification;</li> <li>4. Implement the agreed proposals;</li> <li>5. Submit further remedial actions if problem still not under control;</li> <li>6. Stop the relevant portion of works as instructed by the Supervisor /ER until the exceedance is abated.</li> </ol>

# **Appendix J – Calibration certificates, catalogue of noise monitoring equipment**





# Calibration Certificate of Sound Level Meter



中国赛宝实验室计量检测中心  
(工业和信息化部电子第五研究所计量检测中心)  
CHINA CEPREI LABORATORY CALIBRATION & TESTING CENTRE

## 校准证书 CALIBRATION CERTIFICATE

证书编号: 2HB21001749-0004  
Certificate No.



委托单位: Castco Testing Centre Limited  
Client

仪器名称: Sound Level Meter  
Description

型号规格: NL-52  
Model/Type

制造商: RION

机身号: 00921213  
Serial No.

管理号: AAST-SLM-04  
Asset No.

接收日期: 2021-08-05 校准日期: 2021-08-16  
Rec. Date Cal. Date

签发日期: 2021-08-17 建议校准周期: 12个月(12 months)  
App. Date Reference Cal. Period

结论: 所校准项目合格(Passed at Calibration Items)  
Conclusion

校准: 赵文钰  
Calibrated by

签发: 郑木力  
Approved by

校验: 张毅  
Inspected by

印章:

赛宝计量检测中心  
广州总部地址: 广州市增城区朱村街朱村大道西78号  
客服电话: 020-87237633 传真: 020-87236189  
投诉电话: 020-87236896  
邮件: cal@ceprei.com  
网址: www.ceprei-cal.com

CEPREI Calibration and Testing Centre  
HQ Addr: No.78.Zhucun Avenue West,Zengcheng District,Guangzhou,China  
Service Tel: 020-87237633 Fax: 020-87236189  
Complaint Tel: 020-87236896  
Email: cal@ceprei.com  
Website: www.ceprei-cal.com

证书编号(Certificate No.): 2HB21001383-0001

## 说明 DIRECTIONS

1. 本机构质量管理体系符合ISO/IEC 17025:2017标准的要求, 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 L13344。  
This laboratory quality management system meets the ISO/IEC 17025:2017 and is accredited by the China National Accreditation Service for Conformity Assessment, No. CNAS L13344.

2. 本次校准的技术依据及CNAS认可范围(Reference documents and CNAS accredited scopes):  
\* JJG 188-2017 声级计检定规程: Sound pressure level: (20~130)dB; Frequency Weighting: (20~130)dB@(10 Hz~20kHz).  
\* 详细内容请查看CNAS网站中注册编号为L13344的证书附件, 超出范围的内容未被认可, 其结果/结论所依据的合格评定活动不在认可范围内。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited, the conformity assessment activities on which the results/conclusions are based are outside the scope of accreditation.)

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)	测量范围 (Measuring Range)
正弦信号发生器	4GC20000427-0010/2021-11-04/赛宝(广州)	f: ±1mHz; 失真度 Distortion: <-70dB	f: 0.001Hz~200kHz; i: 100μV~5Vrms
数字多用表	4GC20000358-0060/2021-09-09/赛宝(广州)	DCV: ±0.0035%; ACV: ±0.06%; DCI: ±0.05%; ACI: ±0.1%; R: ±0.01%; f: ±0.001%	DCV: 0~1000V; ACV: (0.001~750V)@(3Hz~300kHz); DCI: (0~3)A; ACI: (0~3)A@(3Hz~5kHz); R: (0~100)MΩ; f: 3Hz~300kHz
步进衰减器	4GC21000155-0024/2022-04-29/赛宝(广州)	±3dB	(0~110) dB/10dB step @DC~1GHz
PULSE分析系统	GJFGJL1001210202725/2022-03-03/航空304所	频率: $U_{rel} = 0.001\%$ , $k=2$ ; 电压: $U_{rel} = 0.04\%$ , $k=2$	频率: 0.001Hz~51.2kHz; 电压: $(1 \times 10^{-7} \sim 30)V$
标准传声器	LSsx2021-13180/2022-04-24/中国计量院	$U = (0.05 \sim 0.20)dB$ ( $k=2$ )	20Hz~20kHz
前置放大器	LSsx2021-11346/2022-03-07/中国计量院	$U = 0.3dB$ ( $k=2$ )	(10~20000) Hz
功率放大器	4GC20000457-0065/2021-11-17/赛宝(广州)	频率响应: ±1dB, 失真度: ≤0.2%	20Hz~20kHz
多功能声学校准器	4EC20000091-0005/2021-11-05/赛宝(广州)	1级	31.5Hz~16kHz

4. 校准地点(The calibration place):  
广州市增城区朱村街朱村大道西78号9栋110室

5. 环境条件(Environmental conditions):  
温度(Temperature): 23.4°C 相对湿度(Relative Humidity): 55.8%

6. 本证书中给出的扩展不确定度依据JJF1059.1-2012《测量不确定度的评定与表示》评定, 由合成标准不确定度乘以包含概率约为95%时对应的包含因子k得到。  
The extended uncertainty given in this certificate is evaluated according to JJF1059.1-2012 "Evaluation and Expression of Uncertainty in Measurement", and is calculated by multiplying the combined standard uncertainty by the coverage factor k which corresponding to the coverage probability about 95%.

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"不适用或技术指标暂时无法确认等"。本证书报告的结论仅供参考, 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 or the technical specification has not been confirmed etc". The 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. 建议校准周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校准周期。

# Calibration Certificate of Sound Level Meter



证书编号(Certificate No.): 2HB21001383-0001

**1 外观与工作正常性检查 (Appearance and Function Check)**

无影响证书中测量结果准确度的因素和缺陷。

There are no factor and defect that affect the measurement result accuracy of the certificate.

**2 指示声级调整 (Indication SPL Calibration)**

频率(Frequency)=1000Hz

传声器型号 (Microphone Type)	传声器编号 (Microphone SN.)	放大器型号 (Preamplifier Type)	放大器编号 (Preamplifier SN.)
UC-59	15764	NH-25	76321

声校准器型号 (Calibrator Type)	标准声压级 (Reference SPL) (dB)	校准前示值 (Before Calibration) (dB)	校准后示值 (After Calibration) (dB)	U (k=2) (dB)
4226	94.0	94.1	94.1	0.2

**3 级线性 (Level Linearity)**

**3.1 参考级量程 (Reference Range)**

频率(Frequency): 8000Hz

起始点指示声级(Sound Level Indication of Start Point):	90.0 dB
起始点以上间隔10dB点的最大误差(Maximum Error for each 10dB above Start Point):	-0.2 dB
U (k=2)	0.6 dB
上限以下5dB间隔1dB点的最大误差(Maximum Error for each 1dB below Upper Limit 5dB):	-0.2 dB
U (k=2)	0.6 dB
起始点以下间隔10dB点的最大误差(Maximum Error for each 10dB below Start Point):	-0.2 dB
U (k=2)	0.6 dB
下限以上5dB间隔1dB点的最大误差(Maximum Error for each 1dB above Lower Limit 5dB):	-0.2 dB
U (k=2)	0.6 dB

**3.2 其它级量程 (Other Range)**

频率(Frequency): 1000Hz

起始点指示声级(Sound Level Indication of Start Point):	90.0 dB
起始点以上间隔10dB点的最大误差(Maximum Error for each 10dB above Start Point):	-0.1 dB
U (k=2)	0.4 dB
上限以下5dB间隔1dB点的最大误差(Maximum Error for each 1dB below Upper Limit 5dB):	-0.1 dB
U (k=2)	0.4 dB
起始点以下间隔10dB点的最大误差(Maximum Error for each 10dB below Start Point):	-0.1 dB
U (k=2)	0.4 dB
下限以上5dB间隔1dB点的最大误差(Maximum Error for each 1dB above Lower Limit 5dB):	-0.1 dB
U (k=2)	0.4 dB

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证书编号(Certificate No.): 2HB21001383-0001

**4 A计权特性(A-Weighting Characteristic)**

频率 (Frequency) (Hz)	实测值 (Actual) (dB)	理论值 (Theoretical value) (dB)	误差 (Error) (dB)	允许误差 (Limit) (dB)	结论 (Pass/Fail) (P/F)	U (k=2) (dB)
20	-49.2	-50.5	1.3	+2.0	P	0.5
25	-44.2	-44.7	0.5	+2.0 ~ -1.5	P	0.5
31.5	-39.4	-39.4	0.0	+1.5	P	0.5
40	-34.4	-34.6	0.2	+1.0	P	0.5
50	-30.3	-30.2	-0.1	+1.0	P	0.5
63	-26.0	-26.2	0.2	+1.0	P	0.5
80	-22.4	-22.5	0.1	+1.0	P	0.5
100	-19.1	-19.1	0.0	+1.0	P	0.5
125	-16.0	-16.1	0.1	+1.0	P	0.5
160	-13.2	-13.4	0.2	+1.0	P	0.5
200	-10.8	-10.9	0.1	+1.0	P	0.5
250	-8.6	-8.6	0.0	+1.0	P	0.5
315	-6.6	-6.6	0.0	+1.0	P	0.4
400	-4.7	-4.8	0.1	+1.0	P	0.4
500	-3.3	-3.2	-0.1	+1.0	P	0.4
630	-1.9	-1.9	0.0	+1.0	P	0.4
800	-0.8	-0.8	0.0	+1.0	P	0.4
1000(Ref.)	0.0	0.0	0.0	±0.7	P	0.4
1250	0.5	0.6	-0.1	+1.0	P	0.6
1600	0.9	1.0	-0.1	+1.0	P	0.6
2000	1.1	1.2	-0.1	+1.0	P	0.6
2500	1.0	1.3	-0.3	+1.0	P	0.6
3150	0.9	1.2	-0.3	+1.0	P	0.6
4000	1.2	1.0	0.2	+1.0	P	0.6
5000	0.3	0.5	-0.2	+1.5	P	0.6
6300	-0.3	-0.1	-0.2	+1.5 ~ -2.0	P	0.6
8000	-0.6	-1.1	0.5	+1.5 ~ -2.5	P	0.6
10000	-2.4	-2.5	0.1	+2.0 ~ -3.0	P	0.6
12500	-4.3	-4.3	0.0	+2.0 ~ -5.0	P	1.0
16000	-8.5	-6.6	-1.9	+2.5 ~ -16.0	P	1.0
20000	-18.5	-9.3	-9.2	+3.0 ~ -∞	P	1.0

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## Calibration Certificate of Sound Level Meter



证书编号(Certificate No.): 2HB21001383-0001

### 5 计权特性(C-Weighting Characteristic)

频率 (Frequency)	实测值 (Actual)	理论值 (Theoretical value)	误差 (Error)	允许误差 (Limit)	结论 (Pass/Fail)	U (k=2)
20	-6.6	-6.2	-0.4	±2.0	P	0.5
25	-4.5	-4.4	-0.1	+2.0 ~ -1.5	P	0.5
31.5	-2.9	-3.0	0.1	±1.5	P	0.5
40	-1.9	-2.0	0.1	±1.0	P	0.5
50	-1.3	-1.3	0.0	±1.0	P	0.5
63	-0.7	-0.8	0.1	±1.0	P	0.5
80	-0.5	-0.5	0.0	±1.0	P	0.5
100	-0.2	-0.3	0.1	±1.0	P	0.5
125	-0.1	-0.2	0.1	±1.0	P	0.5
160	-0.1	-0.1	0.0	±1.0	P	0.5
200	0.0	0.0	0.0	±1.0	P	0.5
250	0.0	0.0	0.0	±1.0	P	0.5
315	0.0	0.0	0.0	±1.0	P	0.4
400	0.1	0.0	0.1	±1.0	P	0.4
500	0.0	0.0	0.0	±1.0	P	0.4
630	0.0	0.0	0.0	±1.0	P	0.4
800	0.0	0.0	0.0	±1.0	P	0.4
1000(Ref)	0.0	0.0	0.0	±0.7	P	0.4
1250	-0.1	0.0	-0.1	±1.0	P	0.6
1600	-0.2	-0.1	-0.1	±1.0	P	0.6
2000	-0.3	-0.2	-0.1	±1.0	P	0.6
2500	-0.6	-0.3	-0.3	±1.0	P	0.6
3150	-0.8	-0.5	-0.3	±1.0	P	0.6
4000	-0.6	-0.8	0.2	±1.0	P	0.6
5000	-1.6	-1.3	-0.3	±1.5	P	0.6
6300	-2.1	-2.0	-0.1	+1.5 ~ -2.0	P	0.6
8000	-2.5	-3.0	0.5	+1.5 ~ -2.5	P	0.6
10000	-4.3	-4.4	0.1	+2.0 ~ -3.0	P	0.6
12500	-6.3	-6.2	-0.1	+2.0 ~ -5.0	P	1.0
16000	-10.5	-8.5	-2.0	+2.5 ~ -16.0	P	1.0
20000	-20.4	-11.2	-9.2	+3.0 ~ -∞	P	1.0

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证书编号(Certificate No.): 2HB21001383-0001

### 6 自生噪声 (Autogenous noise)

计权 (Weighting)	实测值 (Actual)
A	15.3

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# Calibration Certificate of Sound Calibrator

Sound Calibrator NC-75



Compact and lightweight sound calibrator allows highly reliable and accurate measurement anywhere

## Sound Calibrator NC-75

Patent pending



- Integrated newly developed reference microphone enables feedback control that completely eliminates the need for atmospheric pressure and coupler volume correction, resulting in highly accurate and reliable calibration.
- Effective coupler sound insulation (30 dB or higher)\* permits calibration also in relatively noisy environments.  
\*A-weighted sound level insulation performance measured with pink noise
- Each product comes standard with a JCSS Calibration Certificate, demonstrating high quality.

- Conforming with IEC 60942: 2017 class 1 and JIS C 1515: 2020
- Supports calibration of RION sound level meters compliant with IEC 61672-1: 2013, JIS C 1509-1: 2017 and JIS C 1516: 2014.
- Supports calibration of RION microphones and microphones of other manufacturers meeting the size specifications of IEC 61094-4.
- Supports 1-inch, 1/2-inch, and 1/4-inch microphones (1/4 inch with optional adapter)

JCSS Calibration Certificate

JCSS Calibration Results



### How to use the adapter

- **1-inch microphones**  
To use the sound calibrator with 1-inch diameter microphones, remove the 1/2-inch microphone adapter.
- **1/2-inch microphones**  
To use the sound calibrator with 1/2-inch diameter microphones, the supplied 1/2-inch microphone adapter must be in place.
- **1/4-inch microphones**  
To use the sound calibrator with 1/4-inch diameter microphones, use the supplied 1/2-inch microphone adapter together with the optional 1/4-inch adapter.



Make sure the 1/2-inch adapter is locked.



### Usage example

#### Specifications (under standard ambient conditions\*)

Applicable standards	IEC 60942: 2017 class1, ANSI/ASA S1.40-2006 class1, JIS C 1515: 2020 class 1, CE marking, WEEE directive, Chinese RoHS
Supported microphones	Microphones made by RION and microphones made by other manufacturers that meet the IEC 61094-4 size specifications 1-inch microphones 1/2-inch microphones (with supplied adapter) 1/4-inch microphones (with optional adapter)
Nominal sound pressure level	94.0 dB
Sound pressure level tolerance	Max. ±0.20 dB
Nominal frequency	1 000 Hz
Frequency tolerance	Max. ±0.1%
THD + noise	Max. 1.0 % (22.4 Hz to 22.4 kHz)
Dimensions and weight	Approx. 42 mm (H) x 77 mm (W) x 70 mm (D), approx. 200 g
Power supply	IEC LR6 (size AA) alkaline battery x 2 IEC LR6 (size AA) nickel-hydride rechargeable battery ("eneloop pro" supported) x 2
Battery life	50 hours or more (using two alkaline batteries, continuous use) 50 hours or more (using two nickel-hydride rechargeable batteries [eneloop pro], continuous use)
Supplied accessories	Soft case x 1, 1/2-inch microphone adapter x 1, IEC LR6 (size AA) alkaline battery x 2, hand strap x 1, JCSS Calibration Certificate x 1
Optional accessories	1/4-inch microphone adapter NC-75-S11

\*RION standard ambient conditions: static pressure 101.325 kPa, ambient temperature 23 °C, relative humidity 50 %

#### Strap



Securely carry the unit with the supplied hand strap

#### Soft case



Calibration can be performed with the calibrator inserted in the soft case

#### PISTONPHONE NC-72A



#### Specifications (under standard ambient conditions\*)

Applicable standards	IEC 60942: 2017 class L5/M, class 1/M, JIS C 1515: 2020 class L5/M, class 1/M
Nominal sound pressure level	114 dB, Sound pressure level tolerance ±0.10 dB



JCSS

RION CO., LTD. is recognized by the JCSS which uses ISO/IEC 17025 as an accreditation standard and bases its accreditation scheme on ISO/IEC 17011. JCSS is operated by the accreditation body (AJA Japan) which is a signatory to the Asia-Pacific Accreditation Cooperation (APAC), The Quality Assurance Section of RION CO., LTD. is an international MRA compliant JCSS operator with the accreditation number JCSS 0197.

Windows is a trademark of Microsoft Corporation. \* Specifications subject to change without notice.

Distributed by:

**RION CO., LTD.**  
https://rion-sv.com/

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 leaflet is printed with environmentally friendly UV ink.

1709-6 2003.PD

# Calibration Certificate of Sound Calibrator



中国赛宝实验室计量检测中心  
(工业和信息化部电子第五研究所计量检测中心)  
CHINA CEPREI LABORATORY CALIBRATION & TESTING CENTRE

## 校准证书 CALIBRATION CERTIFICATE

证书编号: 2HB21001749-0002  
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-75	
制造商: Manufacturer	RION	
机身号: Serial No.	34280310	
管理号: Asset No.	AAST-SLC-07	
接收日期: Rec. Date	2021-08-05	校准日期: Cal. Date
签发日期: App. Date	2021-08-18	建议校准周期: Reference Cal. Period
结论: Conclusion	所校准项目合格(Passed at Calibration Items)	

校准:  
Calibrated by 赵文彪

签发:  
Approved by 郑林力

核验:  
Inspected by 张报

印章:  
Stamp

赛宝计量检测中心  
广州总部地址: 广州市增城区朱村朱村大道西78号  
客服电话: 020-87237633 传真: 020-87236189  
投诉电话: 020-87236896  
邮件: cal@ceprei.com  
网址: www.ceprei-cal.com

CEPREI Calibration and Testing Centre  
HQ Addr: No.78,Zhuacun Avenue West,Zengcheng District,Guangzhou,China  
Service Tel: 020-87237633 Fax: 020-87236189  
Complaint Tel: 020-87236896  
Email: cal@ceprei.com  
Website: www.ceprei-cal.com

证书编号(Certificate No.): 2HB21001749-0002

## 说明 DIRECTIONS

1. 本机构质量管理体系符合ISO/IEC 17025:2017标准的要求, 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 L13344。  
This laboratory quality management system meets the ISO/IEC 17025:2017 and is accredited by the China National Accreditation Service for Conformity Assessment, No. CNAS L13344.
2. 本次校准的技术依据及CNAS认可范围(Reference documents and CNAS accredited scopes):  
\* JIG 176-2005 声校准器检定规程: Sound Pressure Level: 94dB、104dB、114dB、124dB(63Hz~8kHz); 94dB、104dB、114dB,(31.5Hz~16kHz); Frequency: 31.5Hz~16kHz; Harmonic Distortion: 0~10%, (20Hz~20 kHz).  
\* 详细内容请查看CNAS网站中注册编号为L13344的证书附件。超出范围的内容未被认可, 其结果/结论所依据的合格评定活动不在认可范围内。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited, the conformity assessment activities on which the results/conclusions are based are outside the scope of accreditation.)
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)	测量范围 (Measuring Range)
标准传声器	LSs2021-13180/2022-04-24/中国计量院	$U=0.05-0.20\text{dB}$ ( $k=2$ )	10Hz~20kHz
PULSE分析系统	4GC21000026-0375/2022-01-21/赛宝(广州)	频率: $U_{rel}=0.001\%$ , $k=2$ ;电压: $U_{rel}=0.04\%$ , $k=2$	频率:0.001Hz~51.2kHz 电压:( $1 \times 10^{-3}$ ~30)V (10~50000) Hz
前置放大器	LSs2021-13000/2022-04-19/中国计量院	$U=0.3\text{dB}$ ( $k=2$ )	
4. 校准地点(The calibration place):  
广州市增城区朱村街朱村大道西78号9栋110室
5. 环境条件(Environmental conditions):  
温度(Temperature): 22.9°C 相对湿度(Relative Humidity): 59.5%
6. 本证书中给出的扩展不确定度依据JJF1059.1-2012《测量不确定度的评定与表示》评定, 由合成标准不确定度乘以包含概率约为95%时对应的包含因子 $k$ 得到。  
The extended uncertainty given in this certificate is evaluated according to JJF1059.1-2012 "Evaluation and Expression of Uncertainty in Measurement", and is calculated by multiplying the combined standard uncertainty by the coverage factor  $k$  which corresponding to the coverage probability about 95%.
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"不适用或技术指标暂时无法确认等"。本证书报告的结论仅供参考, 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 or the technical specification has not been confirmed etc". The 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. 建议校准周期是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校准周期。  
The reference calibration period is based on the reference documents and normal operating conditions of the calibrated instrument. It is only for reference. The client may decide the calibration period of the instrument according to the 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 Calibrator



证书编号(Certificate No.): 2HB21001749-0002

**1 外观与工作正常性检查 (Appearance and Function Check)**

无影响证书中校准结果准确度的因素和缺陷。

There are no factor and defect that affect the calibration result accuracy of the certificate.

**2 声压级 (Sound Pressure Level)**

规定声压级 (Prescribed SPL)	测量声压级 (Measured SPL)	声压级差的绝对值 (Absolute value of SPL)	允许范围 (Limit)	结论 (Pass/Fail)	$U$ ( $k=2$ )
(dB)	(dB)	(dB)	(dB)		(dB)
94	94.12	0.12	≤0.40	P	0.10

**3 频率 (Frequency)**

规定频率 (Prescribed Fre.)	测量频率 (Measured Fre.)	频率误差的绝对值 (Absolute value of Fre.)	允许范围 (Limit)	结论 (Pass/Fail)	$U_{rel}$ ( $k=2$ )
(Hz)	(Hz)	(%)	(%)		(%)
1000	1000.0	0.00	≤1.00	P	0.10

**4 总失真 (Distortion)**

规定声压级 (Prescribed SPL)	规定频率 (Measured Fre.)	总失真 (Distortion)	允许范围 (Limit)	结论 (Pass/Fail)	$U_{rel}$ ( $k=2$ )
(dB)	(Hz)	(%)	(%)		(%)
94	1000	0.15	≤3.00	P	5.0

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## Catalogue of Air Flow Meter (TSI TA440)

### 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) <sup>1,2</sup>	±5% of reading or ±0.025 m/s (±5 ft/min), whichever is greater
Accuracy (TA430, TA440) <sup>1,2</sup>	±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 <sup>3</sup>	±0.3°C (±0.5°F)
Resolution	0.1°C (0.1°F)

##### Relative Humidity (TA440 only)

Range	5 to 95% RH
Accuracy <sup>4</sup>	±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	-18 to 93°C (0 to 200°F)
Operating (Probe)	-10 to 60°C (14 to 140°F)
Model TA440	-10 to 60°C (14 to 140°F)
Operating (Probe)	-20 to 60°C (-4 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
--------------------

Specifications subject to change without notice.

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France Tel: +33 491 11 87 64

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##### 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		+	+
LogData2 downloading software		+	+
Free Certificate of Calibration	+	+	+

<sup>1</sup> Temperature compensated over an air temperature range of 5 to 65°C (40 to 150°F).

<sup>2</sup> 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.

<sup>3</sup> 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.

<sup>4</sup> 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.

## Calibration Certificate of Air Flow Meter

AAST-FLOW-03, Cal=25 Jan 2022



### Cal Lab Limited 校正實驗室有限公司

Room 2103, Technology Plaza, 29-35 Sha Tsui Road,  
Tsuen Wan, NT, Hong Kong  
Tel: +852 25680106 Email: info@callab.com.hk  
Fax: +852 30116194 Website: www.callab.com.hk



### Calibration Certificate No.: CC0332201

#### Customer Information

Customer: Castco Testing Centre Limited  
Address: 33 On Kui Street, Fanling, N.T., Hong Kong

#### Equipment Identification

Equipment Description	Manufacturer	Model No.	Serial No.	Assigned equipment No.:
Air Velocity Meter	TSI	TA440	TA4401706003	AAST-FLOW-03

#### Certificate Information

Date of Receipt:	21 January 2022	Calibration Condition:	24.3°C, 53%RH, 1008hPa
Date of Calibration:	25 January 2022	Adjustment:	N/A
Due Date of Calibration:	N/A	Appearance:	Good
Calibration Procedure:	SOP-116	Remark:	N/A

#### Reference Equipment Identification

Equipment Description	Model	Serial No.	Expiration Date
Hot Wire Anemometer	9535	T95351316004	11 July 2022

#### Result of Calibration

Air Flow Rate					
Reference Reading (m/s)	Measured Reading (m/s)	Error (%)	Uncertainty (%FS)	Technical Requirement	Technical Reference Doc.
0.00	0.00	N/A	3.6	± 3%	Mfr's Spec.
0.51	0.50	-2.0	3.6	± 3%	Mfr's Spec.
5.02	4.89	-2.6	3.6	± 3%	Mfr's Spec.
10.03	10.05	2.0	3.6	± 3%	Mfr's Spec.

CT-AFR-01

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 shown in this calibration certificate relate only to the item calibrated, and the result only applies to the calibration item as received.

Calibrated By:

Rex Tse

Checked and Approved By:

Warren Yeung

Company Chop:



Certificate Issue Date: 25 January 2022

CT-BEG-03

\*\*\* End of Certificate \*\*\*

1. The certificate shall not be reproduced except in full, without written approval of Cal Lab Calibration  
2. The certificate is issued subject to the latest Terms and Conditions, available at our web site

CC0332201  
Page 1 of 1

**Appendix K – Noise monitoring results and graphical presentation**



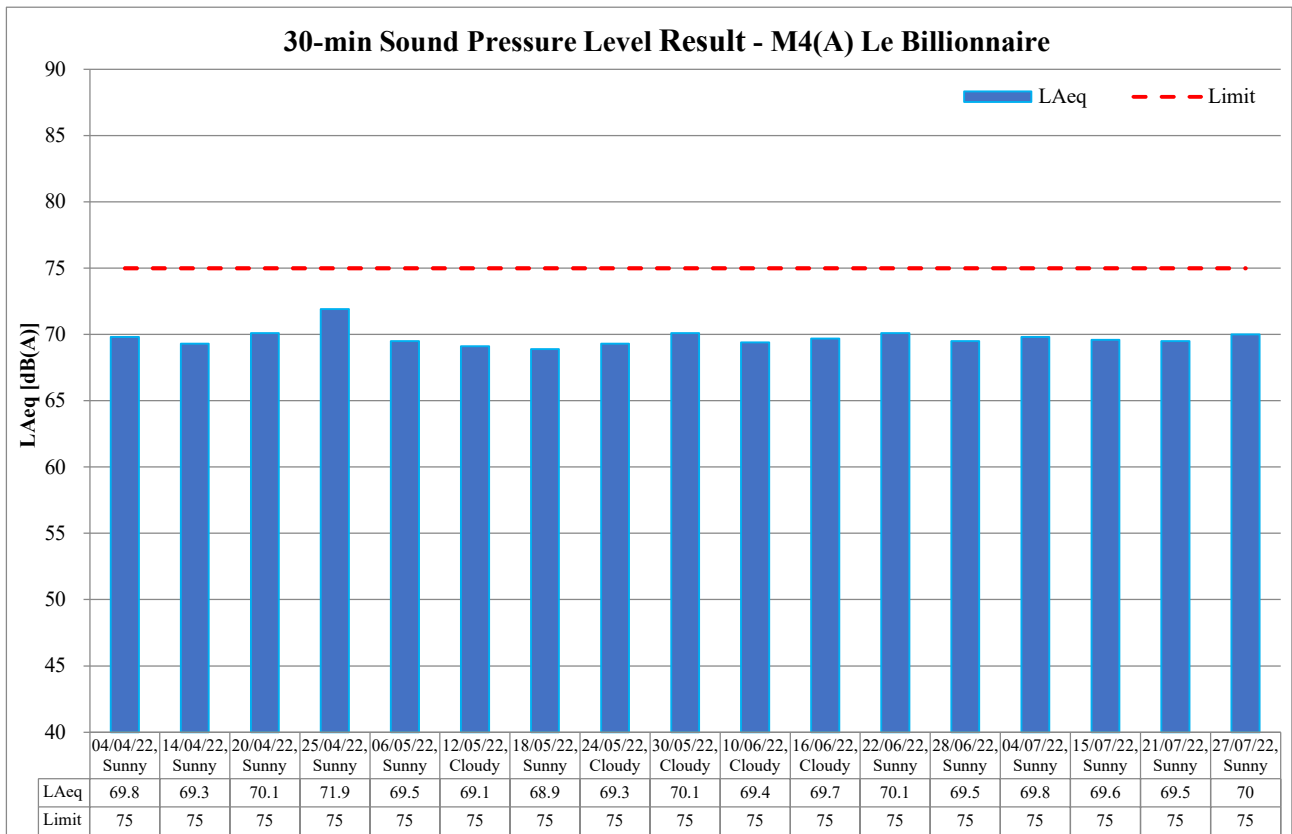
**M4(A) – Le Billionnaire**

Date	Temp (°C)	Weather	Measured Noise Level at M4(A), dB(A)							Limit
			Time			Baseline	L <sub>Aeq</sub>	L <sub>A10</sub>	L <sub>A90</sub>	
04/07/2022	29.4	Sunny	13:10	-	13:40	69.5	69.8	71.3	68.4	75
15/07/2022	33.7	Sunny	9:15	-	9:45	69.5	69.6	70.9	68.1	75
21/07/2022	32.6	Sunny	13:05	-	13:35	69.5	69.5	70.7	67.9	75
27/07/2022	32.7	Sunny	9:27	-	9:57	69.5	70.0	70.7	68.8	75
							Maximum	70.0		
							Minimum	69.5		
							Average	69.7		

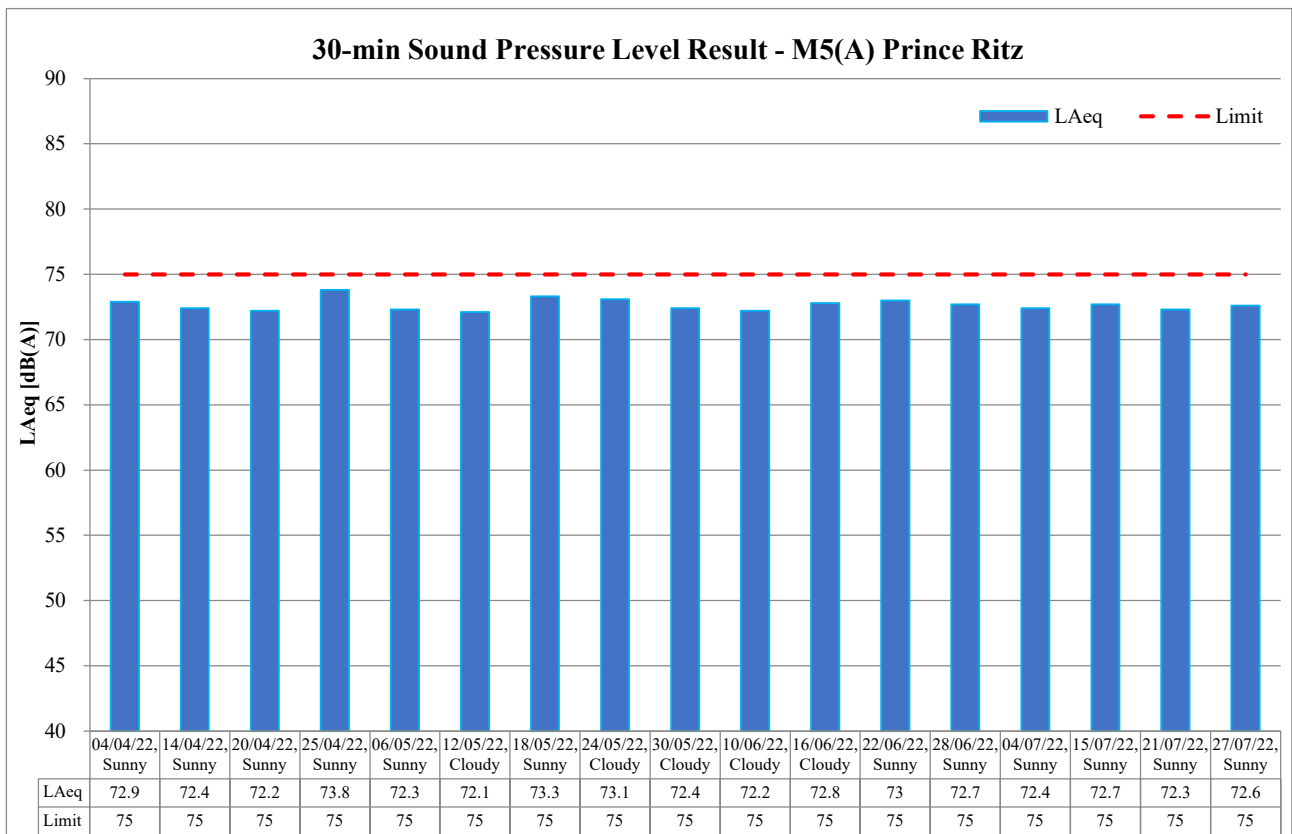
**M5(A) – Prince Ritz**

Date	Temp (°C)	Weather	Measured Noise Level at M5(A), dB(A)							Limit
			Time			Baseline	L <sub>Aeq</sub>	L <sub>A10</sub>	L <sub>A90</sub>	
04/07/2022	29.4	Sunny	14:10	-	14:40	72.5	72.4	73.5	68.7	75
15/07/2022	33.7	Sunny	10:15	-	10:45	72.5	72.7	73.6	70.1	75
21/07/2022	32.6	Sunny	14:05	-	14:35	72.5	72.3	73.1	69.1	75
27/07/2022	32.7	Sunny	10:46	-	11:16	72.5	72.6	74.0	70.8	75
							Maximum	72.7		
							Minimum	72.3		
							Average	72.5		

**L<sub>Aeq</sub>, 30-min graphical results of M4(A) – Le Billionnaire**



**L<sub>Aeq</sub>, 30-min graphical results of M5(A) – Prince Ritz**



Major Construction Activities	Reporting Period			
	April 2022	May 2022	June 2022	July 2022
Construction of Crowd Dispersal Route	✓	✓		
ELS and excavation at Pier 9 for Elevated Walkway LW-02	✓			
Underground utility diversion works at Sa Po Road	✓			
ELS and excavation at launching shaft for subway SB-01	✓			
Construction of DCS	✓	✓	✓	✓
Construction works for Road L16	✓	✓	✓	✓
Renovation works for existing subways KS9 and KS32	✓	✓	✓	✓
Pile cap construction for PC9 and PC10 for Elevated Walkway LW-02	✓	✓		
Pile column construction for PC9 and PC10 for Elevated Walkway LW-02			✓	✓
Construction works for Pedestrian Street No. 1, No. 2, No. 3 & No. 4	✓	✓		
Post-pilling tests for H-piles at Subway KS10	✓			
Erection of temporary decking across existing Kai Tak River	✓	✓	✓	✓
ELS and excavation for Subway KS10 Lift and Staircase	✓	✓	✓	✓
Demolition works to existing subway KS10 staircase and ramp	✓	✓		
Road diversion works at Sa Po Road		✓		
ELS and excavation at launching shaft for subway SB-01		✓		
ELS and excavation for PC11 for Elevated Walkway LW-02			✓	✓
Trial pit excavation and UU diversion at Sa Po Road under TTA Stage 2			✓	✓
ELS, excavation and RC construction at launching shaft for subway SB-01			✓	✓
Construction works for Pedestrian Street No. 2 & No. 4			✓	✓
RC construction at Launching Shaft for SB-01				✓
Twin rising main connection works				✓

Factors might affect the monitoring results	Reporting Period			
	April 2022	May 2022	June 2022	July 2022
Non-project related construction activities in the adjacent construction sites were observed.	✓	✓	✓	✓

**Appendix L – Event and Action Plan for noise**

Event	Action			
	ET	IEC	Supervisor / ER	Contractor
Action Level being exceeded	<ol style="list-style-type: none"> <li>1. Notify Supervisor / ER, IEC and Contractor;</li> <li>2. Carry out investigation;</li> <li>3. Report the results of investigation to the IEC, Supervisor / ER and Contractor;</li> <li>4. Discuss with the IEC and Contractor on remedial measures required;</li> <li>5. Increase monitoring frequency to check mitigation effectiveness.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified.)</p>	<ol style="list-style-type: none"> <li>1. Review the investigation results submitted by the ET;</li> <li>2. Review the proposed remedial measures submitted by the Contractor and advise the ER accordingly;</li> <li>3. Advise the Supervisor / ER on the proposed remedial measures.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified.)</p>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Supervise the implementation of remedial measures.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified.)</p>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposal to IEC and Supervisor / ER;</li> <li>2. Implement noise mitigation proposals.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified.)</p>
Limit Level being exceeded	<ol style="list-style-type: none"> <li>1. Inform IEC, Supervisor /ER, Contractor and EPD;</li> <li>2. Repeat measurement to confirm findings;</li> <li>3. Increase monitoring frequency;</li> <li>4. Identify source and investigate the cause of exceedance;</li> <li>5. Carry out analysis of Contract's working procedure;</li> <li>6. Discuss remedial measures required with the IEC, Contractor and Supervisor /ER;</li> <li>7. Assess effectiveness of</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss the potential remedial actions with Supervisor /ER, ET and Contractor;</li> <li>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the Supervisor /ER accordingly.</li> </ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified.)</p>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Supervise the implementation of remedial measures;</li> <li>5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC and Supervisor /ER within 3 working days of notification;</li> <li>3. Implement the agreed proposal;</li> <li>4. Submit further proposal if problem still not under control;</li> <li>5. Stop the relevant portion of works as instructed by the Supervisor /ER until the exceedance is abated.</li> </ol> <p>(The above actions should be</p>

Event	Action			
	ET	IEC	Supervisor / ER	Contractor
	<p>Contractor's remedial actions and keep IEC, EPD, and Supervisor /ER informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified.)</p>		<p>exceedance until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified.)</p>	<p>taken within 2 working days after the exceedance is identified.)</p>

**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**

**MONTHLY SUMMARY WASTE FLOW TABLE FOR 2022 (YEAR)**

Month	Actual Quantities of Inert C&D Materials Generated Monthly								Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated A + B	Broken Concrete Generated A	General fill Generated B	Broken Concrete Reused in the Contract	General Fill Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Import Fill	Metals	Paper / Cardboard Packaging	Plastics (3)	Chemical Waste	Other, e.g. general refuse
	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000m <sup>3</sup> ]
JAN	1.91	0.00	1.91	0.00	1.20	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.01
FEB	0.66	0.03	0.63	0.00	0.30	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00
MAR	0.97	0.00	0.97	0.00	0.25	0.00	0.72	0.00	0.00	0.00	0.00	0.00	0.01
APR	0.97	0.00	0.97	0.00	0.30	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.01
MAY	0.37	0.01	0.36	0.00	0.22	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.01
JUNE	0.47	0.00	0.47	0.00	0.22	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.01
SUB-TOTAL	5.35	0.04	5.31	0.00	2.49	0.00	2.82	0.00	0.00	0.00	0.00	0.00	0.05
JULY	1.88	0.00	1.88	0.00	0.35	0.00	1.53	0.00	0.00	0.00	0.00	0.00	0.01
AUG													
SEPT													
OCT													
NOV													
DEC													
TOTAL	5.35	0.04	5.31	0.00	0.00	0.00	2.82	0.00	0.00	0.00	0.00	0.00	0.05

**Appendix O – Environmental Mitigation Implementation Schedule  
(EMIS)**

EIA Ref	Recommended Mitigation Measures	Implementation			
Part B Water Quality		Not Observed	Yes	No	Remark
S8.8	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. <del>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 and adequate maintenance of drainage systems to prevent flooding and overflow</del>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S8.8	Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. <del>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 1/04.</del>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S8.8	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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S8.8	Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m <sup>3</sup> capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. <del>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.</del>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S8.8	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m <sup>3</sup> 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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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. Particular attention should be paid to the control of silty surface runoff during storm events.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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. <del>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.</del>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S8.8	<i>Drainage</i> 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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S8.8	<i>Sewage Effluent</i> Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S8.8	<i>Stormwater Discharges</i> Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S8.8	<i>Debris and Litter</i> 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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

EIA Ref	Recommended Mitigation Measures	Implementation			
	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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S8.8	Stockpiling of construction materials and dusty materials should be covered and located away from any water courses.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S8.8	Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S8.8	Construction effluent, site run-off and sewage should be properly collected and/or treated.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S8.8	Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert/drainage channel/sea.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S8.8	Supervisory staff should be assigned to station on site to closely supervise and monitor the works	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Part C Construction Noise Impact</b>		Not Observed	Yes	No	Remark
S7.8	Use of quiet PME, movable barriers for Asphalt Paver, Breaker, Excavator and Hand-held breaker and full enclosure for Air Compressor, Bar Bender, Concrete Pump, Generator and Water Pump	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S7.9	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.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Part D Waste / Chemical Management</b>		Not Observed	Yes	No	Remark
S5.2	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	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Training of site personnel in site cleanliness, proper waste management and chemical waste handling procedures	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Provision of sufficient waste disposal points and regular collection for waste. Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. Separation of chemical wastes for special handling and appropriate treatment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S9.5	1)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 2)Training of site personnel in proper waste management and chemical waste handling procedures 3)Provision of sufficient waste disposal points and regular collection for disposal 4)Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers 5)A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

EIA Ref	Recommended Mitigation Measures	Implementation			
S9.5	Waste Reduction Measures 1) Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals 2) 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 3) 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 4) Any unused chemicals or those with remaining functional capacity should be recycled 5) Proper storage and site practices to minimize the potential for damage or contamination of construction materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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: 1) <del>Where it is unavoidable to have transient stockpiles of C&amp;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</del> 2) <del>Open stockpiles of construction materials or construction wastes on site should be covered with tarpaulin or similar fabric</del> 3) <del>Skip hoist for material transport should be totally enclosed by impervious sheeting</del> 4) Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site 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 6) <del>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</del> 7) <del>All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet</del>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S9.5	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 designated 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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S9.5	Chemical Waste After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the <i>Waste Disposal (Chemical Waste) (General) Regulation</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Part E Landscape &amp; Visual</b>		Not Observed	Yes	No	Remark
S13.9	CM1 - All existing trees should be carefully protected during construction. <del>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.</del> CM3 - Control of night time lighting. CM4 - Erection of decorative screen hoarding.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Part F Air Quality</b>		Not Observed	Yes	No	Remark
S6.8	<del>Stockpiling site(s) should be lined with impermeable sheeting and bunded.</del> Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S6.8	Misting for the dusty material should be carried out before being loaded into the vehicle.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S6.8	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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S6.8	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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S6.8	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	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S6.8	Vehicle washing facilities should be provided at every vehicle exit point	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S6.8	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.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S6.8	Every main haul road should be <del>sealed with concrete and</del> kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

EIA Ref	Recommended Mitigation Measures	Implementation			
S6.8	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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S6.8	Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S6.5	8 times daily watering of the work site with active dust emitting activities.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**Appendix P – Summaries of Environmental Complaint, Warning,  
Summon and Notification of Successful Prosecution**



**Reporting Month: July 2022**

<b>Contract No.</b>	<b>Record of Complaint (Yes/No)</b>	<b>Record of Warning (Yes/No)</b>	<b>Notification of Summons and Successful Prosecutions (Yes/No)</b>
ED/2018/05	No	No	No

**Cumulative Statistics on Complaints, Notification of Summons and Successful Prosecutions upto reporting month**

<b>Contract No.</b>	<b>Record of Complaint</b>	<b>Record of Warning</b>	<b>Notification of Summons and Successful Prosecutions</b>
ED/2018/05	1	0	0