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

Our ref: 12-1-2021

12-1-2021 By hand

Environmental Protection Department
Environmental Assessment Division
Metro Assessment Group
Kowloon Section (2)
27th floor, Southorn Centre,
130 Hennessy Road,
Wan Chai, Hong Kong
(Attn: Mr. TANG Ho Him, Matthew)

Dear Mr. TANG,

**Contract No. EDO 15/2018**

**Environmental Monitoring Works for Contract No. ED/2018/01 – Kai Tak Development – Stage 4 infrastructure at the Former Runway and South Apron**

**Submission of Monthly EM&A Report for December 2020**

I refer to the Environment Permit (EP) No. EP-337/2009 and EP-445/2013/A for the captioned project.

Pursuant to Condition 3.3 of the EP-337/2009 and Condition of the 3.2 of the EP-445/2013/A, please find enclosed four hard copies and one electronic copy of Monthly EM&A Report for December 2020, which has been certified by the ET leader and verified by the IEC, for your reference.

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 Chan Pang
Environmental Team Leader
Encl. Monthly EM&A report in December 2020

Unit 2, 13/F Kai Yue Commercial Building, 2C Argyle St, Mong Kok, Kowloon
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bsi. ISO 9001 Quality Management FS 681274 | ISO 14001 Environmental Management EMS 717625 | ISO 45001 Occupational Health and Safety Management OHS 717629

# 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

December 2020

(Version 1.1)

Certified By:

(Environmental Team Leader)

Ref.: CEDKTDS4EM00_0_0121L.21

11 January 2021

AECOM Asia Company Limited
8/F, Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
Shatin, Hong Kong

By Post and E-mail

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 December 2020**

Reference is made to the Environmental Team's submission of the Monthly EM&A Report for December 2020 (Version 1.1) certified by the ET Leader and provided to us via email on 11 January 2021. Please be informed that we have no further comments 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/A.

The ET Leader is reminded that it is the ET's responsibility to ensure the reported information be true, valid and correct as per Condition 3.4 of EP-337/2009 and Condition 3.3 of EP-445/2013/A.

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

Yours faithfully,

For and on behalf of

Ramboll Hong Kong Limited

Manson Yeung

Independent Environmental Checker

| | | | |
|---|---|---|---|
| c.c. | CEDD | Attn.: Mr. Ronald Siu | Fax: 2739 0076 |
| | Ka Shing | Attn.: Mr. Chan Pang | By e-mail |
| | Penta-Ocean | Attn.: Mr. Daniel Ho | Fax: 2572 4080 |

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Ramboll Hong Kong Limited 英環香港有限公司
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# EXECUTIVE SUMMARY

1. This is the 12th Monthly Environmental Monitoring & Audit (EM&A) report which summaries the findings of the EM&A Programme during the reporting period from 1 to 31 December 2020.

**Breaches of Action and Limit Levels**

2. 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

3. 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

4. Construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

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

*Table I Non-compliance Record in the Reporting Month*

| Parameter | No. of Exceedance | | Action Taken |
|---|---|---|---|
| | Action Level | Limit Level | |
| 1-hr TSP | 0 | 0 | N/A |
| 24-hr TSP | 0 | 0 | N/A |
| Construction noise | 0 | 0 | N/A |

**Complaint log**

6. No complaint was received in the reporting month. Summary of complaints in the reporting month is tabulated in Table II.

*Table II Summary of complaints in the Reporting Month*

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

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

**Notifications of summons and successful prosecutions**

7. No notification of summons and successful prosecutions was received in the reporting month. Summary of summons and successful prosecutions in the reporting month is tabulated in Table III.

*Table III Summary of summons and successful prosecutions in the Reporting Month*

| Date of receiving notification of summons or prosecutions | Date of event | Description of event | Action take | Close-out date / Status |
|---|---|---|---|---|
| No notification of summons and successful prosecutions were received in the reporting month. | NA | NA | NA | NA |

**Report changes**

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

**Key construction works in the reporting month**

9. Major construction activities undertake during the reporting month included:
   - Ground investigation works
   - Noise barrier – Trial pit and utilities diversion
   - Elevated landscape deck –Bored pile
   - Excavation for North Approach Ramp
   - Permanent Structure Construction for North Depressed Road
   - Construction of Permanent Structure for Pile Cap
   - Construction of base slab and wall for North Approach Ramp
   - ELS works for Noise Barrier Foundation
   - Excavation and ELS for Underpass and South Depressed Road
   - Metal Scaffolding and Falsework Erection & Dismantling at North Approach Ramp

**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 |
|---|---|
| Excavation for North Approach Ramp | Noise and Air Quality |
| Excavation and ELS for Underpass and South Depressed Road | Noise and Air Quality |
| Construction of base slab and wall for North Approach Ramp | Noise and Air Quality |
| Noise barrier – Trial pit and utilities diversion | Noise and Air Quality |
| Bored Pile Construction for Landscape Deck | Noise and Air Quality |
| Permanent Structure Construction for North Depressed Road | Noise and Air Quality |
| Fabrication of Precast Yard and Precast Units of DCS Intake Box Culvert | Noise and Air Quality |
| ELS works for Noise Barrier Foundation | Noise and Air Quality |

# 1. INTRODUCTION

**Project Background**

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

1.2 Contract No. ED/2018/01 - Kai Tak Development – stage 4 infrastructure at the former runway and south apron (The Project), comprises mainly the design and construction of a dual two- lane Road D3 (Metro Park Section), a single 2-lane Road L12d, a salt water pumping station, a sewage pumping station, landscaped deck and promenade above and adjoining Road D3 (Metro Park Section) respectively, some remaining road works at Road L14, noise barrier at Road D3A, and other associated works at the former runway and south apron. The proposed works are shown in Figure 1 and Figure 2. During the course of the Contract No. ED/2018/01, there may be modification of noise barriers in association with the construction of footbridges connecting to the landscaped deck of Road D3A by developers of adjacent lands (Figure 3). The proposed works and site boundary are shown in Figure 4.

1.3 Civil Engineering and Development Department (CEDD) had completed an Environmental Impact Assessment (EIA) and is the Permit Holder.

1.4 The construction work under ED/2018/01 comprises the EM&A Manuals (EIA Register Nos. AEIAR-130/2009 for Kai Tak Development and EIA Register Nos. AEIAR-170/2013 for Roads D3A and D4A) and Environmental Permit (EP) Nos. EP-337/2009, EP-445/2013 and Variation to the EP (VEP) No. EP-445/2013/A.

1.5 Air quality and noise monitoring has been proposed in the EM&A Manual with EIA Register Nos. AEIAR-130/2009 for Kai Tak Development while no air quality and noise monitoring are proposed in EM&A Manual with EIA Register Nos. AEIAR-170/2013 for Roads D3A and D4A.

## Project Organization

1.6 The project organization chart and with respect to the EM&A programme is shown in Appendix A. Information of key personnel contact names and telephone numbers are summarized in Table 1.1.

*Table 1.1 Contact Information of Key Personnel*

| Party | Role | Contact Person | Position | Phone No. | Fax No. |
|---|---|---|---|---|---|
| Civil Engineering and Development Department (CEDD) | Project Proponent | Mr. Ronald Siu | Senior Engineer | 3579 2452 | 2739 0076 |
| | | Mr. Edwin Chan | Engineer | 3579 2458 | 2739 0076 |
| AECOM Asia Co. Ltd. (AECOM) | Supervisor (act as Engineers' Representative (ER) listed in EM&A Manual) | Mr. Clive Cheng | CRE | 3911 4201 | 3911 4288 |
| Ramboll Hong Kong Limited (Ramboll) | Independent Environmental Checker (IEC) | Mr. Manson Yeung | IEC | 9700 6767 | 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 | Ms. Juliet Ting | Environmental Officer | 9555 8820 | 3465 8898 |

## Works Area and Construction Programme

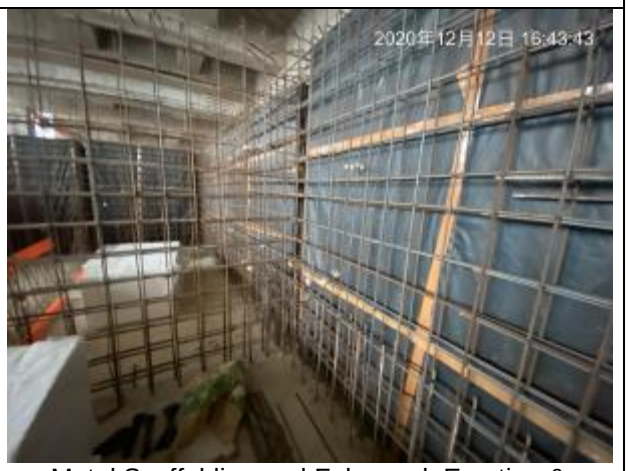
1.7 The construction works commenced on 20 January 2020.The construction programme of the Project is given in Appendix B.

**Construction works undertaken during reporting month**

1.8 Major construction works of the Project in the reporting month are summarized in Table 1.2:

*Table 1.2 Major activities of the Project during reporting month*

| | |
|---|---|
| Ground investigation works | Noise barrier – Trial pit and utilities diversion |
| Excavation for North Approach Ramp | Permanent Structure Construction for North Depressed Road |

| | |
|---|---|
| <br>Construction of base slab and wall for North Approach Ramp | <br>ELS works for Noise Barrier Foundation |
| <br>Excavation and ELS for Underpass and South Depressed Road |  <br>Metal Scaffolding and Falsework Erection & Dismantling at North Approach Ramp |
| <br>Construction of Permanent Structure for Pile Cap | <br>Elevated landscape deck – Bored Pile |

**Submission Status under the Environmental Permits**

1.9 The status of required submission under Environmental Permit (EP) conditions under

EP-337/2009, EP-445/2013 and Variation to the EP (VEP) No. EP-445/2013/A are summarized in Table 1.3.

*Table 1.3 Summary of Status of Required Submission of EPs*

| EP Condition EP-337/2009 | EP Condition EP-445/2013 | EP Condition EP-445/2013/A | Submission | Submission Date |
|---|---|---|---|---|
| Condition 1.11 | Condition 1.12 | Condition 1.12 | Notification of Commencement Date of Construction of the Project | 6 Jan 2020 |
| Condition 2.3 | Condition 2.3 | Condition 2.3 | Management Organization of Main Construction Companies | 9 Sep 2019 |
| Condition 2.3 | Condition 2.3 | Condition 2.3 | Updated Management Organization of Main Construction Companies | 28 May 2020 |
| Condition 2.4 | Condition 2.4 | Condition 2.4 | Design Drawings | 6 Jan 2020 |
| Condition 2.11 | Condition 2.5 | Condition 2.5 | Landscape Mitigation Plans | 13 Nov 2020 |
| Condition 3.2 | NA | NA | Baseline Monitoring Report | 2 Jan 2020 |
| Condition 3.2 | NA | NA | Revised Baseline Monitoring Report | 28 Mar 2020 |
| Condition 3.3 | Condition 3.2 | Condition 3.2 | Monthly EM&A Report (November 2020) | 11 December 2020 |

# 2. AIR QUALITY MONITORING

## Monitoring Requirements

2.1 In accordance with EM&A Manuals (EIA Register Nos. AEIAR-130/2009), impact air quality monitoring shall be carried out during the construction phase of the Project. For regular impact monitoring, a sampling frequency of at least once in every six says will be strictly observed at all of the monitoring stations for 24-hour TSP. For 1-hour TSP monitoring, the sampling frequency of at least three times in every six days will be undertaken when the highest dust impact occurs.

## Monitoring Locations

2.2 Three designated monitoring stations were selected for air quality monitoring programme. Impact air quality monitoring was conducted at three air quality monitoring stations in the reporting month. Table 2.1 describes the air quality monitoring locations, which are also depicted in Figure 5.

*Table 2.1 Locations of Air Quality Monitoring Stations*

| Air Quality Monitoring Locations for the Project | Location of Measurement |
|---|---|
| AM3 - Sky Tower | Podium floor near T7 |
| AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop | Rooftop |
| AM7 – Hong Kong Children's Hospital | Rooftop |

## Monitoring Parameters, Frequency and Duration

2.3 The air quality monitoring locations and monitoring frequency are listed in Table 2.2.

*Table 2.2 Air Quality Monitoring Parameters, Frequency and Duration*

| Air Monitoring Station | Location for Measurement | Parameter | Duration | Frequency |
|---|---|---|---|---|
| AM3 - Sky Tower | Podium floor near T7 | - 24-hour average TSP<br>- 1-hour average TSP | - 24 hours<br>- 1 hour | - Once every 6 days<br>- Three times every 6 days |
| AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop | Rooftop | | | |
| AM7 - Hong Kong Children's Hospital | Rooftop | | | |

2.4 The monitoring schedule for reporting month and next month is presented in Appendix C.

2.5 Photographic records of the impact monitoring setup are shown in Appendix D.

**Monitoring Equipment**

2.6 24-hour average TSP and 1-hour average TSP levels were measured for impact monitoring. 24-hour average TSP levels were measured by the High Volume Samplers (HVS) and 1-hour average TSP levels were measured by direct reading method to indicate short-term impacts. Wind data monitoring equipment was set up at conspicuous locations for logging wind speed and wind direction near to the dust monitoring locations. Table 2.3 summarizes the equipment to be used in the air quality monitoring.

*Table 2.3 Air Quality Monitoring Equipment*

| Equipment | Model | Quantity |
|---|---|---|
| HVS Sampler | TE-5170 X c/w of TSP sampling inlet | 3 |
| Calibrator | TISCH TE-5025A | 1 |
| 1-hour TSP Dust Meter | TSI Model AM510 SidePak Personal Aerosol Monitor | 2 |
| Wind Anemometer | Davis Vantage Pro2 Weather Station | 1 |

2.7 High volume samplers (HVS) (TE-5170 X c/w of TSP sampling inlet) comprising with appropriate sampling inlets were employed for 24-hour TSP monitoring. The sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

2.8 Calibration certificates, catalogue of equipment are given in Appendix E.

## Monitoring Methodology and QA/QC Procedure

### *24-hour TSP Monitoring*

Operating/Analytical Procedures

2.9 Setup criteria of HVS are shown as follows:

- A horizontal platform with appropriate support to secure the samplers against gusty wind was provided.
- No two samplers were placed less than 2m apart.
- The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
- A minimum of 2m of separation from walls, parapets and penthouses was set for the rooftop samples.
- A minimum of 2m separation from any supporting structure, measured horizontally was set.
- No furnaces or incineration flues was nearby.
- Airflow around the sampler was unrestricted.
- The sampler was more than 20m from the dripline.
- Any wire fence and gate, to protect the samplers, was not caused any obstruction during monitoring.
- Permission were obtained to setup the samplers and to obtain access to the monitoring stations.
- A secured supply of electricity was provided to operate the samplers.

2.10 Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 $m^3$/min. and 1.7 $m^3$/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

2.11 For TSP sampling, Glass Fiber Filter Media 8" x 10" have a collection efficiency of > 99 % for particles of 0.3 μm diameter were used.

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

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

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

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

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

2.17 After sampling, the filter was removed from the HVS and put into a clean and labeled seal plastic bag to avoid cross contamination. The elapsed time was also be recorded. The sampled filters were sent to the Castco Testing Centre Limited for weighting.

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

Maintenance/Calibration

2.19 The following maintenance/calibration are required for the HVS:

- The HVS and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
- High volume samplers were calibrated with at bi-monthly intervals using TE-5025A Calibration Kit throughout all stages of the air quality monitoring.

***1-hour TSP Monitoring***

Measurement Procedures

2.20 The measurement procedures of the 1-hour TSP were conducted in accordance with the

Manufacturer's Instruction Manual as follows:

- Set up the dust meter on a tripod at 1.2m level.
- Turned on the dust meter and check the battery, if too low, change new ones. Pointed the meter to the source area or the planned measurement area.
- The zero calibration of the instrument was conducted before and after each sampling.
- TSP levels were recorded for 1-hour with 5-minute data logging interval.
- Recorded down the general meteorological conditions, Test ID no., start/end time, initial/final reading at each sampling location for data processing.
- Recorded any activities that may generate dust during measurement period.

Maintenance/Calibration

2.21 The following maintenance/calibration are required for the direct dust meters:

- To validity the accuracy of dust meter, compare the results measured by dust meter and HVS by direct reading method every 12 months throughout all stages of the air quality monitoring.

## Wind Data Monitoring

2.22 Wind Anemometer was installed at the roof-top of AM7 - Hong Kong Children's Hospital with 10m above ground and clear of constructions or turbulence caused by the buildings.

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

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

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

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

## Action and Limit Levels

2.27 The Action and Limit Levels of 24-hour average TSP and 1-hour average TSP are summarized

in Table 2.4 and Table 2.5 respectively.

*Table 2.4 Action and Limit Levels of 24-hour average TSP for Construction Dust Monitoring*

| Parameter | Air Monitoring Station | Action Level, $\mu g/m^3$ | Limit Level, $\mu g/m^3$ |
|---|---|---|---|
| 24-hour average TSP | AM3 | 182 | 260 |
| | AM4(A) | 187 | 260 |
| | AM7 | 181 | 260 |

*Table 2.5 Action and Limit Levels of 1-hour average TSP for Construction Dust Monitoring*

| Parameter | Air Monitoring Station | Action Level, $\mu g/m^3$ | Limit Level, $\mu g/m^3$ |
|---|---|---|---|
| 1-hour average TSP | AM3 | 297 | 500 |
| | AM4(A) | 326 | 500 |
| | AM7 | 315 | 500 |

**Impact Air Quality Monitoring results**

2.28 Impact monitoring results for 24-hour average TSP and 1-hour average TSP levels at the designed air quality monitoring stations are summarized in Table 2.6 and Table 2.7 respectively.

*Table 2.6 Summary of 24-hour average TSP Monitoring Data during the reporting month*

| Air Monitoring Station | Average TSP Concentration, $\mu g/m^3$ | Range, $\mu g/m^3$ | Action Level, $\mu g/m^3$ | Limit Level, $\mu g/m^3$ |
|---|---|---|---|---|
| AM3 | 88 | 58 – 119 | 182 | 260 |
| AM4(A) | 119 | 65 – 146 | 187 | 260 |
| AM7 | 92 | 56 – 140 | 181 | 260 |

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

| Air Monitoring Station | Average TSP Concentration, $\mu g/m^3$ | Range, $\mu g/m^3$ | Action Level, $\mu g/m^3$ | Limit Level, $\mu g/m^3$ |
|---|---|---|---|---|
| AM3 | 97 | 67 – 123 | 297 | 500 |
| AM4(A) | 117 | 82 – 139 | 326 | 500 |
| AM7 | 108 | 77 – 146 | 315 | 500 |

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

2.30 Graphical presentation and detailed monitoring results of 24-hour average TSP and 1-hour

average TSP levels are shown in Appendix G and Appendix H respectively.

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

2.32 Non-project related construction activities in the adjacent construction sites were observed during the reporting period and may affect the monitoring results.

# 3. NOISE MONITORING

## Monitoring Requirements

3.1 In accordance with EM&A Manuals (EIA Register Nos. AEIAR-130/2009), impact noise monitoring shall be carried out during the construction phase of the Project.

3.2 Regular monitoring, $L_{Aeq, 30\text{-minute}}$, for each station will be on a weekly basis and conduct one set of measurements between 0700 – 1900 on normal weekdays.

3.3 If construction works are extended to include works during 1900 – 0700 as well as public holidays and Sundays, additional weekly impact monitoring will be carried out during the respective restricted hours periods.

## Monitoring Locations

3.4 Two designated monitoring stations were selected for noise monitoring programme. Impact noise monitoring was conducted at two noise monitoring stations in the reporting month. Table 3.1 describes the noise monitoring locations, which are also depicted in Figure 6.

*Table 3.1 Locations of Noise Monitoring Stations*

| Noise Monitoring Locations for the Project | Location of Measurement |
|---|---|
| M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop | Rooftop (Façade) |
| M12 - Hong Kong Children's Hospital | Rooftop (Façade) |

## Monitoring Parameters, Frequency and Duration

3.5 The noise monitoring locations and monitoring frequency are listed in Table 3.2.

*Table 3.2 Noise Monitoring Parameters, Frequency and Duration*

| Noise Monitoring Station | Location for Measurement | Parameter | Frequency and Duration |
|---|---|---|---|
| M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop | Rooftop (Façade) | $L_{Aeq}$, $L_{A10}$ and $L_{A90}$ | 30 - minutes measurement at each monitoring station between 0700 – 1900 hrs on normal weekdays (Monday to Saturday) at frequency of once per week. |
| M12 - Hong Kong Children's Hospital | Rooftop (Façade) | | |

3.6 The monitoring schedule for reporting month and next month is presented in Appendix C.

3.7 Photographic records of the monitoring setup are shown in Appendix D.

## Monitoring Equipment

3.8 As referred to in the Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO), sound level meters in compliance with the IEC 61672-1 (Type 1) standard [this standard replaced the International Electrotechnical Commission Publications 60651:1979 (Type 1) and 60804:1985 (Type 1)] were used for noise monitoring. Table 3.3 summarizes the equipment to be used in the noise monitoring.

*Table 3.3 Noise Monitoring Equipment*

| Equipment | Model | Quantity |
|---|---|---|
| Sound Level Meter | RION NL52 | 2 |
| Sound Level Calibrator | RION NC 74 | 2 |
| 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 ^ |
|---|---|---|---|---|
| 0700 – 1900 on normal weekdays | M11 | 68.3 | When one documented complaint is received. | 75 dB(A) |
| | M12 | 61.9 | | |

Note: ^ If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit

(CNP) issued by the Noise Control Authority have to be followed.

**Impact Noise Monitoring results**

3.20 Impact noise monitoring results at the designed noise monitoring stations are summarized in Table 3.5 respectively.

*Table 3.5 Summary of Noise Monitoring Data during the reporting month*

| Noise Monitoring Station | Measured $L_{Aeq, 30\text{-}min}$, Average, dB(A) | Measured $L_{Aeq, 30\text{-}min}$, Range, dB(A) | Action Level | Limit Level ^ |
|---|---|---|---|---|
| M11 | 71.7 | 69.6 – 73.7 | When one documented complaint is received | 75 dB(A) |
| M12 | 66.5 | 64.9 – 67.6 | | |

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 (December 2020) $\mu g/m^3$ |
|---|---|---|---|---|
| | | Scenario 1 (Mid 2009 to Mid 2013), $\mu g/m^3$ | Scenario 2 (Mid 2013 to Late 2016), $\mu g/m^3$ | |
| AM3 - Sky Tower | A40^ | 106 | 138 | 58 – 119 |
| AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop | A43^ | 123 | 195 | 65 – 146 |
| AM7 – Hong Kong Children's Hospital | PA60 | NA | NA | 56 – 140 |

Note:
^ Prediction results are given in the Table 3.13 of the EIA report EIA Register Nos. AEIAR-130/2009 for Kai Tak Development.

*Table 4.2 Comparison of 1-hour average TSP Monitoring Data with EIA predictions*

| Air Monitoring Station | ASR No. in EIA report | Predicted Cumulative Maximum 1-hour average TSP concentration | | Measured 1-hr average TSP in Reporting Month (December 2020) $\mu g/m^3$ |
|---|---|---|---|---|
| | | Scenario 1 (Mid 2009 to Mid 2013), $\mu g/m^3$ | Scenario 2 (Mid 2013 to Late 2016), $\mu g/m^3$ | |
| AM3 - Sky Tower | A40 | 217^ | 247^ | 67 – 123 |
| AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop | A43 | 283^ | 409^ | 82 – 139 |
| AM7 – Hong Kong Children's Hospital | PA60 | NA | NA | 77 – 146 |

Note:
^ Prediction results are given in the Table 3.13 of the EIA report EIA Register Nos. AEIAR-130/2009 for Kai Tak Development.

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

| Noise Monitoring Station | NSR No. in EIA report | Predicted Mitigated Construction Noise Levels during Normal Daytime Working Hour $L_{Aeq, 30min}$, dB(A) | Measured Noise Level in Reporting Month (December 2020) $L_{Aeq, 30min}$, dB(A) |
|---|---|---|---|
| M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop | N18 | 50 – 76* | 69.6 – 73.7 |
| M12 - Hong Kong Children's Hospital | PN83, PN84, PN84A | NA | 64.9 – 67.6 |

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 higher than the Scenario 1 (Mid 2009 to Mid 2013) prediction but lower than the Scenario 2 (Mid 2013 to Late 2016) in the EIA Report. Non-project related construction activities in the adjacent construction sites were observed during the reporting period and may affect the monitoring results.

4.3 No prediction in the EIA Report for 24-hour TSP monitoring results at AM7.

4.4 1-hour TSP monitoring results at AM3, AM4(A) were recorded lower than the prediction in the EIA Report.

4.5 No prediction in the EIA Report for 1-hour TSP monitoring results at AM7.

4.6 Noise monitoring results at M11 was recorded lower than the prediction in the EIA Report.

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 3, 10, 17, 24 and 31 December 2020 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 |
|---|---|---|---|
| 3 December 2020 | No | NA | NA |
| 10 December 2020 | No | NA | NA |
| 17 December 2020 | No | NA | NA |
| 24 December 2020 | No | NA | NA |
| 31 December 2020 | No | NA | NA |

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

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

# 6. ENVIRONMENTAL SITE INSPECTION AND AUDIT

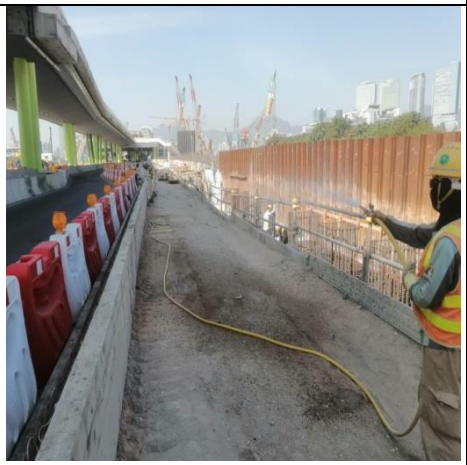
**Site Inspection**

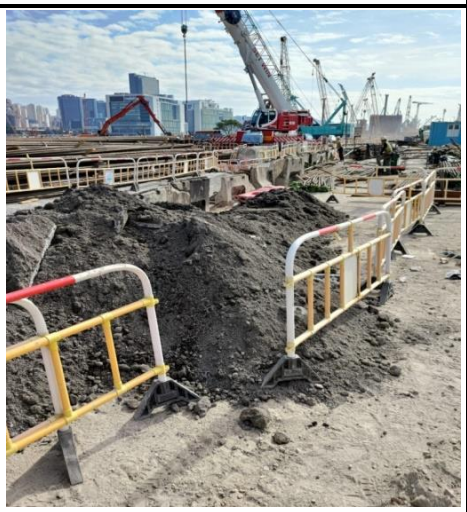
6.1 Site inspections were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.

6.2 Site inspections were conducted on 3, 10, 17, 24 and 31 December 2020 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 |
|---|---|---|---|
| 3 December 2020 | No | NA | NA |
| 10 December 2020 | <br>Observation:<br>Water spraying was not applied on the dusty walkways regularly at noise barrier working areas. |  <br>Action Taken:<br>Dust suppression measures were implemented at noise barrier working areas. | Closed-out 17 December 2020 |

| Inspection Date | Key Observations | Recommendations / Actions | Close-out Date / Status |
|---|---|---|---|
| 17 December 2020 | <br>Observation:<br>Accumulated waste should be removed. |  <br>Action Taken:<br>Waste was cleared. | Closed-out 24 December 2020 |
| 24 December 2020 | No | NA | NA |
| 31 December 2020 | No | NA | NA |

**Status of Waste Management**

6.4 The amount of wastes generated by the major site activities of the work contracts within the Project during the reporting month is shown in Appendix N.

6.5 The Contractor was registered as a chemical waste producer for the Project. The Contractor was reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

**Status of Environmental Licenses, Notification and Permits**

6.6 A summary of the relevant permits, licenses and/or notifications on environmental protection for the Project is shown in Table 6.2. Environmental licenses and notifications are reported in Appendix O.

*Table 6.2 Summary of Environmental Licenses, Notifications and Permits*

| Environmental Licenses, Notifications and Permits | Ref. No. | Valid Form | Valid Till |
|---|---|---|---|
| Environmental Permit under EIAO | EP-337/2009 | 23 Apr 2009 | N/A |
| | EP-445/2013 | 3 May 2013 | N/A |
| | EP-445/2013/A | 13 Aug 2014 | N/A |
| Construction Dust Notification under APCO | 445956 | 6 Jun 2019 | N/A |
| Wastewater Discharge License under WPCO | WT00034610-2019 | 26 Sep 2019 | 30 Sep 2024 |
| Waste Disposal Billing Account | 7034450 | 28 Jun 2019 | N/A |
| Registration as a Chemical Waste Producer | 5218-286-P3182-03 | 18 Jul 2019 | N/A |
| Construction Noise Permit | GW-RE0705-20 | 28 Aug 2020 | 23 Feb 2021 |
| | GW-RE0735-20 | 9 Sep 2020 | 6 Mar 2021 |
| | GW-RE0869-20 | 20 Oct 2020 | 8 Apr 2021 |
| | GW-RE0991-20 | 26 Nov 2020 | 25 May 2021 |
| | GW-RE1012-20 | 27 Nov 2020 | 25 May 2021 |
| | GW-RE1044-20 | 10 Dec 2020 | 01 June 2021 |
| | GW-RE1074-20 | 18 Dec 2020 | 17 June 2021 |

**Implementation Status of Environmental Mitigation Measures**

6.7 The Contractor has implemented environmental mitigation measures and requires as stated in the EIA reports, the EP and the EM&A Manuals. The implementation status of the mitigation measures during the reporting month is summarized in Appendix P.

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

**Environmental Complaint and Non-compliance**

6.9 No complaint was received in the reporting month. Summary of complaints in the reporting month is tabulated in Table 6.3.

*Table 6.3 Summary of complaints in the Reporting Month*

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

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

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

**Notifications of summons and successful prosecutions**

6.11 No notification of summons and successful prosecutions was received in the reporting month. Summary of summons and successful prosecutions in the reporting month is tabulated in Table 6.4.

*Table 6.4 Summary of summons and successful prosecutions in the Reporting Month*

| Date of receiving notification of summons or prosecutions | Date of event | Description of event | Action take | Close-out date / Status |
|---|---|---|---|---|
| No notification of summons and successful prosecutions were received in the reporting month. | NA | NA | NA | NA |

6.12 The summaries of cumulative environmental complaint, warning, summon and notification of successful prosecution for the Project is presented in Appendix Q.

# 7. FUTURE KEY ISSUES

**Construction Programme in the coming month**

7.1 The major construction activities and potential impacts in the next reporting month as follow:

*Table 7.1 Summary of future key issues and potential impact in the coming month*

| Future key issues in the coming month | Potential impact |
|---|---|
| Excavation for North Approach Ramp | Noise and Air Quality |
| Excavation and ELS for Underpass and South Depressed Road | Noise and Air Quality |
| Construction of base slab and wall for North Approach Ramp | Noise and Air Quality |
| Noise barrier – Trial pit and utilities diversion | Noise and Air Quality |
| Bored Pile Construction for Landscape Deck | Noise and Air Quality |
| Permanent Structure Construction for North Depressed Road | Noise and Air Quality |
| Fabrication of Precast Yard and Precast Units of DCS Intake Box Culvert | Noise and Air Quality |
| ELS works for Noise Barrier Foundation | 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.

**Environmental Site Inspection and Monitoring Schedule for next month**

7.3 The tentative schedule for weekly site inspection and air quality and noise monitoring in the next month is provided in Appendix C.

# 8. CONCLUSIONS

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

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

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

8.4 Construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

8.5 No complaint was received in the reporting month.

8.6 No notification of summons and successful prosecutions was received in the reporting month.

## Figure

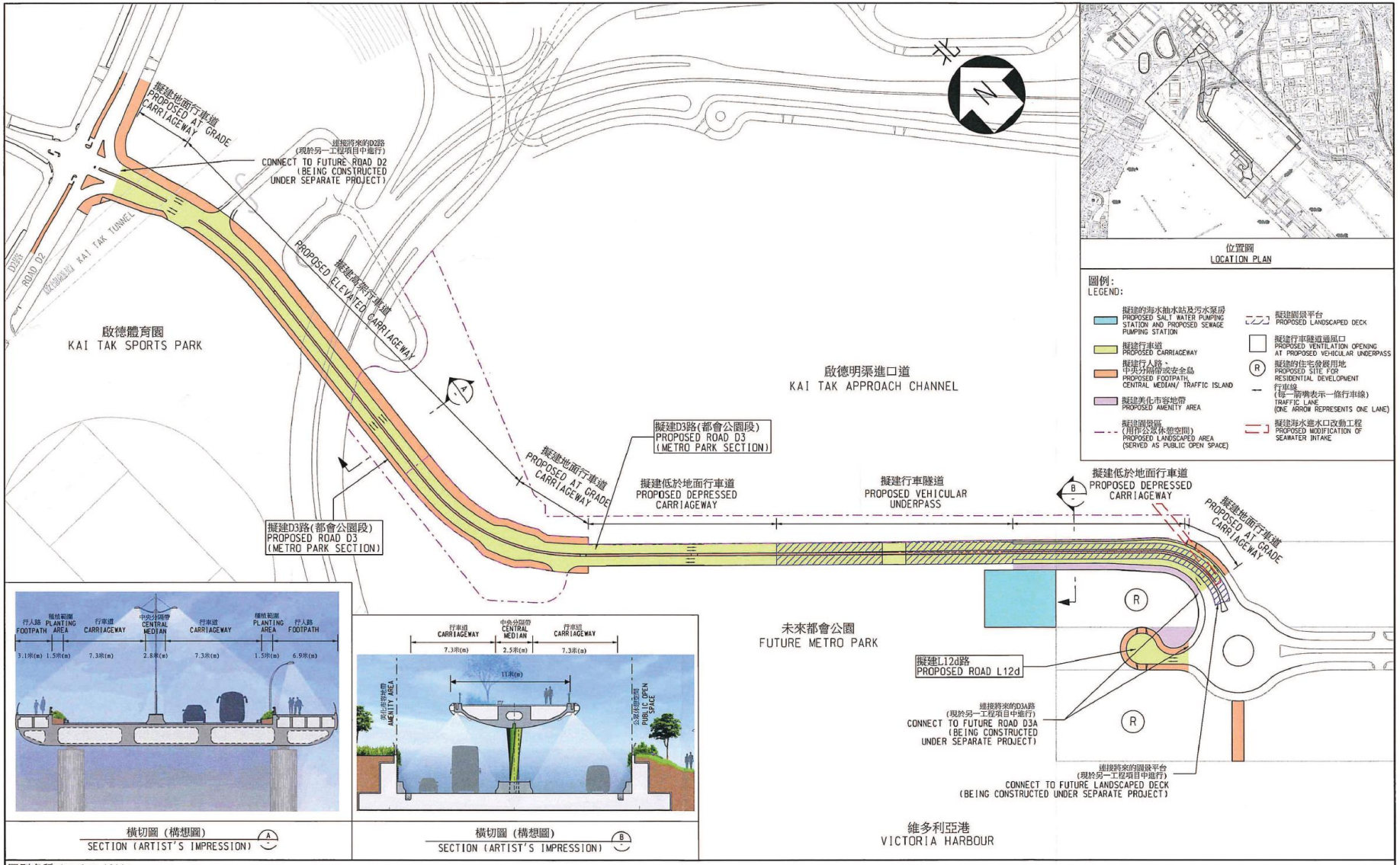



Figure 1 – Proposed works of Contract No. ED/2018/01

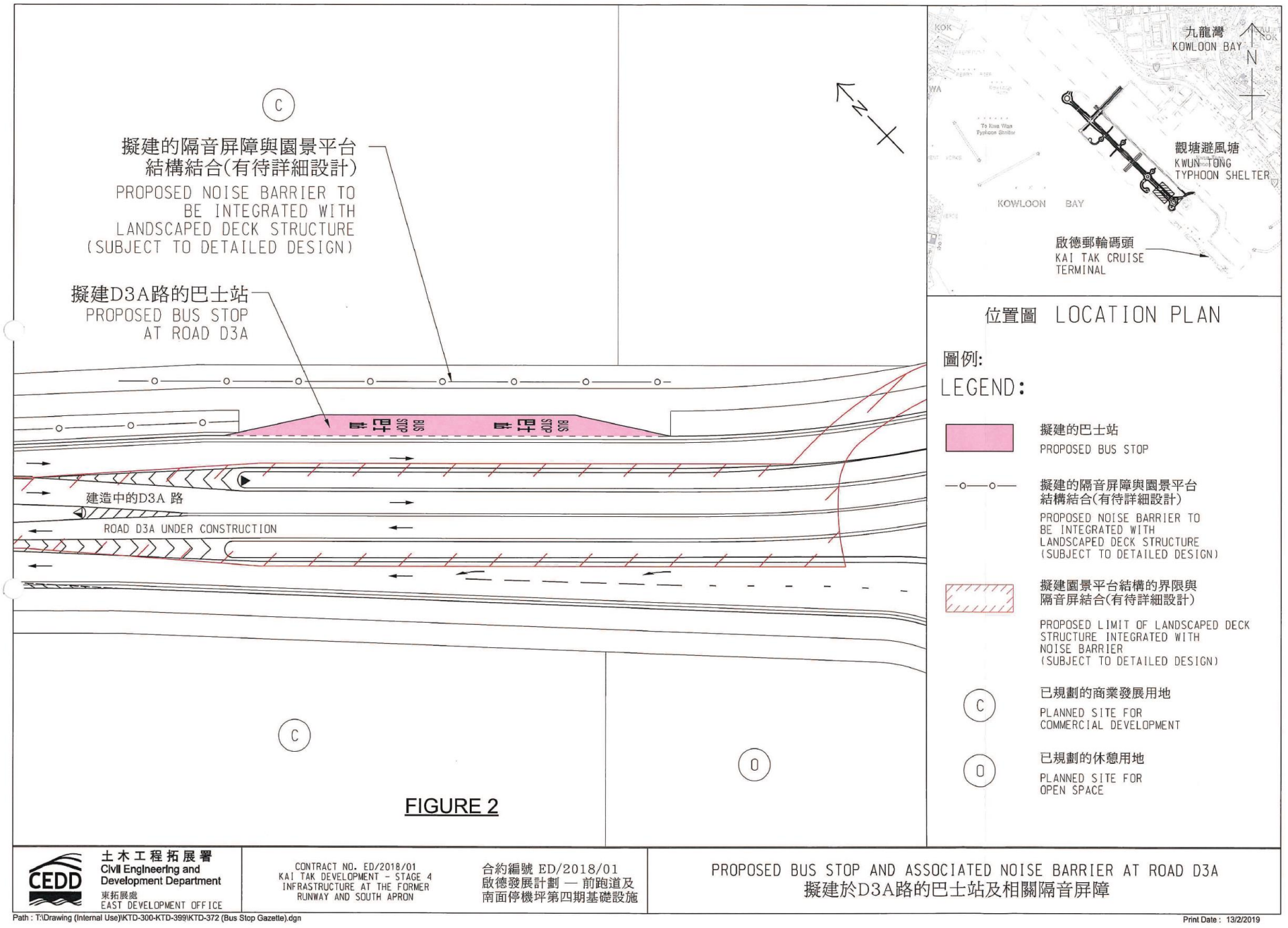



Figure 2 – Proposed Bus Stop And Associated Noise Barrier At Road D3A

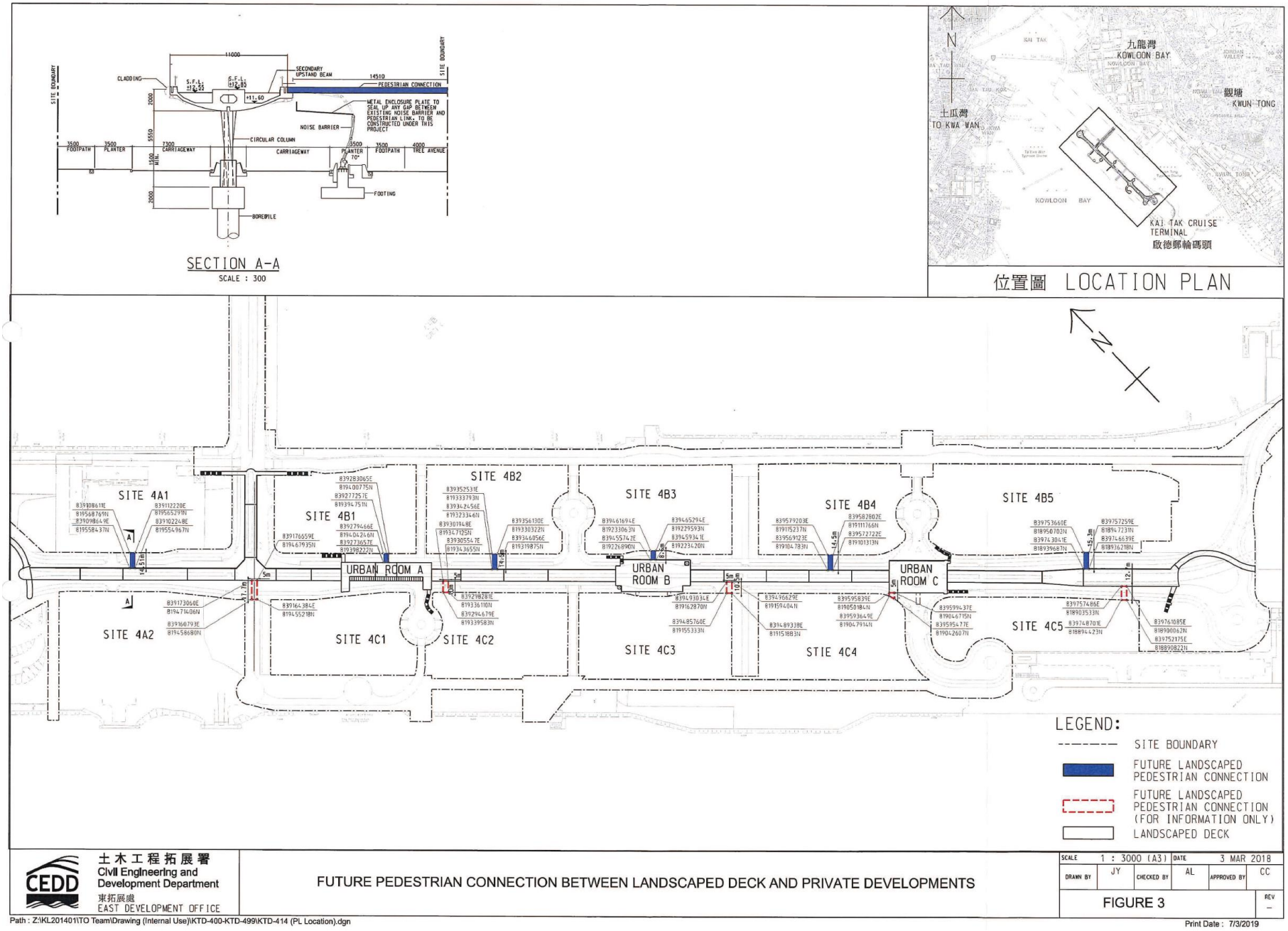



Figure 3 – Future Pedestrian Connection Between Landscaped Deck And Private Developments

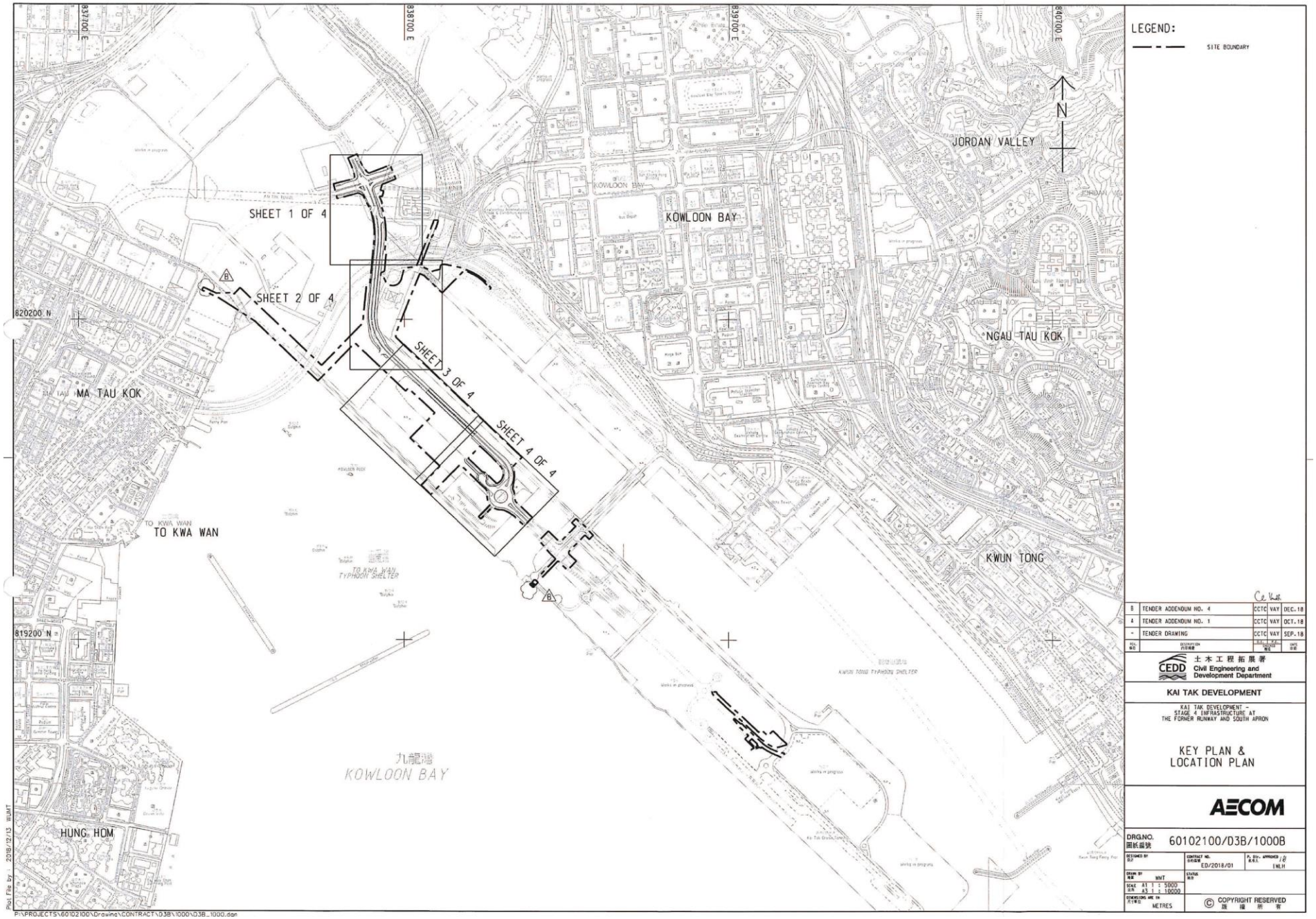



Figure 4 – Site Layout Plan

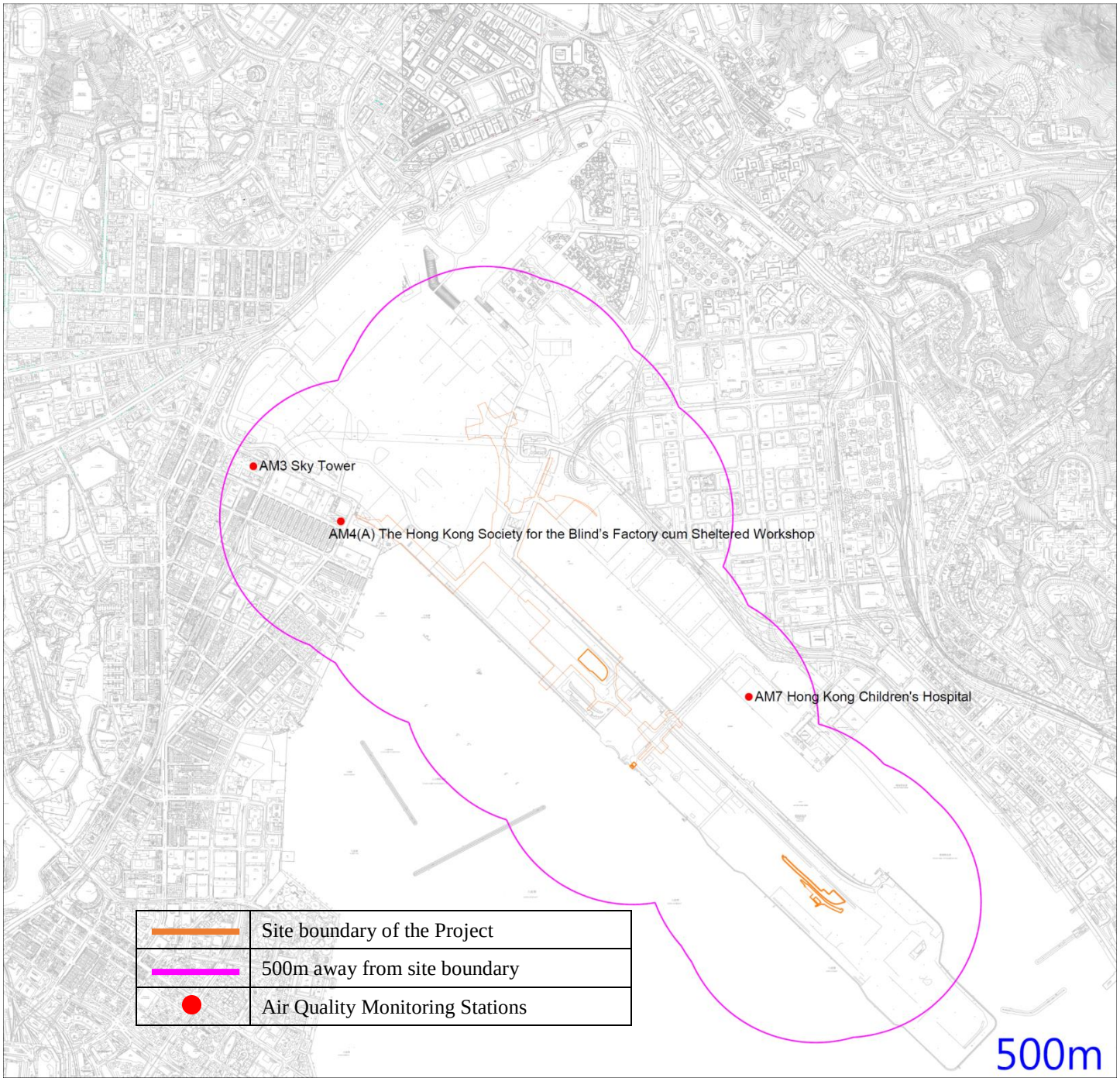



Figure 5 – Air Quality Monitoring Stations

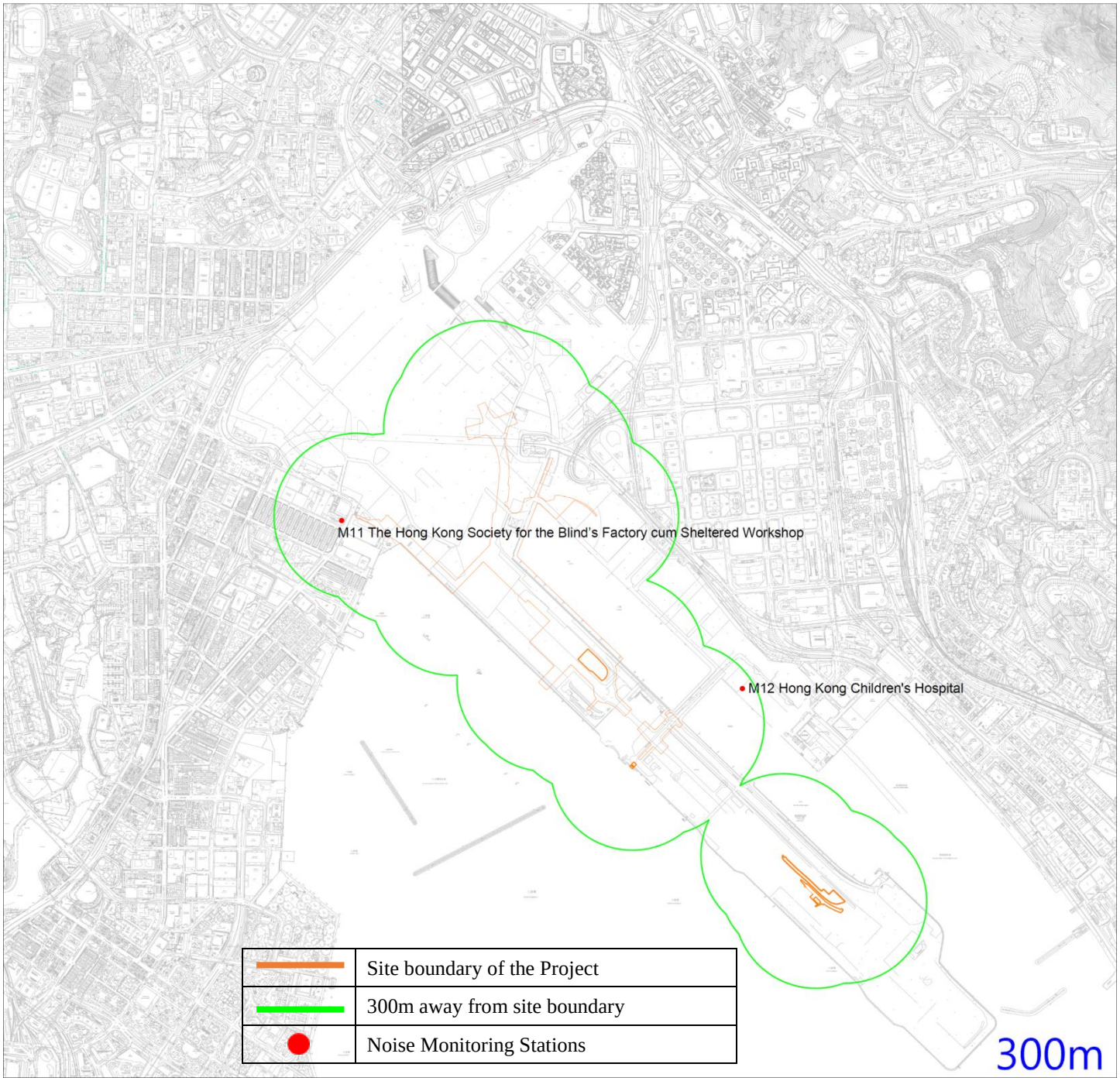
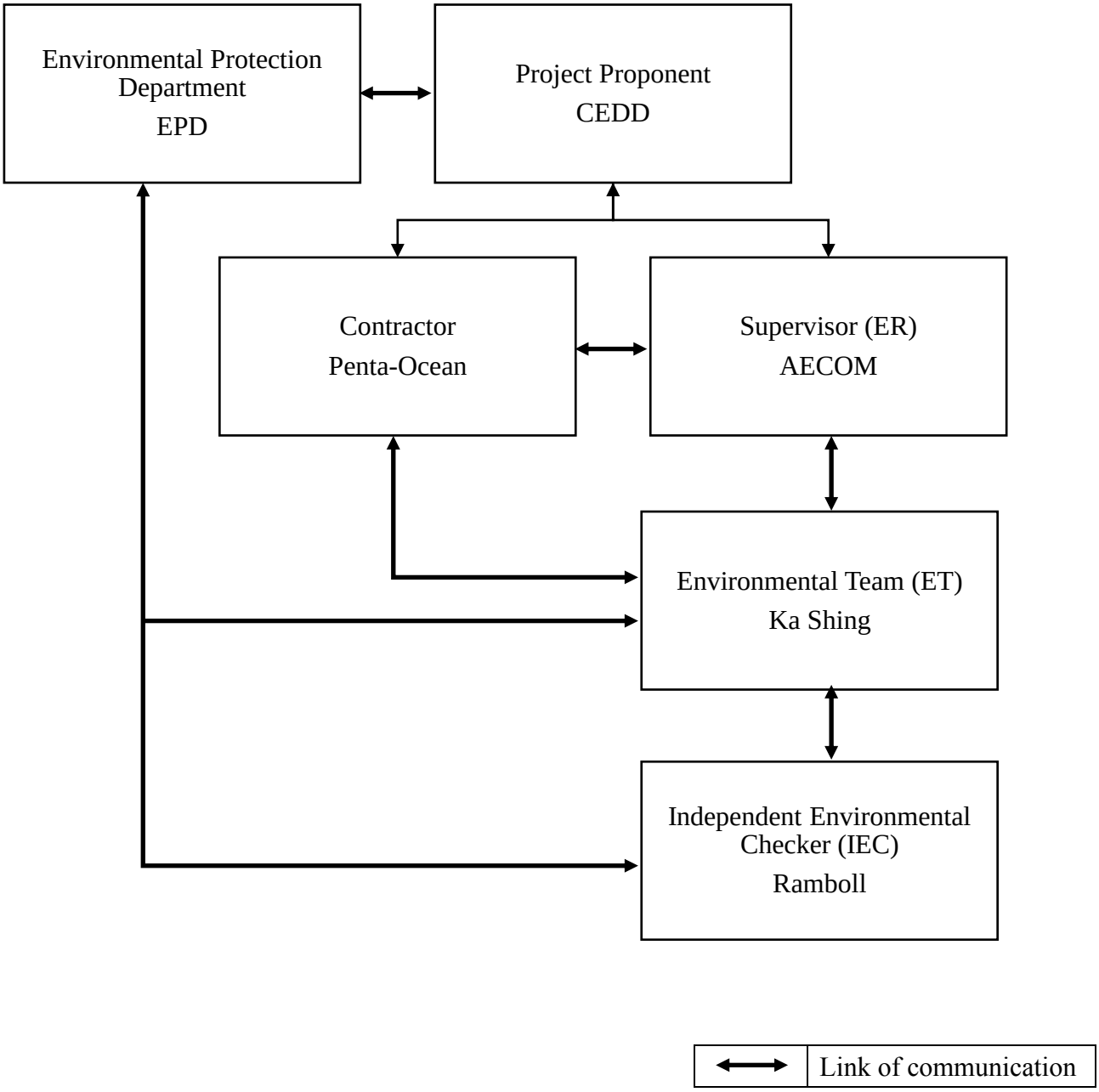


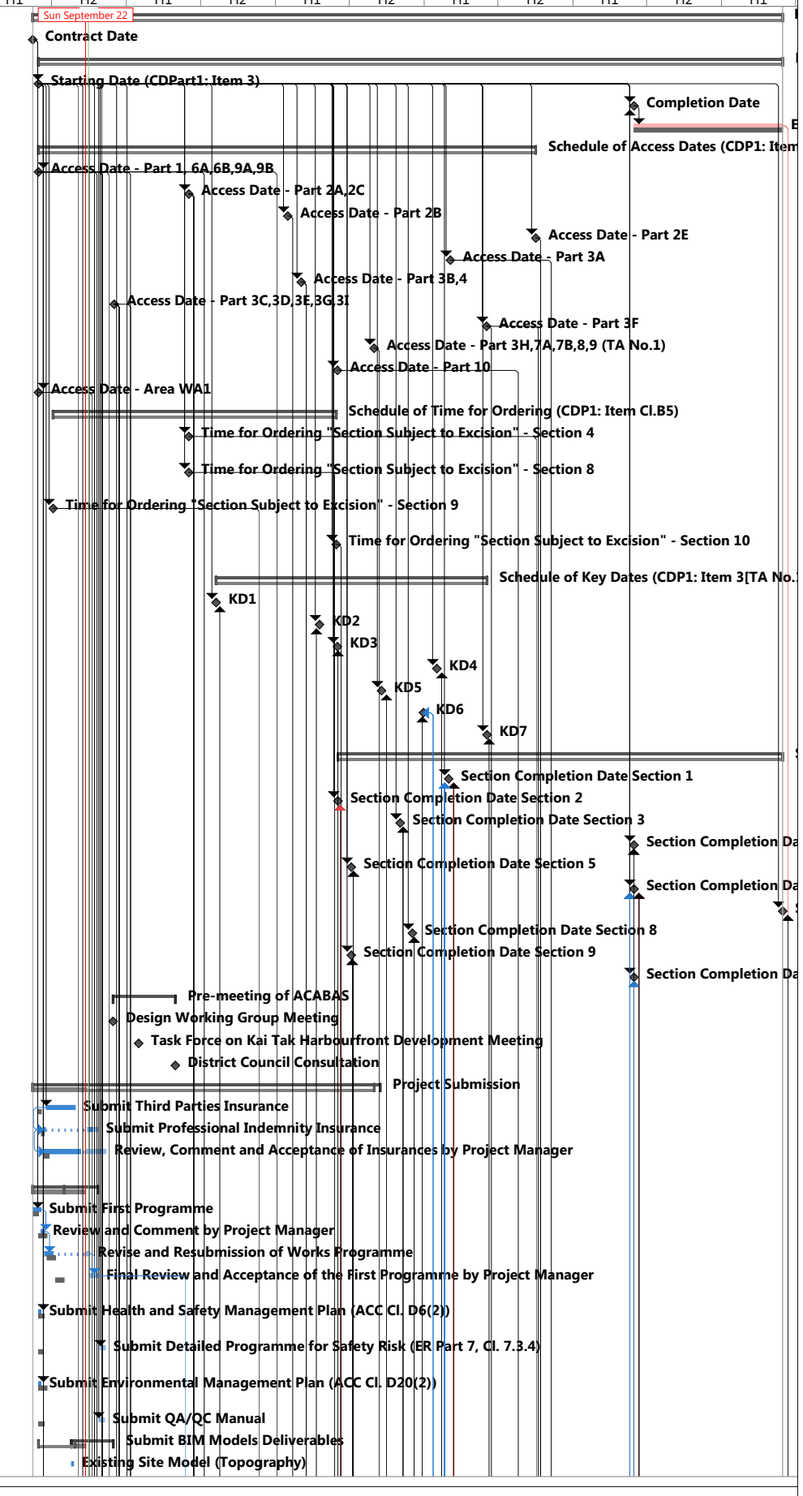

Figure 6 – Noise Monitoring Stations

# Appendix A – Organization Chart of EM&A Team


Environmental Protection Department
EPD
Project Proponent
CEDD
Contractor
Penta-Ocean
Supervisor (ER)
AECOM
Environmental Team (ET)
Ka Shing
Independent Environmental Checker (IEC)
Ramboll
Link of communication

# Appendix B – Construction Programme

| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **Project Dates** | **1841 days** | **1841 days** | **May 16, 2019** | **NA** | **May 16, 2019** | **May 29, 2024** | **May 16, 2019** | **May 29, 2024** | **0%** | **0 days** | **0 days** | **0 days** |
| 2 | Contract Date | 0 days | 0 days | May 16, 2019 | May 16, 2019 | May 16, 2019 | May 16, 2019 | May 16, 2019 | May 16, 2019 | 0% | 0 days | 0 days | 0 days |
| 3 | **Date of Commencement & Completion (CDP1: Item 3)** | **1827 days** | **1827 days** | **May 30, 2019** | **NA** | **May 30, 2019** | **May 29, 2024** | **May 30, 2019** | **May 29, 2024** | **0%** | **0 days** | **0 days** | **0 days** |
| 4 | Starting Date (CDPart1: Item 3) | 0 days | 0 days | May 30, 2019 | May 30, 2019 | May 30, 2019 | May 30, 2019 | May 30, 2019 | May 30, 2019 | 100% | 0 days | 0 days | 0 days |
| 5 | Completion Date | 0 days | 0 days | NA | NA | May 30, 2023 | May 30, 2023 | May 30, 2023 | May 30, 2023 | 0% | 0 days | 0 days | 0 days |
| 6 | Establishment Work | 365 days | 365 days | NA | NA | May 31, 2023 | May 29, 2024 | May 31, 2023 | May 29, 2024 | 0% | 0 days | 0 days | 0 days |
| 7 | **Schedule of Access Dates (CDP1: Item 3[TA No.1)** | **1221 days** | **1221 days** | **May 30, 2019** | **NA** | **May 30, 2019** | **October 2, 2022** | **May 30, 2019** | **October 2, 2022** | **0%** | **0 days** | **0 days** | **0 days** |
| 8 | Access Date - Part 1, 6A,6B,9A,9B | 0 days | 0 days | May 30, 2019 | May 30, 2019 | May 30, 2019 | May 30, 2019 | May 30, 2019 | May 30, 2019 | 100% | 0 days | 0 days | 0 days |
| 9 | Access Date - Part 2A,2C | 0 days | 0 days | NA | NA | June 2, 2020 | June 2, 2020 | June 2, 2020 | June 2, 2020 | 0% | 0 days | 0 days | 0 days |
| 10 | Access Date - Part 2B | 0 days | 0 days | NA | NA | January 31, 2021 | January 31, 2021 | January 31, 2021 | January 31, 2021 | 0% | 0 days | 0 days | 0 days |
| 11 | Access Date - Part 2E | 0 days | 0 days | NA | NA | October 2, 2022 | October 2, 2022 | October 2, 2022 | October 2, 2022 | 0% | 0 days | 0 days | 0 days |
| 12 | Access Date - Part 3A | 0 days | 0 days | NA | NA | March 6, 2022 | March 6, 2022 | March 6, 2022 | March 6, 2022 | 0% | 0 days | 0 days | 0 days |
| 13 | Access Date - Part 3B,4 | 0 days | 0 days | NA | NA | March 5, 2021 | March 5, 2021 | March 5, 2021 | March 5, 2021 | 0% | 0 days | 0 days | 0 days |
| 14 | Access Date - Part 3C,3D,3E,3G,3I | 0 days | 0 days | NA | NA | December 2, 2019 | December 2, 2019 | December 2, 2019 | December 2, 2019 | 0% | 0 days | 0 days | 0 days |
| 15 | Access Date - Part 3F | 0 days | 0 days | NA | NA | June 3, 2022 | June 3, 2022 | June 3, 2022 | June 3, 2022 | 0% | 0 days | 0 days | 0 days |
| 16 | Access Date - Part 3H,7A,7B,8,9 (TA No.1) | 0 days | 0 days | NA | NA | August 31, 2021 | August 31, 2021 | August 31, 2021 | August 31, 2021 | 0% | 0 days | 0 days | 0 days |
| 17 | Access Date - Part 10 | 0 days | 0 days | NA | NA | June 2, 2021 | June 2, 2021 | June 2, 2021 | June 2, 2021 | 0% | 0 days | 0 days | 0 days |
| 18 | Access Date - Area WA1 | 0 days | 0 days | May 30, 2019 | May 30, 2019 | May 30, 2019 | May 30, 2019 | May 30, 2019 | May 30, 2019 | 100% | 0 days | 0 days | 0 days |
| 19 | **Schedule of Time for Ordering (CDP1: Item Cl.B5)** | **695 days** | **695 days** | **July 5, 2019** | **NA** | **July 5, 2019** | **May 30, 2021** | **July 5, 2019** | **May 30, 2021** | **0%** | **0 days** | **0 days** | **0 days** |
| 20 | Time for Ordering "Section Subject to Excision" - Section 4 | 0 days | 0 days | NA | NA | June 2, 2020 | June 2, 2020 | June 2, 2020 | June 2, 2020 | 0% | 0 days | 0 days | 0 days |
| 21 | Time for Ordering "Section Subject to Excision" - Section 8 | 0 days | 0 days | NA | NA | June 2, 2020 | June 2, 2020 | June 2, 2020 | June 2, 2020 | 0% | 0 days | 0 days | 0 days |
| 22 | Time for Ordering "Section Subject to Excision" - Section 9 | 0 days | 0 days | July 5, 2019 | July 5, 2019 | July 5, 2019 | July 5, 2019 | July 5, 2019 | July 5, 2019 | 100% | 0 days | 0 days | 0 days |
| 23 | Time for Ordering "Section Subject to Excision" - Section 10 | 0 days | 0 days | NA | NA | May 30, 2021 | May 30, 2021 | May 30, 2021 | May 30, 2021 | 0% | 0 days | 0 days | 0 days |
| 24 | **Schedule of Key Dates (CDP1: Item 3[TA No.1])** | **665 days** | **665 days** | **NA** | **NA** | **August 7, 2020** | **June 3, 2022** | **August 7, 2020** | **June 3, 2022** | **0%** | **0 days** | **0 days** | **0 days** |
| 25 | KD1 | 0 days | 0 days | NA | NA | August 7, 2020 | August 7, 2020 | August 7, 2020 | August 7, 2020 | 0% | 0 days | 0 days | 0 days |
| 26 | KD2 | 0 days | 0 days | NA | NA | April 18, 2021 | April 18, 2021 | April 18, 2021 | April 18, 2021 | 0% | 0 days | 0 days | 0 days |
| 27 | KD3 | 0 days | 0 days | NA | NA | June 1, 2021 | June 1, 2021 | June 1, 2021 | June 1, 2021 | 0% | 0 days | 0 days | 0 days |
| 28 | KD4 | 0 days | 0 days | NA | NA | January 31, 2022 | January 31, 2022 | January 31, 2022 | January 31, 2022 | 0% | 0 days | 0 days | 0 days |
| 29 | KD5 | 0 days | 0 days | NA | NA | September 17, 2021 | September 17, 2021 | September 17, 2021 | September 17, 2021 | 0% | 0 days | 0 days | 0 days |
| 30 | KD6 | 0 days | 0 days | NA | NA | December 29, 2021 | December 29, 2021 | December 29, 2021 | December 29, 2021 | 0% | 0 days | 0 days | 0 days |
| 31 | KD7 | 0 days | 0 days | NA | NA | June 3, 2022 | June 3, 2022 | June 3, 2022 | June 3, 2022 | 0% | 0 days | 0 days | 0 days |
| 32 | **Schedule of Section Completion (CDP1 Cl. X5)** | **1092 days** | **1092 days** | **NA** | **NA** | **June 2, 2021** | **May 29, 2024** | **June 2, 2021** | **May 29, 2024** | **0%** | **0 days** | **0 days** | **0 days** |
| 33 | Section Completion Date Section 1 | 0 days | 0 days | NA | NA | March 1, 2022 | March 1, 2022 | March 1, 2022 | March 1, 2022 | 0% | 0 days | 0 days | 0 days |
| 34 | Section Completion Date Section 2 | 0 days | 0 days | NA | NA | June 2, 2021 | June 2, 2021 | June 2, 2021 | June 2, 2021 | 0% | 0 days | 0 days | 0 days |
| 35 | Section Completion Date Section 3 | 0 days | 0 days | NA | NA | November 2, 2021 | November 2, 2021 | November 2, 2021 | November 2, 2021 | 0% | 0 days | 0 days | 0 days |
| 36 | Section Completion Date Section 4 | 0 days | 0 days | NA | NA | May 30, 2023 | May 30, 2023 | May 30, 2023 | May 30, 2023 | 0% | 0 days | 0 days | 0 days |
| 37 | Section Completion Date Section 5 | 0 days | 0 days | NA | NA | July 5, 2021 | July 5, 2021 | July 5, 2021 | July 5, 2021 | 0% | 0 days | 0 days | 0 days |
| 38 | Section Completion Date Section 6 | 0 days | 0 days | NA | NA | May 30, 2023 | May 30, 2023 | May 30, 2023 | May 30, 2023 | 0% | 0 days | 0 days | 0 days |
| 39 | Section Completion Date Section 7 | 0 days | 0 days | NA | NA | May 29, 2024 | May 29, 2024 | May 29, 2024 | May 29, 2024 | 0% | 0 days | 0 days | 0 days |
| 40 | Section Completion Date Section 8 | 0 days | 0 days | NA | NA | December 2, 2021 | December 2, 2021 | December 2, 2021 | December 2, 2021 | 0% | 0 days | 0 days | 0 days |
| 41 | Section Completion Date Section 9 | 0 days | 0 days | NA | NA | July 5, 2021 | July 5, 2021 | July 5, 2021 | July 5, 2021 | 0% | 0 days | 0 days | 0 days |
| 42 | Section Completion Date Section 10 | 0 days | 0 days | NA | NA | May 30, 2023 | May 30, 2023 | May 30, 2023 | May 30, 2023 | 0% | 0 days | 0 days | 0 days |
| 43 | **Pre-meeting of ACABAS** | **153 days** | **153 days** | **NA** | **NA** | **November 29, 2019** | **April 30, 2020** | **May 29, 2024** | **May 29, 2024** | **0%** | **1491 d...** | | **1491 d...** |
| 44 | Design Working Group Meeting | 0 days | 0 days | NA | NA | November 29, 2019 | November 29, 2019 | May 29, 2024 | May 29, 2024 | 0% | 1644 d... | | 1644 d... |
| 45 | Task Force on Kai Tak Harbourfront Development Meeting | 0 days | 0 days | NA | NA | January 31, 2020 | January 31, 2020 | May 29, 2024 | May 29, 2024 | 0% | 1581 d... | | 1581 d... |
| 46 | District Council Consultation | 0 days | 0 days | NA | NA | April 30, 2020 | April 30, 2020 | May 29, 2024 | May 29, 2024 | 0% | 1491 d... | | 1491 d... |
| 47 | **Project Submission** | **853 days** | **679.02 days** | **May 16, 2019** | **NA** | **May 16, 2019** | **September 14, 20...** | **May 16, 2019** | **May 29, 2024** | **0%** | **988 days** | **0 days** | **988 days** |
| 48 | Submit Third Parties Insurance | 71 days | 0 days | June 18, 2019 | August 27, 2019 | June 18, 2019 | August 27, 2019 | June 18, 2019 | August 27, 2019 | 100% | 0 days | 0 days | 0 days |
| 49 | Submit Professional Indemnity Insurance | 29.39 days | 14 days | June 11, 2019 | NA | June 11, 2019 | October 22, 2019 | June 11, 2019 | May 29, 2024 | 52% | 2 days | 0 days | 1681.1... |
| 50 | Review, Comment and Acceptance of Insurances by Project Manager | 139.1 days | 50 days | June 13, 2019 | NA | June 13, 2019 | November 11, 2019 | June 13, 2019 | May 29, 2024 | 64% | 1661 days | 0 days | 1661 days |
| 51 | **Works Programme** | **160 days** | **60.42 days** | **May 16, 2019** | **NA** | **May 16, 2019** | **October 22, 2019** | **May 16, 2019** | **June 1, 2020** | **0%** | **223 days** | | **223 days** |
| 52 | Submit First Programme | 20 days | 0 days | May 16, 2019 | June 4, 2019 | May 16, 2019 | June 4, 2019 | May 16, 2019 | June 4, 2019 | 100% | 0 days | 0 days | 0 days |
| 53 | Review and Comment by Project Manager | 9 days | 0 days | June 5, 2019 | June 13, 2019 | June 5, 2019 | June 13, 2019 | June 5, 2019 | June 13, 2019 | 100% | 0 days | 0 days | 0 days |
| 54 | Revise and Resubmission of Works Programme | 30 days | 9.21 days | June 14, 2019 | NA | June 14, 2019 | October 2, 2019 | June 14, 2019 | May 11, 2020 | 69% | 0 days | 0 days | 222.79 ... |
| 55 | Final Review and Acceptance of the First Programme by Project Manager | 21 days | 21 days | NA | NA | October 2, 2019 | October 23, 2019 | May 12, 2020 | June 1, 2020 | 0% | 218.79 days | 0 days | 222.79 days |
| 56 | Submit Health and Safety Management Plan (ACC Cl. D6(2)) | 6 days | 0 days | May 30, 2019 | June 4, 2019 | May 30, 2019 | June 4, 2019 | May 30, 2019 | June 4, 2019 | 100% | 0 days | 0 days | 0 days |
| 57 | Submit Detailed Programme for Safety Risk (ER Part 7, Cl. 7.3.4) | 12 days | 12 days | NA | NA | October 29, 2019 | November 9, 2019 | May 18, 2024 | May 29, 2024 | 0% | 1663 days | 0 days | 1663 days |
| 58 | Submit Environmental Management Plan (ACC Cl. D20(2)) | 6 days | 0 days | May 30, 2019 | June 4, 2019 | May 30, 2019 | June 4, 2019 | May 30, 2019 | June 4, 2019 | 100% | 0 days | 0 days | 0 days |
| 59 | Submit QA/QC Manual | 14 days | 14 days | NA | NA | October 25, 2019 | November 7, 2019 | May 16, 2024 | May 29, 2024 | 0% | 1665 d... | 0 days | 1665 d... |
| 60 | **Submit BIM Models Deliverables** | **103 days** | **41.33 days** | **August 19, 2019** | **NA** | **August 19, 2019** | **November 30, 2019** | **August 19, 2019** | **May 29, 2024** | **0%** | **1643 d...** | | **1643 d...** |
| 61 | Existing Site Model (Topography) | 5 days | 0 days | August 19, 2019 | August 23, 2019 | August 19, 2019 | August 23, 2019 | August 19, 2019 | August 23, 2019 | 100% | 0 days | | 0 days |




Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

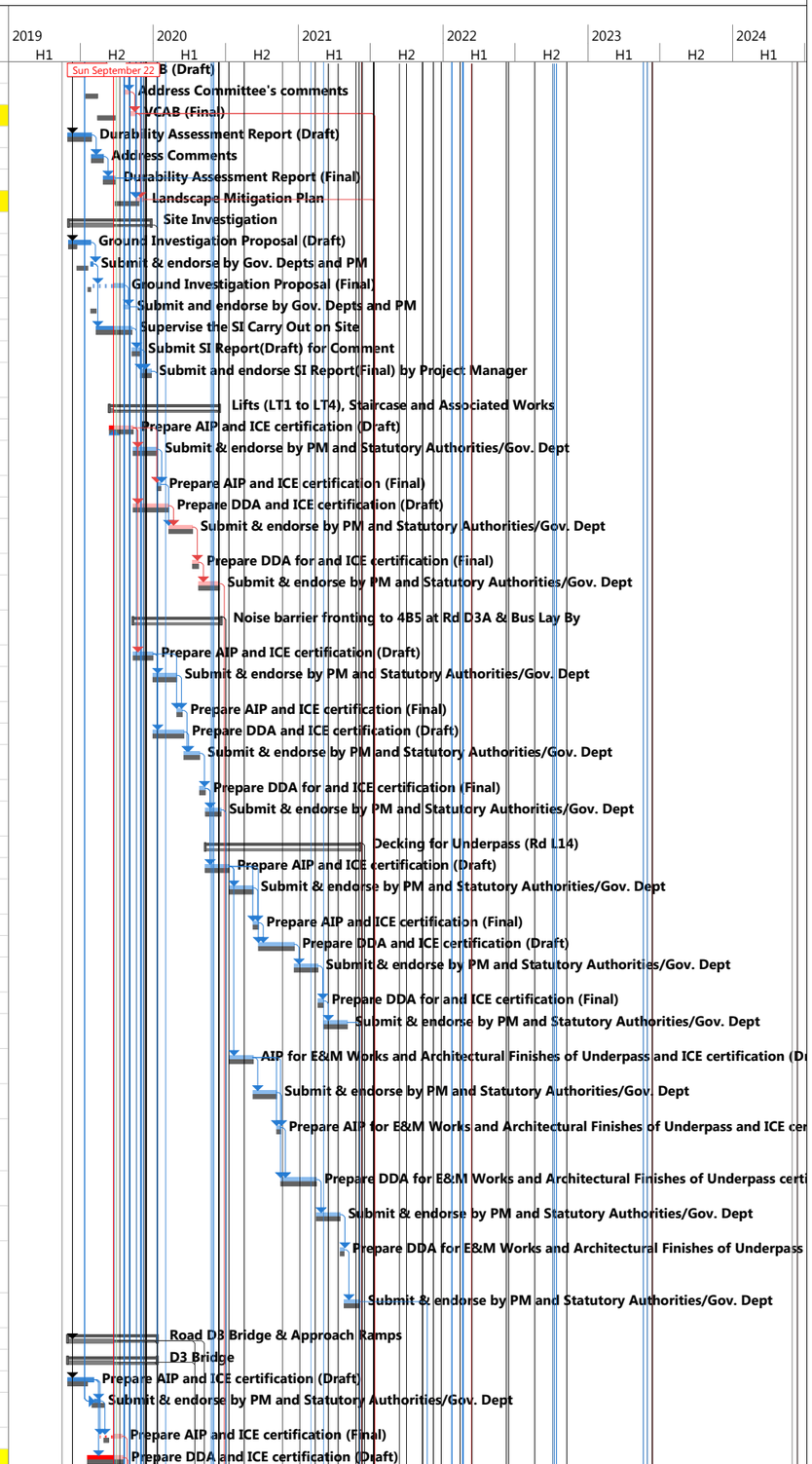
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Critical | Task | Manual Task | Duration-only | Baseline Milestone | Summary | External Tasks | Inactive Milestone | Baseline Summary |
| Critical Split | Split | Start-only | Baseline | Milestone | Manual Summary | External Milestone | Inactive Summary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

| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 62 | Existing Underground Utilities (UU) Model | 5 days | 0 days | August 26, 2019 | August 30, 2019 | August 26, 2019 | August 30, 2019 | August 26, 2019 | August 30, 2019 | 100% | 0 days | | 0 days |
| 63 | 3D Digital Survey For Existing Conditions | 28 days | 4.8 days | September 2, 2019 | NA | September 2, 2019 | September 30, 2019 | September 2, 2019 | May 29, 2024 | 83% | 1703 d... | | 1703 d... |
| 64 | 3D Photogrametry Model | 46 days | 40.02 days | September 16, 2019 | NA | September 16, 2019 | November 2, 2019 | September 16, 2019 | May 29, 2024 | 13% | 1670.9... | | 1670.9... |
| 65 | AIP Model | 18 days | 1.08 days | September 6, 2019 | NA | September 6, 2019 | September 24, 2019 | September 6, 2019 | May 29, 2024 | 94% | 1709.9... | | 1709.9... |
| 66 | Interfacing Contract Model | 15 days | 1.05 days | September 9, 2019 | NA | September 9, 2019 | September 24, 2019 | September 9, 2019 | May 29, 2024 | 93% | 1709.9... | | 1709.9... |
| 67 | Monthly Updated BIM Model | 0 days | 0 days | NA | NA | October 31, 2019 | October 31, 2019 | October 31, 2019 | October 31, 2019 | 0% | 0 days | | 0 days |
| 68 | 4D Model Linked Up with Programme | 0 days | 0 days | NA | NA | October 31, 2019 | October 31, 2019 | October 31, 2019 | October 31, 2019 | 0% | 0 days | | 0 days |
| 69 | Construction Method Simulation (CMS) in 3D Model | 0 days | 0 days | NA | NA | November 30, 2019 | November 30, 2019 | November 30, 2019 | November 30, 2019 | 0% | 0 days | | 0 days |
| 70 | **BIM Deliverables Schedule** | **77 days** | **77 days** | **August 16, 2019** | **NA** | **August 16, 2019** | **October 31, 2019** | **August 16, 2019** | **October 31, 2019** | **0%** | **0 days** | | **0 days** |
| 71 | Establish BIM Team | 0 days | 0 days | August 16, 2019 | August 16, 2019 | August 16, 2019 | August 16, 2019 | August 16, 2019 | August 16, 2019 | 100% | 0 days | | 0 days |
| 72 | BIM Execution Plan | 0 days | 0 days | August 16, 2019 | August 16, 2019 | August 16, 2019 | August 16, 2019 | August 16, 2019 | August 16, 2019 | 100% | 0 days | | 0 days |
| 73 | BIM Submission Schedule | 0 days | 0 days | August 16, 2019 | August 16, 2019 | August 16, 2019 | August 16, 2019 | August 16, 2019 | August 16, 2019 | 100% | 0 days | | 0 days |
| 74 | BIM 360 License | 0 days | 0 days | August 31, 2019 | August 31, 2019 | August 31, 2019 | August 31, 2019 | August 31, 2019 | August 31, 2019 | 100% | 0 days | | 0 days |
| 75 | BIM/Drawing Management Software System | 0 days | 0 days | August 31, 2019 | August 31, 2019 | August 31, 2019 | August 31, 2019 | August 31, 2019 | August 31, 2019 | 100% | 0 days | | 0 days |
| 76 | CDE Setup | 0 days | 0 days | September 9, 2019 | September 9, 2019 | September 9, 2019 | September 9, 2019 | September 9, 2019 | September 9, 2019 | 100% | 0 days | | 0 days |
| 77 | Clash Report Format | 0 days | 0 days | September 9, 2019 | September 9, 2019 | September 9, 2019 | September 9, 2019 | September 9, 2019 | September 9, 2019 | 100% | 0 days | | 0 days |
| 78 | Monthly Report Format | 0 days | 0 days | September 9, 2019 | September 9, 2019 | September 9, 2019 | September 9, 2019 | September 9, 2019 | September 9, 2019 | 100% | 0 days | | 0 days |
| 79 | Quality Assurance Plan for BIM | 0 days | 0 days | September 30, 2019 | September 30, 2019 | September 30, 2019 | September 30, 2019 | September 30, 2019 | September 30, 2019 | 100% | 0 days | | 0 days |
| 80 | BIM Training Plan | 0 days | 0 days | September 30, 2019 | September 30, 2019 | September 30, 2019 | September 30, 2019 | September 30, 2019 | September 30, 2019 | 100% | 0 days | | 0 days |
| 81 | BIM Training Schedule for CIC Training | 0 days | 0 days | September 30, 2019 | September 30, 2019 | September 30, 2019 | September 30, 2019 | September 30, 2019 | September 30, 2019 | 100% | 0 days | | 0 days |
| 82 | 4 Sets of BIM Software, Hardware and Server | 0 days | 0 days | NA | NA | October 31, 2019 | October 31, 2019 | October 31, 2019 | October 31, 2019 | 0% | 0 days | | 0 days |
| 83 | Monthly BIM Progress Report | 0 days | 0 days | NA | NA | October 31, 2019 | October 31, 2019 | October 31, 2019 | October 31, 2019 | 0% | 0 days | | 0 days |
| 84 | Monthly Clash Report | 0 days | 0 days | NA | NA | October 31, 2019 | October 31, 2019 | October 31, 2019 | October 31, 2019 | 0% | 0 days | | 0 days |
| 85 | BIM Object Libraries | 0 days | 0 days | NA | NA | October 31, 2019 | October 31, 2019 | October 31, 2019 | October 31, 2019 | 0% | 0 days | | 0 days |
| 86 | **Temporary Traffic Management** | **839 days** | **682.35 days** | **May 30, 2019** | **NA** | **May 30, 2019** | **September 14, 20...** | **May 30, 2019** | **May 29, 2024** | **0%** | **988 days** | | **988 days** |
| 87 | Submit Traffic Engineering Consultant and TTM Team Leader (PS1.16(3)) | 14 days | 0 days | May 30, 2019 | June 12, 2019 | May 30, 2019 | June 12, 2019 | May 30, 2019 | June 12, 2019 | 100% | 0 days | 0 days | 0 days |
| 88 | Submit Road Closure Implementation Plan (PS1.14A(2)) within 14d after acceptance of Works Programme | 14 days | 14 days | NA | NA | November 1, 2019 | November 14, 2019 | May 16, 2024 | May 29, 2024 | 0% | 1658 days | 0 days | 1658 days |
| 89 | Submit EP Mgt System Co-ordinator (PS Cl. 1.18N(2)) | 7 days | 0 days | May 30, 2019 | June 5, 2019 | May 30, 2019 | June 5, 2019 | May 30, 2019 | June 5, 2019 | 100% | 0 days | 0 days | 0 days |
| 90 | Approve of EP Co-ordinator by Project Manager (PS Cl. 1.18N(2)) | 14 days | 0 days | June 6, 2019 | June 19, 2019 | June 6, 2019 | June 19, 2019 | June 6, 2019 | June 19, 2019 | 100% | 0 days | 0 days | 0 days |
| 91 | Submit UU detection equipment for Supervisor approval (PS Cl. 1.25A(1)) | 7 days | 0 days | May 30, 2019 | June 5, 2019 | May 30, 2019 | June 5, 2019 | May 30, 2019 | June 5, 2019 | 100% | 0 days | 0 days | 0 days |
| 92 | Submit & obtain approval: site office's location and layout plan (PS Cl. 1.45(11)) (7d submission + 14d approval) | 31 days | 10 days | May 30, 2019 | NA | May 30, 2019 | October 2, 2019 | May 30, 2019 | May 29, 2024 | 100% | 1701 days | 0 days | 1701 days |
| 93 | Submit Site survey record (PS Cl.1.47(7)) | 34 days | 0 days | May 30, 2019 | July 2, 2019 | May 30, 2019 | July 2, 2019 | May 30, 2019 | July 2, 2019 | 100% | 0 days | 0 days | 0 days |
| 94 | Submit & obtain approval: fencing & hoarding plan (PS Cl. 1.48(10) | 5 days | 5 days | NA | NA | October 2, 2019 | October 6, 2019 | November 4, 2019 | November 8, 2019 | 0% | 1 day | 0.5 days | 33 days |
| 95 | Submit site facilities (PS Cl. 1.50S) | 65 days | 0 days | May 30, 2019 | August 2, 2019 | May 30, 2019 | August 2, 2019 | May 30, 2019 | August 2, 2019 | 100% | 0 days | 0 days | 0 days |
| 96 | Submit security system (PS Cl. 1.53A(5)) | 36 days | 0 days | May 30, 2019 | July 4, 2019 | May 30, 2019 | July 4, 2019 | May 30, 2019 | July 4, 2019 | 100% | 0 days | 0 days | 0 days |
| 97 | Submit Weather Protection Scheme (PS Cl. 1.87 (1)) | 12 days | 0 days | October 15, 2019 | October 26, 2019 | October 15, 2019 | October 26, 2019 | October 15, 2019 | October 26, 2019 | 100% | 0 days | 0 days | 0 days |
| 98 | Submit Interface Management Plan (PS Cl. 1.89(2)) | 47 days | 0 days | May 30, 2019 | July 15, 2019 | May 30, 2019 | July 15, 2019 | May 30, 2019 | July 15, 2019 | 100% | 0 days | 0 days | 0 days |
| 99 | Submit Subcontractor Management Plan (ACC Cl. C5(1)) | 13 days | 0 days | May 30, 2019 | June 11, 2019 | May 30, 2019 | June 11, 2019 | May 30, 2019 | June 11, 2019 | 100% | 0 days | 0 days | 0 days |
| 100 | Submit Temporary Drainage and Sewerage Management Plan (PS Cl. 1.24A(1)) | 45 days | 33.12 days | May 30, 2019 | NA | May 30, 2019 | October 26, 2019 | May 30, 2019 | August 7, 2020 | 32% | 33.88 days | 0 days | 286.88 days |
| 101 | Submit Piling Programme (PS Cl. 8.35D) | 12 days | 12 days | NA | NA | January 2, 2020 | January 13, 2020 | February 1, 2020 | February 12, 2020 | 0% | 18 days | 0 days | 30 days |
| 102 | Submit EM&A Manual (ER Part 8, Cl. 8.2) | 6 days | 0 days | May 30, 2019 | June 4, 2019 | May 30, 2019 | June 4, 2019 | May 30, 2019 | June 4, 2019 | 100% | 0 days | 0 days | 0 days |
| 103 | Submit Proposal of selection of suppliers of Plant and Materials (ACC Cl. C11(1) | 80 days | 0 days | May 30, 2019 | August 17, 2019 | May 30, 2019 | August 17, 2019 | May 30, 2019 | August 17, 2019 | 100% | 0 days | 0 days | 0 days |
| 104 | Submit Contractor's Management Team (ACC Cl. D1(3)) | 50 days | 0 days | May 30, 2019 | July 18, 2019 | May 30, 2019 | July 18, 2019 | May 30, 2019 | July 18, 2019 | 100% | 0 days | 0 days | 0 days |
| 105 | **Permanent Works Design Submission** | **839 days** | **705.7 days** | **May 30, 2019** | **NA** | **May 30, 2019** | **September 14, 20...** | **May 30, 2019** | **November 15, 2022** | **0%** | **427 days** | | **427 days** |
| 106 | **General Design Submission** | **192 days** | **43.98 days** | **May 30, 2019** | **NA** | **May 30, 2019** | **December 7, 2019** | **May 30, 2019** | **December 10, 2019** | **0%** | **3 days** | | **3 days** |
| 107 | Project Design Plan (Draft) | 16 days | 0 days | May 30, 2019 | June 14, 2019 | May 30, 2019 | June 14, 2019 | May 30, 2019 | June 14, 2019 | 100% | 0 days | 0 days | 0 days |
| 108 | Project Design Plan (Draft) Comment by PM | 14 days | 0 days | June 15, 2019 | June 28, 2019 | June 15, 2019 | June 28, 2019 | June 15, 2019 | June 28, 2019 | 100% | 0 days | | 0 days |
| 109 | Address Comments | 66 days | 0 days | July 2, 2019 | September 5, 2019 | July 2, 2019 | September 5, 2019 | July 2, 2019 | September 5, 2019 | 100% | 0 days | 1 days | 0 days |
| 110 | Project Design Plan (Final) | 19 days | 15.2 days | September 5, 2019 | NA | September 5, 2019 | October 8, 2019 | September 5, 2019 | December 10, 2019 | 20% | 63.8 days | 0 days | 63.8 days |
| 111 | Design Memorandum (Draft) | 26 days | 0 days | June 4, 2019 | June 29, 2019 | June 4, 2019 | June 29, 2019 | June 4, 2019 | June 29, 2019 | 100% | 0 days | 0 days | 0 days |
| 112 | Address Comments | 15 days | 0 days | August 1, 2019 | August 15, 2019 | August 1, 2019 | August 15, 2019 | August 1, 2019 | August 15, 2019 | 100% | 0 days | 1 days | 0 days |
| 113 | Design Memorandum (Final) | 5 days | 5 days | July 23, 2019 | NA | July 23, 2019 | September 27, 2019 | July 23, 2019 | December 10, 2019 | 0% | 74 days | 0 days | 74 days |
| 114 | Traffic Impact Assessment(Draft) | 25 days | 4 days | September 16, 2019 | NA | September 16, 2019 | October 10, 2019 | September 16, 2019 | October 18, 2019 | 84% | 0 days | 1 day | 8 days |
| 115 | Address Comments | 28 days | 28 days | NA | NA | October 11, 2019 | November 7, 2019 | October 19, 2019 | November 15, 2019 | 0% | 0 days | 0.5 days | 8 days |
| 116 | Traffic Impact Assessment(Final) | 25 days | 25 days | NA | NA | November 8, 2019 | December 2, 2019 | November 16, 2019 | December 10, 2019 | 0% | 8 days | 0.5 days | 8 days |
| 117 | ACABAS (Draft) | 69 days | 0 days | May 30, 2019 | August 6, 2019 | May 30, 2019 | August 6, 2019 | May 30, 2019 | August 6, 2019 | 100% | 0 days | 2 days | 0 days |
| 118 | Address Committee's comments | 51 days | 6 days | August 7, 2019 | NA | August 7, 2019 | September 28, 2019 | August 7, 2019 | December 10, 2019 | 88% | 73 days | 2 days | 73 days |
| 119 | ACABAS (Final) | 25 days | 0 days | August 28, 2019 | September 21, 2019 | August 28, 2019 | September 21, 2019 | August 28, 2019 | September 21, 2019 | 100% | 0 days | 1 days | 0 days |

Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

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

| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 120 | VCAB (Draft) | 45 days | 0 days | September 4, 2019 | October 18, 2019 | September 4, 2019 | October 18, 2019 | September 4, 2019 | October 18, 2019 | 100% | 0 days | 2 days | 0 days |
| 121 | Address Committee's comments | 15 days | 15 days | NA | NA | October 19, 2019 | November 2, 2019 | October 22, 2019 | November 5, 2019 | 0% | 0 days | 2 days | 3 days |
| 122 | VCAB (Final) | 15 days | 15 days | NA | NA | November 3, 2019 | November 17, 2019 | November 6, 2019 | November 20, 2019 | 0% | 0 days | 2 days | 3 days |
| 123 | Durability Assessment Report (Draft) | 60 days | 0 days | May 30, 2019 | July 28, 2019 | May 30, 2019 | July 28, 2019 | May 30, 2019 | July 28, 2019 | 0% | 0 days | 3 days | 0 days |
| 124 | Address Comments | 30 days | 0 days | July 29, 2019 | August 27, 2019 | July 29, 2019 | August 27, 2019 | July 29, 2019 | August 27, 2019 | 0% | 0 days | 2 days | 0 days |
| 125 | Durability Assessment Report (Final) | 30 days | 4 days | August 28, 2019 | NA | August 28, 2019 | September 26, 2019 | August 28, 2019 | November 20, 2019 | 0% | 52 days | 2 days | 55 days |
| 126 | Landscape Mitigation Plan | 20 days | 20 days | NA | NA | November 18, 2019 | December 7, 2019 | November 21, 2019 | December 10, 2019 | 0% | 3 days | 3 days | 3 days |
| 127 | **Site Investigation** | **209 days** | **116.69 days** | **June 1, 2019** | **NA** | **June 1, 2019** | **December 26, 2019** | **June 1, 2019** | **January 10, 2020** | **0%** | **15 days** | | **15 days** |
| 128 | Ground Investigation Proposal (Draft) | 56 days | 0 days | June 1, 2019 | July 26, 2019 | June 1, 2019 | July 26, 2019 | June 1, 2019 | July 26, 2019 | 100% | 0 days | 1 days | 0 days |
| 129 | Submit & endorse by Gov. Depts and PM | 6 days | 0 days | July 27, 2019 | August 1, 2019 | July 27, 2019 | August 1, 2019 | July 27, 2019 | August 1, 2019 | 100% | 0 days | 1 days | 0 days |
| 130 | Ground Investigation Proposal (Final) | 25 days | 25 days | August 2, 2019 | NA | August 2, 2019 | October 17, 2019 | August 2, 2019 | November 29, 2019 | 0% | 0 days | 1 days | 43 days |
| 131 | Submit and endorse by Gov. Depts and PM | 14 days | 14 days | NA | NA | October 18, 2019 | October 31, 2019 | November 30, 2019 | December 13, 2019 | 0% | 28 days | 1 days | 43 days |
| 132 | Supervise the SI Carry Out on Site | 90 days | 46 days | August 10, 2019 | NA | August 10, 2019 | November 7, 2019 | August 10, 2019 | November 22, 2019 | 49% | 0 days | 4 days | 15 days |
| 133 | Submit SI Report(Draft) for Comment | 21 days | 21 days | NA | NA | November 8, 2019 | November 28, 2019 | November 23, 2019 | December 13, 2019 | 0% | 0 days | 1 days | 15 days |
| 134 | Submit and endorse SI Report(Final) by Project Manager | 28 days | 28 days | NA | NA | November 29, 2019 | December 26, 2019 | December 14, 2019 | January 10, 2020 | 0% | 15 days | 1 days | 15 days |
| 135 | **Lifts (LT1 to LT4), Staircase and Associated Works** | **278 days** | **269.21 days** | **September 12, 20...** | **NA** | **September 12, 20...** | **June 15, 2020** | **September 12, 2019** | **June 19, 2020** | **0%** | **0 days** | | **4 days** |
| 136 | Prepare AIP and ICE certification (Draft) | 60 days | 49 days | September 12, 2019 | NA | September 12, 2019 | November 10, 2019 | September 12, 2019 | November 14, 2019 | 18% | 0 days | 3 days | 4 days |
| 137 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | November 11, 2019 | January 9, 2020 | December 5, 2019 | February 2, 2020 | 0% | 0 days | 0.5 days | 24 days |
| 138 | Prepare AIP and ICE certification (Final) | 10 days | 10 days | NA | NA | January 10, 2020 | January 19, 2020 | February 3, 2020 | February 12, 2020 | 0% | 20 days | 0 days | 24 days |
| 139 | Prepare DDA and ICE certification (Draft) | 90 days | 90 days | NA | NA | November 11, 2019 | February 8, 2020 | November 15, 2019 | February 12, 2020 | 0% | 0 days | 4 days | 4 days |
| 140 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | February 9, 2020 | April 8, 2020 | February 13, 2020 | April 12, 2020 | 0% | 0 days | 3 days | 4 days |
| 141 | Prepare DDA for and ICE certification (Final) | 15 days | 15 days | NA | NA | April 9, 2020 | April 23, 2020 | April 13, 2020 | April 27, 2020 | 0% | 0 days | 1 days | 4 days |
| 142 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 53 days | 53 days | NA | NA | April 24, 2020 | June 15, 2020 | April 28, 2020 | June 19, 2020 | 0% | 0 days | 3 days | 4 days |
| 143 | **Noise barrier fronting to 4B5 at Rd D3A & Bus Lay By** | **222 days** | **222 days** | **NA** | **NA** | **November 11, 2019** | **June 19, 2020** | **November 18, 2019** | **June 26, 2020** | **0%** | **0 days** | | **7 days** |
| 144 | Prepare AIP and ICE certification (Draft) | 50 days | 50 days | NA | NA | November 11, 2019 | December 30, 2019 | November 18, 2019 | January 6, 2020 | 0% | 0 days | 2 days | 7 days |
| 145 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | December 31, 2019 | February 28, 2020 | January 11, 2020 | March 10, 2020 | 0% | 0 days | 0.5 days | 11 days |
| 146 | Prepare AIP and ICE certification (Final) | 14 days | 14 days | NA | NA | February 29, 2020 | March 13, 2020 | March 11, 2020 | March 24, 2020 | 0% | 4 days | 0 days | 11 days |
| 147 | Prepare DDA and ICE certification (Draft) | 78 days | 78 days | NA | NA | December 31, 2019 | March 17, 2020 | January 7, 2020 | March 24, 2020 | 0% | 0 days | 4 days | 7 days |
| 148 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 40 days | 40 days | NA | NA | March 18, 2020 | April 26, 2020 | March 25, 2020 | May 3, 2020 | 0% | 0 days | 2 days | 7 days |
| 149 | Prepare DDA for and ICE certification (Final) | 14 days | 14 days | NA | NA | April 27, 2020 | May 10, 2020 | May 4, 2020 | May 17, 2020 | 0% | 0 days | 1 days | 7 days |
| 150 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 40 days | 40 days | NA | NA | May 11, 2020 | June 19, 2020 | May 18, 2020 | June 26, 2020 | 0% | 0 days | 1 days | 7 days |
| 151 | **Decking for Underpass (Rd L14)** | **390 days** | **390 days** | **NA** | **NA** | **May 11, 2020** | **June 4, 2021** | **May 23, 2020** | **June 16, 2021** | **0%** | **0 days** | | **12 days** |
| 152 | Prepare AIP and ICE certification (Draft) | 60 days | 60 days | NA | NA | May 11, 2020 | July 9, 2020 | May 23, 2020 | July 21, 2020 | 0% | 0 days | 3 days | 12 days |
| 153 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | July 10, 2020 | September 7, 2020 | August 23, 2020 | October 21, 2020 | 0% | 0 days | 0.5 days | 44 days |
| 154 | Prepare AIP and ICE certification (Final) | 14 days | 14 days | NA | NA | September 8, 2020 | September 21, 2020 | October 22, 2020 | November 4, 2020 | 0% | 0 days | 0 days | 44 days |
| 155 | Prepare DDA and ICE certification (Draft) | 90 days | 90 days | NA | NA | September 22, 2020 | December 20, 2020 | November 5, 2020 | February 2, 2021 | 0% | 0 days | 1 day | 44 days |
| 156 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | December 21, 2020 | February 18, 2021 | February 3, 2021 | April 3, 2021 | 0% | 0 days | 0.5 days | 44 days |
| 157 | Prepare DDA for and ICE certification (Final) | 14 days | 14 days | NA | NA | February 19, 2021 | March 4, 2021 | April 4, 2021 | April 17, 2021 | 0% | 0 days | 0 days | 44 days |
| 158 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | March 5, 2021 | May 3, 2021 | April 18, 2021 | June 16, 2021 | 0% | 32 days | 0 days | 44 days |
| 159 | AIP for E&M Works and Architectural Finishes of Underpass and ICE certification (Draft) | 60 days | 60 days | NA | NA | July 10, 2020 | September 7, 2020 | July 22, 2020 | September 19, 2020 | 0% | 0 days | 3 day | 12 days |
| 160 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | September 8, 2020 | November 6, 2020 | September 20, 2020 | November 18, 2020 | 0% | 0 days | 3 days | 12 days |
| 161 | Prepare AIP for E&M Works and Architectural Finishes of Underpass and ICE certification (Final) | 10 days | 10 days | NA | NA | November 7, 2020 | November 16, 2020 | November 19, 2020 | November 28, 2020 | 0% | 0 days | 0 days | 12 days |
| 162 | Prepare DDA for E&M Works and Architectural Finishes of Underpass certification (Draft) | 90 days | 90 days | NA | NA | November 17, 2020 | February 14, 2021 | November 29, 2020 | February 26, 2021 | 0% | 0 days | 3 days | 12 days |
| 163 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | February 15, 2021 | April 15, 2021 | February 27, 2021 | April 27, 2021 | 0% | 0 days | 3 days | 12 days |
| 164 | Prepare DDA for E&M Works and Architectural Finishes of Underpass and ICE certification (Final) | 10 days | 10 days | NA | NA | April 16, 2021 | April 25, 2021 | April 28, 2021 | May 7, 2021 | 0% | 0 days | 0 days | 12 days |
| 165 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 40 days | 40 days | NA | NA | April 26, 2021 | June 4, 2021 | May 8, 2021 | June 16, 2021 | 0% | 12 days | 2 days | 12 days |
| 166 | **Road D3 Bridge & Approach Ramps** | **226 days** | **98.71 days** | **May 30, 2019** | **NA** | **May 30, 2019** | **January 10, 2020** | **May 30, 2019** | **January 10, 2020** | **0%** | **0 days** | | **0 days** |
| 167 | **D3 Bridge** | **226 days** | **106.5 days** | **May 30, 2019** | **NA** | **May 30, 2019** | **January 10, 2020** | **May 30, 2019** | **January 10, 2020** | **0%** | **0 days** | | **0 days** |
| 168 | Prepare AIP and ICE certification (Draft) | 66 days | 0 days | May 30, 2019 | August 3, 2019 | May 30, 2019 | August 3, 2019 | May 30, 2019 | August 3, 2019 | 100% | 0 days | 3 days | 0 days |
| 169 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 15 days | 0 days | August 5, 2019 | August 19, 2019 | August 5, 2019 | August 19, 2019 | August 5, 2019 | August 19, 2019 | 100% | 0 days | 1 days | 0 days |
| 170 | Prepare AIP and ICE certification (Final) | 21 days | 21 days | August 20, 2019 | NA | August 20, 2019 | October 13, 2019 | August 20, 2019 | October 16, 2019 | 0% | 3 days | 0 days | 3 days |
| 171 | Prepare DDA and ICE certification (Draft) | 90 days | 24 days | July 19, 2019 | NA | July 19, 2019 | October 16, 2019 | July 19, 2019 | October 16, 2019 | 73% | 0 days | 5 days | 0 days |




Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

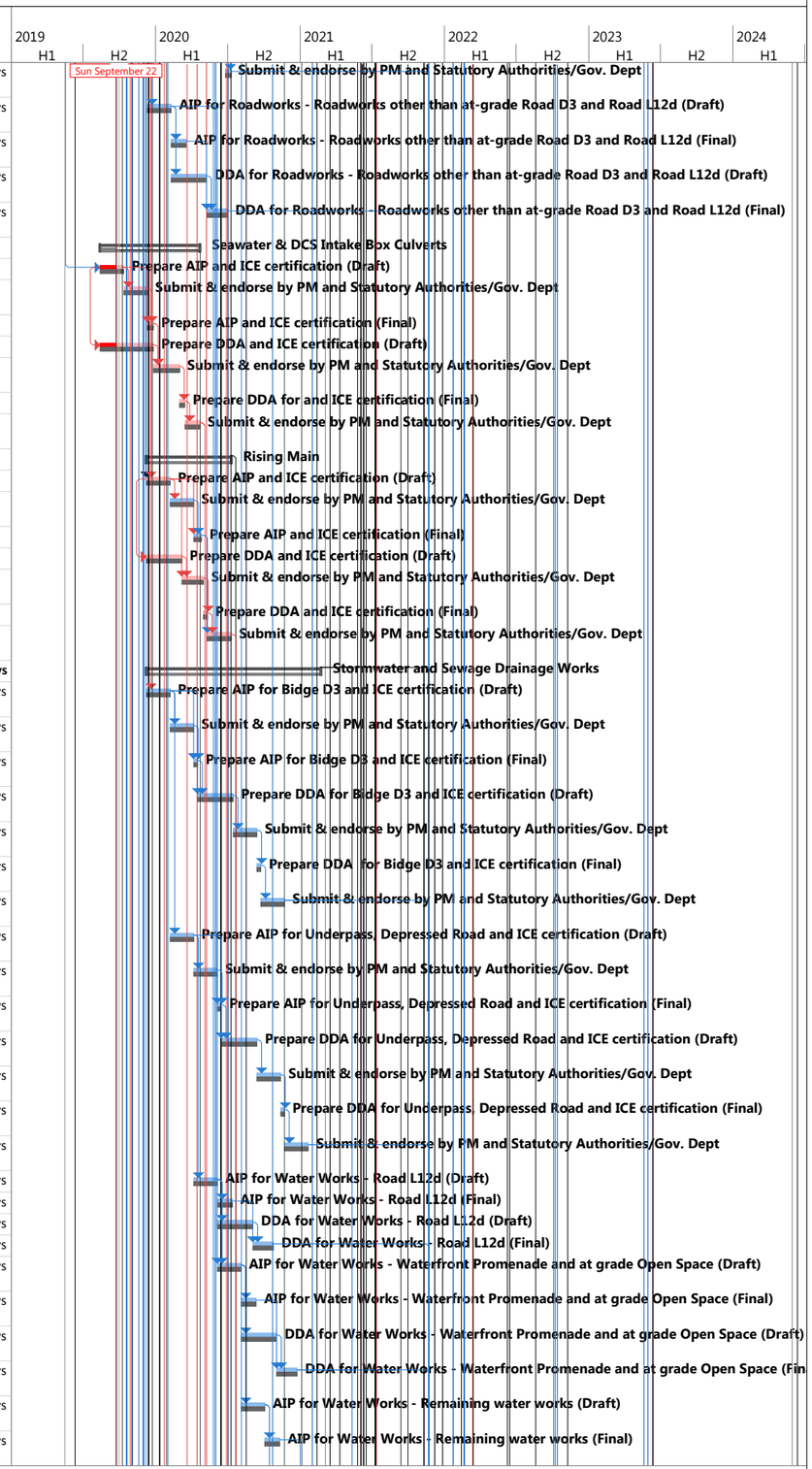
Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive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

| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 172 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 40 days | 40 days | NA | NA | October 17, 2019 | November 25, 2019 | October 17, 2019 | November 25, 2019 | 0% | 0 days | 3 days | 0 days |
| 173 | Prepare DDA for and ICE certification (Final) | 15 days | 15 days | NA | NA | November 26, 2019 | December 10, 2019 | November 26, 2019 | December 10, 2019 | 0% | 0 days | 1 days | 0 days |
| 174 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 31 days | 31 days | NA | NA | December 11, 2019 | January 10, 2020 | December 11, 2019 | January 10, 2020 | 0% | 0 days | 1 days | 0 days |
| 175 | **D3 North Approach Ramp** | **226 days** | **103.48 days** | **May 30, 2019** | **NA** | **May 30, 2019** | **January 10, 2020** | **May 30, 2019** | **January 10, 2020** | **0%** | **0 days** | | **0 days** |
| 176 | Prepare AIP and ICE certification (Draft) | 56 days | 0 days | May 30, 2019 | July 24, 2019 | May 30, 2019 | July 24, 2019 | May 30, 2019 | July 24, 2019 | 100% | 0 days | 3 days | 0 days |
| 177 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 12 days | 0 days | July 25, 2019 | August 5, 2019 | July 25, 2019 | August 5, 2019 | July 25, 2019 | August 5, 2019 | 100% | 0 days | 1 days | 0 days |
| 178 | Prepare AIP and ICE certification (Final) | 29 days | 15 days | August 6, 2019 | NA | August 6, 2019 | October 7, 2019 | August 6, 2019 | October 16, 2019 | 48% | 9 days | 0 days | 9 days |
| 179 | Prepare DDA and ICE certification (Draft) | 90 days | 24 days | July 19, 2019 | NA | July 19, 2019 | October 16, 2019 | July 19, 2019 | October 16, 2019 | 73% | 0 days | 5 days | 0 days |
| 180 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 40 days | 40 days | NA | NA | October 17, 2019 | November 25, 2019 | October 17, 2019 | November 25, 2019 | 0% | 0 days | 3 days | 0 days |
| 181 | Prepare DDA for and ICE certification (Final) | 15 days | 15 days | NA | NA | November 26, 2019 | December 10, 2019 | November 26, 2019 | December 10, 2019 | 0% | 0 days | 1 days | 0 days |
| 182 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 31 days | 31 days | NA | NA | December 11, 2019 | January 10, 2020 | December 11, 2019 | January 10, 2020 | 0% | 0 days | 1 days | 0 days |
| 183 | **D3 South Approach Ramp** | **226 days** | **86.62 days** | **May 30, 2019** | **NA** | **May 30, 2019** | **January 10, 2020** | **May 30, 2019** | **January 10, 2020** | **0%** | **0 days** | | **0 days** |
| 184 | Prepare AIP and ICE certification (Draft) | 50 days | 0 days | May 30, 2019 | July 18, 2019 | May 30, 2019 | July 18, 2019 | May 30, 2019 | July 18, 2019 | 100% | 0 days | 3 days | 0 days |
| 185 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 46 days | 0 days | July 19, 2019 | September 2, 2019 | July 19, 2019 | September 2, 2019 | July 19, 2019 | September 2, 2019 | 100% | 0 days | 1 days | 0 days |
| 186 | Prepare AIP and ICE certification (Final) | 15 days | 0 days | August 18, 2019 | September 1, 2019 | August 18, 2019 | September 1, 2019 | August 18, 2019 | September 1, 2019 | 100% | 0 days | 0 days | 0 days |
| 187 | Prepare DDA and ICE certification (Draft) | 90 days | 24 days | July 19, 2019 | NA | July 19, 2019 | October 16, 2019 | July 19, 2019 | October 16, 2019 | 73% | 0 days | 5 days | 0 days |
| 188 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 40 days | 40 days | NA | NA | October 17, 2019 | November 25, 2019 | October 17, 2019 | November 25, 2019 | 0% | 0 days | 3 days | 0 days |
| 189 | Prepare DDA for and ICE certification (Final) | 15 days | 15 days | NA | NA | November 26, 2019 | December 10, 2019 | November 26, 2019 | December 10, 2019 | 0% | 0 days | 1 days | 0 days |
| 190 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 31 days | 31 days | NA | NA | December 11, 2019 | January 10, 2020 | December 11, 2019 | January 10, 2020 | 0% | 0 days | 1 days | 0 days |
| 191 | **Road D3 Underpass and Depressed Road** | **412 days** | **213.27 days** | **May 30, 2019** | **NA** | **May 30, 2019** | **July 14, 2020** | **May 30, 2019** | **December 1, 2020** | **0%** | **140 days** | | **140 days** |
| 192 | **Underpass** | **412 days** | **296 days** | **May 30, 2019** | **NA** | **May 30, 2019** | **July 14, 2020** | **May 30, 2019** | **December 1, 2020** | **0%** | **100 days** | | **140 days** |
| 193 | Prepare AIP and ICE certification (Draft) | 50 days | 0 days | May 30, 2019 | July 18, 2019 | May 30, 2019 | July 18, 2019 | May 30, 2019 | July 18, 2019 | 100% | 0 days | 3 days | 0 days |
| 194 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 40 days | 0 days | July 19, 2019 | August 27, 2019 | July 19, 2019 | August 27, 2019 | July 19, 2019 | August 27, 2019 | 100% | 0 days | 1 days | 0 days |
| 195 | Prepare AIP and ICE certification (Final) | 38 days | 12 days | August 28, 2019 | NA | August 28, 2019 | October 4, 2019 | August 28, 2019 | October 4, 2019 | 68% | 0 days | 2 days | 0 days |
| 196 | Prepare DDA and ICE certification (Draft) | 64 days | 64 days | NA | NA | October 5, 2019 | December 7, 2019 | October 5, 2019 | December 7, 2019 | 0% | 0 days | 3 days | 0 days |
| 197 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 90 days | 90 days | NA | NA | December 8, 2019 | March 6, 2020 | April 26, 2020 | July 24, 2020 | 0% | 0 days | 0.5 days | 140 days |
| 198 | Prepare DDA for and ICE certification (Final) | 40 days | 40 days | NA | NA | March 7, 2020 | April 15, 2020 | July 25, 2020 | September 2, 2020 | 0% | 0 days | 0 days | 140 days |
| 199 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 90 days | 90 days | NA | NA | April 16, 2020 | July 14, 2020 | September 3, 2020 | December 1, 2020 | 0% | 100 days | 0 days | 140 days |
| 200 | **Depressed Road (North and South)** | **162 days** | **33.85 days** | **May 30, 2019** | **NA** | **May 30, 2019** | **November 7, 2019** | **May 30, 2019** | **April 15, 2020** | **0%** | **46 days** | | **160 days** |
| 201 | Prepare AIP and ICE certification (Draft) | 66 days | 0 days | May 30, 2019 | August 3, 2019 | May 30, 2019 | August 3, 2019 | May 30, 2019 | August 3, 2019 | 100% | 0 days | 1 days | 0 days |
| 202 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 30 days | 0 days | August 6, 2019 | September 4, 2019 | August 6, 2019 | September 4, 2019 | August 6, 2019 | September 4, 2019 | 100% | 0 days | 2 days | 0 days |
| 203 | Prepare AIP and ICE certification (Final) | 10 days | 10 days | NA | NA | September 23, 2019 | October 2, 2019 | April 6, 2020 | April 15, 2020 | 0% | 196 days | 0 days | 196 days |
| 204 | Prepare DDA and ICE certification (Draft) | 71 days | 0 days | May 30, 2019 | August 8, 2019 | May 30, 2019 | August 8, 2019 | May 30, 2019 | August 8, 2019 | 100% | 0 days | 5 days | 0 days |
| 205 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 40 days | 0 days | August 9, 2019 | September 17, 2019 | August 9, 2019 | September 17, 2019 | August 9, 2019 | September 17, 2019 | 100% | 0 days | 1 days | 0 days |
| 206 | Prepare DDA for and ICE certification (Final) | 11 days | 6 days | September 18, 2019 | NA | September 18, 2019 | September 28, 2019 | September 18, 2019 | March 6, 2020 | 45% | 0 days | 1 days | 160 days |
| 207 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 40 days | 40 days | NA | NA | September 29, 2019 | November 7, 2019 | March 7, 2020 | April 15, 2020 | 0% | 160 days | 1 days | 160 days |
| 208 | **Remaining Road Works** | **332 days** | **316.32 days** | **August 13, 2019** | **NA** | **August 13, 2019** | **July 9, 2020** | **August 13, 2019** | **November 21, 2021** | **0%** | **500 days** | | **500 days** |
| 209 | Prepare AIP for At-grade Road D3 and ICE certification (Draft) | 60 days | 19 days | August 13, 2019 | NA | August 13, 2019 | October 11, 2019 | August 13, 2019 | May 16, 2020 | 68% | 0 days | 1 day | 218 days |
| 210 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 28 days | 28 days | NA | NA | October 12, 2019 | November 8, 2019 | April 30, 2021 | May 27, 2021 | 0% | 0 days | 0.5 days | 566 days |
| 211 | Prepare AIP for At-grade Road D3 and ICE certification (Final) | 14 days | 14 days | NA | NA | November 9, 2019 | November 22, 2019 | May 28, 2021 | June 10, 2021 | 0% | 48 days | 0 days | 566 days |
| 212 | Prepare DDA for At-grade Road D3 and ICE certification (Draft) | 90 days | 90 days | NA | NA | October 12, 2019 | January 9, 2020 | March 13, 2021 | June 10, 2021 | 0% | 0 days | 1 day | 518 days |
| 213 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | January 10, 2020 | March 9, 2020 | June 11, 2021 | August 9, 2021 | 0% | 0 days | 0.5 days | 518 days |
| 214 | Prepare DDA for At-grade Road D3 and ICE certification (Final) | 14 days | 14 days | NA | NA | March 10, 2020 | March 23, 2020 | August 10, 2021 | August 23, 2021 | 0% | 0 days | 0 days | 518 days |
| 215 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 90 days | 90 days | NA | NA | March 24, 2020 | June 21, 2020 | August 24, 2021 | November 21, 2021 | 0% | 518 days | 0 days | 518 days |
| 216 | Prepare AIP for Road L12d and ICE certification (Draft) | 60 days | 60 days | NA | NA | October 12, 2019 | December 10, 2019 | May 17, 2020 | July 15, 2020 | 0% | 0 days | 1 day | 218 days |
| 217 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 28 days | 28 days | NA | NA | December 11, 2019 | January 7, 2020 | April 24, 2021 | May 21, 2021 | 0% | 0 days | 0.5 days | 500 days |
| 218 | Prepare AIP for Road L12d and ICE certification (Final) | 10 days | 10 days | NA | NA | January 8, 2020 | January 17, 2020 | May 22, 2021 | May 31, 2021 | 0% | 0 days | 0 days | 500 days |
| 219 | Prepare DDA for  Road L12d and ICE certification (Draft) | 90 days | 90 days | NA | NA | January 18, 2020 | April 16, 2020 | June 1, 2021 | August 29, 2021 | 0% | 0 days | 1 day | 500 days |
| 220 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | April 17, 2020 | June 15, 2020 | August 30, 2021 | October 28, 2021 | 0% | 0 days | 0.5 days | 500 days |
| 221 | Prepare DDA for Road L12d and ICE certification (Final) | 10 days | 10 days | NA | NA | June 16, 2020 | June 25, 2020 | October 29, 2021 | November 7, 2021 | 0% | 0 days | 0 days | 500 days |

Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

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

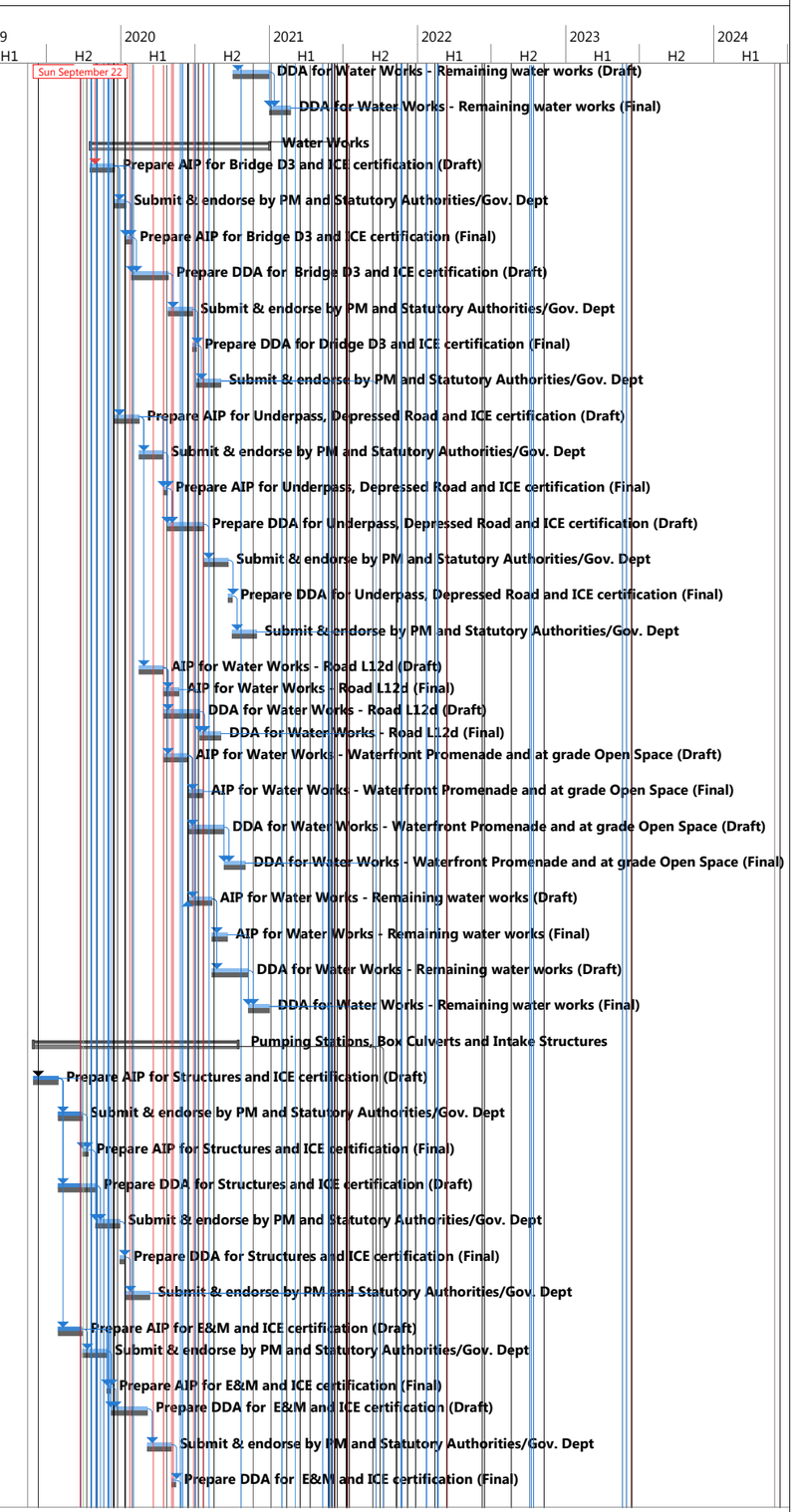
| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 222 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 14 days | 14 days | NA | NA | June 26, 2020 | July 9, 2020 | November 8, 2021 | November 21, 2021 | 0% | 500 days | 0 days | 500 days |
| 223 | AIP for Roadworks - Roadworks other than at-grade Road D3 and Road L12d (Draft) | 60 days | 60 days | NA | NA | December 11, 2019 | February 8, 2020 | July 16, 2020 | September 13, 2020 | 0% | 0 days | 1 day | 218 days |
| 224 | AIP for Roadworks - Roadworks other than at-grade Road D3 and Road L12d (Final) | 38 days | 38 days | NA | NA | February 9, 2020 | March 17, 2020 | August 24, 2021 | September 30, 2021 | 0% | 52 days | 0.5 days | 562 days |
| 225 | DDA for Roadworks - Roadworks other than at-grade Road D3 and Road L12d (Draft) | 90 days | 90 days | NA | NA | February 9, 2020 | May 8, 2020 | July 3, 2021 | September 30, 2021 | 0% | 0 days | 1 day | 510 days |
| 226 | DDA for Roadworks - Roadworks other than at-grade Road D3 and Road L12d (Final) | 52 days | 52 days | NA | NA | May 9, 2020 | June 29, 2020 | October 1, 2021 | November 21, 2021 | 0% | 510 days | 0.5 days | 510 days |
| 227 | **Seawater & DCS Intake Box Culverts** | **253 days** | **199.53 days** | **August 13, 2019** | **NA** | **August 13, 2019** | **April 21, 2020** | **August 13, 2019** | **April 21, 2020** | **0%** | **0 days** | | **0 days** |
| 228 | Prepare AIP and ICE certification (Draft) | 60 days | 19 days | August 13, 2019 | NA | August 13, 2019 | October 11, 2019 | August 13, 2019 | October 11, 2019 | 68% | 0 days | 3 days | 0 days |
| 229 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | October 12, 2019 | December 10, 2019 | October 12, 2019 | December 10, 2019 | 0% | 0 days | 3 days | 0 days |
| 230 | Prepare AIP and ICE certification (Final) | 15 days | 15 days | NA | NA | December 11, 2019 | December 25, 2019 | December 11, 2019 | December 25, 2019 | 0% | 0 days | 1 days | 0 days |
| 231 | Prepare DDA and ICE certification (Draft) | 135 days | 94 days | August 13, 2019 | NA | August 13, 2019 | December 25, 2019 | August 13, 2019 | December 25, 2019 | 30% | 0 days | 1 days | 0 days |
| 232 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 66 days | 66 days | NA | NA | December 26, 2019 | February 29, 2020 | December 26, 2019 | February 29, 2020 | 0% | 0 days | 3 days | 0 days |
| 233 | Prepare DDA for and ICE certification (Final) | 14 days | 14 days | NA | NA | March 1, 2020 | March 14, 2020 | March 1, 2020 | March 14, 2020 | 0% | 0 days | 0 days | 0 days |
| 234 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 38 days | 38 days | NA | NA | March 15, 2020 | April 21, 2020 | March 15, 2020 | April 21, 2020 | 0% | 0 days | 2 days | 0 days |
| 235 | **Rising Main** | **215 days** | **215 days** | **NA** | **NA** | **December 8, 2019** | **July 9, 2020** | **December 8, 2019** | **July 9, 2020** | **0%** | **0 days** | | **0 days** |
| 236 | Prepare AIP and ICE certification (Draft) | 60 days | 60 days | NA | NA | December 8, 2019 | February 5, 2020 | December 8, 2019 | February 5, 2020 | 0% | 0 days | 3 days | 0 days |
| 237 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | February 6, 2020 | April 5, 2020 | February 21, 2020 | April 20, 2020 | 0% | 0 days | 0.5 days | 15 days |
| 238 | Prepare AIP and ICE certification (Final) | 20 days | 20 days | NA | NA | April 6, 2020 | April 25, 2020 | April 21, 2020 | May 10, 2020 | 0% | 15 days | 0 days | 15 days |
| 239 | Prepare DDA and ICE certification (Draft) | 90 days | 90 days | NA | NA | December 8, 2019 | March 6, 2020 | December 8, 2019 | March 6, 2020 | 0% | 0 days | 4 days | 0 days |
| 240 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 55 days | 55 days | NA | NA | March 7, 2020 | April 30, 2020 | March 7, 2020 | April 30, 2020 | 0% | 0 days | 3 days | 0 days |
| 241 | Prepare DDA and ICE certification (Final) | 10 days | 10 days | NA | NA | May 1, 2020 | May 10, 2020 | May 1, 2020 | May 10, 2020 | 0% | 0 days | 0 days | 0 days |
| 242 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | May 11, 2020 | July 9, 2020 | May 11, 2020 | July 9, 2020 | 0% | 0 days | 3 days | 0 days |
| 243 | **Stormwater and Sewage Drainage Works** | **442 days** | **442 days** | **NA** | **NA** | **December 8, 2019** | **February 21, 2021** | **March 18, 2020** | **June 2, 2021** | **0%** | **84 days** | | **101 days** |
| 244 | Prepare AIP for Bidge D3 and ICE certification (Draft) | 60 days | 60 days | NA | NA | December 8, 2019 | February 5, 2020 | March 18, 2020 | May 16, 2020 | 0% | 0 days | 1 day | 101 days |
| 245 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | February 6, 2020 | April 5, 2020 | August 17, 2020 | October 15, 2020 | 0% | 0 days | 0.5 days | 193 days |
| 246 | Prepare AIP for Bidge D3 and ICE certification (Final) | 10 days | 10 days | NA | NA | April 6, 2020 | April 15, 2020 | October 16, 2020 | October 25, 2020 | 0% | 0 days | 0 days | 193 days |
| 247 | Prepare DDA for Bidge D3 and ICE certification (Draft) | 90 days | 90 days | NA | NA | April 16, 2020 | July 14, 2020 | October 26, 2020 | January 23, 2021 | 0% | 0 days | 1 day | 193 days |
| 248 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | July 15, 2020 | September 12, 2020 | January 24, 2021 | March 24, 2021 | 0% | 0 days | 0.5 days | 193 days |
| 249 | Prepare DDA for Bidge D3 and ICE certification (Final) | 10 days | 10 days | NA | NA | September 13, 2020 | September 22, 2020 | March 25, 2021 | April 3, 2021 | 0% | 0 days | 0 days | 193 days |
| 250 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | September 23, 2020 | November 21, 2020 | April 4, 2021 | June 2, 2021 | 0% | 176 days | 0 days | 193 days |
| 251 | Prepare AIP for Underpass, Depressed Road and ICE certification (Draft) | 60 days | 60 days | NA | NA | February 6, 2020 | April 5, 2020 | May 17, 2020 | July 15, 2020 | 0% | 0 days | 1 day | 101 days |
| 252 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | April 6, 2020 | June 4, 2020 | August 17, 2020 | October 15, 2020 | 0% | 0 days | 0.5 days | 133 days |
| 253 | Prepare AIP for Underpass, Depressed Road and ICE certification (Final) | 10 days | 10 days | NA | NA | June 5, 2020 | June 14, 2020 | October 16, 2020 | October 25, 2020 | 0% | 0 days | 0 days | 133 days |
| 254 | Prepare DDA for Underpass, Depressed Road and ICE certification (Draft) | 90 days | 90 days | NA | NA | June 15, 2020 | September 12, 2020 | October 26, 2020 | January 23, 2021 | 0% | 0 days | 1 day | 133 days |
| 255 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | September 13, 2020 | November 11, 2020 | January 24, 2021 | March 24, 2021 | 0% | 0 days | 0.5 days | 133 days |
| 256 | Prepare DDA for Underpass, Depressed Road and ICE certification (Final) | 10 days | 10 days | NA | NA | November 12, 2020 | November 21, 2020 | March 25, 2021 | April 3, 2021 | 0% | 0 days | 0 days | 133 days |
| 257 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | November 22, 2020 | January 20, 2021 | April 4, 2021 | June 2, 2021 | 0% | 116 days | 0 days | 133 days |
| 258 | AIP for Water Works - Road L12d (Draft) | 60 days | 60 days | NA | NA | April 6, 2020 | June 4, 2020 | July 16, 2020 | September 13, 2020 | 0% | 0 days | 1 day | 101 days |
| 259 | AIP for Water Works - Road L12d (Final) | 38 days | 38 days | NA | NA | June 5, 2020 | July 12, 2020 | March 5, 2021 | April 11, 2021 | 0% | 52 days | 0.5 days | 273 days |
| 260 | DDA for Water Works - Road L12d (Draft) | 90 days | 90 days | NA | NA | June 5, 2020 | September 2, 2020 | January 12, 2021 | April 11, 2021 | 0% | 0 days | 1 day | 221 days |
| 261 | DDA for Water Works - Road L12d (Final) | 52 days | 52 days | NA | NA | September 3, 2020 | October 24, 2020 | April 12, 2021 | June 2, 2021 | 0% | 204 days | 1 day | 221 days |
| 262 | AIP for Water Works - Waterfront Promenade and at grade Open Space (Draft) | 60 days | 60 days | NA | NA | June 5, 2020 | August 3, 2020 | September 14, 2020 | November 12, 2020 | 0% | 0 days | 1 day | 101 days |
| 263 | AIP for Water Works - Waterfront Promenade and at grade Open Space (Final) | 38 days | 38 days | NA | NA | August 4, 2020 | September 10, 2020 | March 5, 2021 | April 11, 2021 | 0% | 52 days | 0.5 days | 213 days |
| 264 | DDA for Water Works - Waterfront Promenade and at grade Open Space (Draft) | 90 days | 90 days | NA | NA | August 4, 2020 | November 1, 2020 | January 12, 2021 | April 11, 2021 | 0% | 0 days | 1 day | 161 days |
| 265 | DDA for Water Works - Waterfront Promenade and at grade Open Space (Final) | 52 days | 52 days | NA | NA | November 2, 2020 | December 23, 2020 | April 12, 2021 | June 2, 2021 | 0% | 144 days | 1 day | 161 days |
| 266 | AIP for Water Works - Remaining water works (Draft) | 60 days | 60 days | NA | NA | August 4, 2020 | October 2, 2020 | November 13, 2020 | January 11, 2021 | 0% | 0 days | 1 day | 101 days |
| 267 | AIP for Water Works - Remaining water works (Final) | 38 days | 38 days | NA | NA | October 3, 2020 | November 9, 2020 | March 5, 2021 | April 11, 2021 | 0% | 52 days | 0.5 days | 153 days |




Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

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

| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 268 | DDA for Water Works - Remaining water works (Draft) | 90 days | 90 days | NA | NA | October 3, 2020 | December 31, 2020 | January 12, 2021 | April 11, 2021 | 0% | 0 days | 1 day | 101 days |
| 269 | DDA for Water Works - Remaining water works (Final) | 52 days | 52 days | NA | NA | January 1, 2021 | February 21, 2021 | April 12, 2021 | June 2, 2021 | 0% | 84 days | 1 day | 101 days |
| 270 | **Water Works** | **442 days** | **442 days** | **NA** | **NA** | **October 17, 2019** | **December 31, 2020** | **May 1, 2020** | **July 16, 2021** | **0%** | **197 days** | | **197 days** |
| 271 | Prepare AIP for Bridge D3 and ICE certification (Draft) | 60 days | 60 days | NA | NA | October 17, 2019 | December 15, 2019 | May 1, 2020 | June 29, 2020 | 0% | 0 days | 1 day | 197 days |
| 272 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 28 days | 28 days | NA | NA | December 16, 2019 | January 12, 2020 | October 28, 2020 | November 24, 2020 | 0% | 0 days | 0.5 days | 317 days |
| 273 | Prepare AIP for Bridge D3 and ICE certification (Final) | 14 days | 14 days | NA | NA | January 13, 2020 | January 26, 2020 | November 25, 2020 | December 8, 2020 | 0% | 0 days | 0 days | 317 days |
| 274 | Prepare DDA for  Bridge D3 and ICE certification (Draft) | 90 days | 90 days | NA | NA | January 27, 2020 | April 25, 2020 | December 9, 2020 | March 8, 2021 | 0% | 0 days | 1 day | 317 days |
| 275 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | April 26, 2020 | June 24, 2020 | March 9, 2021 | May 7, 2021 | 0% | 0 days | 0.5 days | 317 days |
| 276 | Prepare DDA for Dridge D3 and ICE certification (Final) | 10 days | 10 days | NA | NA | June 25, 2020 | July 4, 2020 | May 8, 2021 | May 17, 2021 | 0% | 0 days | 0 days | 317 days |
| 277 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | July 5, 2020 | September 2, 2020 | May 18, 2021 | July 16, 2021 | 0% | 268 days | 0 days | 317 days |
| 278 | Prepare AIP for Underpass, Depressed Road and ICE certification (Draft) | 60 days | 60 days | NA | NA | December 16, 2019 | February 13, 2020 | June 30, 2020 | August 28, 2020 | 0% | 0 days | 1 day | 197 days |
| 279 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | February 14, 2020 | April 13, 2020 | September 30, 2020 | November 28, 2020 | 0% | 0 days | 0.5 days | 229 days |
| 280 | Prepare AIP for Underpass, Depressed Road and ICE certification (Final) | 10 days | 10 days | NA | NA | April 14, 2020 | April 23, 2020 | November 29, 2020 | December 8, 2020 | 0% | 0 days | 0 | 229 days |
| 281 | Prepare DDA for Underpass, Depressed Road and ICE certification (Draft) | 90 days | 90 days | NA | NA | April 24, 2020 | July 22, 2020 | December 9, 2020 | March 8, 2021 | 0% | 0 days | 1 day | 229 days |
| 282 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | July 23, 2020 | September 20, 2020 | March 9, 2021 | May 7, 2021 | 0% | 0 days | 0.5 days | 229 days |
| 283 | Prepare DDA for Underpass, Depressed Road and ICE certification (Final) | 10 days | 10 days | NA | NA | September 21, 2020 | September 30, 2020 | May 8, 2021 | May 17, 2021 | 0% | 0 days | 0 days | 229 days |
| 284 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | October 1, 2020 | November 29, 2020 | May 18, 2021 | July 16, 2021 | 0% | 180 days | 0 days | 229 days |
| 285 | AIP for Water Works - Road L12d (Draft) | 60 days | 60 days | NA | NA | February 14, 2020 | April 13, 2020 | August 29, 2020 | October 27, 2020 | 0% | 0 days | 1 day | 197 days |
| 286 | AIP for Water Works - Road L12d (Final) | 38 days | 38 days | NA | NA | April 14, 2020 | May 21, 2020 | April 18, 2021 | May 25, 2021 | 0% | 52 days | 0.5 days | 369 days |
| 287 | DDA for Water Works - Road L12d (Draft) | 90 days | 90 days | NA | NA | April 14, 2020 | July 12, 2020 | February 25, 2021 | May 25, 2021 | 0% | 0 days | 1 day | 317 days |
| 288 | DDA for Water Works - Road L12d (Final) | 52 days | 52 days | NA | NA | July 13, 2020 | September 2, 2020 | May 26, 2021 | July 16, 2021 | 0% | 268 days | 1 day | 317 days |
| 289 | AIP for Water Works - Waterfront Promenade and at grade Open Space (Draft) | 60 days | 60 days | NA | NA | April 14, 2020 | June 12, 2020 | October 28, 2020 | December 26, 2020 | 0% | 0 days | 1 day | 197 days |
| 290 | AIP for Water Works - Waterfront Promenade and at grade Open Space (Final) | 38 days | 38 days | NA | NA | June 13, 2020 | July 20, 2020 | April 18, 2021 | May 25, 2021 | 0% | 52 days | 0.5 days | 309 days |
| 291 | DDA for Water Works - Waterfront Promenade and at grade Open Space (Draft) | 90 days | 90 days | NA | NA | June 13, 2020 | September 10, 2020 | February 25, 2021 | May 25, 2021 | 0% | 0 days | 1 day | 257 days |
| 292 | DDA for Water Works - Waterfront Promenade and at grade Open Space (Final) | 52 days | 52 days | NA | NA | September 11, 2020 | November 1, 2020 | May 26, 2021 | July 16, 2021 | 0% | 208 days | 1 day | 257 days |
| 293 | AIP for Water Works - Remaining water works (Draft) | 60 days | 60 days | NA | NA | June 13, 2020 | August 11, 2020 | December 27, 2020 | February 24, 2021 | 0% | 0 days | 1 day | 197 days |
| 294 | AIP for Water Works - Remaining water works (Final) | 38 days | 38 days | NA | NA | August 12, 2020 | September 18, 2020 | April 18, 2021 | May 25, 2021 | 0% | 52 days | 0.5 days | 249 days |
| 295 | DDA for Water Works - Remaining water works (Draft) | 90 days | 90 days | NA | NA | August 12, 2020 | November 9, 2020 | February 25, 2021 | May 25, 2021 | 0% | 0 days | 1 day | 197 days |
| 296 | DDA for Water Works - Remaining water works (Final) | 52 days | 52 days | NA | NA | November 10, 2020 | December 31, 2020 | May 26, 2021 | July 16, 2021 | 0% | 148 days | 1 day | 197 days |
| 297 | **Pumping Stations, Box Culverts and Intake Structures** | **505 days** | **409.17 days** | **May 30, 2019** | **NA** | **May 30, 2019** | **October 15, 2020** | **May 30, 2019** | **February 10, 2022** | **0%** | **340 days** | | **483 days** |
| 298 | Prepare AIP for Structures and ICE certification (Draft) | 61 days | 0 days | May 30, 2019 | July 29, 2019 | May 30, 2019 | July 29, 2019 | May 30, 2019 | July 29, 2019 | 100% | 0 days | 1 day | 0 days |
| 299 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 5 days | July 30, 2019 | NA | July 30, 2019 | September 27, 2019 | July 30, 2019 | September 15, 2021 | 92% | 0 days | 0.5 days | 719 days |
| 300 | Prepare AIP for Structures and ICE certification (Final) | 14 days | 14 days | NA | NA | September 28, 2019 | October 11, 2019 | September 16, 2021 | September 29, 2021 | 0% | 18 days | 0 days | 719 days |
| 301 | Prepare DDA for Structures and ICE certification (Draft) | 92 days | 37 days | July 30, 2019 | NA | July 30, 2019 | October 29, 2019 | July 30, 2019 | May 30, 2020 | 0% | 0 days | 1 day | 214 days |
| 302 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | October 30, 2019 | December 28, 2019 | September 30, 2021 | November 28, 2021 | 0% | 0 days | 0.5 days | 701 days |
| 303 | Prepare DDA for Structures and ICE certification (Final) | 14 days | 14 days | NA | NA | December 29, 2019 | January 11, 2020 | November 29, 2021 | December 12, 2021 | 0% | 0 days | 0 days | 701 days |
| 304 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | January 12, 2020 | March 11, 2020 | December 13, 2021 | February 10, 2022 | 0% | 558 days | 0 days | 701 days |
| 305 | Prepare AIP for E&M and ICE certification (Draft) | 60 days | 5 days | July 30, 2019 | NA | July 30, 2019 | September 27, 2019 | July 30, 2019 | May 30, 2020 | 0% | 0 days | 1 day | 246 days |
| 306 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | September 28, 2019 | November 26, 2019 | April 27, 2021 | June 25, 2021 | 0% | 0 days | 0.5 days | 577 days |
| 307 | Prepare AIP for E&M and ICE certification (Final) | 10 days | 10 days | NA | NA | November 27, 2019 | December 6, 2019 | June 26, 2021 | July 5, 2021 | 0% | 0 days | 0 days | 577 days |
| 308 | Prepare DDA for  E&M and ICE certification (Draft) | 90 days | 90 days | NA | NA | December 7, 2019 | March 5, 2020 | July 6, 2021 | October 3, 2021 | 0% | 0 days | 1 day | 577 days |
| 309 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | March 6, 2020 | May 4, 2020 | October 4, 2021 | December 2, 2021 | 0% | 0 days | 0.5 days | 577 days |
| 310 | Prepare DDA for  E&M and ICE certification (Final) | 10 days | 10 days | NA | NA | May 5, 2020 | May 14, 2020 | December 3, 2021 | December 12, 2021 | 0% | 0 days | 0 days | 577 days |

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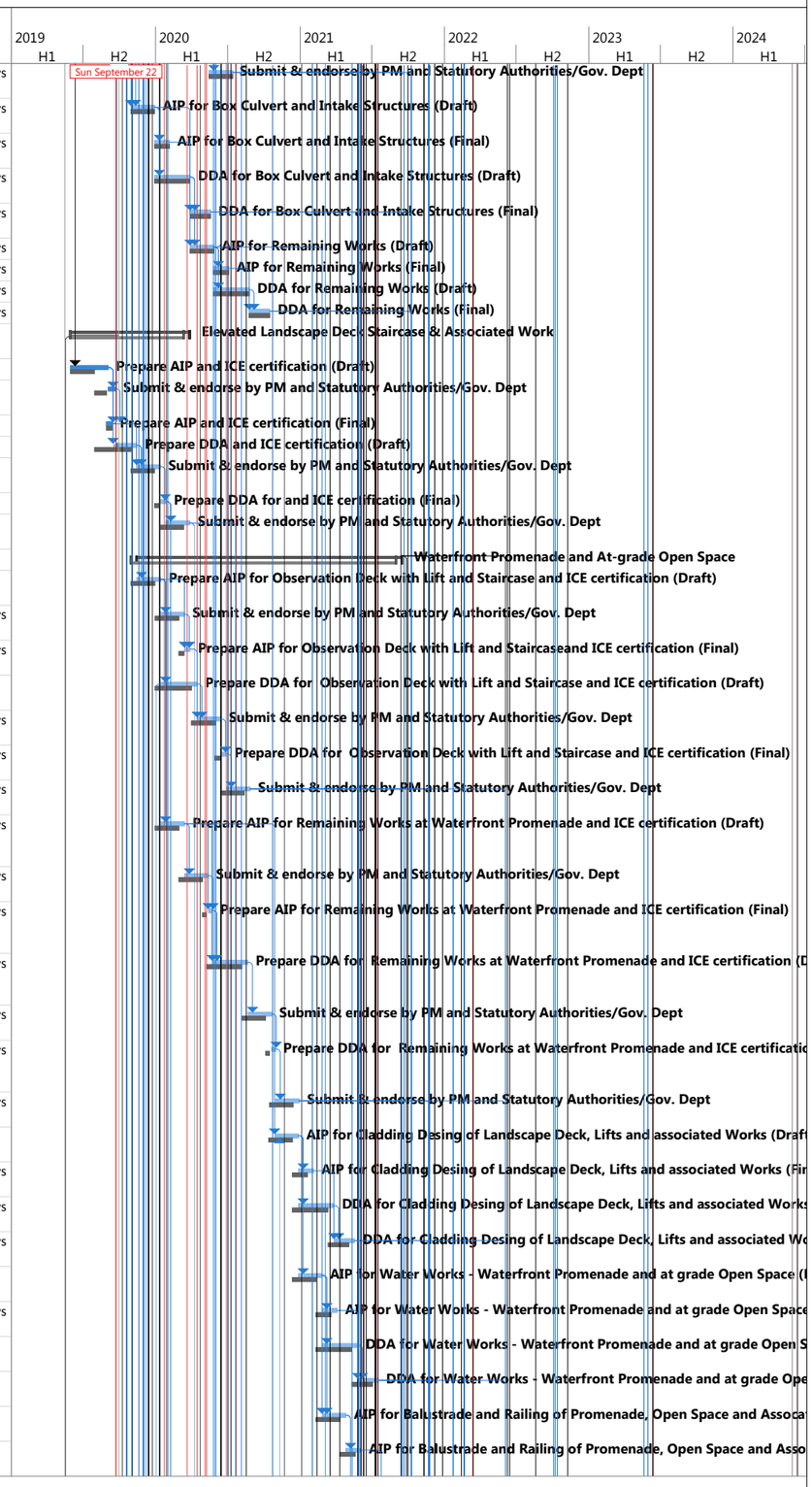
Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive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

| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 311 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | May 15, 2020 | July 13, 2020 | December 13, 2021 | February 10, 2022 | 0% | 434 days | 0 days | 577 days |
| 312 | AIP for Box Culvert and Intake Structures (Draft) | 60 days | 60 days | NA | NA | October 30, 2019 | December 28, 2019 | May 31, 2020 | July 29, 2020 | 0% | 0 days | 1 day | 214 days |
| 313 | AIP for Box Culvert and Intake Structures (Final) | 38 days | 38 days | NA | NA | December 29, 2019 | February 4, 2020 | November 13, 2021 | December 20, 2021 | 0% | 52 days | 0.5 days | 685 days |
| 314 | DDA for Box Culvert and Intake Structures (Draft) | 90 days | 90 days | NA | NA | December 29, 2019 | March 27, 2020 | July 30, 2020 | October 27, 2020 | 0% | 0 days | 1 day | 214 days |
| 315 | DDA for Box Culvert and Intake Structures (Final) | 52 days | 52 days | NA | NA | March 28, 2020 | May 18, 2020 | December 21, 2021 | February 10, 2022 | 0% | 490 days | 1 day | 633 days |
| 316 | AIP for Remaining Works (Draft) | 60 days | 60 days | NA | NA | March 28, 2020 | May 26, 2020 | October 28, 2020 | December 26, 2020 | 0% | 0 days | 1 day | 214 days |
| 317 | AIP for Remaining Works (Final) | 38 days | 38 days | NA | NA | May 27, 2020 | July 3, 2020 | November 13, 2021 | December 20, 2021 | 0% | 52 days | 0.5 days | 535 days |
| 318 | DDA for Remaining Works (Draft) | 90 days | 90 days | NA | NA | May 27, 2020 | August 24, 2020 | September 22, 2021 | December 20, 2021 | 0% | 0 days | 1 day | 483 days |
| 319 | DDA for Remaining Works (Final) | 52 days | 52 days | NA | NA | August 25, 2020 | October 15, 2020 | December 21, 2021 | February 10, 2022 | 0% | 340 days | 1 day | 483 days |
| 320 | **Elevated Landscape Deck Staircase & Associated Work** | **302 days** | **173.99 days** | **May 30, 2019** | **NA** | **May 30, 2019** | **March 26, 2020** | **May 30, 2019** | **May 5, 2020** | **0%** | **40 days** | | **40 days** |
| 321 | Prepare AIP and ICE certification (Draft) | 96 days | 0 days | May 30, 2019 | September 2, 2019 | May 30, 2019 | September 2, 2019 | May 30, 2019 | September 2, 2019 | 100% | 0 days | 3 days | 0 days |
| 322 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 18 days | 0 days | September 3, 2019 | September 20, 2019 | September 3, 2019 | September 20, 2019 | September 3, 2019 | September 20, 2019 | 100% | 0 days | 1 days | 0 days |
| 323 | Prepare AIP and ICE certification (Final) | 14 days | 0 days | August 29, 2019 | September 11, 2019 | August 29, 2019 | September 11, 2019 | August 29, 2019 | September 11, 2019 | 100% | 0 days | 0 days | 0 days |
| 324 | Prepare DDA and ICE certification (Draft) | 52 days | 46.9 days | September 14, 2019 | NA | September 14, 2019 | November 13, 2019 | September 14, 2019 | December 9, 2019 | 10% | 0 days | 1 day | 26 days |
| 325 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | November 14, 2019 | January 12, 2020 | December 24, 2019 | February 21, 2020 | 0% | 0 days | 0.5 days | 40 days |
| 326 | Prepare DDA for and ICE certification (Final) | 14 days | 14 days | NA | NA | January 13, 2020 | January 26, 2020 | February 22, 2020 | March 6, 2020 | 0% | 0 days | 0 days | 40 days |
| 327 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | January 27, 2020 | March 26, 2020 | March 7, 2020 | May 5, 2020 | 0% | 0 days | 0 days | 40 days |
| 328 | **Waterfront Promenade and At-grade Open Space** | **671 days** | **671 days** | **NA** | **NA** | **November 14, 2019** | **September 14, 20...** | **December 10, 2019** | **October 10, 2021** | **0%** | **0 days** | | **26 days** |
| 329 | Prepare AIP for Observation Deck with Lift and Staircase and ICE certification (Draft) | 61 days | 61 days | NA | NA | November 14, 2019 | January 13, 2020 | December 10, 2019 | February 8, 2020 | 0% | 0 days | 1 day | 26 days |
| 330 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | January 14, 2020 | March 13, 2020 | March 17, 2021 | May 15, 2021 | 0% | 0 days | 0.5 days | 428 days |
| 331 | Prepare AIP for Observation Deck with Lift and Staircaseand ICE certification (Final) | 14 days | 14 days | NA | NA | March 14, 2020 | March 27, 2020 | May 16, 2021 | May 29, 2021 | 0% | 18 days | 0 days | 428 days |
| 332 | Prepare DDA for Observation Deck with Lift and Staircase and ICE certification (Draft) | 92 days | 92 days | NA | NA | January 14, 2020 | April 14, 2020 | February 9, 2020 | May 10, 2020 | 0% | 0 days | 1 day | 26 days |
| 333 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | April 15, 2020 | June 13, 2020 | May 30, 2021 | July 28, 2021 | 0% | 0 days | 0.5 days | 410 days |
| 334 | Prepare DDA for Observation Deck with Lift and Staircase and ICE certification (Final) | 14 days | 14 days | NA | NA | June 14, 2020 | June 27, 2020 | July 29, 2021 | August 11, 2021 | 0% | 0 days | 0 days | 410 days |
| 335 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | June 28, 2020 | August 26, 2020 | August 12, 2021 | October 10, 2021 | 0% | 384 days | 0 days | 410 days |
| 336 | Prepare AIP for Remaining Works at Waterfront Promenade and ICE certification (Draft) | 60 days | 60 days | NA | NA | January 14, 2020 | March 13, 2020 | September 24, 2020 | November 22, 2020 | 0% | 0 days | 1 day | 254 days |
| 337 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | March 14, 2020 | May 12, 2020 | December 25, 2020 | February 22, 2021 | 0% | 0 days | 0.5 days | 286 days |
| 338 | Prepare AIP for Remaining Works at Waterfront Promenade and ICE certification (Final) | 10 days | 10 days | NA | NA | May 13, 2020 | May 22, 2020 | February 23, 2021 | March 4, 2021 | 0% | 0 days | 0 days | 286 days |
| 339 | Prepare DDA for Remaining Works at Waterfront Promenade and ICE certification (Draft) | 90 days | 90 days | NA | NA | May 23, 2020 | August 20, 2020 | March 5, 2021 | June 2, 2021 | 0% | 0 days | 1 day | 286 days |
| 340 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | August 21, 2020 | October 19, 2020 | June 3, 2021 | August 1, 2021 | 0% | 0 days | 0.5 days | 286 days |
| 341 | Prepare DDA for Remaining Works at Waterfront Promenade and ICE certification (Final) | 10 days | 10 days | NA | NA | October 20, 2020 | October 29, 2020 | August 2, 2021 | August 11, 2021 | 0% | 0 days | 0 days | 286 days |
| 342 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | October 30, 2020 | December 28, 2020 | August 12, 2021 | October 10, 2021 | 0% | 260 days | 0 days | 286 days |
| 343 | AIP for Cladding Desing of Landscape Deck, Lifts and associated Works (Draft) | 60 days | 60 days | NA | NA | October 28, 2020 | December 26, 2020 | November 23, 2020 | January 21, 2021 | 0% | 0 days | 1 day | 26 days |
| 344 | AIP for Cladding Desing of Landscape Deck, Lifts and associated Works (Final) | 38 days | 38 days | NA | NA | December 27, 2020 | February 2, 2021 | July 13, 2021 | August 19, 2021 | 0% | 52 days | 0.5 days | 198 days |
| 345 | DDA for Cladding Desing of Landscape Deck, Lifts and associated Works (Draft) | 90 days | 90 days | NA | NA | December 27, 2020 | March 26, 2021 | May 22, 2021 | August 19, 2021 | 0% | 0 days | 1 day | 146 days |
| 346 | DDA for Cladding Desing of Landscape Deck, Lifts and associated Works (Final) | 52 days | 52 days | NA | NA | March 27, 2021 | May 17, 2021 | August 20, 2021 | October 10, 2021 | 0% | 120 days | 1 day | 146 days |
| 347 | AIP for Water Works - Waterfront Promenade and at grade Open Space (Draft) | 60 days | 60 days | NA | NA | December 27, 2020 | February 24, 2021 | January 22, 2021 | March 22, 2021 | 0% | 0 days | 1 day | 26 days |
| 348 | AIP for Water Works - Waterfront Promenade and at grade Open Space (Final) | 38 days | 38 days | NA | NA | February 25, 2021 | April 3, 2021 | July 13, 2021 | August 19, 2021 | 0% | 52 days | 0.5 days | 138 days |
| 349 | DDA for Water Works - Waterfront Promenade and at grade Open Space (Draft) | 90 days | 90 days | NA | NA | February 25, 2021 | May 25, 2021 | May 22, 2021 | August 19, 2021 | 0% | 0 days | 1 day | 86 days |
| 350 | DDA for Water Works - Waterfront Promenade and at grade Open Space (Final) | 52 days | 52 days | NA | NA | May 26, 2021 | July 16, 2021 | August 20, 2021 | October 10, 2021 | 0% | 60 days | 1 day | 86 days |
| 351 | AIP for Balustrade and Railing of Promenade, Open Space and Assocated Works (Draft) | 60 days | 60 days | NA | NA | February 25, 2021 | April 25, 2021 | March 23, 2021 | May 21, 2021 | 0% | 0 days | 1 day | 26 days |
| 352 | AIP for Balustrade and Railing of Promenade, Open Space and Assocated Works (Final) | 38 days | 38 days | NA | NA | April 26, 2021 | June 2, 2021 | July 13, 2021 | August 19, 2021 | 0% | 52 days | 0.5 days | 78 days |

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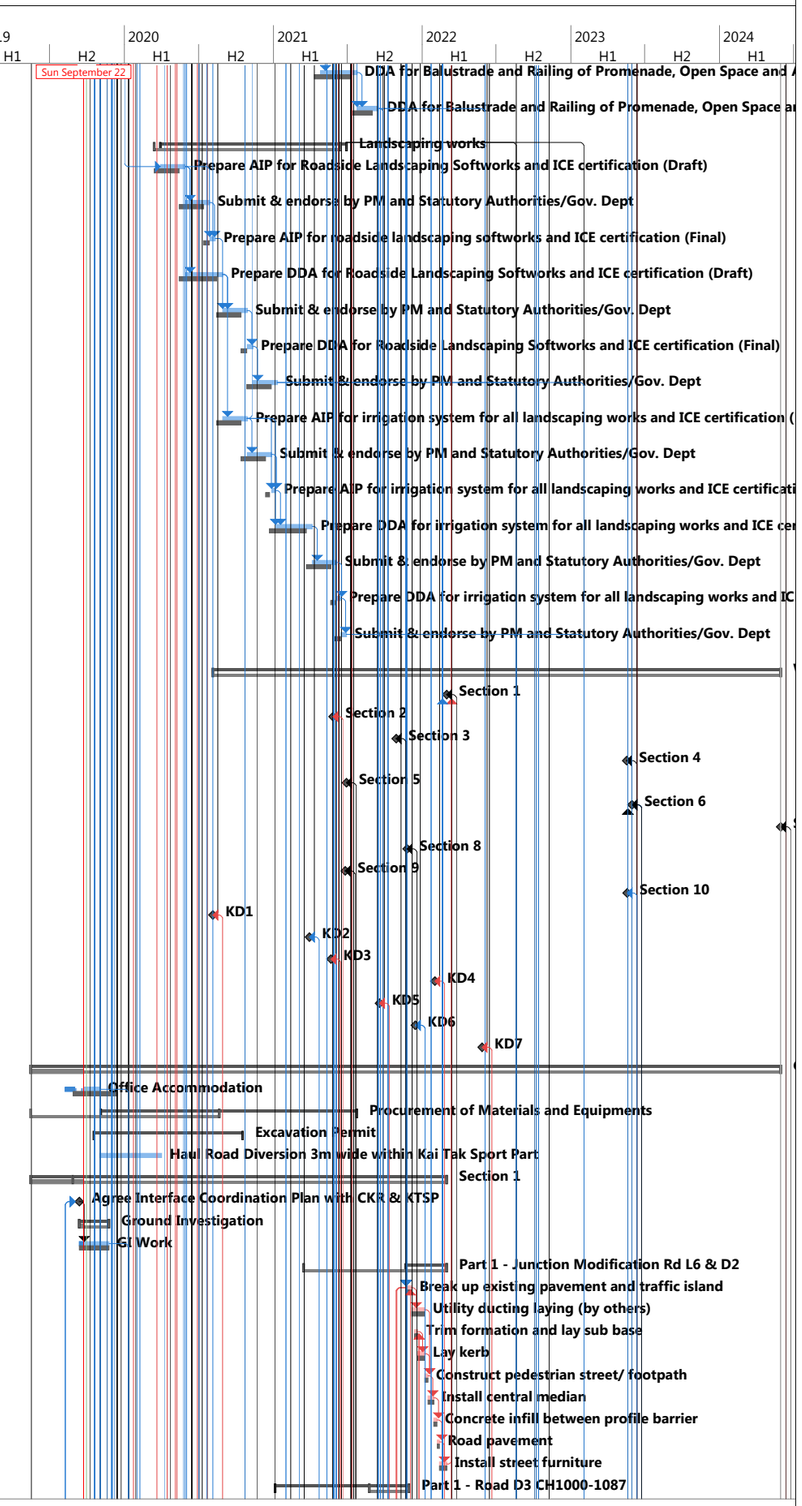
Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive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

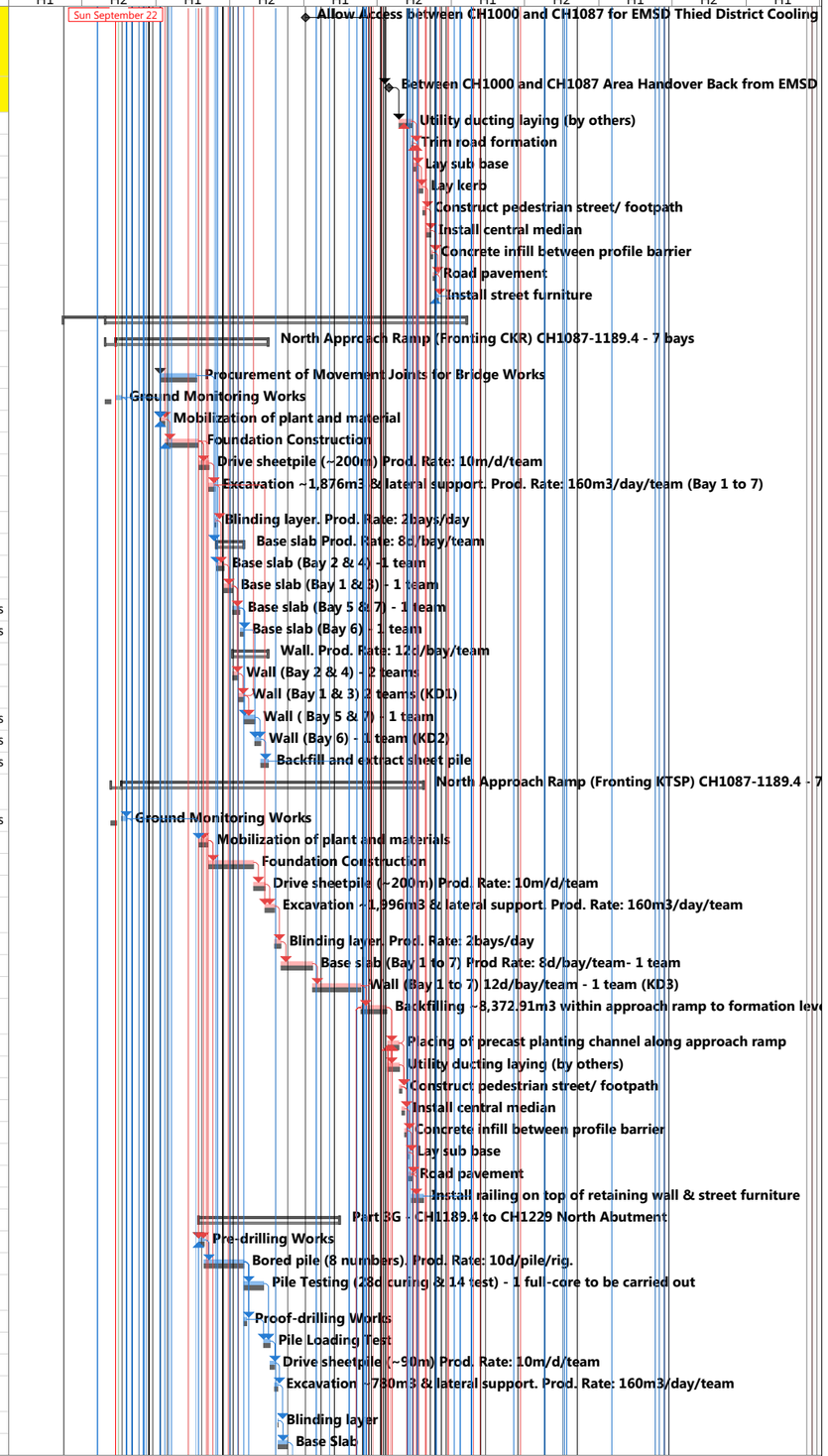
| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 353 | DDA for Balustrade and Railing of Promenade, Open Space and Assocated Works (Draft) | 90 days | 90 days | NA | NA | April 26, 2021 | July 24, 2021 | May 22, 2021 | August 19, 2021 | 0% | 0 days | 1 day | 26 days |
| 354 | DDA for Balustrade and Railing of Promenade, Open Space and Assocated Works (Final) | 52 days | 52 days | NA | NA | July 25, 2021 | September 14, 2021 | August 20, 2021 | October 10, 2021 | 0% | 0 days | 1 day | 26 days |
| 355 | **Landscaping works** | **457 days** | **457 days** | **NA** | **NA** | **March 29, 2020** | **June 28, 2021** | **April 24, 2020** | **November 15, 2022** | **0%** | **26 days** | | **26 days** |
| 356 | Prepare AIP for Roadside Landscaping Softworks and ICE certification (Draft) | 61 days | 61 days | NA | NA | March 29, 2020 | May 28, 2020 | April 24, 2020 | June 23, 2020 | 0% | 0 days | 1 day | 26 days |
| 357 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | May 29, 2020 | July 27, 2020 | April 22, 2022 | June 20, 2022 | 0% | 0 days | 0.5 days | 693 days |
| 358 | Prepare AIP for roadside landscaping softworks and ICE certification (Final) | 14 days | 14 days | NA | NA | July 28, 2020 | August 10, 2020 | June 21, 2022 | July 4, 2022 | 0% | 18 days | 0 days | 693 days |
| 359 | Prepare DDA for Roadside Landscaping Softworks and ICE certification (Draft) | 92 days | 92 days | NA | NA | May 29, 2020 | August 28, 2020 | June 24, 2020 | September 23, 2020 | 0% | 0 days | 1 day | 26 days |
| 360 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | August 29, 2020 | October 27, 2020 | July 5, 2022 | September 2, 2022 | 0% | 0 days | 0.5 days | 675 days |
| 361 | Prepare DDA for Roadside Landscaping Softworks and ICE certification (Final) | 14 days | 14 days | NA | NA | October 28, 2020 | November 10, 2020 | September 3, 2022 | September 16, 2022 | 0% | 0 days | 0 days | 675 days |
| 362 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | November 11, 2020 | January 9, 2021 | September 17, 2022 | November 15, 2022 | 0% | 587 days | 0 days | 675 days |
| 363 | Prepare AIP for irrigation system for all landscaping works and ICE certification (Draft) | 60 days | 60 days | NA | NA | August 29, 2020 | October 27, 2020 | September 24, 2020 | November 22, 2020 | 0% | 0 days | 1 day | 26 days |
| 364 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | October 28, 2020 | December 26, 2020 | March 17, 2022 | May 15, 2022 | 0% | 0 days | 0.5 days | 505 days |
| 365 | Prepare AIP for irrigation system for all landscaping works and ICE certification (Final) | 10 days | 10 days | NA | NA | December 27, 2020 | January 5, 2021 | May 16, 2022 | May 25, 2022 | 0% | 0 days | 0 days | 505 days |
| 366 | Prepare DDA for irrigation system for all landscaping works and ICE certification (Draft) | 90 days | 90 days | NA | NA | January 6, 2021 | April 5, 2021 | May 26, 2022 | August 23, 2022 | 0% | 0 days | 1 day | 505 days |
| 367 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 60 days | 60 days | NA | NA | April 6, 2021 | June 4, 2021 | August 24, 2022 | October 22, 2022 | 0% | 0 days | 0.5 days | 505 days |
| 368 | Prepare DDA for irrigation system for all landscaping works and ICE certification (Final) | 10 days | 10 days | NA | NA | June 5, 2021 | June 14, 2021 | October 23, 2022 | November 1, 2022 | 0% | 0 days | 0 days | 505 days |
| 369 | Submit & endorse by PM and Statutory Authorities/Gov. Dept | 14 days | 14 days | NA | NA | June 15, 2021 | June 28, 2021 | November 2, 2022 | November 15, 2022 | 0% | 417 days | 0 days | 505 days |
| 370 | **Work Stage/ Phase - Planned Completion** | **1394 days** | **1394 days** | **NA** | **NA** | **August 4, 2020** | **May 29, 2024** | **August 7, 2020** | **May 29, 2024** | **0%** | **0 days** | | **0 days** |
| 371 | Section 1 | 0 days | 0 days | NA | NA | March 1, 2022 | March 1, 2022 | March 1, 2022 | March 1, 2022 | 0% | 0 days | 0 days | 0 days |
| 372 | Section 2 | 0 days | 0 days | NA | NA | May 26, 2021 | May 26, 2021 | June 2, 2021 | June 2, 2021 | 0% | 6 days | 0 days | 6 days |
| 373 | Section 3 | 0 days | 0 days | NA | NA | October 28, 2021 | October 28, 2021 | November 2, 2021 | November 2, 2021 | 0% | 4 days | 0 days | 4 days |
| 374 | Section 4 | 0 days | 0 days | NA | NA | May 17, 2023 | May 17, 2023 | May 30, 2023 | May 30, 2023 | 0% | 10 days | 0 days | 10 days |
| 375 | Section 5 | 0 days | 0 days | NA | NA | June 28, 2021 | June 28, 2021 | July 5, 2021 | July 5, 2021 | 0% | 5 days | 0 days | 5 days |
| 376 | Section 6 | 0 days | 0 days | NA | NA | May 30, 2023 | May 30, 2023 | May 30, 2023 | May 30, 2023 | 0% | 0 days | 0 days | 0 days |
| 377 | Section 7 | 0 days | 0 days | NA | NA | May 29, 2024 | May 29, 2024 | May 29, 2024 | May 29, 2024 | 0% | 0 days | 0 days | 0 days |
| 378 | Section 8 | 0 days | 0 days | NA | NA | November 24, 2021 | November 24, 2021 | December 2, 2021 | December 2, 2021 | 0% | 7 days | 0 days | 7 days |
| 379 | Section 9 | 0 days | 0 days | NA | NA | June 25, 2021 | June 25, 2021 | July 5, 2021 | July 5, 2021 | 0% | 7 days | 0 days | 7 days |
| 380 | Section 10 | 0 days | 0 days | NA | NA | May 18, 2023 | May 18, 2023 | May 30, 2023 | May 30, 2023 | 0% | 9 days | 0 days | 9 days |
| 381 | KD1 | 0 days | 0 days | NA | NA | August 4, 2020 | August 4, 2020 | August 7, 2020 | August 7, 2020 | 0% | 3 days | 0 days | 3 days |
| 382 | KD2 | 0 days | 0 days | NA | NA | March 29, 2021 | March 29, 2021 | April 18, 2021 | April 18, 2021 | 0% | 14 days | 0 days | 14 days |
| 383 | KD3 | 0 days | 0 days | NA | NA | May 21, 2021 | May 21, 2021 | June 1, 2021 | June 1, 2021 | 0% | 9 days | 0 days | 9 days |
| 384 | KD4 | 0 days | 0 days | NA | NA | January 31, 2022 | January 31, 2022 | January 31, 2022 | January 31, 2022 | 0% | 0 days | 0 days | 0 days |
| 385 | KD5 | 0 days | 0 days | NA | NA | September 17, 2021 | September 17, 2021 | September 17, 2021 | September 17, 2021 | 0% | 0 days | 0 days | 0 days |
| 386 | KD6 | 0 days | 0 days | NA | NA | December 14, 2021 | December 14, 2021 | December 29, 2021 | December 29, 2021 | 0% | 11 days | 0 days | 11 days |
| 387 | KD7 | 0 days | 0 days | NA | NA | May 27, 2022 | May 27, 2022 | June 3, 2022 | June 3, 2022 | 0% | 5 days | 0 days | 5 days |
| 388 | **Construction Works** | **1499 days** | **1491.94 days** | **May 16, 2019** | **NA** | **May 16, 2019** | **May 29, 2024** | **May 16, 2019** | **May 29, 2024** | **0%** | **0 days** | | **0 days** |
| 389 | Office Accommodation | 53 days | 32 days | August 8, 2019 | NA | August 8, 2019 | October 31, 2019 | August 8, 2019 | January 10, 2020 | 40% | 58 days | 1 day | 58 days |
| 390 | **Procurement of Materials and Equipments** | **509 days** | **509 days** | **NA** | **NA** | **November 4, 2019** | **July 23, 2021** | **November 26, 2019** | **July 27, 2022** | **0%** | **19 days** | | **19 days** |
| 398 | **Excavation Permit** | **297 days** | **297 days** | **NA** | **NA** | **October 18, 2019** | **October 16, 2020** | **November 22, 2020** | **November 21, 2021** | **0%** | **326 days** | | **326 days** |
| 400 | Haul Road Diversion 3m wide within Kai Tak Sport Part | 152 days | 152 days | NA | NA | November 1, 2019 | March 31, 2020 | December 30, 2023 | May 29, 2024 | 0% | 1520 d... | | 1520 d... |
| 401 | **Section 1** | **831 days** | **825.54 days** | **May 16, 2019** | **NA** | **May 16, 2019** | **March 1, 2022** | **May 16, 2019** | **May 29, 2024** | **0%** | **668 days** | | **668 days** |
| 402 | Agree Interface Coordination Plan with CKR & KTSP | 14 days | 0 days | August 27, 2019 | September 11, 2019 | August 27, 2019 | September 11, 2019 | August 27, 2019 | September 11, 2019 | 100% | 0 days | 0 days | 0 days |
| 403 | **Ground Investigation** | **60 days** | **52 days** | September 12, 2019 | **NA** | **September 12, 20...** | **November 23, 2019** | **September 12, 2019** | **January 10, 2020** | **0%** | **38 days** | | **38 days** |
| 404 | GI Work | 60 days | 52 days | September 12, 2019 | NA | September 12, 2019 | November 23, 2019 | September 12, 2019 | January 10, 2020 | 13% | 38 days | 0.5 days | 38 days |
| 405 | **Part 1 - Junction Modification Rd L6 & D2** | **80 days** | **80 days** | **NA** | **NA** | **November 22, 2021** | **March 1, 2022** | **November 22, 2021** | **March 1, 2022** | **0%** | **0 days** | | **0 days** |
| 406 | Break up existing pavement and traffic island | 12 days | 12 days | NA | NA | November 22, 2021 | December 4, 2021 | November 22, 2021 | December 4, 2021 | 0% | 0 days | 0 days | 0 days |
| 407 | Utility ducting laying (by others) | 25 days | 25 days | NA | NA | December 6, 2021 | January 6, 2022 | December 6, 2021 | January 6, 2022 | 0% | 0 days | 1 days | 0 days |
| 408 | Trim formation and lay sub base | 7 days | 7 days | NA | NA | December 13, 2021 | December 20, 2021 | December 13, 2021 | December 20, 2021 | 0% | 0 days | 0 days | 0 days |
| 409 | Lay kerb | 12 days | 12 days | NA | NA | December 21, 2021 | January 6, 2022 | December 21, 2021 | January 6, 2022 | 0% | 0 days | 0 days | 0 days |
| 410 | Construct pedestrian street/ footpath | 7 days | 7 days | NA | NA | January 7, 2022 | January 14, 2022 | January 7, 2022 | January 14, 2022 | 0% | 0 days | 0 days | 0 days |
| 411 | Install central median | 12 days | 12 days | NA | NA | January 15, 2022 | January 28, 2022 | January 15, 2022 | January 28, 2022 | 0% | 0 days | 0 days | 0 days |
| 412 | Concrete infill between profile barrier | 4 days | 4 days | NA | NA | January 29, 2022 | February 5, 2022 | January 29, 2022 | February 5, 2022 | 0% | 0 days | 0 days | 0 days |
| 413 | Road pavement | 5 days | 5 days | NA | NA | February 7, 2022 | February 11, 2022 | February 7, 2022 | February 11, 2022 | 0% | 0 days | 0 days | 0 days |
| 414 | Install street furniture | 15 days | 15 days | NA | NA | February 12, 2022 | March 1, 2022 | February 12, 2022 | March 1, 2022 | 0% | 0 days | 1 days | 0 days |
| 415 | **Part 1 - Road D3 CH1000-1087** | **269 days** | **269 days** | **NA** | **NA** | **January 5, 2021** | **November 29, 2021** | **February 25, 2021** | **March 1, 2022** | **0%** | **41 days** | | **41 days** |




Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

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

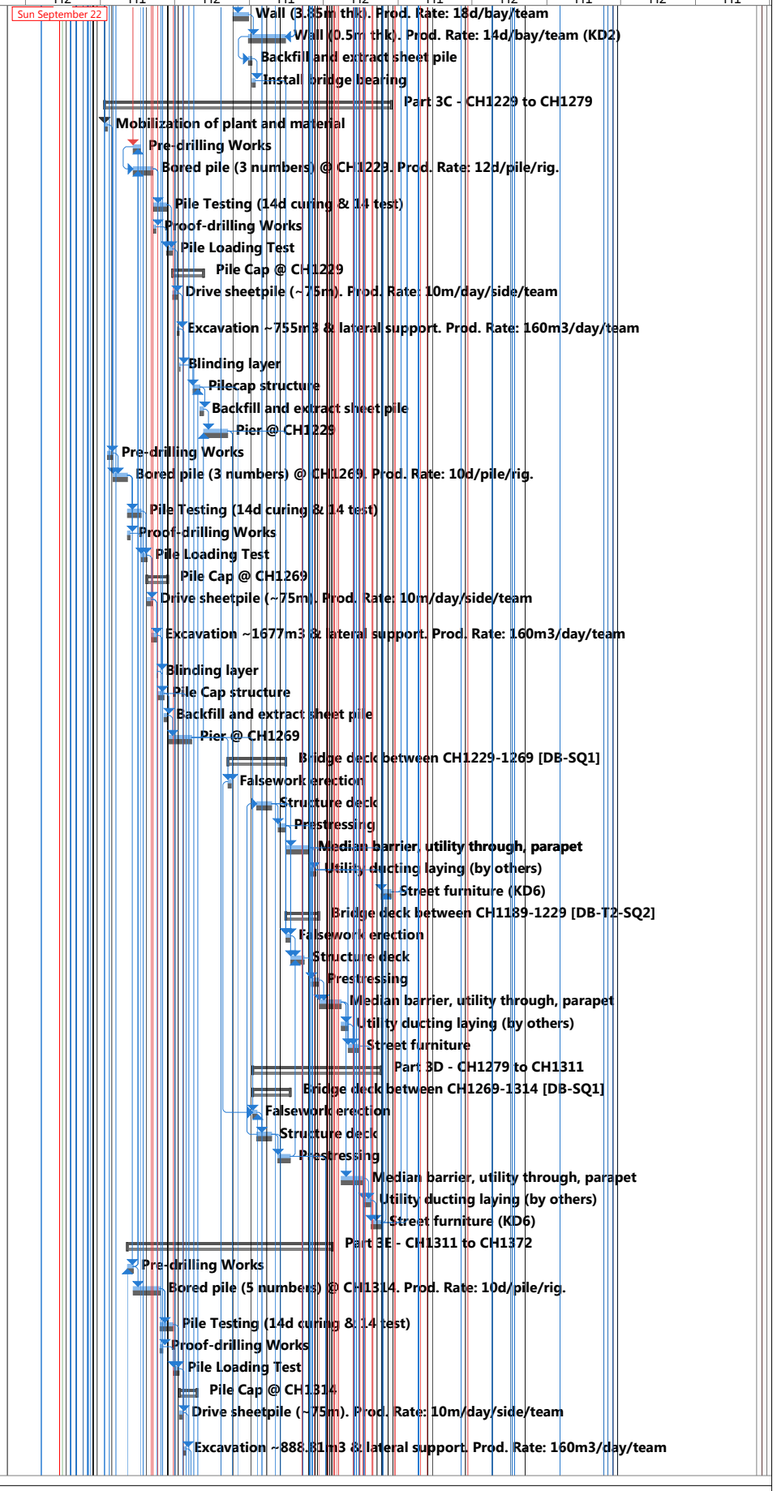
| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 416 | Allow Access between CH1000 and CH1087 for EMSD Thied District Cooling System for Associated Pipeline Laying (Assume the DCS Pipeline Lay within CH1010 and Ch1087 Area) | 0 days | 0 days | NA | NA | January 5, 2021 | January 5, 2021 | February 25, 2021 | February 25, 2021 | 0% | 26 days | | 51 days |
| 417 | Between CH1000 and CH1087 Area Handover Back from EMSD third District Cooling System Contractor | 0 days | 0 days | NA | NA | July 30, 2021 | July 30, 2021 | August 24, 2021 | August 24, 2021 | 0% | 25 days | | 25 days |
| 418 | Utility ducting laying (by others) | 26 days | 26 days | NA | NA | August 24, 2021 | September 23, 2021 | August 24, 2021 | September 23, 2021 | 0% | 0 days | 2 days | 0 days |
| 419 | Trim road formation | 3 days | 3 days | NA | NA | September 24, 2021 | September 27, 2021 | September 24, 2021 | September 27, 2021 | 0% | 0 days | 0 days | 0 days |
| 420 | Lay sub base | 7 days | 7 days | NA | NA | September 28, 2021 | October 6, 2021 | September 28, 2021 | October 6, 2021 | 0% | 0 days | 0 days | 0 days |
| 421 | Lay kerb | 12 days | 12 days | NA | NA | October 7, 2021 | October 21, 2021 | October 7, 2021 | October 21, 2021 | 0% | 0 days | 0 days | 0 days |
| 422 | Construct pedestrian street/ footpath | 7 days | 7 days | NA | NA | October 22, 2021 | October 29, 2021 | October 22, 2021 | October 29, 2021 | 0% | 0 days | 0 days | 0 days |
| 423 | Install central median | 10 days | 10 days | NA | NA | October 30, 2021 | November 10, 2021 | October 30, 2021 | November 10, 2021 | 0% | 0 days | 0 days | 0 days |
| 424 | Concrete infill between profile barrier | 4 days | 4 days | NA | NA | November 11, 2021 | November 15, 2021 | November 11, 2021 | November 15, 2021 | 0% | 0 days | 0 days | 0 days |
| 425 | Road pavement | 5 days | 5 days | NA | NA | November 16, 2021 | November 20, 2021 | November 16, 2021 | November 20, 2021 | 0% | 0 days | 0 days | 0 days |
| 426 | Install street furniture | 7 days | 7 days | NA | NA | November 22, 2021 | November 29, 2021 | February 22, 2022 | March 1, 2022 | 0% | 73 days | 0 days | 73 days |
| 427 | **Bridge D3 (Approach Ramp and Bridge) CH1087-1444.7** | **812 days** | **812 days** | **NA** | **NA** | **May 16, 2019** | **February 7, 2022** | **December 28, 2019** | **March 1, 2022** | **0%** | **19 days** | | **19 days** |
| 428 | **North Approach Ramp (Fronting CKR) CH1087-1189.4 - 7 bays** | **306 days** | **306 days** | **NA** | **NA** | **September 23, 2019** | **October 3, 2020** | **December 28, 2019** | **April 17, 2021** | **0%** | **79 days** | | **79 days** |
| 429 | Procurement of Movement Joints for Bridge Works | 90 days | 90 days | NA | NA | January 11, 2020 | April 9, 2020 | March 4, 2020 | June 1, 2020 | 0% | 49 days | | 53 days |
| 430 | Ground Monitoring Works | 14 days | 14 days | NA | NA | September 23, 2019 | October 6, 2019 | December 28, 2019 | January 10, 2020 | 0% | 0 days | 0 days | 96 days |
| 431 | Mobilization of plant and material | 10 days | 10 days | NA | NA | January 11, 2020 | January 22, 2020 | January 11, 2020 | January 22, 2020 | 0% | 0 days | 0 days | 0 days |
| 432 | Foundation Construction | 64 days | 64 days | NA | NA | January 23, 2020 | April 14, 2020 | January 23, 2020 | April 14, 2020 | 0% | 0 days | 3 days | 0 days |
| 433 | Drive sheetpile (~200m) Prod. Rate: 10m/d/team | 20 days | 20 days | NA | NA | April 15, 2020 | May 10, 2020 | April 18, 2020 | May 13, 2020 | 0% | 0 days | 1 days | 3 days |
| 434 | Excavation ~1,876m3 & lateral support. Prod. Rate: 160m3/day/team (Bay 1 to 7) | 12 days | 12 days | NA | NA | May 11, 2020 | May 24, 2020 | May 14, 2020 | May 27, 2020 | 0% | 0 days | 1 days | 3 days |
| 435 | Blinding layer. Prod. Rate: 2bays/day | 4 days | 4 days | NA | NA | May 25, 2020 | May 28, 2020 | May 28, 2020 | June 1, 2020 | 0% | 0 days | 0 days | 3 days |
| 436 | **Base slab Prod. Rate: 8d/bay/team** | **56 days** | **56 days** | **NA** | **NA** | **May 29, 2020** | **August 4, 2020** | **June 2, 2020** | **March 15, 2021** | **0%** | **3 days** | **3 days** | **3 days** |
| 437 | Base slab (Bay 2 & 4) -1 team | 16 days | 16 days | NA | NA | May 29, 2020 | June 16, 2020 | June 2, 2020 | June 19, 2020 | 0% | 0 days | 1 days | 3 days |
| 438 | Base slab (Bay 1 & 3) - 1 team | 16 days | 16 days | NA | NA | June 17, 2020 | July 7, 2020 | June 20, 2020 | July 10, 2020 | 0% | 0 days | 1 days | 3 days |
| 439 | Base slab (Bay 5 & 7) - 1 team | 16 days | 16 days | NA | NA | July 8, 2020 | July 25, 2020 | January 25, 2021 | February 11, 2021 | 0% | 0 days | 0 days | 166 days |
| 440 | Base slab (Bay 6) - 1 team | 8 days | 8 days | NA | NA | July 27, 2020 | August 4, 2020 | March 6, 2021 | March 15, 2021 | 0% | 24 days | 0 days | 182 days |
| 441 | **Wall. Prod. Rate: 12d/bay/team** | **74 days** | **74 days** | **NA** | **NA** | **July 8, 2020** | **October 3, 2020** | **July 11, 2020** | **April 17, 2021** | **0%** | **3 days** | **3 days** | **3 days** |
| 442 | Wall (Bay 2 & 4) - 2 teams | 12 days | 12 days | NA | NA | July 8, 2020 | July 21, 2020 | July 11, 2020 | July 24, 2020 | 0% | 0 days | 1 days | 3 days |
| 443 | Wall (Bay 1 & 3) 2 teams (KD1) | 12 days | 12 days | NA | NA | July 22, 2020 | August 4, 2020 | July 25, 2020 | August 7, 2020 | 0% | 0 days | 1 days | 3 days |
| 444 | Wall ( Bay 5 & 7) - 1 team | 24 days | 24 days | NA | NA | August 5, 2020 | September 1, 2020 | February 16, 2021 | March 15, 2021 | 0% | 0 days | 0.5 days | 158 days |
| 445 | Wall (Bay 6) - 1 team (KD2) | 12 days | 12 days | NA | NA | September 2, 2020 | September 15, 2020 | March 16, 2021 | March 29, 2021 | 0% | 0 days | 0 days | 158 days |
| 446 | Backfill and extract sheet pile | 14 days | 14 days | NA | NA | September 16, 2020 | October 3, 2020 | March 30, 2021 | April 17, 2021 | 0% | 144 days | 0 days | 158 days |
| 447 | **North Approach Ramp (Fronting KTSP) CH1087-1189.4 - 7 bays** | **608 days** | **608 days** | **NA** | **NA** | **October 7, 2019** | **October 23, 2021** | **April 1, 2020** | **February 21, 2022** | **0%** | **97 days** | | **97 days** |
| 448 | Ground Monitoring Works | 14 days | 14 days | NA | NA | October 7, 2019 | October 20, 2019 | April 1, 2020 | April 14, 2020 | 0% | 0 days | 0 days | 177 days |
| 449 | Mobilization of plant and materials | 19 days | 19 days | NA | NA | April 15, 2020 | May 8, 2020 | April 15, 2020 | May 8, 2020 | 0% | 0 days | 1 days | 0 days |
| 450 | Foundation Construction | 94 days | 94 days | NA | NA | May 9, 2020 | August 28, 2020 | May 9, 2020 | August 28, 2020 | 0% | 0 days | 4 days | 0 days |
| 451 | Drive sheetpile (~200m) Prod. Rate: 10m/d/team | 24 days | 24 days | NA | NA | August 29, 2020 | September 25, 2020 | August 29, 2020 | September 25, 2020 | 0% | 0 days | 1 days | 0 days |
| 452 | Excavation ~1,996m3 & lateral support. Prod. Rate: 160m3/day/team | 18 days | 18 days | NA | NA | September 26, 2020 | October 19, 2020 | September 26, 2020 | October 19, 2020 | 0% | 0 days | 1 days | 0 days |
| 453 | Blinding layer. Prod. Rate: 2bays/day | 13 days | 13 days | NA | NA | October 20, 2020 | November 4, 2020 | October 20, 2020 | November 4, 2020 | 0% | 0 days | 0 days | 0 days |
| 454 | Base slab (Bay 1 to 7) Prod Rate: 8d/bay/team- 1 team | 64 days | 64 days | NA | NA | November 5, 2020 | January 21, 2021 | November 5, 2020 | January 21, 2021 | 0% | 0 days | 3 days | 0 days |
| 455 | Wall (Bay 1 to 7) 12d/bay/team - 1 team (KD3) | 95 days | 95 days | NA | NA | January 22, 2021 | May 21, 2021 | January 22, 2021 | May 21, 2021 | 0% | 0 days | 4 days | 0 days |
| 456 | Backfilling ~8,372.91m3 within approach ramp to formation level (160m3/day) considered time for SRT | 53 days | 53 days | NA | NA | May 22, 2021 | July 24, 2021 | May 22, 2021 | July 24, 2021 | 0% | 0 days | 1 days | 0 days |
| 457 | Placing of precast planting channel along approach ramp | 24 days | 24 days | NA | NA | July 27, 2021 | August 23, 2021 | July 27, 2021 | August 23, 2021 | 0% | 0 days | 1 days | 0 days |
| 458 | Utility ducting laying (by others) | 26 days | 26 days | NA | NA | July 26, 2021 | August 24, 2021 | July 26, 2021 | August 24, 2021 | 0% | 0 days | 1 days | 0 days |
| 459 | Construct pedestrian street/ footpath | 5 days | 5 days | NA | NA | August 25, 2021 | August 30, 2021 | August 25, 2021 | August 30, 2021 | 0% | 0 days | 0 days | 0 days |
| 460 | Install central median | 6 days | 6 days | NA | NA | August 31, 2021 | September 6, 2021 | August 31, 2021 | September 6, 2021 | 0% | 0 days | 0 days | 0 days |
| 461 | Concrete infill between profile barrier | 5 days | 5 days | NA | NA | September 7, 2021 | September 11, 2021 | September 7, 2021 | September 11, 2021 | 0% | 0 days | 0 days | 0 days |
| 462 | Lay sub base | 4 days | 4 days | NA | NA | September 13, 2021 | September 16, 2021 | September 13, 2021 | September 16, 2021 | 0% | 0 days | 0 days | 0 days |
| 463 | Road pavement | 5 days | 5 days | NA | NA | September 17, 2021 | September 23, 2021 | September 17, 2021 | September 23, 2021 | 0% | 0 days | 0 days | 0 days |
| 464 | Install railing on top of retaining wall & street furniture | 24 days | 24 days | NA | NA | September 24, 2021 | October 23, 2021 | January 21, 2022 | February 21, 2022 | 0% | 24 days | 0.5 days | 97 days |
| 465 | **Part 3G - CH1189.4 to CH1229 North Abutment** | **286 days** | **286 days** | **NA** | **NA** | **April 15, 2020** | **March 29, 2021** | **May 4, 2020** | **April 17, 2021** | **0%** | **14 days** | | **14 days** |
| 466 | Pre-drilling Works | 14 days | 14 days | NA | NA | April 15, 2020 | April 28, 2020 | May 4, 2020 | May 17, 2020 | 0% | 0 days | 1 days | 19 days |
| 467 | Bored pile (8 numbers). Prod. Rate: 10d/pile/rig. | 80 days | 80 days | NA | NA | April 29, 2020 | August 4, 2020 | May 18, 2020 | August 20, 2020 | 0% | 0 days | 2 days | 14 days |
| 468 | Pile Testing (28d curing & 14 test) - 1 full-core to be carried out | 42 days | 42 days | NA | NA | August 5, 2020 | September 22, 2020 | August 21, 2020 | October 10, 2020 | 0% | 0 days | 2 days | 14 days |
| 469 | Proof-drilling Works | 7 days | 7 days | NA | NA | August 5, 2020 | August 11, 2020 | October 4, 2020 | October 10, 2020 | 0% | 42 days | 0 days | 60 days |
| 470 | Pile Loading Test | 16 days | 16 days | NA | NA | September 23, 2020 | October 8, 2020 | October 11, 2020 | October 26, 2020 | 0% | 0 days | 1 days | 18 days |
| 471 | Drive sheetpile (~90m) Prod. Rate: 10m/d/team | 9 days | 9 days | NA | NA | October 9, 2020 | October 19, 2020 | October 27, 2020 | November 5, 2020 | 0% | 0 days | 0 days | 14 days |
| 472 | Excavation ~780m3 & lateral support. Prod. Rate: 160m3/day/team | 6 days | 6 days | NA | NA | October 20, 2020 | October 27, 2020 | November 6, 2020 | November 12, 2020 | 0% | 0 days | 0 days | 14 days |
| 473 | Blinding layer | 1 day | 1 day | NA | NA | October 28, 2020 | October 28, 2020 | November 13, 2020 | November 13, 2020 | 0% | 0 days | 0 days | 14 days |
| 474 | Base Slab | 20 days | 20 days | NA | NA | October 29, 2020 | November 20, 2020 | November 14, 2020 | December 7, 2020 | 0% | 0 days | 1 days | 14 days |




Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

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

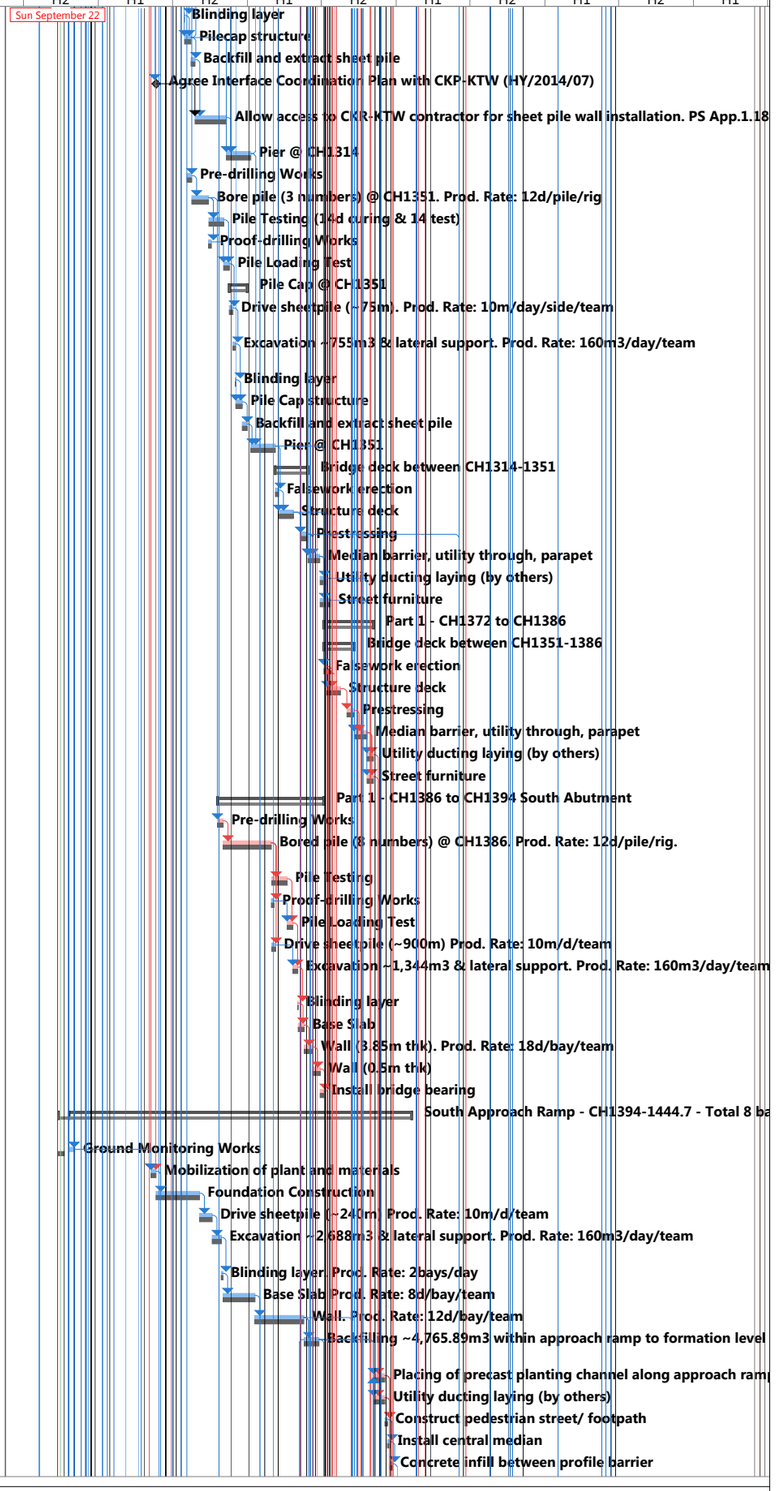
| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 475 | Wall (3.85m thk). Prod. Rate: 18d/bay/team | 30 days | 30 days | NA | NA | November 21, 2020 | December 28, 2020 | December 8, 2020 | January 14, 2021 | 0% | 0 days | 1 days | 14 days |
| 476 | Wall (0.5m thk). Prod. Rate: 14d/bay/team (KD2) | 74 days | 74 days | NA | NA | December 29, 2020 | March 29, 2021 | January 15, 2021 | April 17, 2021 | 0% | 0 days | 0 days | 14 days |
| 477 | Backfill and extract sheet pile | 7 days | 7 days | NA | NA | December 29, 2020 | January 6, 2021 | March 27, 2021 | April 7, 2021 | 0% | 0 days | 0 days | 72 days |
| 478 | Install bridge bearing | 7 days | 7 days | NA | NA | January 7, 2021 | January 14, 2021 | April 8, 2021 | April 15, 2021 | 0% | 61 days | 0 days | 72 days |
| 479 | **Part 3C - CH1229 to CH1279** | **573 days** | **573 days** | **NA** | **NA** | **January 11, 2020** | **December 14, 2021** | **January 20, 2020** | **December 29, 2021** | **0%** | **7 days** | | **7 days** |
| 480 | Mobilization of plant and material | 6 days | 6 days | NA | NA | January 11, 2020 | January 17, 2020 | January 20, 2020 | January 29, 2020 | 0% | 0 days | 1 days | 7 days |
| 481 | Pre-drilling Works | 14 days | 14 days | NA | NA | March 21, 2020 | April 7, 2020 | May 14, 2020 | May 29, 2020 | 0% | 0 days | 0 days | 40 days |
| 482 | Bored pile (3 numbers) @ CH1229. Prod. Rate: 12d/pile/rig. | 36 days | 36 days | NA | NA | March 21, 2020 | May 8, 2020 | May 14, 2020 | June 24, 2020 | 0% | 0 days | 0.5 days | 40 days |
| 483 | Pile Testing (14d curing & 14 test) | 28 days | 28 days | NA | NA | May 9, 2020 | June 10, 2020 | June 26, 2020 | July 29, 2020 | 0% | 0 days | 0.5 days | 40 days |
| 484 | Proof-drilling Works | 7 days | 7 days | NA | NA | May 9, 2020 | May 15, 2020 | July 23, 2020 | July 29, 2020 | 0% | 26 days | 0 days | 75 days |
| 485 | Pile Loading Test | 14 days | 14 days | NA | NA | June 11, 2020 | June 24, 2020 | July 30, 2020 | August 12, 2020 | 0% | 1 day | 0 days | 49 days |
| 486 | **Pile Cap @ CH1229** | **64 days** | **64 days** | **NA** | **NA** | **June 26, 2020** | **September 9, 2020** | **August 13, 2020** | **September 23, 20...** | **0%** | **12 days** | | **12 days** |
| 487 | Drive sheetpile (~75m). Prod. Rate: 10m/day/side/team | 8 days | 8 days | NA | NA | June 26, 2020 | July 6, 2020 | August 13, 2020 | August 21, 2020 | 0% | 0 days | 0 days | 40 days |
| 488 | Excavation ~755m3 & lateral support. Prod. Rate: 160m3/day/team | 5 days | 5 days | NA | NA | July 7, 2020 | July 11, 2020 | August 22, 2020 | August 27, 2020 | 0% | 0 days | 0 days | 40 days |
| 489 | Blinding layer | 1 day | 1 day | NA | NA | July 13, 2020 | July 13, 2020 | August 28, 2020 | August 28, 2020 | 0% | 28 days | 0 days | 40 days |
| 490 | Pilecap structure | 14 days | 14 days | NA | NA | August 15, 2020 | August 31, 2020 | August 29, 2020 | September 14, 2020 | 0% | 0 days | 1 days | 12 days |
| 491 | Backfill and extract sheet pile | 8 days | 8 days | NA | NA | September 1, 2020 | September 9, 2020 | September 15, 2020 | September 23, 2020 | 0% | 0 days | 0 days | 12 days |
| 492 | Pier @ CH1229 | 48 days | 48 days | NA | NA | September 10, 2020 | November 7, 2020 | September 24, 2020 | November 21, 2020 | 0% | 0 days | 2 days | 12 days |
| 493 | Pre-drilling Works | 14 days | 14 days | NA | NA | January 18, 2020 | January 31, 2020 | January 30, 2020 | February 12, 2020 | 0% | 0 days | 1 days | 12 days |
| 494 | Bored pile (3 numbers) @ CH1269. Prod. Rate: 10d/pile/rig. | 30 days | 30 days | NA | NA | February 1, 2020 | March 6, 2020 | February 13, 2020 | March 18, 2020 | 0% | 0 days | 0 days | 10 days |
| 495 | Pile Testing (14d curing & 14 test) | 28 days | 28 days | NA | NA | March 7, 2020 | April 9, 2020 | April 21, 2020 | May 25, 2020 | 0% | 0 days | 0.5 days | 34 days |
| 496 | Proof-drilling Works | 7 days | 7 days | NA | NA | March 7, 2020 | March 13, 2020 | May 19, 2020 | May 25, 2020 | 0% | 27 days | 0 days | 73 days |
| 497 | Pile Loading Test | 14 days | 14 days | NA | NA | April 10, 2020 | April 23, 2020 | May 26, 2020 | June 8, 2020 | 0% | 0 days | 0 days | 46 days |
| 498 | **Pile Cap @ CH1269** | **42 days** | **42 days** | **NA** | **NA** | **April 24, 2020** | **June 13, 2020** | **June 9, 2020** | **July 29, 2020** | **0%** | **37 days** | | **37 days** |
| 499 | Drive sheetpile (~75m). Prod. Rate: 10m/day/side/team | 8 days | 8 days | NA | NA | April 24, 2020 | May 5, 2020 | June 9, 2020 | June 17, 2020 | 0% | 0 days | 0 days | 37 days |
| 500 | Excavation ~1677m3 & lateral support. Prod. Rate: 160m3/day/team | 11 days | 11 days | NA | NA | May 6, 2020 | May 18, 2020 | June 18, 2020 | July 2, 2020 | 0% | 0 days | 0 days | 37 days |
| 501 | Blinding layer | 1 day | 1 day | NA | NA | May 19, 2020 | May 19, 2020 | July 3, 2020 | July 3, 2020 | 0% | 0 days | 0 days | 37 days |
| 502 | Pile Cap structure | 14 days | 14 days | NA | NA | May 20, 2020 | June 4, 2020 | July 4, 2020 | July 20, 2020 | 0% | 0 days | 0 days | 37 days |
| 503 | Backfill and extract sheet pile | 8 days | 8 days | NA | NA | June 5, 2020 | June 13, 2020 | July 21, 2020 | July 29, 2020 | 0% | 0 days | 0 days | 37 days |
| 504 | Pier @ CH1269 | 48 days | 48 days | NA | NA | June 15, 2020 | August 11, 2020 | July 30, 2020 | September 23, 2020 | 0% | 25 days | 0 days | 37 days |
| 505 | **Bridge deck between CH1229-1269 [DB-SQ1]** | **116 days** | **116 days** | **NA** | **NA** | **November 9, 2020** | **March 30, 2021** | **January 22, 2021** | **April 15, 2021** | **0%** | **11 days** | | **11 days** |
| 506 | Falsework erection | 7 days | 7 days | NA | NA | November 9, 2020 | November 16, 2020 | January 22, 2021 | January 29, 2021 | 0% | 50 days | 0 days | 61 days |
| 507 | Structure deck | 28 days | 28 days | NA | NA | January 19, 2021 | February 23, 2021 | February 1, 2021 | March 8, 2021 | 0% | 0 days | 1 days | 11 days |
| 508 | Prestressing | 16 days | 16 days | NA | NA | March 12, 2021 | March 30, 2021 | March 25, 2021 | April 15, 2021 | 0% | 0 days | 1 days | 11 days |
| 509 | Median barrier, utility through, parapet | 45 days | 45 days | NA | NA | March 31, 2021 | May 27, 2021 | May 10, 2021 | July 3, 2021 | 0% | 0 days | 0.5 days | 30 days |
| 510 | Utility ducting laying (by others) | 14 days | 14 days | NA | NA | May 28, 2021 | June 12, 2021 | September 25, 2021 | October 12, 2021 | 0% | 65 days | 0 days | 100 days |
| 511 | Street furniture (KD6) | 21 days | 21 days | NA | NA | November 20, 2021 | December 14, 2021 | December 3, 2021 | December 29, 2021 | 0% | 0 days | 2 days | 11 days |
| 512 | **Bridge deck between CH1189-1229 [DB-T2-SQ2]** | **64 days** | **64 days** | **NA** | **NA** | **March 31, 2021** | **June 19, 2021** | **April 16, 2021** | **July 3, 2021** | **0%** | **11 days** | | **11 days** |
| 513 | Falsework erection | 7 days | 7 days | NA | NA | March 31, 2021 | April 10, 2021 | April 16, 2021 | April 23, 2021 | 0% | 0 days | 0 days | 11 days |
| 514 | Structure deck | 28 days | 28 days | NA | NA | April 12, 2021 | May 14, 2021 | April 24, 2021 | May 28, 2021 | 0% | 0 days | 1 days | 11 days |
| 515 | Prestressing | 15 days | 15 days | NA | NA | June 2, 2021 | June 19, 2021 | June 16, 2021 | July 3, 2021 | 0% | 0 days | 1 days | 11 days |
| 516 | Median barrier, utility through, parapet | 46 days | 46 days | NA | NA | June 21, 2021 | August 13, 2021 | July 5, 2021 | August 26, 2021 | 0% | 0 days | 2 days | 11 days |
| 517 | Utility ducting laying (by others) | 14 days | 14 days | NA | NA | August 14, 2021 | August 30, 2021 | September 25, 2021 | October 12, 2021 | 0% | 0 days | 0 days | 35 days |
| 518 | Street furniture | 21 days | 21 days | NA | NA | August 31, 2021 | September 24, 2021 | October 13, 2021 | November 6, 2021 | 0% | 24 days | 0 days | 35 days |
| 519 | **Part 3D - CH1279 to CH1311** | **257 days** | **257 days** | **NA** | **NA** | **January 9, 2021** | **November 19, 2021** | **January 22, 2021** | **December 2, 2021** | **0%** | **11 days** | | **11 days** |
| 520 | **Bridge deck between CH1269-1314 [DB-SQ1]** | **73 days** | **73 days** | **NA** | **NA** | **January 9, 2021** | **April 10, 2021** | **January 22, 2021** | **April 23, 2021** | **0%** | **11 days** | | **11 days** |
| 521 | Falsework erection | 8 days | 8 days | NA | NA | January 9, 2021 | January 18, 2021 | January 22, 2021 | January 30, 2021 | 0% | 0 days | 0 days | 11 days |
| 522 | Structure deck | 28 days | 28 days | NA | NA | January 19, 2021 | February 23, 2021 | February 1, 2021 | March 8, 2021 | 0% | 0 days | 1 days | 11 days |
| 523 | Prestressing | 23 days | 23 days | NA | NA | March 12, 2021 | April 10, 2021 | March 25, 2021 | April 23, 2021 | 0% | 0 days | 0 days | 11 days |
| 524 | Median barrier, utility through, parapet | 45 days | 45 days | NA | NA | August 14, 2021 | October 7, 2021 | August 27, 2021 | October 21, 2021 | 0% | 0 days | 2 days | 11 days |
| 525 | Utility ducting laying (by others) | 14 days | 14 days | NA | NA | October 8, 2021 | October 25, 2021 | October 22, 2021 | November 6, 2021 | 0% | 0 days | 1 days | 11 days |
| 526 | Street furniture (KD6) | 22 days | 22 days | NA | NA | October 26, 2021 | November 19, 2021 | November 8, 2021 | December 2, 2021 | 0% | 0 days | 0 days | 11 days |
| 527 | **Part 3E - CH1311 to CH1372** | **407 days** | **407 days** | **NA** | **NA** | **March 7, 2020** | **July 22, 2021** | **March 19, 2020** | **October 23, 2021** | **0%** | **10 days** | | **10 days** |
| 528 | Pre-drilling Works | 14 days | 14 days | NA | NA | March 7, 2020 | March 20, 2020 | March 19, 2020 | April 1, 2020 | 0% | 0 days | 0 | 12 days |
| 529 | Bored pile (5 numbers) @ CH1314. Prod. Rate: 10d/pile/rig. | 50 days | 50 days | NA | NA | March 21, 2020 | May 25, 2020 | April 2, 2020 | June 5, 2020 | 0% | 0 days | 1 days | 10 days |
| 530 | Pile Testing (14d curing & 14 test) | 28 days | 28 days | NA | NA | May 26, 2020 | June 27, 2020 | June 6, 2020 | July 10, 2020 | 0% | 0 days | 1 days | 10 days |
| 531 | Proof-drilling Works | 7 days | 7 days | NA | NA | May 26, 2020 | June 1, 2020 | July 4, 2020 | July 10, 2020 | 0% | 26 days | 0 days | 39 days |
| 532 | Pile Loading Test | 14 days | 14 days | NA | NA | June 28, 2020 | July 11, 2020 | July 11, 2020 | July 24, 2020 | 0% | 1 day | 1 days | 13 days |
| 533 | **Pile Cap @ CH1314** | **37 days** | **37 days** | **NA** | **NA** | **July 13, 2020** | **August 24, 2020** | **July 25, 2020** | **September 5, 2020** | **0%** | **11 days** | | **11 days** |
| 534 | Drive sheetpile (~75m). Prod. Rate: 10m/day/side/team | 8 days | 8 days | NA | NA | July 13, 2020 | July 21, 2020 | July 25, 2020 | August 3, 2020 | 0% | 0 days | 0 days | 11 days |
| 535 | Excavation ~888.81m3 & lateral support. Prod. Rate: 160m3/day/team | 6 days | 6 days | NA | NA | July 22, 2020 | July 28, 2020 | August 4, 2020 | August 10, 2020 | 0% | 0 days | 0 days | 11 days |




Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

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

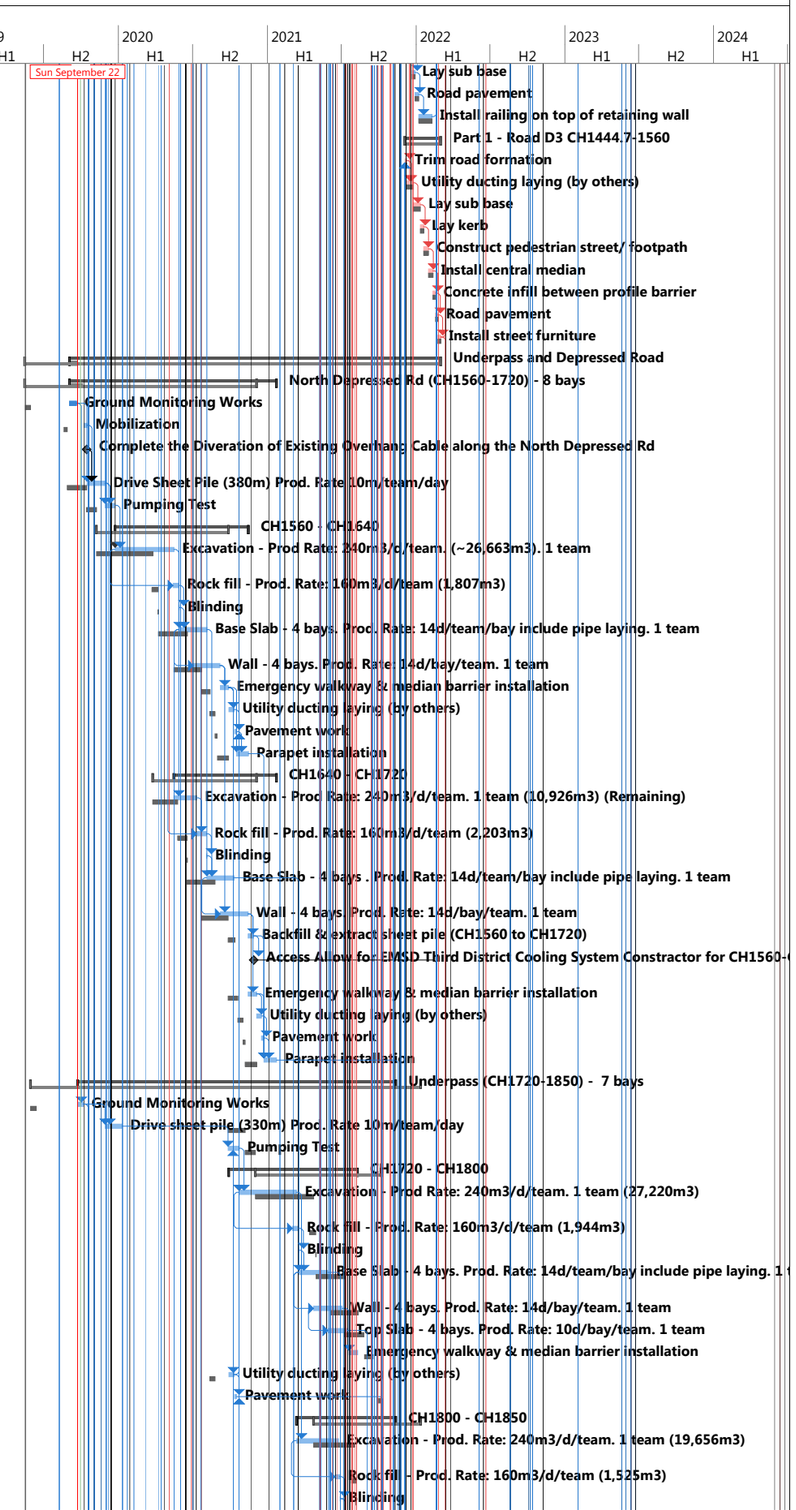
| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 536 | Blinding layer | 1 day | 1 day | NA | NA | July 29, 2020 | July 29, 2020 | August 11, 2020 | August 11, 2020 | 0% | 0 days | 0 days | 11 days |
| 537 | Pilecap structure | 14 days | 14 days | NA | NA | July 30, 2020 | August 14, 2020 | August 12, 2020 | August 27, 2020 | 0% | 0 days | 1 days | 11 days |
| 538 | Backfill and extract sheet pile | 8 days | 8 days | NA | NA | August 15, 2020 | August 24, 2020 | August 28, 2020 | September 5, 2020 | 0% | 0 days | 1 days | 11 days |
| 539 | Agree Interface Coordination Plan with CKP-KTW (HY/2014/07) | 14 days | 14 days | NA | NA | May 6, 2020 | May 21, 2020 | August 21, 2020 | September 5, 2020 | 0% | 79 days | 0 days | 90 days |
| 540 | Allow access to CKR-KTW contractor for sheet pile wall installation. PS App.1.18 2.7(A)( c) | 63 days | 63 days | NA | NA | August 25, 2020 | November 9, 2020 | September 7, 2020 | November 21, 2020 | 0% | 0 days | 3 days | 11 days |
| 541 | Pier @ CH1314 | 49 days | 49 days | NA | NA | November 10, 2020 | January 8, 2021 | November 23, 2020 | January 21, 2021 | 0% | 0 days | 2 days | 11 days |
| 542 | Pre-drilling Works | 12 days | 12 days | NA | NA | August 5, 2020 | August 16, 2020 | August 23, 2020 | September 3, 2020 | 0% | 0 days | 1 days | 18 days |
| 543 | Bore pile (3 numbers) @ CH1351. Prod. Rate: 12d/pile/rig | 36 days | 36 days | NA | NA | August 17, 2020 | September 26, 2020 | September 4, 2020 | October 17, 2020 | 0% | 0 days | 1 days | 16 days |
| 544 | Pile Testing (14d curing & 14 test) | 28 days | 28 days | NA | NA | September 28, 2020 | November 2, 2020 | January 2, 2021 | February 3, 2021 | 0% | 0 days | 0.5 days | 77 days |
| 545 | Proof-drilling Works | 7 days | 7 days | NA | NA | September 27, 2020 | October 3, 2020 | January 28, 2021 | February 3, 2021 | 0% | 30 days | 0 days | 123 days |
| 546 | Pile Loading Test | 14 days | 14 days | NA | NA | November 3, 2020 | November 16, 2020 | February 4, 2021 | February 17, 2021 | 0% | 0 days | 0 days | 93 days |
| 547 | **Pile Cap @ CH1351** | **36 days** | **36 days** | **NA** | **NA** | **November 17, 2020** | **December 30, 2020** | **February 18, 2021** | **March 31, 2021** | **0%** | **74 days** | | **74 days** |
| 548 | Drive sheetpile (~75m). Prod. Rate: 10m/day/side/team | 8 days | 8 days | NA | NA | November 17, 2020 | November 25, 2020 | February 18, 2021 | February 26, 2021 | 0% | 0 days | 0 days | 74 days |
| 549 | Excavation ~755m3 & lateral support. Prod. Rate: 160m3/day/team | 5 days | 5 days | NA | NA | November 26, 2020 | December 1, 2020 | February 27, 2021 | March 4, 2021 | 0% | 0 days | 0 days | 74 days |
| 550 | Blinding layer | 1 day | 1 day | NA | NA | December 2, 2020 | December 2, 2020 | March 5, 2021 | March 5, 2021 | 0% | 0 days | 0 days | 74 days |
| 551 | Pile Cap structure | 14 days | 14 days | NA | NA | December 3, 2020 | December 18, 2020 | March 6, 2021 | March 22, 2021 | 0% | 0 days | 0 days | 74 days |
| 552 | Backfill and extract sheet pile | 8 days | 8 days | NA | NA | December 19, 2020 | December 30, 2020 | March 23, 2021 | March 31, 2021 | 0% | 7 days | 0 days | 74 days |
| 553 | Pier @ CH1351 | 48 days | 48 days | NA | NA | January 9, 2021 | March 9, 2021 | April 1, 2021 | June 1, 2021 | 0% | 0 days | 0.5 days | 67 days |
| 554 | **Bridge deck between CH1314-1351** | **64 days** | **64 days** | **NA** | **NA** | **March 10, 2021** | **May 28, 2021** | **June 2, 2021** | **August 20, 2021** | **0%** | **67 days** | **1 day** | **67 days** |
| 555 | Falsework erection | 7 days | 7 days | NA | NA | March 10, 2021 | March 17, 2021 | June 2, 2021 | June 9, 2021 | 0% | 0 days | 0 days | 67 days |
| 556 | Structure deck | 28 days | 28 days | NA | NA | March 18, 2021 | April 22, 2021 | June 10, 2021 | July 14, 2021 | 0% | 0 days | 0.5 days | 67 days |
| 557 | Prestressing | 15 days | 15 days | NA | NA | May 11, 2021 | May 28, 2021 | August 4, 2021 | August 20, 2021 | 0% | 0 days | 0 days | 70 days |
| 558 | Median barrier, utility through, parapet | 24 days | 24 days | NA | NA | May 29, 2021 | June 26, 2021 | August 26, 2021 | September 23, 2021 | 0% | 0 days | 0.5 days | 74 days |
| 559 | Utility ducting laying (by others) | 14 days | 14 days | NA | NA | June 28, 2021 | July 14, 2021 | October 7, 2021 | October 23, 2021 | 0% | 81 days | 0 days | 84 days |
| 560 | Street furniture | 21 days | 21 days | NA | NA | June 28, 2021 | July 22, 2021 | September 24, 2021 | October 20, 2021 | 0% | 74 days | 0 days | 74 days |
| 561 | **Part 1 - CH1372 to CH1386** | **102 days** | **102 days** | **NA** | **NA** | **July 7, 2021** | **November 5, 2021** | **July 7, 2021** | **November 9, 2021** | **0%** | **0 days** | | **0 days** |
| 562 | **Bridge deck between CH1351-1386** | **64 days** | **64 days** | **NA** | **NA** | **July 7, 2021** | **September 19, 20...** | **July 7, 2021** | **September 20, 20...** | **0%** | **0 days** | | **0 days** |
| 563 | Falsework erection | 7 days | 7 days | NA | NA | July 7, 2021 | July 14, 2021 | July 7, 2021 | July 14, 2021 | 0% | 0 days | 0 days | 0 days |
| 564 | Structure deck | 28 days | 28 days | NA | NA | July 15, 2021 | August 16, 2021 | July 15, 2021 | August 16, 2021 | 0% | 0 days | 1 days | 0 days |
| 565 | Prestressing | 15 days | 15 days | NA | NA | September 2, 2021 | September 19, 2021 | September 2, 2021 | September 20, 2021 | 0% | 0 days | 1 days | 0 days |
| 566 | Median barrier, utility through, parapet | 24 days | 24 days | NA | NA | September 20, 2021 | October 20, 2021 | September 20, 2021 | October 20, 2021 | 0% | 0 days | 1 days | 0 days |
| 567 | Utility ducting laying (by others) | 14 days | 14 days | NA | NA | October 21, 2021 | November 5, 2021 | October 25, 2021 | November 9, 2021 | 0% | 0 days | 1 days | 3 days |
| 568 | Street furniture | 14 days | 14 days | NA | NA | October 21, 2021 | November 5, 2021 | October 21, 2021 | November 5, 2021 | 0% | 0 days | 1 days | 0 days |
| 569 | **Part 1 - CH1386 to CH1394 South Abutment** | **210 days** | **210 days** | **NA** | **NA** | **October 19, 2020** | **July 6, 2021** | **October 19, 2020** | **July 6, 2021** | **0%** | **0 days** | | **0 days** |
| 570 | Pre-drilling Works | 14 days | 14 days | NA | NA | October 19, 2020 | November 1, 2020 | October 19, 2020 | November 1, 2020 | 0% | 0 days | 1 days | 0 days |
| 571 | Bored pile (8 numbers) @ CH1386. Prod. Rate: 12d/pile/rig. | 96 days | 96 days | NA | NA | November 2, 2020 | February 27, 2021 | November 2, 2020 | February 27, 2021 | 0% | 0 days | 1 days | 0 days |
| 572 | Pile Testing | 30 days | 30 days | NA | NA | March 1, 2021 | April 7, 2021 | March 1, 2021 | April 7, 2021 | 0% | 0 days | 1 days | 0 days |
| 573 | Proof-drilling Works | 7 days | 7 days | NA | NA | February 28, 2021 | March 6, 2021 | April 1, 2021 | April 7, 2021 | 0% | 32 days | 0 days | 32 days |
| 574 | Pile Loading Test | 14 days | 14 days | NA | NA | April 8, 2021 | April 21, 2021 | April 8, 2021 | April 21, 2021 | 0% | 0 days | 1 days | 0 days |
| 575 | Drive sheetpile (~900m) Prod. Rate: 10m/d/team | 9 days | 9 days | NA | NA | March 1, 2021 | March 10, 2021 | April 12, 2021 | April 21, 2021 | 0% | 33 days | 0 days | 33 days |
| 576 | Excavation ~1,344m3 & lateral support. Prod. Rate: 160m3/day/team | 9 days | 9 days | NA | NA | April 22, 2021 | May 3, 2021 | April 22, 2021 | May 3, 2021 | 0% | 0 days | 1 days | 0 days |
| 577 | Blinding layer | 1 day | 1 day | NA | NA | May 4, 2021 | May 4, 2021 | May 4, 2021 | May 4, 2021 | 0% | 0 days | 0 days | 0 days |
| 578 | Base Slab | 12 days | 12 days | NA | NA | May 5, 2021 | May 19, 2021 | May 5, 2021 | May 20, 2021 | 0% | 0 days | 0 days | 0 days |
| 579 | Wall (3.85m thk). Prod. Rate: 18d/bay/team | 18 days | 18 days | NA | NA | May 20, 2021 | June 9, 2021 | May 20, 2021 | June 9, 2021 | 0% | 0 days | 1 days | 0 days |
| 580 | Wall (0.5m thk) | 14 days | 14 days | NA | NA | June 10, 2021 | June 27, 2021 | June 10, 2021 | June 28, 2021 | 0% | 0 days | 1 days | 0 days |
| 581 | Install bridge bearing | 7 days | 7 days | NA | NA | June 28, 2021 | July 6, 2021 | June 28, 2021 | July 6, 2021 | 0% | 0 days | 0 days | 0 days |
| 582 | **South Approach Ramp - CH1394-1444.7 - Total 8 bays (4 bay/side)** | **682 days** | **682 days** | **NA** | **NA** | **October 21, 2019** | **February 7, 2022** | **August 11, 2020** | **March 1, 2022** | **0%** | **19 days** | | **19 days** |
| 583 | Ground Monitoring Works | 14 days | 14 days | NA | NA | October 21, 2019 | November 3, 2019 | August 11, 2020 | August 24, 2020 | 0% | 187 days | 0 days | 295 days |
| 584 | Mobilization of plant and materials | 10 days | 10 days | NA | NA | May 9, 2020 | May 20, 2020 | August 25, 2020 | September 4, 2020 | 0% | 0 days | 0 days | 90 days |
| 585 | Foundation Construction | 90 days | 90 days | NA | NA | May 21, 2020 | September 4, 2020 | September 5, 2020 | December 22, 2020 | 0% | 0 days | 1 day | 90 days |
| 586 | Drive sheetpile (~240m) Prod. Rate: 10m/d/team | 24 days | 24 days | NA | NA | September 5, 2020 | October 5, 2020 | December 23, 2020 | January 22, 2021 | 0% | 0 days | 0.5 days | 90 days |
| 587 | Excavation ~2,688m3 & lateral support. Prod. Rate: 160m3/day/team | 18 days | 18 days | NA | NA | October 6, 2020 | October 27, 2020 | January 23, 2021 | February 16, 2021 | 0% | 0 days | 0 days | 90 days |
| 588 | Blinding layer. Prod. Rate: 2bays/day | 4 days | 4 days | NA | NA | October 28, 2020 | October 31, 2020 | February 17, 2021 | February 20, 2021 | 0% | 0 days | 0 days | 90 days |
| 589 | Base Slab Prod. Rate: 8d/bay/team | 64 days | 64 days | NA | NA | November 2, 2020 | January 18, 2021 | February 22, 2021 | May 11, 2021 | 0% | 0 days | 1 day | 90 days |
| 590 | Wall. Prod. Rate: 12d/bay/team | 96 days | 96 days | NA | NA | January 19, 2021 | May 18, 2021 | May 12, 2021 | September 3, 2021 | 0% | 0 days | 1 day | 90 days |
| 591 | Backfilling ~4,765.89m3 within approach ramp to formation level (160m3/day) considered time for SRT | 30 days | 30 days | NA | NA | May 20, 2021 | June 24, 2021 | September 4, 2021 | October 11, 2021 | 0% | 0 days | 0.5 days | 90 days |
| 592 | Placing of precast planting channel along approach ramp | 24 days | 24 days | NA | NA | November 6, 2021 | December 3, 2021 | November 6, 2021 | December 3, 2021 | 0% | 0 days | 1 days | 0 days |
| 593 | Utility ducting laying (by others) | 24 days | 24 days | NA | NA | November 6, 2021 | December 3, 2021 | November 10, 2021 | December 7, 2021 | 0% | 0 days | 1 days | 3 days |
| 594 | Construct pedestrian street/ footpath | 5 days | 5 days | NA | NA | December 4, 2021 | December 9, 2021 | December 29, 2021 | January 4, 2022 | 0% | 0 days | 0 days | 19 days |
| 595 | Install central median | 5 days | 5 days | NA | NA | December 10, 2021 | December 15, 2021 | January 5, 2022 | January 10, 2022 | 0% | 0 days | 0 days | 19 days |
| 596 | Concrete infill between profile barrier | 5 days | 5 days | NA | NA | December 16, 2021 | December 21, 2021 | January 11, 2022 | January 15, 2022 | 0% | 0 days | 0 days | 19 days |




Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

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

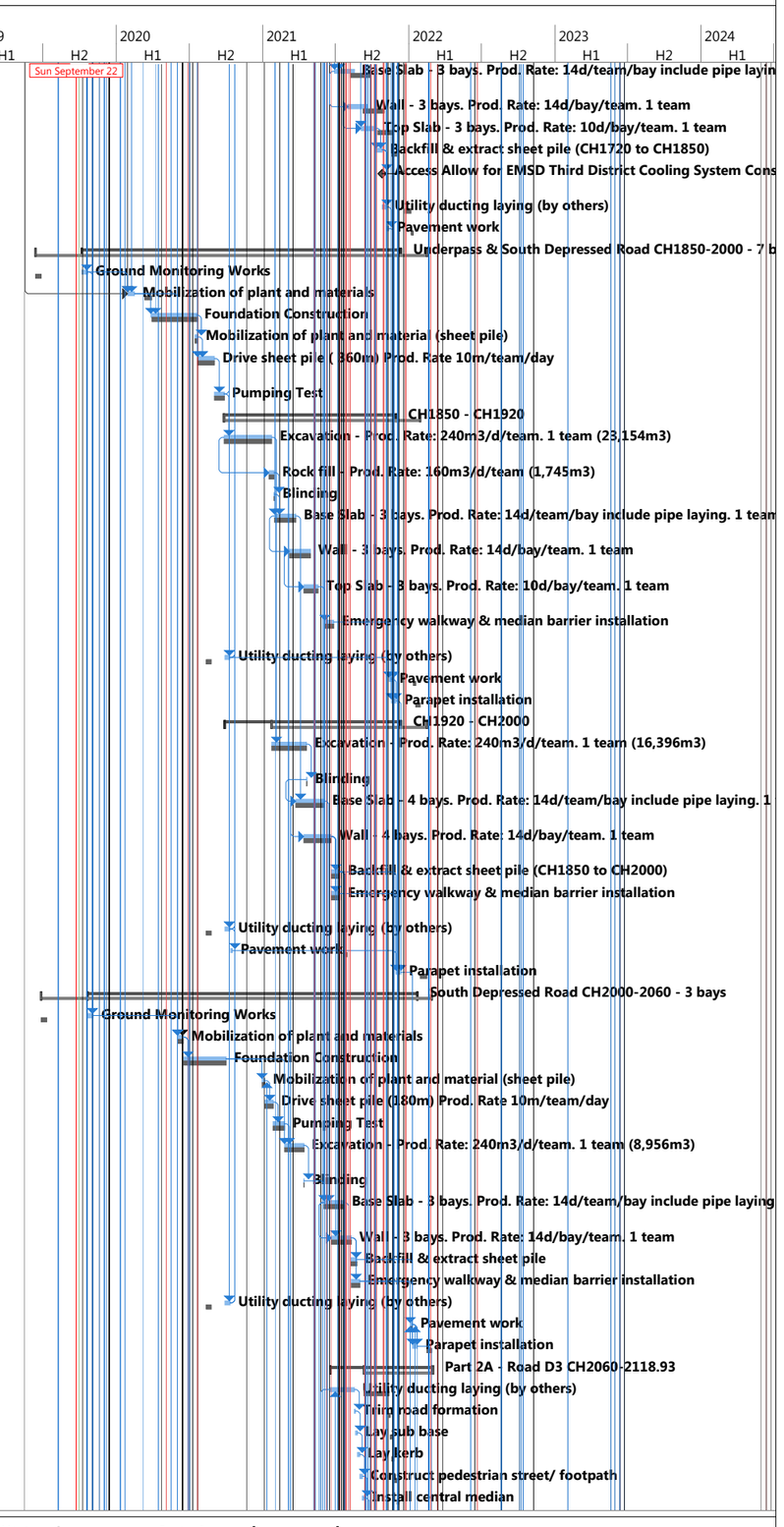
| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 597 | Lay sub base | 4 days | 4 days | NA | NA | December 22, 2021 | December 28, 2021 | January 17, 2022 | January 20, 2022 | 0% | 0 days | 0 days | 19 days |
| 598 | Road pavement | 7 days | 7 days | NA | NA | December 29, 2021 | January 6, 2022 | January 21, 2022 | January 28, 2022 | 0% | 0 days | 0 days | 19 days |
| 599 | Install railing on top of retaining wall | 24 days | 24 days | NA | NA | January 7, 2022 | February 7, 2022 | January 29, 2022 | March 1, 2022 | 0% | 19 days | 0.5 days | 19 days |
| 600 | **Part 1 - Road D3 CH1444.7-1560** | **69 days** | **69 days** | **NA** | **NA** | **December 4, 2021** | **March 1, 2022** | **December 4, 2021** | **March 1, 2022** | **0%** | **0 days** | | **0 days** |
| 601 | Trim road formation | 3 days | 3 days | NA | NA | December 4, 2021 | December 7, 2021 | December 4, 2021 | December 7, 2021 | 0% | 0 days | 0 days | 0 days |
| 602 | Utility ducting laying (by others) | 14 days | 14 days | NA | NA | December 8, 2021 | December 23, 2021 | December 8, 2021 | December 23, 2021 | 0% | 0 days | 1 days | 0 days |
| 603 | Lay sub base | 12 days | 12 days | NA | NA | December 24, 2021 | January 10, 2022 | December 24, 2021 | January 10, 2022 | 0% | 0 days | 0 days | 0 days |
| 604 | Lay kerb | 7 days | 7 days | NA | NA | January 11, 2022 | January 18, 2022 | January 11, 2022 | January 18, 2022 | 0% | 0 days | 0 days | 0 days |
| 605 | Construct pedestrian street/ footpath | 10 days | 10 days | NA | NA | January 19, 2022 | January 30, 2022 | January 19, 2022 | January 31, 2022 | 0% | 0 days | 0 days | 0 days |
| 606 | Install central median | 7 days | 7 days | NA | NA | January 31, 2022 | February 10, 2022 | January 31, 2022 | February 10, 2022 | 0% | 0 days | 0 days | 0 days |
| 607 | Concrete infill between profile barrier | 5 days | 5 days | NA | NA | February 11, 2022 | February 16, 2022 | February 11, 2022 | February 16, 2022 | 0% | 0 days | 0 days | 0 days |
| 608 | Road pavement | 5 days | 5 days | NA | NA | February 17, 2022 | February 22, 2022 | February 17, 2022 | February 22, 2022 | 0% | 0 days | 0 days | 0 days |
| 609 | Install street furniture | 6 days | 6 days | NA | NA | February 23, 2022 | March 1, 2022 | February 23, 2022 | March 1, 2022 | 0% | 0 days | 0 days | 0 days |
| 610 | **Underpass and Depressed Road** | **739 days** | **733.65 days** | **September 3, 2019** | **NA** | **September 3, 2019** | **March 1, 2022** | **September 3, 2019** | **May 29, 2024** | **0%** | **668 days** | | **668 days** |
| 611 | **North Depressed Rd (CH1560-1720) - 8 bays** | **413 days** | **401.77 days** | **September 3, 2019** | **NA** | **September 3, 2019** | **January 22, 2021** | **September 3, 2019** | **March 1, 2022** | **0%** | **326 days** | | **326 days** |
| 612 | Ground Monitoring Works | 17 days | 0 days | September 3, 2019 | September 19, 2019 | September 3, 2019 | September 19, 2019 | September 3, 2019 | September 19, 2019 | 100% | 0 days | 2 days | 0 days |
| 613 | Mobilization | 7 days | 7 days | NA | NA | October 8, 2019 | October 15, 2019 | June 15, 2020 | June 22, 2020 | 0% | 0 days | 0 days | 203 days |
| 614 | Complete the Diveration of Existing Overhang Cable along the North Depressed Rd | 0 days | 0 days | NA | NA | October 15, 2019 | October 15, 2019 | June 23, 2020 | June 23, 2020 | 0% | 1 day | | 252 days |
| 615 | Drive Sheet Pile (380m) Prod. Rate 10m/team/day | 38 days | 38 days | NA | | October 16, 2019 | November 28, 2019 | June 23, 2020 | August 7, 2020 | 0% | 0 days | 1 days | 203 days |
| 616 | Pumping Test | 21 days | 21 days | NA | NA | November 29, 2019 | December 23, 2019 | August 8, 2020 | September 1, 2020 | 0% | 0 days | 1 days | 203 days |
| 617 | **CH1560 - CH1640** | **264 days** | **264 days** | **NA** | **NA** | **December 24, 2019** | **November 14, 2020** | **September 2, 2020** | **December 16, 2021** | **0%** | **203 days** | | **203 days** |
| 618 | Excavation - Prod Rate: 240m3/d/team. (~26,663m3). 1 team | 112 days | 112 days | NA | NA | December 24, 2019 | May 15, 2020 | September 2, 2020 | January 16, 2021 | 0% | 0 days | 1 days | 203 days |
| 619 | Rock fill - Prod. Rate: 160m3/d/team (1,807m3) | 12 days | 12 days | NA | NA | May 14, 2020 | May 27, 2020 | January 15, 2021 | January 28, 2021 | 0% | 0 days | 1 days | 203 days |
| 620 | Blinding | 1 day | 1 day | NA | NA | May 28, 2020 | May 28, 2020 | January 29, 2021 | January 29, 2021 | 0% | 0 days | 0 days | 203 days |
| 621 | Base Slab - 4 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team | 56 days | 56 days | NA | NA | May 29, 2020 | August 4, 2020 | January 30, 2021 | April 12, 2021 | 0% | 0 days | 3 days | 203 days |
| 622 | Wall - 4 bays. Prod. Rate: 14d/bay/team. 1 team | 56 days | 56 days | NA | NA | July 3, 2020 | September 5, 2020 | June 26, 2021 | August 31, 2021 | 0% | 0 days | 3 days | 292 days |
| 623 | Emergency walkway & median barrier installation | 18 days | 18 days | NA | NA | September 7, 2020 | September 26, 2020 | October 11, 2021 | November 1, 2021 | 0% | 0 days | 0 days | 324 days |
| 624 | Utility ducting laying (by others) | 10 days | 10 days | NA | NA | September 28, 2020 | October 10, 2020 | November 2, 2021 | November 12, 2021 | 0% | 0 days | 0 days | 324 days |
| 625 | Pavement work | 5 days | 5 days | NA | NA | October 12, 2020 | October 16, 2020 | November 13, 2021 | November 18, 2021 | 0% | 0 days | 0 days | 324 days |
| 626 | Parapet installation | 24 days | 24 days | NA | NA | October 17, 2020 | November 14, 2020 | November 19, 2021 | December 16, 2021 | 0% | 32 days | 0.5 days | 324 days |
| 627 | **CH1640 - CH1720** | **208 days** | **208 days** | **NA** | **NA** | **May 16, 2020** | **January 22, 2021** | **January 18, 2021** | **March 1, 2022** | **0%** | **203 days** | | **203 days** |
| 628 | Excavation - Prod Rate: 240m3/d/team. 1 team (10,926m3) (Remaining) | 46 days | 46 days | NA | NA | May 16, 2020 | July 10, 2020 | January 18, 2021 | March 15, 2021 | 0% | 0 days | 1 days | 203 days |
| 629 | Rock fill - Prod. Rate: 160m3/d/team (2,203m3) | 20 days | 20 days | NA | NA | July 11, 2020 | August 3, 2020 | March 16, 2021 | April 10, 2021 | 0% | 0 days | 1 days | 203 days |
| 630 | Blinding | 1 day | 1 day | NA | NA | August 4, 2020 | August 4, 2020 | April 12, 2021 | April 12, 2021 | 0% | 0 days | 0 days | 203 days |
| 631 | Base Slab - 4 bays . Prod. Rate: 14d/team/bay include pipe laying. 1 team | 56 days | 56 days | NA | NA | August 5, 2020 | October 10, 2020 | April 13, 2021 | June 19, 2021 | 0% | 0 days | 2 days | 203 days |
| 632 | Wall - 4 bays. Prod. Rate: 14d/bay/team. 1 team | 56 days | 56 days | NA | NA | September 7, 2020 | November 13, 2020 | September 1, 2021 | November 8, 2021 | 0% | 0 days | 2 days | 292 days |
| 633 | Backfill & extract sheet pile (CH1560 to CH1720) | 12 days | 12 days | NA | NA | November 14, 2020 | November 27, 2020 | December 3, 2021 | December 16, 2021 | 0% | 21 days | 1 day | 313 days |
| 634 | Access Allow for EMSD Third District Cooling System Constractor for CH1560-CH1720 Pipe Laying | 0 days | 0 days | NA | NA | November 27, 2020 | November 27, 2020 | March 1, 2022 | March 1, 2022 | 0% | 459 days | | 459 days |
| 635 | Emergency walkway & median barrier installation | 18 days | 18 days | NA | NA | November 14, 2020 | December 4, 2020 | November 9, 2021 | November 29, 2021 | 0% | 0 days | 0 days | 292 days |
| 636 | Utility ducting laying (by others) | 10 days | 10 days | NA | NA | December 5, 2020 | December 16, 2020 | November 30, 2021 | December 10, 2021 | 0% | 0 days | 0 days | 292 days |
| 637 | Pavement work | 5 days | 5 days | NA | NA | December 17, 2020 | December 22, 2020 | December 11, 2021 | December 16, 2021 | 0% | 0 days | 0 days | 292 days |
| 638 | Parapet installation | 24 days | 24 days | NA | NA | December 23, 2020 | January 22, 2021 | December 17, 2021 | January 17, 2022 | 0% | 243 days | 0.5 days | 292 days |
| 639 | **Underpass (CH1720-1850) - 7 bays** | **635 days** | **635 days** | **NA** | **NA** | **September 23, 20...** | **November 11, 2021** | **March 19, 2020** | **May 29, 2024** | **0%** | **145 days** | | **145 days** |
| 640 | Ground Monitoring Works | 14 days | 14 days | NA | NA | September 23, 2019 | October 6, 2019 | March 19, 2020 | April 1, 2020 | 0% | 0 days | 0 days | 178 days |
| 641 | Drive sheet pile (330m) Prod. Rate 10m/team/day | 33 days | 33 days | NA | NA | November 29, 2019 | January 9, 2020 | September 26, 2020 | November 6, 2020 | 0% | 212 days | 0 days | 245 days |
| 642 | Pumping Test | 21 days | 21 days | NA | NA | September 26, 2020 | October 22, 2020 | November 7, 2020 | December 1, 2020 | 0% | 0 days | 1 days | 33 days |
| 643 | **CH1720 - CH1800** | **255 days** | **255 days** | **NA** | **NA** | **September 28, 20...** | **August 9, 2021** | **December 2, 2020** | **May 29, 2024** | **0%** | **53 days** | | **53 days** |
| 644 | Excavation - Prod Rate: 240m3/d/team. 1 team (27,220m3) | 114 days | 114 days | NA | NA | October 23, 2020 | March 12, 2021 | December 2, 2020 | April 23, 2021 | 0% | 0 days | 5 days | 33 days |
| 645 | Rock fill - Prod. Rate: 160m3/d/team (1,944m3) | 13 days | 13 days | NA | NA | March 3, 2021 | March 17, 2021 | June 3, 2021 | June 18, 2021 | 0% | 0 days | 0 days | 74 days |
| 646 | Blinding | 1 day | 1 day | NA | NA | March 18, 2021 | March 18, 2021 | June 19, 2021 | June 19, 2021 | 0% | 0 days | 0 days | 74 days |
| 647 | Base Slab - 4 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team | 56 days | 56 days | NA | NA | March 19, 2021 | May 28, 2021 | June 21, 2021 | August 25, 2021 | 0% | 0 days | 1 day | 74 days |
| 648 | Wall - 4 bays. Prod. Rate: 14d/bay/team. 1 team | 56 days | 56 days | NA | NA | April 24, 2021 | July 2, 2021 | August 12, 2021 | October 19, 2021 | 0% | 0 days | 1 day | 90 days |
| 649 | Top Slab - 4 bays. Prod. Rate: 10d/bay/team. 1 team | 40 days | 40 days | NA | NA | May 29, 2021 | July 16, 2021 | September 14, 2021 | November 2, 2021 | 0% | 41 days | 0.5 days | 90 days |
| 650 | Emergency walkway & median barrier installation | 18 days | 18 days | NA | NA | July 20, 2021 | August 9, 2021 | May 8, 2024 | May 29, 2024 | 0% | 834 days | 0 days | 834 days |
| 651 | Utility ducting laying (by others) | 10 days | 10 days | NA | NA | September 28, 2020 | October 10, 2020 | November 2, 2021 | November 12, 2021 | 0% | 0 days | 0 days | 324 days |
| 652 | Pavement work | 5 days | 5 days | NA | NA | October 12, 2020 | October 16, 2020 | December 2, 2021 | December 7, 2021 | 0% | 291 days | 0 days | 340 days |
| 653 | **CH1800 - CH1850** | **199 days** | **199 days** | **NA** | **NA** | **March 13, 2021** | **November 11, 2021** | **April 24, 2021** | **March 1, 2022** | **0%** | **33 days** | | **33 days** |
| 654 | Excavation - Prod. Rate: 240m3/d/team. 1 team (19,656m3) | 82 days | 82 days | NA | NA | March 13, 2021 | June 23, 2021 | April 24, 2021 | August 2, 2021 | 0% | 0 days | 1 days | 33 days |
| 655 | Rock fill - Prod. Rate: 160m3/d/team (1,525m3) | 10 days | 10 days | NA | NA | June 16, 2021 | June 26, 2021 | July 26, 2021 | August 5, 2021 | 0% | 0 days | 1 days | 33 days |
| 656 | Blinding | 1 day | 1 day | NA | NA | June 28, 2021 | June 28, 2021 | August 6, 2021 | August 6, 2021 | 0% | 0 days | 0 days | 33 days |




Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

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

| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 657 | Base Slab - 3 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team | 42 days | 42 days | NA | NA | June 29, 2021 | August 17, 2021 | August 26, 2021 | October 16, 2021 | 0% | 0 days | 2 days | 49 days |
| 658 | Wall - 3 bays. Prod. Rate: 14d/bay/team. 1 team | 42 days | 42 days | NA | NA | August 2, 2021 | September 18, 2021 | September 29, 2021 | November 18, 2021 | 0% | 0 days | 1 days | 49 days |
| 659 | Top Slab - 3 bays. Prod. Rate: 10d/bay/team. 1 team | 30 days | 30 days | NA | NA | September 3, 2021 | October 9, 2021 | November 3, 2021 | December 7, 2021 | 0% | 0 days | 1 days | 49 days |
| 660 | Backfill & extract sheet pile (CH1720 to CH1850) | 12 days | 12 days | NA | NA | October 11, 2021 | October 25, 2021 | December 8, 2021 | December 21, 2021 | 0% | 0 days | 0 days | 49 days |
| 661 | Access Allow for EMSD Third District Cooling System Constractor for CH1720-CH1850 Pipe Laying | 0 days | 0 days | NA | NA | October 25, 2021 | October 25, 2021 | March 1, 2022 | March 1, 2022 | 0% | 127 days | | 127 days |
| 662 | Utility ducting laying (by others) | 10 days | 10 days | NA | NA | October 26, 2021 | November 5, 2021 | December 22, 2021 | January 5, 2022 | 0% | 0 days | 1 day | 49 days |
| 663 | Pavement work | 5 days | 5 days | NA | NA | November 6, 2021 | November 11, 2021 | January 6, 2022 | January 11, 2022 | 0% | 0 days | 1 day | 49 days |
| 664 | **Underpass & South Depressed Road CH1850-2000 - 7 bays** | **650 days** | **650 days** | **NA** | **NA** | **October 7, 2019** | **December 11, 2021** | **April 2, 2020** | **February 14, 2022** | **0%** | **49 days** | | **49 days** |
| 665 | Ground Monitoring Works | 14 days | 14 days | NA | NA | October 7, 2019 | October 20, 2019 | April 2, 2020 | April 15, 2020 | 0% | 0 days | 0 days | 178 days |
| 666 | Mobilization of plant and materials | 15 days | 15 days | NA | NA | January 29, 2020 | February 14, 2020 | April 16, 2020 | May 5, 2020 | 0% | 35 days | 0 days | 63 days |
| 667 | Foundation Construction | 90 days | 90 days | NA | NA | March 27, 2020 | July 18, 2020 | May 6, 2020 | August 20, 2020 | 0% | 0 days | 1 day | 28 days |
| 668 | Mobilization of plant and material (sheet pile) | 6 days | 6 days | NA | NA | July 15, 2020 | July 21, 2020 | August 17, 2020 | August 22, 2020 | 0% | 0 days | 0 days | 28 days |
| 669 | Drive sheet pile ( 360m) Prod. Rate 10m/team/day | 36 days | 36 days | NA | NA | July 22, 2020 | September 1, 2020 | August 24, 2020 | October 6, 2020 | 0% | 0 days | 0.5 days | 28 days |
| 670 | Pumping Test | 21 days | 21 days | NA | NA | September 2, 2020 | September 25, 2020 | October 7, 2020 | October 31, 2020 | 0% | 0 days | 0 days | 28 days |
| 671 | **CH1850 - CH1920** | **349 days** | **349 days** | **NA** | **NA** | **September 26, 20...** | **November 29, 2021** | **November 2, 2020** | **January 28, 2022** | **0%** | **28 days** | | **28 days** |
| 672 | Excavation - Prod. Rate: 240m3/d/team. 1 team (23,154m3) | 96 days | 96 days | NA | NA | September 26, 2020 | January 22, 2021 | November 2, 2020 | February 27, 2021 | 0% | 0 days | 1 day | 28 days |
| 673 | Rock fill - Prod. Rate: 160m3/d/team (1,745m3) | 11 days | 11 days | NA | NA | January 16, 2021 | January 28, 2021 | February 22, 2021 | March 5, 2021 | 0% | 0 days | 0 days | 28 days |
| 674 | Blinding | 1 day | 1 day | NA | NA | January 29, 2021 | January 29, 2021 | March 6, 2021 | March 6, 2021 | 0% | 0 days | 0 days | 28 days |
| 675 | Base Slab - 3 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team | 42 days | 42 days | NA | NA | January 30, 2021 | March 23, 2021 | March 8, 2021 | April 28, 2021 | 0% | 0 days | 0.5 days | 28 days |
| 676 | Wall - 3 bays. Prod. Rate: 14d/bay/team. 1 team | 42 days | 42 days | NA | NA | March 8, 2021 | April 28, 2021 | September 29, 2021 | November 18, 2021 | 0% | 0 days | 0.5 days | 168 days |
| 677 | Top Slab - 3 bays. Prod. Rate: 10d/bay/team. 1 team | 30 days | 30 days | NA | NA | April 13, 2021 | May 18, 2021 | November 3, 2021 | December 7, 2021 | 0% | 0 days | 0.5 days | 168 days |
| 678 | Emergency walkway & median barrier installation | 18 days | 18 days | NA | NA | June 5, 2021 | June 26, 2021 | December 24, 2021 | January 17, 2022 | 0% | 119 days | 0 days | 168 days |
| 679 | Utility ducting laying (by others) | 10 days | 10 days | NA | NA | September 28, 2020 | October 10, 2020 | November 2, 2021 | November 12, 2021 | 0% | 0 days | 0 days | 324 days |
| 680 | Pavement work | 5 days | 5 days | NA | NA | November 12, 2021 | November 17, 2021 | January 12, 2022 | January 17, 2022 | 0% | 0 days | 0 days | 49 days |
| 681 | Parapet installation | 10 days | 10 days | NA | NA | November 18, 2021 | November 29, 2021 | January 18, 2022 | January 28, 2022 | 0% | 0 days | 0 days | 49 days |
| 682 | **CH1920 - CH2000** | **359 days** | **359 days** | **NA** | **NA** | **September 28, 20...** | **December 11, 2021** | **April 14, 2021** | **February 14, 2022** | **0%** | **49 days** | | **49 days** |
| 683 | Excavation - Prod. Rate: 240m3/d/team. 1 team (16,396m3) | 68 days | 68 days | NA | NA | January 23, 2021 | April 19, 2021 | April 14, 2021 | July 6, 2021 | 0% | 0 days | 1 day | 63 days |
| 684 | Blinding | 1 day | 1 day | NA | NA | April 20, 2021 | April 20, 2021 | July 7, 2021 | July 7, 2021 | 0% | 0 days | 0 days | 63 days |
| 685 | Base Slab - 4 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team | 56 days | 56 days | NA | NA | March 24, 2021 | June 2, 2021 | April 29, 2021 | July 7, 2021 | 0% | 0 days | 1 day | 28 days |
| 686 | Wall - 4 bays. Prod. Rate: 14d/bay/team. 1 team | 56 days | 56 days | NA | NA | April 13, 2021 | June 19, 2021 | July 10, 2021 | September 13, 2021 | 0% | 0 days | 1 day | 72 days |
| 687 | Backfill & extract sheet pile (CH1850 to CH2000) | 18 days | 18 days | NA | NA | June 21, 2021 | July 12, 2021 | September 14, 2021 | October 6, 2021 | 0% | 0 days | 0 days | 72 days |
| 688 | Emergency walkway & median barrier installation | 18 days | 18 days | NA | NA | June 21, 2021 | July 12, 2021 | January 8, 2022 | January 28, 2022 | 0% | 117 days | 0 days | 166 days |
| 689 | Utility ducting laying (by others) | 10 days | 10 days | NA | NA | September 28, 2020 | October 10, 2020 | November 2, 2021 | November 12, 2021 | 0% | 0 days | 0 days | 324 days |
| 690 | Pavement work | 5 days | 5 days | NA | NA | October 12, 2020 | October 16, 2020 | January 24, 2022 | January 28, 2022 | 0% | 333 days | 0 days | 382 days |
| 691 | Parapet installation | 11 days | 11 days | NA | NA | November 30, 2021 | December 11, 2021 | January 29, 2022 | February 14, 2022 | 0% | 21 days | 0 days | 49 days |
| 692 | **South Depressed Road CH2000-2060 - 3 bays** | **671 days** | **671 days** | **NA** | **NA** | **October 21, 2019** | **January 21, 2022** | **May 30, 2020** | **February 26, 2022** | **0%** | **28 days** | | **28 days** |
| 693 | Ground Monitoring Works | 14 days | 14 days | NA | NA | October 21, 2019 | November 3, 2019 | May 30, 2020 | June 12, 2020 | 0% | 211 days | 0 days | 222 days |
| 694 | Mobilization of plant and materials | 12 days | 12 days | NA | NA | June 2, 2020 | June 15, 2020 | June 13, 2020 | June 27, 2020 | 0% | 0 days | 0 days | 10 days |
| 695 | Foundation Construction | 90 days | 90 days | NA | NA | June 16, 2020 | September 30, 2020 | December 18, 2020 | April 12, 2021 | 0% | 72 days | 0.5 days | 154 days |
| 696 | Mobilization of plant and material (sheet pile) | 5 days | 5 days | NA | NA | December 30, 2020 | January 5, 2021 | April 13, 2021 | April 17, 2021 | 0% | 0 days | 0 days | 82 days |
| 697 | Drive sheet pile (180m) Prod. Rate 10m/team/day | 18 days | 18 days | NA | NA | January 6, 2021 | January 26, 2021 | April 19, 2021 | May 10, 2021 | 0% | 0 days | 0 days | 82 days |
| 698 | Pumping Test | 21 days | 21 days | NA | NA | January 27, 2021 | February 23, 2021 | May 11, 2021 | June 4, 2021 | 0% | 0 days | 0 days | 82 days |
| 699 | Excavation - Prod. Rate: 240m3/d/team. 1 team (8,956m3) | 38 days | 38 days | NA | NA | February 24, 2021 | April 12, 2021 | June 5, 2021 | July 21, 2021 | 0% | 0 days | 0.5 days | 82 days |
| 700 | Blinding | 1 day | 1 day | NA | NA | April 13, 2021 | April 13, 2021 | July 22, 2021 | July 22, 2021 | 0% | 41 days | 0 days | 82 days |
| 701 | Base Slab - 3 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team | 40 days | 40 days | NA | NA | June 3, 2021 | July 21, 2021 | July 23, 2021 | September 7, 2021 | 0% | 0 days | 0.5 days | 41 days |
| 702 | Wall - 3 bays. Prod. Rate: 14d/bay/team. 1 team | 42 days | 42 days | NA | NA | June 21, 2021 | August 9, 2021 | November 24, 2021 | January 14, 2022 | 0% | 0 days | 0.5 days | 130 days |
| 703 | Backfill & extract sheet pile | 12 days | 12 days | NA | NA | August 10, 2021 | August 23, 2021 | January 28, 2022 | February 14, 2022 | 0% | 113 days | 0 days | 141 days |
| 704 | Emergency walkway & median barrier installation | 18 days | 18 days | NA | NA | August 10, 2021 | August 30, 2021 | January 15, 2022 | February 8, 2022 | 0% | 102 days | 0 days | 130 days |
| 705 | Utility ducting laying (by others) | 10 days | 10 days | NA | NA | September 28, 2020 | October 10, 2020 | November 2, 2021 | November 12, 2021 | 0% | 0 days | 0 days | 324 days |
| 706 | Pavement work | 5 days | 5 days | NA | NA | January 4, 2022 | January 8, 2022 | February 9, 2022 | February 14, 2022 | 0% | 0 days | 0 days | 28 days |
| 707 | Parapet installation | 11 days | 11 days | NA | NA | January 10, 2022 | January 21, 2022 | February 15, 2022 | February 26, 2022 | 0% | 27 days | 0 days | 28 days |
| 708 | **Part 2A - Road D3 CH2060-2118.93** | **208 days** | **208 days** | **NA** | **NA** | **June 19, 2021** | **February 28, 2022** | **November 22, 2021** | **March 1, 2022** | **0%** | **1 day** | | **1 day** |
| 709 | Utility ducting laying (by others) | 50 days | 50 days | NA | NA | June 19, 2021 | August 17, 2021 | November 22, 2021 | January 21, 2022 | 0% | 0 days | 0 days | 129 days |
| 710 | Trim road formation | 2 days | 2 days | NA | NA | August 18, 2021 | August 19, 2021 | January 22, 2022 | January 24, 2022 | 0% | 0 days | 0 days | 129 days |
| 711 | Lay sub base | 4 days | 4 days | NA | NA | August 20, 2021 | August 24, 2021 | January 25, 2022 | January 28, 2022 | 0% | 0 days | 0 days | 129 days |
| 712 | Lay kerb | 5 days | 5 days | NA | NA | August 25, 2021 | August 30, 2021 | January 29, 2022 | February 7, 2022 | 0% | 0 days | 0 days | 129 days |
| 713 | Construct pedestrian street/ footpath | 6 days | 6 days | NA | NA | August 31, 2021 | September 6, 2021 | February 8, 2022 | February 14, 2022 | 0% | 0 days | 0 days | 129 days |
| 714 | Install central median | 4 days | 4 days | NA | NA | September 7, 2021 | September 10, 2021 | February 15, 2022 | February 18, 2022 | 0% | 0 days | 0 days | 129 days |

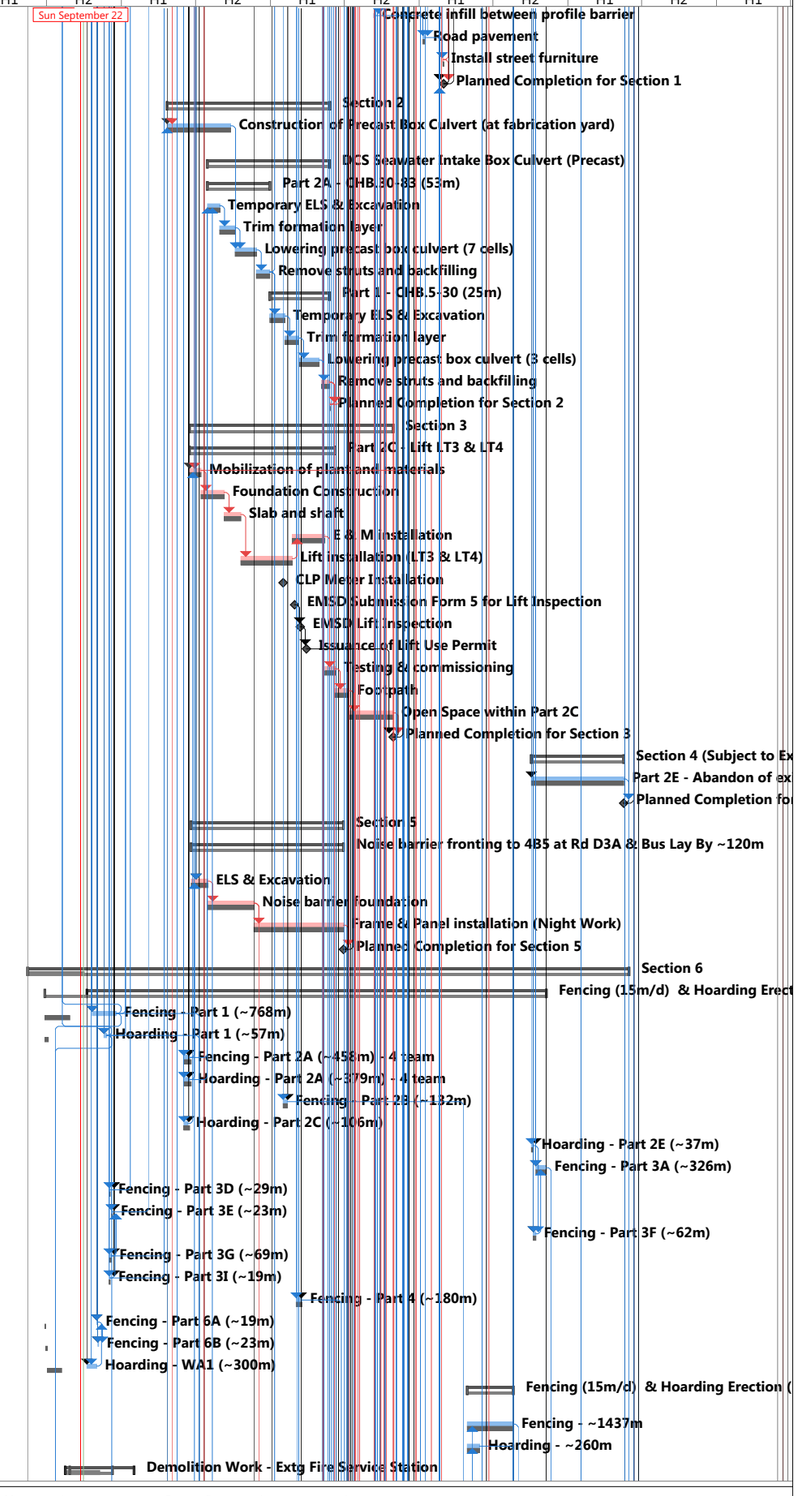



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

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

22092019_Revised Programme with Progress Update as of 22-Sep-19

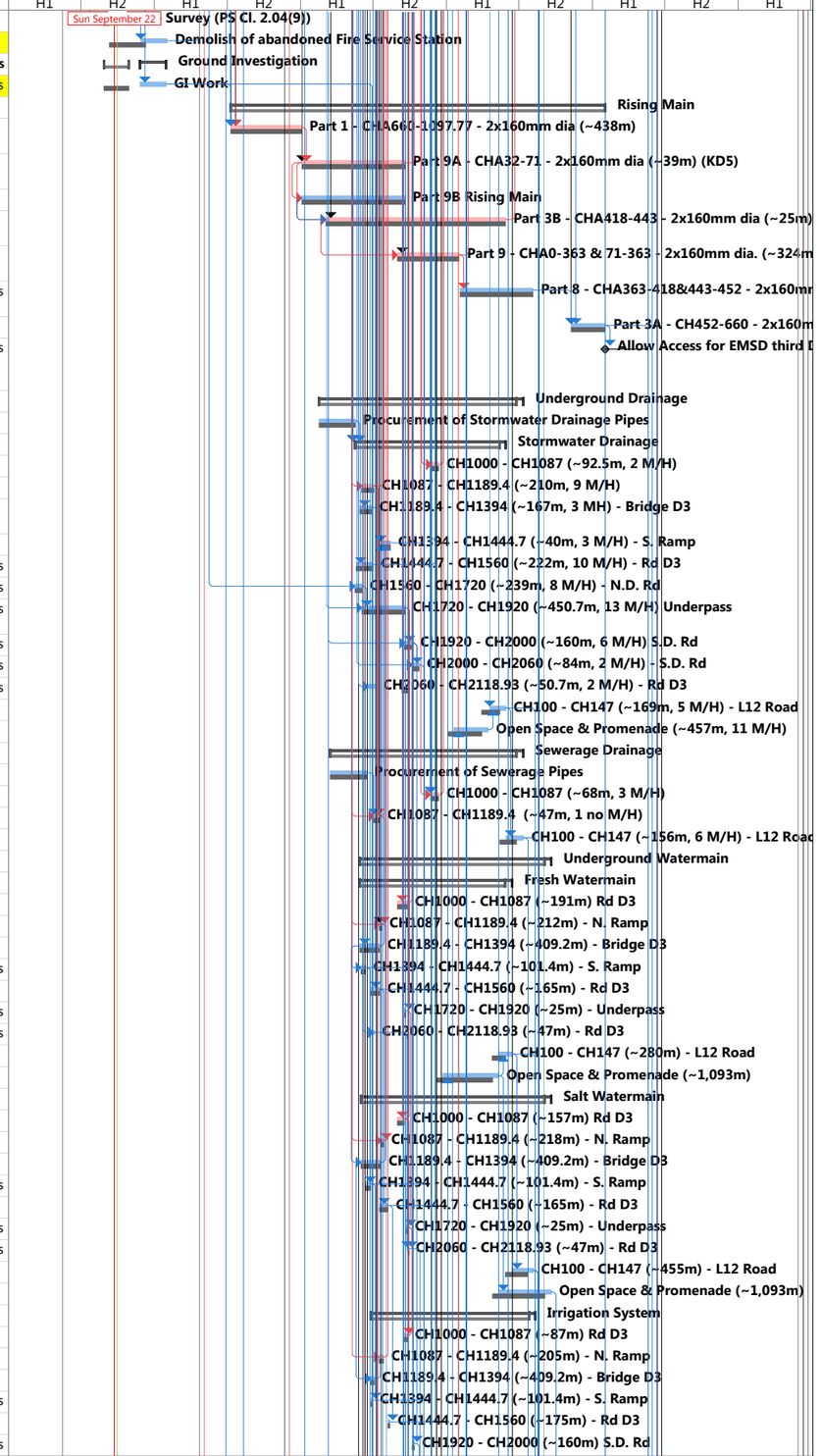
| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 715 | Concrete infill between profile barrier | 2 days | 2 days | NA | NA | September 11, 2021 | September 13, 2021 | February 19, 2022 | February 21, 2022 | 0% | 95 days | 0 days | 129 days |
| 716 | Road pavement | 5 days | 5 days | NA | NA | January 10, 2022 | January 14, 2022 | February 22, 2022 | February 26, 2022 | 0% | 33 days | 0 days | 34 days |
| 717 | Install street furniture | 2 days | 2 days | NA | NA | February 26, 2022 | February 28, 2022 | February 28, 2022 | March 1, 2022 | 0% | 1 day | 0 days | 1 day |
| 718 | Planned Completion for Section 1 | 0 days | 0 days | NA | NA | March 1, 2022 | March 1, 2022 | March 1, 2022 | March 1, 2022 | 0% | 0 days | 0 days | 0 days |
| 719 | **Section 2** | **325 days** | **325 days** | **NA** | **NA** | **April 22, 2020** | **May 26, 2021** | **May 14, 2020** | **June 2, 2021** | **0%** | **6 days** | | **6 days** |
| 720 | Construction of Precast Box Culvert (at fabrication yard) | 130 days | 130 days | NA | NA | April 22, 2020 | September 24, 2020 | May 14, 2020 | October 16, 2020 | 0% | 7 days | 1 day | 17 days |
| 721 | **DCS Seawater Intake Box Culvert (Precast)** | **243 days** | **243 days** | **NA** | **NA** | **July 30, 2020** | **May 25, 2021** | **August 11, 2020** | **June 1, 2021** | **0%** | **6 days** | | **6 days** |
| 722 | **Part 2A - CHB.30-83 (53m)** | **126 days** | **126 days** | **NA** | **NA** | **July 30, 2020** | **December 29, 2020** | **August 11, 2020** | **January 11, 2021** | **0%** | **10 days** | | **10 days** |
| 723 | Temporary ELS & Excavation | 30 days | 30 days | NA | NA | July 30, 2020 | August 28, 2020 | August 11, 2020 | September 9, 2020 | 0% | 0 days | 1 days | 12 days |
| 724 | Trim formation layer | 30 days | 30 days | NA | NA | August 29, 2020 | October 5, 2020 | September 10, 2020 | October 16, 2020 | 0% | 0 days | 1 days | 10 days |
| 725 | Lowering precast box culvert (7 cells) | 44 days | 44 days | NA | NA | October 6, 2020 | November 26, 2020 | October 17, 2020 | December 8, 2020 | 0% | 0 days | 2 days | 10 days |
| 726 | Remove struts and backfilling | 26 days | 26 days | NA | NA | November 27, 2020 | December 29, 2020 | December 9, 2020 | January 11, 2021 | 0% | 0 days | 1 days | 10 days |
| 727 | **Part 1 - CHB.5-30 (25m)** | **117 days** | **117 days** | **NA** | **NA** | **December 30, 2020** | **May 25, 2021** | **January 12, 2021** | **June 1, 2021** | **0%** | **6 days** | | **6 days** |
| 728 | Temporary ELS & Excavation | 31 days | 31 days | NA | NA | December 30, 2020 | February 4, 2021 | January 12, 2021 | February 19, 2021 | 0% | 0 days | 1 days | 10 days |
| 729 | Trim formation layer | 26 days | 26 days | NA | NA | February 5, 2021 | March 10, 2021 | February 20, 2021 | March 22, 2021 | 0% | 0 days | 1 days | 10 days |
| 730 | Lowering precast box culvert (3 cells) | 40 days | 40 days | NA | NA | March 11, 2021 | April 29, 2021 | March 23, 2021 | May 12, 2021 | 0% | 4 days | 2 days | 10 days |
| 731 | Remove struts and backfilling | 16 days | 16 days | NA | NA | May 6, 2021 | May 25, 2021 | May 13, 2021 | June 1, 2021 | 0% | 0 days | 1 days | 6 days |
| 732 | Planned Completion for Section 2 | 1 day | 1 day | NA | NA | May 26, 2021 | May 26, 2021 | June 2, 2021 | June 2, 2021 | 0% | 0 days | 0 days | 6 days |
| 733 | **Section 3** | **408 days** | **408 days** | **NA** | **NA** | **June 16, 2020** | **October 28, 2021** | **June 20, 2020** | **May 29, 2024** | **0%** | **4 days** | | **4 days** |
| 734 | **Part 2C - Lift LT3 & LT4** | **291 days** | **291 days** | **NA** | **NA** | **June 16, 2020** | **June 8, 2021** | **June 20, 2020** | **May 29, 2024** | **0%** | **4 days** | | **4 days** |
| 735 | Mobilization of plant and materials | 22 days | 22 days | NA | NA | June 16, 2020 | July 13, 2020 | June 20, 2020 | July 17, 2020 | 0% | 0 days | 1 days | 4 days |
| 736 | Foundation Construction | 49 days | 49 days | NA | NA | July 14, 2020 | September 8, 2020 | July 18, 2020 | September 12, 2020 | 0% | 0 days | 2 days | 4 days |
| 737 | Slab and shaft | 33 days | 33 days | NA | NA | September 9, 2020 | October 19, 2020 | September 14, 2020 | October 23, 2020 | 0% | 0 days | 1 days | 4 days |
| 738 | E & M installation | 65 days | 65 days | NA | NA | February 23, 2021 | May 13, 2021 | February 27, 2021 | May 18, 2021 | 0% | 0 days | 3 days | 4 days |
| 739 | Lift installation (LT3 & LT4) | 101 days | 101 days | NA | NA | October 20, 2020 | February 22, 2021 | October 24, 2020 | February 26, 2021 | 0% | 0 days | 5 days | 4 days |
| 740 | CLP Meter Installation | 0 days | 0 days | NA | NA | February 1, 2021 | February 1, 2021 | May 29, 2024 | May 29, 2024 | 0% | 1214 d... | | 1214 d... |
| 741 | EMSD Submission Form 5 for Lift Inspection | 0 days | 0 days | NA | NA | March 1, 2021 | March 1, 2021 | October 5, 2021 | October 5, 2021 | 0% | 0 days | | 218 days |
| 742 | EMSD Lift Inspection | 0 days | 0 days | NA | NA | March 14, 2021 | March 14, 2021 | October 19, 2021 | October 19, 2021 | 0% | 0 days | | 218 days |
| 743 | Issuance of Lift Use Permit | 0 days | 0 days | NA | NA | March 29, 2021 | March 29, 2021 | November 2, 2021 | November 2, 2021 | 0% | 213 days | | 218 days |
| 744 | Testing & commissioning | 21 days | 21 days | NA | NA | May 14, 2021 | June 8, 2021 | May 20, 2021 | June 12, 2021 | 0% | 0 days | 1 days | 4 days |
| 745 | Footpath | 27 days | 27 days | NA | NA | June 9, 2021 | July 12, 2021 | June 15, 2021 | July 16, 2021 | 0% | 0 days | 1 days | 4 days |
| 746 | Open Space within Part 2C | 90 days | 90 days | NA | NA | July 13, 2021 | October 28, 2021 | July 17, 2021 | November 2, 2021 | 0% | 0 days | 4 days | 4 days |
| 747 | Planned Completion for Section 3 | 0 days | 0 days | NA | NA | October 28, 2021 | October 28, 2021 | November 2, 2021 | November 2, 2021 | 0% | 0 days | 0 days | 4 days |
| 748 | **Section 4 (Subject to Excision)** | **185 days** | **185 days** | **NA** | **NA** | **October 3, 2022** | **May 17, 2023** | **October 15, 2022** | **May 30, 2023** | **0%** | **10 days** | | **10 days** |
| 749 | Part 2E - Abandon of existing DCS | 185 days | 185 days | NA | NA | October 3, 2022 | May 17, 2023 | October 15, 2022 | May 30, 2023 | 0% | 0 days | 9 days | 10 days |
| 750 | Planned Completion for Section 4 | 0 days | 0 days | NA | NA | May 17, 2023 | May 17, 2023 | May 30, 2023 | May 30, 2023 | 0% | 0 days | | 10 days |
| 751 | **Section 5** | **303 days** | **303 days** | **NA** | **NA** | **June 20, 2020** | **June 28, 2021** | **June 27, 2020** | **July 5, 2021** | **0%** | **5 days** | | **5 days** |
| 752 | **Noise barrier fronting to 4B5 at Rd D3A & Bus Lay By ~120m** | **303 days** | **303 days** | **NA** | **NA** | **June 20, 2020** | **June 28, 2021** | **June 27, 2020** | **July 5, 2021** | **0%** | **5 days** | | **5 days** |
| 753 | ELS & Excavation | 33 days | 33 days | NA | NA | June 20, 2020 | July 30, 2020 | June 27, 2020 | August 5, 2020 | 0% | 0 days | 2 days | 5 days |
| 754 | Noise barrier foundation | 94 days | 94 days | NA | NA | July 31, 2020 | November 20, 2020 | August 6, 2020 | November 26, 2020 | 0% | 0 days | 4 days | 5 days |
| 755 | Frame & Panel installation (Night Work) | 176 days | 176 days | NA | NA | November 21, 2020 | June 28, 2021 | November 27, 2020 | July 5, 2021 | 0% | 0 days | 8 days | 5 days |
| 756 | Planned Completion for Section 5 | 0 days | 0 days | NA | NA | June 28, 2021 | June 28, 2021 | July 5, 2021 | July 5, 2021 | 0% | 0 days | 0 days | 5 days |
| 757 | **Section 6** | **1202 days** | **1198.4 days** | **May 16, 2019** | **NA** | **May 16, 2019** | **May 30, 2023** | **May 16, 2019** | **May 29, 2024** | **0%** | **297 days** | | **297 days** |
| 758 | **Fencing (15m/d) & Hoarding Erection (10m/d)** | **919 days** | **919 days** | **NA** | **NA** | **October 8, 2019** | **November 8, 2022** | **November 9, 2019** | **May 29, 2024** | **0%** | **28 days** | | **28 days** |
| 759 | Fencing - Part 1 (~768m) | 51 days | 51 days | NA | NA | October 21, 2019 | December 18, 2019 | November 9, 2019 | January 10, 2020 | 0% | 17 days | 1 day | 17 days |
| 760 | Hoarding - Part 1 (~57m) | 6 days | 6 days | NA | NA | November 19, 2019 | November 25, 2019 | January 4, 2020 | January 10, 2020 | 0% | 0 days | 0 days | 37 days |
| 761 | Fencing - Part 2A (~458m) - 4 team | 12 days | 12 days | NA | NA | June 2, 2020 | June 15, 2020 | June 12, 2020 | June 26, 2020 | 0% | 4 days | 1 days | 9 days |
| 762 | Hoarding - Part 2A (~379m) - 4 team | 12 days | 12 days | NA | NA | June 2, 2020 | June 15, 2020 | June 12, 2020 | June 26, 2020 | 0% | 4 days | 1 days | 9 days |
| 763 | Fencing - Part 2B (~132m) | 9 days | 9 days | NA | NA | February 1, 2021 | February 10, 2021 | June 15, 2022 | June 24, 2022 | 0% | 347 days | 0 days | 404 days |
| 764 | Hoarding - Part 2C (~106m) | 9 days | 9 days | NA | NA | June 2, 2020 | June 11, 2020 | June 10, 2020 | June 19, 2020 | 0% | 3 days | 1 days | 7 days |
| 765 | Hoarding - Part 2E (~37m) | 4 days | 4 days | NA | NA | October 3, 2022 | October 7, 2022 | January 27, 2023 | January 31, 2023 | 0% | 0 days | 0 days | 95 days |
| 766 | Fencing - Part 3A (~326m) | 22 days | 22 days | NA | NA | October 14, 2022 | November 8, 2022 | February 7, 2023 | March 3, 2023 | 0% | 0 days | 0.5 days | 95 days |
| 767 | Fencing - Part 3D (~29m) | 2 days | 2 days | NA | NA | December 2, 2019 | December 3, 2019 | January 21, 2020 | January 22, 2020 | 0% | 40 days | 0 days | 40 days |
| 768 | Fencing - Part 3E (~23m) | 2 days | 2 days | NA | NA | December 7, 2019 | December 9, 2019 | March 17, 2020 | March 18, 2020 | 0% | 70 days | 0 days | 80 days |
| 769 | Fencing - Part 3F (~62m) | 5 days | 5 days | NA | NA | October 8, 2022 | October 13, 2022 | February 1, 2023 | February 6, 2023 | 0% | 0 days | 0 days | 95 days |
| 770 | Fencing - Part 3G (~69m) | 5 days | 5 days | NA | NA | December 2, 2019 | December 6, 2019 | March 11, 2020 | March 16, 2020 | 0% | 0 days | 0 days | 80 days |
| 771 | Fencing - Part 3I (~19m) | 2 days | 2 days | NA | NA | December 2, 2019 | December 3, 2019 | March 14, 2020 | March 16, 2020 | 0% | 3 days | 0 days | 83 days |
| 772 | Fencing - Part 4 (~180m) | 12 days | 12 days | NA | NA | March 5, 2021 | March 18, 2021 | June 9, 2021 | June 23, 2021 | 0% | 77 days | 0 days | 77 days |
| 773 | Fencing - Part 6A (~19m) | 2 days | 2 days | NA | NA | November 1, 2019 | November 2, 2019 | May 25, 2024 | May 27, 2024 | 0% | 0 days | 0 days | 1355 d... |
| 774 | Fencing - Part 6B (~23m) | 2 days | 2 days | NA | NA | November 4, 2019 | November 5, 2019 | May 28, 2024 | May 29, 2024 | 0% | 1355 d... | 0 days | 1355 d... |
| 775 | Hoarding - WA1 (~300m) | 21 days | 21 days | NA | NA | October 8, 2019 | October 31, 2019 | April 29, 2024 | May 24, 2024 | 0% | 0 days | 0.5 days | 1355 d... |
| 776 | **Fencing (15m/d) & Hoarding Erection (10m/d) - Upon Works Completion** | **95 days** | **95 days** | **NA** | **NA** | **April 29, 2022** | **August 19, 2022** | **July 25, 2022** | **November 15, 2022** | **0%** | **72 days** | | **72 days** |
| 777 | Fencing - ~1437m | 95 days | 95 days | NA | NA | April 29, 2022 | August 19, 2022 | July 25, 2022 | November 15, 2022 | 0% | 0 days | 1 day | 72 days |
| 778 | Hoarding - ~260m | 26 days | 26 days | NA | NA | April 29, 2022 | May 28, 2022 | October 17, 2022 | November 15, 2022 | 0% | 69 days | 0.5 days | 141 days |
| 779 | **Demolition Work - Extg Fire Service Station** | **136 days** | **117.24 days** | **August 16, 2019** | **NA** | **August 16, 2019** | **January 31, 2020** | **August 16, 2019** | **May 13, 2020** | **0%** | **82 days** | | **82 days** |




Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

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

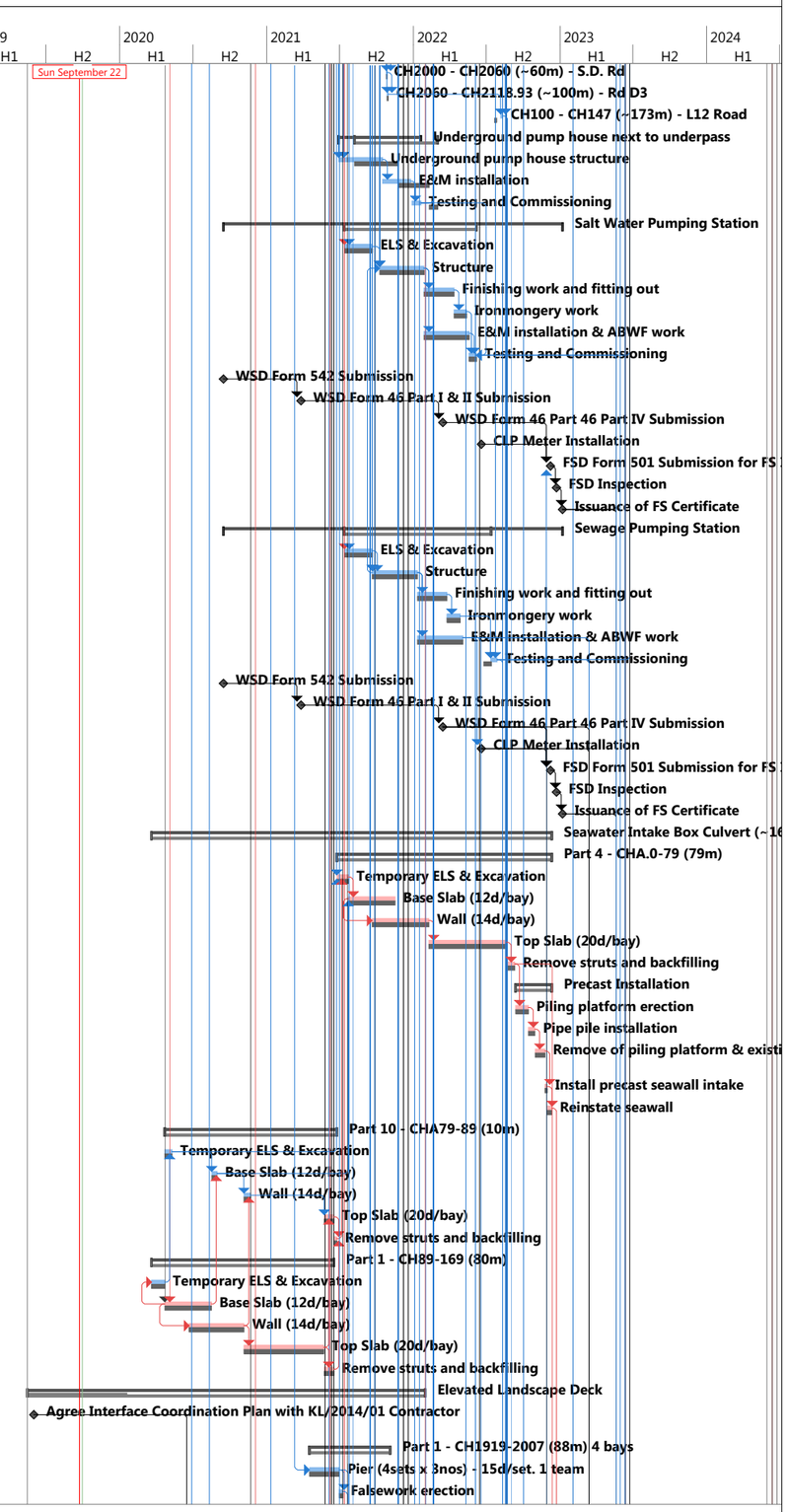
| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 780 | Asbesto Survey (PS Cl. 2.04(9)) | 8 days | 0 days | August 16, 2019 | August 23, 2019 | August 16, 2019 | August 23, 2019 | August 16, 2019 | August 23, 2019 | 100% | 0 days | 0 days | 0 days |
| 781 | Demolish of abandoned Fire Service Station | 50 days | 50 days | NA | NA | November 28, 2019 | January 31, 2020 | March 10, 2020 | May 13, 2020 | 0% | 65 days | 1 day | 82 days |
| 782 | **Ground Investigation** | **50 days** | **50 days** | **NA** | **NA** | **November 26, 2019** | **January 29, 2020** | **May 11, 2020** | **July 9, 2020** | **0%** | **131 days** | | **131 days** |
| 783 | GI Work | 50 days | 50 days | NA | NA | November 26, 2019 | January 29, 2020 | May 11, 2020 | July 9, 2020 | 0% | 131 days | 0.5 days | 131 days |
| 784 | **Rising Main** | **765 days** | **765 days** | **NA** | **NA** | **July 10, 2020** | **February 1, 2023** | **July 10, 2020** | **May 30, 2023** | **0%** | **0 days** | | **0 days** |
| 785 | Part 1 - CHA660-1097.77 - 2x160mm dia (~438m) | 146 days | 146 days | NA | NA | July 10, 2020 | January 2, 2021 | July 10, 2020 | January 2, 2021 | 0% | 0 days | 7 days | 0 days |
| 786 | Part 9A - CHA32-71 - 2x160mm dia (~39m) (KD5) | 211 days | 211 days | NA | NA | January 4, 2021 | September 17, 2021 | January 4, 2021 | September 17, 2021 | 0% | 0 days | 30 days | 0 days |
| 787 | Part 9B Rising Main | 211 days | 211 days | NA | NA | January 4, 2021 | September 17, 2021 | March 11, 2021 | November 23, 2021 | 0% | 49 days | 30 days | 54 days |
| 788 | Part 3B - CHA418-443 - 2x160mm dia (~25m) (KD7) | 365 days | 365 days | NA | NA | March 5, 2021 | May 27, 2022 | March 11, 2021 | June 2, 2022 | 0% | 0 days | 50 days | 5 days |
| 789 | Part 9 - CHA0-363 & 71-363 - 2x160mm dia. (~324m) (KD4) | 126 days | 126 days | NA | NA | August 31, 2021 | January 31, 2022 | August 31, 2021 | January 31, 2022 | 0% | 0 days | 15 day | 0 days |
| 790 | Part 8 - CHA363-418&443-452 - 2x160mm dia (~64m) | 150 days | 150 days | NA | NA | February 4, 2022 | August 4, 2022 | September 2, 2022 | March 3, 2023 | 0% | 79 days | 0 days | 174 days |
| 791 | Part 3A - CH452-660 - 2x160mm dia (~208m) | 69 days | 69 days | NA | NA | November 9, 2022 | February 1, 2023 | March 4, 2023 | May 30, 2023 | 0% | 0 days | 1 day | 95 days |
| 792 | Allow Access for EMSD third District Cooling System Contractor for DCS Pipeline Laying at Parts 3A, 3B, 8, 9 and 9A | 0 days | 0 days | NA | NA | February 1, 2023 | February 1, 2023 | May 30, 2023 | May 30, 2023 | 0% | 118 days | | 118 days |
| 793 | **Underground Drainage** | **416 days** | **416 days** | **NA** | **NA** | **February 16, 2021** | **July 11, 2022** | **March 5, 2021** | **September 24, 20...** | **0%** | **15 days** | | **15 days** |
| 794 | Procurement of Stormwater Drainage Pipes | 90 days | 90 days | NA | NA | February 16, 2021 | May 16, 2021 | March 5, 2021 | June 2, 2021 | 0% | 0 days | | 17 days |
| 795 | **Stormwater Drainage** | **308 days** | **308 days** | **NA** | **NA** | **May 17, 2021** | **May 28, 2022** | **June 3, 2021** | **September 24, 20...** | **0%** | **14 days** | | **14 days** |
| 796 | CH1000 - CH1087 (~92.5m, 2 M/H) | 16 days | 16 days | NA | NA | November 24, 2021 | December 11, 2021 | November 24, 2021 | December 11, 2021 | 0% | 0 days | 1 days | 0 days |
| 797 | CH1087 - CH1189.4 (~210m, 9 M/H) | 24 days | 24 days | NA | NA | June 3, 2021 | July 2, 2021 | June 3, 2021 | July 2, 2021 | 0% | 0 days | 1 days | 0 days |
| 798 | CH1189.4 - CH1394 (~167m, 3 MH) - Bridge D3 | 24 days | 24 days | NA | NA | May 29, 2021 | June 26, 2021 | September 11, 2021 | October 11, 2021 | 0% | 18 days | 0.5 days | 88 days |
| 799 | CH1394 - CH1444.7 (~40m, 3 M/H) - S. Ramp | 21 days | 21 days | NA | NA | July 20, 2021 | August 12, 2021 | October 12, 2021 | November 5, 2021 | 0% | 70 days | 0 days | 70 days |
| 800 | CH1444.7 - CH1560 (~222m, 10 M/H) - Rd D3 | 35 days | 35 days | NA | NA | May 20, 2021 | June 30, 2021 | October 25, 2021 | December 3, 2021 | 0% | 130 days | 0.5 days | 130 days |
| 801 | CH1560 - CH1720 (~239m, 8 M/H) - N.D. Rd | 14 days | 14 days | NA | NA | May 17, 2021 | June 2, 2021 | April 19, 2022 | May 4, 2022 | 0% | 0 days | 0 days | 273 days |
| 802 | CH1720 - CH1920 (~450.7m, 13 M/H) Underpass | 90 days | 90 days | NA | NA | June 3, 2021 | September 17, 2021 | May 5, 2022 | August 19, 2022 | 0% | 0 days | 1 day | 273 days |
| 803 | CH1920 - CH2000 (~160m, 6 M/H) S.D. Rd | 14 days | 14 days | NA | NA | September 18, 2021 | October 6, 2021 | August 20, 2022 | September 5, 2022 | 0% | 0 days | 0 days | 273 days |
| 804 | CH2000 - CH2060 (~84m, 2 M/H) - S.D. Rd | 14 days | 14 days | NA | NA | October 7, 2021 | October 23, 2021 | September 6, 2022 | September 22, 2022 | 0% | 0 days | 0 days | 273 days |
| 805 | CH2060 - CH2118.93 (~50.7m, 2 M/H) - Rd D3 | 14 days | 14 days | NA | NA | June 19, 2021 | July 6, 2021 | September 8, 2022 | September 24, 2022 | 0% | 0 days | 0 days | 366 days |
| 806 | CH100 - CH147 (~169m, 5 M/H) - L12 Road | 35 days | 35 days | NA | NA | April 19, 2022 | May 28, 2022 | June 25, 2022 | August 5, 2022 | 0% | 0 days | 0.5 days | 57 days |
| 807 | Open Space & Promenade (~457m, 11 M/H) | 70 days | 70 days | NA | NA | January 19, 2022 | April 14, 2022 | March 30, 2022 | June 24, 2022 | 0% | 0 days | 1 day | 57 days |
| 808 | **Sewerage Drainage** | **392 days** | **392 days** | **NA** | **NA** | **March 16, 2021** | **July 11, 2022** | **April 4, 2021** | **September 16, 20...** | **0%** | **15 days** | | **15 days** |
| 809 | Procurement of Sewerage Pipes | 90 days | 90 days | NA | NA | March 16, 2021 | June 13, 2021 | April 4, 2021 | July 2, 2021 | 0% | 19 days | | 19 days |
| 810 | CH1000 - CH1087 (~68m, 3 M/H) | 18 days | 18 days | NA | NA | November 22, 2021 | December 11, 2021 | November 22, 2021 | December 11, 2021 | 0% | 0 days | 1 days | 0 days |
| 811 | CH1087 - CH1189.4 (~47m, 1 no M/H) | 12 days | 12 days | NA | NA | July 3, 2021 | July 16, 2021 | July 3, 2021 | July 16, 2021 | 0% | 0 days | 1 days | 0 days |
| 812 | CH100 - CH147 (~156m, 6 M/H) - L12 Road | 35 days | 35 days | NA | NA | May 30, 2022 | July 11, 2022 | August 6, 2022 | September 16, 2022 | 0% | 0 days | 0.5 days | 57 days |
| 813 | **Underground Watermain** | **392 days** | **392 days** | **NA** | **NA** | **May 29, 2021** | **September 19, 20...** | **July 16, 2021** | **October 14, 2022** | **0%** | **20 days** | | **20 days** |
| 814 | **Fresh Watermain** | **310 days** | **310 days** | **NA** | **NA** | **May 29, 2021** | **June 13, 2022** | **July 17, 2021** | **September 22, 20...** | **0%** | **40 days** | | **40 days** |
| 815 | CH1000 - CH1087 (~191m) Rd D3 | 20 days | 20 days | NA | NA | August 31, 2021 | September 23, 2021 | August 31, 2021 | September 23, 2021 | 0% | 0 days | 1 days | 0 days |
| 816 | CH1087 - CH1189.4 (~212m) - N. Ramp | 4 days | 4 days | NA | NA | July 17, 2021 | July 21, 2021 | July 17, 2021 | July 21, 2021 | 0% | 0 days | 0 days | 0 days |
| 817 | CH1189.4 - CH1394 (~409.2m) - Bridge D3 | 40 days | 40 days | NA | NA | May 29, 2021 | July 16, 2021 | August 21, 2021 | October 8, 2021 | 0% | 0 days | 0.5 days | 70 days |
| 818 | CH1394 - CH1444.7 (~101.4m) - S. Ramp | 10 days | 10 days | NA | NA | June 1, 2021 | June 11, 2021 | October 9, 2021 | October 21, 2021 | 0% | 0 days | 0 days | 108 days |
| 819 | CH1444.7 - CH1560 (~165m) - Rd D3 | 18 days | 18 days | NA | NA | June 25, 2021 | July 16, 2021 | October 19, 2021 | November 8, 2021 | 0% | 0 days | 0 days | 95 days |
| 820 | CH1720 - CH1920 (~25m) - Underpass | 2 days | 2 days | NA | NA | September 18, 2021 | September 20, 2021 | September 19, 2022 | September 20, 2022 | 0% | 0 days | 0 days | 297 days |
| 821 | CH2060 - CH2118.93 (~47m) - Rd D3 | 2 days | 2 days | NA | NA | July 2, 2021 | July 3, 2021 | September 21, 2022 | September 22, 2022 | 0% | 69 days | 0 days | 366 days |
| 822 | CH100 - CH147 (~280m) - L12 Road | 28 days | 28 days | NA | NA | May 11, 2022 | June 13, 2022 | July 5, 2022 | August 5, 2022 | 0% | 0 days | 0.5 days | 45 days |
| 823 | Open Space & Promenade (~1,093m) | 110 days | 110 days | NA | NA | December 22, 2021 | May 10, 2022 | January 18, 2022 | June 2, 2022 | 0% | 0 days | 1 day | 20 days |
| 824 | **Salt Watermain** | **390 days** | **390 days** | **NA** | **NA** | **June 1, 2021** | **September 19, 20...** | **July 22, 2021** | **October 14, 2022** | **0%** | **20 days** | | **20 days** |
| 825 | CH1000 - CH1087 (~157m) Rd D3 | 15 days | 15 days | NA | NA | August 31, 2021 | September 16, 2021 | August 31, 2021 | September 16, 2021 | 0% | 0 days | 1 days | 0 days |
| 826 | CH1087 - CH1189.4 (~218m) - N. Ramp | 4 days | 4 days | NA | NA | July 22, 2021 | July 26, 2021 | July 22, 2021 | July 26, 2021 | 0% | 0 days | 0 days | 0 days |
| 827 | CH1189.4 - CH1394 (~409.2m) - Bridge D3 | 40 days | 40 days | NA | NA | June 1, 2021 | July 19, 2021 | August 24, 2021 | October 11, 2021 | 0% | 0 days | 0.5 days | 70 days |
| 828 | CH1394 - CH1444.7 (~101.4m) - S. Ramp | 10 days | 10 days | NA | NA | June 12, 2021 | June 24, 2021 | October 22, 2021 | November 2, 2021 | 0% | 0 days | 0 days | 108 days |
| 829 | CH1444.7 - CH1560 (~165m) - Rd D3 | 18 days | 18 days | NA | NA | July 17, 2021 | August 6, 2021 | November 9, 2021 | November 29, 2021 | 0% | 0 days | 0 days | 95 days |
| 830 | CH1720 - CH1920 (~25m) - Underpass | 2 days | 2 days | NA | NA | September 21, 2021 | September 23, 2021 | September 21, 2022 | September 22, 2022 | 0% | 0 days | 0 days | 297 days |
| 831 | CH2060 - CH2118.93 (~47m) - Rd D3 | 2 days | 2 days | NA | NA | September 24, 2021 | September 25, 2021 | September 23, 2022 | September 24, 2022 | 0% | 24 days | 0 days | 297 days |
| 832 | CH100 - CH147 (~455m) - L12 Road | 45 days | 45 days | NA | NA | June 14, 2022 | August 5, 2022 | August 6, 2022 | September 28, 2022 | 0% | 0 days | 0.5 days | 45 days |
| 833 | Open Space & Promenade (~1,093m) | 110 days | 110 days | NA | NA | May 11, 2022 | September 19, 2022 | June 4, 2022 | October 14, 2022 | 0% | 0 days | 1 day | 20 days |
| 834 | **Irrigation System** | **337 days** | **337 days** | **NA** | **NA** | **June 25, 2021** | **August 10, 2022** | **July 16, 2021** | **October 5, 2022** | **0%** | **17 days** | | **17 days** |
| 835 | CH1000 - CH1087 (~87m) Rd D3 | 5 days | 5 days | NA | NA | September 17, 2021 | September 23, 2021 | September 17, 2021 | September 23, 2021 | 0% | 0 days | 0 days | 0 days |
| 836 | CH1087 - CH1189.4 (~205m) - N. Ramp | 9 days | 9 days | NA | NA | July 16, 2021 | July 26, 2021 | July 16, 2021 | July 26, 2021 | 0% | 0 days | 0 days | 0 days |
| 837 | CH1189.4 - CH1394 (~409.2m) - Bridge D3 | 7 days | 7 days | NA | NA | June 25, 2021 | July 3, 2021 | October 4, 2021 | October 11, 2021 | 0% | 13 days | 0 days | 83 days |
| 838 | CH1394 - CH1444.7 (~101.4m) - S. Ramp | 3 days | 3 days | NA | NA | June 25, 2021 | June 28, 2021 | November 3, 2021 | November 5, 2021 | 0% | 108 days | 0 days | 108 days |
| 839 | CH1444.7 - CH1560 (~175m) - Rd D3 | 4 days | 4 days | NA | NA | August 7, 2021 | August 11, 2021 | November 30, 2021 | December 3, 2021 | 0% | 95 days | 0 days | 95 days |
| 840 | CH1920 - CH2000 (~160m) S.D. Rd | 4 days | 4 days | NA | NA | October 7, 2021 | October 11, 2021 | September 19, 2022 | September 22, 2022 | 0% | 10 days | 0 days | 283 days |




Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

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

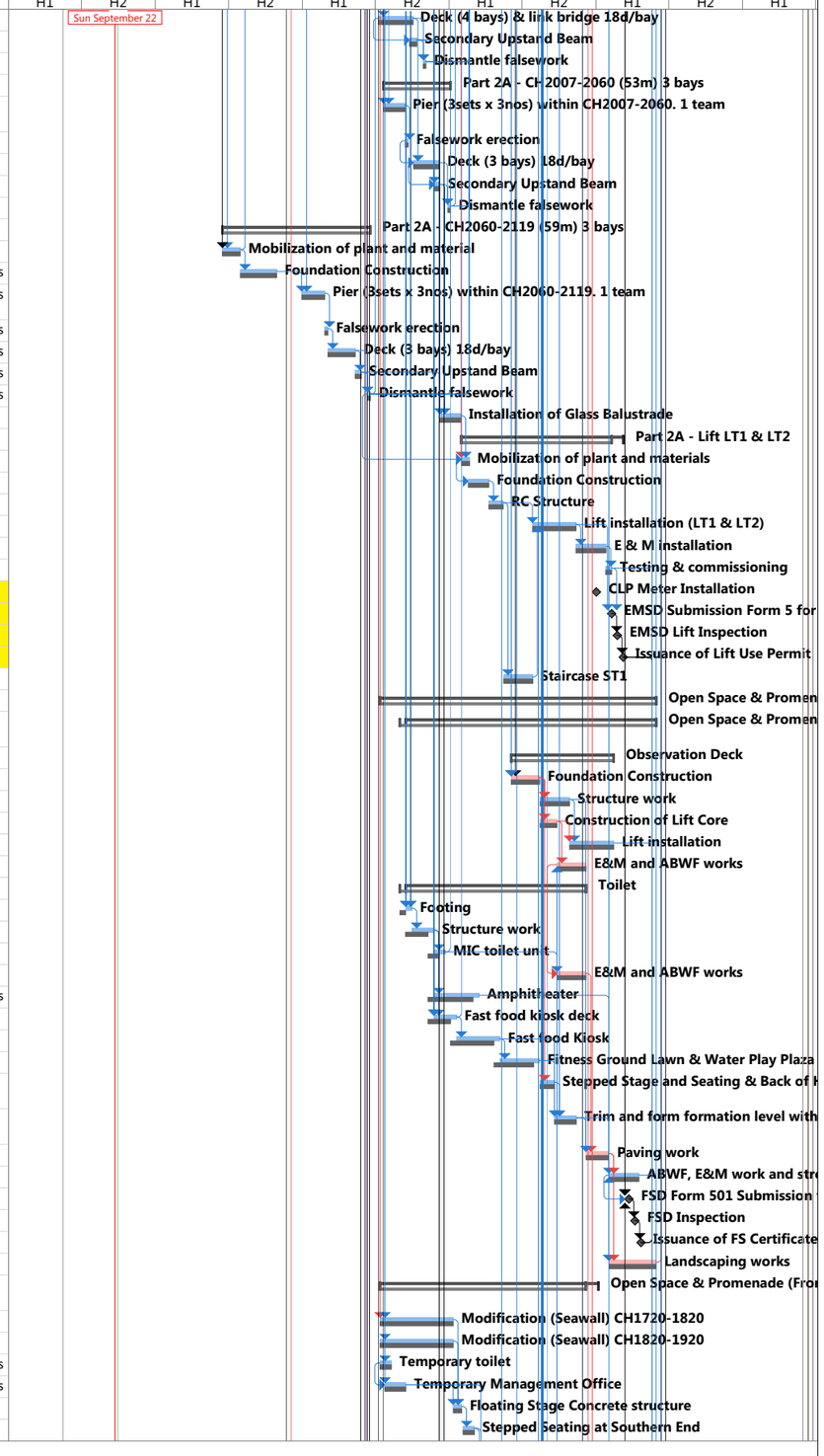
| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 841 | CH2000 - CH2060 (~60m) - S.D. Rd | 2 days | 2 days | NA | NA | October 25, 2021 | October 26, 2021 | September 23, 2022 | September 24, 2022 | 0% | 0 days | 0 days | 273 days |
| 842 | CH2060 - CH2118.93 (~100m) - Rd D3 | 3 days | 3 days | NA | NA | October 27, 2021 | October 29, 2021 | September 26, 2022 | September 28, 2022 | 0% | 228 days | 0 days | 273 days |
| 843 | CH100 - CH147 (~173m) - L12 Road | 4 days | 4 days | NA | NA | August 6, 2022 | August 10, 2022 | September 29, 2022 | October 5, 2022 | 0% | 0 days | 0 days | 45 days |
| 844 | **Underground pump house next to underpass** | **168 days** | **168 days** | **NA** | **NA** | **June 29, 2021** | **January 18, 2022** | **August 7, 2021** | **March 1, 2022** | **0%** | **33 days** | | **33 days** |
| 845 | Underground pump house structure | 90 days | 90 days | NA | NA | June 29, 2021 | October 15, 2021 | August 7, 2021 | November 23, 2021 | 0% | 0 days | 4 days | 33 days |
| 846 | E&M installation | 60 days | 60 days | NA | NA | October 16, 2021 | December 24, 2021 | November 24, 2021 | February 8, 2022 | 0% | 0 days | 3 days | 33 days |
| 847 | Testing and Commissioning | 18 days | 18 days | NA | NA | December 28, 2021 | January 18, 2022 | February 9, 2022 | March 1, 2022 | 0% | 33 days | 1 days | 33 days |
| 848 | **Salt Water Pumping Station** | **689 days** | **689 days** | **NA** | **NA** | **September 15, 20...** | **January 6, 2023** | **July 23, 2022** | **May 30, 2023** | **0%** | **114 days** | | **114 days** |
| 849 | ELS & Excavation | 60 days | 60 days | NA | NA | July 13, 2021 | September 20, 2021 | July 23, 2022 | October 3, 2022 | 0% | 14 days | 1 day | 307 days |
| 850 | Structure | 90 days | 90 days | NA | NA | October 9, 2021 | January 26, 2022 | October 5, 2022 | January 18, 2023 | 0% | 0 days | 1 day | 293 days |
| 851 | Finishing work and fitting out | 60 days | 60 days | NA | NA | January 27, 2022 | April 11, 2022 | January 30, 2023 | April 13, 2023 | 0% | 0 days | 1 day | 299 days |
| 852 | Ironmongery work | 24 days | 24 days | NA | NA | April 12, 2022 | May 12, 2022 | April 14, 2023 | May 12, 2023 | 0% | 6 days | 0.5 days | 299 days |
| 853 | E&M installation & ABWF work | 90 days | 90 days | NA | NA | January 27, 2022 | May 19, 2022 | January 19, 2023 | May 12, 2023 | 0% | 0 days | 1 day | 293 days |
| 854 | Testing and Commissioning | 14 days | 14 days | NA | NA | May 20, 2022 | June 6, 2022 | May 13, 2023 | May 30, 2023 | 0% | 293 days | 0 days | 293 days |
| 855 | WSD Form 542 Submission | 0 days | 0 days | NA | NA | September 15, 2020 | September 15, 2020 | May 1, 2023 | May 1, 2023 | 0% | 193 days | | 958 days |
| 856 | WSD Form 46 Part I & II Submission | 0 days | 0 days | NA | NA | March 27, 2021 | March 27, 2021 | May 1, 2023 | May 1, 2023 | 0% | 353 days | | 765 days |
| 857 | WSD Form 46 Part 46 Part IV Submission | 0 days | 0 days | NA | NA | March 15, 2022 | March 15, 2022 | May 1, 2023 | May 1, 2023 | 0% | 268 days | | 412 days |
| 858 | CLP Meter Installation | 0 days | 0 days | NA | NA | June 19, 2022 | June 19, 2022 | May 1, 2023 | May 1, 2023 | 0% | 172 days | | 316 days |
| 859 | FSD Form 501 Submission for FS Inspection | 0 days | 0 days | NA | NA | December 8, 2022 | December 8, 2022 | May 1, 2023 | May 1, 2023 | 0% | 0 days | | 144 days |
| 860 | FSD Inspection | 0 days | 0 days | NA | NA | December 22, 2022 | December 22, 2022 | May 16, 2023 | May 16, 2023 | 0% | 0 days | | 144 days |
| 861 | Issuance of FS Certificate | 0 days | 0 days | NA | NA | January 6, 2023 | January 6, 2023 | May 30, 2023 | May 30, 2023 | 0% | 144 days | | 144 days |
| 862 | **Sewage Pumping Station** | **689 days** | **689 days** | **NA** | **NA** | **September 15, 20...** | **January 6, 2023** | **November 26, 2021** | **May 30, 2023** | **0%** | **114 days** | | **114 days** |
| 863 | ELS & Excavation | 60 days | 60 days | NA | NA | July 13, 2021 | September 20, 2021 | November 26, 2021 | February 10, 2022 | 0% | 0 days | 1 day | 114 days |
| 864 | Structure | 90 days | 90 days | NA | NA | September 21, 2021 | January 10, 2022 | February 11, 2022 | May 31, 2022 | 0% | 0 days | 1 day | 114 days |
| 865 | Finishing work and fitting out | 60 days | 60 days | NA | NA | January 11, 2022 | March 24, 2022 | June 9, 2022 | August 18, 2022 | 0% | 0 days | 1 day | 120 days |
| 866 | Ironmongery work | 24 days | 24 days | NA | NA | March 25, 2022 | April 26, 2022 | August 19, 2022 | September 16, 2022 | 0% | 63 days | 0.5 days | 120 days |
| 867 | E&M installation & ABWF work | 90 days | 90 days | NA | NA | January 11, 2022 | May 3, 2022 | June 1, 2022 | September 16, 2022 | 0% | 39 days | 1 day | 114 days |
| 868 | Testing and Commissioning | 14 days | 14 days | NA | NA | July 12, 2022 | July 27, 2022 | September 17, 2022 | October 5, 2022 | 0% | 12 days | 0 days | 57 days |
| 869 | WSD Form 542 Submission | 0 days | 0 days | NA | NA | September 15, 2020 | September 15, 2020 | May 1, 2023 | May 1, 2023 | 0% | 193 days | | 958 days |
| 870 | WSD Form 46 Part I & II Submission | 0 days | 0 days | NA | NA | March 27, 2021 | March 27, 2021 | May 1, 2023 | May 1, 2023 | 0% | 353 days | | 765 days |
| 871 | WSD Form 46 Part 46 Part IV Submission | 0 days | 0 days | NA | NA | March 15, 2022 | March 15, 2022 | May 1, 2023 | May 1, 2023 | 0% | 268 days | | 412 days |
| 872 | CLP Meter Installation | 0 days | 0 days | NA | NA | June 19, 2022 | June 19, 2022 | May 1, 2023 | May 1, 2023 | 0% | 172 days | | 316 days |
| 873 | FSD Form 501 Submission for FS Inspection | 0 days | 0 days | NA | NA | December 8, 2022 | December 8, 2022 | May 1, 2023 | May 1, 2023 | 0% | 0 days | | 144 days |
| 874 | FSD Inspection | 0 days | 0 days | NA | NA | December 22, 2022 | December 22, 2022 | May 16, 2023 | May 16, 2023 | 0% | 0 days | | 144 days |
| 875 | Issuance of FS Certificate | 0 days | 0 days | NA | NA | January 6, 2023 | January 6, 2023 | May 30, 2023 | May 30, 2023 | 0% | 144 days | | 144 days |
| 876 | **Seawater Intake Box Culvert (~169m)** | **812 days** | **812 days** | **NA** | **NA** | **March 20, 2020** | **December 10, 2022** | **April 22, 2020** | **December 10, 2022** | **0%** | **0 days** | | **0 days** |
| 877 | **Part 4 - CHA.0-79 (79m)** | **440 days** | **440 days** | **NA** | **NA** | **June 24, 2021** | **December 10, 2022** | **June 24, 2021** | **December 10, 2022** | **0%** | **0 days** | | **0 days** |
| 878 | Temporary ELS & Excavation | 24 days | 24 days | NA | NA | June 24, 2021 | July 22, 2021 | June 24, 2021 | July 22, 2021 | 0% | 0 days | 1 days | 0 days |
| 879 | Base Slab (12d/bay) | 96 days | 96 days | NA | NA | July 23, 2021 | November 15, 2021 | July 23, 2021 | November 15, 2021 | 0% | 0 days | 5 days | 0 days |
| 880 | Wall (14d/bay) | 112 days | 112 days | NA | NA | September 20, 2021 | February 7, 2022 | September 20, 2021 | February 7, 2022 | 0% | 0 days | 5 days | 0 days |
| 881 | Top Slab (20d/bay) | 160 days | 160 days | NA | NA | February 8, 2022 | August 19, 2022 | February 8, 2022 | August 19, 2022 | 0% | 0 days | 8 days | 0 days |
| 882 | Remove struts and backfilling | 18 days | 18 days | NA | NA | August 20, 2022 | September 9, 2022 | August 20, 2022 | September 9, 2022 | 0% | 0 days | 1 days | 0 days |
| 883 | **Precast Installation** | **76 days** | **76 days** | **NA** | **NA** | **September 12, 20...** | **December 10, 2022** | **September 12, 2022** | **December 10, 2022** | **0%** | **0 days** | | **0 days** |
| 884 | Piling platform erection | 26 days | 26 days | NA | NA | September 12, 2022 | October 13, 2022 | September 12, 2022 | October 13, 2022 | 0% | 0 days | 1 days | 0 days |
| 885 | Pipe pile installation | 14 days | 14 days | NA | NA | October 14, 2022 | October 29, 2022 | October 14, 2022 | October 29, 2022 | 0% | 0 days | 1 days | 0 days |
| 886 | Remove of piling platform & existing seawall | 21 days | 21 days | NA | NA | October 31, 2022 | November 23, 2022 | October 31, 2022 | November 23, 2022 | 0% | 0 days | 1 days | 0 days |
| 887 | Install precast seawall intake | 5 days | 5 days | NA | NA | November 24, 2022 | November 29, 2022 | November 24, 2022 | November 29, 2022 | 0% | 0 days | 0 days | 0 days |
| 888 | Reinstate seawall | 10 days | 10 days | NA | NA | November 30, 2022 | December 10, 2022 | November 30, 2022 | December 10, 2022 | 0% | 0 days | 0 days | 0 days |
| 889 | **Part 10 - CHA79-89 (10m)** | **348 days** | **348 days** | **NA** | **NA** | **April 22, 2020** | **June 23, 2021** | **April 1, 2021** | **June 23, 2021** | **0%** | **0 days** | | **0 days** |
| 890 | Temporary ELS & Excavation | 14 days | 14 days | NA | NA | April 22, 2020 | May 9, 2020 | April 1, 2021 | April 20, 2021 | 0% | 82 days | 0 days | 282 days |
| 891 | Base Slab (12d/bay) | 12 days | 12 days | NA | NA | August 17, 2020 | August 29, 2020 | April 21, 2021 | May 5, 2021 | 0% | 54 days | 0 days | 200 days |
| 892 | Wall (14d/bay) | 14 days | 14 days | NA | NA | November 5, 2020 | November 20, 2020 | May 6, 2021 | May 22, 2021 | 0% | 146 days | 0 days | 146 days |
| 893 | Top Slab (20d/bay) | 20 days | 20 days | NA | NA | May 24, 2021 | June 16, 2021 | May 24, 2021 | June 16, 2021 | 0% | 0 days | 1 days | 0 days |
| 894 | Remove struts and backfilling | 6 days | 6 days | NA | NA | June 17, 2021 | June 23, 2021 | June 17, 2021 | June 23, 2021 | 0% | 0 days | 0 days | 0 days |
| 895 | **Part 1 - CH89-169 (80m)** | **366 days** | **366 days** | **NA** | **NA** | **March 20, 2020** | **June 16, 2021** | **April 22, 2020** | **June 16, 2021** | **0%** | **0 days** | | **0 days** |
| 896 | Temporary ELS & Excavation | 24 days | 24 days | NA | NA | March 20, 2020 | April 21, 2020 | March 4, 2021 | March 31, 2021 | 0% | 0 days | 0.5 days | 282 days |
| 897 | Base Slab (12d/bay) | 96 days | 96 days | NA | NA | April 22, 2020 | August 15, 2020 | April 22, 2020 | August 15, 2020 | 0% | 0 days | 4 days | 0 days |
| 898 | Wall (14d/bay) | 112 days | 112 days | NA | NA | June 22, 2020 | November 4, 2020 | June 22, 2020 | November 4, 2020 | 0% | 0 days | 5 days | 0 days |
| 899 | Top Slab (20d/bay) | 160 days | 160 days | NA | NA | November 5, 2020 | May 22, 2021 | November 5, 2020 | May 22, 2021 | 0% | 0 days | 8 days | 0 days |
| 900 | Remove struts and backfilling | 20 days | 20 days | NA | NA | May 24, 2021 | June 16, 2021 | May 24, 2021 | June 16, 2021 | 0% | 0 days | 1 days | 0 days |
| 901 | **Elevated Landscape Deck** | **808 days** | **788.7 days** | **May 16, 2019** | **NA** | **May 16, 2019** | **January 29, 2022** | **May 16, 2019** | **April 23, 2022** | **0%** | **65 days** | | **65 days** |
| 902 | Agree Interface Coordination Plan with KL/2014/01 Contractor | 14 days | 0 days | May 16, 2019 | May 31, 2019 | May 16, 2019 | May 31, 2019 | May 16, 2019 | May 31, 2019 | 100% | 0 days | 0 days | 0 days |
| 903 | **Part 1 - CH1919-2007 (88m) 4 bays** | **165 days** | **165 days** | **NA** | **NA** | **April 17, 2021** | **November 3, 2021** | **May 22, 2021** | **February 8, 2022** | **0%** | **28 days** | | **28 days** |
| 904 | Pier (4sets x 3nos) - 15d/set. 1 team | 60 days | 60 days | NA | NA | April 17, 2021 | June 29, 2021 | May 22, 2021 | August 2, 2021 | 0% | 0 days | 1 day | 28 days |
| 905 | Falsework erection | 7 days | 7 days | NA | NA | June 30, 2021 | July 8, 2021 | August 3, 2021 | August 10, 2021 | 0% | 0 days | 0 days | 28 days |




Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

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

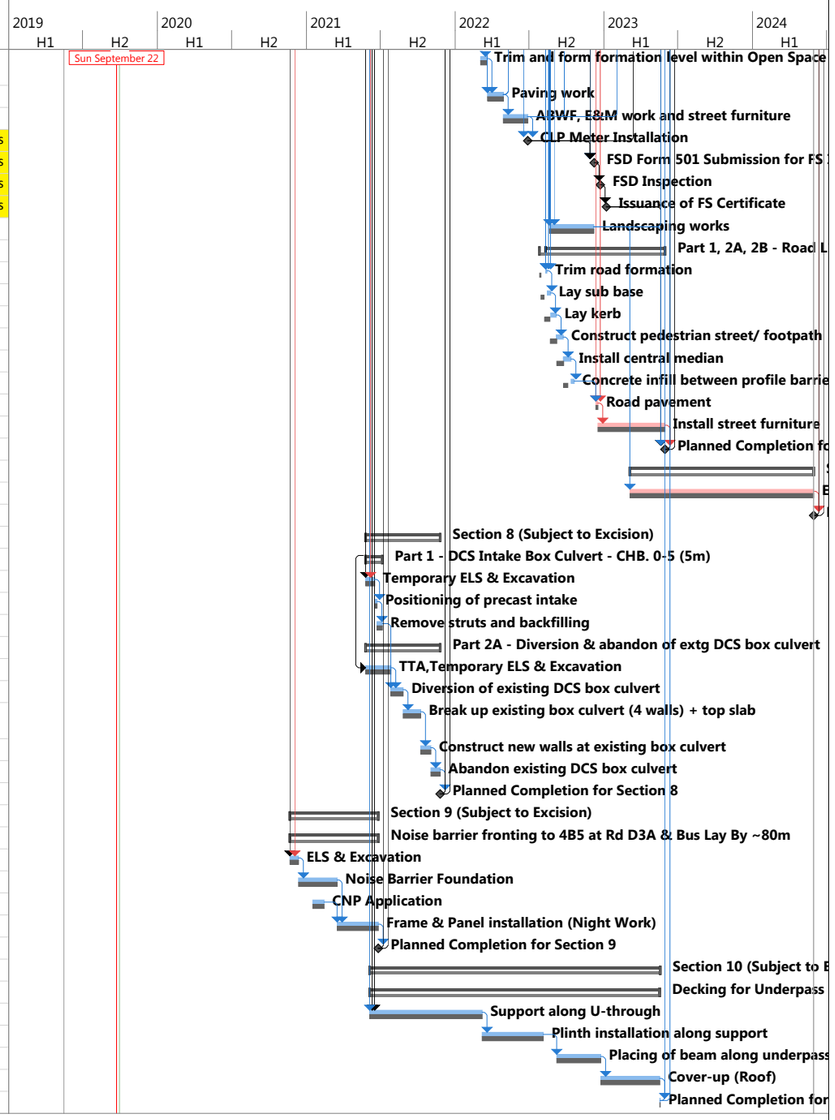
| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 906 | Deck (4 bays) & link bridge 18d/bay | 72 days | 72 days | NA | NA | July 9, 2021 | October 2, 2021 | August 11, 2021 | November 5, 2021 | 0% | 0 days | 1 day | 28 days |
| 907 | Secondary Upstand Beam | 14 days | 14 days | NA | NA | September 24, 2021 | October 11, 2021 | December 11, 2021 | December 29, 2021 | 0% | 0 days | 0 days | 65 days |
| 908 | Dismantle falsework | 5 days | 5 days | NA | NA | October 29, 2021 | November 3, 2021 | January 31, 2022 | February 8, 2022 | 0% | 49 days | 0 days | 77 days |
| 909 | **Part 2A - CH2007-2060 (53m) 3 bays** | **136 days** | **136 days** | **NA** | **NA** | **July 22, 2021** | **January 3, 2022** | **September 8, 2021** | **February 8, 2022** | **0%** | **28 days** | | **28 days** |
| 910 | Pier (3sets x 3nos) within CH2007-2060. 1 team | 45 days | 45 days | NA | NA | July 22, 2021 | September 11, 2021 | September 8, 2021 | November 2, 2021 | 0% | 0 days | 0.5 days | 41 days |
| 911 | Falsework erection | 7 days | 7 days | NA | NA | September 13, 2021 | September 20, 2021 | November 3, 2021 | November 10, 2021 | 0% | 13 days | 0 days | 41 days |
| 912 | Deck (3 bays) 18d/bay | 54 days | 54 days | NA | NA | October 4, 2021 | December 6, 2021 | November 6, 2021 | January 11, 2022 | 0% | 0 days | 1 day | 28 days |
| 913 | Secondary Upstand Beam | 12 days | 12 days | NA | NA | November 25, 2021 | December 8, 2021 | December 30, 2021 | January 13, 2022 | 0% | 0 days | 0 days | 28 days |
| 914 | Dismantle falsework | 5 days | 5 days | NA | NA | December 28, 2021 | January 3, 2022 | January 31, 2022 | February 8, 2022 | 0% | 0 days | 0 days | 28 days |
| 915 | **Part 2A - CH2060-2119 (59m) 3 bays** | **299 days** | **299 days** | **NA** | **NA** | **June 16, 2020** | **June 18, 2021** | **June 29, 2020** | **November 20, 2021** | **0%** | **10 days** | | **10 days** |
| 916 | Mobilization of plant and material | 36 days | 36 days | NA | NA | June 16, 2020 | July 29, 2020 | June 29, 2020 | August 10, 2020 | 0% | 0 days | 2 days | 10 days |
| 917 | Foundation Construction | 90 days | 90 days | NA | NA | July 30, 2020 | October 27, 2020 | March 11, 2021 | June 8, 2021 | 0% | 63 days | 1 day | 224 days |
| 918 | Pier (3sets x 3nos) within CH2060-2119. 1 team | 45 days | 45 days | NA | NA | December 30, 2020 | February 24, 2021 | June 9, 2021 | August 2, 2021 | 0% | 0 days | 0.5 days | 129 days |
| 919 | Falsework erection | 7 days | 7 days | NA | NA | February 25, 2021 | March 4, 2021 | August 3, 2021 | August 10, 2021 | 0% | 0 days | 0 days | 129 days |
| 920 | Deck (3 bays) 18d/bay | 54 days | 54 days | NA | NA | March 5, 2021 | May 11, 2021 | August 11, 2021 | October 15, 2021 | 0% | 0 days | 1 day | 129 days |
| 921 | Secondary Upstand Beam | 12 days | 12 days | NA | NA | May 12, 2021 | May 26, 2021 | October 16, 2021 | October 29, 2021 | 0% | 0 days | 0 days | 129 days |
| 922 | Dismantle falsework | 5 days | 5 days | NA | NA | June 12, 2021 | June 18, 2021 | November 16, 2021 | November 20, 2021 | 0% | 0 days | 0 days | 129 days |
| 923 | Installation of Glass Balustrade | 42 days | 42 days | NA | NA | December 9, 2021 | January 29, 2022 | March 2, 2022 | April 23, 2022 | 0% | 0 days | 0.5 days | 65 days |
| 924 | **Part 2A - Lift LT1 & LT2** | **330 days** | **330 days** | **NA** | **NA** | **January 31, 2022** | **March 9, 2023** | **April 25, 2022** | **May 30, 2023** | **0%** | **64 days** | | **64 days** |
| 925 | Mobilization of plant and materials | 15 days | 15 days | NA | NA | January 31, 2022 | February 19, 2022 | April 25, 2022 | May 11, 2022 | 0% | 0 days | 0 days | 65 days |
| 926 | Foundation Construction | 43 days | 43 days | NA | NA | February 17, 2022 | April 8, 2022 | May 9, 2022 | June 28, 2022 | 0% | 0 days | 0.5 days | 65 days |
| 927 | RC Structure | 28 days | 28 days | NA | NA | April 9, 2022 | May 14, 2022 | June 29, 2022 | August 1, 2022 | 0% | 0 days | 0.5 days | 65 days |
| 928 | Lift installation (LT1 & LT2) | 90 days | 90 days | NA | NA | July 27, 2022 | November 11, 2022 | October 14, 2022 | January 31, 2023 | 0% | 0 days | 1 day | 65 days |
| 929 | E & M installation | 60 days | 60 days | NA | NA | November 12, 2022 | January 25, 2023 | February 1, 2023 | April 15, 2023 | 0% | 0 days | 1 day | 65 days |
| 930 | Testing & commissioning | 12 days | 12 days | NA | NA | January 26, 2023 | February 8, 2023 | April 17, 2023 | April 29, 2023 | 0% | 0 days | 0 days | 65 days |
| 931 | CLP Meter Installation | 0 days | 0 days | NA | NA | January 2, 2023 | January 2, 2023 | January 2, 2023 | January 2, 2023 | 0% | 0 days | | 0 days |
| 932 | EMSD Submission Form 5 for Lift Inspection | 0 days | 0 days | NA | NA | February 8, 2023 | February 8, 2023 | May 2, 2023 | May 2, 2023 | 0% | 0 days | | 82 days |
| 933 | EMSD Lift Inspection | 0 days | 0 days | NA | NA | February 22, 2023 | February 22, 2023 | May 16, 2023 | May 16, 2023 | 0% | 0 days | | 82 days |
| 934 | Issuance of Lift Use Permit | 0 days | 0 days | NA | NA | March 9, 2023 | March 9, 2023 | May 30, 2023 | May 30, 2023 | 0% | 82 days | | 82 days |
| 935 | Staircase ST1 | 60 days | 60 days | NA | NA | May 16, 2022 | July 26, 2022 | August 2, 2022 | October 13, 2022 | 0% | 0 days | 1 day | 65 days |
| 936 | **Open Space & Promenade** | **561 days** | **561 days** | **NA** | **NA** | **July 13, 2021** | **May 30, 2023** | **October 7, 2021** | **May 30, 2023** | **0%** | **0 days** | | **0 days** |
| 937 | **Open Space & Promenade (From Northern End - CH1720)** | **506 days** | **506 days** | **NA** | **NA** | **September 15, 2021** | **May 30, 2023** | **October 11, 2021** | **May 30, 2023** | **0%** | **0 days** | | **0 days** |
| 938 | **Observation Deck** | **210 days** | **210 days** | **NA** | **NA** | **June 4, 2022** | **February 13, 2023** | **June 4, 2022** | **May 30, 2023** | **0%** | **0 days** | | **0 days** |
| 939 | Foundation Construction | 60 days | 60 days | NA | NA | June 4, 2022 | August 13, 2022 | June 4, 2022 | August 13, 2022 | 0% | 0 days | 3 days | 0 days |
| 940 | Structure work | 60 days | 60 days | NA | NA | August 15, 2022 | October 26, 2022 | September 26, 2022 | December 6, 2022 | 0% | 0 days | 1 day | 35 days |
| 941 | Construction of Lift Core | 35 days | 35 days | NA | NA | August 15, 2022 | September 25, 2022 | August 15, 2022 | September 26, 2022 | 0% | 0 days | 2 days | 0 days |
| 942 | Lift installation | 90 days | 90 days | NA | NA | October 27, 2022 | February 13, 2023 | February 8, 2023 | May 30, 2023 | 0% | 85 days | 1 day | 85 days |
| 943 | E&M and ABWF works | 60 days | 60 days | NA | NA | September 26, 2022 | December 6, 2022 | September 26, 2022 | December 6, 2022 | 0% | 0 days | 3 days | 0 days |
| 944 | **Toilet** | **366 days** | **366 days** | **NA** | **NA** | **September 15, 20...** | **December 6, 2022** | **October 11, 2021** | **December 6, 2022** | **0%** | **0 days** | | **0 days** |
| 945 | Footing | 12 days | 12 days | NA | NA | September 15, 2021 | September 29, 2021 | October 11, 2021 | October 25, 2021 | 0% | 0 days | 0 days | 20 days |
| 946 | Structure work | 45 days | 45 days | NA | NA | September 30, 2021 | November 23, 2021 | October 26, 2021 | December 16, 2021 | 0% | 0 days | 0.5 days | 20 days |
| 947 | MIC toilet unit | 24 days | 24 days | NA | NA | November 24, 2021 | December 21, 2021 | December 17, 2021 | January 17, 2022 | 0% | 0 days | 0.5 days | 20 days |
| 948 | E&M and ABWF works | 60 days | 60 days | NA | NA | September 26, 2022 | December 6, 2022 | September 26, 2022 | December 6, 2022 | 0% | 0 days | 3 days | 0 days |
| 949 | Amphitheater | 90 days | 90 days | NA | NA | November 24, 2021 | March 15, 2022 | October 15, 2022 | February 1, 2023 | 0% | 264 days | 1 day | 264 days |
| 950 | Fast food kiosk deck | 45 days | 45 days | NA | NA | November 24, 2021 | January 18, 2022 | January 26, 2022 | March 22, 2022 | 0% | 0 days | 0.5 days | 51 days |
| 951 | Fast food Kiosk | 86 days | 86 days | NA | NA | January 19, 2022 | May 6, 2022 | March 23, 2022 | July 7, 2022 | 0% | 0 days | 1 day | 51 days |
| 952 | Fitness Ground Lawn & Water Play Plaza | 82 days | 82 days | NA | NA | May 7, 2022 | August 12, 2022 | July 8, 2022 | October 14, 2022 | 0% | 31 days | 1 day | 51 days |
| 953 | Stepped Stage and Seating & Back of House Facility (under Bridge D3) | 30 days | 30 days | NA | NA | August 15, 2022 | September 19, 2022 | September 7, 2022 | October 14, 2022 | 0% | 0 days | 0.5 days | 20 days |
| 954 | Trim and form formation level within Open Space & Promenade area | 45 days | 45 days | NA | NA | September 20, 2022 | November 12, 2022 | October 15, 2022 | December 6, 2022 | 0% | 20 days | 0.5 days | 20 days |
| 955 | Paving work | 45 days | 45 days | NA | NA | December 7, 2022 | February 1, 2023 | December 7, 2022 | February 1, 2023 | 0% | 0 days | 2 days | 0 days |
| 956 | ABWF, E&M work and street furniture | 60 days | 60 days | NA | NA | February 2, 2023 | April 17, 2023 | March 12, 2023 | May 27, 2023 | 0% | 0 days | 1 day | 33 days |
| 957 | FSD Form 501 Submission for FS Inspection | 0 days | 0 days | NA | NA | March 23, 2023 | March 23, 2023 | May 1, 2023 | May 1, 2023 | 0% | 0 days | | 38 days |
| 958 | FSD Inspection | 0 days | 0 days | NA | NA | April 7, 2023 | April 7, 2023 | May 16, 2023 | May 16, 2023 | 0% | 0 days | | 38 days |
| 959 | Issuance of FS Certificate | 0 days | 0 days | NA | NA | April 22, 2023 | April 22, 2023 | May 30, 2023 | May 30, 2023 | 0% | 38 days | | 38 days |
| 960 | Landscaping works | 95 days | 95 days | NA | NA | February 2, 2023 | May 30, 2023 | February 2, 2023 | May 30, 2023 | 0% | 0 days | 4 days | 0 days |
| 961 | **Open Space & Promenade (From CH1720 - South End)** | **447 days** | **447 days** | **NA** | **NA** | **July 13, 2021** | **January 6, 2023** | **October 7, 2021** | **May 30, 2023** | **0%** | **72 days** | | **72 days** |
| 962 | Modification (Seawall) CH1720-1820 | 150 days | 150 days | NA | NA | July 13, 2021 | January 10, 2022 | October 7, 2021 | April 8, 2022 | 0% | 0 days | 1 day | 72 days |
| 963 | Modification (Seawall) CH1820-1920 | 150 days | 150 days | NA | NA | July 13, 2021 | January 10, 2022 | October 7, 2021 | April 8, 2022 | 0% | 0 days | 1 day | 72 days |
| 964 | Temporary toilet | 24 days | 24 days | NA | NA | July 13, 2021 | August 9, 2021 | January 31, 2022 | March 2, 2022 | 0% | 0 days | 0.5 days | 167 days |
| 965 | Temporary Management Office | 45 days | 45 days | NA | NA | July 24, 2021 | September 14, 2021 | February 15, 2022 | April 8, 2022 | 0% | 95 days | 0.5 days | 167 days |
| 966 | Floating Stage Concrete structure | 18 days | 18 days | NA | NA | January 11, 2022 | January 31, 2022 | April 9, 2022 | May 3, 2022 | 0% | 0 days | 0 days | 72 days |
| 967 | Stepped Seating at Southern End | 24 days | 24 days | NA | NA | February 4, 2022 | March 3, 2022 | May 4, 2022 | May 31, 2022 | 0% | 0 days | 0.5 days | 72 days |




Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

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

| ID | Task Name | Duration | Remaining Duration | Actual Start | Actual Finish | Plan Start | Plan Finish | Late Start | Late Finish | Physical % Complete | Free Slack | Time Risk Allowances (TRA) | Total Slack |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 968 | Trim and form formation level within Open Space & Promenade area | 14 days | 14 days | NA | NA | March 4, 2022 | March 19, 2022 | June 1, 2022 | June 17, 2022 | 0% | 0 days | 0 days | 72 days |
| 969 | Paving work | 30 days | 30 days | NA | NA | March 21, 2022 | April 28, 2022 | June 18, 2022 | July 23, 2022 | 0% | 0 days | 0.5 days | 72 days |
| 970 | ABWF, E&M work and street furniture | 50 days | 50 days | NA | NA | April 29, 2022 | June 27, 2022 | July 28, 2022 | September 24, 2022 | 0% | 0 days | 1 day | 75 days |
| 971 | CLP Meter Installation | 0 days | 0 days | NA | NA | June 27, 2022 | June 27, 2022 | May 1, 2023 | May 1, 2023 | 0% | 163 days | | 307 days |
| 972 | FSD Form 501 Submission for FS Inspection | 0 days | 0 days | NA | NA | December 8, 2022 | December 8, 2022 | May 1, 2023 | May 1, 2023 | 0% | 0 days | | 144 days |
| 973 | FSD Inspection | 0 days | 0 days | NA | NA | December 22, 2022 | December 22, 2022 | May 16, 2023 | May 16, 2023 | 0% | 0 days | | 144 days |
| 974 | Issuance of FS Certificate | 0 days | 0 days | NA | NA | January 6, 2023 | January 6, 2023 | May 30, 2023 | May 30, 2023 | 0% | 144 days | | 144 days |
| 975 | Landscaping works | 90 days | 90 days | NA | NA | August 20, 2022 | December 6, 2022 | November 16, 2022 | March 4, 2023 | 0% | 72 days | 1 day | 72 days |
| 976 | **Part 1, 2A, 2B - Road L12** | **238 days** | **238 days** | **NA** | **NA** | **August 11, 2022** | **May 30, 2023** | **October 6, 2022** | **May 30, 2023** | **0%** | **0 days** | | **0 days** |
| 977 | Trim road formation | 3 days | 3 days | NA | NA | August 11, 2022 | August 13, 2022 | October 6, 2022 | October 8, 2022 | 0% | 0 days | 1 day | 45 days |
| 978 | Lay sub base | 7 days | 7 days | NA | NA | August 15, 2022 | August 22, 2022 | October 10, 2022 | October 17, 2022 | 0% | 0 days | 1 day | 45 days |
| 979 | Lay kerb | 12 days | 12 days | NA | NA | August 23, 2022 | September 5, 2022 | October 18, 2022 | October 31, 2022 | 0% | 0 days | 1 day | 45 days |
| 980 | Construct pedestrian street/ footpath | 14 days | 14 days | NA | NA | September 6, 2022 | September 22, 2022 | November 1, 2022 | November 16, 2022 | 0% | 0 days | 1 day | 45 days |
| 981 | Install central median | 14 days | 14 days | NA | NA | September 23, 2022 | October 11, 2022 | November 17, 2022 | December 2, 2022 | 0% | 0 days | 1 day | 45 days |
| 982 | Concrete infill between profile barrier | 7 days | 7 days | NA | NA | October 12, 2022 | October 19, 2022 | December 3, 2022 | December 10, 2022 | 0% | 45 days | 0 days | 45 days |
| 983 | Road pavement | 5 days | 5 days | NA | NA | December 12, 2022 | December 16, 2022 | December 12, 2022 | December 16, 2022 | 0% | 0 days | 0 days | 0 days |
| 984 | Install street furniture | 131 days | 131 days | NA | NA | December 17, 2022 | May 30, 2023 | December 17, 2022 | May 30, 2023 | 0% | 0 days | 6 days | 0 days |
| 985 | Planned Completion for Section 6 | 0 days | 0 days | NA | NA | May 30, 2023 | May 30, 2023 | May 30, 2023 | May 30, 2023 | 0% | 0 days | 0 days | 0 days |
| 986 | **Section 7** | **365 days** | **365 days** | **NA** | **NA** | **March 6, 2023** | **May 29, 2024** | **March 6, 2023** | **May 29, 2024** | **0%** | **0 days** | | **0 days** |
| 987 | Establishment work for landscape softwork | 365 days | 365 days | NA | NA | March 6, 2023 | May 29, 2024 | March 6, 2023 | May 29, 2024 | 0% | 0 days | 10 days | 0 days |
| 988 | Planned Completion for Section 7 | 0 days | 0 days | NA | NA | May 29, 2024 | May 29, 2024 | May 29, 2024 | May 29, 2024 | 0% | 0 days | | 0 days |
| 989 | **Section 8 (Subject to Excision)** | **152 days** | **152 days** | **NA** | **NA** | **May 26, 2021** | **November 24, 2021** | **June 3, 2021** | **December 2, 2021** | **0%** | **7 days** | | **7 days** |
| 990 | **Part 1 - DCS Intake Box Culvert - CHB. 0-5 (5m)** | **33 days** | **33 days** | **NA** | **NA** | **May 26, 2021** | **July 5, 2021** | **June 25, 2021** | **August 3, 2021** | **0%** | **0 days** | | **25 days** |
| 991 | Temporary ELS & Excavation | 18 days | 18 days | NA | NA | May 26, 2021 | June 16, 2021 | June 25, 2021 | July 16, 2021 | 0% | 0 days | 2 days | 25 days |
| 992 | Positioning of precast intake | 5 days | 5 days | NA | NA | June 17, 2021 | June 22, 2021 | July 17, 2021 | July 22, 2021 | 0% | 0 days | 1 days | 25 days |
| 993 | Remove struts and backfilling | 10 days | 10 days | NA | NA | June 23, 2021 | July 5, 2021 | July 23, 2021 | August 3, 2021 | 0% | 18 days | 2 days | 25 days |
| 994 | **Part 2A - Diversion & abandon of extg DCS box culvert** | **152 days** | **152 days** | **NA** | **NA** | **May 26, 2021** | **November 24, 2021** | **June 3, 2021** | **December 2, 2021** | **0%** | **7 days** | | **7 days** |
| 995 | TTA,Temporary ELS & Excavation | 51 days | 51 days | NA | NA | May 26, 2021 | July 26, 2021 | June 3, 2021 | August 3, 2021 | 0% | 0 days | 3 days | 7 days |
| 996 | Diversion of existing DCS box culvert | 26 days | 26 days | NA | NA | July 27, 2021 | August 25, 2021 | August 4, 2021 | September 2, 2021 | 0% | 0 days | 2 days | 7 days |
| 997 | Break up existing box culvert (4 walls) + top slab | 35 days | 35 days | NA | NA | August 26, 2021 | October 7, 2021 | September 3, 2021 | October 16, 2021 | 0% | 0 days | 2 days | 7 days |
| 998 | Construct new walls at existing box culvert | 20 days | 20 days | NA | NA | October 8, 2021 | November 1, 2021 | October 18, 2021 | November 9, 2021 | 0% | 0 days | 1 days | 7 days |
| 999 | Abandon existing DCS box culvert | 20 days | 20 days | NA | NA | November 2, 2021 | November 24, 2021 | November 10, 2021 | December 2, 2021 | 0% | 0 days | 1 days | 7 days |
| 1000 | Planned Completion for Section 8 | 0 days | 0 days | NA | NA | November 24, 2021 | November 24, 2021 | December 2, 2021 | December 2, 2021 | 0% | 0 days | 0 days | 7 days |
| 1001 | **Section 9 (Subject to Excision)** | **174 days** | **174 days** | **NA** | **NA** | **November 21, 2020** | **June 25, 2021** | **November 30, 2020** | **July 5, 2021** | **0%** | **7 days** | | **7 days** |
| 1002 | **Noise barrier fronting to 4B5 at Rd D3A & Bus Lay By ~80m** | **174 days** | **174 days** | **NA** | **NA** | **November 21, 2020** | **June 25, 2021** | **November 30, 2020** | **July 5, 2021** | **0%** | **7 days** | | **7 days** |
| 1003 | ELS & Excavation | 18 days | 18 days | NA | NA | November 21, 2020 | December 11, 2020 | November 30, 2020 | December 19, 2020 | 0% | 0 days | 1 days | 7 days |
| 1004 | Noise Barrier Foundation | 75 days | 75 days | NA | NA | December 12, 2020 | March 16, 2021 | December 21, 2020 | March 24, 2021 | 0% | 0 days | 4 days | 7 days |
| 1005 | CNP Application | 28 days | 28 days | NA | NA | January 16, 2021 | February 12, 2021 | February 25, 2021 | March 24, 2021 | 0% | 32 days | | 40 days |
| 1006 | Frame & Panel installation (Night Work) | 81 days | 81 days | NA | NA | March 17, 2021 | June 25, 2021 | March 25, 2021 | July 5, 2021 | 0% | 0 days | 4 days | 7 days |
| 1007 | Planned Completion for Section 9 | 0 days | 0 days | NA | NA | June 25, 2021 | June 25, 2021 | July 5, 2021 | July 5, 2021 | 0% | 0 days | 0.5 days | 10 days |
| 1008 | **Section 10 (Subject to Excision)** | **582 days** | **582 days** | **NA** | **NA** | **June 5, 2021** | **May 18, 2023** | **June 17, 2021** | **May 30, 2023** | **0%** | **9 days** | | **9 days** |
| 1009 | **Decking for Underpass (Rd L14)** | **581 days** | **581 days** | **NA** | **NA** | **June 5, 2021** | **May 17, 2023** | **June 17, 2021** | **May 29, 2023** | **0%** | **9 days** | | **9 days** |
| 1010 | Support along U-through | 225 days | 225 days | NA | NA | June 5, 2021 | March 7, 2022 | June 17, 2021 | March 17, 2022 | 0% | 0 days | 10 days | 9 days |
| 1011 | Plinth installation along support | 123 days | 123 days | NA | NA | March 8, 2022 | August 4, 2022 | March 18, 2022 | August 15, 2022 | 0% | 0 days | 6 days | 9 days |
| 1012 | Placing of beam along underpass | 90 days | 90 days | NA | NA | September 7, 2022 | December 23, 2022 | September 19, 2022 | January 4, 2023 | 0% | 0 days | 4 days | 9 days |
| 1013 | Cover-up (Roof) | 115 days | 115 days | NA | NA | December 24, 2022 | May 17, 2023 | January 5, 2023 | May 29, 2023 | 0% | 0 days | 5 days | 9 days |
| 1014 | Planned Completion for Section 10 | 1 day | 1 day | NA | NA | May 18, 2023 | May 18, 2023 | May 30, 2023 | May 30, 2023 | 0% | 0 days | 0.5 days | 12 days |




Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

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

# Appendix C – Environmental monitoring schedules

Contract No. EDO 15/2018 Environmental Monitoring at Kai Tak Development Stage 4 Infrastructure at the former runway and south apron

Environmental Monitoring and Weekly Site Inspection Schedule for December 2020

December 2020

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

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

Contract No. EDO 15/2018 Environmental Monitoring at Kai Tak Development Stage 4 Infrastructure at the former runway and south apron

Propose Environmental Monitoring and Weekly Site Inspection Schedule for January 2021

January 2021

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

NOTE:

1) Site inspection schedule and Impact monitoring schedule may be changed due to unforeseen circumstance (e.g. adverse weather).
2) Due to the COVID-19 diagnosed case confirmed on 4 Jan 2021 in The Hong Kong Society for the Blind's Factory cum Sheltered Workshop [AM4(A) / M11], the workshop will be closed for cleaning and disinfection work from 5 to 25 Jan 2021. No impact monitoring will be conducted.

**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

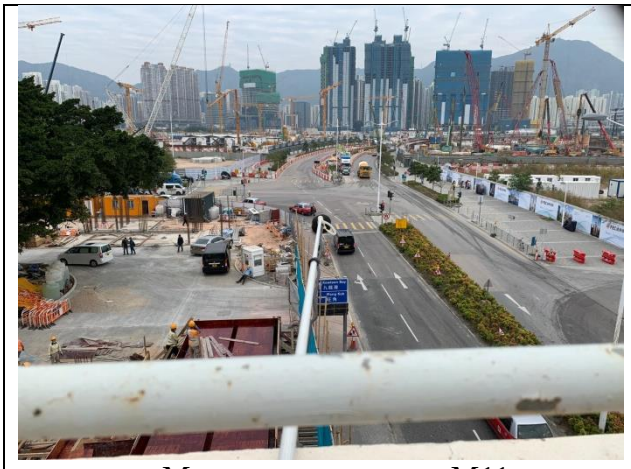
Impact Air Quality Monitoring

Measurement setup at AM3

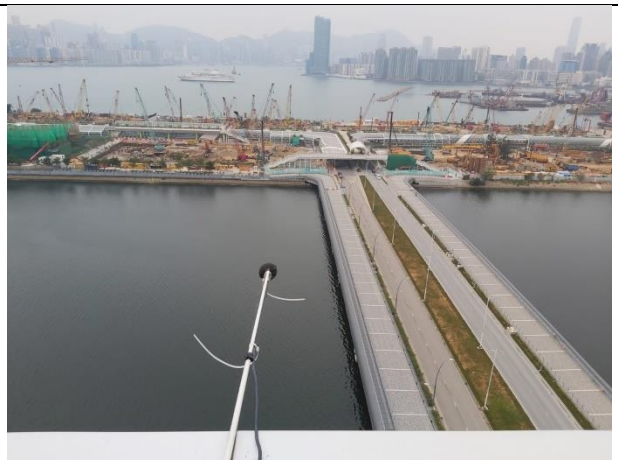
Measurement setup at AM4(A)

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

TISCH Environmental

# TSP MFC

*Total Suspended Particulate, Mass Flow Controlled*

## MFC **TSP**

Ambient Air Sampler

- **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**

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.

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TISCH Environmental

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sales@tisch-env.com

TISCH Environmental

# TSP MFC

MFC TSP Ambient Air Sampler

## General System Specifications

**Particulate Size:** Total Suspended Particulate (TSP)
**EPA Designation:** CFR 40 Part 50 Appendix B
**Flow Controller**: Mass Flow Controller
**Motor Style:** Brush Style Motor Assembly
**Pressure Recorder:** Dickson Chart Recorder, 24 hour
**Timer:** 7 Day Mechanical
**Elapsed Time Indicator:** Mechanical, Hours and Tenths
**Flow Range:** 39-60CFM, 1.09$M^3$M-1.68$M^3$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

## 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*

## 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"

## 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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TISCH Environmental

# Calibration Certificate of HVS

## Air Sampler Calibration Curve Plotting & Calculation

**(Dickson recorder)**

Calibration curve ref. No. : ATSPC-01-2020102702 Date of calibration : 27/10/2020

Location : Sky Tower Sampler : TE-5170X

***Calibration Data***

Ambient barometric pressure, Pa = 759.1 ( mmHg ) Ambient temperature, Ta = 300.35 ( deg K )

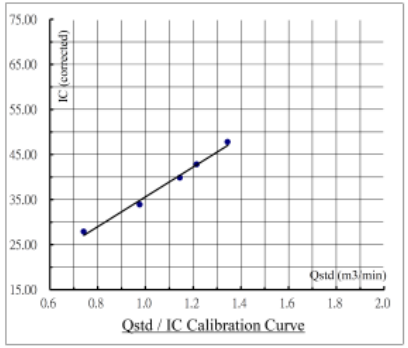
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

***Calibration Curve***

| Plate No. | $H_2O$ ( in ) | Qstd ( $m^3$ / min ) | I ( chart ) | IC ( corrected ) |
|---|---|---|---|---|
| 18 | 7.60 | 1.345 | 48.0 | 47.78 |
| 13 | 6.20 | 1.215 | 43.0 | 42.81 |
| 10 | 5.50 | 1.145 | 40.0 | 39.82 |
| 7 | 4.00 | 0.977 | 34.0 | 33.85 |
| 5 | 2.30 | 0.742 | 28.0 | 27.87 |

***Subsequent calculation of sampler flow***

| Method | Calibration equation | Slope, m | Intercept, b | Corr. coeff., r |
|---|---|---|---|---|
| Dickson recorder | Qstd = 1 / m1 [ ( I ) ( Sqrt ( ( Pav / 760 ) ( 298 / Tav ) ) ) - b1 ] | 33.119 | 2.4984 | 0.9947 |




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

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

IC ( corrected ) = I [ Sqrt ( ( Pa / 760 ) ( 298 / Ta ) ) ].

FLOW ( corrected ) = Sqrt ( FLOW ( mano ) ( Pa / 760 ) ( 298 / Ta ) ).

Calibrated by : Checked by :

Name : ( Poon Tsz Wing ) Name : ( Wong Yin Tong )

Form No. INS-HVS-CAL dd 16 01 2020

## Air Sampler Calibration Curve Plotting & Calculation

**(Dickson recorder)**

Calibration curve ref. No. : ATSPC-01-2020120902 Date of calibration : 09/12/2020

Location : Sky Tower Sampler : TE-5170X

***Calibration Data***

Ambient barometric pressure, Pa = 762.9 ( mmHg ) Ambient temperature, Ta = 292.95 ( deg K )

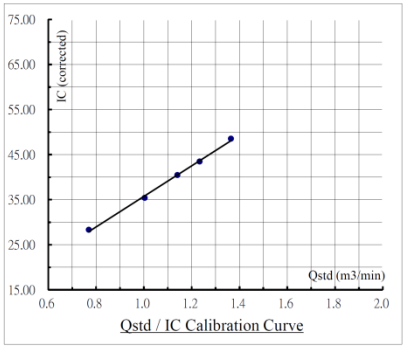
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

***Calibration Curve***

| Plate No. | $H_2O$ ( in ) | Qstd ( $m^3$ / min ) | I ( chart ) | IC ( corrected ) |
|---|---|---|---|---|
| 18 | 7.60 | 1.365 | 48.0 | 48.50 |
| 13 | 6.20 | 1.234 | 43.0 | 43.45 |
| 10 | 5.30 | 1.141 | 40.0 | 40.42 |
| 7 | 4.10 | 1.004 | 35.0 | 35.37 |
| 5 | 2.40 | 0.770 | 28.0 | 28.29 |

***Subsequent calculation of sampler flow***

| Method | Calibration equation | Slope, m | Intercept, b | Corr. coeff., r |
|---|---|---|---|---|
| Dickson recorder | Qstd = 1 / m1 [ ( I ) ( Sqrt ( ( Pav / 760 ) ( 298 / Tav ) ) ) - b1 ] | 33.913 | 1.8063 | 0.9988 |




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

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

IC ( corrected ) = I [ Sqrt ( ( Pa / 760 ) ( 298 / Ta ) ) ].

FLOW ( corrected ) = Sqrt ( FLOW ( mano ) ( Pa / 760 ) ( 298 / Ta ) ).

Calibrated by : Checked by :

Name : ( Poon Tsz Wing ) Name : ( Wong Yin Tong )

Form No. INS-HVS-CAL dd 16 01 2020

# Calibration Certificate of HVS

## Air Sampler Calibration Curve Plotting & Calculation

**(Dickson recorder)**

Calibration curve ref. No. : ATSPC-01-2020102701 Date of calibration : 27/10/2020

Location : The Hong Kong Society for the Blind's Factory cum Sheltered Workshop Sampler : TE-5170X

***Calibration Data***

Ambient barometric pressure, Pa = 759.1 ( mmHg ) Ambient temperature, Ta = 300.35 ( deg K )

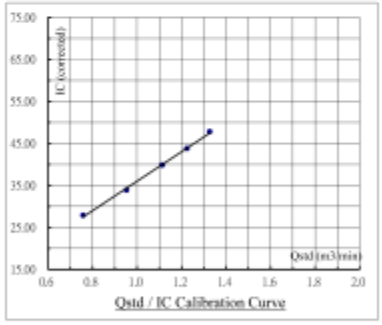
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

***Calibration Curve***

| Plate No. | $H_2O$ ( in ) | Qstd ( $m^3$ / min ) | I ( chart ) | IC ( corrected ) |
|---|---|---|---|---|
| 18 | 7.40 | 1.327 | 48.0 | 47.78 |
| 13 | 6.30 | 1.225 | 44.0 | 43.80 |
| 10 | 5.20 | 1.114 | 40.0 | 39.82 |
| 7 | 3.80 | 0.953 | 34.0 | 33.85 |
| 5 | 2.40 | 0.758 | 28.0 | 27.87 |

***Subsequent calculation of sampler flow***

| Method | Calibration equation | Slope, m | Intercept, b | Corr. coeff., r |
|---|---|---|---|---|
| Dickson recorder | Qstd = 1 / m1 [ ( I ) ( Sqrt ( ( Pav / 760 ) ( 298 / Tav ) ) ) - b1 ] | 35.101 | 0.8769 | 0.9990 |



Qstd / IC Calibration Curve

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

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

IC ( corrected ) = I [ Sqrt ( ( Pa / 760 ) ( 298 / Ta ) ) ].

FLOW ( corrected ) = Sqrt ( FLOW ( mano ) ( Pa / 760 ) ( 298 / Ta ) ).

Calibrated by : Checked by :

Name : ( Poon Tsz Wing ) Name : ( Wong Yin Tong )

Form No. INS-HVS-CAL dd 16 01 2020

## Air Sampler Calibration Curve Plotting & Calculation

**(Dickson recorder)**

Calibration curve ref. No. : ATSPC-01-2020120901 Date of calibration : 09/12/2020

Location : The Hong Kong Society for the Blind's Factory cum Sheltered Workshop Sampler : TE-5170X

***Calibration Data***

Ambient barometric pressure, Pa = 762.9 ( mmHg ) Ambient temperature, Ta = 292.95 ( deg K )

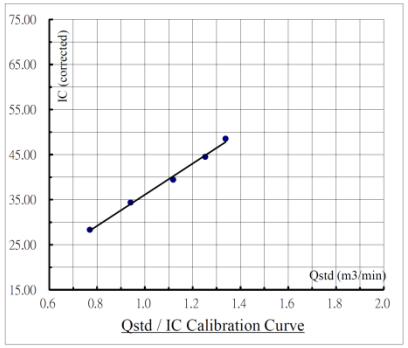
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

***Calibration Curve***

| Plate No. | $H_2O$ ( in ) | Qstd ( $m^3$ / min ) | I ( chart ) | IC ( corrected ) |
|---|---|---|---|---|
| 18 | 7.30 | 1.338 | 48.0 | 48.50 |
| 13 | 6.40 | 1.253 | 44.0 | 44.46 |
| 10 | 5.10 | 1.119 | 39.0 | 39.41 |
| 7 | 3.60 | 0.941 | 34.0 | 34.36 |
| 5 | 2.40 | 0.770 | 28.0 | 28.29 |

***Subsequent calculation of sampler flow***

| Method | Calibration equation | Slope, m | Intercept, b | Corr. coeff., r |
|---|---|---|---|---|
| Dickson recorder | Qstd = 1 / m1 [ ( I ) ( Sqrt ( ( Pav / 760 ) ( 298 / Tav ) ) ) - b1 ] | 34.575 | 1.5174 | 0.9972 |



Qstd / IC Calibration Curve

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

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

IC ( corrected ) = I [ Sqrt ( ( Pa / 760 ) ( 298 / Ta ) ) ].

FLOW ( corrected ) = Sqrt ( FLOW ( mano ) ( Pa / 760 ) ( 298 / Ta ) ).

Calibrated by : Checked by :

Name : ( Poon Tsz Wing ) Name : ( Wong Yin Tong )

Form No. INS-HVS-CAL dd 16 01 2020

# Calibration Certificate of HVS

## Air Sampler Calibration Curve Plotting & Calculation

**(Dickson recorder)**

Calibration curve ref. No. : ATSPC-01-2020102703 Date of calibration : 27/10/2020

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

***Calibration Data***

Ambient barometric pressure, Pa = 759.1 ( mmHg ) Ambient temperature, Ta = 300.35 ( deg K )

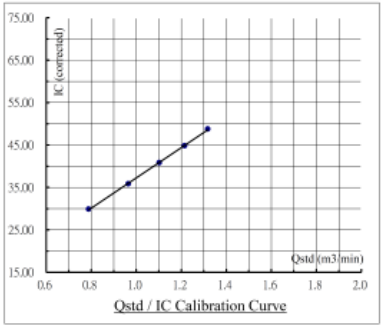
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

***Calibration Curve***

| Plate No. | $H_2O$ ( in ) | Qstd ( $m^3$ / min ) | I ( chart ) | IC ( corrected ) |
|---|---|---|---|---|
| 18 | 7.30 | 1.318 | 49.0 | 48.78 |
| 13 | 6.20 | 1.215 | 45.0 | 44.80 |
| 10 | 5.10 | 1.103 | 41.0 | 40.82 |
| 7 | 3.90 | 0.965 | 36.0 | 35.84 |
| 5 | 2.60 | 0.789 | 30.0 | 29.87 |

***Subsequent calculation of sampler flow***

| Method | Calibration equation | Slope, m | Intercept, b | Corr. coeff., r |
|---|---|---|---|---|
| Dickson recorder | Qstd = 1 / m1 [ ( I ) ( Sqrt ( ( Pav / 760 ) ( 298 / Tav ) ) ) - b1 ] | 35.681 | 1.5579 | 0.9998 |



Qstd / IC Calibration Curve

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

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

IC ( corrected ) = I [ Sqrt ( ( Pa / 760 ) ( 298 / Ta ) ) ].

FLOW ( corrected ) = Sqrt ( FLOW ( mano ) ( Pa / 760 ) ( 298 / Ta ) ).

Calibrated by : Checked by :

Name : ( Poon Tsz Wing ) Name : ( Wong Yin Tong )

Form No. INS-HVS-CAL dd 16 01 2020

## Air Sampler Calibration Curve Plotting & Calculation

**(Dickson recorder)**

Calibration curve ref. No. : ATSPC-01-2020120903 Date of calibration : 09/12/2020

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

***Calibration Data***

Ambient barometric pressure, Pa = 762.9 ( mmHg ) Ambient temperature, Ta = 292.95 ( deg K )

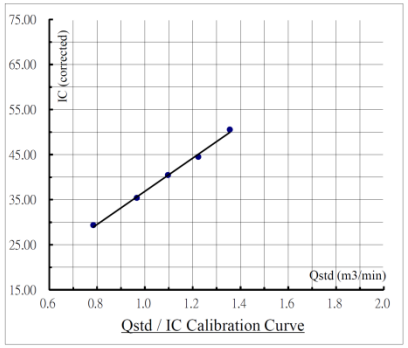
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

***Calibration Curve***

| Plate No. | $H_2O$ ( in ) | Qstd ( $m^3$ / min ) | I ( chart ) | IC ( corrected ) |
|---|---|---|---|---|
| 18 | 7.50 | 1.356 | 50.0 | 50.52 |
| 13 | 6.10 | 1.224 | 44.0 | 44.46 |
| 10 | 4.90 | 1.097 | 40.0 | 40.42 |
| 7 | 3.80 | 0.967 | 35.0 | 35.37 |
| 5 | 2.50 | 0.785 | 29.0 | 29.30 |

***Subsequent calculation of sampler flow***

| Method | Calibration equation | Slope, m | Intercept, b | Corr. coeff., r |
|---|---|---|---|---|
| Dickson recorder | Qstd = 1 / m1 [ ( I ) ( Sqrt ( ( Pav / 760 ) ( 298 / Tav ) ) ) - b1 ] | 36.744 | 0.1175 | 0.9983 |



Qstd / IC Calibration Curve

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

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

IC ( corrected ) = I [ Sqrt ( ( Pa / 760 ) ( 298 / Ta ) ) ].

FLOW ( corrected ) = Sqrt ( FLOW ( mano ) ( Pa / 760 ) ( 298 / Ta ) ).

Calibrated by : Checked by :

Name : ( Poon Tsz Wing ) Name : ( Wong Yin Tong )

Form No. INS-HVS-CAL dd 16 01 2020

TISCH Environmental

| RECALIBRATION DUE DATE: |
|---|
| July 17, 2021 |

# Certificate of Calibration

**Calibration Certification Information**

| | | | | | |
|---|---|---|---|---|---|
| **Cal. Date:** | July 17, 2020 | **Rootsmeter S/N:** 438320 | **Ta:** 296 | °K |
| **Operator:** | Jim Tisch | | **Pa:** 753.4 | 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 | 1.4300 | 3.2 | 2.00 |
| 2 | 3 | 4 | 1 | 1.0100 | 6.4 | 4.00 |
| 3 | 5 | 6 | 1 | 0.9010 | 7.9 | 5.00 |
| 4 | 7 | 8 | 1 | 0.8570 | 8.8 | 5.50 |
| 5 | 9 | 10 | 1 | 0.7090 | 12.8 | 8.00 |

**Data Tabulation**

| Vstd (m3) | Qstd (x-axis) | $\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis) | Va | Qa (x-axis) | $\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis) |
|---|---|---|---|---|---|
| 0.9937 | 0.6949 | 1.4128 | 0.9958 | 0.6963 | 0.8865 |
| 0.9895 | 0.9797 | 1.9980 | 0.9915 | 0.9817 | 1.2536 |
| 0.9875 | 1.0960 | 2.2338 | 0.9895 | 1.0982 | 1.4016 |
| 0.9863 | 1.1509 | 2.3428 | 0.9883 | 1.1532 | 1.4700 |
| 0.9810 | 1.3837 | 2.8255 | 0.9830 | 1.3865 | 1.7729 |
| **QSTD** | **m=** | **2.04882** | **QA** | **m=** | **1.28293** |
| | **b=** | **-0.01127** | | **b=** | **-0.00707** |
| | **r=** | **0.99999** | | **r=** | **0.99999** |

**Calculations**

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

**For subsequent flow rate calculations:**

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

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

**Key**

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

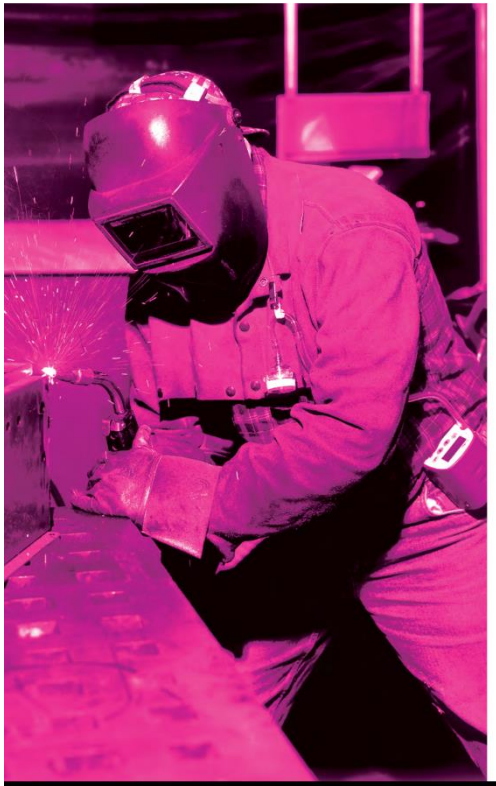
**RECALIBRATION**

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

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

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

The SidePak AM510 monitor's easy-to-read display shows your data as both real-time aerosol mass-concentration and 8-hour time-weighted average (TWA). With its convenient data logging and long battery life, the AM510 is also ideal for extended sampling. The easy-to-use TrakPro Data Analysis Software lets you create effective graphs and reports.



**User Friendly**

+ Small, lightweight and quiet to maximize worker acceptance
+ Rugged design with secure belt clip
+ Easy-to-understand user interface with only four keys
+ Lockable keypad prevents tampering while sampling
+ User-adjustable sample flow rate
+ Define, label and store multiple calibration constants
+ Easy-to-read LCD display
+ Convenient, threaded tripod socket accommodates area sampling

**Advanced Features**

+ Smart Battery Management System provides precise run time information, maximizes battery capacity and speeds charging
+ Integrated pump allows use of size-selective aerosol inlet conditioners
+ Built-in impactors let you choose "none," 1.0, 2.5 or 10-micron cut off
+ 10-mm Dorr-Oliver cyclone for respirable sampling
+ Display shows real-time concentrations (mg/m³) and "on-the-fly" TWA as you data log
+ Display statistics: max, min and average readings, elapsed time and 8-hour TWA

**Quick and Easy Reports**

+ Convenient preprogramming for occupational exposure sampling
+ Data log for long periods and store multiple tests
+ Analyze data, print graphs and create reports with TrakPro Data Analysis Software
+ USB port lets you conveniently connect to your computer

**Power to Spare**

+ Long-lasting NiMH rechargeable battery packs eliminate "memory" issues
+ Choice of rechargeable NiMH smart battery packs or AA-cell pack

**Model AM510**
**SidePak Personal Aerosol Monitor**

**Sensitivity**

| | |
|---|---|
| Sensor Type | 90° light scattering, 670 nm laser diode |
| Aerosol Concentration Range | 0.001 to 20 mg/m³ (calibrated to respirable fraction of ISO 12103-1, A1 test dust) |
| Particle Size Range | 0.1 to 10 micrometer (µm) |
| Minimum Resolution | 0.001 mg/m³ |
| Zero stability | ±0.001 mg/m³ over 24 hours using 10-second time-constant |
| Temperature Coefficient | Approximately +0.0005 mg/m³ per °C (for variations from temperature at which instrument was last zeroed) |

**Flow Rate**

| | |
|---|---|
| Range | User-adjustable, 0.7 to 1.8 liters/min (L/min) |

**Temperature Range**

| | |
|---|---|
| Operating Range | 32 to 120°F (0 to 50°C) |
| Storage Range | -4 to 140°F (-20 to 60°C) |

**Operational Humidity**
0 to 95% RH, non-condensing

**Time Constant (LCD display)**

| | |
|---|---|
| Range | User-adjustable, 1 to 60 seconds |

**Data Logging**

| | |
|---|---|
| Data Points | Approx. 31,000 |
| Logging Interval | User-adjustable, 1 second to 1 hour |

**User-Select Calibration Factors**

| | |
|---|---|
| Factory Setting | 1.0 (non-adjustable) |
| User-defined Settings | 3, with user-defined labels |
| Range | 0.1 to 10.0, user-adjustable |

**Physical**

| | |
|---|---|
| External Dimensions | 4.2 x 3.7 x 2.8 in. (106 x 92 x 70 mm) with 801723, 801724, 801729 or 801743 battery<br>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<br>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

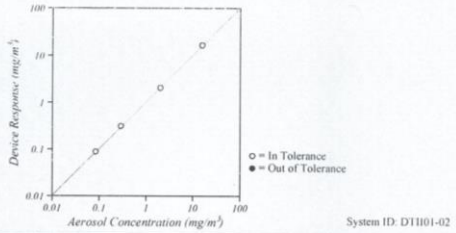
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

| Environment Conditions | | |
|---|---|---|
| Temperature | 73.79 (23.2) | °F (°C) |
| Relative Humidity | 45.5 | %RH |
| Barometric Pressure | 28.97 (981.0) | inHg (hPa) |

| | |
|---|---|
| Model | AM510 |
| Serial Number | 11506009 |

☒ As Left ☐ As Found
☒ In Tolerance ☐ Out of Tolerance

**Concentration Linearity Plot**




System ID: DTI101-02

**CONCENTRATION** *Unit: mg/m3*

| # | STANDARD | MEASURED | ALLOWABLE RANGE | # | STANDARD | MEASURED | ALLOWABLE RANGE |
|---|---|---|---|---|---|---|---|
| 1 | 1.966 | 1.924 | 1.769–2.163 | 3 | 0.083 | 0.083 | 0.058–0.108 |
| 2 | 0.285 | 0.293 | 0.242–0.328 | 4 | 15.404 | 15.375 | 13.864–16.944 |

*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 in accordance with 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 (previously used). Dust 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 | 01-15-20 | 01-31-21 | DC Voltage | E003315 | 01-15-20 | 01-31-21 |
| Photometer | E005612 | 02-25-20 | 08-31-20 | Microbalance | M001324 | 10-03-18 | 10-31-20 |
| Pressure | E003511 | 10-04-19 | 10-31-20 | Flowmeter | E005140 | 01-09-20 | 01-31-21 |

July 10, 2020

Calibrated — Date

## Personal Aerosol Monitor Performance check with High Volume Sampler

Preformance Check ref. No. : AS0200201-1 Report Issue Date: 29/01/2020
Date of performance check : 20/01/2020

***Objective:***

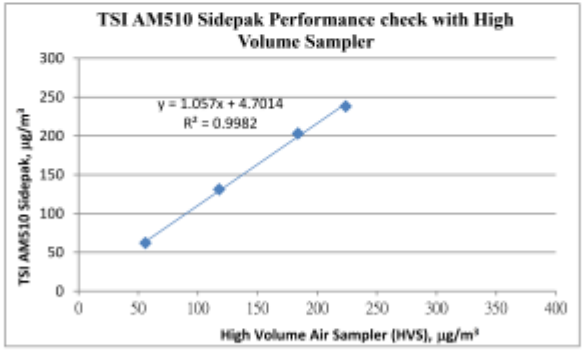
A dust meter, TSI AM510 Sidepak, and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

***Equipment Used:***

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

***Result:***

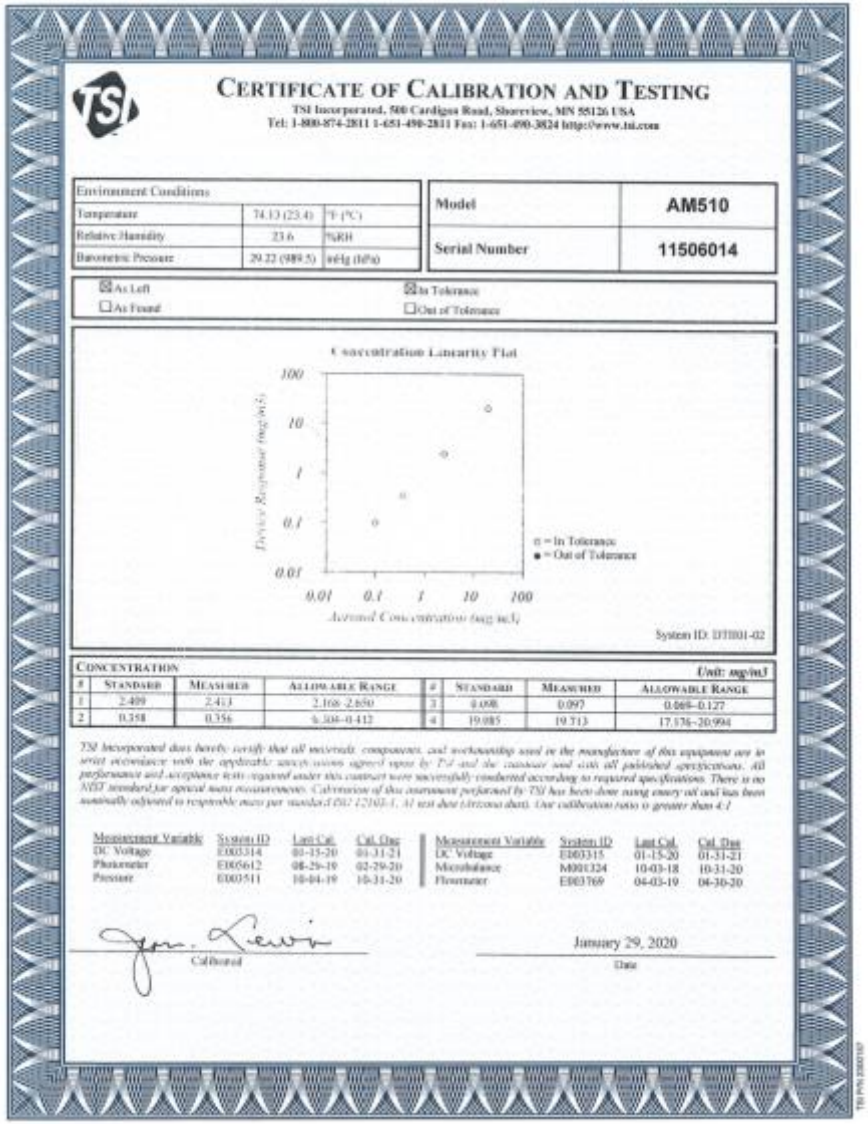
| Equipment | Measurement Result, μg/m³ | | | |
|---|---|---|---|---|
| TSI AM510 Sidepak | 62 | 131 | 203 | 238 |
| High Volume Air Sampler (HVS) | 56 | 118 | 184 | 224 |




Tested by : Checked by :
Name : ( Chan Kwok Ho ) Name : ( Wong Yin Tong )

Form No. ENV CAL SAMPLER CC1 dd/12/2005

# 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 | | |
|---|---|---|
| Temperature | 74.13 (23.4) | °F (°C) |
| Relative Humidity | 23.6 | %RH |
| Barometric Pressure | 29.22 (989.5) | inHg (hPa) |

| | |
|---|---|
| Model | AM510 |
| Serial Number | 11506014 |

☒ As Left ☐ As Found ☒ In Tolerance ☐ Out of Tolerance

Concentration Linearity Plot



System ID: DT001-02

CONCENTRATION Unit: mg/m3

| # | Standard | Measured | Allowable Range | # | Standard | Measured | Allowable Range |
|---|---|---|---|---|---|---|---|
| 1 | 2.409 | 2.413 | 2.168–2.650 | 3 | 0.098 | 0.097 | 0.069–0.127 |
| 2 | 0.358 | 0.356 | 6.304–0.412 | 4 | 19.085 | 19.713 | 17.176–20.994 |

*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 | 01-15-20 | 01-31-21 | DC Voltage | E003315 | 01-15-20 | 01-31-21 |
| Photometer | E005612 | 08-29-19 | 02-29-20 | Microbalance | M001324 | 10-03-18 | 10-31-20 |
| Pressure | E003511 | 10-04-19 | 10-31-20 | Flowmeter | E003769 | 04-03-19 | 04-30-20 |

Calibrated

January 29, 2020
Date

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

Preformance Check ref. No. : AS0200201-2 Report Issue Date: 27/01/2020

Date of performance check : 20/01/2020

***Objective:***

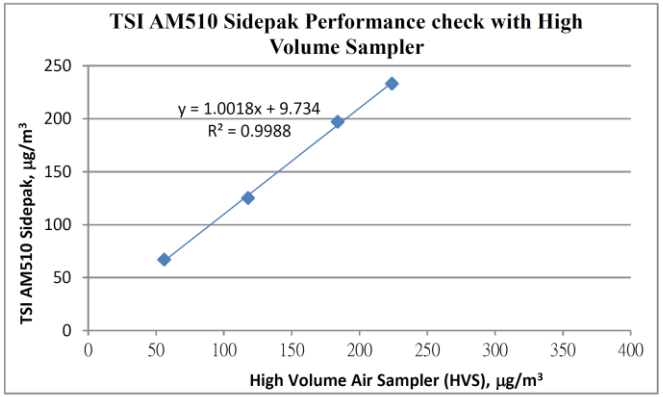
A dust meter, TSI AM510 Sidepak, and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

***Equipment Used:***

| Equipment | Manufacturer and Model | Serial Number |
|---|---|---|
| Personal Aerosol Monitor | TSI AM510 Sidepak | 11506014 |
| Total Suspended Particulate High Volume Air Sampler (HVS) | GS2310 | 10346 |

***Resuslt:***

| Equipment | Measurement Result, μg/m³ | | | |
|---|---|---|---|---|
| TSI AM510 Sidepak | 67 | 125 | 197 | 233 |
| High Volume Air Sampler (HVS) | 56 | 118 | 184 | 224 |




Tested by : Checked by :

Name : ( Chan Kwok Ho ) Name : ( Wong Yin Tong )

# Cabled Vantage Pro2™ & Vantage Pro2 Plus™ Stations

**6152C**
**6162C**

**Vantage Pro2™**

The Vantage Pro2™ (# 6152C) and Vantage Pro2™ Plus (# 6162C) cabled weather stations include two components: the Integrated Sensor Suite (ISS) and the console. The ISS contains the sensor interface module (SIM), rain collector, an anemometer, and a passive radiation shield. The Vantage Pro2 console provides the user interface, data display, and calculations. The Vantage Pro2 Plus weather station includes two additional sensors that are optional on the Vantage Pro2 and purchased separately: the UV Sensor and the Solar Radiation Sensor. The console and ISS are powered by an AC-power adapter connected to the console. Batteries can be installed in the console to provide a backup power supply. Use WeatherLink® to let your weather station interface with a computer, log data, and upload weather information to the Internet. The 6152C and 6162C models rely on passive shielding to reduce solar-radiation induced temperature errors in the outside temperature sensor readings.

## Integrated Sensor Suite (ISS)

| | |
|---|---|
| Operating Temperature | -40° to +150°F (-40° to +65°C) |
| Non-operating Temperature | -40° to +158°F (-40° to +70°C) |
| Current Draw | 5 mA (average) at 4 to 6 VDC for ISS only. 10 mA average for both console and ISS |
| Connectors, Sensor | Modular RJ-11 |
| Cable Type | 4-conductor, 26 AWG |
| Cable Length, Anemometer | 40' (12 m) (included); 240' (73 m) (maximum recommended) |

Note: Maximum displayable wind decreases as the length of cable increases. at 140' (42 m) of cable, the maximum wind speed displayed is 135 mph (60 m/s); at 240' (73 m), the maximum wind speed displayed is 100 mph (34 m/s).

| | |
|---|---|
| Wind Speed Sensor | Solid state magnetic sensor |
| Wind Direction Sensor | Wind vane with potentiometer |
| Rain Collector Type | Tipping bucket, 0.01" per tip (0.2 mm with metric rain adapter), 33.2 $in^2$ (214 $cm^2$) collection area |
| Temperature Sensor Type | PN Junction Silicon Diode |
| Relative Humidity Sensor Type | Film capacitor element |
| Housing Material | UV-resistant ABS, polypropylene |
| Sensor Inputs | |
| RF Filtering | RC low-pass filter on each signal line |

ISS Dimensions(not including anemometer or bird spikes):

| | |
|---|---|
| Vantage Pro2 with Standard Rad Shield | 14.0" x 9.4" x 14.5" (356 mm x 239 mm x 368 mm) |
| Vantage Pro2 with Fan-Asprated Rad Shield | 20.8" x 9.4" x 16.0" (528 mm x 239 mm x 406 mm) |
| Vantage Pro2 Plus with Standard Rad Shield | 14.3" x 9.7" x 14.5" (363 mm x 246 mm x 368 mm) |
| Vantage Pro2 Plus with Fan-Aspirated Rad Shield | 21.1" x 9.7" x 16.0" (536 mm x 246 mm x 406 mm) |

DAVIS® Davis Instruments 3465 Diablo Ave., Hayward, CA 94545-2778 USA
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## 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

**Certificate No.: CC0022012**

1. Description

| | |
|---|---|
| Calibration item : | a) Temperature<br>b) Relative humidity<br>c) Wind Speed<br>d) Wind Direction |
| Equipment description : | Weather Station |
| Manufacturer : | Davis Vantage Pro 2 |
| Type / Model No. : | 6312CEU |
| Serial No. : | AY17O606003 |
| Assigned equipment no. : | N/A |
| Adjustment : | N/A |
| Remark : | Received with good condition |

2. Customer information

| | |
|---|---|
| Customer : | Castco Testing Centre Limited |
| Address : | 33, On Kui Street, Fanling, N.T. |
| Date of receipt : | 8 December 2020 |

3. Date of performance of the calibration

| | |
|---|---|
| Date of calibration : | 11 December 2020 |

Approved Signatory
Warren Yeung

Company Chop:
Certificate issue date: 15 December 2020



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2. The certificate is issued subject to the latest Term and Condition, available assessable at our web site

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Address: Room 2103, Technology Plaza, 29-35 Sha Tsui Road, Tsuen Wan, NT, Hong Kong
Tel : (852)25680106 Fax(852)30116194 Email: info@callab.com.hk Website:callab.com.hk

4. Result of Calibration

a) Temperature

| Reference reading ; °C | Reading ; °C | Error of indication ; °C |
|---|---|---|
| 15.0 | 15 | 0.0 |
| 20.0 | 20 | 0.0 |
| 25.0 | 25 | 0.0 |
| 30.0 | 30 | 0.0 |

Estimated expanded uncertainty: 1 °C  Technical Requirement: N/A

Note: The technical requirement is refer to JJF 1183-2007



b) Relative Humidity  Temperature setting of humidity chamber : 23 °C

| Reference reading ; % RH | Reading ; % RH | Error of indication ; % RH |
|---|---|---|
| 40.03 | 41.3 | 1.3 |
| 50.00 | 52.0 | 2.0 |
| 70.07 | 72.3 | 2.3 |

Estimated expanded uncertainty: 2.5 %RH  Technical Requirement: N/A

Note: The technical requirement is refer to JJG 1076-2001



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c) Wind Speed

| Reference reading ; m/s | Measured reading ; m/s | Error of indication ; % |
|---|---|---|
| 0.0 | 0.0 | N/A |
| 2.0 | 2.0 | 0.0 |
| 5.0 | 4.9 | -2.0 |
| 10.0 | 9.8 | -2.0 |
| 15.0 | 14.7 | -2.0 |
| 20.0 | 19.7 | -2.0 |

Estimated expanded uncertainty: 0.5 m/s Technical Requirement: +/-5% or 1 m/s

a) Wind direction

| Reference reading | Measured reading | Error of indication |
|---|---|---|
| 0° | 0° | 0° |
| 45° | 45° | 0° |
| 90° | 90° | 0° |
| 135° | 135° | 0° |
| 180° | 180° | 0° |
| 225° | 225° | 0° |
| 270° | 270° | 0° |
| 315° | 315° | 0° |

Estimated expanded uncertainty: 5° Technical Requirement: N/A

Note: The arrow head was adjusted to the magnetic north before performing calibration.

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5. Reference method for calibration

| | |
|---|---|
| Temperature | JIF 1183-2007 |
| Relative humidity | JJG 1076-2001 |
| Wind Speed | SOP-251 |
| Wind Direction | SOP-252 |

6. Environment condition of calibration

| | |
|---|---|
| Temperature ; ℃ | 24.3 ºC |
| Relative humidity ; %RH | 48 %RH |

7. Reference equipment used in the calibration

| Item | Model | Serial No. | Expiry date | Traceable to |
|---|---|---|---|---|
| Platinum resistance thermometer | KPPRHT-A-1 | KCI I-1095, KCI P-1095 | 4 Mar 2022 | SMQ |
| Humidity sensor | KPPRHT-A-1 | KCI I-1095, KCI P-1095 | 4 Mar 2022 | SMQ |
| Reference Anemometer | 405-V1 | 41543692 | 1 Jan 2021 | SMQ |

Note1: The estimated expanded uncertainties have been calculated in "Evaluation and expression of uncertainty in measurement" and give an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.
Note2: The standard (s) and instrument used in the calibration are traceable to national or international recognized standard and are calibrated on a schedule to maintain the accuracy and good condition.
Note3: The result reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long term stability of the instrument.
Note4: The result shows in this calibration certificate relate only to the item calibrated, and the result only applies to the calibration item as received.

Calibrated by: Date: 11 December 2020

Checked by: Date: 11 December 2020

*** End of Certificate ***

CT-END-02

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# Appendix E – Calibration certificates, catalogue of air quality monitoring equipment

TISCH Environmental

# TSP MFC

*Total Suspended Particulate, Mass Flow Controlled*

## MFC **TSP**

Ambient Air Sampler

- **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**

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.

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TISCH Environmental

www.tisch-env.com

Tisch Environmental
145 S. Miami Ave
Cleves, OH 45002
513-467-9000
sales@tisch-env.com

TISCH Environmental

# TSP MFC

MFC TSP Ambient Air Sampler

## General System Specifications

**Particulate Size:** Total Suspended Particulate (TSP)
**EPA Designation:** CFR 40 Part 50 Appendix B
**Flow Controller**: Mass Flow Controller
**Motor Style:** Brush Style Motor Assembly
**Pressure Recorder:** Dickson Chart Recorder, 24 hour
**Timer:** 7 Day Mechanical
**Elapsed Time Indicator:** Mechanical, Hours and Tenths
**Flow Range:** 39-60CFM, 1.09$M^3$M-1.68$M^3$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

## 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*

## 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"

## 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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TISCH Environmental

# Calibration Certificate of HVS

## Air Sampler Calibration Curve Plotting & Calculation

**(Dickson recorder)**

Calibration curve ref. No. : ATSPC-01-2020102702 Date of calibration : 27/10/2020

Location : Sky Tower Sampler : TE-5170X

***Calibration Data***

Ambient barometric pressure, Pa = 759.1 ( mmHg ) Ambient temperature, Ta = 300.35 ( deg K )

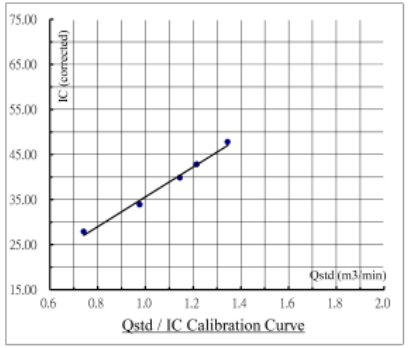
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

***Calibration Curve***

| Plate No. | $H_2O$ ( in ) | Qstd ( $m^3$ / min ) | I ( chart ) | IC ( corrected ) |
|---|---|---|---|---|
| 18 | 7.60 | 1.345 | 48.0 | 47.78 |
| 13 | 6.20 | 1.215 | 43.0 | 42.81 |
| 10 | 5.50 | 1.145 | 40.0 | 39.82 |
| 7 | 4.00 | 0.977 | 34.0 | 33.85 |
| 5 | 2.30 | 0.742 | 28.0 | 27.87 |

***Subsequent calculation of sampler flow***

| Method | Calibration equation | Slope, m | Intercept, b | Corr. coeff., r |
|---|---|---|---|---|
| Dickson recorder | Qstd = 1 / m1 [ ( I ) ( Sqrt ( ( Pav / 760 ) ( 298 / Tav ) ) ) - b1 ] | 33.119 | 2.4984 | 0.9947 |




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

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

IC ( corrected ) = I [ Sqrt ( ( Pa / 760 ) ( 298 / Ta ) ) ].

FLOW ( corrected ) = Sqrt ( FLOW ( mano ) ( Pa / 760 ) ( 298 / Ta ) ).

Calibrated by : Checked by :

Name : ( Poon Tsz Wing ) Name : ( Wong Yin Tong )

Form No. INS-HVS-CAL dd 16 01 2020

## Air Sampler Calibration Curve Plotting & Calculation

**(Dickson recorder)**

Calibration curve ref. No. : ATSPC-01-2020120902 Date of calibration : 09/12/2020

Location : Sky Tower Sampler : TE-5170X

***Calibration Data***

Ambient barometric pressure, Pa = 762.9 ( mmHg ) Ambient temperature, Ta = 292.95 ( deg K )

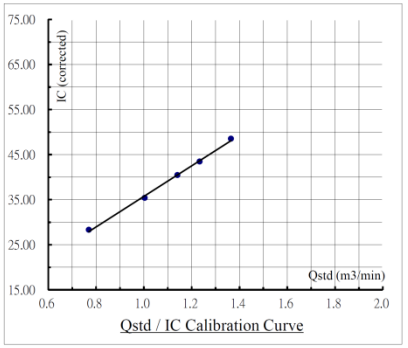
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

***Calibration Curve***

| Plate No. | $H_2O$ ( in ) | Qstd ( $m^3$ / min ) | I ( chart ) | IC ( corrected ) |
|---|---|---|---|---|
| 18 | 7.60 | 1.365 | 48.0 | 48.50 |
| 13 | 6.20 | 1.234 | 43.0 | 43.45 |
| 10 | 5.30 | 1.141 | 40.0 | 40.42 |
| 7 | 4.10 | 1.004 | 35.0 | 35.37 |
| 5 | 2.40 | 0.770 | 28.0 | 28.29 |

***Subsequent calculation of sampler flow***

| Method | Calibration equation | Slope, m | Intercept, b | Corr. coeff., r |
|---|---|---|---|---|
| Dickson recorder | Qstd = 1 / m1 [ ( I ) ( Sqrt ( ( Pav / 760 ) ( 298 / Tav ) ) ) - b1 ] | 33.913 | 1.8063 | 0.9988 |




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

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

IC ( corrected ) = I [ Sqrt ( ( Pa / 760 ) ( 298 / Ta ) ) ].

FLOW ( corrected ) = Sqrt ( FLOW ( mano ) ( Pa / 760 ) ( 298 / Ta ) ).

Calibrated by : Checked by :

Name : ( Poon Tsz Wing ) Name : ( Wong Yin Tong )

Form No. INS-HVS-CAL dd 16 01 2020

# Calibration Certificate of HVS

## Air Sampler Calibration Curve Plotting & Calculation

**(Dickson recorder)**

Calibration curve ref. No. : ATSPC-01-2020102701 Date of calibration : 27/10/2020

Location : The Hong Kong Society for the Blind's Factory cum Sheltered Workshop Sampler : TE-5170X

***Calibration Data***

Ambient barometric pressure, Pa = 759.1 ( mmHg ) Ambient temperature, Ta = 300.35 ( deg K )

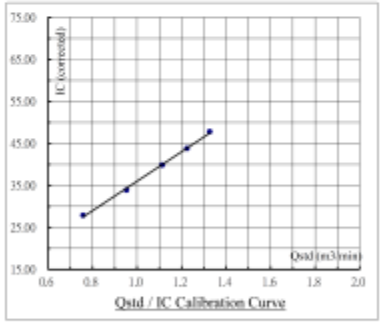
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

***Calibration Curve***

| Plate No. | $H_2O$ ( in ) | Qstd ( $m^3$ / min ) | I ( chart ) | IC ( corrected ) |
|---|---|---|---|---|
| 18 | 7.40 | 1.327 | 48.0 | 47.78 |
| 13 | 6.30 | 1.225 | 44.0 | 43.80 |
| 10 | 5.20 | 1.114 | 40.0 | 39.82 |
| 7 | 3.80 | 0.953 | 34.0 | 33.85 |
| 5 | 2.40 | 0.758 | 28.0 | 27.87 |

***Subsequent calculation of sampler flow***

| Method | Calibration equation | Slope, m | Intercept, b | Corr. coeff., r |
|---|---|---|---|---|
| Dickson recorder | Qstd = 1 / m1 [ ( I ) ( Sqrt ( ( Pav / 760 ) ( 298 / Tav ) ) ) - b1 ] | 35.101 | 0.8769 | 0.9990 |



Qstd / IC Calibration Curve

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

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

IC ( corrected ) = I [ Sqrt ( ( Pa / 760 ) ( 298 / Ta ) ) ].

FLOW ( corrected ) = Sqrt ( FLOW ( mano ) ( Pa / 760 ) ( 298 / Ta ) ).

Calibrated by : Checked by :

Name : ( Poon Tsz Wing ) Name : ( Wong Yin Tong )

Form No. INS-HVS-CAL dd 16 01 2020

## Air Sampler Calibration Curve Plotting & Calculation

**(Dickson recorder)**

Calibration curve ref. No. : ATSPC-01-2020120901 Date of calibration : 09/12/2020

Location : The Hong Kong Society for the Blind's Factory cum Sheltered Workshop Sampler : TE-5170X

***Calibration Data***

Ambient barometric pressure, Pa = 762.9 ( mmHg ) Ambient temperature, Ta = 292.95 ( deg K )

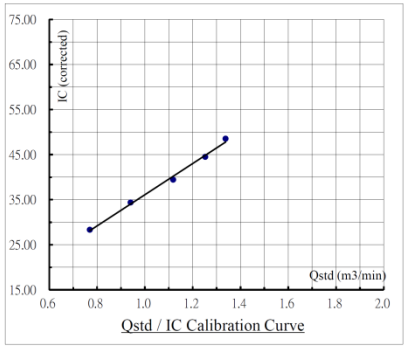
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

***Calibration Curve***

| Plate No. | $H_2O$ ( in ) | Qstd ( $m^3$ / min ) | I ( chart ) | IC ( corrected ) |
|---|---|---|---|---|
| 18 | 7.30 | 1.338 | 48.0 | 48.50 |
| 13 | 6.40 | 1.253 | 44.0 | 44.46 |
| 10 | 5.10 | 1.119 | 39.0 | 39.41 |
| 7 | 3.60 | 0.941 | 34.0 | 34.36 |
| 5 | 2.40 | 0.770 | 28.0 | 28.29 |

***Subsequent calculation of sampler flow***

| Method | Calibration equation | Slope, m | Intercept, b | Corr. coeff., r |
|---|---|---|---|---|
| Dickson recorder | Qstd = 1 / m1 [ ( I ) ( Sqrt ( ( Pav / 760 ) ( 298 / Tav ) ) ) - b1 ] | 34.575 | 1.5174 | 0.9972 |



Qstd / IC Calibration Curve

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

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

IC ( corrected ) = I [ Sqrt ( ( Pa / 760 ) ( 298 / Ta ) ) ].

FLOW ( corrected ) = Sqrt ( FLOW ( mano ) ( Pa / 760 ) ( 298 / Ta ) ).

Calibrated by : Checked by :

Name : ( Poon Tsz Wing ) Name : ( Wong Yin Tong )

Form No. INS-HVS-CAL dd 16 01 2020

# Calibration Certificate of HVS

## Air Sampler Calibration Curve Plotting & Calculation

**(Dickson recorder)**

Calibration curve ref. No. : ATSPC-01-2020102703 Date of calibration : 27/10/2020

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

***Calibration Data***

Ambient barometric pressure, Pa = 759.1 ( mmHg ) Ambient temperature, Ta = 300.35 ( deg K )

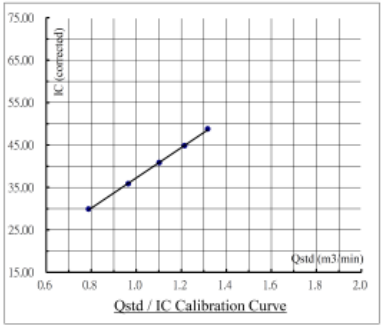
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

***Calibration Curve***

| Plate No. | $H_2O$ ( in ) | Qstd ( $m^3$ / min ) | I ( chart ) | IC ( corrected ) |
|---|---|---|---|---|
| 18 | 7.30 | 1.318 | 49.0 | 48.78 |
| 13 | 6.20 | 1.215 | 45.0 | 44.80 |
| 10 | 5.10 | 1.103 | 41.0 | 40.82 |
| 7 | 3.90 | 0.965 | 36.0 | 35.84 |
| 5 | 2.60 | 0.789 | 30.0 | 29.87 |

***Subsequent calculation of sampler flow***

| Method | Calibration equation | Slope, m | Intercept, b | Corr. coeff., r |
|---|---|---|---|---|
| Dickson recorder | Qstd = 1 / m1 [ ( I ) ( Sqrt ( ( Pav / 760 ) ( 298 / Tav ) ) ) - b1 ] | 35.681 | 1.5579 | 0.9998 |



Qstd / IC Calibration Curve

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

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

IC ( corrected ) = I [ Sqrt ( ( Pa / 760 ) ( 298 / Ta ) ) ].

FLOW ( corrected ) = Sqrt ( FLOW ( mano ) ( Pa / 760 ) ( 298 / Ta ) ).

Calibrated by : Checked by :

Name : ( Poon Tsz Wing ) Name : ( Wong Yin Tong )

Form No. INS-HVS-CAL dd 16 01 2020

## Air Sampler Calibration Curve Plotting & Calculation

**(Dickson recorder)**

Calibration curve ref. No. : ATSPC-01-2020120903 Date of calibration : 09/12/2020

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

***Calibration Data***

Ambient barometric pressure, Pa = 762.9 ( mmHg ) Ambient temperature, Ta = 292.95 ( deg K )

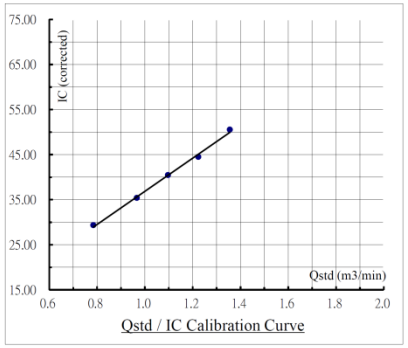
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

***Calibration Curve***

| Plate No. | $H_2O$ ( in ) | Qstd ( $m^3$ / min ) | I ( chart ) | IC ( corrected ) |
|---|---|---|---|---|
| 18 | 7.50 | 1.356 | 50.0 | 50.52 |
| 13 | 6.10 | 1.224 | 44.0 | 44.46 |
| 10 | 4.90 | 1.097 | 40.0 | 40.42 |
| 7 | 3.80 | 0.967 | 35.0 | 35.37 |
| 5 | 2.50 | 0.785 | 29.0 | 29.30 |

***Subsequent calculation of sampler flow***

| Method | Calibration equation | Slope, m | Intercept, b | Corr. coeff., r |
|---|---|---|---|---|
| Dickson recorder | Qstd = 1 / m1 [ ( I ) ( Sqrt ( ( Pav / 760 ) ( 298 / Tav ) ) ) - b1 ] | 36.744 | 0.1175 | 0.9983 |



Qstd / IC Calibration Curve

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

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

IC ( corrected ) = I [ Sqrt ( ( Pa / 760 ) ( 298 / Ta ) ) ].

FLOW ( corrected ) = Sqrt ( FLOW ( mano ) ( Pa / 760 ) ( 298 / Ta ) ).

Calibrated by : Checked by :

Name : ( Poon Tsz Wing ) Name : ( Wong Yin Tong )

Form No. INS-HVS-CAL dd 16 01 2020

TISCH Environmental

| RECALIBRATION DUE DATE: |
|---|
| July 17, 2021 |

# Certificate of Calibration

**Calibration Certification Information**

| | | | | | |
|---|---|---|---|---|---|
| **Cal. Date:** | July 17, 2020 | **Rootsmeter S/N:** 438320 | **Ta:** 296 | °K |
| **Operator:** | Jim Tisch | | **Pa:** 753.4 | 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 | 1.4300 | 3.2 | 2.00 |
| 2 | 3 | 4 | 1 | 1.0100 | 6.4 | 4.00 |
| 3 | 5 | 6 | 1 | 0.9010 | 7.9 | 5.00 |
| 4 | 7 | 8 | 1 | 0.8570 | 8.8 | 5.50 |
| 5 | 9 | 10 | 1 | 0.7090 | 12.8 | 8.00 |

**Data Tabulation**

| Vstd (m3) | Qstd (x-axis) | $\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis) | Va | Qa (x-axis) | $\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis) |
|---|---|---|---|---|---|
| 0.9937 | 0.6949 | 1.4128 | 0.9958 | 0.6963 | 0.8865 |
| 0.9895 | 0.9797 | 1.9980 | 0.9915 | 0.9817 | 1.2536 |
| 0.9875 | 1.0960 | 2.2338 | 0.9895 | 1.0982 | 1.4016 |
| 0.9863 | 1.1509 | 2.3428 | 0.9883 | 1.1532 | 1.4700 |
| 0.9810 | 1.3837 | 2.8255 | 0.9830 | 1.3865 | 1.7729 |
| **QSTD** | **m=** | **2.04882** | **QA** | **m=** | **1.28293** |
| | **b=** | **-0.01127** | | **b=** | **-0.00707** |
| | **r=** | **0.99999** | | **r=** | **0.99999** |

**Calculations**

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

**For subsequent flow rate calculations:**

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

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

**Key**

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

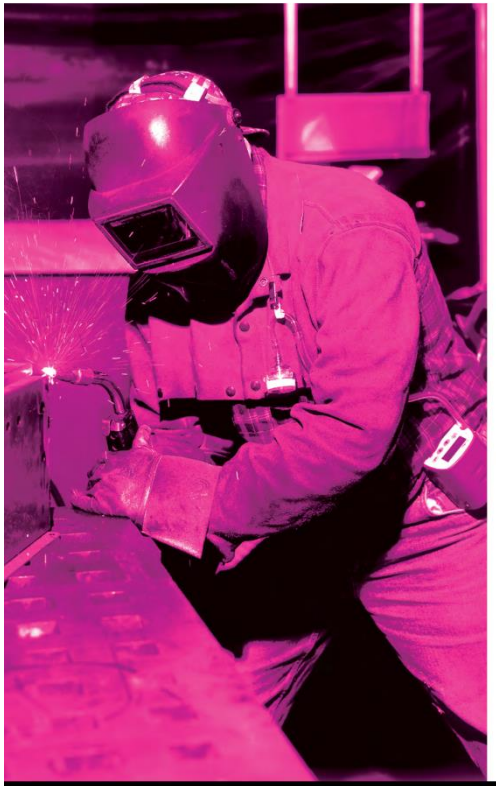
**RECALIBRATION**

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

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

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

The SidePak AM510 monitor's easy-to-read display shows your data as both real-time aerosol mass-concentration and 8-hour time-weighted average (TWA). With its convenient data logging and long battery life, the AM510 is also ideal for extended sampling. The easy-to-use TrakPro Data Analysis Software lets you create effective graphs and reports.



**User Friendly**

+ Small, lightweight and quiet to maximize worker acceptance
+ Rugged design with secure belt clip
+ Easy-to-understand user interface with only four keys
+ Lockable keypad prevents tampering while sampling
+ User-adjustable sample flow rate
+ Define, label and store multiple calibration constants
+ Easy-to-read LCD display
+ Convenient, threaded tripod socket accommodates area sampling

**Advanced Features**

+ Smart Battery Management System provides precise run time information, maximizes battery capacity and speeds charging
+ Integrated pump allows use of size-selective aerosol inlet conditioners
+ Built-in impactors let you choose "none," 1.0, 2.5 or 10-micron cut off
+ 10-mm Dorr-Oliver cyclone for respirable sampling
+ Display shows real-time concentrations (mg/m³) and "on-the-fly" TWA as you data log
+ Display statistics: max, min and average readings, elapsed time and 8-hour TWA

**Quick and Easy Reports**

+ Convenient preprogramming for occupational exposure sampling
+ Data log for long periods and store multiple tests
+ Analyze data, print graphs and create reports with TrakPro Data Analysis Software
+ USB port lets you conveniently connect to your computer

**Power to Spare**

+ Long-lasting NiMH rechargeable battery packs eliminate "memory" issues
+ Choice of rechargeable NiMH smart battery packs or AA-cell pack

**Model AM510**
**SidePak Personal Aerosol Monitor**

**Sensitivity**

| | |
|---|---|
| Sensor Type | 90° light scattering, 670 nm laser diode |
| Aerosol Concentration Range | 0.001 to 20 mg/m³ (calibrated to respirable fraction of ISO 12103-1, A1 test dust) |
| Particle Size Range | 0.1 to 10 micrometer (µm) |
| Minimum Resolution | 0.001 mg/m³ |
| Zero stability | ±0.001 mg/m³ over 24 hours using 10-second time-constant |
| Temperature Coefficient | Approximately +0.0005 mg/m³ per °C (for variations from temperature at which instrument was last zeroed) |

**Flow Rate**

| | |
|---|---|
| Range | User-adjustable, 0.7 to 1.8 liters/min (L/min) |

**Temperature Range**

| | |
|---|---|
| Operating Range | 32 to 120°F (0 to 50°C) |
| Storage Range | -4 to 140°F (-20 to 60°C) |

**Operational Humidity**
0 to 95% RH, non-condensing

**Time Constant (LCD display)**

| | |
|---|---|
| Range | User-adjustable, 1 to 60 seconds |

**Data Logging**

| | |
|---|---|
| Data Points | Approx. 31,000 |
| Logging Interval | User-adjustable, 1 second to 1 hour |

**User-Select Calibration Factors**

| | |
|---|---|
| Factory Setting | 1.0 (non-adjustable) |
| User-defined Settings | 3, with user-defined labels |
| Range | 0.1 to 10.0, user-adjustable |

**Physical**

| | |
|---|---|
| External Dimensions | 4.2 x 3.7 x 2.8 in. (106 x 92 x 70 mm) with 801723, 801724, 801729 or 801743 battery<br>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<br>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

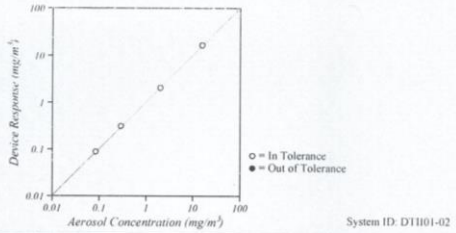
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

| Environment Conditions | | |
|---|---|---|
| Temperature | 73.79 (23.2) | °F (°C) |
| Relative Humidity | 45.5 | %RH |
| Barometric Pressure | 28.97 (981.0) | inHg (hPa) |

| | |
|---|---|
| Model | AM510 |
| Serial Number | 11506009 |

☒ As Left ☐ As Found
☒ In Tolerance ☐ Out of Tolerance

**Concentration Linearity Plot**




System ID: DTI101-02

**CONCENTRATION** *Unit: mg/m3*

| # | STANDARD | MEASURED | ALLOWABLE RANGE | # | STANDARD | MEASURED | ALLOWABLE RANGE |
|---|---|---|---|---|---|---|---|
| 1 | 1.966 | 1.924 | 1.769–2.163 | 3 | 0.083 | 0.083 | 0.058–0.108 |
| 2 | 0.285 | 0.293 | 0.242–0.328 | 4 | 15.404 | 15.375 | 13.864–16.944 |

*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 in accordance with 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 (previously used). Dust 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 | 01-15-20 | 01-31-21 | DC Voltage | E003315 | 01-15-20 | 01-31-21 |
| Photometer | E005612 | 02-25-20 | 08-31-20 | Microbalance | M001324 | 10-03-18 | 10-31-20 |
| Pressure | E003511 | 10-04-19 | 10-31-20 | Flowmeter | E005140 | 01-09-20 | 01-31-21 |

July 10, 2020

Calibrated — Date

## Personal Aerosol Monitor Performance check with High Volume Sampler

Preformance Check ref. No. : AS0200201-1 Report Issue Date: 29/01/2020
Date of performance check : 20/01/2020

***Objective:***

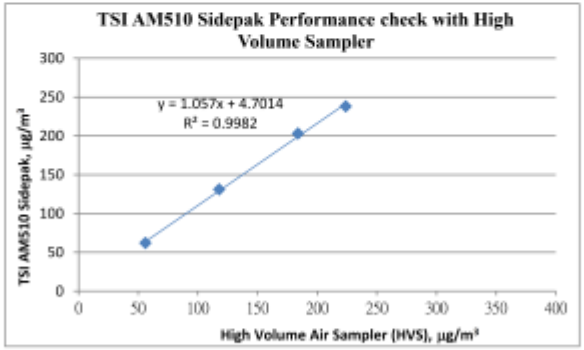
A dust meter, TSI AM510 Sidepak, and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

***Equipment Used:***

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

***Result:***

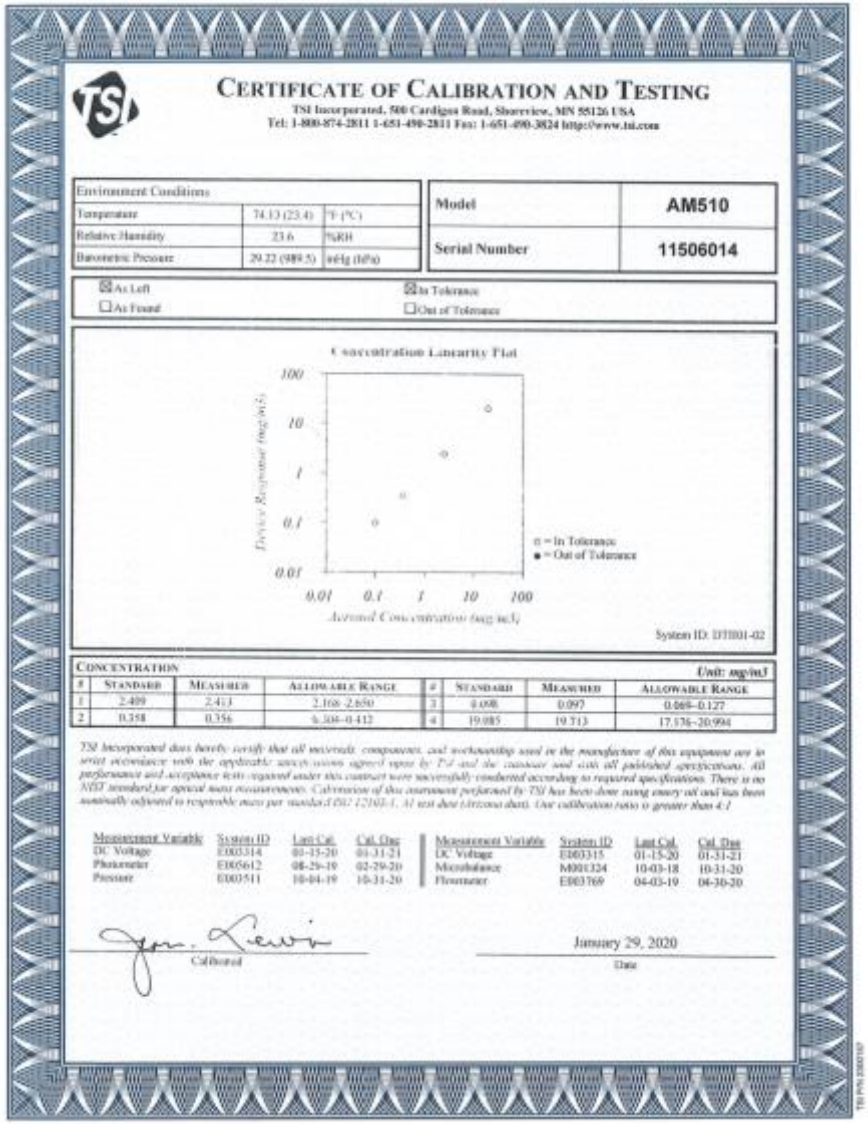
| Equipment | Measurement Result, μg/m³ | | | |
|---|---|---|---|---|
| TSI AM510 Sidepak | 62 | 131 | 203 | 238 |
| High Volume Air Sampler (HVS) | 56 | 118 | 184 | 224 |




Tested by : Checked by :
Name : ( Chan Kwok Ho ) Name : ( Wong Yin Tong )

Form No. ENV CAL SAMPLER CC1 dd/12/2005

# 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 | | |
|---|---|---|
| Temperature | 74.13 (23.4) | °F (°C) |
| Relative Humidity | 23.6 | %RH |
| Barometric Pressure | 29.22 (989.5) | inHg (hPa) |

| | |
|---|---|
| Model | AM510 |
| Serial Number | 11506014 |

☒ As Left ☐ As Found ☒ In Tolerance ☐ Out of Tolerance

Concentration Linearity Plot



System ID: DT001-02

CONCENTRATION Unit: mg/m3

| # | Standard | Measured | Allowable Range | # | Standard | Measured | Allowable Range |
|---|---|---|---|---|---|---|---|
| 1 | 2.409 | 2.413 | 2.168–2.650 | 3 | 0.098 | 0.097 | 0.069–0.127 |
| 2 | 0.358 | 0.356 | 6.304–0.412 | 4 | 19.085 | 19.713 | 17.176–20.994 |

*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 | 01-15-20 | 01-31-21 | DC Voltage | E003315 | 01-15-20 | 01-31-21 |
| Photometer | E005612 | 08-29-19 | 02-29-20 | Microbalance | M001324 | 10-03-18 | 10-31-20 |
| Pressure | E003511 | 10-04-19 | 10-31-20 | Flowmeter | E003769 | 04-03-19 | 04-30-20 |

Calibrated

January 29, 2020
Date

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

Preformance Check ref. No. : AS0200201-2 Report Issue Date: 27/01/2020

Date of performance check : 20/01/2020

***Objective:***

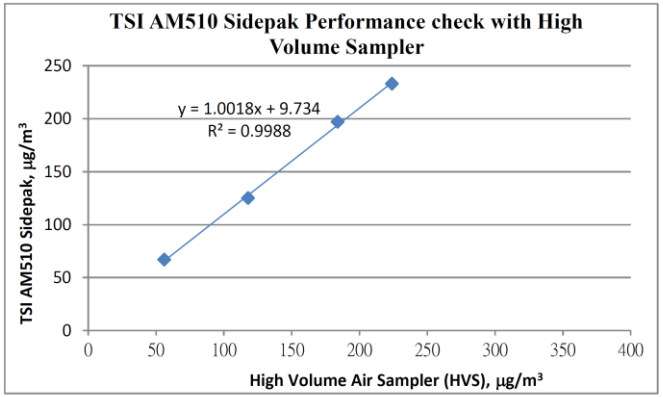
A dust meter, TSI AM510 Sidepak, and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

***Equipment Used:***

| Equipment | Manufacturer and Model | Serial Number |
|---|---|---|
| Personal Aerosol Monitor | TSI AM510 Sidepak | 11506014 |
| Total Suspended Particulate High Volume Air Sampler (HVS) | GS2310 | 10346 |

***Resuslt:***

| Equipment | Measurement Result, μg/m³ | | | |
|---|---|---|---|---|
| TSI AM510 Sidepak | 67 | 125 | 197 | 233 |
| High Volume Air Sampler (HVS) | 56 | 118 | 184 | 224 |




Tested by : Checked by :

Name : ( Chan Kwok Ho ) Name : ( Wong Yin Tong )

# Cabled Vantage Pro2™ & Vantage Pro2 Plus™ Stations

**6152C**
**6162C**

**Vantage Pro2™**

The Vantage Pro2™ (# 6152C) and Vantage Pro2™ Plus (# 6162C) cabled weather stations include two components: the Integrated Sensor Suite (ISS) and the console. The ISS contains the sensor interface module (SIM), rain collector, an anemometer, and a passive radiation shield. The Vantage Pro2 console provides the user interface, data display, and calculations. The Vantage Pro2 Plus weather station includes two additional sensors that are optional on the Vantage Pro2 and purchased separately: the UV Sensor and the Solar Radiation Sensor. The console and ISS are powered by an AC-power adapter connected to the console. Batteries can be installed in the console to provide a backup power supply. Use WeatherLink® to let your weather station interface with a computer, log data, and upload weather information to the Internet. The 6152C and 6162C models rely on passive shielding to reduce solar-radiation induced temperature errors in the outside temperature sensor readings.

## Integrated Sensor Suite (ISS)

| | |
|---|---|
| Operating Temperature | -40° to +150°F (-40° to +65°C) |
| Non-operating Temperature | -40° to +158°F (-40° to +70°C) |
| Current Draw | 5 mA (average) at 4 to 6 VDC for ISS only. 10 mA average for both console and ISS |
| Connectors, Sensor | Modular RJ-11 |
| Cable Type | 4-conductor, 26 AWG |
| Cable Length, Anemometer | 40' (12 m) (included); 240' (73 m) (maximum recommended) |

Note: Maximum displayable wind decreases as the length of cable increases. at 140' (42 m) of cable, the maximum wind speed displayed is 135 mph (60 m/s); at 240' (73 m), the maximum wind speed displayed is 100 mph (34 m/s).

| | |
|---|---|
| Wind Speed Sensor | Solid state magnetic sensor |
| Wind Direction Sensor | Wind vane with potentiometer |
| Rain Collector Type | Tipping bucket, 0.01" per tip (0.2 mm with metric rain adapter), 33.2 $in^2$ (214 $cm^2$) collection area |
| Temperature Sensor Type | PN Junction Silicon Diode |
| Relative Humidity Sensor Type | Film capacitor element |
| Housing Material | UV-resistant ABS, polypropylene |
| Sensor Inputs | |
| RF Filtering | RC low-pass filter on each signal line |

ISS Dimensions(not including anemometer or bird spikes):

| | |
|---|---|
| Vantage Pro2 with Standard Rad Shield | 14.0" x 9.4" x 14.5" (356 mm x 239 mm x 368 mm) |
| Vantage Pro2 with Fan-Asprated Rad Shield | 20.8" x 9.4" x 16.0" (528 mm x 239 mm x 406 mm) |
| Vantage Pro2 Plus with Standard Rad Shield | 14.3" x 9.7" x 14.5" (363 mm x 246 mm x 368 mm) |
| Vantage Pro2 Plus with Fan-Aspirated Rad Shield | 21.1" x 9.7" x 16.0" (536 mm x 246 mm x 406 mm) |

DAVIS® Davis Instruments 3465 Diablo Ave., Hayward, CA 94545-2778 USA
(510) 732-9229 • FAX (510) 670-0589 • sales@davisinstruments.com • www.davisinstruments.com





## Ultra Violet (UV) Radiation Index (requires UV sensor)

| | |
|---|---|
| Resolution and Units | 0.1 Index |
| Range | 0 to 16 Index |
| Accuracy | ±5% of full scale (Reference: Yankee UVB-1 at UV index 10 (Extremely High)) |
| Cosine Response | ±4% FS (0° to 90° zenith angle) |
| Update Interval | 50 seconds to 1 minute (5 minutes when dark) |
| Current Graph Data | Instant Reading and Hourly Average; Daily, Monthly High |
| Historical Graph Data | Hourly Average, Daily, Monthly Highs |
| Alarm | High Threshold from Instant Calculation |

## Wind

Wind Chill (Calculated)

| | |
|---|---|
| Resolution and Units | 1°F or 1°C (user-selectable); °C is converted from °F and rounded to the nearest 1°C |
| Range | -110° to +135°F (-79° to +57°C) |
| Accuracy | ±2°F (±1°C) (typical) |
| Update Interval | 10 to 12 seconds |
| Source | United States National Weather Service (NWS)/NOAA |
| Equation Used | Osczevski (1995) (adopted by US NWS in 2001) |
| Variables Used | Instant Outside Temperature and 10-min. Avg. Wind Speed |
| Current Display Data | Instant Calculation |
| Current Graph Data | Instant Calculation; Hourly, Daily and Monthly Low |
| Historical Graph Data | Hourly, Daily and Monthly Lows |
| Alarm | Low Threshold from Instant Calculation |

Wind Direction

| | |
|---|---|
| Range | 1 - 360° |
| Display Resolution | 16 points (22.5°) on compass rose, 1° in numeric display |
| Accuracy | ±3° |
| Update Interval | 2.5 to 3 seconds |
| Current Graph Data | Instant Reading (user adjustable); 10-min. Dominant; Hourly, Daily, Monthly Dominant |
| Historical Graph Data | Past 6 10-min. Dominants on compass rose only; Hourly, Daily, Monthly Dominants |

Wind Speed

| | |
|---|---|
| Resolution and Units | 1 mph, 1 km/h, 0.4 m/s, or 1 knot (user-selectable) Measured in mph; other units are converted from mph and rounded to nearest 1 km/hr, 0.1 m/s, or 1 knot. |
| Range | 0 to 200 mph, 0 to 173 knots, 0 to 89 m/s, 0 to 322 km/h |
| Update Interval | Instant Reading: 2.5 to 3 seconds, 10-minute Average: 1 minute |
| Accuracy | ±2 mph (2 kts, 3.2 km/h, 0.9 m/s) or ±5%, whichever is greater |
| Maximum Cable Length | 540' (165 m) (Note that maximum wind speed reading decreases as length of cable from anemometer to ISS increases.) |
| Current Display Data | Instant |
| Current Graph Data | Instant Reading; 10-minute and Hourly Average; Hourly High; Daily, Monthly and Yearly High with Direction of High |
| Historical Graph Data | 10-min. and Hourly Averages; Hourly Highs; Daily, Monthly and Yearly Highs with Direction of Highs |
| Alarms | High Thresholds from Instant Reading and 10-minute Average |

# Calibration Certificate

**Certificate No.: CC0022012**

1. Description

| | |
|---|---|
| Calibration item : | a) Temperature<br>b) Relative humidity<br>c) Wind Speed<br>d) Wind Direction |
| Equipment description : | Weather Station |
| Manufacturer : | Davis Vantage Pro 2 |
| Type / Model No. : | 6312CEU |
| Serial No. : | AY17O606003 |
| Assigned equipment no. : | N/A |
| Adjustment : | N/A |
| Remark : | Received with good condition |

2. Customer information

| | |
|---|---|
| Customer : | Castco Testing Centre Limited |
| Address : | 33, On Kui Street, Fanling, N.T. |
| Date of receipt : | 8 December 2020 |

3. Date of performance of the calibration

| | |
|---|---|
| Date of calibration : | 11 December 2020 |

Approved Signatory
Warren Yeung

Company Chop:
Certificate issue date: 15 December 2020



1. The certificate shall not reproduced except in full without the written approval of CAL LAB LTD
2. The certificate is issued subject to the latest Term and Condition, available assessable at our web site

Cal Lab Limited
Address: Room 2103, Technology Plaza, 29-35 Sha Tsui Road, Tsuen Wan, NT, Hong Kong
Tel : (852)25680106 Fax(852)30116194 Email: info@callab.com.hk Website:callab.com.hk

4. Result of Calibration

a) Temperature

| Reference reading ; °C | Reading ; °C | Error of indication ; °C |
|---|---|---|
| 15.0 | 15 | 0.0 |
| 20.0 | 20 | 0.0 |
| 25.0 | 25 | 0.0 |
| 30.0 | 30 | 0.0 |

Estimated expanded uncertainty: 1 °C  Technical Requirement: N/A

Note: The technical requirement is refer to JJF 1183-2007



b) Relative Humidity  Temperature setting of humidity chamber : 23 °C

| Reference reading ; % RH | Reading ; % RH | Error of indication ; % RH |
|---|---|---|
| 40.03 | 41.3 | 1.3 |
| 50.00 | 52.0 | 2.0 |
| 70.07 | 72.3 | 2.3 |

Estimated expanded uncertainty: 2.5 %RH  Technical Requirement: N/A

Note: The technical requirement is refer to JJG 1076-2001



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c) Wind Speed

| Reference reading ; m/s | Measured reading ; m/s | Error of indication ; % |
|---|---|---|
| 0.0 | 0.0 | N/A |
| 2.0 | 2.0 | 0.0 |
| 5.0 | 4.9 | -2.0 |
| 10.0 | 9.8 | -2.0 |
| 15.0 | 14.7 | -2.0 |
| 20.0 | 19.7 | -2.0 |

Estimated expanded uncertainty: 0.5 m/s Technical Requirement: +/-5% or 1 m/s

a) Wind direction

| Reference reading | Measured reading | Error of indication |
|---|---|---|
| 0° | 0° | 0° |
| 45° | 45° | 0° |
| 90° | 90° | 0° |
| 135° | 135° | 0° |
| 180° | 180° | 0° |
| 225° | 225° | 0° |
| 270° | 270° | 0° |
| 315° | 315° | 0° |

Estimated expanded uncertainty: 5° Technical Requirement: N/A

Note: The arrow head was adjusted to the magnetic north before performing calibration.

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5. Reference method for calibration

| | |
|---|---|
| Temperature | JIF 1183-2007 |
| Relative humidity | JJG 1076-2001 |
| Wind Speed | SOP-251 |
| Wind Direction | SOP-252 |

6. Environment condition of calibration

| | |
|---|---|
| Temperature ; ℃ | 24.3 ºC |
| Relative humidity ; %RH | 48 %RH |

7. Reference equipment used in the calibration

| Item | Model | Serial No. | Expiry date | Traceable to |
|---|---|---|---|---|
| Platinum resistance thermometer | KPPRHT-A-1 | KCI I-1095, KCI P-1095 | 4 Mar 2022 | SMQ |
| Humidity sensor | KPPRHT-A-1 | KCI I-1095, KCI P-1095 | 4 Mar 2022 | SMQ |
| Reference Anemometer | 405-V1 | 41543692 | 1 Jan 2021 | SMQ |

Note1: The estimated expanded uncertainties have been calculated in "Evaluation and expression of uncertainty in measurement" and give an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.
Note2: The standard (s) and instrument used in the calibration are traceable to national or international recognized standard and are calibrated on a schedule to maintain the accuracy and good condition.
Note3: The result reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long term stability of the instrument.
Note4: The result shows in this calibration certificate relate only to the item calibrated, and the result only applies to the calibration item as received.

Calibrated by: Date: 11 December 2020

Checked by: Date: 11 December 2020

*** End of Certificate ***

CT-END-02

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# Appendix F – Weather information

General Information

| Date | Absolute Daily Min Temperature (˚C) | Absolute Daily Max Temperature (˚C) | Total Rainfall (mm) |
|---|---|---|---|
| 01/12/2020 | 17 | 22.4 | 0.0 |
| 02/12/2020 | 17.4 | 22.7 | 0.0 |
| 03/12/2020 | 15.4 | 20.6 | 0.0 |
| 04/12/2020 | 13.8 | 18.5 | 0.0 |
| 05/12/2020 | 13.9 | 19.8 | 0.0 |
| 06/12/2020 | 15.4 | 21.6 | 0.0 |
| 07/12/2020 | 18.1 | 23.2 | 0.0 |
| 08/12/2020 | 17.8 | 21.9 | 0.0 |
| 09/12/2020 | 18.4 | 21.4 | Trace |
| 10/12/2020 | 18.7 | 23.5 | 0.3 |
| 11/12/2020 | 20.3 | 23.6 | Trace |
| 12/12/2020 | 20.2 | 22.1 | Trace |
| 13/12/2020 | 20.2 | 22.5 | 0.0 |
| 14/12/2020 | 15.5 | 22.1 | Trace |
| 15/12/2020 | 13.4 | 16.8 | Trace |
| 16/12/2020 | 13.3 | 16.5 | 0.0 |
| 17/12/2020 | 13.6 | 16.5 | 0.0 |
| 18/12/2020 | 14.7 | 19.3 | 0.0 |
| 19/12/2020 | 12.5 | 17.8 | 0.0 |
| 20/12/2020 | 11.9 | 18.5 | 0.0 |
| 21/12/2020 | 13.0 | 19.6 | 0.0 |
| 22/12/2020 | 14.7 | 19.6 | 0.0 |
| 23/12/2020 | 16.9 | 19.7 | 1.2 |
| 24/12/2020 | 18.3 | 22.5 | 0.0 |
| 25/12/2020 | 17.4 | 20.9 | 0.0 |
| 26/12/2020 | 17.0 | 21.1 | 0.0 |
| 27/12/2020 | 17.6 | 24.5 | 0.0 |
| 28/12/2020 | 18.7 | 23.7 | 0.0 |
| 29/12/2020 | 18.7 | 24.5 | 0.0 |
| 30/12/2020 | 10.6 | 21.6 | 0.0 |
| 31/12/2020 | 8.1 | 14.2 | 0.0 |

NOTE1: The above weather information was obtained from manned weather station of Hong Kong Observatory.
NOTE2: Trace means rainfall less than 0.05 mm

https://www.hko.gov.hk/en/cis/dailyExtract.htm?y=2020&m=12

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01/12/2020 | 0:00 | 0 | 0 | 02/12/2020 | 0:00 | 0 | 67.5 | 03/12/2020 | 0:00 | 0.9 | 22.5 | 04/12/2020 | 0:00 | 0.4 | 247.5 |
| 01/12/2020 | 1:00 | 0.4 | 225 | 02/12/2020 | 1:00 | 0.4 | 45 | 03/12/2020 | 1:00 | 0.9 | 22.5 | 04/12/2020 | 1:00 | 0.9 | 22.5 |
| 01/12/2020 | 2:00 | 0.4 | 0 | 02/12/2020 | 2:00 | 0 | 0 | 03/12/2020 | 2:00 | 0.9 | 157.5 | 04/12/2020 | 2:00 | 0.9 | 45 |
| 01/12/2020 | 3:00 | 0.4 | 0 | 02/12/2020 | 3:00 | 0.4 | 22.5 | 03/12/2020 | 3:00 | 0.9 | 22.5 | 04/12/2020 | 3:00 | 1.3 | 22.5 |
| 01/12/2020 | 4:00 | 0 | 337.5 | 02/12/2020 | 4:00 | 0.4 | 22.5 | 03/12/2020 | 4:00 | 0.4 | 67.5 | 04/12/2020 | 4:00 | 0.9 | 112.5 |
| 01/12/2020 | 5:00 | 0 | 315 | 02/12/2020 | 5:00 | 0.9 | 67.5 | 03/12/2020 | 5:00 | 0.9 | 337.5 | 04/12/2020 | 5:00 | 0.9 | 90 |
| 01/12/2020 | 6:00 | 0.4 | 315 | 02/12/2020 | 6:00 | 0.4 | 45 | 03/12/2020 | 6:00 | 0.4 | 225 | 04/12/2020 | 6:00 | 0.4 | 292.5 |
| 01/12/2020 | 7:00 | 0.4 | 45 | 02/12/2020 | 7:00 | 0.4 | 67.5 | 03/12/2020 | 7:00 | 0.9 | 135 | 04/12/2020 | 7:00 | 0.4 | 157.5 |
| 01/12/2020 | 8:00 | 0.4 | 270 | 02/12/2020 | 8:00 | 0.4 | 225 | 03/12/2020 | 8:00 | 0.9 | 67.5 | 04/12/2020 | 8:00 | 0.9 | 225 |
| 01/12/2020 | 9:00 | 0.9 | 337.5 | 02/12/2020 | 9:00 | 0.9 | 22.5 | 03/12/2020 | 9:00 | 0.9 | 315 | 04/12/2020 | 9:00 | 0.9 | 90 |
| 01/12/2020 | 10:00 | 0 | 90 | 02/12/2020 | 10:00 | 1.8 | 337.5 | 03/12/2020 | 10:00 | 1.3 | 45 | 04/12/2020 | 10:00 | 0.9 | 135 |
| 01/12/2020 | 11:00 | 0.9 | 22.5 | 02/12/2020 | 11:00 | 2.2 | 22.5 | 03/12/2020 | 11:00 | 1.3 | 135 | 04/12/2020 | 11:00 | 0.9 | 90 |
| 01/12/2020 | 12:00 | 0.9 | 337.5 | 02/12/2020 | 12:00 | 1.3 | 112.5 | 03/12/2020 | 12:00 | 1.3 | 337.5 | 04/12/2020 | 12:00 | 1.3 | 45 |
| 01/12/2020 | 13:00 | 1.8 | 22.5 | 02/12/2020 | 13:00 | 1.8 | 45 | 03/12/2020 | 13:00 | 0.9 | 67.5 | 04/12/2020 | 13:00 | 0.9 | 112.5 |
| 01/12/2020 | 14:00 | 1.3 | 90 | 02/12/2020 | 14:00 | 1.8 | 0 | 03/12/2020 | 14:00 | 1.3 | 90 | 04/12/2020 | 14:00 | 0.9 | 67.5 |
| 01/12/2020 | 15:00 | 1.3 | 0 | 02/12/2020 | 15:00 | 1.3 | 270 | 03/12/2020 | 15:00 | 0.9 | 112.5 | 04/12/2020 | 15:00 | 0.9 | 112.5 |
| 01/12/2020 | 16:00 | 0.4 | 292.5 | 02/12/2020 | 16:00 | 0.4 | 22.5 | 03/12/2020 | 16:00 | 1.3 | 0 | 04/12/2020 | 16:00 | 0.9 | 135 |
| 01/12/2020 | 17:00 | 0.4 | 45 | 02/12/2020 | 17:00 | 0.4 | 90 | 03/12/2020 | 17:00 | 1.3 | 22.5 | 04/12/2020 | 17:00 | 0.9 | 0 |
| 01/12/2020 | 18:00 | 0.4 | 90 | 02/12/2020 | 18:00 | 0.4 | 45 | 03/12/2020 | 18:00 | 0.9 | 337.5 | 04/12/2020 | 18:00 | 0.4 | 45 |
| 01/12/2020 | 19:00 | 0.4 | 45 | 02/12/2020 | 19:00 | 0.4 | 180 | 03/12/2020 | 19:00 | 0.4 | 22.5 | 04/12/2020 | 19:00 | 0.4 | 90 |
| 01/12/2020 | 20:00 | 0.9 | 22.5 | 02/12/2020 | 20:00 | 0.9 | 22.5 | 03/12/2020 | 20:00 | 0.9 | 45 | 04/12/2020 | 20:00 | 0.9 | 22.5 |
| 01/12/2020 | 21:00 | 0.4 | 0 | 02/12/2020 | 21:00 | 0.9 | 0 | 03/12/2020 | 21:00 | 0.4 | 225 | 04/12/2020 | 21:00 | 0.4 | 112.5 |
| 01/12/2020 | 22:00 | 0 | 0 | 02/12/2020 | 22:00 | 0.4 | 67.5 | 03/12/2020 | 22:00 | 0.9 | 225 | 04/12/2020 | 22:00 | 0.4 | 0 |
| 01/12/2020 | 23:00 | 0 | 67.5 | 02/12/2020 | 23:00 | 0.4 | 67.5 | 03/12/2020 | 23:00 | 1.3 | 22.5 | 04/12/2020 | 23:00 | 0.4 | 90 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 05/12/2020 | 0:00 | 0.4 | 0 | 06/12/2020 | 0:00 | 0.4 | 45 | 07/12/2020 | 0:00 | 0.4 | 270 | 08/12/2020 | 0:00 | 0.4 | 22.5 |
| 05/12/2020 | 1:00 | 0.4 | 247.5 | 06/12/2020 | 1:00 | 0.9 | 0 | 07/12/2020 | 1:00 | 0.4 | 247.5 | 08/12/2020 | 1:00 | 0 | 315 |
| 05/12/2020 | 2:00 | 0.9 | 315 | 06/12/2020 | 2:00 | 0.4 | 0 | 07/12/2020 | 2:00 | 0.4 | 247.5 | 08/12/2020 | 2:00 | 0.4 | 45 |
| 05/12/2020 | 3:00 | 0.9 | 45 | 06/12/2020 | 3:00 | 0.4 | 22.5 | 07/12/2020 | 3:00 | 0.4 | 45 | 08/12/2020 | 3:00 | 0.4 | 225 |
| 05/12/2020 | 4:00 | 0.4 | 22.5 | 06/12/2020 | 4:00 | 0.4 | 180 | 07/12/2020 | 4:00 | 0.9 | 315 | 08/12/2020 | 4:00 | 0.4 | 247.5 |
| 05/12/2020 | 5:00 | 0.4 | 315 | 06/12/2020 | 5:00 | 0 | 45 | 07/12/2020 | 5:00 | 0 | 22.5 | 08/12/2020 | 5:00 | 0.9 | 135 |
| 05/12/2020 | 6:00 | 0 | 247.5 | 06/12/2020 | 6:00 | 0.4 | 157.5 | 07/12/2020 | 6:00 | 0 | 247.5 | 08/12/2020 | 6:00 | 0.9 | 90 |
| 05/12/2020 | 7:00 | 0.4 | 247.5 | 06/12/2020 | 7:00 | 0 | 0 | 07/12/2020 | 7:00 | 0.4 | 0 | 08/12/2020 | 7:00 | 1.8 | 45 |
| 05/12/2020 | 8:00 | 0.9 | 22.5 | 06/12/2020 | 8:00 | 0.9 | 22.5 | 07/12/2020 | 8:00 | 0 | 225 | 08/12/2020 | 8:00 | 1.3 | 45 |
| 05/12/2020 | 9:00 | 0.9 | 135 | 06/12/2020 | 9:00 | 0.4 | 225 | 07/12/2020 | 9:00 | 0.4 | 270 | 08/12/2020 | 9:00 | 0.4 | 157.5 |
| 05/12/2020 | 10:00 | 0.9 | 247.5 | 06/12/2020 | 10:00 | 1.3 | 45 | 07/12/2020 | 10:00 | 0.4 | 247.5 | 08/12/2020 | 10:00 | 0.4 | 225 |
| 05/12/2020 | 11:00 | 0.9 | 270 | 06/12/2020 | 11:00 | 0.9 | 22.5 | 07/12/2020 | 11:00 | 0.4 | 270 | 08/12/2020 | 11:00 | 0.4 | 45 |
| 05/12/2020 | 12:00 | 1.3 | 112.5 | 06/12/2020 | 12:00 | 0.9 | 90 | 07/12/2020 | 12:00 | 0.4 | 270 | 08/12/2020 | 12:00 | 0.4 | 135 |
| 05/12/2020 | 13:00 | 1.3 | 247.5 | 06/12/2020 | 13:00 | 1.3 | 90 | 07/12/2020 | 13:00 | 0.4 | 270 | 08/12/2020 | 13:00 | 0.4 | 157.5 |
| 05/12/2020 | 14:00 | 0.9 | 67.5 | 06/12/2020 | 14:00 | 0.9 | 90 | 07/12/2020 | 14:00 | 0.4 | 112.5 | 08/12/2020 | 14:00 | 0.9 | 247.5 |
| 05/12/2020 | 15:00 | 0.9 | 135 | 06/12/2020 | 15:00 | 0.9 | 90 | 07/12/2020 | 15:00 | 0.9 | 112.5 | 08/12/2020 | 15:00 | 0.4 | 112.5 |
| 05/12/2020 | 16:00 | 0.9 | 112.5 | 06/12/2020 | 16:00 | 1.3 | 112.5 | 07/12/2020 | 16:00 | 0.9 | 0 | 08/12/2020 | 16:00 | 0.9 | 337.5 |
| 05/12/2020 | 17:00 | 0.9 | 22.5 | 06/12/2020 | 17:00 | 0.4 | 112.5 | 07/12/2020 | 17:00 | 0.4 | 112.5 | 08/12/2020 | 17:00 | 0.9 | 90 |
| 05/12/2020 | 18:00 | 0.9 | 22.5 | 06/12/2020 | 18:00 | 0.4 | 180 | 07/12/2020 | 18:00 | 0.9 | 180 | 08/12/2020 | 18:00 | 1.3 | 0 |
| 05/12/2020 | 19:00 | 0.9 | 0 | 06/12/2020 | 19:00 | 0.4 | 112.5 | 07/12/2020 | 19:00 | 0.4 | 0 | 08/12/2020 | 19:00 | 0.9 | 0 |
| 05/12/2020 | 20:00 | 0.4 | 22.5 | 06/12/2020 | 20:00 | 0.9 | 22.5 | 07/12/2020 | 20:00 | 0.4 | 270 | 08/12/2020 | 20:00 | 0 | 22.5 |
| 05/12/2020 | 21:00 | 0.9 | 337.5 | 06/12/2020 | 21:00 | 0.4 | 22.5 | 07/12/2020 | 21:00 | 0.4 | 67.5 | 08/12/2020 | 21:00 | 0.4 | 22.5 |
| 05/12/2020 | 22:00 | 0.4 | 0 | 06/12/2020 | 22:00 | 0 | 0 | 07/12/2020 | 22:00 | 0.9 | 0 | 08/12/2020 | 22:00 | 0.9 | 0 |
| 05/12/2020 | 23:00 | 0.4 | 337.5 | 06/12/2020 | 23:00 | 0 | 337.5 | 07/12/2020 | 23:00 | 0.9 | 22.5 | 08/12/2020 | 23:00 | 0.4 | 337.5 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 09/12/2020 | 0:00 | 0.4 | 22.5 | 10/12/2020 | 0:00 | 0.9 | 0 | 11/12/2020 | 0:00 | 0.4 | 112.5 | 12/12/2020 | 0:00 | 0 | 270 |
| 09/12/2020 | 1:00 | 0.4 | 90 | 10/12/2020 | 1:00 | 0.9 | 0 | 11/12/2020 | 1:00 | 0.4 | 90 | 12/12/2020 | 1:00 | 0 | 0 |
| 09/12/2020 | 2:00 | 0.4 | 22.5 | 10/12/2020 | 2:00 | 0.9 | 0 | 11/12/2020 | 2:00 | 0.9 | 90 | 12/12/2020 | 2:00 | 0 | 90 |
| 09/12/2020 | 3:00 | 0.4 | 337.5 | 10/12/2020 | 3:00 | 0.4 | 0 | 11/12/2020 | 3:00 | 0.9 | 67.5 | 12/12/2020 | 3:00 | 0 | 112.5 |
| 09/12/2020 | 4:00 | 0.4 | 22.5 | 10/12/2020 | 4:00 | 0 | 45 | 11/12/2020 | 4:00 | 0.9 | 22.5 | 12/12/2020 | 4:00 | 0.4 | 45 |
| 09/12/2020 | 5:00 | 0.4 | 45 | 10/12/2020 | 5:00 | 0 | 45 | 11/12/2020 | 5:00 | 0.4 | 90 | 12/12/2020 | 5:00 | 0 | 112.5 |
| 09/12/2020 | 6:00 | 0 | 315 | 10/12/2020 | 6:00 | 0.4 | 90 | 11/12/2020 | 6:00 | 0.4 | 112.5 | 12/12/2020 | 6:00 | 0 | 135 |
| 09/12/2020 | 7:00 | 0.4 | 270 | 10/12/2020 | 7:00 | 0 | 270 | 11/12/2020 | 7:00 | 0 | 112.5 | 12/12/2020 | 7:00 | 0.4 | 112.5 |
| 09/12/2020 | 8:00 | 0.4 | 225 | 10/12/2020 | 8:00 | 1.3 | 90 | 11/12/2020 | 8:00 | 0 | 22.5 | 12/12/2020 | 8:00 | 0.9 | 90 |
| 09/12/2020 | 9:00 | 0.4 | 247.5 | 10/12/2020 | 9:00 | 0.9 | 0 | 11/12/2020 | 9:00 | 0.4 | 0 | 12/12/2020 | 9:00 | 0.4 | 292.5 |
| 09/12/2020 | 10:00 | 0.9 | 45 | 10/12/2020 | 10:00 | 0.9 | 22.5 | 11/12/2020 | 10:00 | 0.9 | 112.5 | 12/12/2020 | 10:00 | 0.9 | 0 |
| 09/12/2020 | 11:00 | 0.9 | 0 | 10/12/2020 | 11:00 | 1.3 | 112.5 | 11/12/2020 | 11:00 | 0.9 | 90 | 12/12/2020 | 11:00 | 0.9 | 112.5 |
| 09/12/2020 | 12:00 | 1.3 | 45 | 10/12/2020 | 12:00 | 0.4 | 90 | 11/12/2020 | 12:00 | 1.3 | 90 | 12/12/2020 | 12:00 | 0.4 | 112.5 |
| 09/12/2020 | 13:00 | 0.9 | 112.5 | 10/12/2020 | 13:00 | 0.4 | 45 | 11/12/2020 | 13:00 | 0.9 | 112.5 | 12/12/2020 | 13:00 | 0.9 | 0 |
| 09/12/2020 | 14:00 | 1.3 | 22.5 | 10/12/2020 | 14:00 | 0 | 180 | 11/12/2020 | 14:00 | 0.9 | 90 | 12/12/2020 | 14:00 | 0.4 | 0 |
| 09/12/2020 | 15:00 | 0.9 | 90 | 10/12/2020 | 15:00 | 0 | 180 | 11/12/2020 | 15:00 | 1.3 | 90 | 12/12/2020 | 15:00 | 0.9 | 45 |
| 09/12/2020 | 16:00 | 0.9 | 112.5 | 10/12/2020 | 16:00 | 0.4 | 270 | 11/12/2020 | 16:00 | 1.3 | 90 | 12/12/2020 | 16:00 | 0.9 | 112.5 |
| 09/12/2020 | 17:00 | 0.4 | 112.5 | 10/12/2020 | 17:00 | 0.4 | 112.5 | 11/12/2020 | 17:00 | 0.9 | 90 | 12/12/2020 | 17:00 | 1.3 | 112.5 |
| 09/12/2020 | 18:00 | 0.9 | 112.5 | 10/12/2020 | 18:00 | 0.4 | 112.5 | 11/12/2020 | 18:00 | 1.3 | 90 | 12/12/2020 | 18:00 | 0.9 | 90 |
| 09/12/2020 | 19:00 | 0.9 | 112.5 | 10/12/2020 | 19:00 | 0 | 135 | 11/12/2020 | 19:00 | 1.3 | 112.5 | 12/12/2020 | 19:00 | 0.9 | 112.5 |
| 09/12/2020 | 20:00 | 0.4 | 0 | 10/12/2020 | 20:00 | 1.3 | 112.5 | 11/12/2020 | 20:00 | 0.9 | 112.5 | 12/12/2020 | 20:00 | 0.4 | 337.5 |
| 09/12/2020 | 21:00 | 0.4 | 0 | 10/12/2020 | 21:00 | 0.9 | 90 | 11/12/2020 | 21:00 | 0.4 | 112.5 | 12/12/2020 | 21:00 | 0.4 | 112.5 |
| 09/12/2020 | 22:00 | 0.4 | 292.5 | 10/12/2020 | 22:00 | 0.4 | 112.5 | 11/12/2020 | 22:00 | 0.4 | 45 | 12/12/2020 | 22:00 | 0.9 | 112.5 |
| 09/12/2020 | 23:00 | 0.4 | 315 | 10/12/2020 | 23:00 | 0.9 | 112.5 | 11/12/2020 | 23:00 | 0.4 | 112.5 | 12/12/2020 | 23:00 | 0.9 | 90 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13/12/2020 | 0:00 | 0.4 | 112.5 | 14/12/2020 | 0:00 | 0.9 | 135 | 15/12/2020 | 0:00 | 0.4 | 225 | 16/12/2020 | 0:00 | 0.4 | 247.5 |
| 13/12/2020 | 1:00 | 0.4 | 90 | 14/12/2020 | 1:00 | 1.3 | 112.5 | 15/12/2020 | 1:00 | 0.4 | 270 | 16/12/2020 | 1:00 | 0.4 | 225 |
| 13/12/2020 | 2:00 | 0.9 | 45 | 14/12/2020 | 2:00 | 0.4 | 90 | 15/12/2020 | 2:00 | 0.4 | 112.5 | 16/12/2020 | 2:00 | 0.4 | 225 |
| 13/12/2020 | 3:00 | 0.9 | 22.5 | 14/12/2020 | 3:00 | 0.4 | 90 | 15/12/2020 | 3:00 | 1.3 | 112.5 | 16/12/2020 | 3:00 | 0.4 | 247.5 |
| 13/12/2020 | 4:00 | 0.9 | 90 | 14/12/2020 | 4:00 | 0.4 | 112.5 | 15/12/2020 | 4:00 | 0.4 | 247.5 | 16/12/2020 | 4:00 | 0 | 225 |
| 13/12/2020 | 5:00 | 1.3 | 22.5 | 14/12/2020 | 5:00 | 0.4 | 90 | 15/12/2020 | 5:00 | 0.4 | 67.5 | 16/12/2020 | 5:00 | 0.4 | 157.5 |
| 13/12/2020 | 6:00 | 0.9 | 90 | 14/12/2020 | 6:00 | 0.4 | 90 | 15/12/2020 | 6:00 | 0.9 | 247.5 | 16/12/2020 | 6:00 | 0.4 | 135 |
| 13/12/2020 | 7:00 | 1.3 | 90 | 14/12/2020 | 7:00 | 0.9 | 112.5 | 15/12/2020 | 7:00 | 0.4 | 247.5 | 16/12/2020 | 7:00 | 0.4 | 247.5 |
| 13/12/2020 | 8:00 | 1.3 | 90 | 14/12/2020 | 8:00 | 0.9 | 112.5 | 15/12/2020 | 8:00 | 0 | 22.5 | 16/12/2020 | 8:00 | 0.4 | 90 |
| 13/12/2020 | 9:00 | 0.9 | 67.5 | 14/12/2020 | 9:00 | 1.3 | 0 | 15/12/2020 | 9:00 | 0.4 | 292.5 | 16/12/2020 | 9:00 | 0.4 | 247.5 |
| 13/12/2020 | 10:00 | 1.3 | 90 | 14/12/2020 | 10:00 | 1.8 | 22.5 | 15/12/2020 | 10:00 | 1.3 | 22.5 | 16/12/2020 | 10:00 | 0.9 | 247.5 |
| 13/12/2020 | 11:00 | 1.8 | 112.5 | 14/12/2020 | 11:00 | 0.9 | 337.5 | 15/12/2020 | 11:00 | 1.3 | 67.5 | 16/12/2020 | 11:00 | 0.4 | 225 |
| 13/12/2020 | 12:00 | 1.3 | 90 | 14/12/2020 | 12:00 | 1.3 | 45 | 15/12/2020 | 12:00 | 0.9 | 45 | 16/12/2020 | 12:00 | 0.4 | 45 |
| 13/12/2020 | 13:00 | 1.8 | 90 | 14/12/2020 | 13:00 | 0.9 | 337.5 | 15/12/2020 | 13:00 | 0.4 | 90 | 16/12/2020 | 13:00 | 0.9 | 45 |
| 13/12/2020 | 14:00 | 1.8 | 112.5 | 14/12/2020 | 14:00 | 1.3 | 90 | 15/12/2020 | 14:00 | 0.9 | 225 | 16/12/2020 | 14:00 | 0.9 | 225 |
| 13/12/2020 | 15:00 | 1.8 | 90 | 14/12/2020 | 15:00 | 1.3 | 22.5 | 15/12/2020 | 15:00 | 0.4 | 90 | 16/12/2020 | 15:00 | 0.9 | 22.5 |
| 13/12/2020 | 16:00 | 1.3 | 112.5 | 14/12/2020 | 16:00 | 1.8 | 0 | 15/12/2020 | 16:00 | 0.4 | 45 | 16/12/2020 | 16:00 | 0.9 | 337.5 |
| 13/12/2020 | 17:00 | 1.3 | 90 | 14/12/2020 | 17:00 | 0.4 | 112.5 | 15/12/2020 | 17:00 | 0.9 | 0 | 16/12/2020 | 17:00 | 0.4 | 225 |
| 13/12/2020 | 18:00 | 0.4 | 112.5 | 14/12/2020 | 18:00 | 0.4 | 0 | 15/12/2020 | 18:00 | 0.4 | 337.5 | 16/12/2020 | 18:00 | 0.4 | 22.5 |
| 13/12/2020 | 19:00 | 0.4 | 90 | 14/12/2020 | 19:00 | 0.4 | 90 | 15/12/2020 | 19:00 | 0.4 | 337.5 | 16/12/2020 | 19:00 | 0.4 | 225 |
| 13/12/2020 | 20:00 | 0.4 | 112.5 | 14/12/2020 | 20:00 | 0.4 | 45 | 15/12/2020 | 20:00 | 0.4 | 22.5 | 16/12/2020 | 20:00 | 0.9 | 0 |
| 13/12/2020 | 21:00 | 0.4 | 67.5 | 14/12/2020 | 21:00 | 0.4 | 135 | 15/12/2020 | 21:00 | 0.4 | 247.5 | 16/12/2020 | 21:00 | 0.4 | 45 |
| 13/12/2020 | 22:00 | 0.4 | 112.5 | 14/12/2020 | 22:00 | 0 | 225 | 15/12/2020 | 22:00 | 0.4 | 135 | 16/12/2020 | 22:00 | 0.4 | 180 |
| 13/12/2020 | 23:00 | 0.9 | 112.5 | 14/12/2020 | 23:00 | 0.4 | 225 | 15/12/2020 | 23:00 | 0.4 | 337.5 | 16/12/2020 | 23:00 | 0.4 | 180 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17/12/2020 | 0:00 | 0 | 202.5 | 18/12/2020 | 0:00 | 0 | 292.5 | 19/12/2020 | 0:00 | 1.3 | 337.5 | 20/12/2020 | 0:00 | 0.4 | 112.5 |
| 17/12/2020 | 1:00 | 0.4 | 225 | 18/12/2020 | 1:00 | 0.4 | 135 | 19/12/2020 | 1:00 | 0.9 | 90 | 20/12/2020 | 1:00 | 0.4 | 157.5 |
| 17/12/2020 | 2:00 | 0.4 | 247.5 | 18/12/2020 | 2:00 | 0.4 | 225 | 19/12/2020 | 2:00 | 0.9 | 22.5 | 20/12/2020 | 2:00 | 0.9 | 90 |
| 17/12/2020 | 3:00 | 0 | 247.5 | 18/12/2020 | 3:00 | 0.4 | 67.5 | 19/12/2020 | 3:00 | 0.4 | 22.5 | 20/12/2020 | 3:00 | 0.4 | 45 |
| 17/12/2020 | 4:00 | 0.9 | 247.5 | 18/12/2020 | 4:00 | 0.4 | 225 | 19/12/2020 | 4:00 | 0.4 | 45 | 20/12/2020 | 4:00 | 1.3 | 0 |
| 17/12/2020 | 5:00 | 0.4 | 225 | 18/12/2020 | 5:00 | 0.9 | 337.5 | 19/12/2020 | 5:00 | 0.9 | 67.5 | 20/12/2020 | 5:00 | 0.4 | 45 |
| 17/12/2020 | 6:00 | 0 | 202.5 | 18/12/2020 | 6:00 | 0.4 | 67.5 | 19/12/2020 | 6:00 | 1.3 | 315 | 20/12/2020 | 6:00 | 1.3 | 45 |
| 17/12/2020 | 7:00 | 0.4 | 225 | 18/12/2020 | 7:00 | 0.4 | 22.5 | 19/12/2020 | 7:00 | 1.8 | 45 | 20/12/2020 | 7:00 | 0.9 | 135 |
| 17/12/2020 | 8:00 | 0 | 157.5 | 18/12/2020 | 8:00 | 0.4 | 315 | 19/12/2020 | 8:00 | 0.9 | 0 | 20/12/2020 | 8:00 | 1.3 | 45 |
| 17/12/2020 | 9:00 | 0.4 | 270 | 18/12/2020 | 9:00 | 0.4 | 90 | 19/12/2020 | 9:00 | 0.9 | 292.5 | 20/12/2020 | 9:00 | 0.9 | 202.5 |
| 17/12/2020 | 10:00 | 0.4 | 225 | 18/12/2020 | 10:00 | 0.9 | 67.5 | 19/12/2020 | 10:00 | 0.9 | 180 | 20/12/2020 | 10:00 | 0.9 | 67.5 |
| 17/12/2020 | 11:00 | 0 | 45 | 18/12/2020 | 11:00 | 0.9 | 225 | 19/12/2020 | 11:00 | 0.9 | 135 | 20/12/2020 | 11:00 | 0.9 | 90 |
| 17/12/2020 | 12:00 | 0.9 | 0 | 18/12/2020 | 12:00 | 0.9 | 90 | 19/12/2020 | 12:00 | 1.8 | 45 | 20/12/2020 | 12:00 | 0.4 | 112.5 |
| 17/12/2020 | 13:00 | 0.9 | 22.5 | 18/12/2020 | 13:00 | 0.9 | 270 | 19/12/2020 | 13:00 | 1.3 | 45 | 20/12/2020 | 13:00 | 1.3 | 90 |
| 17/12/2020 | 14:00 | 0.4 | 337.5 | 18/12/2020 | 14:00 | 0.9 | 67.5 | 19/12/2020 | 14:00 | 1.8 | 45 | 20/12/2020 | 14:00 | 1.3 | 90 |
| 17/12/2020 | 15:00 | 1.3 | 22.5 | 18/12/2020 | 15:00 | 0.9 | 225 | 19/12/2020 | 15:00 | 1.3 | 45 | 20/12/2020 | 15:00 | 1.3 | 90 |
| 17/12/2020 | 16:00 | 0.4 | 22.5 | 18/12/2020 | 16:00 | 1.3 | 112.5 | 19/12/2020 | 16:00 | 0.9 | 90 | 20/12/2020 | 16:00 | 0.9 | 45 |
| 17/12/2020 | 17:00 | 0.4 | 292.5 | 18/12/2020 | 17:00 | 0.9 | 67.5 | 19/12/2020 | 17:00 | 0.4 | 90 | 20/12/2020 | 17:00 | 0.9 | 67.5 |
| 17/12/2020 | 18:00 | 0.4 | 0 | 18/12/2020 | 18:00 | 0.4 | 247.5 | 19/12/2020 | 18:00 | 0.9 | 337.5 | 20/12/2020 | 18:00 | 0.4 | 0 |
| 17/12/2020 | 19:00 | 0.4 | 337.5 | 18/12/2020 | 19:00 | 0.9 | 45 | 19/12/2020 | 19:00 | 0.9 | 45 | 20/12/2020 | 19:00 | 0.9 | 337.5 |
| 17/12/2020 | 20:00 | 0.4 | 337.5 | 18/12/2020 | 20:00 | 45 | 337.5 | 19/12/2020 | 20:00 | 0.4 | 180 | 20/12/2020 | 20:00 | 0.9 | 45 |
| 17/12/2020 | 21:00 | 0.4 | 247.5 | 18/12/2020 | 21:00 | 0.4 | 0 | 19/12/2020 | 21:00 | 0.4 | 0 | 20/12/2020 | 21:00 | 0.9 | 45 |
| 17/12/2020 | 22:00 | 0.4 | 315 | 18/12/2020 | 22:00 | 0.9 | 45 | 19/12/2020 | 22:00 | 0.4 | 112.5 | 20/12/2020 | 22:00 | 0.4 | 45 |
| 17/12/2020 | 23:00 | 0.4 | 247.5 | 18/12/2020 | 23:00 | 0.9 | 202.5 | 19/12/2020 | 23:00 | 0.9 | 90 | 20/12/2020 | 23:00 | 0.4 | 180 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21/12/2020 | 0:00 | 0.4 | 45 | 22/12/2020 | 0:00 | 0 | 67.5 | 23/12/2020 | 0:00 | 0.9 | 112.5 | 24/12/2020 | 0:00 | 0.4 | 135 |
| 21/12/2020 | 1:00 | 0.4 | 0 | 22/12/2020 | 1:00 | 0 | 0 | 23/12/2020 | 1:00 | 0.9 | 112.5 | 24/12/2020 | 1:00 | 0.4 | 112.5 |
| 21/12/2020 | 2:00 | 0.4 | 315 | 22/12/2020 | 2:00 | 0 | 22.5 | 23/12/2020 | 2:00 | 0.9 | 112.5 | 24/12/2020 | 2:00 | 0 | 202.5 |
| 21/12/2020 | 3:00 | 0.4 | 90 | 22/12/2020 | 3:00 | 0.9 | 45 | 23/12/2020 | 3:00 | 0.4 | 270 | 24/12/2020 | 3:00 | 0 | 135 |
| 21/12/2020 | 4:00 | 0.4 | 112.5 | 22/12/2020 | 4:00 | 0 | 315 | 23/12/2020 | 4:00 | 0.9 | 112.5 | 24/12/2020 | 4:00 | 0 | 135 |
| 21/12/2020 | 5:00 | 0.9 | 0 | 22/12/2020 | 5:00 | 0.4 | 292.5 | 23/12/2020 | 5:00 | 1.3 | 22.5 | 24/12/2020 | 5:00 | 0 | 135 |
| 21/12/2020 | 6:00 | 1.3 | 45 | 22/12/2020 | 6:00 | 0 | 45 | 23/12/2020 | 6:00 | 0 | 45 | 24/12/2020 | 6:00 | 0.4 | 90 |
| 21/12/2020 | 7:00 | 0.9 | 112.5 | 22/12/2020 | 7:00 | 0.4 | 337.5 | 23/12/2020 | 7:00 | 0.4 | 247.5 | 24/12/2020 | 7:00 | 0.4 | 315 |
| 21/12/2020 | 8:00 | 0.9 | 22.5 | 22/12/2020 | 8:00 | 0.4 | 247.5 | 23/12/2020 | 8:00 | 0 | 225 | 24/12/2020 | 8:00 | 0 | 292.5 |
| 21/12/2020 | 9:00 | 1.3 | 0 | 22/12/2020 | 9:00 | 0.4 | 292.5 | 23/12/2020 | 9:00 | 0.9 | 0 | 24/12/2020 | 9:00 | 0.4 | 292.5 |
| 21/12/2020 | 10:00 | 0.9 | 202.5 | 22/12/2020 | 10:00 | 0.4 | 0 | 23/12/2020 | 10:00 | 0.9 | 0 | 24/12/2020 | 10:00 | 0.4 | 90 |
| 21/12/2020 | 11:00 | 0.9 | 247.5 | 22/12/2020 | 11:00 | 0.9 | 0 | 23/12/2020 | 11:00 | 0.9 | 337.5 | 24/12/2020 | 11:00 | 0.4 | 270 |
| 21/12/2020 | 12:00 | 0.9 | 90 | 22/12/2020 | 12:00 | 0.4 | 315 | 23/12/2020 | 12:00 | 0.9 | 22.5 | 24/12/2020 | 12:00 | 0.9 | 90 |
| 21/12/2020 | 13:00 | 0.9 | 247.5 | 22/12/2020 | 13:00 | 0.9 | 112.5 | 23/12/2020 | 13:00 | 0.4 | 135 | 24/12/2020 | 13:00 | 0.4 | 270 |
| 21/12/2020 | 14:00 | 0.4 | 135 | 22/12/2020 | 14:00 | 1.8 | 112.5 | 23/12/2020 | 14:00 | 1.3 | 112.5 | 24/12/2020 | 14:00 | 0.9 | 90 |
| 21/12/2020 | 15:00 | 1.3 | 90 | 22/12/2020 | 15:00 | 0.9 | 90 | 23/12/2020 | 15:00 | 0.4 | 135 | 24/12/2020 | 15:00 | 0.4 | 90 |
| 21/12/2020 | 16:00 | 1.3 | 112.5 | 22/12/2020 | 16:00 | 0.9 | 112.5 | 23/12/2020 | 16:00 | 0.9 | 112.5 | 24/12/2020 | 16:00 | 2.2 | 247.5 |
| 21/12/2020 | 17:00 | 1.3 | 22.5 | 22/12/2020 | 17:00 | 0.9 | 112.5 | 23/12/2020 | 17:00 | 1.3 | 112.5 | 24/12/2020 | 17:00 | 1.3 | 247.5 |
| 21/12/2020 | 18:00 | 0.9 | 112.5 | 22/12/2020 | 18:00 | 0.9 | 112.5 | 23/12/2020 | 18:00 | 0.4 | 112.5 | 24/12/2020 | 18:00 | 0.9 | 247.5 |
| 21/12/2020 | 19:00 | 0.9 | 0 | 22/12/2020 | 19:00 | 0.4 | 135 | 23/12/2020 | 19:00 | 0 | 45 | 24/12/2020 | 19:00 | 0.4 | 225 |
| 21/12/2020 | 20:00 | 0.4 | 0 | 22/12/2020 | 20:00 | 0.4 | 112.5 | 23/12/2020 | 20:00 | 0.4 | 135 | 24/12/2020 | 20:00 | 1.3 | 112.5 |
| 21/12/2020 | 21:00 | 0.9 | 337.5 | 22/12/2020 | 21:00 | 0.9 | 0 | 23/12/2020 | 21:00 | 0.4 | 135 | 24/12/2020 | 21:00 | 1.3 | 45 |
| 21/12/2020 | 22:00 | 0 | 0 | 22/12/2020 | 22:00 | 0.4 | 337.5 | 23/12/2020 | 22:00 | 0.4 | 135 | 24/12/2020 | 22:00 | 0.9 | 0 |
| 21/12/2020 | 23:00 | 0 | 67.5 | 22/12/2020 | 23:00 | 0.4 | 315 | 23/12/2020 | 23:00 | 0.4 | 112.5 | 24/12/2020 | 23:00 | 0.4 | 90 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25/12/2020 | 0:00 | 0.9 | 22.5 | 26/12/2020 | 0:00 | 1.3 | 112.5 | 27/12/2020 | 0:00 | 0.4 | 112.5 | 28/12/2020 | 0:00 | 0.9 | 112.5 |
| 25/12/2020 | 1:00 | 0.4 | 0 | 26/12/2020 | 1:00 | 1.3 | 0 | 27/12/2020 | 1:00 | 0.4 | 67.5 | 28/12/2020 | 1:00 | 0.9 | 112.5 |
| 25/12/2020 | 2:00 | 0.9 | 45 | 26/12/2020 | 2:00 | 1.3 | 112.5 | 27/12/2020 | 2:00 | 0.9 | 90 | 28/12/2020 | 2:00 | 0.9 | 90 |
| 25/12/2020 | 3:00 | 0.9 | 337.5 | 26/12/2020 | 3:00 | 2.2 | 90 | 27/12/2020 | 3:00 | 0.9 | 90 | 28/12/2020 | 3:00 | 0.4 | 112.5 |
| 25/12/2020 | 4:00 | 0 | 112.5 | 26/12/2020 | 4:00 | 1.8 | 90 | 27/12/2020 | 4:00 | 0.4 | 135 | 28/12/2020 | 4:00 | 0.4 | 112.5 |
| 25/12/2020 | 5:00 | 0.4 | 0 | 26/12/2020 | 5:00 | 1.8 | 112.5 | 27/12/2020 | 5:00 | 0 | 135 | 28/12/2020 | 5:00 | 0 | 112.5 |
| 25/12/2020 | 6:00 | 0.4 | 22.5 | 26/12/2020 | 6:00 | 1.8 | 90 | 27/12/2020 | 6:00 | 0 | 0 | 28/12/2020 | 6:00 | 0 | 135 |
| 25/12/2020 | 7:00 | 0.4 | 337.5 | 26/12/2020 | 7:00 | 1.3 | 112.5 | 27/12/2020 | 7:00 | 0 | 157.5 | 28/12/2020 | 7:00 | 0 | 180 |
| 25/12/2020 | 8:00 | 1.3 | 112.5 | 26/12/2020 | 8:00 | 0.9 | 112.5 | 27/12/2020 | 8:00 | 0 | 0 | 28/12/2020 | 8:00 | 0.4 | 112.5 |
| 25/12/2020 | 9:00 | 0.9 | 112.5 | 26/12/2020 | 9:00 | 1.3 | 90 | 27/12/2020 | 9:00 | 0.9 | 135 | 28/12/2020 | 9:00 | 1.3 | 112.5 |
| 25/12/2020 | 10:00 | 1.3 | 22.5 | 26/12/2020 | 10:00 | 2.2 | 90 | 27/12/2020 | 10:00 | 1.3 | 112.5 | 28/12/2020 | 10:00 | 1.8 | 112.5 |
| 25/12/2020 | 11:00 | 1.8 | 90 | 26/12/2020 | 11:00 | 2.7 | 90 | 27/12/2020 | 11:00 | 0.9 | 112.5 | 28/12/2020 | 11:00 | 1.8 | 112.5 |
| 25/12/2020 | 12:00 | 1.3 | 90 | 26/12/2020 | 12:00 | 2.7 | 112.5 | 27/12/2020 | 12:00 | 0.4 | 135 | 28/12/2020 | 12:00 | 1.3 | 112.5 |
| 25/12/2020 | 13:00 | 1.3 | 112.5 | 26/12/2020 | 13:00 | 2.7 | 90 | 27/12/2020 | 13:00 | 0.4 | 247.5 | 28/12/2020 | 13:00 | 1.3 | 112.5 |
| 25/12/2020 | 14:00 | 0.9 | 90 | 26/12/2020 | 14:00 | 2.2 | 90 | 27/12/2020 | 14:00 | 0.4 | 90 | 28/12/2020 | 14:00 | 1.8 | 90 |
| 25/12/2020 | 15:00 | 0.9 | 112.5 | 26/12/2020 | 15:00 | 0.9 | 112.5 | 27/12/2020 | 15:00 | 0.4 | 112.5 | 28/12/2020 | 15:00 | 1.8 | 112.5 |
| 25/12/2020 | 16:00 | 1.3 | 112.5 | 26/12/2020 | 16:00 | 1.3 | 90 | 27/12/2020 | 16:00 | 0.4 | 247.5 | 28/12/2020 | 16:00 | 2.7 | 90 |
| 25/12/2020 | 17:00 | 1.3 | 112.5 | 26/12/2020 | 17:00 | 0.9 | 90 | 27/12/2020 | 17:00 | 0 | 112.5 | 28/12/2020 | 17:00 | 1.8 | 112.5 |
| 25/12/2020 | 18:00 | 1.3 | 90 | 26/12/2020 | 18:00 | 0.9 | 90 | 27/12/2020 | 18:00 | 0.4 | 112.5 | 28/12/2020 | 18:00 | 0.9 | 90 |
| 25/12/2020 | 19:00 | 0.9 | 90 | 26/12/2020 | 19:00 | 0.4 | 112.5 | 27/12/2020 | 19:00 | 0.9 | 90 | 28/12/2020 | 19:00 | 2.2 | 90 |
| 25/12/2020 | 20:00 | 1.3 | 90 | 26/12/2020 | 20:00 | 0.4 | 112.5 | 27/12/2020 | 20:00 | 0.9 | 112.5 | 28/12/2020 | 20:00 | 2.2 | 90 |
| 25/12/2020 | 21:00 | 2.2 | 112.5 | 26/12/2020 | 21:00 | 0.9 | 112.5 | 27/12/2020 | 21:00 | 0.9 | 112.5 | 28/12/2020 | 21:00 | 2.2 | 67.5 |
| 25/12/2020 | 22:00 | 1.8 | 90 | 26/12/2020 | 22:00 | 1.3 | 112.5 | 27/12/2020 | 22:00 | 0.9 | 112.5 | 28/12/2020 | 22:00 | 1.8 | 90 |
| 25/12/2020 | 23:00 | 2.2 | 90 | 26/12/2020 | 23:00 | 0.9 | 112.5 | 27/12/2020 | 23:00 | 0.9 | 112.5 | 28/12/2020 | 23:00 | 1.3 | 112.5 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29/12/2020 | 0:00 | 0.9 | 45 | 30/12/2020 | 0:00 | 0 | 45 | 31/12/2020 | 0:00 | 0.9 | 67.5 | | | | |
| 29/12/2020 | 1:00 | 1.8 | 90 | 30/12/2020 | 1:00 | 1.3 | 112.5 | 31/12/2020 | 1:00 | 0.9 | 45 | | | | |
| 29/12/2020 | 2:00 | 1.3 | 112.5 | 30/12/2020 | 2:00 | 1.3 | 315 | 31/12/2020 | 2:00 | 0.9 | 67.5 | | | | |
| 29/12/2020 | 3:00 | 2.7 | 90 | 30/12/2020 | 3:00 | 1.8 | 0 | 31/12/2020 | 3:00 | 1.3 | 45 | | | | |
| 29/12/2020 | 4:00 | 2.2 | 90 | 30/12/2020 | 4:00 | 2.2 | 337.5 | 31/12/2020 | 4:00 | 0.9 | 45 | | | | |
| 29/12/2020 | 5:00 | 1.3 | 112.5 | 30/12/2020 | 5:00 | 1.3 | 45 | 31/12/2020 | 5:00 | 0.9 | 22.5 | | | | |
| 29/12/2020 | 6:00 | 0.9 | 90 | 30/12/2020 | 6:00 | 1.8 | 0 | 31/12/2020 | 6:00 | 0.9 | 270 | | | | |
| 29/12/2020 | 7:00 | 1.3 | 112.5 | 30/12/2020 | 7:00 | 1.8 | 22.5 | 31/12/2020 | 7:00 | 0.4 | 22.5 | | | | |
| 29/12/2020 | 8:00 | 1.3 | 112.5 | 30/12/2020 | 8:00 | 2.2 | 22.5 | 31/12/2020 | 8:00 | 0.4 | 270 | | | | |
| 29/12/2020 | 9:00 | 0.9 | 135 | 30/12/2020 | 9:00 | 1.3 | 0 | 31/12/2020 | 9:00 | 0.9 | 225 | | | | |
| 29/12/2020 | 10:00 | 0.9 | 112.5 | 30/12/2020 | 10:00 | 1.3 | 292.5 | 31/12/2020 | 10:00 | 0.4 | 112.5 | | | | |
| 29/12/2020 | 11:00 | 1.3 | 112.5 | 30/12/2020 | 11:00 | 1.3 | 45 | 31/12/2020 | 11:00 | 0.9 | 90 | | | | |
| 29/12/2020 | 12:00 | 1.3 | 112.5 | 30/12/2020 | 12:00 | 2.2 | 67.5 | 31/12/2020 | 12:00 | 0.9 | 180 | | | | |
| 29/12/2020 | 13:00 | 0.9 | 90 | 30/12/2020 | 13:00 | 2.2 | 45 | 31/12/2020 | 13:00 | 1.3 | 90 | | | | |
| 29/12/2020 | 14:00 | 0.9 | 112.5 | 30/12/2020 | 14:00 | 1.8 | 45 | 31/12/2020 | 14:00 | 1.3 | 0 | | | | |
| 29/12/2020 | 15:00 | 0.9 | 112.5 | 30/12/2020 | 15:00 | 1.8 | 0 | 31/12/2020 | 15:00 | 1.8 | 90 | | | | |
| 29/12/2020 | 16:00 | 0.9 | 112.5 | 30/12/2020 | 16:00 | 1.3 | 337.5 | 31/12/2020 | 16:00 | 1.3 | 67.5 | | | | |
| 29/12/2020 | 17:00 | 0.9 | 112.5 | 30/12/2020 | 17:00 | 1.3 | 45 | 31/12/2020 | 17:00 | 1.3 | 247.5 | | | | |
| 29/12/2020 | 18:00 | 0.9 | 112.5 | 30/12/2020 | 18:00 | 1.3 | 90 | 31/12/2020 | 18:00 | 0.9 | 247.5 | | | | |
| 29/12/2020 | 19:00 | 0.9 | 112.5 | 30/12/2020 | 19:00 | 1.3 | 45 | 31/12/2020 | 19:00 | 0.4 | 225 | | | | |
| 29/12/2020 | 20:00 | 0.4 | 112.5 | 30/12/2020 | 20:00 | 0.9 | 315 | 31/12/2020 | 20:00 | 1.3 | 112.5 | | | | |
| 29/12/2020 | 21:00 | 0.9 | 112.5 | 30/12/2020 | 21:00 | 0.9 | 45 | 31/12/2020 | 21:00 | 1.3 | 45 | | | | |
| 29/12/2020 | 22:00 | 0 | 90 | 30/12/2020 | 22:00 | 1.3 | 45 | 31/12/2020 | 22:00 | 0.9 | 0 | | | | |
| 29/12/2020 | 23:00 | 0 | 0 | 30/12/2020 | 23:00 | 0.9 | 22.5 | 31/12/2020 | 23:00 | 0.4 | 90 | | | | |

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

Location: AM3 – Sky Tower

| Start Date | Weather | Air Temp. (℃) | Atmospheric Pressure (hPa) | Filter weight (g) | | Particulate weight (g) | Elapse Time | | Sampling Time (min) | Flow Rate (cfm) | | Av. Flow ($m^3$/min) | Total vol. ($m^3$) | Conc. (μg/$m^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Initial | Final | | Initial | Final | | Initial | Final | | | |
| 2/12/2020 | Sunny | 21.5 | 1020.5 | 14.2291 | 14.4206 | 0.1915 | 2073.31 | 2097.34 | 1442 | 49 | 49 | 1.42 | 2045 | 94 |
| 8/12/2020 | Sunny | 24.3 | 1019.7 | 15.0145 | 15.1932 | 0.1787 | 2219.55 | 2243.58 | 1442 | 48 | 48 | 1.38 | 1990 | 90 |
| 14/12/2020 | Cloudy | 21.3 | 1018.1 | 18.4241 | 18.5974 | 0.1733 | 2244.63 | 2268.67 | 1442 | 48 | 48 | 1.37 | 1982 | 87 |
| 19/12/2020 | Sunny | 13.5 | 1023.4 | 15.5175 | 15.6856 | 0.1681 | 2268.77 | 2292.81 | 1442 | 50 | 50 | 1.46 | 2103 | 80 |
| 23/12/2020 | Sunny | 19.5 | 1016.9 | 15.6335 | 15.7495 | 0.116 | 2294.62 | 2318.65 | 1442 | 48 | 48 | 1.38 | 1987 | 58 |
| 29/12/2020 | Sunny | 23.7 | 1014.8 | 18.5162 | 18.7598 | 0.2436 | 2319.51 | 2343.54 | 1442 | 50 | 50 | 1.43 | 2055 | 119 |
| | | | | | | | | | | | | Maximum | | 119 |
| | | | | | | | | | | | | Minimum | | 58 |
| | | | | | | | | | | | | Average | | 88 |
| | | | | | | | | | | | | Action Level | | 182 |
| | | | | | | | | | | | | Limit Level | | 260 |

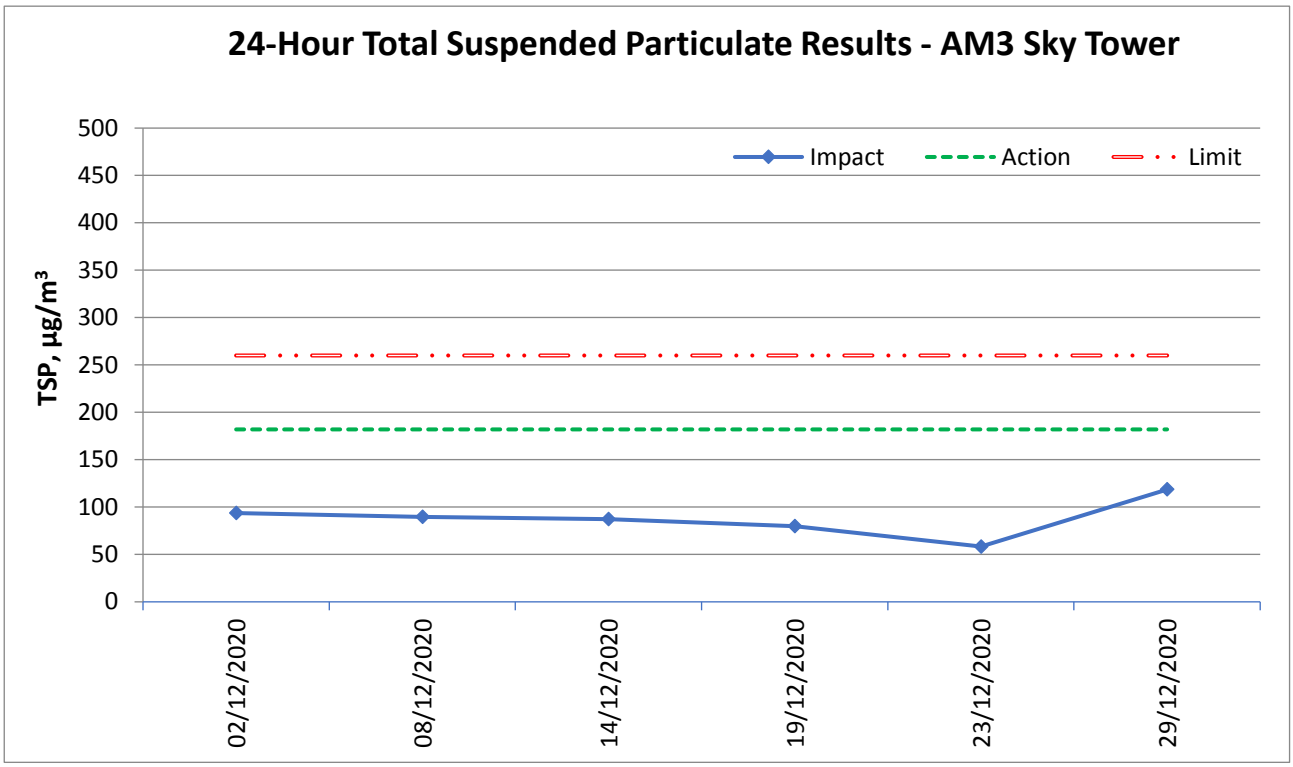
Location: AM4(A) – The Hong Kong Society for the Blind's Factory cum Sheltered Workshop

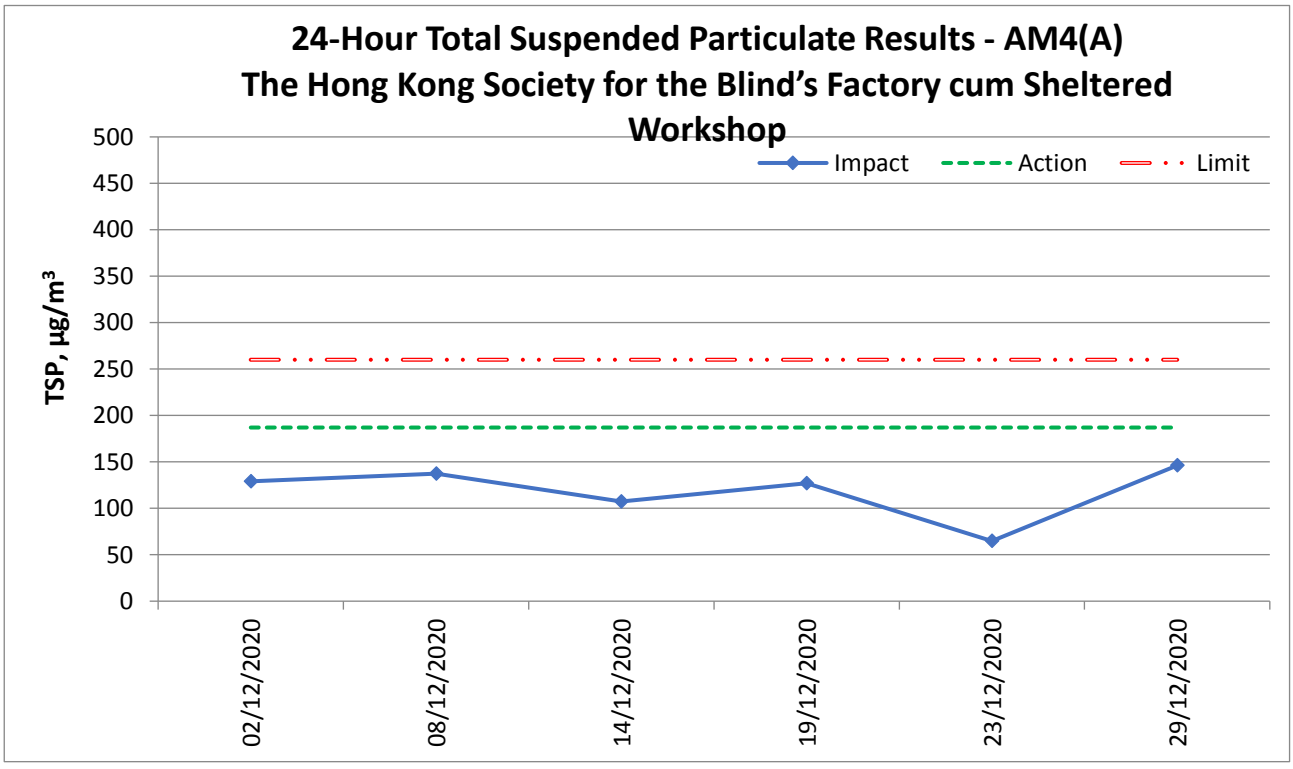
| Start Date | Weather | Air Temp. (℃) | Atmospheric Pressure (hPa) | Filter weight (g) | | Particulate weight (g) | Elapse Time | | Sampling Time (min) | Flow Rate (cfm) | | Av. Flow ($m^3$/min) | Total vol. ($m^3$) | Conc. (μg/$m^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Initial | Final | | Initial | Final | | Initial | Final | | | |
| 2/12/2020 | Sunny | 21.5 | 1020.5 | 17.8512 | 18.1141 | 0.2629 | 1891.67 | 1915.73 | 1444 | 50 | 50 | 1.41 | 2040 | 129 |
| 8/12/2020 | Sunny | 24.3 | 1019.7 | 18.3408 | 18.6193 | 0.2785 | 1943.75 | 1967.8 | 1443 | 50 | 50 | 1.41 | 2028 | 137 |
| 14/12/2020 | Cloudy | 21.3 | 1018.1 | 18.3563 | 18.5666 | 0.2103 | 1968.12 | 1992.17 | 1443 | 48 | 48 | 1.36 | 1957 | 107 |
| 19/12/2020 | Sunny | 13.5 | 1023.4 | 18.4644 | 18.7222 | 0.2578 | 1993.52 | 2017.55 | 1442 | 49 | 49 | 1.41 | 2031 | 127 |
| 23/12/2020 | Sunny | 19.5 | 1016.9 | 15.6572 | 15.7896 | 0.1324 | 2019.67 | 2043.69 | 1441 | 50 | 50 | 1.42 | 2044 | 65 |
| 29/12/2020 | Sunny | 23.7 | 1014.8 | 18.4196 | 18.7144 | 0.2948 | 2044.67 | 2068.71 | 1442 | 49 | 49 | 1.38 | 2017 | 146 |
| | | | | | | | | | | | | Maximum | | 146 |
| | | | | | | | | | | | | Minimum | | 65 |
| | | | | | | | | | | | | Average | | 119 |
| | | | | | | | | | | | | Action Level | | 187 |
| | | | | | | | | | | | | Limit Level | | 260 |

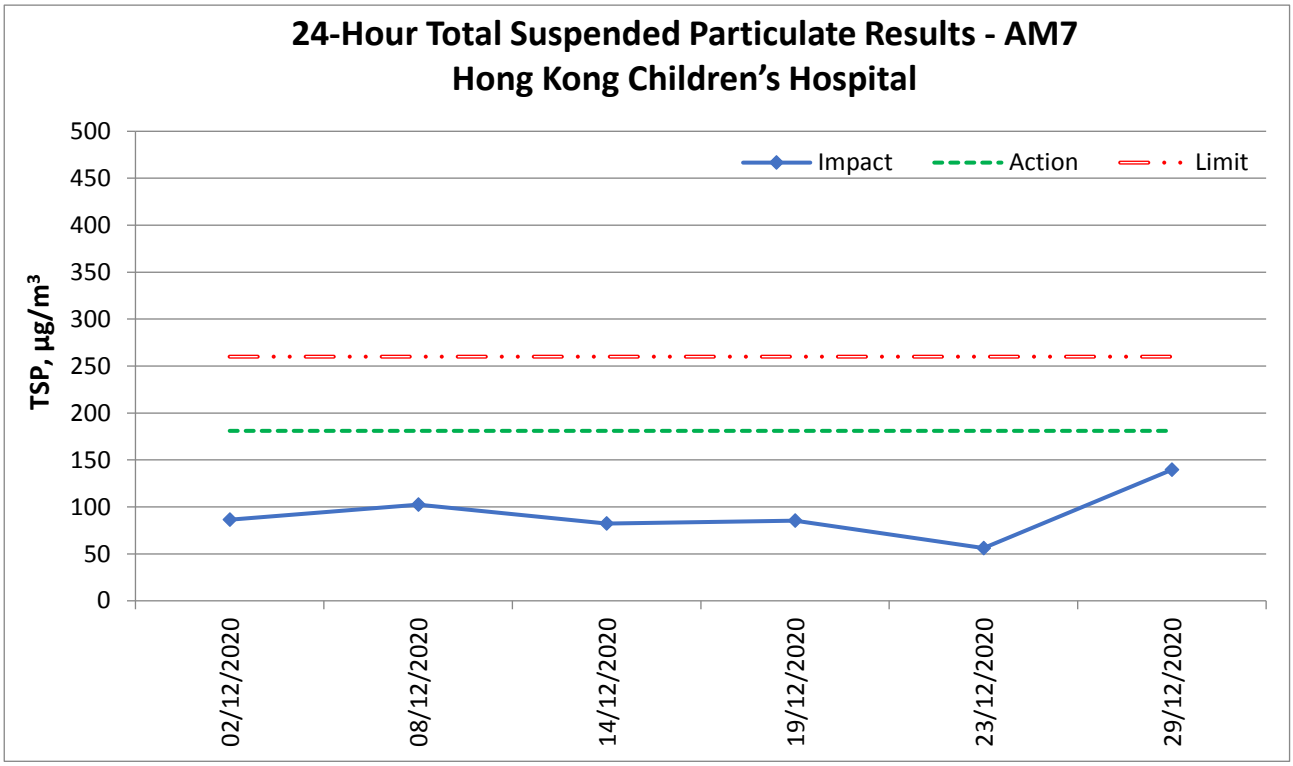
Location: AM7 – Hong Kong Children's Hospital

| Start Date | Weather | Air Temp. (℃) | Atmospheric Pressure (hPa) | Filter weight (g) | | Particulate weight (g) | Elapse Time | | Sampling Time (min) | Flow Rate (cfm) | | Av. Flow ($m^3$/min) | Total vol. ($m^3$) | Conc. (μg/$m^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Initial | Final | | Initial | Final | | Initial | Final | | | |
| 2/12/2020 | Sunny | 21.5 | 1020.5 | 18.3602 | 18.5379 | 0.1777 | 6738.82 | 6762.84 | 1441 | 52 | 52 | 1.43 | 2057 | 86 |
| 8/12/2020 | Sunny | 24.3 | 1019.7 | 15.1894 | 15.3906 | 0.2012 | 6763.04 | 6787.08 | 1442 | 50 | 50 | 1.36 | 1967 | 102 |
| 14/12/2020 | Cloudy | 21.3 | 1018.1 | 18.2399 | 18.4086 | 0.1687 | 6788.01 | 6812.05 | 1442 | 52 | 52 | 1.42 | 2054 | 82 |
| 19/12/2020 | Sunny | 13.5 | 1023.4 | 18.3526 | 18.5305 | 0.1779 | 6812.17 | 6836.21 | 1442 | 52 | 52 | 1.45 | 2088 | 85 |
| 23/12/2020 | Sunny | 19.5 | 1016.9 | 18.588 | 18.7036 | 0.1156 | 6836.34 | 6860.37 | 1442 | 52 | 52 | 1.43 | 2059 | 56 |
| 29/12/2020 | Sunny | 23.7 | 1014.8 | 15.6733 | 15.9584 | 0.2851 | 6860.47 | 6884.51 | 1442 | 52 | 52 | 1.42 | 2043 | 140 |
| | | | | | | | | | | | | Maximum | | 140 |
| | | | | | | | | | | | | Minimum | | 56 |
| | | | | | | | | | | | | Average | | 92 |
| | | | | | | | | | | | | Action Level | | 181 |
| | | | | | | | | | | | | Limit Level | | 260 |

**24-hour average TSP**




24-Hour Total Suspended Particulate Results - AM7
Hong Kong Children's Hospital
TSP, µg/m³
500
450
400
350
300
250
200
150
100
50
0
Impact
Action
Limit
02/12/2020
08/12/2020
14/12/2020
19/12/2020
23/12/2020
29/12/2020

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

Location:
**AM3 -**
**Sky Tower**

| Date | Measurement Period | | | 1-hr TSP concentration, $\mu g/m^3$ | Weather |
|---|---|---|---|---|---|
| 2/12/2020 | 9:00 | - | 10:00 | 112 | Sunny |
| | 10:00 | - | 11:00 | 116 | |
| | 11:00 | - | 12:00 | 123 | |
| 8/12/2020 | 13:00 | - | 14:00 | 105 | Sunny |
| | 14:00 | - | 15:00 | 108 | |
| | 15:00 | - | 16:00 | 110 | |
| 14/12/2020 | 9:00 | - | 10:00 | 98 | Cloudy |
| | 10:00 | - | 11:00 | 105 | |
| | 11:00 | - | 12:00 | 106 | |
| 19/12/2020 | 13:00 | - | 14:00 | 89 | Sunny |
| | 14:00 | - | 15:00 | 92 | |
| | 15:00 | - | 16:00 | 94 | |
| 23/12/2020 | 9:00 | - | 10:00 | 67 | Sunny |
| | 10:00 | - | 11:00 | 68 | |
| | 11:00 | - | 12:00 | 73 | |
| 29/12/2020 | 13:00 | - | 14:00 | 91 | Sunny |
| | 14:00 | - | 15:00 | 94 | |
| | 15:00 | - | 16:00 | 95 | |
| Maximum | | | | 123 | |
| Minimum | | | | 67 | |
| Average | | | | 97 | |
| Action Level | | | | 297 | |
| Limit Level | | | | 500 | |

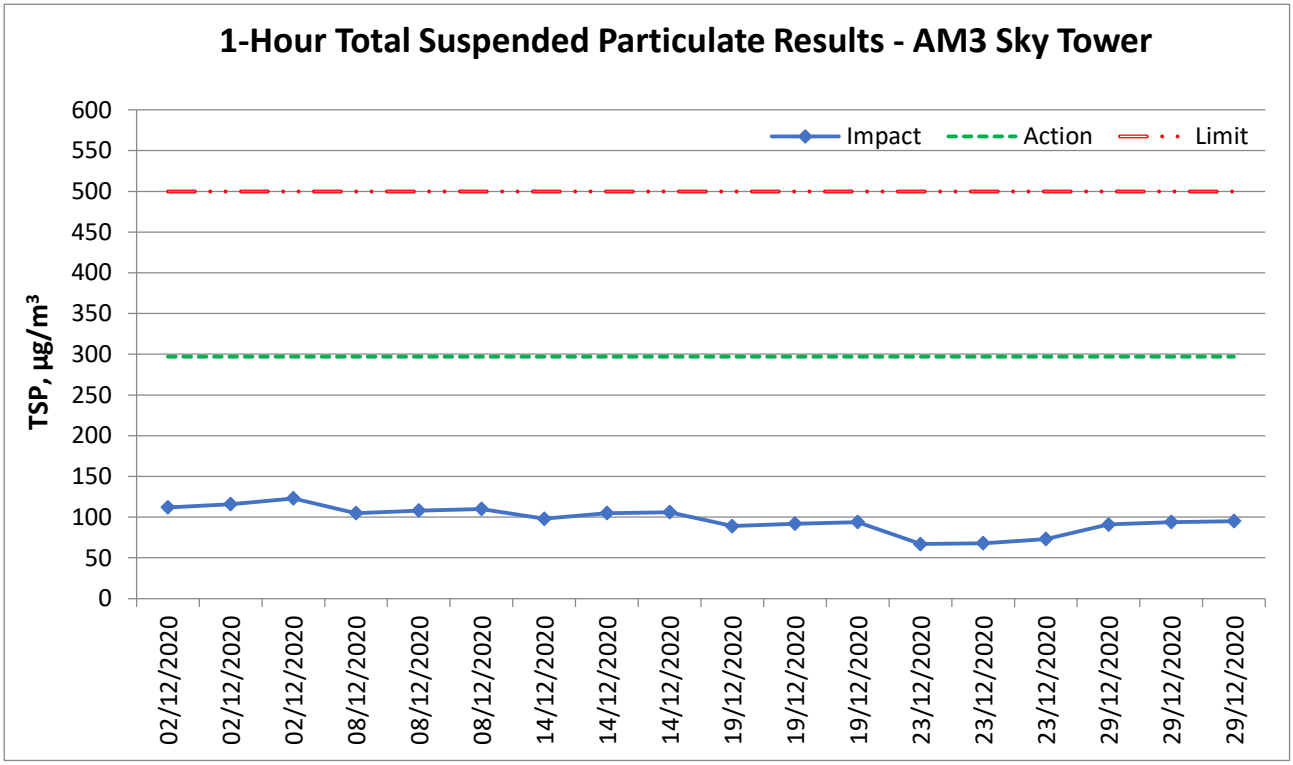
Location:
**AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop**

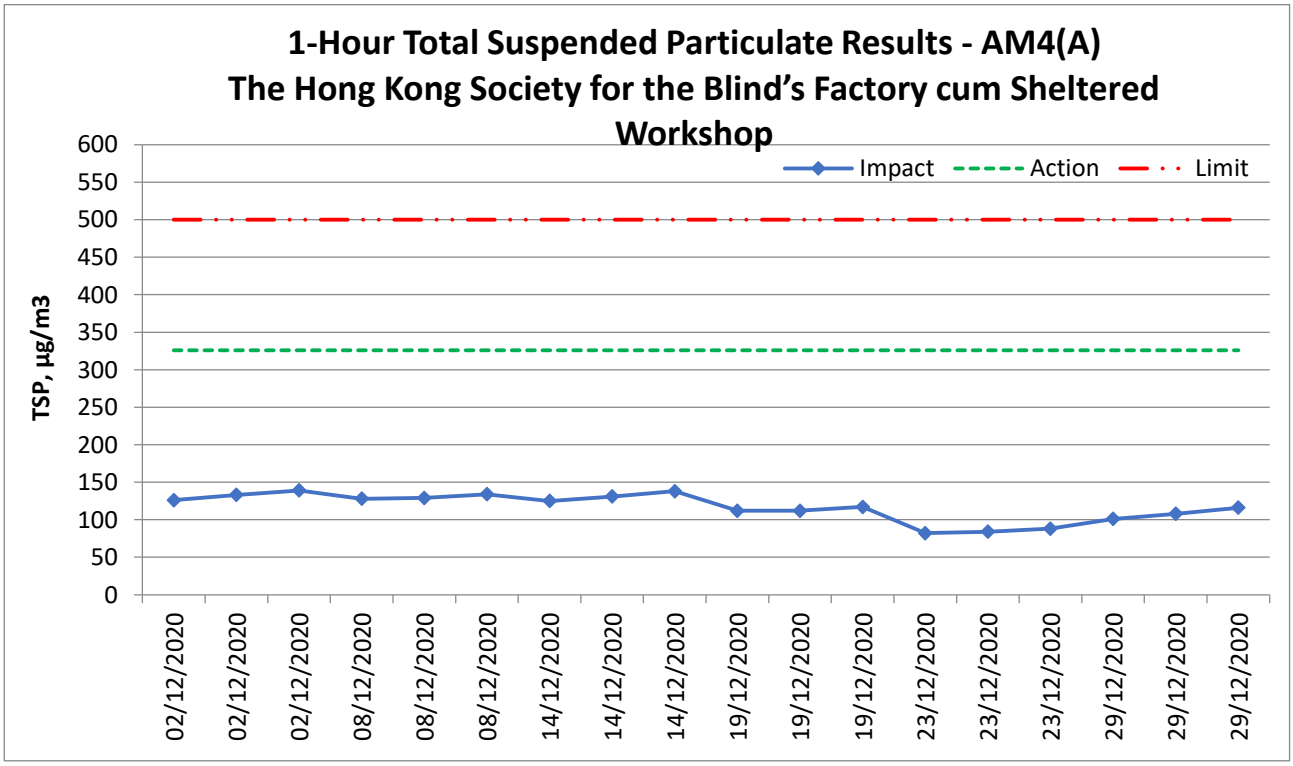
| Date | Measurement Period | | | 1-hr TSP concentration, $\mu g/m^3$ | Weather |
|---|---|---|---|---|---|
| 2/12/2020 | 13:00 | - | 14:00 | 126 | Sunny |
| | 14:00 | - | 15:00 | 133 | |
| | 15:00 | - | 16:00 | 139 | |
| 8/12/2020 | 9:00 | - | 10:00 | 128 | Sunny |
| | 10:00 | - | 11:00 | 129 | |
| | 11:00 | - | 12:00 | 134 | |
| 14/12/2020 | 13:00 | - | 14:00 | 125 | Cloudy |
| | 14:00 | - | 15:00 | 131 | |
| | 15:00 | - | 16:00 | 138 | |
| 19/12/2020 | 9:00 | - | 10:00 | 112 | Sunny |
| | 10:00 | - | 11:00 | 112 | |
| | 11:00 | - | 12:00 | 117 | |
| 23/12/2020 | 13:00 | - | 14:00 | 82 | Sunny |
| | 14:00 | - | 15:00 | 84 | |
| | 15:00 | - | 16:00 | 88 | |
| 29/12/2020 | 9:00 | - | 10:00 | 101 | Sunny |
| | 10:00 | - | 11:00 | 108 | |
| | 11:00 | - | 12:00 | 116 | |
| Maximum | | | | 139 | |
| Minimum | | | | 82 | |
| Average | | | | 117 | |
| Action Level | | | | 326 | |
| Limit Level | | | | 500 | |

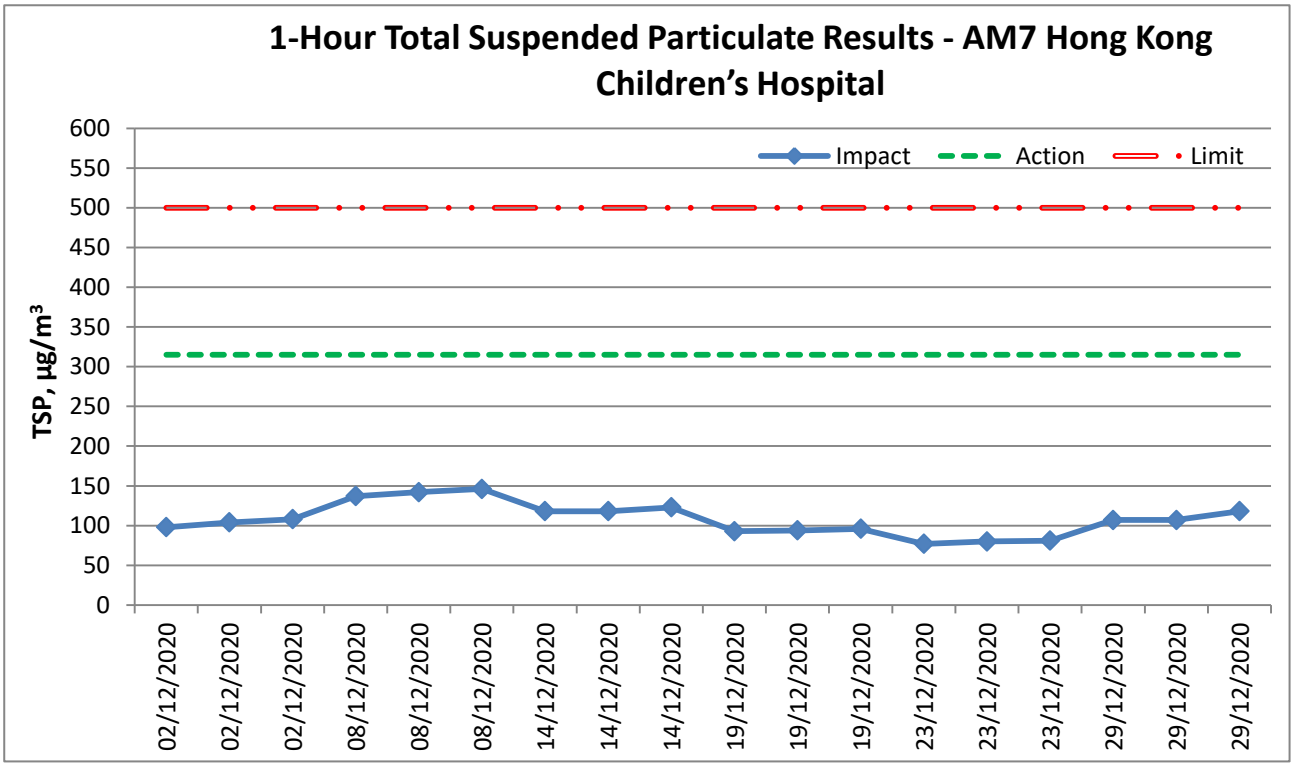
Location: **AM7 - Hong Kong Children's Hospital**

| Date | Measurement Period | | | 1-hr TSP concentration, $\mu g/m^3$ | Weather |
|---|---|---|---|---|---|
| 2/12/2020 | 9:00 | - | 10:00 | 98 | Sunny |
| | 10:00 | - | 11:00 | 104 | |
| | 11:00 | - | 12:00 | 108 | |
| 8/12/2020 | 11:00 | - | 12:00 | 137 | Sunny |
| | 13:00 | - | 14:00 | 142 | |
| | 14:00 | - | 15:00 | 146 | |
| 14/12/2020 | 9:00 | - | 10:00 | 118 | Cloudy |
| | 10:00 | - | 11:00 | 118 | |
| | 11:00 | - | 12:00 | 123 | |
| 19/12/2020 | 9:00 | - | 10:00 | 93 | Sunny |
| | 10:00 | - | 11:00 | 94 | |
| | 11:00 | - | 12:00 | 96 | |
| 23/12/2020 | 13:00 | - | 14:00 | 77 | Sunny |
| | 14:00 | - | 15:00 | 80 | |
| | 15:00 | - | 16:00 | 81 | |
| 29/12/2020 | 9:00 | - | 10:00 | 107 | Sunny |
| | 10:00 | - | 11:00 | 107 | |
| | 11:00 | - | 12:00 | 118 | |
| Maximum | | | | 146 | |
| Minimum | | | | 77 | |
| Average | | | | 108 | |
| Action Level | | | | 315 | |
| Limit Level | | | | 500 | |

**1-hour average TSP**




1-Hour Total Suspended Particulate Results - AM7 Hong Kong Children's Hospital
TSP, µg/m³
600
550
500
450
400
350
300
250
200
150
100
50
0
Impact
Action
Limit
02/12/2020
02/12/2020
02/12/2020
08/12/2020
08/12/2020
08/12/2020
14/12/2020
14/12/2020
14/12/2020
19/12/2020
19/12/2020
19/12/2020
23/12/2020
23/12/2020
23/12/2020
29/12/2020
29/12/2020
29/12/2020

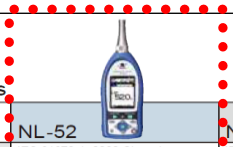
# Appendix I – Event and Action Plan for air quality

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

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

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

## Specifications



| | NL-52 | NL-42 |
|---|---|---|
| Applicable standards | IEC 61672-1: 2002 Class 1<br>ANSI S1.4-1983 Type 1<br>ANSI S1.4A-1985 Type 1<br>ANSI S1.43-1997 Type 1<br>JIS C 1509-1: 2005 Class 1 | IEC 61672-1: 2002 Class 2<br>ANSI S1.4-1983 Type 2<br>ANSI S1.4A-1985 Type 2<br>ANSI S1.43-1997 Type 2<br>JIS C 1509-1: 2005 Class 2 |
| | CE Marking (EMC Directive 2004/108/EC, Low Voltage Directive 2006/95/EC), WEEE Directives, Chinese RoHS (export model for China only) | |
| Measurement functions | Simultaneous measurement of the following items, with selected time weighting and frequency weighting | |
| Processing (main ch) | Instantaneous sound pressure level: Lp<br>Equivalent continuous sound pressure level: Leq<br>Sound exposure level: LE<br>Maximum sound pressure level: Lmax<br>Minimum sound pressure level: Lmin<br>Percentile sound levels: LN (0.1 to 99.9 %, 0.1-increment steps, max. 5 values) | |
| Processing (sub ch) | Instantaneous sound pressure level: Lp | |
| Additional processing | In addition to main processing items, one of the following can be selected for simultaneous processing:<br>C-weighted equivalent continuous sound level: LCeq<br>C-weighted peak sound level: LCpeak<br>Z-weighted peak sound level: LZpeak<br>F-time-weighted equivalent continuous sound level: LAFeq *2<br>Maximum F-time-weighted equivalent continuous sound level: LAFmax *2<br>The power average of the maximum level of each 5 second interval: LAtm5<br>The frequency weighting for the additional processing synchronizes with the frequency weighting of the sub-channel, so when the sub-channel has A-weighting, LAtm5 can be selected.<br>When C-weighting (Z-weighting ) is selected, the additional processing LCeq and LCpeak (LZpeak) are selectable. | |
| Measuring time | 10 s, 1, 5, 10, 15, 30 m, 1, 8, 24 h, and manual (maximum 24 h) | |
| Microphone Type | UC-59 | UC-52 |
| Microphone Sensitivity level | −27 dB | −33 dB |
| Measurement range | A-weighting: 25 dB to 138 dB<br>C-weighting: 33 dB to 138 dB<br>Z-weighting: 38 dB to 138 dB<br>C-weighting peak sound level: 55 dB to 141 dB<br>Z-weighting peak sound level: 60 dB to 141 dB | |
| Inherent noise A-weighting | 17 dB or less | 19 dB or less |
| Inherent noise C-weighting | 25 dB or less | 27 dB or less |
| Inherent noise Z-weighting | 30 dB or less | 32 dB or less |
| Frequency range | 20 Hz to 20 kHz | 20 Hz to 8 kHz |
| Frequency weighting | A, C, and Z | |
| Time weighting | F (Fast) and S (Slow) | |
| Level range | Single range (Linearity range: 113 dB) | |
| Bar graph display range max | Max. 110 dB (20 to 130 dB) | |
| Switching of bar graph display | Set the upper/ lower limit in 10 dB increments. | |
| RMS detection circuit | Digital processing method | |
| Sampling cycle | 20.8 µs (Lp, Leq, LE, Lmax, Lmin, Lpeak : sampling frequency: 48 kHz)<br>100 ms (LN) | |
| 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:<br>Compliant with IEC 61672-1 and JIS C 1509-1 standards when the windscreen is installed. | |
| | Diffuse sound field correction:<br>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)<br>*LCD with touch panel (Capacitive Touch Panel) | |
| | Numerical display update frequency: 1 s Bar graph update frequency: 100 ms | |
| Store Manual | Data for measurement results are stored manually in single address increments. | |
| Number of data | Internal memory: max. 1000 sets<br>SD Card: depends on the capacity of the SD Card *1 | |
| Auto *2 | Instantaneous values (Lp mode) and processed values (Leq mode) are stored continuously and automatically at preset intervals. | |
| Lp sampling cycle | 100 ms, 200 ms, 1 s, Leq 1s | |
| 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 | |

| | | |
|---|---|---|
| Data recall | Allows viewing of stored data | |
| Setup memory | Up to five setup configurations can be saved in internal memory, for later recall<br>Start up via file settings previously stored on SD card possible | |
| Waveform recording *3 | | |
| File format | Uncompressed waveform WAVE file | |
| Sampling frequency | Select 48 kHz, 24 kHz or 12 kHz | |
| Data length | Select 24 bit or 16 bit | |
| Outputs DC output | Output DC signals using a frequency weighting characteristic selected by processing. | |
| Output voltage | 2.5 V, 25 mV / dB at bar graph display full scale | |
| AC output | Output AC signals using a frequency weighting characteristic selected by processing or by A, C, Z-weighting. | |
| Output voltage | 1 V (rms values) at bar graph display full scale | |
| Comparator output *2 | Turns on when the open-collector output exceeds the set value (max. applied voltage 24 V, max. current 60 mA, allowable dissipation 300 mW). | |
| USB | Allows USB to be connected to a computer and recognized as a removable disk<br>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 | Lp | |
| Type of data Processed value | Leq, Lmax, Lmin, Lpeak | |
| Output interval | 100 ms | |
| Print out | Printing of measurement results on dedicated printer DPU-414 | |
| Power requirements | Four IEC R6 (size AA) batteries (alkaline or rechargeable batteries) or external power supply | |
| Battery life (23 °C) | Alkaline battery LR6 (AA): 26 h Ni-MH secondary battery: 25 h<br>At the maximum *Depends on the setting | |
| AC adapter | NC-98C (NC-34 for previous models cannot be used) | |
| External power voltage | 5 to 7 V (rated voltage: 6 V) | |
| Current consumption | Approximately 90 mA (normal operation, rated voltage) | |
| Ambient conditions Temperature | −10 to +50 °C | |
| Ambient conditions Humidity | 10 to 90 % RH (non-condensing) | |
| Dustproof / water-resistant performance *4 | IP code: IP54 (except for microphone)<br>See precautions regarding waterproofing | |
| Dimensions, weight | Approx. 250 (H) x 76 (W) x 33 mm(D); approx. 400 g (with batteries) | |
| Supplied accessories | Storage case x 1, Windscreen WS-10 x 1, Windscreen fall prevention rubber x 1, Hand strap x 1, LR6 (AA) alkaline batteries x 4, SD card 512 MB×1 (NX-42EX preinstalled model only) | |

### Options

| Product name | Product number |
|---|---|
| Extended function program (Inst.on 512 MB SD card) | NX-42EX |
| Waveform recording program *2 (Inst.on 2 GB SD card) | NX-42WR |
| Octave, 1/3 octave real-time analysis program *2 (Inst.on 512 MB SD card) | NX-42RT |
| FFT analysis program *2 (Inst.on 512 MB SD card) | NX-42FT |
| Data management software for environmental measurement | AS-60 |
| Data management software for environmental measurement (Includes the octave and 1/3 octave data management software) | AS-60RT |
| Data management software for environmental measurement (Includes the vibration level data management software) | AS-60VM |
| Waveform analysis software | CAT-WAVE |
| SD Card 512 MB | SD-512M |
| SD Card 2 GB | SD-2G |
| AC adapter (100 V to 240 V) | NC-98C |
| Battery pack | BP-21 |
| Microphone extension cables | EC-04 (from 2 m) |
| BNC-Pin output code | CC-24 |
| Comparator output cable | CC-42C |
| Printer | DPU-414 |
| Printer cable | CC-42P |
| RS 232C serial I/O cable | CC-42R |
| USB cable | — |
| Sound calibrator | NC-74 |
| All-weather windscreen | WS-15 |
| Windscreen mounting adapter | WS-15006 |
| Rain-protection windscreen | WS-16 |
| Sound level meter tripod | ST-80 |
| All-weather windscreen tripod | ST-81 |

*1 Use Rion fully guaranteed products. *2 NX-42EX required (sold separately). *3 NX-42WR required (sold separately).
*4 Protection against harmful dust and water splashing from any direction.

Precautions regarding waterproofing
Before use, verify that the rubber bottom cover and the battery compartment lid are firmly closed.
To maintain the water and dust proof rating, internal packing replacement is required every two years (at cost).

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

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

Distributed by:

RION CO., LTD.
http://www.rion.co.jp/english/
3-20-41, Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan
Tel: +81-42-359-7888 Fax: +81-42-359-7442

This product is environment-friendly. It does not include toxic chemicals on our policy.
This product is certified to an International Protection rating of IP54 (dust protected and resistant to splashing water).
This leaflet is printed with environmentally friendly vegetable-based ink on recycled paper.

1011-4 1212.P.D

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：2HB20001172-0003
Certificate No.

中国认可 国际互认 校准 CALIBRATION CNAS L13344

| | |
|---|---|
| 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. | 00976203 |
| 管理号：Asset No. | AAST-SLM-10 |
| 接收日期：Rec. Date | 2020-07-15 |
| 校准日期：Cal. Date | 2020-07-20 |
| 签发日期：App. Date | 2020-07-20 |
| 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 陈卓辉　　核验：Inspected by 钟灏

签发：Approved by 郑木为　　印章：Stamp

赛宝计量检测中心
广州总部地址：广州天河区东莞庄路110号
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
H.Q. Addr: No.110,Dongguanzhuang Road,Tianhe District,Guangzhou
Service Tel: 020-87237633 Fax: 020-87236189
Complaint Tel: 020-87236896
Email: cal@ceprei.com
Website: www.ceprei-cal.com





# 说 明
# DIRECTIONS

1. 本机构质量管理体系符合ISO/IEC 17025的要求，获得中国合格评定国家认可委员会（CNAS）认可，认可证书号为：CNAS L13344。
This laboratory quality management system meets the ISO/IEC 17025 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。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited)。

3. 本次校准所使用的主要测量标准(The main measurement standards used during the calibration)：

| 名 称 (Description) | 证书号/有效期/溯源单位 (Certificate No./Due Date/Traceability to) | 技术指标 (Specification) |
|---|---|---|
| 数字多用表 | 4GC19040017-0001/2020-11-03/赛宝 | DCV：±0.0035%；ACV：±0.06%；DCI：±0.05%；ACI：±0.1%；R：±0.01%；f：±0.01% |
| 步进衰减器 | 4GC20000158-0012/2021-04-29/赛宝 | ±3dB |
| 标准传声器 | GFJGJL100120031016 4/2021-02-26/航空304所 | $U$=(0.05~0.12)dB（$k$=2） |
| 声校准器 | 4GC19040146-0209/2020-12-29/赛宝 | 1级 |
| 正弦信号发生器 | 4GC19040057-0001/2020-11-05/赛宝 | f：±1mHz；失真度：<-70dB |
| PULSE分析系统 | 4GC20000009-0001/2021-01-08/赛宝 | 频率:$U_{rel}$=0.001%,$k$=2;电压:$U_{rel}$=0.04%,$k$=2 |
| 前置放大器 | GFJGJL100120031016 5/2021-02-26/航空304所 | $U$=0.3dB（$k$=2） |

4. 校准地点(The calibration place)：
广州市天河区东莞庄路110号401楼振动声学室

5. 环境条件(Environmental conditions)：
温度(Temperature)：24℃　　相对湿度(Relative Humidity)：60%

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"。本证书报告的判定规则和结论仅供参考，使用人员应结合实际测量的要求合理使用，如考虑测量结果测量不确定度的影响等。
"P" and "Pass" in this certificate stand for "Low Limit≤the measured value ≤High Limit", "F" and "Fail" stand for "the measured value＜Low Limit or the measured value＞High Limit", "N/A" stands for "Not Applicable ".The judgment rules and conclusions of this certificate are for reference only. Users should use them reasonably according to the actual measurement requirements, such as considering the impact of measurement uncertainty, etc.

8. 建议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建议校准周期。
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.)

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 | 12132 | NH-25 | 76320 |

| 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 | 94.0 | 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): | -0.2 | 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): | -0.2 | 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): | -0.2 | 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 |





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 | -50.7 | -50.5 | -0.2 | ±2.0 | P | 0.5 |
| 25 | -45.0 | -44.7 | -0.3 | +2.0 ~ -1.5 | P | 0.5 |
| 31.5 | -39.5 | -39.4 | -0.1 | ±1.5 | P | 0.5 |
| 40 | -34.5 | -34.6 | 0.1 | ±1.0 | P | 0.5 |
| 50 | -30.2 | -30.2 | 0.0 | ±1.0 | P | 0.5 |
| 63 | -26.1 | -26.2 | 0.1 | ±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 | -16.1 | -16.1 | 0.0 | ±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 | -3.2 | -3.2 | 0.0 | ±1.0 | P | 0.4 |
| 630 | -1.8 | -1.9 | 0.1 | ±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 | 0.9 | 1.0 | -0.1 | ±1.0 | P | 0.6 |
| 2000 | 1.1 | 1.2 | -0.1 | ±1.0 | P | 0.6 |
| 2500 | 1.1 | 1.3 | -0.2 | ±1.0 | P | 0.6 |
| 3150 | 1.0 | 1.2 | -0.2 | ±1.0 | P | 0.6 |
| 4000 | 0.7 | 1.0 | -0.3 | ±1.0 | P | 0.6 |
| 5000 | 0.3 | 0.5 | -0.2 | ±1.5 | P | 0.6 |
| 6300 | -0.2 | -0.1 | -0.1 | +1.5 ~ -2.0 | P | 0.6 |
| 8000 | -1.1 | -1.1 | 0.0 | +1.5 ~ -2.5 | P | 0.6 |
| 10000 | -2.3 | -2.5 | 0.2 | +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 | -18.4 | -9.3 | -9.1 | +3.0 ~ -∞ | P | 1.0 |

5 C计权特性(C-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 | -6.6 | -6.2 | -0.4 | ±2.0 | P | 0.5 |
| 25 | -4.6 | -4.4 | -0.2 | +2.0 ~ -1.5 | P | 0.5 |
| 31.5 | -3.1 | -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 | -0.8 | -0.8 | 0.0 | ±1.0 | P | 0.5 |
| 80 | -0.4 | -0.5 | 0.1 | ±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 | 0.0 | -0.1 | 0.1 | ±1.0 | P | 0.5 |
| 200 | 0.0 | 0.0 | 0.0 | ±1.0 | P | 0.5 |
| 250 | 0.1 | 0.0 | 0.1 | ±1.0 | P | 0.5 |
| 315 | 0.1 | 0.0 | 0.1 | ±1.0 | P | 0.4 |
| 400 | 0.1 | 0.0 | 0.1 | ±1.0 | P | 0.4 |
| 500 | 0.1 | 0.0 | 0.1 | ±1.0 | P | 0.4 |
| 630 | 0.1 | 0.0 | 0.1 | ±1.0 | P | 0.4 |
| 800 | 0.1 | 0.0 | 0.1 | ±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 | -0.5 | -0.3 | -0.2 | ±1.0 | P | 0.6 |
| 3150 | -0.7 | -0.5 | -0.2 | ±1.0 | P | 0.6 |
| 4000 | -1.1 | -0.8 | -0.3 | ±1.0 | P | 0.6 |
| 5000 | -1.5 | -1.3 | -0.2 | ±1.5 | P | 0.6 |
| 6300 | -2.1 | -2.0 | -0.1 | +1.5 ~ -2.0 | P | 0.6 |
| 8000 | -3.0 | -3.0 | 0.0 | +1.5 ~ -2.5 | P | 0.6 |
| 10000 | -4.2 | -4.4 | 0.2 | +2.0 ~ -3.0 | P | 0.6 |
| 12500 | -6.2 | -6.2 | 0.0 | +2.0 ~ -5.0 | P | 1.0 |
| 16000 | -10.4 | -8.5 | -1.9 | +2.5 ~ -16.0 | P | 1.0 |
| 20000 | -20.4 | -11.2 | -9.2 | +3.0 ~ -∞ | P | 1.0 |





6 自生噪声 (Autogenous noise)

| 计权 (Weighting) | 实测值 (Actual) (dB) |
|---|---|
| A | 24.0 |

以下空白/No data hereafter

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)
CEPREI CHINA CEPREI LABORATORY CALIBRATION & TESTING CENTRE

# 校 准 证 书
# CALIBRATION CERTIFICATE

证书编号：2HB20001172-0004
Certificate No.

CNAS 中国认可 国际互认 校准 CALIBRATION CNAS L13344

| | |
|---|---|
| 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. | 00976204 |
| 管理号：Asset No. | AAST-SLM-11 |
| 接收日期：Rec. Date | 2020-07-15 |
| 校准日期：Cal. Date | 2020-07-20 |
| 签发日期：App. Date | 2020-07-20 |
| 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 陈卓辉　　核验：Inspected by 钟灏

签发：Approved by 郑木为　　印章：Stamp

赛宝计量检测中心
广州总部地址：广州天河区东莞庄路110号
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
H.Q. Addr: No.110,Dongguanzhuang Road,Tianhe District,Guangzhou
Service Tel: 020-87237633 Fax: 020-87236189
Complaint Tel: 020-87236896
Email: cal@ceprei.com
Website: www.ceprei-cal.com





# 说 明
# DIRECTIONS

1. 本机构质量管理体系符合ISO/IEC 17025的要求，获得中国合格评定国家认可委员会（CNAS）认可，认可证书号为：CNAS L13344。
This laboratory quality management system meets the ISO/IEC 17025 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。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited)。

3. 本次校准所使用的主要测量标准(The main measurement standards used during the calibration)：

| 名 称 (Description) | 证书号/有效期/溯源单位 (Certificate No./Due Date/Traceability to) | 技术指标 (Specification) |
|---|---|---|
| 数字多用表 | 4GC19040017-0001/2020-11-03/赛宝 | DCV：±0.0035%；ACV：±0.06%；DCI：±0.05%；ACI：±0.1%；R：±0.01%；f：±0.01% |
| 步进衰减器 | 4GC20000158-0012/2021-04-29/赛宝 | ±3dB |
| 标准传声器 | GFJGJL1001200310164/2021-02-26/航空304所 | $U$=(0.05~0.12)dB（$k$=2） |
| 声校准器 | 4GC19040146-0209/2020-12-29/赛宝 | 1级 |
| 正弦信号发生器 | 4GC19040057-0001/2020-11-05/赛宝 | f：±1mHz；失真度：<-70dB |
| PULSE分析系统 | 4GC20000009-0001/2021-01-08/赛宝 | 频率:$U_{rel}$=0.001%,$k$=2;电压:$U_{rel}$=0.04%,$k$=2 |
| 前置放大器 | GFJGJL1001200310165/2021-02-26/航空304所 | $U$=0.3dB（$k$=2） |

4. 校准地点(The calibration place)：
广州市天河区东莞庄路110号401楼振动声学室

5. 环境条件(Environmental conditions)：
温度(Temperature)：24℃　相对湿度(Relative Humidity)：60%

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"。本证书报告的判定规则和结论仅供参考，使用人员应结合实际测量的要求合理使用，如考虑测量结果测量不确定度的影响等。
"P" and "Pass" in this certificate stand for "Low Limit≤the measured value ≤High Limit", "F" and "Fail" stand for "the measured value＜Low Limit or the measured value＞High Limit", "N/A" stands for "Not Applicable ".The judgment rules and conclusions of this certificate are for reference only. Users should use them reasonably according to the actual measurement requirements, such as considering the impact of measurement uncertainty, etc.

8. 建议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建议校准周期。
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 Level Meter

CEPREI

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.)：2HB20001172-0004

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 | -50.6 | -50.5 | -0.1 | ±2.0 | P | 0.5 |
| 25 | -44.9 | -44.7 | -0.2 | +2.0 ~ -1.5 | P | 0.5 |
| 31.5 | -39.8 | -39.4 | -0.4 | ±1.5 | P | 0.5 |
| 40 | -34.6 | -34.6 | 0.0 | ±1.0 | P | 0.5 |
| 50 | -30.4 | -30.2 | -0.2 | ±1.0 | P | 0.5 |
| 63 | -26.3 | -26.2 | -0.1 | ±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 | -6.7 | -6.6 | -0.1 | ±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 | -7.9 | -6.6 | -1.3 | +2.5 ~ -16.0 | P | 1.0 |
| 20000 | -14.2 | -9.3 | -4.9 | +3.0 ~ -∞ | P | 1.0 |

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

5 C计权特性(C-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 | -6.4 | -6.2 | -0.2 | ±2.0 | P | 0.5 |
| 25 | -4.5 | -4.4 | -0.1 | +2.0 ~ -1.5 | P | 0.5 |
| 31.5 | -3.1 | -3.0 | -0.1 | ±1.5 | P | 0.5 |
| 40 | -2.1 | -2.0 | -0.1 | ±1.0 | P | 0.5 |
| 50 | -1.3 | -1.3 | 0.0 | ±1.0 | P | 0.5 |
| 63 | -0.9 | -0.8 | -0.1 | ±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 | -0.1 | -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 | 0.0 | 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 | -0.1 | -0.2 | 0.1 | ±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 |



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

6 自生噪声 (Autogenous noise)

| 计权 (Weighting) | 实测值 (Actual) (dB) |
|---|---|
| A | 23.8 |

以下空白/No data hereafter

| Catalogue of Sound Calibrator | Calibration Certificate of Sound Calibrator |
|---|---|

For microphone calibration **NC-74**

## How to use

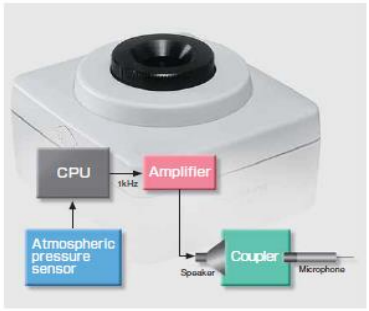
Carefully insert the microphone all the way into the coupler of the NC-74. Then simply turn the power on to apply a constant sound pressure level to the diaphragm of the microphone.

Usage example (NL series)

The performance of the NC-74 is suitable for calibration of high-precision sound level meters. The unit is compact, lightweight, and easy to use. Two IEC LR6 (size AA) alkaline batteries will power the unit for more than 30 hours of continuous use at room temperature.

## Atmospheric pressure compensation principle

The NC-74 incorporates a sensor that detects atmospheric pressure. Based on the information provided by the sensor, the CPU controls the signal amplitude. This allows the unit to always provide the correct output for achieving constant sound pressure level, regardless of fluctuations in atmospheric pressure.




## Using the 1/2-inch adapter

To allow calibration of sound level meter microphones with 1 inch diameter, the 1/2-inch microphone adapter can be removed. 1/2-inch microphones are calibrated with the adapter in place.

## Specifications

| | | |
|---|---|---|
| Applicable standards | IEC 60942:2003 Class 1<br>JIS C1515:2004 Class 1 | |
| Suitable microphones | 1-inch microphones | IEC 61094-1 Type LS1P<br>UC-27<br>UC-25<br>UC-34 |
| | 1/2-inch microphones | IEC 61094-1 Type LS2aP<br>UC-59<br>UC-57<br>UC-53A<br>UC-52<br>UC-26<br>UC-30<br>UC-31<br>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<br>Approx. 200 g (including batteries) | |
| Supplied accessories | Case × 1<br>IEC LR6 (size AA) alkaline battery × 2<br>1/2-inch microphone adapter NC-74-002 × 1 | |

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

* 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

CEPREI

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: 2IIB20001561-0002
Certificate No.

CNAS CALIBRATION CNAS L13344

| | |
|---|---|
| 委托单位: Client | Casteo Testing Centre Limited |
| 仪器名称: Description | Sound Level Calibrator |
| 型号规格: Model/Type | NC-74 |
| 制造商: Manufacturer | RION |
| 机身号: Serial No. | 34678556 |
| 管理号: Asset No. | AAST-SLC-06 |
| 接收日期: Rec. Date | 2020-09-08 |
| 校准日期: Cal. Date | 2020-09-12 |
| 签发日期: App. Date | 2020-09-12 |
| 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) |

CEPREI

校准: Calibrated by 陈卓辉
核验: Inspected by 钟灏
签发: Approved by 郑木方
印章: Stamp

赛宝计量检测中心
广州市越秀区东风东路110号
客服电话: 020-87237633 传真: 020-87236189
技术电话: 020-87236896
邮件: cal@ceprei.com
网址: www.ceprei-cal.com

CEPREI Calibration and Testing Centre
H.Q. Addr: No.110,Dongfengdonglu Road,Yuexiu District,Guangzhou
Service Tel: 020-87237633 Fax: 020-87236189
Complaint Tel: 020-87236896
Email: cal@ceprei.com
Website: www.ceprei-cal.com

# Calibration Certificate of Sound Calibrator

## 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～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。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited).

3. 本次校准所使用的主要测量标准(The main measurement standards used during the calibration)：

| 名　称 (Description) | 证书号/有效期/溯源单位 (Certificate No./Due Date/Traceability to) | 技术指标 (Specification) | 测量范围 (Measuring Range) |
|---|---|---|---|
| PULSE分析系统 | LSwa2020-02491/2021-04-26/中国计量院 | 频率:($U_{rel}$=0.001%,k=2)电压:($U_{rel}$=0.04%,k=2 | 频率:0.001Hz-51.2kHz,电压:(1×10$^{-6}$～30)V |
| 标准传声器 | GFJGJL1001200510164/2021-02-26/航空304所 | U=(0.05～0.12)dB（k=2） | 20Hz～20kHz |
| 前置放大器 | GFJGJL1001200510165/2021-02-26/航空304所 | U=0.3dB（k=2） | （10～20000）Hz |

4. 校准地点(The calibration place)：
广州市天河区东莞庄路110号401楼振动声学室

5. 环境条件(Environmental conditions)：
温度(Temperature)：24℃　　相对湿度(Relative Humidity)：60%

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"。本证书报告的判定规则和结论仅供参考，使用人员应结合实际测量的要求合理使用，如考虑测量结果测量不确定度的影响等。
"P" and "Pass" in this certificate stand for "Low Limit≤the measured value ≤High Limit", "F" and "Fail" stand for "the measured value<Low Limit or the measured value>High Limit", "N/A" stands for "Not Applicable ".The judgment rules and conclusions of this certificate are for reference only. Users should use them reasonably according to the actual measurement requirements, such as considering the impact of measurement uncertainty, etc.

8. 建议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建议校准周期。
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检物有关。(The results are only related to the items calibrated.)





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) (dB) | 测量声压级 (Measured SPL) (dB) | 声压级差的绝对值 (Absolute value of SPL) (dB) | 允许范围 (Limit) (dB) | 结论 (Pass/Fail) | U (k=2) (dB) |
|---|---|---|---|---|---|
| 94 | 94.05 | 0.05 | ≤0.40 | P | 0.10 |

3 频率 (Frequency)

| 规定频率 (Prescribed Fre.) (Hz) | 测量频率 (Measured Fre.) (Hz) | 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) (%) |
|---|---|---|---|---|---|
| 1000 | 1003.7 | 0.37 | ≤1.00 | P | 0.10 |

4 总失真 (Distortion)

| 规定声压级 (Prescribed SPL) (dB) | 规定频率 (Measured Fre.) (Hz) | 总失真 (Distortion) (%) | 允许范围 (Limit) (%) | 结论 (Pass/Fail) | $U_{rel}$ (k=2) (%) |
|---|---|---|---|---|---|
| 94 | 1000 | 0.96 | ≤3.00 | P | 5.0 |

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：2HB20001172-0006
Certificate No.

CNAS 中国认可 国际互认 校准 CALIBRATION CNAS L13344

| | |
|---|---|
| 委托单位：Client | Castco Testing Centre Limited |
| 仪器名称：Description | Sound Level Calibrator |
| 型号规格：Model/Type | NC-74 |
| 制造商：Manufacturer | RION |
| 机身号：Serial No. | 34178129 |
| 管理号：Asset No. | AAST-SLC-05 |
| 接收日期：Rec. Date | 2020-07-15 |
| 校准日期：Cal. Date | 2020-07-20 |
| 签发日期：App. Date | 2020-07-21 |
| 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 陈卓辉
核验：Inspected by 钟灏
签发：Approved by 郑木为
印章：Stamp

赛宝计量检测中心
广州总部地址：广州天河区东莞庄路110号
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
H.Q. Addr: No.110,Dongguanzhuang Road,Tianhe District,Guangzhou
Service Tel: 020-87237633 Fax: 020-87236189
Complaint Tel: 020-87236896
Email: cal@ceprei.com
Website: www.ceprei-cal.com





# 说 明
# DIRECTIONS

1. 本机构质量管理体系符合ISO/IEC 17025的要求，获得中国合格评定国家认可委员会（CNAS）认可，认可证书号为：CNAS L13344。
This laboratory quality management system meets the ISO/IEC 17025 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。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited)。

3. 本次校准所使用的主要测量标准(The main measurement standards used during the calibration)：

| 名 称 (Description) | 证书号/有效期/溯源单位 (Certificate No./Due Date/Traceability to) | 技术指标 (Specification) |
|---|---|---|
| 标准传声器 | GFJGJL100120031016 4/2021-02-26/航空304所 | $U$=(0.05~0.12)dB（$k$=2） |
| 前置放大器 | GFJGJL100120031016 5/2021-02-26/航空304所 | $U$=0.3dB（$k$=2） |
| PULSE分析系统 | 4GC20000024-0064/2021-02-12/赛宝 | 频率:$U_{rel}$=0.001%,$k$=2;电压:$U_{rel}$=0.04%,$k$=2 |

4. 校准地点(The calibration place)：
广州市天河区东莞庄路110号401楼振动声学室

5. 环境条件(Environmental conditions)：
温度(Temperature)：24℃ 相对湿度(Relative Humidity)：60%

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"。本证书报告的判定规则和结论仅供参考，使用人员应结合实际测量的要求合理使用，如考虑测量结果测量不确定度的影响等。
"P" and "Pass" in this certificate stand for "Low Limit≤the measured value ≤High Limit", "F" and "Fail" stand for "the measured value＜Low Limit or the measured value＞High Limit", "N/A" stands for "Not Applicable ".The judgment rules and conclusions of this certificate are for reference only. Users should use them reasonably according to the actual measurement requirements, such as considering the impact of measurement uncertainty, etc.

8. 建议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建议校准周期。
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 | Catalogue of Air Flow Meter (TSI TA440) |
|---|---|

CEPREI

证书编号(Certificate No.)：2HB20001172-0006

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) (dB) | 测量声压级 (Measured SPL) (dB) | 声压级差的绝对值 (Absolute value of SPL) (dB) | 允许范围 (Limit) (dB) | 结论 (Pass/Fail) | $U$ ($k$=2) (dB) |
|---|---|---|---|---|---|
| 94 | 94.38 | 0.38 | ≤0.40 | P | 0.10 |

3 频率 (Frequency)

| 规定频率 (Prescribed Fre.) (Hz) | 测量频率 (Measured Fre.) (Hz) | 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) (%) |
|---|---|---|---|---|---|
| 1000 | 1002.0 | 0.20 | ≤1.00 | P | 0.10 |

4 总失真 (Distortion)

| 规定声压级 (Prescribed SPL) (dB) | 规定频率 (Measured Fre.) (Hz) | 总失真 (Distortion) (%) | 允许范围 (Limit) (%) | 结论 (Pass/Fail) | $U_{rel}$ ($k$=2) (%) |
|---|---|---|---|---|---|
| 94 | 1000 | 2.48 | ≤3.00 | P | 5.0 |

以下空白/No data hereafter

CEPREI

数据页(Data sheet) ID：U013393 第 5 页,共 5 页 Page of

## SPECIFICATIONS

THERMAL ANEMOMETERS
MODELS TA410, TA430 AND TA440

**Velocity**

| | |
|---|---|
| Range (TA410) | 0 to 20 m/s (0 to 4,000 ft/min) |
| Range (TA430, TA440) | 0 to 30 m/s (0 to 6,000 ft/min) |
| Accuracy (TA410)[1][2] | ±5% of reading or ±0.025 m/s (±5 ft/min), whichever is greater |
| Accuracy (TA430, TA440)[1][2] | ±3% of reading or ±0.015 m/s (±3 ft/min), whichever is greater |
| Resolution | 0.01 m/s (1 ft/min) |

**Duct Size (TA430, TA440)**

| | |
|---|---|
| Dimensions | 1 to 635 cm in increments of 0.1 cm (1 to 250 inches in increments of 0.1 in.) |

**Volumetric Flow Rate (TA430, TA440)**

| | |
|---|---|
| Range | Actual range is a function of velocity, and duct size |

**Temperature**

| | |
|---|---|
| Range (TA410, TA430) | -18 to 93°C (0 to 200°F) |
| Range (TA440) | -10 to 60°C (14 to 140°F) |
| Accuracy[3] | ±0.3°C (±0.5°F) |
| Resolution | 0.1°C (0.1°F) |

**Relative Humidity (TA440 only)**

| | |
|---|---|
| Range | 5 to 95% RH |
| Accuracy[4] | ±3% RH |
| Resolution | 0.1% RH |

**Wet Bulb Temperature (TA440 only)**

| | |
|---|---|
| Range | 5 to 60°C (40 to 140°F) |
| Resolution | 0.1°C (0.1°F) |

**Dew Point (TA440 only)**

| | |
|---|---|
| Range | -15 to 49°C (5 to 120°F) |
| Resolution | 0.1°C (0.1°F) |

**Instrument Temperature Range**

| | |
|---|---|
| Operating (Electronics) | 5 to 45°C (40 to 113°F) |
| Model TA410, TA430 Operating (Probe) | -18 to 93°C (0 to 200°F) |
| Model TA440 Operating (Probe) | -10 to 60°C (14 to 140°F) |
| Storage | -20 to 60°C (-4 to 140°F) |

**Data Storage Capabilities (TA430, TA440)**

| | |
|---|---|
| Range | 12,700+ samples and 100 test IDs |

**Logging Interval (TA430, TA440)**
1 second to 1 hour

**Time Constant (TA430, TA440)**
User selectable

**External Meter Dimensions**
8.4 cm x 17.8 cm x 4.4 cm (3.3 in. x 7.0 in. x 1.8 in.)

**Meter Weight with Batteries**
0.27 kg (0.6 lbs.)

**Meter Probe Dimensions**

| | |
|---|---|
| Probe Length | 101.6 cm (40 in.) |
| Probe Diameter of Tip | 7.0 mm (0.28 in.) |
| Probe Diameter of Base | 13.0 mm (0.51 in.) |

**Articulating Probe Dimensions**

| | |
|---|---|
| Articulating Section Length | 19.7 cm (7.8 in.) |
| Diameter of Articulating Knuckle | 9.5 mm (0.38 in.) |

**Power Requirements**
Four AA-size batteries or AC adapter

| | TA410 | TA430, TA430-A | TA440, TA440-A |
|---|---|---|---|
| Velocity range 0 to 20.00 m/s (0 to 4000 ft/min) | + | | |
| Velocity range 0 to 30.00 m/s (0 to 6000 ft/min) | | + | + |
| Temperature | + | + | + |
| Flow | | + | + |
| Humidity, wet bulb, dew point | | | + |
| Probe | Straight | Straight or -A articulated | Straight or -A articulated |
| Variable time constant | | + | + |
| Manual data logging | | + | + |
| Auto save data logging | | | + |
| Statistics | | + | + |
| Review data | | + | + |
| LogDat2 downloading software | | + | + |
| Free Certificate of Calibration | + | + | + |

[1] Temperature compensated over an air temperature range of 5 to 65°C (40 to 150°F).
[2] The accuracy statement begins at 30 ft/min through 4000 ft/min (0.15 m/s through 20 m/s) for the Model TA410, and 30 ft/min through 6,000 ft/min (0.15 m/s through 30 m/s) for Models TA430 and TA440.
[3] Accuracy with instrument case at 25°C (77°F), add uncertainty of 0.03°C/°C (0.05°F/°F) for change in instrument temperature.
[4] Accuracy with probe at 25°C (77°F). Add uncertainty of 0.2% RH/°C (0.1% RH/°F) for change in probe temperature. Includes 1% hysteresis.

Specifications subject to change without notice.

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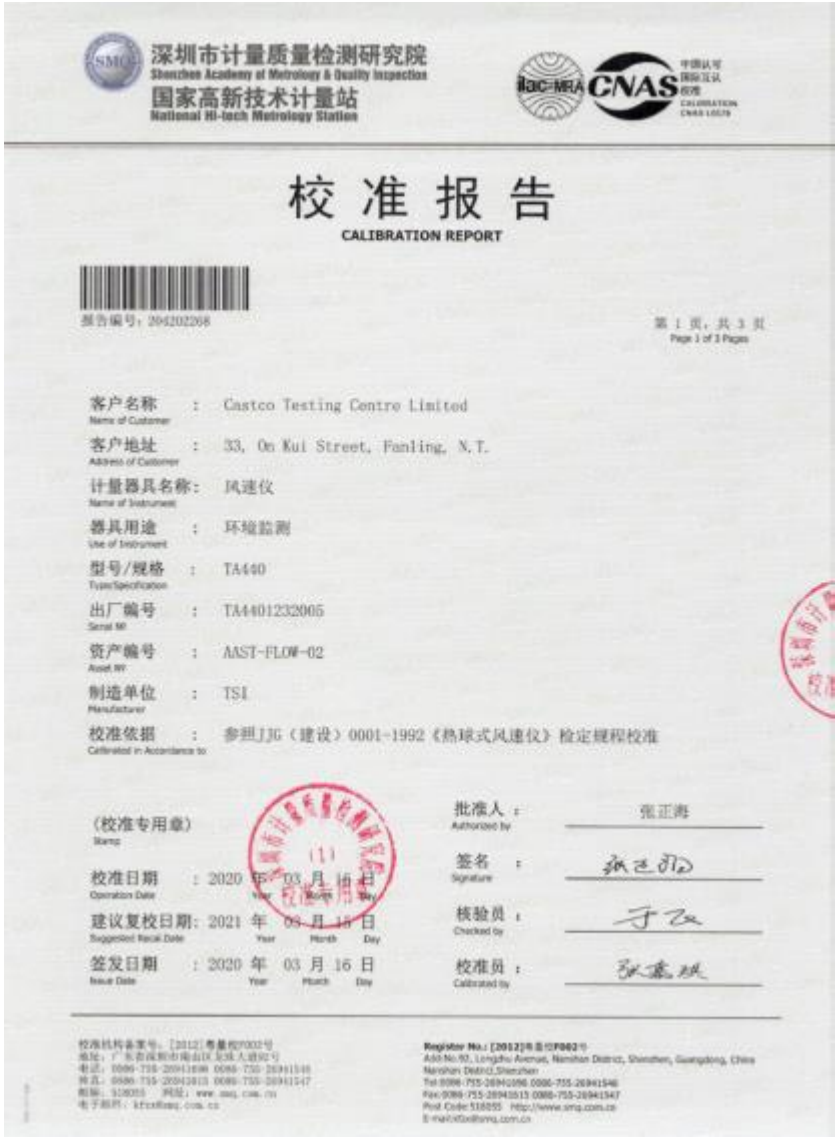
AIRFLOW INSTRUMENTS

**Airflow Instruments, TSI Instruments Ltd.**
Visit our website at **www.airflowinstruments.co.uk** for more information.

**UK** **Tel:** +44 149 4 459200 **Germany** **Tel:** +49 241 523030
**France** **Tel:** +33 491 11 87 64

P/N 2980548 Rev D (A4) ©2014 TSI Incorporated

# Calibration Certificate of Air Flow Meter



深圳市计量质量检测研究院
Shenzhen Academy of Metrology & Quality Inspection
国家高新技术计量站
National Hi-tech Metrology Station

CNAS 中国认可 国际互认 校准 CALIBRATION CNAS L0579

## 校 准 报 告
CALIBRATION REPORT

报告编号：204202268

第 1 页，共 3 页
Page 1 of 3 Pages

客户名称 Name of Customer : Castco Testing Centre Limited

客户地址 Address of Customer : 33, On Kui Street, Fanling, N.T.

计量器具名称 Name of Instrument : 风速仪

器具用途 Use of Instrument : 环境监测

型号/规格 Type/Specification : TA440

出厂编号 Serial № : TA4401232005

资产编号 Asset № : AAST-FLOW-02

制造单位 Manufacturer : TSI

校准依据 Calibrated in Accordance to : 参照JJG（建设）0001-1992《热球式风速仪》检定规程校准

（校准专用章）Stamp

校准日期 Operation Date : 2020 年 03 月 16 日 (Year Month Day)

建议复校日期 Suggested Recal Date : 2021 年 03 月 15 日 (Year Month Day)

签发日期 Issue Date : 2020 年 03 月 16 日 (Year Month Day)

批准人 Authorized by : 张正海

签名 Signature : 张正海

核验员 Checked by : 于飞

校准员 Calibrated by : 张嘉琪

校准机构备案号：[2012]粤量校F002号
地址：广东省深圳市南山区龙珠大道92号
电话：0086-755-26941898 0086-755-26941546
传真：0086-755-26941513 0086-755-26941547
邮编：518055 网址：www.smq.com.cn
电子邮件：kfzx@smq.com.cn

Register No.: [2012]粤量校F002号
Add:No.92, Longzhu Avenue, Nanshan District, Shenzhen, Guangdong, China
Nanshan District,Shenzhen
Tel:0086-755-26941898 0086-755-26941546
Fax:0086-755-26941513 0086-755-26941547
Post Code:518055 http://www.smq.com.cn
E-mail:kfzx@smq.com.cn

深圳市计量质量检测研究院
Shenzhen Academy of Metrology & Quality Inspection
国家高新技术计量站
National Hi-tech Metrology Station

## 校准报告
CALIBRATION REPORT

报告编号：204202268
Report №

第 2 页，共 3 页
Page 2 of 3 Pages

### 校准用主要计量标准装置信息
Main Standard Devices Used

| 名称 Equipment Name | 测量范围 Measuring Range | 不确定度/准确度等级/最大允许误差 Uncertainty/Accuracy Class/ Maximum Permissible Error | 计量标准考核证书号 Certificate № | 有效期至 Due Date |
|---|---|---|---|---|
| ——— | ——— | ——— | ——— | ——— |
| | | | | |
| | | | | |

### 校准用主要标准器信息
Main Standards of Measurement Used

| 名称 Equipment Name | 测量范围 Measuring Range | 不确定度/准确度等级/最大允许误差 Uncertainty/Accuracy Class/ Maximum Permissible Error | 设备编号 Equipment № | 证书号/溯源单位 Certificate №/ Traceability to | 有效期至 Due Date |
|---|---|---|---|---|---|
| 皮托静压管 | —— | ξ=1.002 k=1.001 | SB4562/01 | GQJ（V）LT2015-0028号/中国计量院 | 2020-05-05 |
| 风洞 | | | SB4562 | NSS201901168/广东省计量院 | 2024-06-26 |
| 数字压力计 | | | SB10930 | RGpv2019-2205/中国计量院 | 2020-09-26 |
| | | | | | |
| | | | | | |

### 附加说明
Appended Directions

委托日期：Application Date 2020 年 03 月 10 日

校准地点：Operation Location 本院104室

环境条件：Operation Environment 温度 21.3 ℃ 相对湿度 60 %

符合性及限制使用说明：Statement of Compliance and Limitation 参照校准结果使用

# Calibration Certificate of Air Flow Meter

深圳市计量质量检测研究院
Shenzhen Academy of Metrology & Quality Inspection
国家高新技术计量站
National Hi-tech Metrology Station

## 校准报告
CALIBRATION REPORT

报告编号：204202268
Report №



### 校准结果
Results of Calibration

零位：0.00m/s　　满度：---

风速示值：

| 序号 | 标准风速（m/s） | 仪器指示读数（m/s） | 修正值（m/s） |
|---|---|---|---|
| 1 | 0.40 | 0.38 | +0.02 |
| 2 | 1.00 | 0.95 | +0.05 |
| 3 | 2.00 | 1.70 | +0.30 |
| 4 | 5.00 | 4.30 | +0.70 |
| 5 | 10.00 | 9.70 | +0.30 |
| 6 | 15.00 | 14.89 | +0.11 |
| 7 | 20.00 | 20.23 | -0.23 |

附加说明：

1. 大气压力：1018.0hPa
2. 依据JJF1059.1-2012测量不确定度评定与表示，测量结果的扩展不确定度：$U_{rel}$=3.0%，$k$=2

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深圳市计量质量检测研究院
Shenzhen Academy of Metrology & Quality Inspection
国家高新技术计量站
National Hi-tech Metrology Station

CNAS 中国认可 国际互认 校准 CALIBRATION CNAS L2019

## 校 准 报 告
CALIBRATION REPORT

报告编号：204202267



客户名称 Name of Customer ： Castco Testing Centre Limited
客户地址 Address of Customer ： 33, On Kui Street, Fanling, N.T.
计量器具名称 Name of Instrument ： 风速仪
器具用途 Use of Instrument ： 环境监测
型号/规格 Type/Specification ： TA440
出厂编号 Serial №： TA4401706003
资产编号 Asset №： AAST-FLOW-03
制造单位 Manufacturer ： TSI
校准依据 Calibrated in Accordance to ： 参照JJG（建设）0001-1992《热球式风速仪》检定规程校准

（校准专用章）Stamp

校准日期 Operation Date ： 2020 年 03 月 16 日 Year Month Day
建议复校日期 Suggested Recal Date ： 2021 年 03 月 15 日 Year Month Day
签发日期 Issue Date ： 2020 年 03 月 16 日 Year Month Day

批准人 Authorized by ： 张正海
签名 Signature ： 张正海
核验员 Checked by ： 于飞
校准员 Calibrated by ： 张嘉琪

校准机构备案号：[2012]粤量校F002号
地址：广东省深圳市南山区龙珠大道92号
电话：0086-755-26941696 0086-755-26941546
传真：0086-755-26941615 0086-755-26941547
邮编：518055　网址：www.smq.com.cn
电子邮件：kfzxfhsmq.com.cn

Register No.: [2012]粤量校F002号
Add:No.92, Longzhu Avenue, Nanshan District, Shenzhen, Guangdong, China
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Tel:0086-755-26941696 0086-755-26941546
Fax:0086-755-26941615 0086-755-26941547
Post Code:518055 http://www.smq.com.cn
E-mail:kfzxfhsmq.com.cn

Calibration Certificate of Air Flow Meter

深圳市计量质量检测研究院
Shenzhen Academy of Metrology & Quality Inspection
国家高新技术计量站
National Hi-tech Metrology Station

# 校准报告
CALIBRATION REPORT

报告编号：204202267
Report №



## 校准用主要计量标准装置信息
Main Standard Devices Used

| 名称 Equipment Name | 测量范围 Measuring Range | 不确定度/准确度等级/最大允许误差 Uncertainty/Accuracy Class/Maximum Permissible Error | 计量标准考核证书号 Certificate № | 有效期至 Due Date |
|---|---|---|---|---|
| —— | —— | —— | —— | —— |
| | | | | |
| | | | | |

## 校准用主要标准器信息
Main Standards of Measurement Used

| 名称 Equipment Name | 测量范围 Measuring Range | 不确定度/准确度等级/最大允许误差 Uncertainty/Accuracy Class/Maximum Permissible Error | 设备编号 Equipment № | 证书号/溯源单位 Certificate №/Traceability to | 有效期至 Due Date |
|---|---|---|---|---|---|
| 皮托静压管 | —— | $U_{rel}$=1.002 k=1.001 | SB4562/01 | GQJ（Y）LT2015-0028号/中国计量院 | 2020-05-05 |
| 风测 | | | SB4562 | NSS201901168/广东省计量院 | 2024-06-26 |
| 数字压力计 | | | SB10930 | BGpx2019-2205/中国计量院 | 2020-09-26 |
| | | | | | |
| | | | | | |

## 附加说明
Appended Directions

委托日期：
Application Date
2020 年 03 月 10 日

校准地点：
Operation Location
本院104室

环境条件：
Operation Environment
温度 21.3 ℃ 相对湿度 60 %

符合性及限制使用说明：
Statement of Compliance and Limitation
参照校准结果使用

深圳市计量质量检测研究院
Shenzhen Academy of Metrology & Quality Inspection
国家高新技术计量站
National Hi-tech Metrology Station

# 校准报告
CALIBRATION REPORT

报告编号：204202267
Report №



## 校准结果
Results of Calibration

零位：0.00m/s　　满度：——

风速示值：

| 序号 | 标准风速（m/s） | 仪器指示读数（m/s） | 修正值（m/s） |
|---|---|---|---|
| 1 | 0.40 | 0.38 | +0.02 |
| 2 | 1.00 | 0.93 | +0.07 |
| 3 | 2.00 | 1.90 | +0.10 |
| 4 | 5.00 | 4.75 | +0.25 |
| 5 | 10.00 | 9.90 | +0.10 |
| 6 | 15.00 | 15.06 | -0.06 |
| 7 | 20.00 | 20.18 | -0.18 |

附加说明：

1. 大气压力：1018.0hPa
2. 依据JJF1059.1-2012测量不确定度评定与表示，测量结果的扩展不确定度：$U_{rel}$=3.0%，$k$=2

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# Appendix K – Noise monitoring results and graphical presentation

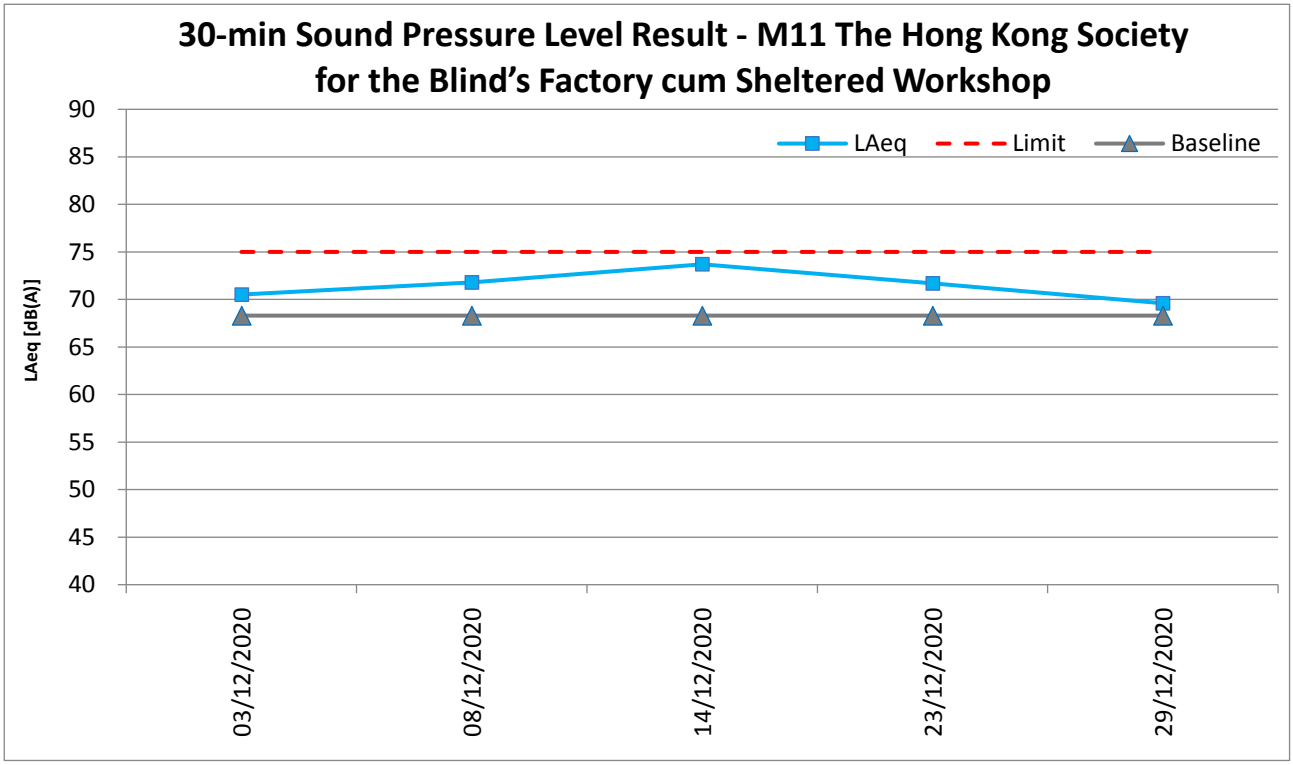
**M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop**

| Date | Temp (°C) | Weather | Measured Noise Level at M11, dB(A) | | | | | | Limit |
|---|---|---|---|---|---|---|---|---|---|
| | | | Time | | | Baseline | $L_{Aeq}$ | $L_{A10}$ | $L_{A90}$ | |
| 02/12/2020 | 21.5 | Sunny | 13:36 | - | 14:06 | 68.3 | 70.5 | 72.4 | 67.6 | 75 |
| 08/12/2020 | 24.3 | Sunny | 9:30 | - | 10:00 | 68.3 | 71.8 | 72.9 | 70.7 | 75 |
| 14/12/2020 | 21.3 | Cloudy | 14:18 | - | 14:48 | 68.3 | 73.7 | 75.9 | 69.2 | 75 |
| 23/12/2020 | 19.5 | Sunny | 13:57 | - | 14:27 | 68.3 | 71.7 | 73.5 | 65.6 | 75 |
| 29/12/2020 | 23.7 | Sunny | 11:15 | - | 11:45 | 68.3 | 69.6 | 72.1 | 64.4 | 75 |
| | | | Maximum | | | | 73.7 | | | |
| | | | Minimum | | | | 69.6 | | | |
| | | | Average | | | | 71.7 | | | |

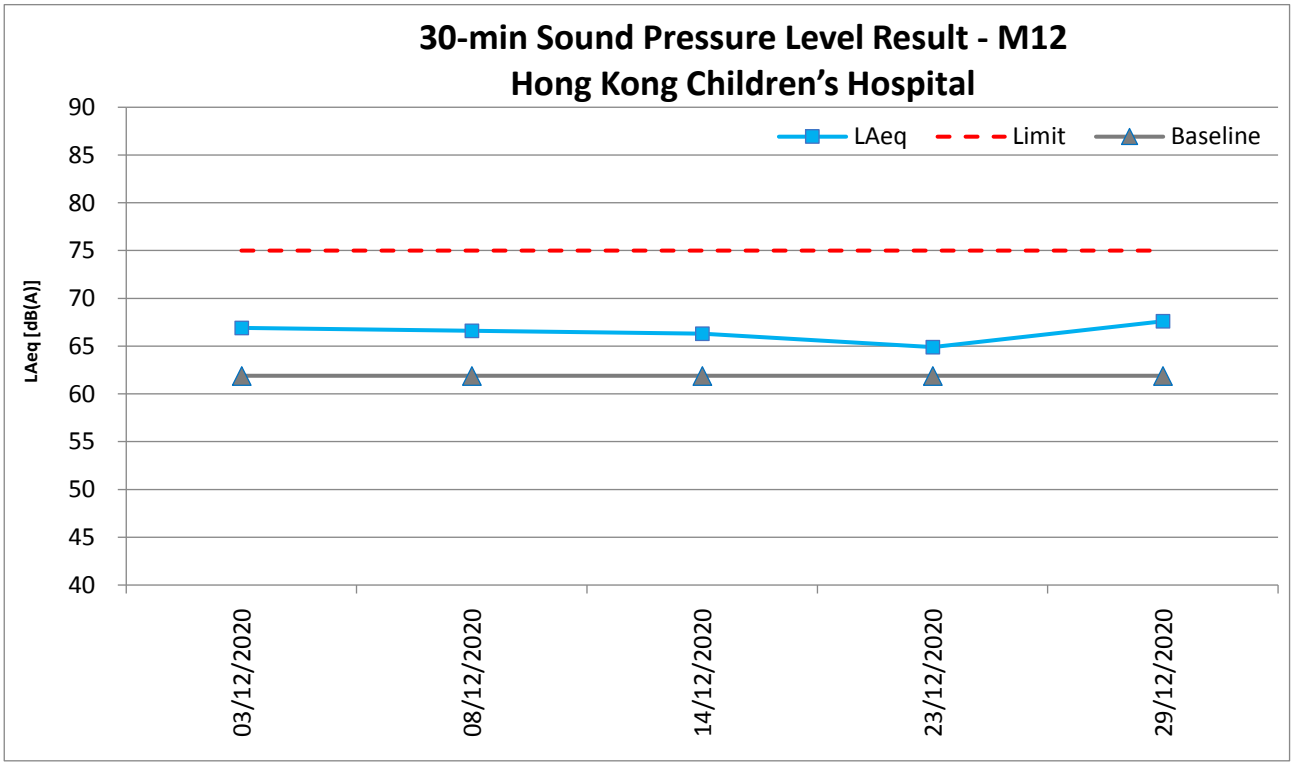
**M12 - Hong Kong Children's Hospital**

| Date | Temp (°C) | Weather | Measured Noise Level at M12, dB(A) | | | | | | Limit |
|---|---|---|---|---|---|---|---|---|---|
| | | | Time | | | Baseline | $L_{Aeq}$ | $L_{A10}$ | $L_{A90}$ | |
| 02/12/2020 | 21.5 | Sunny | 9:56 | - | 10:26 | 61.9 | 66.9 | 68.9 | 63.7 | 75 |
| 08/12/2020 | 24.3 | Sunny | 13:59 | - | 14:29 | 61.9 | 66.6 | 68.7 | 63.9 | 75 |
| 14/12/2020 | 21.3 | Cloudy | 11:04 | - | 11:34 | 61.9 | 66.3 | 68.3 | 63.8 | 75 |
| 23/12/2020 | 19.5 | Sunny | 14:59 | - | 15:29 | 61.9 | 64.9 | 66.7 | 62.4 | 75 |
| 29/12/2020 | 23.7 | Sunny | 10:25 | - | 10:55 | 61.9 | 67.6 | 69.5 | 65.1 | 75 |
| | | | Maximum | | | | 67.6 | | | |
| | | | Minimum | | | | 64.9 | | | |
| | | | Average | | | | 66.5 | | | |

**$L_{Aeq, 30\text{-}min}$ graphical results of M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop**




**$L_{Aeq, 30\text{-}min}$ graphical results of M12 - Hong Kong Children's Hospital**



# Appendix L – Event and Action Plan for noise

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

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

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

| Event | Action | | | |
|---|---|---|---|---|
| | **ET** | **IEC** | **Supervisor / ER** | **Contractor** |
| Design Check | 1. Check final design conforms to the requirements of EP and prepare report. | 1. Check report.<br>2. Recommend remedial design if necessary. | 1. Undertake remedial design if necessary. | |
| Non-conformity on one occasion | 1. Identify Source.<br>2. Inform IEC and Supervisor /ER.<br>3. Discuss remedial actions with IEC, Supervisor /ER and Contractor.<br>4. Monitor remedial actions until rectification has been completed. | 1. Check report.<br>2. Check Contractor's working method.<br>3. Discuss with ET and Contractor on possible remedial measures.<br>4. Advise Supervisor /ER on effectiveness of proposed remedial measures.<br>5. Check implementation of remedial measures. | 1. Notify Contractor.<br>2. Ensure remedial measures are properly implemented. | 1. Amend working methods.<br>2. Rectify damage and undertake any necessary replacement. |
| Repeated Non-conformity | 1. Identify Source.<br>2. Inform IEC and Supervisor /ER.<br>3. Increase monitoring frequency.<br>4. Discuss remedial actions with IEC, Supervisor /ER and Contractor.<br>5. Monitor remedial actions until rectification has been completed.<br>6. If non-conformity stops, cease additional monitoring. | 1. Check monitoring report.<br>2. Check Contractor's working method.<br>3. Discuss with ET and Contractor on possible remedial measures.<br>4. Advise Supervisor /ER on effectiveness of proposed remedial measures.<br>5. Supervise implementation of remedial measures. | 1. Notify Contractor.<br>2. Ensure remedial measures are properly implemented. | 1. Amend working methods.<br>2. Rectify damage and undertake any necessary replacement. |

# Appendix N – Waste Flow Table

# Appendix F - Monthly Summary Waste Flow Table

Name of Department : CEDD

Contract No.: ED/2018/01

## Monthly Summary Waste Flow Table for December 2020

| Month | Actual Quantities of Inert C&D Materials Generated Monthly | | | | | | Actual Quantities of C&D Wastes Generated Monthly | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total Quantity Generated | Hard Rock and Large Broken Concrete | Reused in the Contract | Reused in other Projects | Disposed as Public Fill | Imported Fill | Metals | Paper / cardboard packaging | Plastics (see Note 3) | Chemical Waste | Others, e.g. general refuse |
| | (in '000m$^3$) | (in '000m$^3$) | (in '000m$^3$) | (in '000m$^3$) | (in '000m$^3$) | (in '000m$^3$) | (in '000 kg) | (in '000kg) | (in '000kg) | (in '000kg) | (in '000m$^3$) |
| Jan | 1.030 | -- | -- | -- | 1.030 | -- | -- | -- | -- | -- | 0.0070 |
| Feb | 3.535 | -- | -- | -- | 3.535 | -- | -- | -- | -- | -- | 0.0008 |
| Mar | 13.992 | -- | -- | 13.075 | 0.917 | 0.933 | -- | -- | -- | -- | 0.0014 |
| Apr | 7.335 | -- | -- | 5.557 | 1.778 | 18.77 | -- | -- | -- | -- | 0.0127 |
| May | 8.024 | -- | -- | 5.642 | 2.382 | 0.620 | -- | 0.111 | -- | -- | 0.0264 |
| Jun | 5.057 | -- | -- | 3.919 | 1.138 | -- | -- | -- | -- | -- | 0.0120 |
| Sub-total | 38.973 | 0 | 0 | 28.193 | 10.78 | 20.323 | 0 | 0.111 | 0 | 0 | 0.0603 |
| July | 7.664 | -- | -- | 6.877 | 0.787 | 0.262 | -- | -- | -- | -- | 0.0537 |
| Aug | 6.549 | -- | -- | 1.686 | 4.863 | 0.645 | -- | -- | -- | -- | 0.0306 |
| Sep | 15.325 | -- | -- | 5.772 | 9.553 | 2.176 | -- | 0.154 | -- | -- | 0.0158 |
| Oct | 10.638 | -- | -- | 9.422 | 1.216 | 1.516 | -- | -- | -- | -- | 0.0225 |
| Nov | 7.321 | -- | -- | 6.089 | 1.232 | 1.336 | -- | -- | -- | -- | 0.0273 |
| Dec | 9.515 | -- | -- | 8.000 | 1.515 | 5.629 | -- | 0.094 | -- | -- | 0.0376 |
| Total | 95.985 | 0 | 0 | 66.039 | 29.946 | 31.887 | 0 | 0.359 | 0 | 0 | 0.2478 |

| Forecast of Total Quantities of C&D Materials to be Generated from the Contract* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Quantity Generated | Hard Rock and Large Broken Concrete | Reused in the Contract | Reused in other Projects | Disposed as Public Fill | Imported Fill | Metals | Paper / cardboard packaging | Plastics (see Note 3) | Chemical Waste | Others, e.g. general refuse |
| (in '000m$^3$) | (in '000m$^3$) | (in '000m$^3$) | (in '000m$^3$) | (in '000m$^3$) | (in '000m$^3$) | (in '000 kg) | (in '000kg) | (in '000kg) | (in '000kg) | (in '000m$^3$) |
| 195.01 | 2.103 | 10.2 | 140 | 19.81 | 25 | 200 | 0.8 | -- | -- | 3.4 |

Notes: (1) The performance targets are given in **ER Appendix 8I Clause 14** and the EM&A Manual
(2) The waste flow table shall also include C&D materials to be imported for use at the Site
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
(4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000m$^3$ (**ER Part 8 Clause 8.7.5(d)**(ii) refers)
(5) Assume inert C&D materials density and non-inert C&D materials are 1.9 m$^3$/ton and 1.5 m$^3$/ton

# Appendix O – Environmental Licenses and Notification

0049

本署檔號 Our Ref: 445956
來函檔號 Your Ref:
電話 Tel. No.: 2755 5518
圖文傳真 Fax No.: 2756 8588
電子郵件 E-Mail:
網址 Homepage: http://www.epd.gov.hk/

**Environmental Protection Department**
**Environmental Compliance Division**
**Regional Office (East)**
5th Floor, Nan Fung Commercial Centre,
19 Lam Lok Street, Kowloon Bay,
Kowloon, Hong Kong.

環境保護署
環保法規管理科
區域辦事處(東)
香港九龍九龍灣臨樂街
十九號南豐商業中心五樓

06/06/2019

Penta-Ocean Construction Co. Ltd
Flat 601, K. Wah Centre, 191 Java Road,
North Point, Hong Kong

Dear Sirs,

Site /Premises:
Kai Tak Development - Stage 4 Infrastruvture
at the former runway and south apron

This is to acknowledge receipt of the following submission(s) on 06/06/2019

Notification Pursuant to Section 3(1) of The Air Pollution Control (Construction Dust) Regulation
Ref. Number: 445956

Meanwhile, if you have any further questions, please contact the undersigned.

Yours faithfully,

(Customer Service Counter (RE))
for Director of Environmental Protection

再造紙 RECYCLED PAPER

(內文中文譯本)

執事先生：

工地/處所 (見英文版本)

我們已於 2019 年 6 月 6 日收到你提交的文件，詳列如下：

- ☐ 進行指明工序所需的牌照申請
- ☐ 申請批准裝置或改裝火爐、烘爐及煅爐
- ☐ 申請露天焚燒許可證 —
- ☐ 石棉調查報告、石棉消減計劃、石棉管理計劃，及/或開始進行石棉消減工程通知書
- ☑ 空氣污染管制(建造工程塵埃)規例的建造工程通知書
- ☐ 一般工程/訂明建造工程的建築噪音許可證申請
- ☐ 撞擊式打樁工程的建築噪音許可證申請
- ☐ 申請空氣壓縮機的噪音標籤
- ☐ 申請手提撞擊式破碎機的噪音標籤
- ☐ 水污染管制條例的排污牌照申請
- ☐ 申請化學廢物產生者的登記
- ☐ 化學廢物處置牌照申請
- ☐ 化學廢物收集牌照申請
- ☐ 根據條例第 17 條的規定呈報指定(甲類)化學廢物通知書
- ☐ 申請批准使用容量超逾 450 公升的化學廢物容器
- ☐ 廢物進出口許可證申請
- ☐ 申請批准使用油污分散劑及類似物質
- ☐ 傾物入海許可證申請

如有疑問，請與代行人查詢

環境保護署署長
( 代行)

年 月 日

本署檔號
Our Ref: EP682/286/0141/I
來函檔號
Your Ref:
電　話
Tel. No.: 2117 7539
圖文傳真
Fax No.: 2756 8588
電子郵件
E-Mail:
網　址
Homepage: http://www.epd.gov.hk/

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
5th Floor, Nan Fung Commercial Centre,
19 Lam Lok Street, Kowloon Bay,
Kowloon, Hong Kong.

環境保護署
環保法規管理科
區域辦事處（東）
香港九龍九龍灣臨樂街
十九號南豐商業中心五樓

**BY REGISTERED POST**

25 FEB 2020

Penta-Ocean Construction Co., Ltd.
Room 601, K. Wah Centre,
191 Java Road,
North Point, Hong Kong

PENTA-OCEAN
27 FEB 2020
RECEIVED

Dear Sir/Madam,

**Water Pollution Control Ordinance (WPCO) (Cap 358)**
**(Licence No: WT00034610-2019)**
**Variation of Licence Pursuant to Section 28 of WPCO**

I refer to your application dated 19/11/2019 made under Section 28 of the WPCO for the variation of your captioned licence granted on 26/09/2019. The Authority, pursuant to Section 28(4) & (7), hereby grants the application with the following variations.

- Sampling Points and Wastewater Treatment Facilities
- The limitations on discharge in Part B shall be varied from the existing limits to the new limits
- Self-monitoring and Reporting

Part A, B, Annex II, III & IV of your captioned licence shall be replaced by the corresponding Part shown in the Appendix of this letter with immediate effect.

This letter plus the remaining valid parts of your captioned licence shall form the varied licence. Please therefore attach this letter to your captioned licence. Please also note that the expiry date remains unchanged and the varied licence is valid up to 30/09/2024.

The granting of the application does not imply that the discharge/deposit from your premises is in compliance with the required standards and limits as stipulated in the varied licence. It is your responsibility to ensure that the terms and conditions of the varied licence are fully complied with.

Should you have any enquiry, please feel free to contact TONG Tsz-shan, Viviana at 2117 7527.

Yours faithfully,

( CHAN Wai-lun )
Environmental Protection Officer
for Director of Environmental Protection

Encl.: Appendix

再造紙
RECYCLED PAPER

掛號郵件

先生/女士：

**《水污染管制條例》(第358章)**
**牌照編號: WT00034610-2019**
**根據《水污染管制條例》第28條更改牌照**

你在二零一九年十一月十九日根據《水污染管制條例》第28條遞交了更改在二零一九年九月廿六日發出的上述牌照的申請。監督根據《水污染管制條例》第28(4)及(7)條批准有關申請，並作出以下更改：

- 取樣點及廢水處理設施
- 乙部的排放限制將由現時的上限更改至新上限
- 自行監測及報告

上述牌照的甲、乙、附件 II、III 及 IV 部分將由本函附錄所示的相應部分取代，即時生效。

本函連同上述牌照的餘下有效部分將構成修訂牌照，因此請將本函附於上述牌照。請注意，牌照屆滿日期維持不變，而修訂牌照的有效期至二零二四年九月三十日。

申請獲得批准並不代表你處所的排放／沉積物符合修訂牌照的訂明標準及上限。你必須確保完全遵守修訂牌照的條款及條件。

如有查詢，請致電 2117 7527 與本署 唐紫珊 聯絡。

環境保護署署長
（環境保護主任）
（陳偉麟代行）

連附錄

Appendix 附錄

Licence No. : WT00034610-2019
牌照編號 : WT00034610-2019

This Licence is Valid to : 30/09/2024
本牌照有效期至 :二零二四年九月三十日

# ENVIRONMENTAL PROTECTION DEPARTMENT
# 環境保護署

## WATER POLLUTION CONTROL ORDINANCE (CAP. 358)
## 水污染管制條例(第358章)

## LICENCE PURSUANT TO SECTION ~~15~~/20/~~23A~~*
## 按第~~15~~/20/~~23A~~*條簽發的牌照

The Director of Environmental Protection ("the Authority") grants this licence under the Water Pollution Control Ordinance ("the Ordinance") on the terms and conditions stated below.

環境保護署署長(「監督」)按下列的條款及條件，根據水污染管制條例(「本條例」)批給此牌照。

21 February 2020
Date
日期

( CHAN Wai-lun )
For *the Authority*
監督( 陳偉麟 代行)

## PART A 甲部 : GENERAL TERMS 一般條款

| | |
|---|---|
| Name of Licensee ("the Licensee")<br>持牌人名稱(「持牌人」) | Penta-Ocean Construction Co., Ltd. |
| Discharge Premises ("the premises")<br>排放處所(「處所」) | Construction Site of Kai Tak Development – Stage 4 Infrastructure at the Former Runway and South Apron, Kowloon City, Kowloon (CEDD Contract No. ED/2018/01) (See Annex I)<br>九龍九龍城啟德發展-前跑道和南停機坪的第4階段基礎設施之建築地盤 (土木工程拓展署合約編號 ED/2018/01) (參見附件 I) |
| Water Control Zone<br>水質管制區 | Victoria Harbour (Phase Two) Water Control Zone<br>維多利亞港(第二期)水質管制區 |
| Discharge Category<br>排放種類 | Discharge of industrial trade effluent<br>工業污水排放 |
| Nature of Discharge and Wastewater Treatment Facilities<br>排放性質及廢水處理設施 | Effluent, Surface Run-off, and all other wastewater discharges from the premises<br>上址排放的污水、地面徑流水及其他的廢水<br>Screen, Chemical Precipitation, pH adjustment and Sedimentation Tank<br>隔濾設施、化學沉降、酸鹼值調節及沉澱池 |
| Discharge Point(s)<br>排放點 | Discharge into communal storm water drain<br>排放入公用雨水渠 |
| Sampling Point(s)<br>取樣點 | Discharge outlet(s) of Wastewater Treatment Facility marked S.P. 1, S.P. 2 & S.P. 3 on Annex II, III & IV<br>參見附件 II、III 及 IV 中標指 S.P. 1、S.P. 2 及 S.P. 3 的廢水處理設施的出水口 |

*Delete as appropriate
將不適用者刪去



## PART B 乙部 : SPECIFIC CONDITIONS 特別條件

### B1. Limitations on Discharge 排放限制

The quantity and composition of any discharge from the premises shall not exceed the limits stated in the table below(Note a). All figures are upper limits unless otherwise indicated. All units are expressed as concentration in milligramme per litre unless otherwise stated.
任何源自處所之排放的量和成份不得超過下表所列的限度(附註a)。除另予表明外，所有數字均為上限。除另予說明外，所有單位均以毫克/升的濃度表示。

| Determinand 測量物 | Limit 限度 |
|---|---|
| Flow Rate ($m^3$ / day)<br>流量(立方米/日) | 195 |
| pH (pH units)<br>酸鹼值 (pH 單位) | 6-9# |
| Suspended Solids<br>懸浮固體 | 30 |
| Chemical Oxygen Demand<br>化學需氧量 | 80 |

# Range 上下限

### B2. Self-monitoring and Reporting 自行監測及報告

☐ The Licensee shall perform self-monitoring as and when required by the Authority.
持牌人須在監督要求時進行自行監測。

☒ The Licensee shall sample the discharge at the Sampling Point(s) and, at his own expense carry out analyses in accordance with the sample type and measurement frequency specified for each determinand named below:-
持牌人須在取樣點為排放抽取樣本，並依照下列指定的測量物、取樣形式及頻率，自資予以分析。

| *Determinand 測量物* | *Unit 單位* | *Sample Type 取樣形式* | *Frequency 頻率* |
|---|---|---|---|
| Suspended Solids<br>懸浮固體 | mg/L<br>毫克/升 | Grab<br>隨意取集 | Bimonthly<br>每兩個月一次 |

Results of these monitoring shall be summarized in a report on a ~~Monthly~~/Bi-monthly/~~Quarterly~~/~~Yearly~~* basis and shall be submitted to the Authority.
所有監測結果須以摘要形式，每~~一個月~~/兩個月/~~三個月~~/~~年~~*作出報告，並須呈交監督審閱。

*Delete as appropriate
將不適用者刪去

**Annex II**

**附件 II**

**Wastewater Treatment Facility (1)**
**廢水處理設施(1)**

**Sampling Point (S.P. 1) at sampling valve of the discharge outlet of Wastewater Treatment Facility (1)**
**取樣點(S.P. 1)位於廢水處理設施(1)出水口的取樣閥**

| | |
|---|---|
| **Title: Wastewater Treatment Facility (1) and Sampling Point (S.P. 1)**<br>**標題: 廢水處理設施(1)及取樣點(S.P. 1)**<br>**Construction Site of Kai Tak Development – Stage 4 Infrastructure at the Former Runway and South Apron, Kowloon City, Kowloon (CEDD Contract No. ED/2018/01)**<br>九龍九龍城啟德發展-前跑道和南停機坪的第4階段基礎設施之建築地盤 (土木工程拓展署合約編號ED/2018/01) | Annex to licence No.: **WT00034610-2019**<br>牌照編號 **WT00034610-2019** 的附件<br>Scale: **NTS**<br>比例: 不按比例<br>ENVIRONMENTAL PROTECTION DEPARTMENT, HONG KONG<br>REGIONAL OFFICE (EAST)<br>香港環境保護署<br>區域辦事處(東) |

**Annex III**

**附件 III**

**Wastewater Treatment Facility (2)**
**廢水處理設施(2)**

**Sampling Point (S.P. 2) at sampling valve of the discharge outlet of Wastewater Treatment Facility (2)**
**取樣點(S.P. 2)位於廢水處理設施(2)出水口的取樣閥**

| | |
|---|---|
| **Title: Wastewater Treatment Facility (2) and Sampling Point (S.P. 2)**<br>**標題: 廢水處理設施(2)及取樣點(S.P. 2)**<br>**Construction Site of Kai Tak Development – Stage 4 Infrastructure at the Former Runway and South Apron, Kowloon City, Kowloon (CEDD Contract No. ED/2018/01)**<br>九龍九龍城啟德發展-前跑道和南停機坪的第4階段基礎設施之建築地盤 (土木工程拓展署合約編號ED/2018/01) | Annex to licence No.: **WT00034610-2019**<br>牌照編號 **WT00034610-2019** 的附件<br>Scale: **NTS**<br>比例: 不按比例<br>ENVIRONMENTAL PROTECTION DEPARTMENT, HONG KONG<br>REGIONAL OFFICE (EAST)<br>香港環境保護署<br>區域辦事處(東) |

**Annex IV**

**附件 IV**

**Wastewater Treatment Facility (3)**
**廢水處理設施(3)**

**Sampling Point (S.P. 3) at sampling valve of the discharge outlet of Wastewater Treatment Facility (3)**

**取樣點(S.P. 3)位於廢水處理設施(3)出水口的取樣閥**

| | |
|---|---|
| **Title: Wastewater Treatment Facility (3) and Sampling Point (S.P. 3)**<br>**標題: 廢水處理設施(3)及取樣點(S.P. 3)**<br>**Construction Site of Kai Tak Development – Stage 4 Infrastructure at the Former Runway and South Apron, Kowloon City, Kowloon (CEDD Contract No. ED/2018/01)**<br>九龍九龍城啟德發展-前跑道和南停機坪的第4階段基礎設施之建築地盤 (土木工程拓展署合約編號ED/2018/01) | Annex to licence No.: **WT00034610-2019**<br>牌照編號 **WT00034610-2019** 的附件<br>Scale: **NTS**<br>比例: 不按比例<br>ENVIRONMENTAL PROTECTION DEPARTMENT, HONG KONG<br>REGIONAL OFFICE (EAST)<br>香港環境保護署<br>區域辦事處(東) |

本署檔號
OUR REF.: RE04380
來函檔號
YOUR REF.:
電話
TEL. NO.: 2872 1769
圖文傳真
FAX NO.: 2591 0361
網址
HOMEPAGE: http://www.epd.gov.hk

Environmental Protection Department
Environmental Infrastructure Division
88 Victoria Road,
Kennedy Town,
Hong Kong.

環境保護署
環境基建科
香港西環
堅尼地城
域多利道88號

PENTA-OCEAN CONSTRUCTION CO., LTD.
FLAT/ROOM 601, K. WAH CENTRE,
191 JAVA ROAD, NORTH POINT,
HONG KONG
Attn.: CHOI CHONG KEI

Friday, 28 June, 2019

RECEIVED
03 JUL 2019
PENTA-OCEAN

Dear Sir/Madam,

**Waste Disposal (Charges for Disposal of Construction Waste) Regulation**
**Approval of Application for Billing Account**
**(Construction work contract with value of $1 million or above)**
**Application No.: RE04380**

I am pleased to inform you that your application for billing account for disposal of construction waste under the following construction work contract has been approved under Section 6 and 9 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation:

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

**Contract Name: KAI TAK DEVELOPMENT - STAGE 4 INFRASTRUCTURE AT THE FORMER RUNWAY AND SOUTH APRON**

**Construction Waste Generated Site: KAI TAK THE FORMER RUNWAY AND SOUTH APRON**

The account number is **7034450**. Please quote this account number for enquiries in relation to the billing account.

You are bound by the "Basic Conditions" and "Conditions of Use" accompanied with this account for disposal of construction waste at the prescribed facilities. You shall ensure that (a) the billing account established solely for the contract as stated above is used for paying any prescribed charge payable in respect of construction waste generated from construction work undertaken under the above contract; and (b) that billing account is not used for paying any prescribed charge payable in respect of any other construction waste not generated from construction work undertaken under the contract as stated above.

Regarding your application for issuance of chits, a demand note for the deposit required will be sent to you accordingly. Request for additional chits can be made using "Form 4". Please note that one chit is required for each load of construction waste to be disposed of at prescribed facility.

Should you have any queries, please contact us at 2872 1769.

Yours faithfully,

(K O Yeung)
Principal Environmental Protection Officer
for Director of Environmental Protection

再造紙
RECYCLED PAPER

ISO 14001:2015
Certificate No:E103

本署檔號 Our Ref: 447046
來函檔號 Your Ref:
電話 Tel. No.: 2117 7539
圖文傳真 Fax No.: 2756 8588
電子郵件 E-Mail:
網址 Homepage: http://www.epd.gov.hk/

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
5th Floor, Nan Fung Commercial Centre,
19 Lam Lok Street, Kowloon Bay,
Kowloon, Hong Kong.

環境保護署
環保法規管理科
區域辦事處(東)
香港九龍九龍灣臨樂街
十九號南豐商業中心五樓

31 JUL 2019

By Registered Post

PENTA-OCEAN CONSTRUCTION CO., LTD.
FLAT 601, K. WAH CENTRE,
191 JAVA ROAD,
NORTH POINT, HONG KONG

PENTA-OCEAN
02 AUG 2019
RECEIVED

Dear Sir/Madam,

**Waste Disposal Ordinance (Cap. 354)**
**Waste Disposal (Chemical Waste) (General) Regulation**
**Registration as a Chemical Waste Producer**
**Completion of Registration**

I am pleased to inform you that your registration with this department as a chemical waste producer has been completed.

The assigned Waste Producer Number (WPN) and the particulars of your establishment are printed in the enclosed form (EPD 130). If you consider there are any discrepancies about the particulars, please notify me immediately, quoting the assigned WPN.

The "EPD 130" is an important document, please archive appropriately. This registration is not transferable and will be valid only in respect of the applicant and the premises registered. In future when there is change in the registration particulars, you should inform this department as soon as possible so that our record can be amended accordingly. Under section 7 of the above regulation, failure to notify this department of relevant changes is an offence and liable to a maximum fine of HK$10,000.

For enquiries, please contact us at Tel 2117 7546.

Yours faithfully,

( CHAN Wai-lun, William )
Environmental Protection Officer
for Director of Environmental Protection

Encl.

再造紙 RECYCLED PAPER

掛號函件

先生/女士:

香港法例第三五四章廢物處置條例
廢物處置(化學廢物)(一般)規例
化學廢物產生者
完成登記程序

本署已完成辦理 貴機構申請登記為「化學廢物產生者」。現隨信附上EPD 130表格;載有 貴機構的各項資料及你的「化學廢物產生者」編號。請即核對表格內的各項資料，如有錯漏，請即聯絡本署職員以便更正。通訊時請註明你的化學廢物產生者編號。

EPD 130 表格是一份重要文件，請妥善存檔。同時，是項登記，不得轉讓，並只適用於已登記的申請人／機構及有關地址。日後如果已申報的資料有變更，你應馬上通知本署，以便修正紀錄。按照上述規例第七條規定，任何人倘未有將變更資料及時呈報，乃屬違例行為，一經定罪，可被判罰款最高港幣一萬元正。

若有任何疑問，請致電 2117 7546 與本署職員聯絡。

環境保護署署長
(環境保護主任 陳偉麟 代行 )

附件

# Environmental Protection Department
# 環 境 保 護 署

**Waste Disposal Ordinance (Chapter 354)**
香港法例第354章廢物處置條例
**Waste Disposal ( Chemical Waste )( General ) Regulation**
廢物處置(化學廢物)(一般)規例
**Registration of Waste Producer**
廢物產生者登記證

**To:** 致

**Chemical Waste Producer** 化學廢物產生者

**Full Name (English)** 全 名 (英 文): PENTA-OCEAN CONSTRUCTION CO., LTD.

**(Chinese)** (中 文): ---

**I.D. Card No. (if any)** 身份證號碼 :(如有者): ---

**Business Reg. Cert. No. (if any)** 商業登記證號碼 (如有者): 07818486-000-05-18-7

**Address for Correspondence** 通訊地址: FLAT 601, K. WAH CENTRE, 191 JAVA ROAD, NORTH POINT, HONG KONG

**Tel. No.** 電話: 94332628

**Fax No.** 圖文傳真 : 25724080

**With reference to your application dated** 09 / 07 / 2019 **for registration as a Waste Producer under the Waste Disposal (Chemical Waste) (General) Regulation, the Waste Producer Number, WPN** 5218-286-P3182-03 **is assigned to you in respect of the location or premises listed below:—**

前於 2019 年 07 月 09 日 根據廢物處置(化學廢物)(一般)規例而來信，申請登記為廢物產生者，茲特配予廢物產生者編號第 5218-286-P3182-03 號，予下開地點或處所: —

**Location or Premises where the waste is produced** 產生廢物的地點或處所

**Name of Establishment** 機構名稱 : PENTA-OCEAN CONSTRUCTION CO., LTD.

**Business Reg. Cert. No. (if any)** 商業登記證號碼: (如有者): 07818486-000-05-18-7

**Nature of Business** 業務性質 : CONSTRUCTION

**Major chemical waste types** 主要化學廢物種類 : SPENT LUBRICATING OIL, SPENT MINERAL OIL, SURPLUS PAINT, SPENT BATTERY CELL CONTAINING HEAVY METALS, SPENT MIXING RESIDUE CONTAINING ACID AND ASBESTOS WASTE

**Address** 地址 : CONSTRUCTION SITE OF KAI TAK DEVELOPMENT - STAGE 4 INFRASTRUCTURE AT THE FORMER RUNWAY AND SOUTH APRON, KOWLOON CITY, KOWLOON (CEDD CONTRACT NO. ED/2018/01)

ENVIRONMENTAL PROTECTION DEPARTMENT 環境保護署 HONG KONG

(CHAN Wai-lun, William)
*for Director of Environmental Protection*
環境保護署署長 ( 陳偉麟 代行)

**Date** 日期 18 / 07 / 2019

**WARNING :** **Any registered waste producer who fails to inform the Director of Environmental Protection of any change in his registration particulars commits an offence and is liable on conviction to a fine of $10,000.**

**警 告 :** 任何已登記的廢物產生者，若其登記資料有任何改變而不知會環境保護署署長，即屬違法，被定罪者最高罰款港幣10,000元。

EPD 130 (Nov 2012)

FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

# CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. GW-RE0705-20

To : PENTA-OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

## *CONDITIONS*

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed:

   Full address: Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Works Area Part 3C), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No.: ---

   The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. *~~PART~~/WHOLE of the site falls * ~~WITHIN~~/OUTSIDE a designated area.

3. Powered Mechanical Equipment

   a. Items of powered mechanical equipment which may be used inside the site boundary :

| *Identification code of item of powered mechanical equipment (if applicable)* | *Description of item of powered mechanical equipment* | *No. of units* |
|---|---|---|
| | Refer to attached sheet | |

   b. Validity of the construction noise permit for the use of the powered mechanical equipment:

   Date and time of commencement : 28 August 2020 at 1900 hours

   Days and hours : 0000-2400 hours on general holidays (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].

   This part of the permit expires on : 23 February 2021 at 2300 hours

   c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.

   d. Other conditions imposed on the use of the powered mechanical equipment:

   1. The powered mechanical equipment listed in condition 3.a. shall only be operated during the hours shown below:

| | |
|---|---|
| General holiday (including Sunday) | 0900 - 2300 hours |
| Any day not being a general holiday | 1900 - 2300 hours |

   2. Only one group of the powered mechanical equipment listed in condition 3.a. shall be allowed to operate at any time.



4. Prescribed Construction Work

   a. Type of prescribed construction work which may be carried out inside the site boundary:

| *Identification code of type of prescribed construction work* | *Description of type of prescribed construction work* |
|---|---|
| | Not applicable |

   b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

   Date and time of commencement : Not applicable at Not applicable

   Date and hours : Not applicable.

   This part of the permit expires on : Not applicable at Not applicable

   c. ~~Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.~~

   d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 21st day of August 2020

*Signed :* R.
( TANG Wai-man, Lisa )
*for Authority*

* Delete as necessary

表格 3　　[第5(a)條]

噪音管制條例
(第400章)
第8(9)條

建築噪音許可證
為進行建築工程（撞擊式打樁除外）
而使用機動設備及／或進行訂明建築工程

建築噪音許可證編號：GW-RE0705-20

致：PENTA-OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第8條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及／或進行訂明建築工程，但須受以下條件規限。若不按照該等條件進行建築工程，許可證可遭撤銷，而且會受到檢控。

*條　件*

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

詳細地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第3C部分)(土木工程拓展署合約編號ED/2018/01)。　地段編號：---

地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上，而該圖則是本建築噪音許可證的一部分。

2. 該地盤部~~分~~／全部*位於指定範圍之~~內~~／外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備：

| *各項機動設備的識辨代碼(如適用的話)* | *各項機動設備的說明* | *數目* |
|---|---|---|
| | 參見附頁 | |

b. 可使用機動設備的建築噪音許可證有效期：

生效日期及時間：二零二零年八月二十八日下午七時

日期及時間：公眾假日(包括星期日)的凌晨零時至晚上十二時，公眾假日以外的任何一日凌晨零時至上午七時及下午七時至晚上十二時【但須注意條件3.d.1.有關可以使用上列機動設備的時間】。

此部分許可證屆滿日期及時間：二零二一年二月二十三日晚上十一時
日期　時間

c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀，供監督隨時查看；該等照片須經監督認可。

d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件3. a. 內的機動設備：

| | |
|---|---|
| 公眾假日包括星期日 | 上午九時至晚上十一時 |
| 公眾假日以外的任何一日 | 下午七時至晚上十一時 |

2. 在任何時間內，祇可使用列在條件3. a. 內其中一組機動設備。



4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

| *訂明建築工程的識辨代碼* | *訂明建築工程的類別的說明* |
|---|---|
| | 不適用 |

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間：不適用

日期及時間：不適用。

此部分許可證屆滿日期及時間：不適用
日期　時間

c. ~~本許可證可夾附經監督認可的地盤圖則，以顯示本許可證准予進行訂明建築工程的點。該地盤圖則須存放於建築地盤供監督隨時查看。~~

d. 規限進行訂明建築工程的其他條件：

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處，給予公眾人士參閱。

日期：2020 年 8 月 21 日

簽署：鄧慧敏
*監督*
(鄧慧敏　代行)

* 刪去不適用者

**Sheet Attached to Construction Noise Permit**
**No. GW-RE0705-20**

**3.a. Items of powered mechanical equipment which may be used inside the site boundary :**

| *Identification code of item of powered mechanical equipment (if applicable)* | | *Description of item of powered mechanical equipment* | *No. of units* |
|---|---|---|---|
| **Group A** | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A) | One |
| | CNP 166 | Piling, large diameter bored, reverse circulation drill | Two |
| | --- | Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104dB(A) | Two |
| | --- | Power pack (diesel) | One |
| | --- | Wastewater treatment plant | One |
| | CNP 283 | Water pump, submersible (electric) | Four |
| | CNP 165 | Piling, large diameter bored, oscillator | One |
| **Group B** | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A) | One |
| | CNP 164 | Piling, large diameter bored, grab and chisel | One |
| | CNP 048 | Crane, mobile (diesel) | One |
| **Group C** | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A) | One |
| | --- | Welding machine (electric) | Five |
| | CNP 048 | Crane, mobile (diesel) | One |
| **Group D** | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A) | One |
| | --- | Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104dB(A) | One |
| | CNP 048 | Crane, mobile (diesel) | One |
| | --- | Wastewater treatment plant | One |
| | CNP 283 | Water pump, submersible (electric) | Four |

Signed : _____
(TANG Wai-man, Lisa)
for Authority



**建築噪音許可證**
**編號 GW-RE0705-20 的附頁**

**3.a. 在地盤範圍內可使用的各項機動設備：**

| *各項機動設備的識辨代碼 (如適用的話)* | | *各項機動設備的說明* | *數目* |
|---|---|---|---|
| A組 | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A) | 壹 |
| | CNP 166 | 大直徑鑽孔樁，循環式鑽機 | 貳 |
| | --- | 空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A) | 貳 |
| | --- | 油渣動力供應器 | 壹 |
| | --- | 污水處理器 | 壹 |
| | CNP 283 | 潛水泵 (電動) | 肆 |
| | CNP 165 | 大直徑鑽孔樁，擺動機 | 壹 |
| B組 | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A) | 壹 |
| | CNP 164 | 大直徑鑽孔樁，抓斗及鑿 | 壹 |
| | CNP 048 | 起重機，流動 (油渣) | 壹 |
| C組 | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A) | 壹 |
| | --- | 焊接機 (電動) | 伍 |
| | CNP 048 | 起重機，流動 (油渣) | 壹 |
| D組 | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A) | 壹 |
| | --- | 空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A) | 壹 |
| | CNP 048 | 起重機，流動 (油渣) | 壹 |
| | --- | 污水處理器 | 壹 |
| | CNP 283 | 潛水泵 (電動) | 肆 |

*簽署*：_____
*監督*
(鄧慧敏 代行)

**Sheet Attached to Construction Noise Permit**
**No. GW-RE0705-20**

**3.a. Items of powered mechanical equipment which may be used inside the site boundary :**

| *Identification code of item of powered mechanical equipment (if applicable)* | | *Description of item of powered mechanical equipment* | *No. of units* |
|---|---|---|---|
| **Group E** | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A) | One |
| | CNP 048 | Crane, mobile (diesel) | One |
| | CNP 044 | Concrete lorry mixer | Two |
| | --- | Wastewater treatment plant | One |
| | CNP 283 | Water pump, submersible (electric) | Two |
| **Group F** | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A) | One |
| | --- | Welding machine (electric) | One |
| | CNP 166 | Piling, large diameter bored, reverse circulation drill | Two |
| | --- | Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104dB(A) | One |
| | --- | Wastewater treatment plant | One |
| | --- | Power pack (diesel) | One |
| **Group G** | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A) | One |
| | CNP 048 | Crane, mobile (diesel) | One |
| | CNP 164 | Piling, large diameter bored, grab and chisel | One |
| | --- | Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104dB(A) | One |
| | CNP 166 | Piling, large diameter bored, reverse circulation drill | Two |
| | --- | Power pack (diesel) | One |
| | CNP 283 | Water pump, submersible (electric) | Two |
| | --- | Wastewater treatment plant | One |

Signed :_____
(TANG Wai-man, Lisa)
for Authority



**建築噪音許可證**
**編號 GW-RE0705-20 的附頁**

**3.a.** 在地盤範圍內可使用的各項機動設備：

| *各項機動設備的識辨代碼 (如適用的話)* | | *各項機動設備的說明* | *數目* |
|---|---|---|---|
| E組 | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A) | 壹 |
| | CNP 048 | 起重機，流動 (油渣) | 壹 |
| | CNP 044 | 混凝土攪拌車 | 貳 |
| | --- | 污水處理器 | 壹 |
| | CNP 283 | 潛水泵 (電動) | 貳 |
| F組 | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A) | 壹 |
| | --- | 焊接機 (電動) | 壹 |
| | CNP 166 | 大直徑鑽孔樁，循環式鑽機 | 貳 |
| | --- | 空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A) | 壹 |
| | --- | 污水處理器 | 壹 |
| | --- | 油渣動力供應器 | 壹 |
| G組 | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A) | 壹 |
| | CNP 048 | 起重機，流動 (油渣) | 壹 |
| | CNP 164 | 大直徑鑽孔樁，抓斗及鑿 | 壹 |
| | --- | 空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A) | 壹 |
| | CNP 166 | 大直徑鑽孔樁，循環式鑽機 | 貳 |
| | --- | 油渣動力供應器 | 壹 |
| | CNP 283 | 潛水泵 (電動) | 貳 |
| | --- | 污水處理器 | 壹 |

*簽署*：_____
*監督*
(鄧慧敏 代行)

**Photograph(s) attached to Construction Noise Permit No. GW-RE0705-20**
**建築噪音許可證編號：GW-RE0705-20 的照片**

Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95dB(A)
發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A)

CNP 283 Water pump, submersible (electric)
潛水泵 (電動)

**Photograph(s) attached to Construction Noise Permit No. GW-RE0705-20**
**建築噪音許可證編號：GW-RE0705-20 的照片**

Wastewater treatment plant
污水處理器

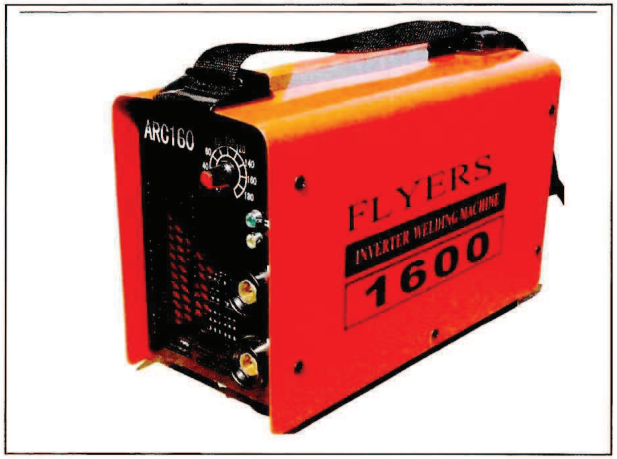
Power pack (diesel)
油渣動力供應器

**Photograph(s) attached to Construction Noise Permit No. GW-RE0705-20**
建築噪音許可證編號：**GW-RE0705-20** 的照片

CNP 048 Crane, mobile (diesel)
起重機，流動 (油渣)

CNP 044 Concrete lorry mixer
混凝土攪拌車

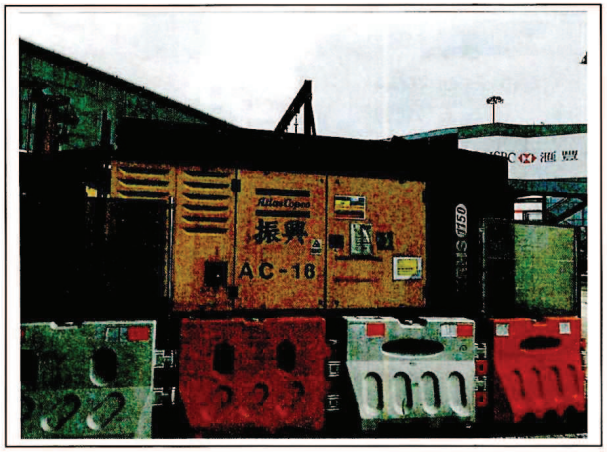
**Photograph(s) attached to Construction Noise Permit No. GW-RE0705-20**
建築噪音許可證編號：**GW-RE0705-20** 的照片




Welding machine (electric)
焊接機 (電動)

CNP 166 Piling, large diameter bored, reverse circulation drill
大直徑鑽孔樁，循環式鑽機

**Photograph(s) attached to Construction Noise Permit No. GW-RE0705-20**
建築噪音許可證編號：GW-RE0705-20 的照片




Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104dB(A) (1)
空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A) （一）

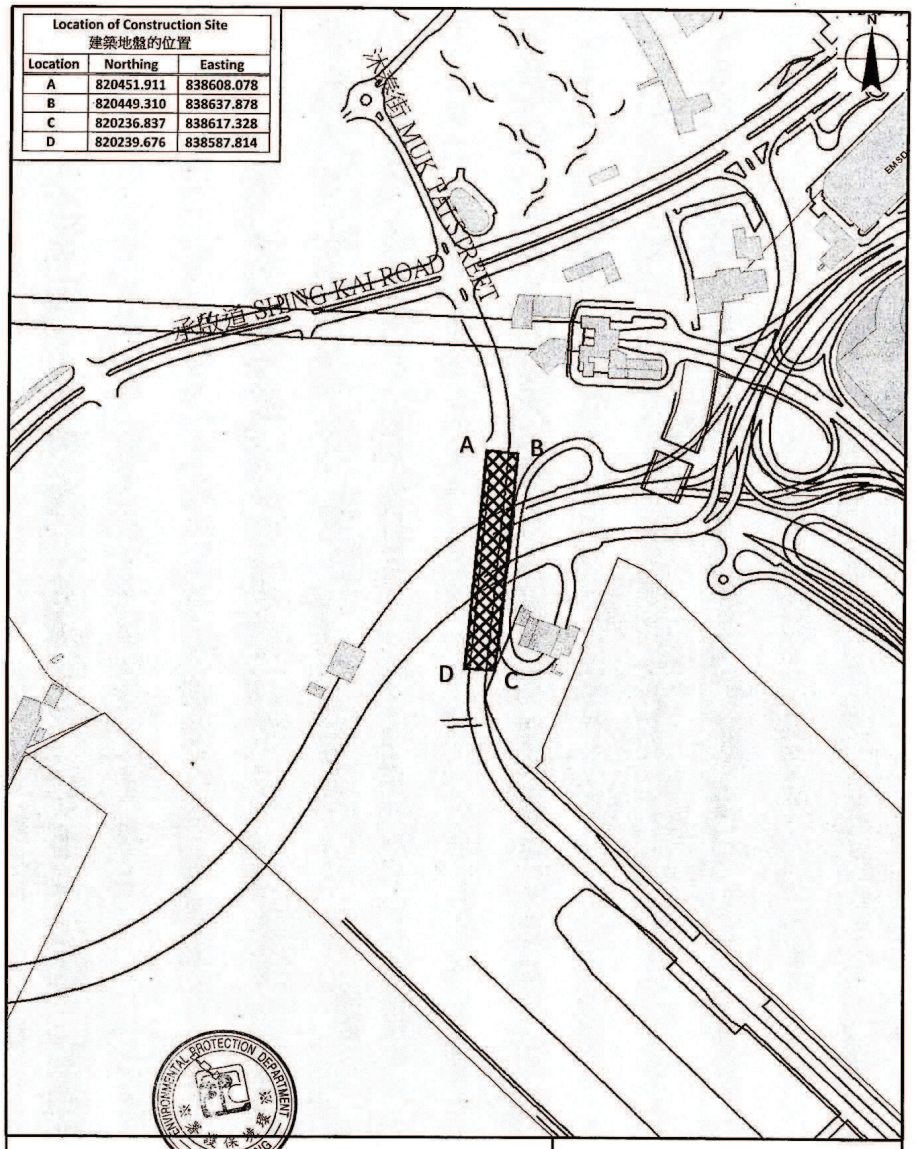
Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104dB(A) (2)
空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A) （二）

**Photograph(s) attached to Construction Noise Permit No. GW-RE0705-20**
建築噪音許可證編號：GW-RE0705-20 的照片

CNP 165 Piling, large diameter bored, oscillator
大直徑鑽孔樁，擺動機

CNP 164 Piling, large diameter bored, grab and chisel
大直徑鑽孔樁，抓斗及鑿

| Location of Construction Site 建築地盤的位置 | | |
|---|---|---|
| Location | Northing | Easting |
| A | 820451.911 | 838608.078 |
| B | 820449.310 | 838637.878 |
| C | 820236.837 | 838617.328 |
| D | 820239.676 | 838587.814 |




環境保護署 噪音管制監督

Environmental Protection Department Noise Control Authority

圖例 Legend

建築地盤 Construction Site

建築噪音許可證編號 GW-RE0705-20 的附圖

Plan attached to Construction Noise Permit No. GW-RE0705-20

比例 Scale 1:5,000

米Meters

0 25 50 100 150

FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

# CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. GW-RE0735-20

To : PENTA – OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

## *CONDITIONS*

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed:

   Full address : Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Works Area WA1), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No.: ---

   The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. * ~~PART~~/WHOLE of the site falls * ~~WITHIN~~/OUTSIDE a designated area.

3. Powered Mechanical Equipment

   a. Items of powered mechanical equipment which may be used inside the site boundary :

| *Identification code of item of powered mechanical equipment (if applicable)* | | *Description of item of powered mechanical equipment* | *No. of units* |
|---|---|---|---|
| Group A | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A) | One |
| | --- | Lorry, with crane, 5.5 tonne<gross vehicle weight≦38 tonne | One |
| | CNP 021 | Bar bender and cutter (electric) | One |
| Group B | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A) | One |
| | --- | Welding machine (electric) | Three |

   b. Validity of the construction noise permit for the use of the powered mechanical equipment:

   Date and time of commencement : 09 September 2020 at 1900 hours

   Days and hours : 0000-2400 hours on general holiday (including Sunday), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].

   This part of the permit expires on : 06 March 2021 at 2300 hours

   c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.

   d. Other conditions imposed on the use of the powered mechanical equipment :
   Refer to attached sheet.



4. Prescribed Construction Work

   a. Type of prescribed construction work which may be carried out inside the site boundary :

| *Identification code of type of prescribed construction work* | *Description of type of prescribed construction work* |
|---|---|
| | Not applicable |

   b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

   Date and time of commencement: Not applicable at Not applicable

   Days and hours: Not applicable.

   This part of the permit expires on : Not applicable at Not applicable

   c. ~~Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.~~

   d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 03rd day of September 20 20

*Signed :* _____
(TANG Wai-man, Lisa)
*for Authority*

* Delete as necessary

表格 3 [第5(a)條]

噪音管制條例
(第400章)
第8(9)條

# 建築噪音許可證
## 為進行建築工程（撞擊式打樁除外）而使用機動設備及／或進行訂明建築工程

建築噪音許可證編號：GW-RE0735-20

致：PENTA - OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第8條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及／或進行訂明建築工程，但須受以下條件規限。若不按照該等條件進行建築工程，許可證可遭撤銷，而且會受到檢控。

*條　件*

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

詳細地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區WA1)（土木工程拓展署合約編號ED/2018/01)。　地段編號：---

地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上，而該圖則是本建築噪音許可證的一部分。

2. 該地盤部分／全部*位於指定範圍之內／外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備：

| *各項機動設備的識辨代碼 (如適用的話)* | | *各項機動設備的說明* | *數目* |
|---|---|---|---|
| A組 | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦93分貝(A) | 壹 |
| | --- | 吊臂貨車， 5.5噸< 總重量 ≦ 38噸 | 壹 |
| | CNP 021 | 鋼筋彎曲機及切割機 （電動） | 壹 |
| B組 | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A) | 壹 |
| | --- | 焊接機 (電動) | 叁 |

b. 可使用機動設備的建築噪音許可證有效期：

生效日期及時間：二零二零年九月九日　下午七時

日期及時間：公眾假日(包括星期日)的凌晨零時至晚上十二時，公眾假日以外的任何一日凌晨零時至上午七時及下午七時至晚上十二時【但須注意條件3.d.1.有關可以使用上列機動設備的時間】。

此部分許可證屆滿日期及時間：二零二一年三月六日　晚上十一時
日期　時間

c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀，供監督隨時查看；該等照片須經監督認可。

d. 規限使用機動設備的其他條件：

參見附頁。



4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

| *訂明建築工程的識辨代碼* | *訂明建築工程的類別的說明* |
|---|---|
| | 不適用 |
| | |

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間：不適用

日期及時間：不適用。

此部分許可證屆滿日期及時間：不適用
日期　時間

c. ~~本許可證可夾附經監督認可的地盤圖則，以顯示本許可證准予進行訂明建築工程的地點。該地盤圖則須存放於建築地盤供監督隨時查看。~~

d. 規限進行訂明建築工程的其他條件：

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處，給予公眾人士參閱。

日期：2020 年 09 月 03 日

簽署：鄧慧敏

*監督*
(鄧慧敏　代行)

* 刪去不適用者

Sheet Attached to Construction Noise Permit
No. GW-RE0735-20

**3.d. Other conditions imposed on the use of the powered mechanical equipment:**

1. The powered mechanical equipment listed in condition 3.a. shall only be operated during the hours shown below:

| | |
|---|---|
| General holiday including Sunday | 0700 – 1900 hours |
| Any day not being a general holiday | 1900 – 2300 hours |

2. Only one group of the powered mechanical equipment listed in condition 3.a. shall be allowed to operate at any time.

Signed : _____
(TANG Wai-man, Lisa)
for Authority



建築噪音許可證
編號 GW-RE0735-20 的附頁

3. d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件 3.a. 內的機動設備：

| | |
|---|---|
| 公眾假日包括星期日 | 上午七時至下午七時 |
| 公眾假日以外的任何一日 | 下午七時至晚上十一時 |

2. 在任何時間內，祇可使用列在條件 3.a. 內其中一組機動設備。

*簽署*： _____
*監督*
(鄧慧敏 代行)

**Photograph(s) attached to Construction Noise Permit No. GW-RE0735-20**
建築噪音許可證編號：GW-RE0735-20 的照片

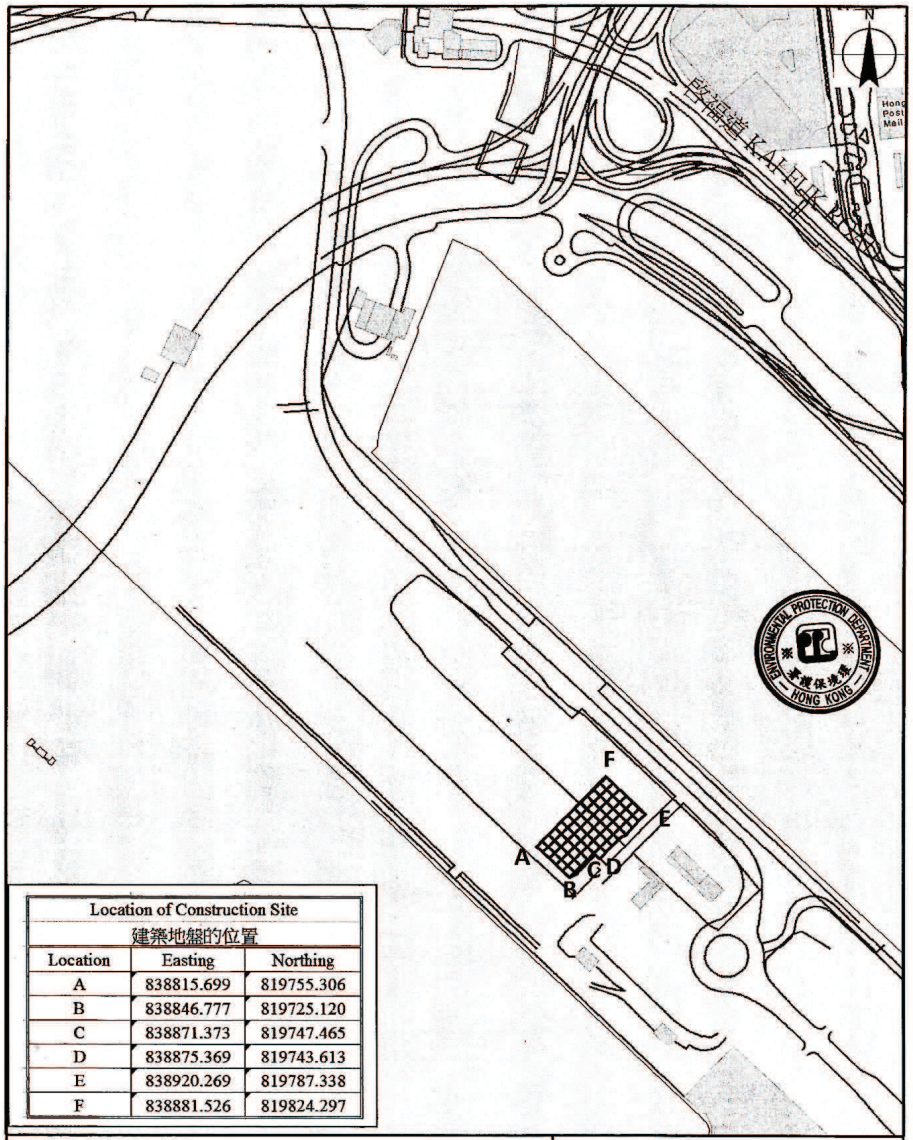
Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤93 dB(A)
發電機，備有優質機動設備標籤顯示聲功率級≤93 分貝(A)

Lorry, with crane, 5.5 tonne<gross vehicle weight≤38 tonne
吊臂貨車， 5.5 噸< 總重量 ≤ 38 噸

**Photograph(s) attached to Construction Noise Permit No. GW-RE0735-20**
建築噪音許可證編號：GW-RE0735-20 的照片

CNP 021 Bar bender and cutter (electric)
鋼筋彎曲機及切割機 （電動）

Welding machine (electric)
焊接機 （電動）




| Location of Construction Site 建築地盤的位置 | | |
|---|---|---|
| Location | Easting | Northing |
| A | 838815.699 | 819755.306 |
| B | 838846.777 | 819725.120 |
| C | 838871.373 | 819747.465 |
| D | 838875.369 | 819743.613 |
| E | 838920.269 | 819787.338 |
| F | 838881.526 | 819824.297 |

環境保護署　　噪音管制監督

Environmental Protection Department　Noise Control Authority

圖例 Legend

建築地盤 Construction Site

建築噪音許可證編號 GW-RE0735-20 的附圖

Plan attached to Construction Noise Permit No. GW-RE0735-20

比例 Scale　1:5,000

米Meters

0 25 50 100 150

FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

# CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. GW-RE0869-20

To : PENTA – OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

## *CONDITIONS*

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed:

   Full address : Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Work Area Part 1), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No.: ---

   The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. * ~~PART~~/WHOLE of the site falls * ~~WITHIN~~/OUTSIDE a designated area.

3. Powered Mechanical Equipment

   a. Items of powered mechanical equipment which may be used inside the site boundary :

| *Identification code of item of powered mechanical equipment (if applicable)* | *Description of item of powered mechanical equipment* | *No. of units* |
|---|---|---|
| | Refer to attached sheet. | |

   b. Validity of the construction noise permit for the use of the powered mechanical equipment:

   Date and time of commencement : 20 October 2020 at 1900 hours

   Days and hours : 0000-2400 hours on general holiday (including Sunday), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].

   This part of the permit expires on : 08 April 2021 at 2300 hours

   c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.

   d. Other conditions imposed on the use of the powered mechanical equipment :
   Refer to attached sheet.



4. Prescribed Construction Work

   a. Type of prescribed construction work which may be carried out inside the site boundary :

| *Identification code of type of prescribed construction work* | *Description of type of prescribed construction work* |
|---|---|
| | Not applicable |

   b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

   Date and time of commencement: Not applicable at Not applicable

   Days and hours: Not applicable.

   This part of the permit expires on : Not applicable at Not applicable

   c. ~~Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.~~

   d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 16th day of October 20 20

*Signed :*

(TANG Wai-man, Lisa)
*for Authority*

* Delete as necessary

表格 3 [第5(a)條]

噪音管制條例
(第400章)
第8(9)條

# 建築噪音許可證
## 為進行建築工程（撞擊式打樁除外）而使用機動設備及／或進行訂明建築工程

建築噪音許可證編號： GW-RE0869-20

致： PENTA - OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第8條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及／或進行訂明建築工程，但須受以下條件規限。若不按照該等條件進行建築工程，許可證可遭撤銷，而且會受到檢控。

*條 件*

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

詳細地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第1部分) (土木工程拓展署合約編號ED/2018/01)。 地段編號： ---

地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上，而該圖則是本建築噪音許可證的一部分。

2. 該地盤~~部分~~／全部*位於指定範圍之內／~~外~~*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備：

| *各項機動設備的識辨代碼 (如適用的話)* | *各項機動設備的說明* | *數目* |
|---|---|---|
| | 參見附頁。 | |

b. 可使用機動設備的建築噪音許可證有效期：

生效日期及時間： 二零二零年十月二十日 下午七時

日期及時間： 公眾假日(包括星期日)的凌晨零時至晚上十二時，公眾假日以外的任何一日凌晨零時至上午七時及下午七時至晚上十二時【但須注意條件3.d.1.有關可以使用上列機動設備的時間】。

此部分許可證屆滿日期及時間： 二零二一年四月八日 晚上十一時
日期 時間

c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀，供監督隨時查看；該等照片須經監督認可。

d. 規限使用機動設備的其他條件：

參見附頁。



4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

| *訂明建築工程的識辨代碼* | *訂明建築工程的類別的說明* |
|---|---|
| | 不適用 |

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間： 不適用

日期及時間： 不適用。

此部分許可證屆滿日期及時間： 不適用
日期 時間

c. ~~本許可證可夾附經監督認可的地盤圖則，以顯示本許可證准予進行訂明建築工程的地點。該地盤圖則須存放於建築地盤供監督隨時查看。~~

d. 規限進行訂明建築工程的其他條件：

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處，給予公眾人士參閱。

日期：2020 年 10 月 16 日

簽署： 鄧慧敏

*監督*
(鄧慧敏 代行)

* 刪去不適用者

Sheet Attached to Construction Noise Permit
No. GW-RE0869-20

**3.a. Items of powered mechanical equipment which may be used inside the site boundary :**

| *Identification code of item of powered mechanical equipment (if applicable)* | | *Description of item of powered mechanical equipment* | *No. of units* |
|---|---|---|---|
| **Group A** | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤95 dB(A) | One |
| | CNP 166 | Piling, large diameter bored, reverse circulation drill | Two |
| | --- | Air compressor, with Noise Emission Label showing a Sound Power Level of ≤104 dB(A) | Two |
| | --- | Power pack (diesel) | One |
| | --- | Wastewater treatment plant | One |
| | CNP 283 | Water pump, submersible (electric) | Four |
| | --- | Welding machine (electric) | Two |
| **Group B** | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤95 dB(A) | One |
| | --- | Welding machine (electric) | Five |
| | CNP 048 | Crane, mobile (diesel) | One |
| **Group C** | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤95 dB(A) | One |
| | CNP 048 | Crane, mobile (diesel) | One |
| | CNP 044 | Concrete lorry mixer | One |
| | --- | Wastewater treatment plant | One |
| | CNP 283 | Water pump, submersible (electric) | Two |
| **Group D** | CNP 165 | Piling, large diameter bored, oscillator | One |
| | --- | Power pack (diesel) | One |

Signed : _____
(TANG Wai-man, Lisa)
for Authority



建築噪音許可證
編號 GW-RE0869-20 的附頁

**3.a.** 在地盤範圍內可使用的各項機動設備：

| *各項機動設備的識辨代碼 (如適用的話)* | | *各項機動設備的說明* | *數目* |
|---|---|---|---|
| **A組** | --- | 發電機，備有優質機動設備標籤顯示聲功率級≤95 分貝(A) | 壹 |
| | CNP 166 | 大直徑鑽孔樁，循環式鑽機 | 貳 |
| | --- | 空氣壓縮機，備有噪音標籤顯示聲功率級≤104 分貝(A) | 貳 |
| | --- | 油渣動力供應器 | 壹 |
| | --- | 污水處理器 | 壹 |
| | CNP 283 | 潛水泵 （電動） | 肆 |
| | --- | 焊接機 (電動) | 貳 |
| **B組** | --- | 發電機，備有優質機動設備標籤顯示聲功率級≤95 分貝 (A) | 壹 |
| | --- | 焊接機 (電動) | 伍 |
| | CNP 048 | 起重機，流動 (油渣) | 壹 |
| **C組** | --- | 發電機，備有優質機動設備標籤顯示聲功率級≤95 分貝 (A) | 壹 |
| | CNP 048 | 起重機，流動 (油渣) | 壹 |
| | CNP 044 | 混凝土攪拌車 | 壹 |
| | --- | 污水處理器 | 壹 |
| | CNP 283 | 潛水泵 （電動） | 貳 |
| **D組** | CNP 165 | 大直徑鑽孔樁，擺動機 | 壹 |
| | --- | 油渣動力供應器 | 壹 |

*簽署*：_____
*監督*
(鄧慧敏 代行)

Sheet Attached to Construction Noise Permit
No. GW-RE0869-20

**3.d. Other conditions imposed on the use of the powered mechanical equipment:**

1. The powered mechanical equipment listed in condition 3.a shall only be operated during the hours shown below:

| | |
|---|---|
| General holiday including Sunday | 0900 – 2300 hours |
| Any day not being a general holiday | 1900 – 2300 hours |

2. Only one group of the powered mechanical equipment listed in condition 3.a shall be allowed to operate at any time.

Signed :_____
(TANG Wai-man, Lisa)
for Authority



建築噪音許可證
編號 GW-RE0869-20 的附頁

3. d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件 3. a 內的機動設備：

| | |
|---|---|
| 公眾假日包括星期日 | 上午九時至晚上十一時 |
| 公眾假日以外的任何一日 | 下午七時至晚上十一時 |

2. 在任何時間內，祇可使用列在條件 3. a. 內其中一組機動設備。

*簽署*：_____
*監督*
(鄧慧敏 代行)

**Photograph(s) attached to Construction Noise Permit No. GW-RE0869-20**
建築噪音許可證編號：GW-RE0869-20 的照片

Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A)
發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A)

CNP 166 Piling, large diameter bored, reverse circulation drill
大直徑鑽孔樁，循環式鑽機

**Photograph(s) attached to Construction Noise Permit No. GW-RE0869-20**
建築噪音許可證編號：GW-RE0869-20 的照片

Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104 dB(A)
空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A)

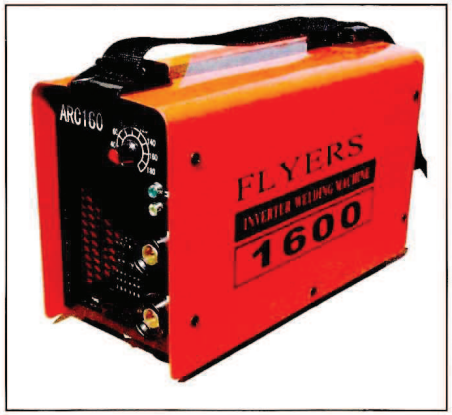
Power pack (diesel)
油渣動力供應器

**Photograph(s) attached to Construction Noise Permit No. GW-RE0869-20**
建築噪音許可證編號：**GW-RE0869-20** 的照片

Wastewater treatment plant
污水處理器

CNP 283 Water pump, submersible (electric)
潛水泵 （電動）

**Photograph(s) attached to Construction Noise Permit No. GW-RE0869-20**
建築噪音許可證編號：**GW-RE0869-20** 的照片



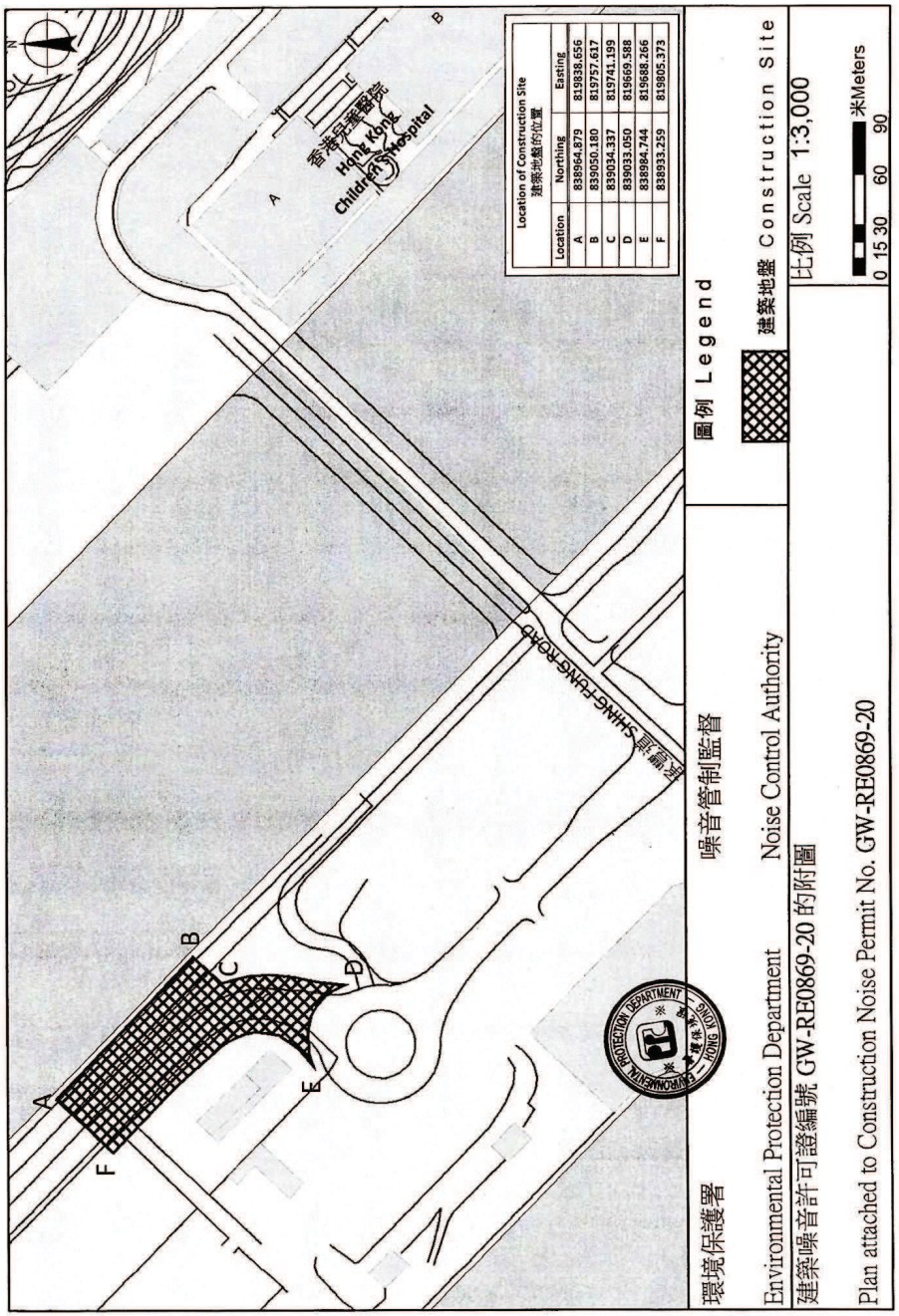

Welding machine (electric)
焊接機 （電動）

CNP 048 Crane, mobile (diesel)
起重機，流動 (油渣)

**Photograph(s) attached to Construction Noise Permit No. GW-RE0869-20**
建築噪音許可證編號：GW-RE0869-20 的照片

CNP 044 Concrete lorry mixer
混凝土攪拌車

CNP 165 Piling, large diameter bored, oscillator
大直徑鑽孔樁，擺動機



FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

# CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. GW-RE0991-20

To : PENTA – OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

*CONDITIONS*

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed :
   Full address : Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Works Area Part 2A), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01) Lot No.: ---

   The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. * ~~PART~~/WHOLE of the site falls * ~~WITHIN~~/OUTSIDE a designated area.

3. Powered Mechanical Equipment

   a. Items of powered mechanical equipment which may be used inside the site boundary :

| *Identification code of item of powered mechanical equipment (if applicable)* | *Description of item of powered mechanical equipment* | *No. of units* |
|---|---|---|
| | Refer to attached sheet. | |

   b. Validity of the construction noise permit for the use of the powered mechanical equipment:

   Date and time of commencement : 26 November 2020 at 2300 hours
   Days and hours : 0000-2400 hours on general holiday (including Sunday), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note Condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].
   This part of the permit expires on : 25 May 2021 at 0700 hours

   c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.

   d. Other conditions imposed on the use of the powered mechanical equipment :

   Refer to attached sheet.



4. Prescribed Construction Work

   a. Type of prescribed construction work which may be carried out inside the site boundary:

| *Identification code of type of prescribed construction work* | *Description of type of prescribed construction work* |
|---|---|
| | Not applicable |

   b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

   Date and time of commencement: Not applicable at Not applicable
   Days and hours: Not applicable.

   This part of the permit expires on : Not applicable at Not applicable

   c. ~~Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.~~

   d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 23rd day of November 20 20

*Signed :* _____
(TANG Wai-man, Lisa)
*for Authority*

* Delete as necessary

表格 3 [第5(a)條]

噪音管制條例
(第400章)
第8(9)條

# 建築噪音許可證
## 為進行建築工程（撞擊式打樁除外）而使用機動設備及／或進行訂明建築工程

建築噪音許可證編號： GW-RE0991-20

致： PENTA – OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第8條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及／或進行訂明建築工程，但須受以下條件規限。若不按照該等條件進行建築工程，許可證可遭撤銷，而且會受到檢控。

*條 件*

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

詳細地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第2A部分) (土木工程拓展署合約編號ED/2018/01)。 地段編號： ---

地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上，而該圖則是本建築噪音許可證的一部分。

2. 該地盤部~~分~~／全部*位於指定範圍之內／~~外~~*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備：

| *各項機動設備的識辨代碼 (如適用的話)* | *各項機動設備的說明* | *數目* |
|---|---|---|
| | 參見附頁。 | |

b. 可使用機動設備的建築噪音許可證有效期：

生效日期及時間： 二零二零年十一月二十六日 晚上十一時

日期及時間： 公眾假日(包括星期日)的凌晨零時至晚上十二時，公眾假日以外的任何一日凌晨零時至上午七時及下午七時至晚上十二時【但須注意條件3.d.1.有關可以使用上列機動設備的時間】。

此部分許可證屆滿日期及時間： 二零二一年五月二十五日 上午七時
日期 時間

c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀，供監督隨時查看；該等照片須經監督認可。

d. 規限使用機動設備的其他條件：

參見附頁。



4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

| *訂明建築工程的識辨代碼* | *訂明建築工程的類別的說明* |
|---|---|
| | 不適用 |
| | |

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間： 不適用

日期及時間：不適用。

此部分許可證屆滿日期及時間： 不適用
日期 時間

c. ~~本許可證可夾附經監督認可的地盤圖則，以顯示本許可證准予進行訂明建築工程的地點。該地盤圖則須存放於建築地盤供監督隨時查看。~~

d. 規限進行訂明建築工程的其他條件：

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處，給予公眾人士參閱。

日期：2020 年 11 月 23 日

簽署： 鄧慧敏

*監督*
(鄧慧敏 代行)

* 刪去不適用者

Sheet Attached to Construction Noise Permit
No. GW-RE0991-20

**3.a. Items of powered mechanical equipment which may be used inside the site boundary :**

| *Identification code of item of powered mechanical equipment (if applicable)* | | *Description of item of powered mechanical equipment* | *No. of units* |
|---|---|---|---|
| **Group A** | --- | Lorry, with aerial platform, 5.5 tonne<gross vehicle weight ≦38 tonne | One |
| | --- | Lorry, with crane, 5.5 tonne<gross vehicle weight≦38 tonne | One |
| | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level of ≦94 dB(A) | One |
| | --- | Welding machine (electric) | Two |
| | --- | Drill, hand-held (battery) | One |
| **Group B** | --- | Lorry, with aerial platform, 5.5 tonne<gross vehicle weight ≦38 tonne | Two |

Signed : _____
(TANG Wai-man, Lisa)
for Authority



建築噪音許可證
編號 GW-RE0991-20 的附頁

**3.a.** 在地盤範圍內可使用的各項機動設備：

| *各項機動設備的識辨代碼 (如適用的話)* | | *各項機動設備的說明* | *數目* |
|---|---|---|---|
| **A組** | --- | 升降台貨車，5.5 噸<總重量≦38 噸 | 壹 |
| | --- | 吊臂貨車，5.5 噸<總重量≦38 噸或 | 壹 |
| | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦94 分貝(A) | 壹 |
| | --- | 焊接機 (電動) | 貳 |
| | --- | 鑽，手提型 (乾電池) | 壹 |
| **B組** | --- | 升降台貨車，5.5 噸<總重量≦38 噸 | 貳 |

*簽署* : _____
*監督*
(鄧慧敏 代行)

Sheet Attached to Construction Noise Permit
No. GW-RE0991-20

**3.d. Other conditions imposed on the use of the powered mechanical equipment:**

1. The powered mechanical equipment listed in condition 3.a shall only be operated during the hours shown below:

| | |
|---|---|
| Any day | 2300 – 0700 hours on next day |

2. Only one group of the powered mechanical equipment listed in condition 3.a shall be allowed to operate at any time.

3. The powered mechanical equipment covered by this permit shall not be operated when any powered mechanical equipment covered by Construction Noise Permit No. GW-RE0639-20 (CEC - CCC JOINT VENTURE) is being operated.

Signed :_____
(TANG Wai-man, Lisa)
for Authority



建築噪音許可證
編號 GW-RE0991-20 的附頁

3. d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件 3. a 內的機動設備：

| | |
|---|---|
| 任何一日 | 晚上十一時 至 翌日上午七時 |

2. 在任何時間內，祇可使用列在條件 3. a. 內其中一組機動設備。

3. 當建築噪音許可證編號 GW-RE0639-20 (大陸工程 - 捷章建築聯營) 所載列的機動設備在使用時，不可使用本許可證內所載列的機動設備。

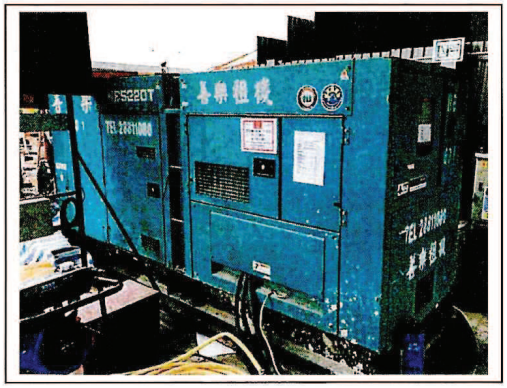
*簽署*：_____
*監督*
(鄧慧敏 代行)

**Photograph(s) attached to Construction Noise Permit No. GW-RE0991-20**
建築噪音許可證編號 **GW-RE0991-20** 的照片

Lorry, with aerial platform, 5.5 tonne<gross vehicle weight≦38 tonne
升降台貨車，5.5噸<總重量≦38噸

Lorry, with crane, 5.5 tonne<gross vehicle weight≦38 tonne
吊臂貨車，5.5噸<總重量≦38噸

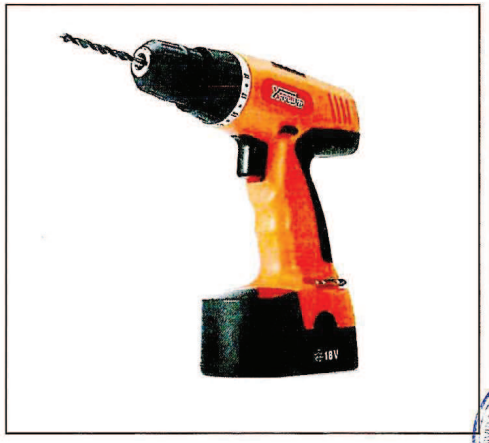
**Photograph(s) attached to Construction Noise Permit No. GW-RE0991-20**
建築噪音許可證編號 **GW-RE0991-20** 的照片



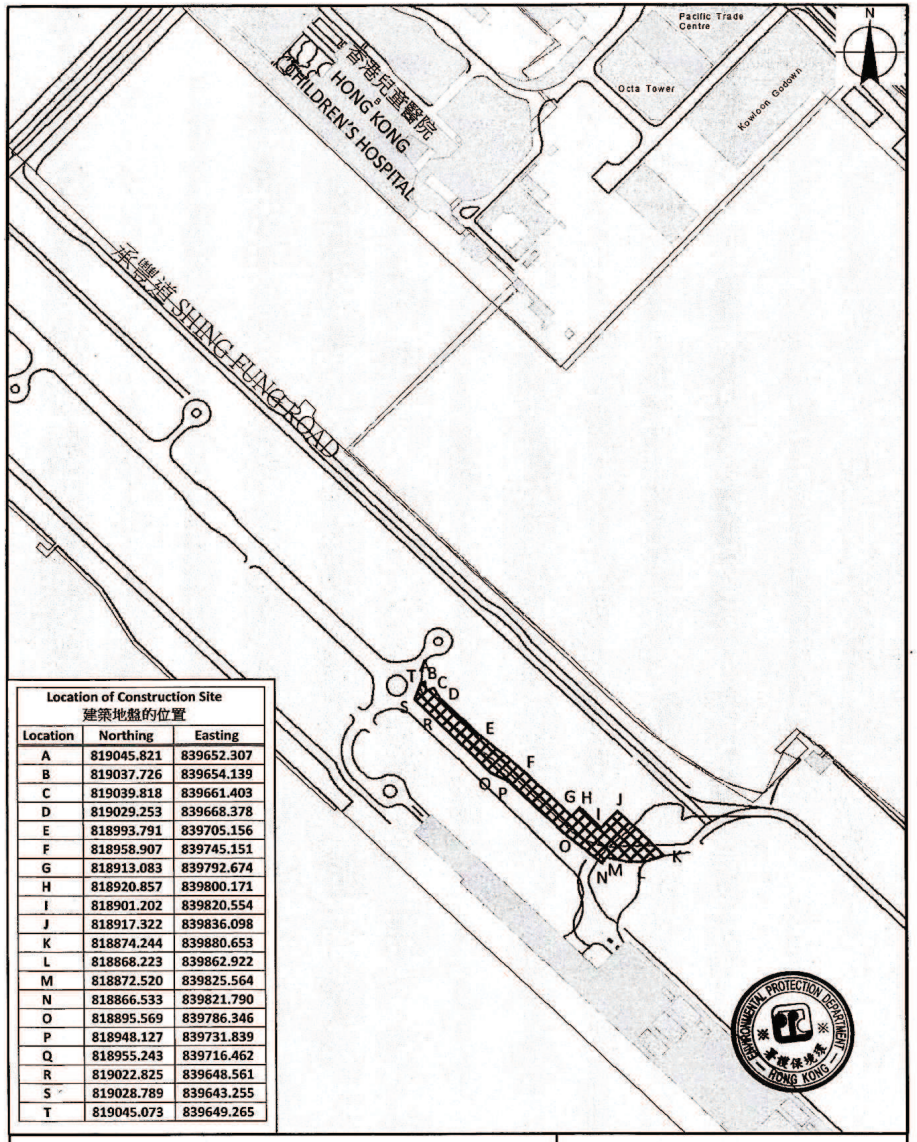
Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level of ≦94 dB(A)
發電機，備有優質機動設備標籤顯示聲功率級≦94分貝(A)

Welding machine (electric)
焊接機 (電動)

**Photograph(s) attached to Construction Noise Permit No. GW-RE0991-20**
建築噪音許可證編號 GW-RE0991-20 的照片



Drill, hand-held (battery)
鑽，手提型 (乾電池)




**Location of Construction Site**
**建築地盤的位置**

| Location | Northing | Easting |
|---|---|---|
| A | 819045.821 | 839652.307 |
| B | 819037.726 | 839654.139 |
| C | 819039.818 | 839661.403 |
| D | 819029.253 | 839668.378 |
| E | 818993.791 | 839705.156 |
| F | 818958.907 | 839745.151 |
| G | 818913.083 | 839792.674 |
| H | 818920.857 | 839800.171 |
| I | 818901.202 | 839820.554 |
| J | 818917.322 | 839836.098 |
| K | 818874.244 | 839880.653 |
| L | 818868.223 | 839862.922 |
| M | 818872.520 | 839825.564 |
| N | 818866.533 | 839821.790 |
| O | 818895.569 | 839786.346 |
| P | 818948.127 | 839731.839 |
| Q | 818955.243 | 839716.462 |
| R | 819022.825 | 839648.561 |
| S | 819028.789 | 839643.255 |
| T | 819045.073 | 839649.265 |

環境保護署 噪音管制監督
Environmental Protection Department Noise Control Authority

圖例 Legend
建築地盤 Construction Site

建築噪音許可證編號GW-RE0991-20的附圖
Plan attached to Construction Noise Permit No. GW-RE0991-20

比例 Scale 1:5,000
米Meters
0 25 50 100 150

FORM 3 [reg.5(a)]

NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

# CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. GW-RE1012-20

To : PENTA-OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

## *CONDITIONS*

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed:

   Full address: Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Work Area Part 3), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No.: ---

   The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. * ~~PART~~/WHOLE of the site falls * ~~WITHIN~~/OUTSIDE a designated area.

3. Powered Mechanical Equipment

   a. Items of powered mechanical equipment which may be used inside the site boundary :

| *Identification code of item of powered mechanical equipment (if applicable)* | *Description of item of powered mechanical equipment* | *No. of units* |
|---|---|---|
| | Refer to attached sheet | |

   b. Validity of the construction noise permit for the use of the powered mechanical equipment:

   Date and time of commencement : 27 November 2020 at 1900 hours

   Days and hours : 0000-2400 hours on general holidays (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].

   This part of the permit expires on : 25 May 2021 at 2300 hours

   c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.

   d. Other conditions imposed on the use of the powered mechanical equipment:

   1. The powered mechanical equipment listed in condition 3.a. shall only be operated during the hours shown below:

| | |
|---|---|
| General holiday (including Sunday) | 0700 – 1900 hours |
| Any day not being a general holiday | 1900 – 2300 hours |

   2. Only one group of the powered mechanical equipment listed in condition 3.a. shall be allowed to operate at any time.



4. Prescribed Construction Work

   a. Type of prescribed construction work which may be carried out inside the site boundary:

| *Identification code of type of prescribed construction work* | *Description of type of prescribed construction work* |
|---|---|
| | Not applicable |

   b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

   Date and time of commencement : Not applicable at Not applicable

   Date and hours : Not applicable.

   This part of the permit expires on : Not applicable at Not applicable

   c. ~~Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.~~

   d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 23rd day of November 2020

*Signed :* ( TANG Wai-man, Lisa )
*for Authority*

* Delete as necessary

表格 3 [第5(a)條]

噪音管制條例
(第400章)
第8(9)條

# 建築噪音許可證
## 為進行建築工程（撞擊式打樁除外）而使用機動設備及／或進行訂明建築工程

建築噪音許可證編號：GW-RE1012-20

致：PENTA-OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第8條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及／或進行訂明建築工程，但須受以下條件規限。若不按照該等條件進行建築工程，許可證可遭撤銷，而且會受到檢控。

*條 件*

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

詳細地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第3部分)(土木工程拓展署合約編號ED/2018/01)。地段編號：---

地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上，而該圖則是本建築噪音許可證的一部分。

2. 該地盤~~部分~~／全部*位於指定範圍之~~內~~／外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備：

| *各項機動設備的識辨代碼(如適用的話)* | *各項機動設備的說明* | *數目* |
|---|---|---|
| | 參見附頁 | |

b. 可使用機動設備的建築噪音許可證有效期：

生效日期及時間：二零二零年十一月二十七日下午七時

日期及時間：公眾假日(包括星期日)的凌晨零時至晚上十二時，公眾假日以外的任何一日凌晨零時至上午七時及下午七時至晚上十二時【但須注意條件3.d.1.有關可以使用上列機動設備的時間】。

此部分許可證屆滿日期及時間：二零二一年五月二十五日晚上十一時
日期 時間

c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀，供監督隨時查看；該等照片須經監督認可。

d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件3.a.內的機動設備：

| | |
|---|---|
| 公眾假日(包括星期日) | 上午七時至下午七時 |
| 公眾假日以外的任何一日 | 下午七時至晚上十一時 |

2. 在任何時間內，祇可使用列在條件3.a.內的其中一組機動設備。



4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

| *訂明建築工程的識辨代碼* | *訂明建築工程的類別的說明* |
|---|---|
| | 不適用 |

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間：不適用

日期及時間：不適用。

此部分許可證屆滿日期及時間：不適用
日期 時間

c. ~~本許可證可夾附經監督認可的地盤圖則，以顯示本許可證准予進行訂明建築工程的點。該地盤圖則須存放於建築地盤供監督隨時查看。~~

d. 規限進行訂明建築工程的其他條件：

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處，給予公眾人士參閱。

日期：2020 年 11 月 23 日

簽署：鄧慧敏
*監督*
(鄧慧敏 代行)

* 刪去不適用者

Sheet Attached to Construction Noise Permit
No. GW-RE1012-20

**3.a. Items of powered mechanical equipment which may be used inside the site boundary :**

| *Identification code of item of powered mechanical equipment (if applicable)* | | *Description of item of powered mechanical equipment* | *No. of units* |
|---|---|---|---|
| **Group A** | CNP 021 | Bar bender and cutter (electric) | Two |
| | --- | Welding machine (electric) | Three |
| | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level of ≦ 93dB(A) | One |
| | CNP 048 | Crane, mobile (diesel) | One |
| | --- | Dump truck, with grab, 5.5 tonne<gross vehicle weight ≦38 tonne | One |
| | --- | Air blower (electric) | Six |
| | CNP 283 | Water pump, submersible (electric) | Six |
| | --- | Wastewater treatment plant | Two |
| **Group B** | --- | Poker, vibratory, hand-held (electric) | One |
| | CNP 047 | Concrete pump, stationary | One |
| | CNP 283 | Water pump, submersible (electric) | Six |
| | --- | Wastewater treatment plant | Two |
| | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level of ≦ 93dB(A) | One |
| | CNP 044 | Concrete lorry mixer | One |

Signed : _____
(TANG Wai-man, Lisa)
for Authority



建築噪音許可證
編號 GW-RE1012-20 的附頁

**3.a.** 在地盤範圍內可使用的各項機動設備：

| *各項機動設備的識辨代碼 (如適用的話)* | | *各項機動設備的說明* | *數目* |
|---|---|---|---|
| A 組 | CNP 021 | 鋼筋彎曲機及切割機 (電動) | 貳 |
| | --- | 焊接機 (電動) | 叁 |
| | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A) | 壹 |
| | CNP 048 | 起重機，流動 (油渣) | 壹 |
| | --- | 抓斗卸土車，5.5 噸< 總重量 ≦38 噸 | 壹 |
| | --- | 吹風機 (電動) | 陸 |
| | CNP 283 | 潛水泵 (電動) | 陸 |
| | --- | 污水處理器 | 貳 |
| B 組 | --- | 混凝土震動機，手提 (電動) | 壹 |
| | CNP 047 | 混凝土泵，固定 | 壹 |
| | CNP 283 | 潛水泵 (電動) | 陸 |
| | --- | 污水處理器 | 貳 |
| | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A) | 壹 |
| | CNP 044 | 混凝土攪拌車 | 壹 |

*簽署：* 鄧慧敏
*監督*
(鄧慧敏 代行)

**Photograph(s) attached to Construction Noise Permit No. GW-RE1012-20**
建築噪音許可證編號：**GW-RE1012-20** 的照片

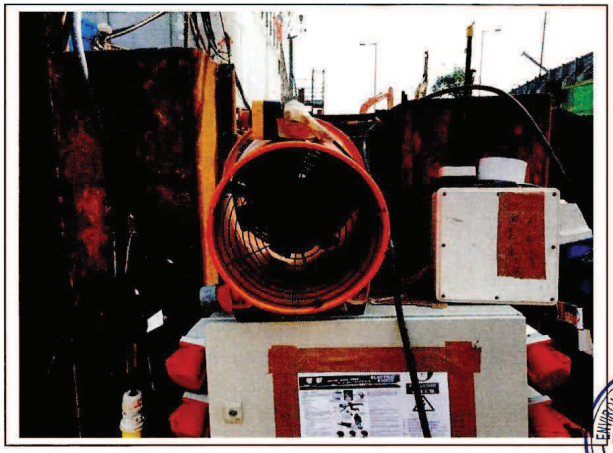
Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A) (1)
發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A) (一)

Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A) (2)
發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A) (二)

ENVIRONMENTAL PROTECTION DEPARTMENT
環境保護署
HONG KONG

**Photograph(s) attached to Construction Noise Permit No. GW-RE1012-20**
建築噪音許可證編號：**GW-RE1012-20** 的照片

Welding machine (electric)
焊接機 (電動)



Air blower (electric)
吹風機 (電動)

ENVIRONMENTAL PROTECTION DEPARTMENT
環境保護署
HONG KONG

**Photograph(s) attached to Construction Noise Permit No. GW-RE1012-20**
建築噪音許可證編號：**GW-RE1012-20** 的照片

CNP 283 Water pump, submersible (electric)
潛水泵 (電動)

CNP 048 Crane, mobile (diesel)
起重機，流動 (油渣)

**Photograph(s) attached to Construction Noise Permit No. GW-RE1012-20**
建築噪音許可證編號：**GW-RE1012-20** 的照片

Wastewater treatment plant
污水處理器

CNP 047 Concrete pump, stationary
混凝土泵，固定

**Photograph(s) attached to Construction Noise Permit No. GW-RE1012-20**
建築噪音許可證編號：GW-RE1012-20 的照片

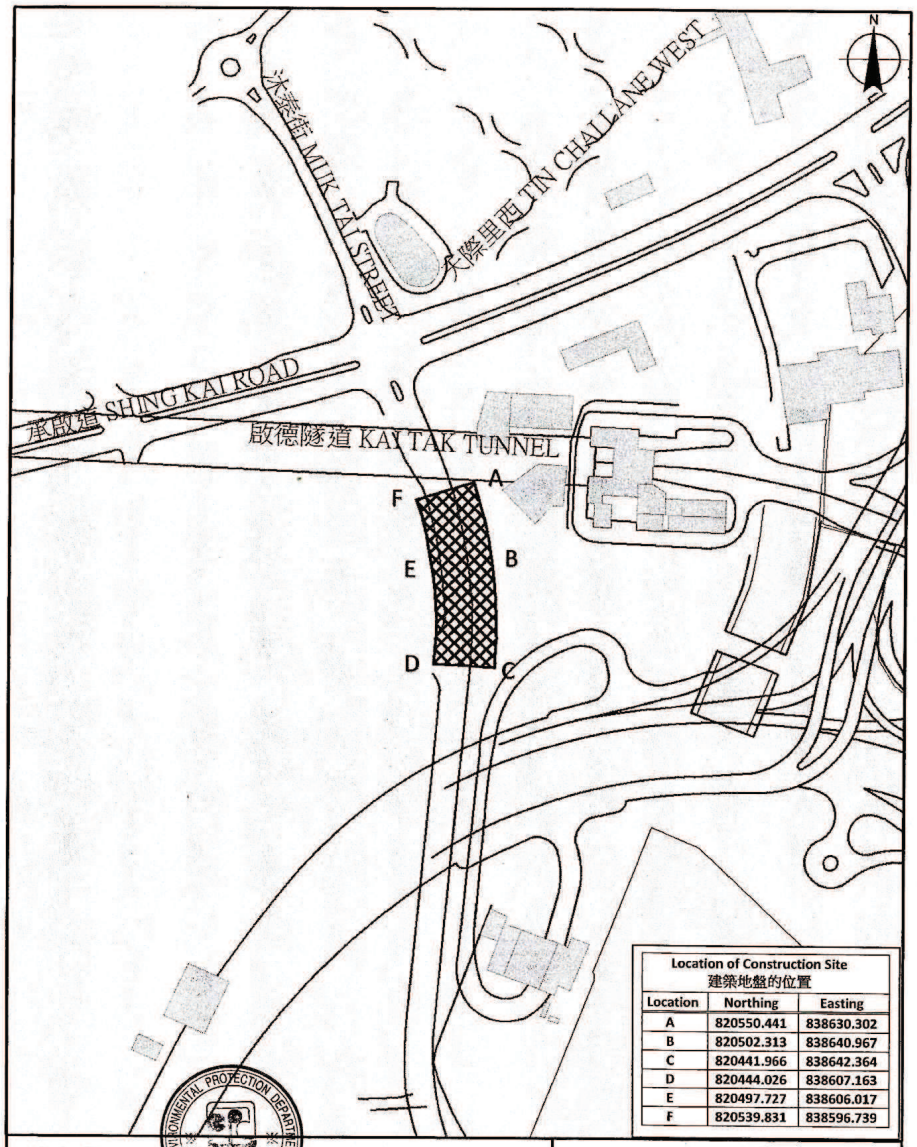
Poker, vibratory, hand-held (electric)
混凝土震動機，手提 (電動)

CNP 044 Concrete lorry mixer
混凝土攪拌車

**Photograph(s) attached to Construction Noise Permit No. GW-RE1012-20**
建築噪音許可證編號：GW-RE1012-20 的照片

Dump truck, with grab, 5.5 tonne<gross vehicle weight≦38 tonne
抓斗卸土車，5.5 噸< 總重量 ≦38 噸

CNP 021 Bar bender and cutter (electric)
鋼筋彎曲機及切割機 (電動)




| Location of Construction Site 建築地盤的位置 | | |
|---|---|---|
| Location | Northing | Easting |
| A | 820550.441 | 838630.302 |
| B | 820502.313 | 838640.967 |
| C | 820441.966 | 838642.364 |
| D | 820444.026 | 838607.163 |
| E | 820497.727 | 838606.017 |
| F | 820539.831 | 838596.739 |

環境保護署 噪音管制監督

Environmental Protection Department Noise Control Authority

圖例 Legend

建築地盤 Construction Site

建築噪音許可證編號 GW-RE1012-20 的附圖

Plan attached to Construction Noise Permit No. GW-RE1012-20

比例 Scale 1:3,000

0 15 30 60 90 米Meters

FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

# CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. GW-RE1044-20

To : PENTA-OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

*CONDITIONS*

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed:

   Full address: Kai Tak Development Stage 4 infrastructure at the former runway and south apron (Works Area Part 1), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No.: ---

   The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. * ~~PART~~/WHOLE of the site falls * ~~WITHIN~~/OUTSIDE a designated area.

3. Powered Mechanical Equipment

   a. Items of powered mechanical equipment which may be used inside the site boundary :

| *Identification code of item of powered mechanical equipment (if applicable)* | *Description of item of powered mechanical equipment* | *No. of units* |
|---|---|---|
| | Refer to attached sheet | |

   b. Validity of the construction noise permit for the use of the powered mechanical equipment:

      Date and time of commencement : 10 December 2020 at 1900 hours

      Days and hours : 0000-2400 hours on general holidays (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].

      This part of the permit expires on : 1 June 2021 at 2400 hours

   c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.

   d. Other conditions imposed on the use of the powered mechanical equipment:

      Refer to attached sheet.



4. Prescribed Construction Work

   a. Type of prescribed construction work which may be carried out inside the site boundary:

| *Identification code of type of prescribed construction work* | *Description of type of prescribed construction work* |
|---|---|
| | Not applicable |

   b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

      Date and time of commencement : Not applicable at Not applicable

      Date and hours : Not applicable.

      This part of the permit expires on : Not applicable at Not applicable

   c. ~~Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.~~

   d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 3rd day of December 2020

*Signed :* ( TANG Wai-man, Lisa )
*for Authority*

* Delete as necessary

表格 3 [第5(a)條]

噪音管制條例
(第400章)
第8(9)條

# 建築噪音許可證
## 為進行建築工程（撞擊式打樁除外）而使用機動設備及／或進行訂明建築工程

建築噪音許可證編號：GW-RE1044-20

致：PENTA-OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第8條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及／或進行訂明建築工程，但須受以下條件規限。若不按照該等條件進行建築工程，許可證可遭撤銷，而且會受到檢控。

*條 件*

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

   詳細地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第一部分)(土木工程拓展署合約編號ED/2018/01)。 地段編號：---

   地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上，而該圖則是本建築噪音許可證的一部分。

2. 該地盤~~部分~~／全部*位於指定範圍之~~內~~／外*。

3. 機動設備

   a. 在地盤範圍內可使用的各項機動設備：

| *各項機動設備的識辨代碼(如適用的話)* | *各項機動設備的說明* | *數目* |
|---|---|---|
| | 參見附頁 | |

   b. 可使用機動設備的建築噪音許可證有效期：

   生效日期及時間：二零二零年十二月十日下午七時

   日期及時間：公眾假日(包括星期日)的凌晨零時至晚上十二時，公眾假日以外的任何一日凌晨零時至上午七時及下午七時至晚上十二時【但須注意條件3.d.1.有關可以使用上列機動設備的時間】。

   此部分許可證屆滿日期及時間：二零二一年六月一日晚上十二時

   日期 時間

   c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀，供監督隨時查看；該等照片須經監督認可。

   d. 規限使用機動設備的其他條件：

   參見附頁。



4. 訂明建築工程

   a. 在地盤範圍內可進行的訂明建築工程：

| *訂明建築工程的識辨代碼* | *訂明建築工程的類別的說明* |
|---|---|
| | 不適用 |

   b. 可進行訂明建築工程的建築噪音許可證有效期：

   生效日期及時間：不適用

   日期及時間：不適用。

   此部分許可證屆滿日期及時間：不適用

   日期 時間

   c. ~~本許可證可夾附經監督認可的地盤圖則，以顯示本許可證准予進行訂明建築工程的點。該地盤圖則須存放於建築地盤供監督隨時查看。~~

   d. 規限進行訂明建築工程的其他條件：

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處，給予公眾人士參閱。

日期：2020 年 12 月 3 日

*簽署*：鄧慧敏

*監督*
(鄧慧敏 代行)

* 刪去不適用者

**Sheet Attached to Construction Noise Permit**

**No. GW-RE1044-20**

**3.a. Items of powered mechanical equipment which may be used inside the site boundary :**

| *Identification code of item of powered mechanical equipment (if applicable)* | | *Description of item of powered mechanical equipment* | *No. of units* |
|---|---|---|---|
| **Group A** | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A) | One |
| | --- | Piling, vibrating hammer | One |
| | CNP 048 | Crane, mobile (diesel) | One |
| | --- | Welding machine (electric) | Ten |
| | --- | Air blower (electric) | One |
| | CNP 283 | Water pump, submersible (electric) | Eight |
| | --- | Wastewater treatment plant | Two |
| | CNP 021 | Bar bender and cutter (electric) | One |
| **Group B** | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A) | One |
| | CNP 081 | Excavator, tracked | One |
| | CNP 283 | Water pump, submersible (electric) | Eight |
| | --- | Wastewater treatment plant | Two |
| | --- | Welding machine (electric) | Ten |
| | CNP 048 | Crane, mobile (diesel) | One |
| **Group C** | CNP 283 | Water pump, submersible (electric) | Twelve |
| | --- | Wastewater treatment plant | Two |
| | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A) | Three |
| **Group D** | CNP 044 | Concrete lorry mixer | Two |
| | --- | Poker, vibratory, hand-held (electric) | One |
| | CNP 047 | Concrete pump, stationary | One |
| | CNP 283 | Water pump, submersible (electric) | Six |
| | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A) | One |
| | --- | Wastewater treatment plant | Two |
| **Group E** | --- | Welding machine (electric) | Ten |
| | CNP 048 | Crane, mobile (diesel) | One |
| | --- | Lorry, with aerial platform, 5.5 tonne<gross vehicle weight ≦38 tonne | One |
| | --- | Wastewater treatment plant | Two |
| | CNP 283 | Water pump, submersible (electric) | Eight |

Signed : _____
(TANG Wai-man, Lisa)
for Authority



**建築噪音許可證**

**編號 GW-RE1044-20 的附頁**

**3.a.** 在地盤範圍內可使用的各項機動設備：

| *各項機動設備的識辨代碼 (如適用的話)* | | *各項機動設備的說明* | *數目* |
|---|---|---|---|
| A 組 | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A) | 壹 |
| | --- | 打樁機，震動錘 | 壹 |
| | CNP 048 | 起重機，流動 (油渣) | 壹 |
| | --- | 焊接機 (電動) | 拾 |
| | --- | 吹風機 (電動) | 壹 |
| | CNP 283 | 潛水泵 (電動) | 捌 |
| | --- | 污水處理器 | 貳 |
| | CNP 021 | 鋼筋彎曲機及切割機 (電動) | 壹 |
| B 組 | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A) | 壹 |
| | CNP 081 | 挖土機，履帶式 | 壹 |
| | CNP 283 | 潛水泵 (電動) | 捌 |
| | --- | 污水處理器 | 貳 |
| | --- | 焊接機 (電動) | 拾 |
| | CNP 048 | 起重機，流動 (油渣) | 壹 |
| C 組 | CNP 283 | 潛水泵 (電動) | 拾貳 |
| | --- | 污水處理器 | 貳 |
| | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A) | 叁 |
| D 組 | CNP 044 | 混凝土攪拌車 | 貳 |
| | --- | 混凝土震動機，手提型 (電動) | 壹 |
| | CNP 047 | 混凝土泵，固定 | 壹 |
| | CNP 283 | 潛水泵 (電動) | 陸 |
| | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A) | 壹 |
| | --- | 污水處理器 | 貳 |
| E 組 | --- | 焊接機 (電動) | 拾 |
| | CNP 048 | 起重機，流動 (油渣) | 壹 |
| | --- | 升降台貨車，5.5 噸<總重量≦38 噸 | 壹 |
| | --- | 污水處理器 | 貳 |
| | CNP 283 | 潛水泵 (電動) | 捌 |

*簽署*：_____
*監督*
(鄧慧敏 代行)

**Sheet Attached to Construction Noise Permit**
**No. GW-RE1044-20**

**3.d. Other conditions imposed on the use of the powered mechanical equipment:**

1. The powered mechanical equipment listed in condition 3.a. shall only be operated during the hours shown below:

| | | |
|---|---|---|
| **Groups A, B, D and E** | General holiday including Sunday | 0700 – 1900 hours |
| | Any day not being a general holiday | 1900 – 2300 hours |
| **Group C** | General holiday including Sunday | 0000 – 2400 hours |
| | Any day not being a general holiday | 0000 – 0700 hours AND<br>1900 – 2400 hours |

2. Only one group of the powered mechanical equipment listed in condition 3.a. shall be allowed to operate at any time.

Signed : _____
(TANG Wai-man, Lisa)
for Authority



**建築噪音許可證**
**編號 GW-RE1044-20 的附頁**

3. d. 規限使用機動設備的其他條件：

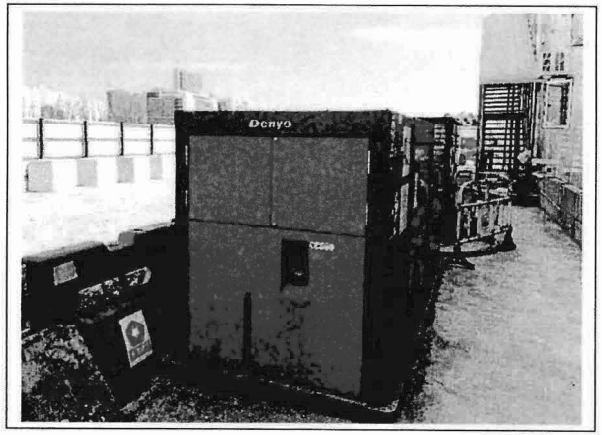
1. 祇可於以下時間內使用列在條件 3. a. 內的機動設備：

| | | |
|---|---|---|
| **A 組、B 組 、D 組及 E 組** | 公眾假日包括星期日 | 上午七時 至下午七時 |
| | 公眾假日以外的任何一日 | 下午七時 至 晚上十一時 |
| **C 組** | 公眾假日包括星期日 | 凌晨零時至晚上十二時 |
| | 公眾假日以外的任何一日 | 凌晨零時至上午七時 及<br>下午七時至晚上十二時 |

2. 在任何時間內，祇可使用列在條件 3. a. 內其中一組機動設備。

*簽署*： _____
*監督*
(鄧慧敏 代行)

**Photograph(s) attached to Construction Noise Permit No. GW-RE1044-20**
建築噪音許可證編號：**GW-RE1044-20** 的照片

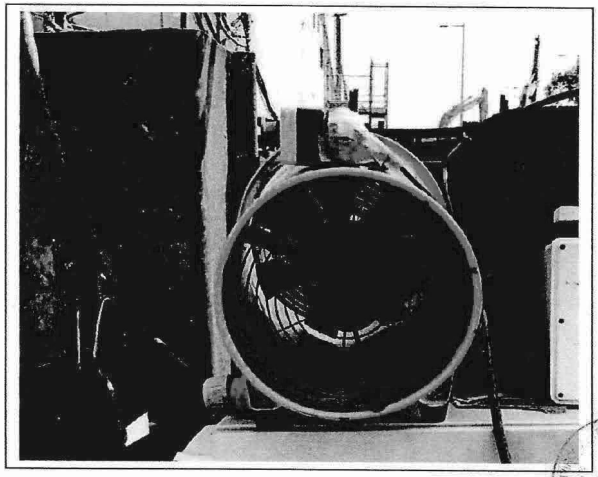



Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A)
發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A)

CNP 283 Water pump, submersible (electric)
潛水泵 (電動)

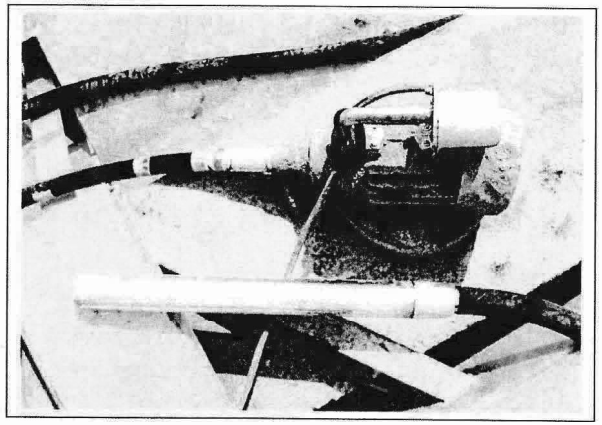
**Photograph(s) attached to Construction Noise Permit No. GW-RE1044-20**
建築噪音許可證編號：**GW-RE1044-20** 的照片

Wastewater treatment plant
污水處理器

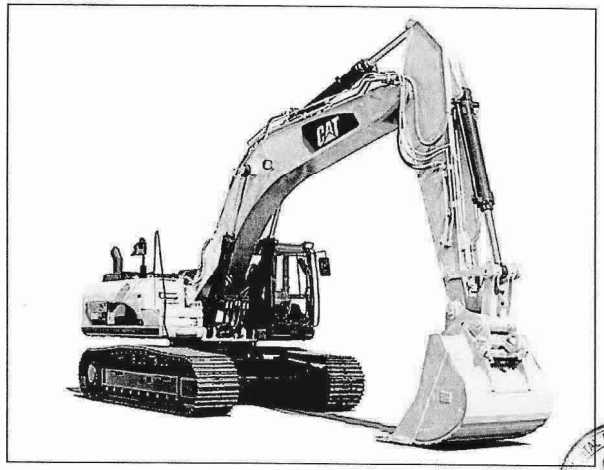


Air blower (electric)
吹風機 (電動)

**Photograph(s) attached to Construction Noise Permit No. GW-RE1044-20**
建築噪音許可證編號：GW-RE1044-20 的照片



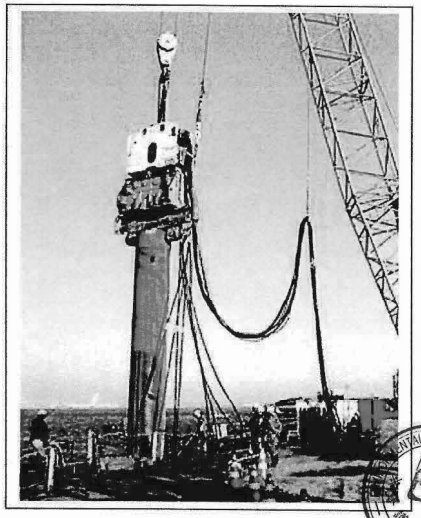
Poker, vibratory, hand-held (electric)
混凝土震動機，手提型 (電動)




CNP 081 Excavator, tracked
挖土機， 履帶式

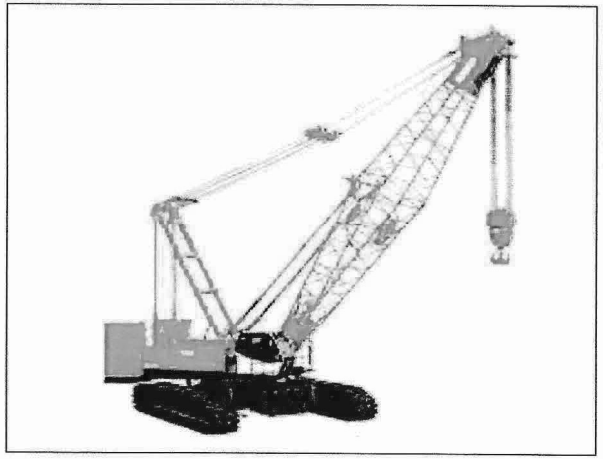
**Photograph(s) attached to Construction Noise Permit No. GW-RE1044-20**
建築噪音許可證編號：GW-RE1044-20 的照片

CNP 044 Concrete lorry mixer
混凝土攪拌車



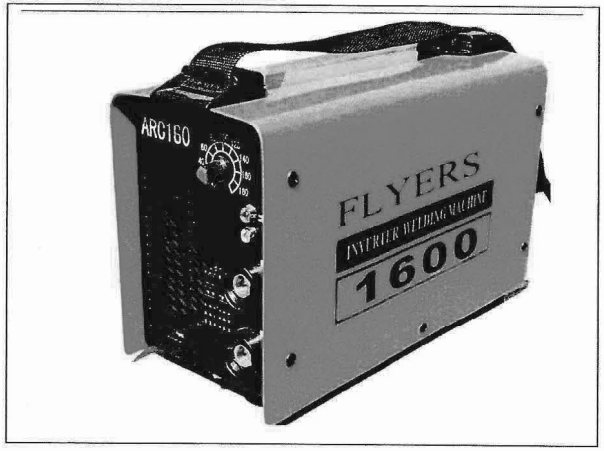
Piling, vibrating hammer
打樁機，震動鎚

**Photograph(s) attached to Construction Noise Permit No. GW-RE1044-20**
建築噪音許可證編號：GW-RE1044-20 的照片

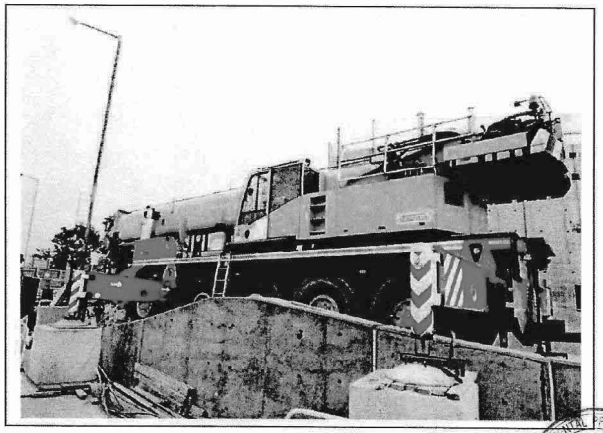


CNP 048 Crane, mobile (diesel) (1)
起重機，流動 (油渣) (1)

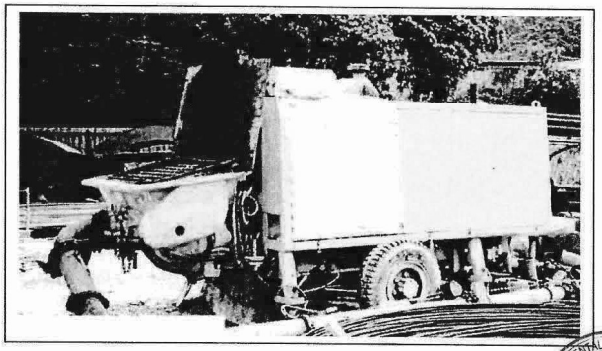
**Photograph(s) attached to Construction Noise Permit No. GW-RE1044-20**
建築噪音許可證編號：GW-RE1044-20 的照片




Welding machine (electric)
焊接機 (電動)

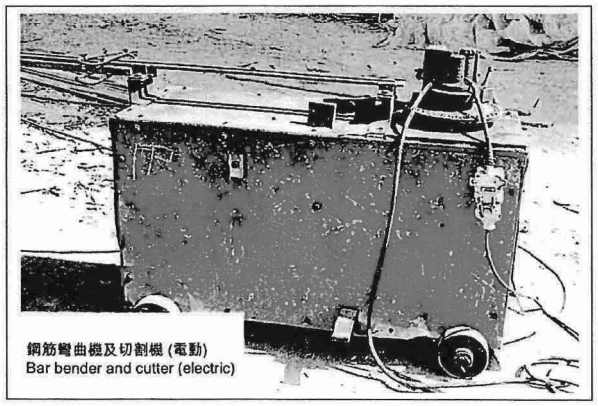


CNP 048 Crane, mobile (diesel) (2)
起重機，流動 (油渣) (2)



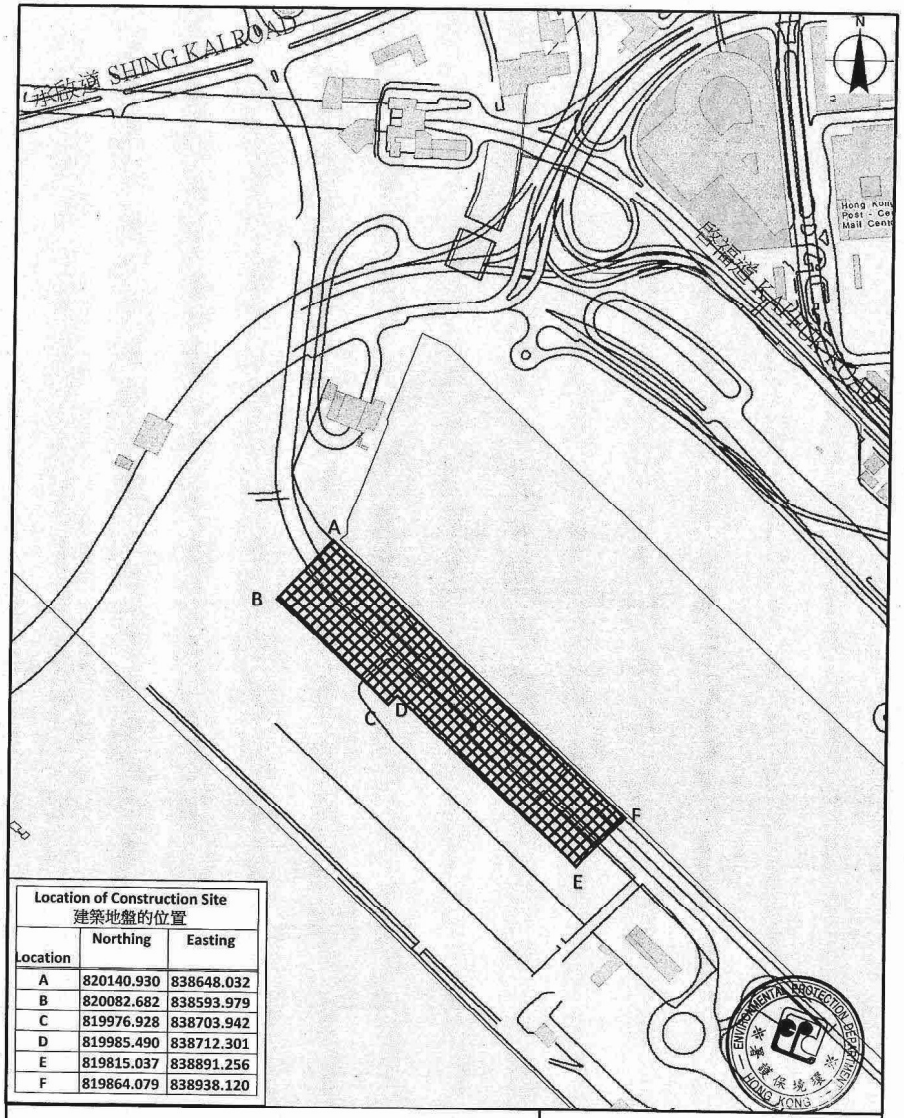
CNP 047 Concrete pump, stationary
混凝土泵，固定

**Photograph(s) attached to Construction Noise Permit No. GW-RE1044-20**
**建築噪音許可證編號：GW-RE1044-20 的照片**




CNP 021 Bar bender and cutter (electric)
鋼筋彎曲機及切割機 (電動)

Lorry with aerial platform, 5.5 tonne<gross vehicle weight≦38 tonne
升降台貨車，5.5 噸<總重量≦38 噸




| Location of Construction Site 建築地盤的位置 | | |
|---|---|---|
| Location | Northing | Easting |
| A | 820140.930 | 838648.032 |
| B | 820082.682 | 838593.979 |
| C | 819976.928 | 838703.942 |
| D | 819985.490 | 838712.301 |
| E | 819815.037 | 838891.256 |
| F | 819864.079 | 838938.120 |

環境保護署 噪音管制監督

Environmental Protection Department Noise Control Authority

圖例 Legend

建築地盤 Construction Site

建築噪音許可證編號 GW-RE1044-20 的附圖

Plan attached to Construction Noise Permit No. GW-RE1044-20

比例 Scale 1:5,000

米Meters

0 25 50 100 150

FORM 3 [reg.5(a)]

NOISE CONTROL ORDINANCE

(Chapter 400)

SECTION 8(9)

# CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. GW-RE1074-20

To : PENTA – OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

## *CONDITIONS*

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed:

   Full address : Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Work Area Part 2A), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No.: ---

   The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. * ~~PART~~/WHOLE of the site falls * ~~WITHIN~~/OUTSIDE a designated area.

3. Powered Mechanical Equipment

   a. Items of powered mechanical equipment which may be used inside the site boundary :

| *Identification code of item of powered mechanical equipment (if applicable)* | *Description of item of powered mechanical equipment* | *No. of units* |
|---|---|---|
| | Refer to attached sheet. | |

   b. Validity of the construction noise permit for the use of the powered mechanical equipment:

   Date and time of commencement : 18 December 2020 at 1900 hours

   Days and hours : 0000-2400 hours on general holiday (including Sunday), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].

   This part of the permit expires on : 17 June 2021 at 0700 hours

   c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.

   d. Other conditions imposed on the use of the powered mechanical equipment :

   Refer to attached sheet.



4. Prescribed Construction Work

   a. Type of prescribed construction work which may be carried out inside the site boundary :

| *Identification code of type of prescribed construction work* | *Description of type of prescribed construction work* |
|---|---|
| | Not applicable |

   b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

   Date and time of commencement: Not applicable at Not applicable

   Days and hours: Not applicable.

   This part of the permit expires on : Not applicable at Not applicable

   c. ~~Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.~~

   d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 11th day of December 20 20

*Signed :*

(TANG Wai-man, Lisa)

*for Authority*

* Delete as necessary

表格 3 [第5(a)條]

噪音管制條例
(第400章)
第8(9)條

# 建築噪音許可證
## 為進行建築工程（撞擊式打樁除外）而使用機動設備及／或進行訂明建築工程

建築噪音許可證編號： GW-RE1074-20

致： PENTA - OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第 8 條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及／或進行訂明建築工程，但須受以下條件規限。若不按照該等條件進行建築工程，許可證可遭撤銷，而且會受到檢控。

*條 件*

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

詳細地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第2A部分) (土木工程拓展署合約編號ED/2018/01)。 地段編號： ---

地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上，而該圖則是本建築噪音許可證的一部分。

2. 該地盤~~部分~~／全部*位於指定範圍之~~內~~／外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備：

| *各項機動設備的識辨代碼 (如適用的話)* | *各項機動設備的說明* | *數目* |
|---|---|---|
| | 參見附頁。 | |

b. 可使用機動設備的建築噪音許可證有效期：

生效日期及時間： 二零二零年十二月十八日 下午七時

日期及時間： 公眾假日(包括星期日)的凌晨零時至晚上十二時，公眾假日以外的任何一日凌晨零時至上午七時及下午七時至晚上十二時【但須注意條件3.d.1.有關可以使用上列機動設備的時間】。

此部分許可證屆滿日期及時間： 二零二一年六月十七日 上午七時
日期 時間

c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀，供監督隨時查看；該等照片須經監督認可。

d. 規限使用機動設備的其他條件：

參見附頁。



4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

| *訂明建築工程的識辨代碼* | *訂明建築工程的類別的說明* |
|---|---|
| | 不適用 |

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間： 不適用

日期及時間： 不適用。

此部分許可證屆滿日期及時間： 不適用
日期 時間

c. ~~本許可證可夾附經監督認可的地盤圖則，以顯示本許可證准予進行訂明建築工程的地點。該地盤圖則須存放於建築地盤供監督隨時查看~~。

d. 規限進行訂明建築工程的其他條件：

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處，給予公眾人士參閱。

日期：2020 年 12 月 11 日

簽署： 鄧慧敏

*監督*
(鄧慧敏 代行)

* 刪去不適用者

Sheet Attached to Construction Noise Permit
No. GW-RE1074-20

**3.a. Items of powered mechanical equipment which may be used inside the site boundary :**

| *Identification code of item of powered mechanical equipment (if applicable)* | | *Description of item of powered mechanical equipment* | *No. of units* |
|---|---|---|---|
| **Group A** | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A) | One |
| | CNP 166 | Piling, large diameter bored, reverse circulation drill | Two |
| | --- | Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104 dB(A) | Two |
| | --- | Power pack (diesel) | One |
| | --- | Wastewater treatment plant | One |
| | CNP 283 | Water pump, submersible (electric) | Ten |
| | --- | Welding machine (electric) | Two |
| **Group B** | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A) | One |
| | --- | Welding machine (electric) | Five |
| | CNP 048 | Crane, mobile (diesel) | One |
| | --- | Elevated working platform, lorry mounted | One |
| | --- | Wastewater treatment plant | One |
| | CNP 283 | Water pump, submersible (electric) | Ten |
| **Group C** | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A) | One |
| | CNP 048 | Crane, mobile (diesel) | One |
| | CNP 044 | Concrete lorry mixer | One |
| | --- | Wastewater treatment plant | One |
| | CNP 283 | Water pump, submersible (electric) | Ten |

Signed :_____
(TANG Wai-man, Lisa)
for Authority



建築噪音許可證
編號 GW-RE1074-20 的附頁

**3.a.** 在地盤範圍內可使用的各項機動設備：

| *各項機動設備的識辨代碼 (如適用的話)* | | *各項機動設備的說明* | *數目* |
|---|---|---|---|
| **A組** | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A) | 壹 |
| | CNP 166 | 大直徑鑽孔樁，循環式鑽機 | 貳 |
| | --- | 空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A) | 貳 |
| | --- | 油渣動力供應器 | 壹 |
| | --- | 污水處理器 | 壹 |
| | CNP 283 | 潛水泵 （電動） | 拾 |
| | --- | 焊接機 (電動) | 貳 |
| **B組** | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝 (A) | 壹 |
| | --- | 焊接機 (電動) | 伍 |
| | CNP 048 | 起重機，流動 (油渣) | 壹 |
| | --- | 升降工作台，裝在貨車上 | 壹 |
| | --- | 污水處理器 | 壹 |
| | CNP 283 | 潛水泵 （電動） | 拾 |
| **C組** | --- | 發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝 (A) | 壹 |
| | CNP 048 | 起重機，流動 (油渣) | 壹 |
| | CNP 044 | 混凝土攪拌車 | 壹 |
| | --- | 污水處理器 | 壹 |
| | CNP 283 | 潛水泵 （電動） | 拾 |

簽署：_____
監督
(鄧慧敏 代行)

Sheet Attached to Construction Noise Permit
No. GW-RE1074-20

**3.a. Items of powered mechanical equipment which may be used inside the site boundary :**

| *Identification code of item of powered mechanical equipment (if applicable)* | | *Description of item of powered mechanical equipment* | *No. of units* |
|---|---|---|---|
| **Group D** | CNP 165 | Piling, large diameter bored, oscillator | One |
| | --- | Power pack (diesel) | One |
| | --- | Wastewater treatment plant | One |
| | CNP 283 | Water pump, submersible (electric) | Ten |
| **Group E** | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤93 dB(A) | One |
| | CNP 081 | Excavator, tracked | One |
| | CNP 048 | Crane, mobile (diesel) | One |
| | --- | Welding machine (electric) | Ten |
| | --- | Air blower (electric) | Two |
| | CNP 283 | Water pump, submersible (electric) | Ten |
| | --- | Wastewater treatment plant | One |
| **Group F** | CNP 283 | Water pump, submersible (electric) | Ten |
| | --- | Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤95 dB(A) | Two |
| | --- | Wastewater treatment plant | One |

Signed : _____
(TANG Wai-man, Lisa)
for Authority



建築噪音許可證
編號 GW-RE1074-20 的附頁

**3.a.** 在地盤範圍內可使用的各項機動設備：

| *各項機動設備的識辨代碼 (如適用的話)* | | *各項機動設備的說明* | *數目* |
|---|---|---|---|
| **D組** | CNP 165 | 大直徑鑽孔樁，擺動機 | 壹 |
| | --- | 油渣動力供應器 | 壹 |
| | --- | 污水處理器 | 壹 |
| | CNP 283 | 潛水泵 (電動) | 拾 |
| **E組** | --- | 發電機，備有優質機動設備標籤顯示聲功率級≤93 分貝(A) | 壹 |
| | CNP 081 | 挖土機，履帶式 | 壹 |
| | CNP 048 | 起重機，流動 (油渣) | 壹 |
| | --- | 焊接機 (電動) | 拾 |
| | --- | 吹風機 (電動) | 貳 |
| | CNP 283 | 潛水泵 (電動) | 拾 |
| | --- | 污水處理器 | 壹 |
| **F組** | CNP 283 | 潛水泵 (電動) | 拾 |
| | --- | 發電機，備有優質機動設備標籤顯示聲功率級≤95 分貝(A) | 貳 |
| | --- | 污水處理器 | 壹 |

*簽署* : _____
*監督*
(鄧慧敏 代行)

Sheet Attached to Construction Noise Permit
No. GW-RE1074-20

**3.d. Other conditions imposed on the use of the powered mechanical equipment:**

1. The powered mechanical equipment listed in condition 3.a shall only be operated during the hours shown below:

| | | |
|---|---|---|
| **Groups A to E** | General holiday including Sunday | 0900 – 2300 hours |
| | Any day not being a general holiday | 1900 – 2300 hours |
| **Group F** | General holiday including Sunday | 0000 – 2400 hours |
| | Any day not being a general holiday | 0000 – 0700 hours AND 1900 – 2400 hours |

2. Only one group of the powered mechanical equipment listed in condition 3.a shall be allowed to operate at any time.

Signed : _____
(TANG Wai-man, Lisa)
for Authority



建築噪音許可證
編號 GW-RE1074-20 的附頁

3. d. 規限使用機動設備的其他條件：

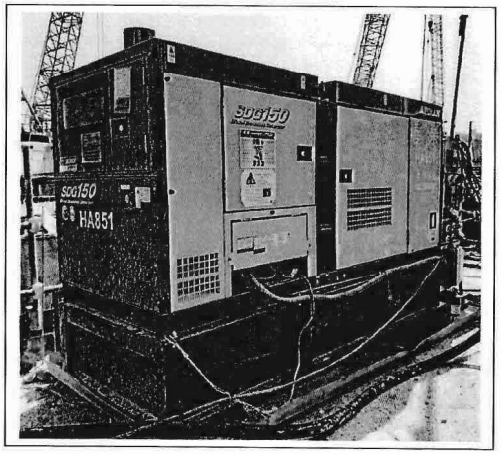
1. 祇可於以下時間內使用列在條件 3. a 內的機動設備：

| | | |
|---|---|---|
| **A 組至 E 組** | 公眾假日包括星期日 | 上午九時至晚上十一時 |
| | 公眾假日以外的任何一日 | 下午七時至晚上十一時 |
| **F 組** | 公眾假日包括星期日 | 凌晨零時至晚上十二時 |
| | 公眾假日以外的任何一日 | 凌晨零時至上午七時 及 下午七時至晚上十二時 |

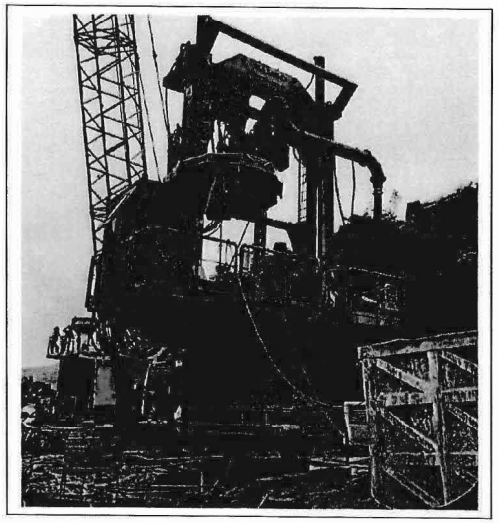
2. 在任何時間內，祇可使用列在條件 3. a. 內其中一組機動設備。

*簽署*： _____
*監督*
(鄧慧敏 代行)

**Photograph(s) attached to Construction Noise Permit No. GW-RE1074-20**
建築噪音許可證編號：**GW-RE1074-20** 的照片

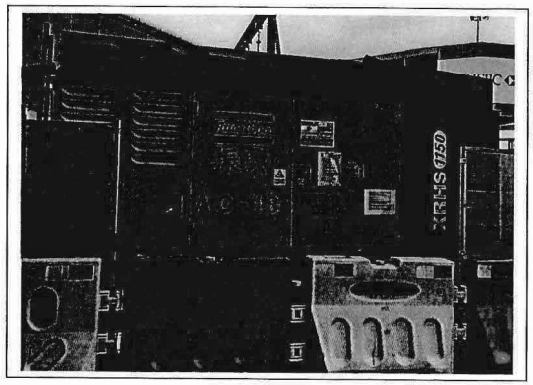



Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A)
發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A)

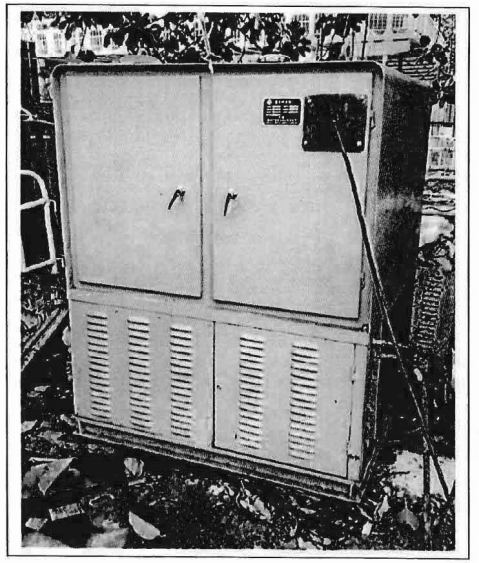


CNP 166 Piling, large diameter bored, reverse circulation drill
大直徑鑽孔樁，循環式鑽機

**Photograph(s) attached to Construction Noise Permit No. GW-RE1074-20**
建築噪音許可證編號：**GW-RE1074-20** 的照片

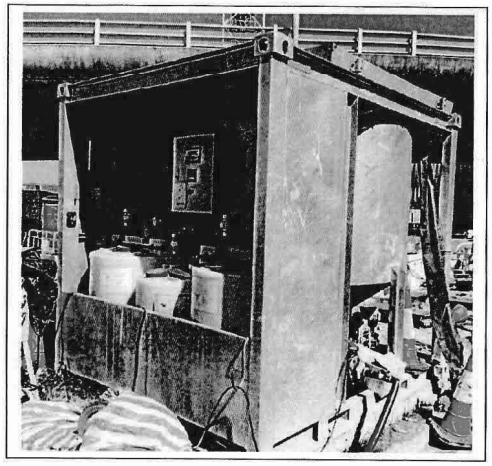



Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104 dB(A)
空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A)

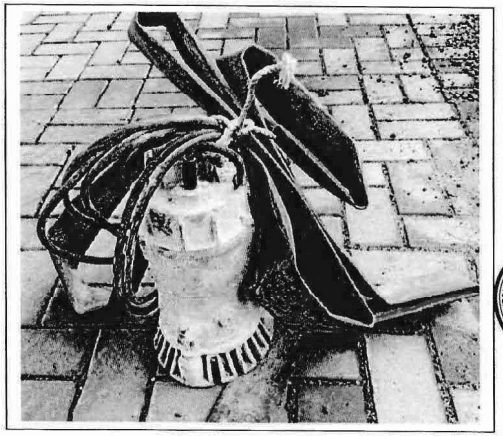


Power pack (diesel)
油渣動力供應器

**Photograph(s) attached to Construction Noise Permit No. GW-RE1074-20**
建築噪音許可證編號：**GW-RE1074-20** 的照片

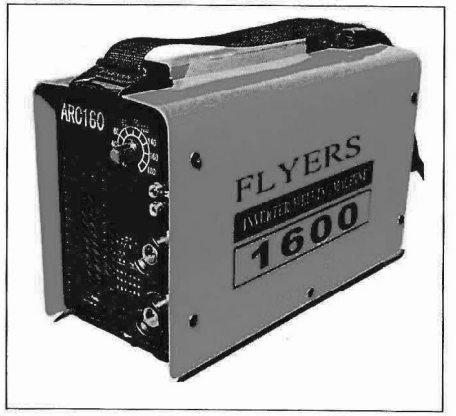


Wastewater treatment plant
污水處理器

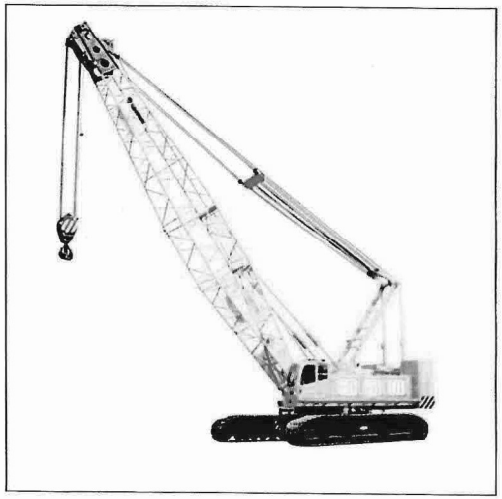


CNP 283 Water pump, submersible (electric)
潛水泵 （電動）

**Photograph(s) attached to Construction Noise Permit No. GW-RE1074-20**
建築噪音許可證編號：**GW-RE1074-20** 的照片

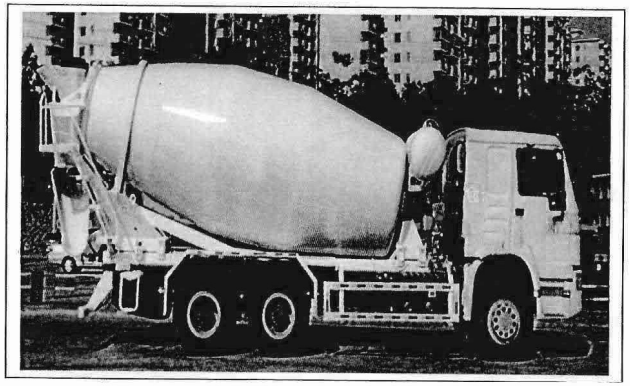



Welding machine (electric)
焊接機 （電動）

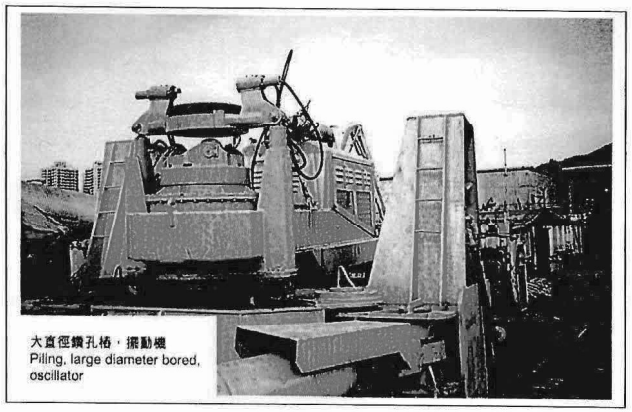


CNP 048 Crane, mobile (diesel)
起重機，流動 (油渣)

**Photograph(s) attached to Construction Noise Permit No. GW-RE1074-20**
建築噪音許可證編號：**GW-RE1074-20** 的照片



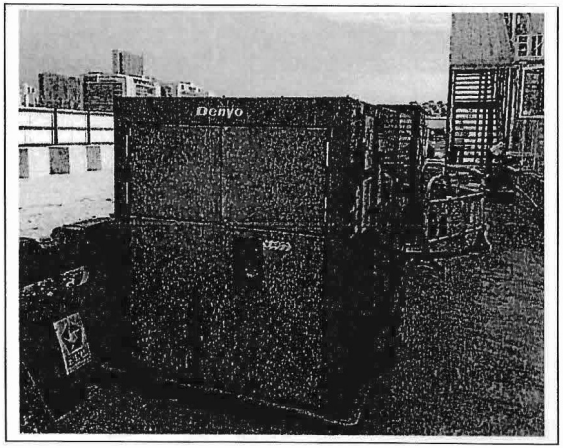
CNP 044 Concrete lorry mixer
混凝土攪拌車




CNP 165 Piling, large diameter bored, oscillator
大直徑鑽孔樁，擺動機

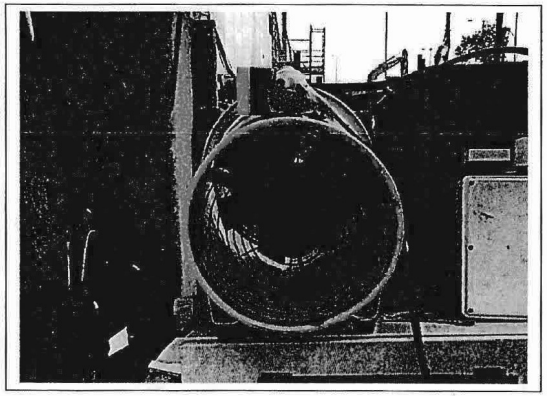
**Photograph(s) attached to Construction Noise Permit No. GW-RE1074-20**
建築噪音許可證編號：**GW-RE1074-20** 的照片

Elevated working platform, lorry mounted
升降工作台，裝在貨車上



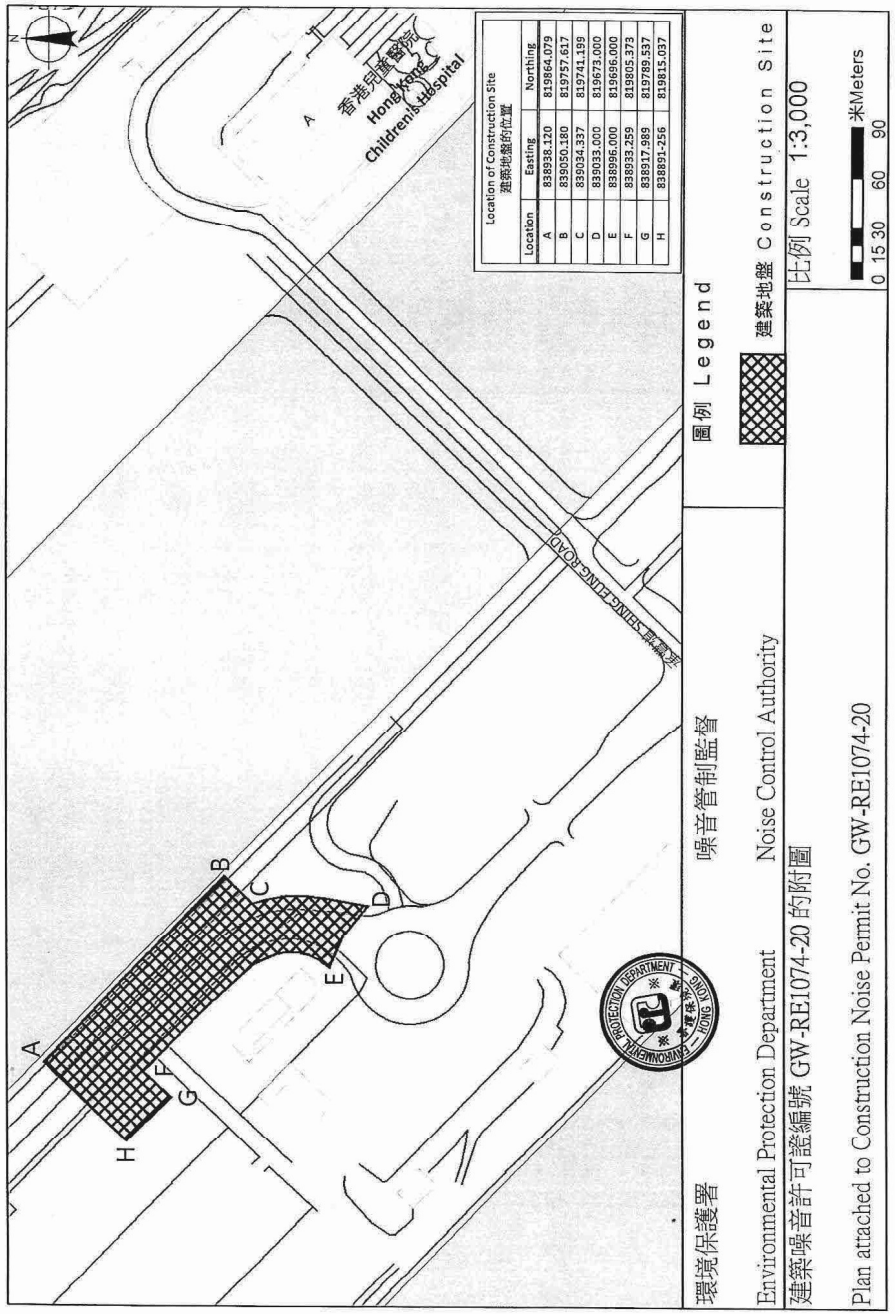

Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤93 dB(A)
發電機，備有優質機動設備標籤顯示聲功率級≤93 分貝(A)

**Photograph(s) attached to Construction Noise Permit No. GW-RE1074-20**
建築噪音許可證編號：**GW-RE1074-20** 的照片



Air blower (electric)
吹風機 （電動）

CNP 081 Excavator, tracked
挖土機，履帶式



# Appendix P – Environmental Mitigation Implementation Schedule (EMIS)

| Implementation Schedule for Air Quality Measures | | | |
|---|---|---|---|
| **EIA for KTD Development Ref.** | **EIA for KTD – Roads D3A & D4A Ref.** | **Environmental Protection Measures / Mitigation Measures** | **Status** |
| S3.2 | | 8 times daily watering of the work site with active dust emitting activities. | ^* |
| S3.2 | S4.8 | Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts. | ^ |
| | | - Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission. | ^ |
| | | - Misting for the dusty material should be carried out before being loaded into the vehicle. | ^ |
| | | - Any vehicle with an open load carrying area should have properly fitted side and tail boards. | ^ |
| | | - Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin. | ^ |
| | | - The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary, before transportation. | ^ |
| | | - The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways insider the site. On- site unpaved roads should be compacted and kept free of lose materials. | ^ |
| | | - Vehicle washing facilities should be provided at every vehicle exit point. | ^ |
| | | - The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores. | ^ |
| | | - Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet. | ^ |
| | | - Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides. | ^ |
| | | - Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites. | ^ |

| Implementation Schedule for Noise Measures | | | |
|---|---|---|---|
| **EIA for KTD Development Ref.** | **EIA for KTD – Roads D3A & D4A Ref.** | **Environmental Protection Measures / Mitigation Measures** | **Status** |
| S3.3 | | Use of quiet PME, movable barriers 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 |

| Implementation Schedule for Water Quality Measures | | | |
|---|---|---|---|
| **EIA for KTD Development Ref.** | **EIA for KTD – Roads D3A & D4A Ref.** | **Environmental Protection Measures / Mitigation Measures** | **Status** |
| S3.4 | | <u>Construction Runoff</u><br>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. | ^ |

| Implementation Schedule for Water Quality Measures | | | |
|---|---|---|---|
| **EIA for KTD Development Ref.** | **EIA for KTD – Roads D3A & D4A Ref.** | **Environmental Protection Measures / Mitigation Measures** | **Status** |
| | 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 | ^ |

| Implementation Schedule for Water Quality Measures | | | |
|---|---|---|---|
| **EIA for KTD Development Ref.** | **EIA for KTD – Roads D3A & D4A Ref.** | **Environmental Protection Measures / Mitigation Measures** | **Status** |
| | | 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.<br>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.<br>If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. | ^ |
| S3.4 | | Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 $m^3$ capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources | ^ |

| Implementation Schedule for Water Quality Measures | | | |
|---|---|---|---|
| **EIA for KTD Development Ref.** | **EIA for KTD – Roads D3A & D4A Ref.** | **Environmental Protection Measures / Mitigation Measures** | **Status** |
| | | and particularly suited to applications where the influent is pumped. | |
| S3.4 | | Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 $m^3$ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. | ^ |
| S3.4 | | Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. | ^ |
| 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><br>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><br>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 | ^ |

| Implementation Schedule for Water Quality Measures | | | |
|---|---|---|---|
| **EIA for KTD Development Ref.** | **EIA for KTD – Roads D3A & D4A Ref.** | **Environmental Protection Measures / Mitigation Measures** | **Status** |
| | | to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required. | |
| S3.4 | | All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour WCZ. | ^ |
| S3.4 | S5.8 | <u>Sewage Effluent</u><br>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.<br>Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the surrounding environment. Regular environmental audit of the construction site will provide an effective control of any malpractices and can encourage continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the project would not cause water pollution problem after undertaking all required measures. | ^ |
| S3.4 | | <u>Stormwater Discharges</u><br>Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes | ^ |
| S3.4 | | <u>Debris and Litter</u><br>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 | ^ |

| Implementation Schedule for Water Quality Measures | | | |
|---|---|---|---|
| **EIA for KTD Development Ref.** | **EIA for KTD – Roads D3A & D4A Ref.** | **Environmental Protection Measures / Mitigation Measures** | **Status** |
| | | and that disposal of any solid materials, litter or wastes to marine waters does not occur. | |
| | S5.8 | Boring and Drilling Water<br>Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities. | ^ |
| | S5.8 | Acid Cleaning, Etching and Pickling Wastewater<br>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<br>foul sewers. | NA |
| | S5.8 | Effluent Discharge<br>There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distance of 100 m should be maintained between the discharge points of construction site effluent and the existing seawater intakes and the planned WSR mentioned in S5.3.1 as appropriate. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the relevant WPCO licence which is under the ambit of regional office (RO) of EPD. | ^ |
| | S5.8 | Accidental Spillage<br>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.<br>Any service shop and maintenance facilities should be located on | ^ |

| Implementation Schedule for Water Quality Measures | | | |
|---|---|---|---|
| **EIA for KTD Development Ref.** | **EIA for KTD – Roads D3A & D4A Ref.** | **Environmental Protection Measures / Mitigation Measures** | **Status** |
| | | 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:<br>- Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. | ^ |
| | S5.8 | - Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. | ^ |
| | S5.8 | - Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. | ^ |

| Implementation Schedule for Waste Management Measures | | | |
|---|---|---|---|
| **EIA for KTD Development Ref.** | **EIA for KTD – Roads D3A & D4A Ref.** | **Environmental Protection Measures / Mitigation Measures** | **Status** |
| S3.5 | | Good Site Practices<br>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. | ^ |

| Implementation Schedule for Waste Management Measures | | | |
|---|---|---|---|
| **EIA for KTD Development Ref.** | **EIA for KTD – Roads D3A & D4A Ref.** | **Environmental Protection Measures / Mitigation Measures** | **Status** |
| S3.5 | S6.7 | - 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><br>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><br>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 | ^ |

| Implementation Schedule for Waste Management Measures | | | |
|---|---|---|---|
| **EIA for KTD Development Ref.** | **EIA for KTD – Roads D3A & D4A Ref.** | **Environmental Protection Measures / Mitigation Measures** | **Status** |
| | | 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 | ^ |

| Implementation Schedule for Waste Management Measures | | | |
|---|---|---|---|
| **EIA for KTD Development Ref.** | **EIA for KTD – Roads D3A & D4A Ref.** | **Environmental Protection Measures / Mitigation Measures** | **Status** |
| | | of waste. | |
| S3.5 | | Chemical Waste<br>After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. | ^ |
| | S6.7 | Separation of chemical wastes for special handling and appropriate treatment. | ^ |
| S3.5 | | General Refuse<br>General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem. | ^ |

| Implementation Schedule for Landscape and Visual Measures | | | |
|---|---|---|---|
| **EIA for KTD Development Ref.** | **EIA for KTD – Roads D3A & D4A Ref.** | **Environmental Protection Measures / Mitigation Measures** | **Status** |
| S3.8.12 | | All existing trees should be carefully protected during construction. | ^ |
| S3.8.12 | | Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work. | NA |
| S3.8.12 | | Control of night-time lighting. | ^ |
| S3.8.12 | | Erection of decorative screen hoarding. | ^ |
| | S7.9 | Construction Site Control<br>- 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 | ^ |

| Implementation Schedule for Landscape and Visual Measures | | | |
|---|---|---|---|
| **EIA for KTD Development Ref.** | **EIA for KTD – Roads D3A & D4A Ref.** | **Environmental Protection Measures / Mitigation Measures** | **Status** |
| | | 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 |

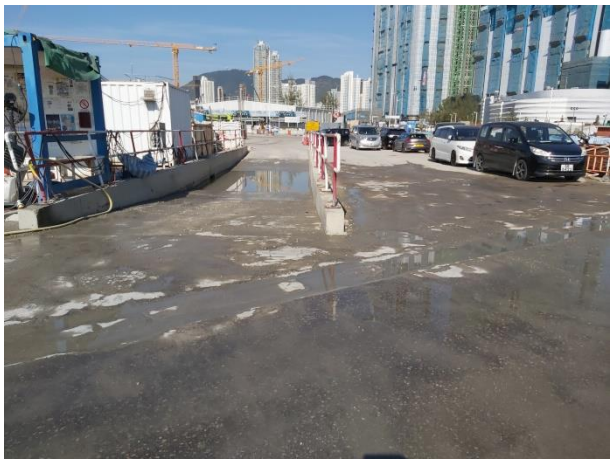
| **Remarks:** | | | |
|---|---|---|---|
| ^ | Compliance of mitigation measure. | X | Non-compliance of mitigation measure. |
| N/A<br>N/A (1) | Not Applicable at this stage.<br>Not observed. | ● | Non-compliance but rectified by the contractor. |
| * | Recommendation was made during site audit but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

**Mitigation Measures undertaken by the Contractor for site inspections**

| | |
|---|---|
| Date: | 03 December 2020 |
| Mitigation Measures: | Haul road was sprayed with water to maintain the entire road surface wet. |

| | |
|---|---|
| Date: | 17 December 2020 |
| Mitigation Measures: | Provided domestic garbage bins for waste storage. |

| | |
|---|---|
| Date: | 24 December 2020 |
| Mitigation Measures: | Quiet PME was used. |



| | |
|---|---|
| Date: | 31 December 2020 |
| Mitigation Measures: | Vehicle washing basin was provided. |

# Appendix Q – Summaries of Environmental Complaint, Warning, Summon and Notification of Successful Prosecution

**Reporting Month: December 2020**

| Contract No. | Record of Complaint (Yes/No) | Record of Warning (Yes/No) | Notification of Summons and Successful Prosecutions (Yes/No) |
|---|---|---|---|
| ED/2018/01 | No | No | No |

**Cumulative Statistics on Complaints, Notification of Summons and Successful Prosecutions upto reporting month**

| Contract No. | Record of Complaint | Record of Warning | Notification of Summons and Successful Prosecutions |
|---|---|---|---|
| ED/2018/01 | 1 | 0 | 0 |

| **Complaint Log for ED/2018/01** | | | | |
|---|---|---|---|---|
| Complaint Ref. No. | Date of Complaint | Description of Complaint | Investigation / Recommendations / Actions | Close-Out Date / Status |
| C0001 | A dust complaint was referred from the Contractor on 21 October 2020 regarding a pubic complaint via 1823 hotline (Case no. 3-6518939602) on 20 October 2020. | 1. The water spraying system was not operated in proper time.<br>2. Stockpile was not covered properly.<br>3. Haul road was not wetted.<br>4. Materials transported on trucks were not provided with mechanical covers. | <u>Investigation</u><br>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.<br>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.<br>3. Regular site inspection was conducted by ET on 22 October 2020, no adverse observation against the dust impact was recorded.<br><br><u>Recommendations</u><br>To minimize the impact for air quality, mitigation measures should be enhanced specially in dry seasons are recommended:<br>1. Increase the frequency and duration for automatic water spraying system.<br>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.<br>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. | - Closed-out on 5 Nov 2020<br>- No further complaint was received. |

| **Complaint Log for ED/2018/01** | | | | |
|---|---|---|---|---|
| Complaint Ref. No. | Date of Complaint | Description of Complaint | Investigation / Recommendations / Actions | Close-Out Date / Status |
| | | | <u>Action taken</u><br>1. 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. | |
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