Vol. 2 of 5

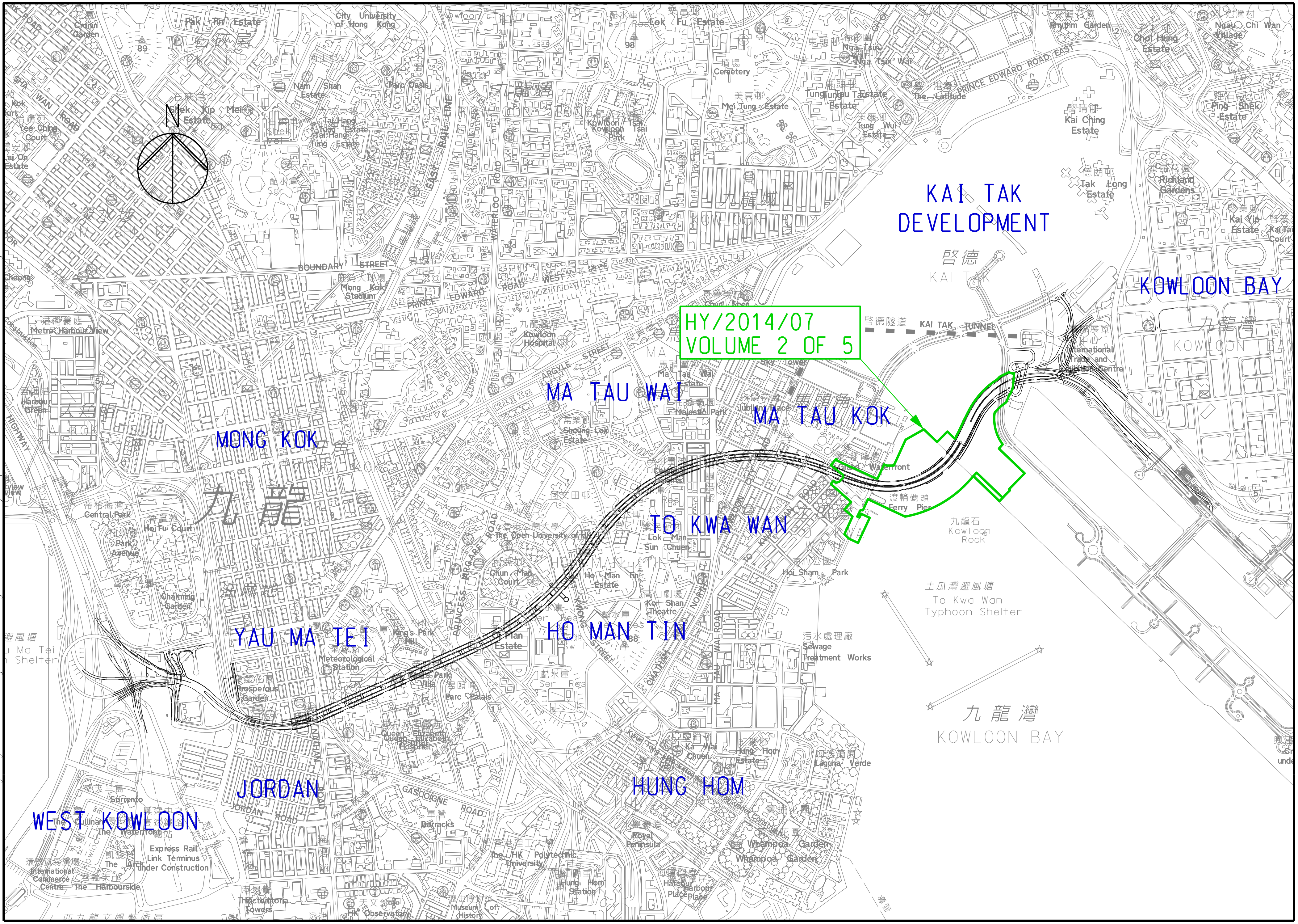
FEP-01/457/2013/C

Central Kowloon Route

Kai Tak West

Contract No. HY/2014/07

July 2024



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Gammon Construction Limited

Central Kowloon Route

Works Contract HY/2014/07 – Central Kowloon Route – Kai Tak West

Monthly EM&A Report for July 2024

[August 2024]

	Name	Signature
Prepared & Checked:	Ho Pui Yin Kevin	
Reviewed, Approved & Certified:	Y. W. Fung	

Version: 0	Date: 08 August 2024

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HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

ERM

Environmental Permit No. EP-457/2013/D

Central Kowloon Route

Independent Environmental Checker Verification

Works Contract:	**Kai Tak West (HY/2014/07)**

Reference Document/Plan

Document/~~Plan~~ to be ~~Certified~~/ Verified:	Monthly EM&A Report No.76 (July 2024)
Date of Report:	8 August 2024
Date received by IEC:	8 August 2024

Reference EP Condition

Environmental Permit Condition: 3.4

Submission of Monthly EM&A Report of the Project

3.4 Four hard copies and one electronic copy of monthly EM&A Report shall be submitted to the Director within 2 weeks after the end of each reporting month throughout the entire construction period. The EM&A Reports shall include a summary of all non-compliance. The submissions shall be certified by the ET Leader and verified by the IEC as complying with the requirements as set out in the EM&A Manual before submission to the Director. Additional copies of the submission shall be provided to the Director upon request by the Director.

IEC Verification

I hereby verify that the above referenced document/~~plan~~ complies with the above referenced condition of EP-457/2013/D and FEP-01/457/2013/C.

Ms Mandy To Date: 8 August 2024

Independent Environmental Checker

Our ref: 0436942_IEC Verification Cert_KTW_Monthly EM&A Rpt No.76.docx

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EXECUTIVE SUMMARY

Central Kowloon Route – Kai Tak West (CKR-KTW; Contract No. HY/2014/07) (hereafter called "the Project") covers part of the construction of the Central Kowloon Route (CKR).

The Project comprises the follow works:

- 50x30m access shaft with noise enclosure at Ma Tau Kok (MTK);
- 100m long cut-and-cover (C&C) tunnel at MTK;
- Demolition and re-provisioning of MTK Public Pier;
- 160m long underwater tunnel (UWT) (Stage 1);
- 210m long UWT (Stage 2);
- 60m long C&C tunnel at Kai Tak;
- 130m long depressed road and 200m long underpass at Kai Tak;
- 390m long underground tunnel ventilation audit at Kai Tak;
- Seawall demolition and construction of new landing steps; and
- Barging Point enclosure and conveyor system.

The EM&A programme commenced on 4 April 2018.The impact EM&A for the Project includes air quality and noise monitoring.

This is the 76th monthly EM&A Report presenting the EM&A works carried out during the period between 1 and 31 July 2024. As informed by the Contractor, major activities in the reporting period were:

Locations	**Site Activities**
Kai Tak	- Defect rectification works at underpass, depressed road and C&C - Installation of sign gantry at underpass and depressed road
Ma Tau Kok	- Temporary traffic management (TTM) implementation; - Removal of Excavation and Lateral Support (ELS) at MTK C&C Tunnel; - Waterproofing works and backfilling at MTK C&C Tunnel; - King post removal at MTK C&C Tunnel; - Subbase pavement at MTK C&C Tunnel
Kowloon Bay	- Removal of Excavation and Lateral Support (ELS) at Stage 2 UWT; - King post removal at Stage 2 UWT; - Waterproofing works and backfilling at Stage 2 UWT; - Road drainge lying and paving at Stage 2 UWT.

Breaches of Action and Limit Levels for Air Quality

All 24-hour TSP result was below the Action and Limit Levels at all monitoring locations in the reporting month.

All 1-hour TSP result was below the Action and Limit Levels at all monitoring locations in the reporting month.

Breaches of Action and Limit Levels for Noise

Regular Noise Monitoring

No exceedance of Action and Limit level of noise was recorded in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

No environmental related complaints, notification of summons and successful prosecution were received in the reporting month.

Reporting Changes

No report changes in the reporting period**.**

Future Key Issues

Key issues to be considered in the next three months included:

Locations	**Site Activities**
Kai Tak	- Defect rectification works at underpass, depressed road and C&C - Installation of sign gantry at underpass and depressed road
Ma Tau Kok	- TTM implementation; - Removal of Excavation and Lateral Support (ELS) at MTK C&C Tunnel; - Backfilling at MTK C&C Tunnel; - King post removal at MTK C&C Tunnel; - Road drainge lying and paving at MTK C&C Tunnel; - Ma Tau Kok seawall reinstatement
Kowloon Bay	- Removal of Excavation and Lateral Support (ELS) at Stage 2 UWT; - Waterproofing works and backfilling at Stage 2 UWT; - King post removal at Stage 2 UWT; - Road drainge lying and paving at Stage 2 UWT.

Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, water pollution control, and waste management.

1 INTRODUCTION

Gammon Construction Limited was commissioned by the Highways Department as the Civil Contractor for Works Contract HY/2014/07. AECOM Asia Company Limited (AECOM) was appointed by Gammon Construction Limited as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Project.

1.1 Purpose of the Report

1.1.1 This is the 76th monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period between 1 to 31 July 2024.

1.2 Report Structure

1.2.1 This monthly EM&A Report is organized as follows:

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Requirement
- Section 4: Implementation Status of Environmental Mitigation Measures
- Section 5: Monitoring Results
- Section 6: Environmental Site Inspection and Audit
- Section 7: Environmental Non-conformance
- Section 8: Future Key Issues
- Section 9: Conclusions and Recommendations

2 PROJECT INFORMATION

2.1 Background

2.1.1 CKR is a dual 3-lane trunk road across central Kowloon linking the West Kowloon in the west and the Kai Tak Development (KTD) in the east. The CKR will be about 4.7 km long with an underground tunnel section of about 3.9 km long, in particular, there will be an underwater tunnel of about 370 m long in Kowloon Bay to the north of the To Kwa Wan Typhoon Shelter. It will connect the West Kowloon Highway at Yau Ma Tei Interchange with the road network at Kowloon Bay and the future Trunk Road T2 at KTD which will connect to the future Tseung Kwan O – Lam Tin Tunnel (TKO-LTT) and Cross Bay Link (CBL). CKR, Trunk Road T2 and TKO-LTT will form a strategic highway link, namely Route 6, connecting West Kowloon and Tseung Kwan O. In addition, 3 ventilation buildings, which will be located in Ya Ma Tei, Ho Man Tin and ex-Kai Tak airport area, are proposed to ensure acceptable air quality within the tunnel.

2.1.2 The Environmental Impact Assessment (EIA) Report for Central Kowloon Route (Register No.: AEIAR-171/2013) was approved on 11 July 2013 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) for CKR was granted on 9 August 2013 (EP No.: EP- 457/2013) for the construction and operation. Variation of EP (VEP) was subsequently applied and the latest EP (EP No. EP-457/2013/D) was issued by the Director of Environmental Protection (DEP) on 15 June 2021. Further Environmental Permit (EP No. FEP-01/457/2013/C) for CKR – Kai Tak West was issued on 28 February 2018.

2.1.3 The construction of the CKR had been divided into different sections. This Work Contract HY/2014/07 – Kai Tak West (KTW) ("The Project") will include a road which is a trunk road, including new roads, and major extensions or improvements to existing roads; a road fully enclosed by decking above and by structure on the sides for more than 100 m; and reclamation works (including associated dredging works) more than 1 ha in size and a boundary of which is less than 100 m from an existing residential area.

2.1.4 The site layout plan of the Project is shown in **Figure 1.1**.

2.2 Site Description

2.2.1 The major construction activities under this Project include:

(a) construction of approximately 160m long cut-and-cover tunnel and 370m long underwater tunnel between the tunnel section at Ma Tau Kok and the depressed road of the CKR within Kai Tak Development;
(b) reconstruction of the seawall at Ma Tau Kok public pier, and the sloping seawall at the Former Kai Tak Airport Runway;
(c) construction of approximately 125m long depressed road and 200m long underpass of the CKR within Kai Tak Development;
(d) construction of approximately 360m long underground tunnel ventilation adit of the CKR;
(e) reconstruction of Kowloon City Ferry Pier Public Transport Interchange; and
(f) other associated works.

2.3 Construction Programme and Activities

2.3.1 The major construction activities undertaken in the reporting month are summarized in **Table 2.1**.

Table 2.1 Construction Activities in the reporting month

Locations	Site Activities
Kai Tak	- Defect rectification works at underpass, depressed road and C&C - Installation of sign gantry at underpass and depressed road
Ma Tau Kok	- Temporary traffic management (TTM) implementation; - Removal of Excavation and Lateral Support (ELS) at MTK C&C Tunnel; - Waterproofing works and backfilling at MTK C&C Tunnel; - King post removal at MTK C&C Tunnel; - Subbase pavement at MTK C&C Tunnel
Kowloon Bay	- Removal of Excavation and Lateral Support (ELS) at Stage 2 UWT; - King post removal at Stage 2 UWT; - Waterproofing works and backfilling at Stage 2 UWT; - Road drainge lying and paving at Stage 2 UWT.

2.3.2 The construction programme is presented in **Appendix A**.

2.4 Project Organization

2.4.1 The project organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarized in **Table 2.2**.

Table 2.2 Contact Information of Key Personnel

Party	Role	Position	Name	Telephone	Fax
Arup-Mott MacDonald Joint Venture	Residential Engineer (ER)	Engineer's Representative	Mr. Patrick Lo	36195901	2268 3954
ERM	Independent Environmental Checker (IEC)	Independent Environmental Checker	Ms. Mandy To	2271 3113	3015 8052
Gammon	Contractor	Contracts Manager	Mr. Kin Fai Tam	2516 8823	2516 6260
		Environmental Manager	Ms. Michelle Tang	9267 8866	2516 6260
AECOM	Contractor's Environmental Team (ET)	ET Leader	Mr. Y. W. Fung	3856 5681	2317 7609

2.5 Status of Environmental Licences, Notification and Permits

2.5.1 Relevant environmental licenses, permits and/or notifications on environmental protection for this Project and valid in the reporting month are summarized in **Table 2.3**.

Table 2.3 Status of Environmental Licenses, Notifications and Permits

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
Further Environmental Permit				
FEP-01/457/2013/C	28 Feb 2018	End of Project	Valid	--
Wastewater Discharge License				
WT00043692-2023	1 Apr 2023	31 Mar 2028	Valid	Ma Tau Kok
WT00043881-2023	30 Jun 2023	30 Jun 2028	Valid	Underwater Tunnel Stage 2
WT00044013-2023	1 May 2023	30 Apr 2028	Valid	Kai Tak and Underwater Tunnel Stage 1
Construction Noise Permit				
GW-RE0618-24	1 Jun 2024	30 Nov 2024	Valid	General Works at Ma Tau Kok
GW-RE0369-24	1 Apr 2024	30 Sep 2024	Valid	General Works at Kai Tak
GW-RE0449-24	21 Apr 2024	20 Oct 2024	Valid	General Works at Promenade
GW-RE0585-24	19 May 2024	18 Nov 2024	Valid	General Works at Stage 1 Underwater Tunnel
GW-RE0627-24	7 Jun 2024	6 Dec 2024	Valid	General Works at Stage 2 Underwater Tunnel
GW-RE0324-24	1 Apr 2024	30 Sep 2024	Valid	Kai Tak Access Road
GW-RE0359-24	29 Mar 2024	28 Sep 2024	Valid	CNP for Road Paving at Gate 2A, Kai Tak
Chemical Waste Producer Registration				
5118-247-G2347-47	30 Jan 2018	End of Project	Valid	--
5118-247-G2347-48	30 Jan 2018	End of Project	Valid	--
Marine Dumping Permit				
--	--	--	--	--
Billing Account for Construction Waste Disposal				
7029909	22 Jan 2018	End of Project	Account Active	--
Notification Under Air Pollution Control (Construction Dust) Regulation				
429442	5 Jan 2018	5 Jul 2025	Notified	--

3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 Construction Dust Monitoring

Monitoring Requirements

3.1.1 In accordance with the approved EM&A Manual, measurement of 24-hour and 1-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required. Impact 24-hour TSP monitoring should be carried out for at least once every 6 days, and 1-hour TSP monitoring should be done at least 3 times every 6 days while the highest dust impact is expected. The Action and Limit Levels of the air quality monitoring is provided in **Appendix D**.

Monitoring Equipment

3.1.2 24-hour TSP air quality monitoring was performed using High Volume Sampler (HVS) located at the designated monitoring station. The HVS meets all the requirements of the EM&A Manual.

3.1.3 A portable direct reading dust meter was used to carry out the 1-hour TSP monitoring.

3.1.4 Brand and model of the equipment is given in **Table 3.1.**

Table 3.1 Air Quality Monitoring Equipment

Equipment	Brand and Model
High Volume Sampler (24-hour TSP)	Tisch Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model No. TE-5170)
Calibration Kit (24-hour TSP)	TISCH Environmental Orifice (Model TE-5025A)
Portable direct reading dust meter (1-hour TSP)	Sibata Digital Dust Monitor (Model No. LD-3 & LD-3B)

Monitoring Locations

3.1.5 The monitoring station for construction dust monitoring pertinent to the Project has been identified based on the approved EM&A Manual for the Project. The location of the construction dust monitoring station is summarized in **Table 3.2** and shown in **Figure 3.1**.

Table 3.2 Location of Construction Dust Monitoring Station

Location	Monitoring Station	Description
E-A14a [1]	Block B of Merit Industrial Centre	Rooftop (13/F)

Note:
[1] The air monitoring station proposed in the EM&A Manual (i.e. Wyler Gardens with ID: E-A14) was not available for impact dust monitoring, therefore impact monitoring was conducted at E-A14a as an alternative which was agreed by the ER, IEC and EPD.

Monitoring Methodology

3.1.6 24-hour TSP Monitoring

(a) The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS as far as practicable: -

(i) A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
(ii) Two samplers should not be placed less than 2m apart from each other;
(iii) The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
(iv) A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.

(v) A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
(vi) No furnace or incinerator flues nearby.
(vii) Airflow around the sampler was unrestricted.
(viii) The sampler was located more than 20 meters from any dripline.
(ix) Any wire fence and gate, required to protect the sampler, did not obstruct the monitoring process.
(x) Permission was obtained to set up the samplers and access to the monitoring station.
(xi) A secured supply of electricity was obtained to operate the sampler.

(b) Preparation of Filter Papers

(i) Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
(ii) All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±5%. A convenient working RH was 40%.
(iii) All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.

(c) Field Monitoring

(i) The power supply was checked to ensure the HVS works properly.
(ii) The filter holder and the area surrounding the filter were cleaned.
(iii) The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
(iv) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
(v) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
(vi) Then the shelter lid was closed and was secured with the aluminium strip.
(vii) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
(viii) A new flow rate record sheet was set into the flow recorder.
(ix) On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.3 m^3/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m^3/min).
(x) The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
(xi) The initial elapsed time was recorded.
(xii) At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
(xiii) The final elapsed time was recorded.
(xiv) The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
(xv) It was then placed in a clean envelope and sealed.
(xvi) All monitoring information was recorded on a standard data sheet.
(xvii) Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.

(d) Maintenance and Calibration

(i) The HVS and its accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
(ii) HVSs were calibrated using TE-5025A Calibration Kit upon installation and thereafter at bi-monthly intervals.
(iii) Calibration certificate of the TE-5025A Calibration Kit and the HVSs are provided in **Appendix E**.

3.1.7 1-hour TSP Monitoring

(a) Measuring Procedures

The measuring procedures of the 1-hour dust meter are in accordance with the Manufacturer's Instruction Manual as follows:

(i) Turn the power on.
(ii) Close the air collecting opening cover.
(iii) Push the "TIME SETTING" switch to [BG]
(iv) Push "START/STOP" switch to perform background measurement for 6 seconds.
(v) Turn the knob at SENSI ADJ position to insert the light scattering plate.
(vi) Leave the equipment for 1 minute upon "SPAN CHECK" is indicated in the display.
(vii) Push "START/STOP" switch to perform automatic sensitivity adjustment. This measurement takes 1 minute.
(viii) Pull out the knob and return it to MEASURE position.
(ix) Push the "TIME SETTING" switch the time set in the display to 3 hours.
(x) Lower down the air collection opening cover.
(xi) Push "START/STOP" switch to start measurement.

(b) Maintenance and Calibration

(i) The 1-hour TSP meter was calibrated at 1-year intervals against a High Volume Samplers. Calibration certificates of the Laser Dust Monitors are provided in **Appendix E**.

Monitoring Schedule for the Reporting Month

3.1.8 The schedule for environmental monitoring in July 2024 is provided in **Appendix F**.

3.2 Construction Noise Monitoring

Monitoring Requirements

3.2.1 In accordance with the EM&A Manual, impact noise monitoring should be conducted for at least once a week during the construction phase of the Project. **Table 3.3** summarizes the monitoring parameters, frequency and duration of impact noise monitoring. The Action and Limit Levels of the noise monitoring is provided in **Appendix D**.

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Parameter and Duration	Frequency
30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. L_{eq}, L_{10} and L_{90} would be recorded.	At least once per week

Monitoring Equipment

3.2.2 Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 3.4**.

Table 3.4 Noise Monitoring Equipment for Regular Noise Monitoring

Equipment	Brand and Model
Integrated Sound Level Meter	B&K (Model No. 2250, 2250L & 2270)
Acoustic Calibrator	B&K (Model No. 4231) Rion(Model No. NC-74) MVI(Model No. CAL21)

Monitoring Locations

3.2.3 The monitoring stations for construction noise monitoring pertinent to the Project have been identified based on the approved EM&A Manual for the Project. Locations of the noise monitoring stations are summarized in **Table 3.5** and shown in **Figure 3.2**.

Table 3.5 Noise Monitoring Stations during Construction Phase

Location	Monitoring Station	Description	Measurement
E-N12a [1]	19 Hing Yan Street	Rooftop (9/F)	Façade
E-N21a [1]	Block B of Merit Industrial Centre	Rooftop (13/F)	Free field[2]

Notes:
[1] The noise monitoring stations proposed in the EM&A Manual (i.e. Grand Waterfront Tower 3 with ID: E-N12 and Hang Chien Court Block J with ID: E-N21) were not available for impact noise monitoring, therefore impact monitoring was conducted at E-N12a and E-N21a as an alternative which was agreed by the ER, IEC and EPD.
[2] A correction of +3 dB(A) was made to the free field measurements.

Monitoring Parameters, Frequency and Duration

3.2.4 **Table 3.6** summarizes the monitoring parameters, frequency and duration of impact noise monitoring.

Table 3.6 Noise Monitoring Parameters, Frequency and Duration

Location	Parameter and Duration	Frequency
E-N12a and E-N21a	30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. L_{eq}, L_{10} and L_{90} would be recorded.	At least once per week

Monitoring Methodology

3.2.5 Monitoring Procedure

(a) The sound level meter was set on a tripod at a height of 1.2 m above the ground.
(b) Façade measurement was made at E-N12a.
(c) Free field measurements was made at monitoring location E-N21a. A correction of +3 dB(A) shall be made to the free field measurements.
(d) The battery condition was checked to ensure the correct functioning of the meter.
(e) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  (i) frequency weighting
  (ii) time weighting: Fast
  (iii) time measurement: $L_{eq(30\text{-}minutes)}$ during non-restricted hours i.e. 0700 – 1900 on normal weekdays.
(f) Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator for 94 dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
(g) During the monitoring period, the L_{eq}, L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
(h) Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.
(i) Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind with gusts exceeding 10m/s.

3.2.6 Maintenance and Calibration

(a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.
(b) The meter and calibrator were sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.
(c) Calibration certificates of the sound level meters and acoustic calibrators are provided in **Appendix E**.

Monitoring Schedule for the Reporting Month

3.2.7 The schedule for environmental monitoring in July 2024 is provided in **Appendix F**.

3.3 Landscape and Visual

3.3.1 As per the EM&A Manuals, the landscape and visual mitigation measures shall be implemented and site inspections should be undertaken once every two weeks during the construction period. A summary of the implementation status is presented in **Section 6.**

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

4.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix C.** Status of required submissions under the EP during the reporting period is summarised in **Table 4.1**.

Table 4.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
Condition 3.4 of EP-457/2013/D and Condition 3.4 of FEP-01/457/2013/C	Monthly EM&A Report for June 2024	12 July 2024

5 MONITORING RESULTS

5.1 Construction Dust Monitoring

5.1.1 The monitoring results for 24-hour TSP and 1-hour TSP are summarized in **Table 5.1** and **Table 5.2** respectively. Detailed air quality monitoring results and daily extract of meteorological observations are presented in **Appendix G**.

Table 5.1 Summary of 24-hour TSP Monitoring Result in the Reporting Period

ID	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
E-A14a	15.9	12.9 - 23.5	197.3	260

Table 5.2 Summary of 1-hour TSP Monitoring Result in the Reporting Period

ID	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
E-A14a	60.8	57.7 – 62.6	302.4	500

5.1.2 No Action and Limit Level exceedance was recorded for 24-hour TSP monitoring at the monitoring location in the reporting month.

5.1.3 No Action and Limit Level exceedance was recorded for 1-hour TSP monitoring at the monitoring location in the reporting month.

5.1.4 The event and action plan are annexed in **Appendix I**.

5.1.5 Major dust sources during the monitoring included construction dust and nearby traffic emission.

5.2 Regular Construction Noise Monitoring

5.2.1 The monitoring results for noise are summarized in **Table 5.3** and the monitoring data is provided in **Appendix H**.

Table 5.3 Summary of Construction Noise Monitoring Results in the Reporting Period

ID	Range, dB(A), $L_{eq\ (30\ mins)}$	Limit Level, dB(A), $L_{eq\ (30\ mins)}$
E-N12a	62.3 – 65.9	75
E-N21a	58.3 – 58.8	75

5.2.2 No exceedance of Action and Limit level of noise was recorded in the reporting month.

5.2.3 The event and action plan are annexed in **Appendix I**.

5.2.4 Major noise sources during the monitoring included construction noise from the Project site and nearby traffic noise.

5.3 Waste Management

5.3.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.

5.3.2 As advised by the Contractor, 11,820 m^3 of C&D material were generated and no C&D material was disposed to public fill. 11,820 m^3 of inert C&D were reused in the contract in the reporting month. 226,440 kg of general refuse was generated and sent to NENT Landfill in the reporting month. No metal, no plastics and no paper/cardboard packaging were collected by recycle contractor in the reporting month. No chemical waste was collected by licensed contractor in the reporting month. No Type 1, Type 2 and Type 3 Marine sediment were disposed at Confined Marine Disposal Facility to the East of Sha Chau. The waste flow table is annexed in **Appendix K**.

5.3.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.

5.3.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

5.4 Landscape and Visual

5.4.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 10 and 24 July 2024. A summary of the site inspection is provided in **Appendix C**. The observations and recommendations made during the site inspections are presented in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

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

6.1.2 In the reporting month, 5 site inspections were carried out on 3, 10, 17 ,24 and 31 July 2024. Joint inspections with the IEC, ER, the Contractor and ET were conducted on 17 July 2024. No non-compliance was recorded during the site inspection. Details of observations recorded during the site inspections are presented in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	Nil	Nil	Nil
Noise	Nil	Nil	Nil
Water Quality	Nil	Nil	Nil
Waste/ Chemical Management	3 July 2024	Reminder: The Contractor was reminded to remove the standing water from all the drip trays at the wetsep in MTK site.	The item was rectified by the Contractor on 4 July 2024.
	10 July 2024	Reminder: The Contractor was reminded to provide cover for the general refuse container at stage 2 marine platform.	The item was rectified by the Contractor on 12 July 2024.
		Reminder: The Contractor was reminded to provide drip tray for the oil drums at stage 2 marine platform.	The item was rectified by the Contractor on 1 August 2024.
Landscape & Visual	Nil	Nil	Nil
Permits/ Licenses	Nil	Nil	Nil

*The item was under rectification on last reporting month.

6.1.3 All follow-up actions requested by Contractor's ET during the site inspection were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting period.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

7.1.1 All 24-hour TSP result was below the Action and Limit Levels at all monitoring locations in the reporting month.

7.1.2 All 1-hour TSP result was below the Action and Limit Levels at all monitoring locations in the reporting month.

7.1.3 No exceedance of Action and Limit level of noise was recorded in the reporting month.

7.2 Summary of Environmental Non-Compliance

7.2.1 No environmental non-compliance was recorded in the reporting month.

7.3 Summary of Environmental Complaints

7.3.1 No environmental related complaints, notification of summons and successful prosecution were received in the reporting month. Cumulative statistics on environmental complaint is provided in **Appendix J.**

7.4 Summary of Environmental Summon and Successful Prosecutions

7.4.1 No environmental related prosecution or notification of summons was received in the reporting month. Cumulative statistics on notification of summons and successful prosecutions is provided in **Appendix J**.

8 FUTURE KEY ISSUES

8.1 Construction Programme for the Next Three Months

8.1.1 The major construction works between August 2024 to October 2024 are provided in **Table 8.1**.

Table 8.1 Construction Activities in the coming three months

Locations	Site Activities
Kai Tak	- Defect rectification works at underpass, depressed road and C&C - Installation of sign gantry at underpass and depressed road
Ma Tau Kok	- TTM implementation; - Removal of Excavation and Lateral Support (ELS) at MTK C&C Tunnel; - Backfilling at MTK C&C Tunnel; - King post removal at MTK C&C Tunnel; - Road drainge lying and paving at MTK C&C Tunnel; - Ma Tau Kok seawall reinstatement
Kowloon Bay	- Removal of Excavation and Lateral Support (ELS) at Stage 2 UWT; - Waterproofing works and backfilling at Stage 2 UWT; - King post removal at Stage 2 UWT; - Road drainge lying and paving at Stage 2 UWT.

8.2 Key Issues for the Coming Month

8.2.1 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, and waste management.

8.3 Monitoring Schedule for the Coming Month

8.3.1 The tentative schedule for environmental monitoring in August 2024 is provided in **Appendix F**.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

9.1.1 1-hour TSP, 24-hour TSP and noise monitoring were carried out in the reporting month.

9.1.2 All 24-hour TSP monitoring results complied with the Action / Limit Level at in the reporting month.

9.1.3 All 1-hour TSP result was below the Action and Limit Levels at all monitoring locations in the reporting month.

9.1.4 No exceedance of Action and Limit level of noise was recorded in the reporting month.

9.1.5 5 nos. of environmental site inspections were carried out in July 2024. Recommendations on remedial actions were given by ET and IEC to the Contractor for the deficiencies identified during the site audit.

9.1.6 No environmental related complaints, notification of summons and successful prosecution were received in the reporting month.

9.1.7 No environmental related notification of summons and successful prosecution were received in the reporting month.

9.2 Recommendations

9.2.1 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:

Air Quality Impact

- No specific observation was identified in the reporting month.

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- No specific observation was identified in the reporting month.

Chemical and Waste Management

- The Contractor was reminded to remove the standing water from all the drip trays at the wetsep in MTK site.
- The Contractor was reminded to provide cover for the general refuse container at stage 2 marine platform.
- The Contractor was reminded to provide drip tray for the oil drums at stage 2 marine platform.

Landscape & Visual Impact

- No specific observation was identified in the reporting month.

Permits/licenses

- No specific observation was identified in the reporting month.

FIGURES

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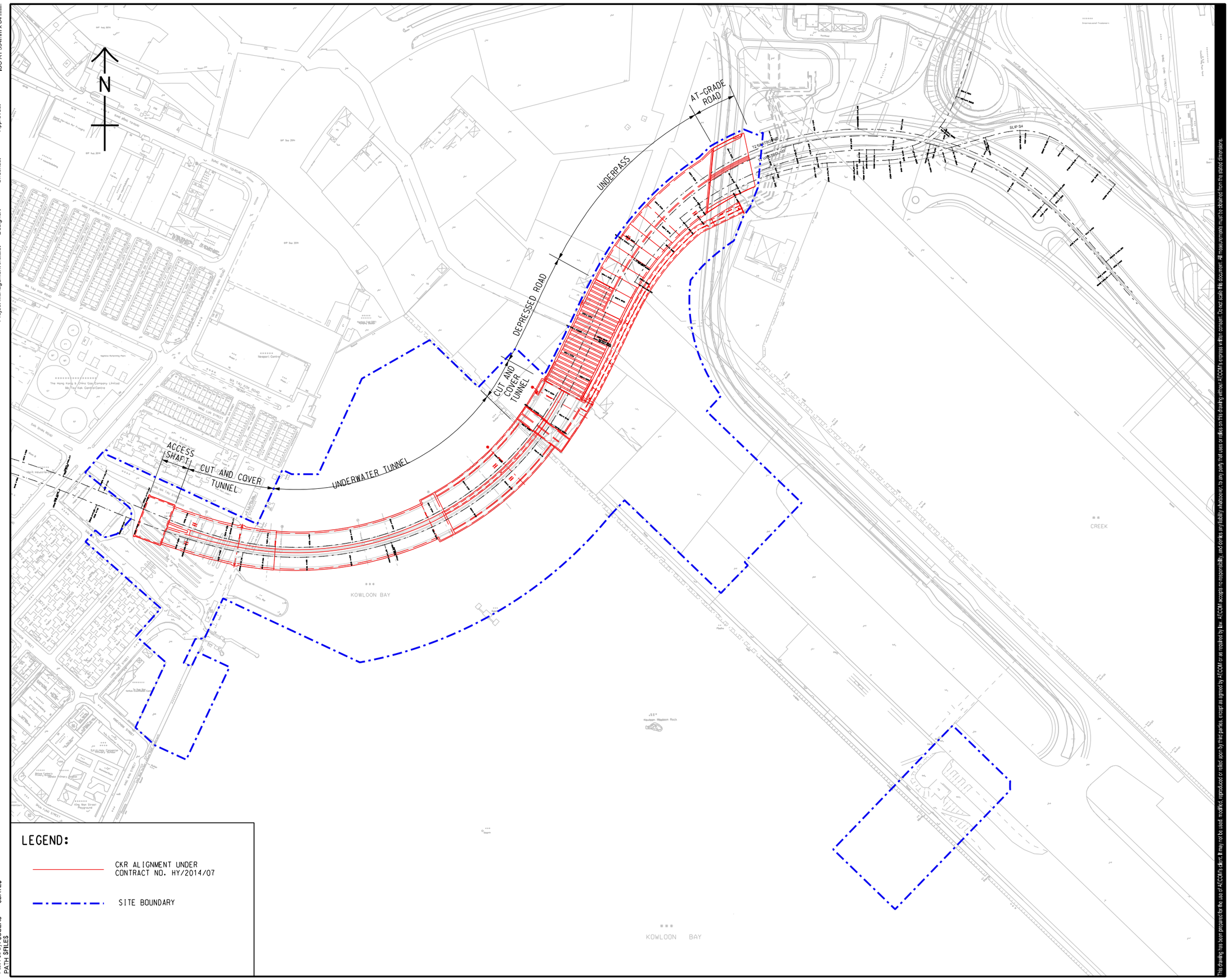
Approved:

Checked:

Designer:

Project Management Initials:



LEGEND:

CKR ALIGNMENT UNDER CONTRACT NO. HY/2014/07

SITE BOUNDARY

Plot File by: $USER$
PATH $FILE$

$DATE$

AECOM

PROJECT

CONTRACT NO.
HY/2014/07
CENTRAL KOWLOON ROUTE -
KAI TAK WEST

CLIENT

GAMMON CONSTRUCTION LIMITED

CONSULTANT

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SUB-CONSULTANTS

ISSUE/REVISION

I/R	DATE	DESCRIPTION	CHK.

STATUS

SCALE

A3 1 : 4000

DIMENSION UNIT

METRES

KEY PLAN

PROJECT NO.

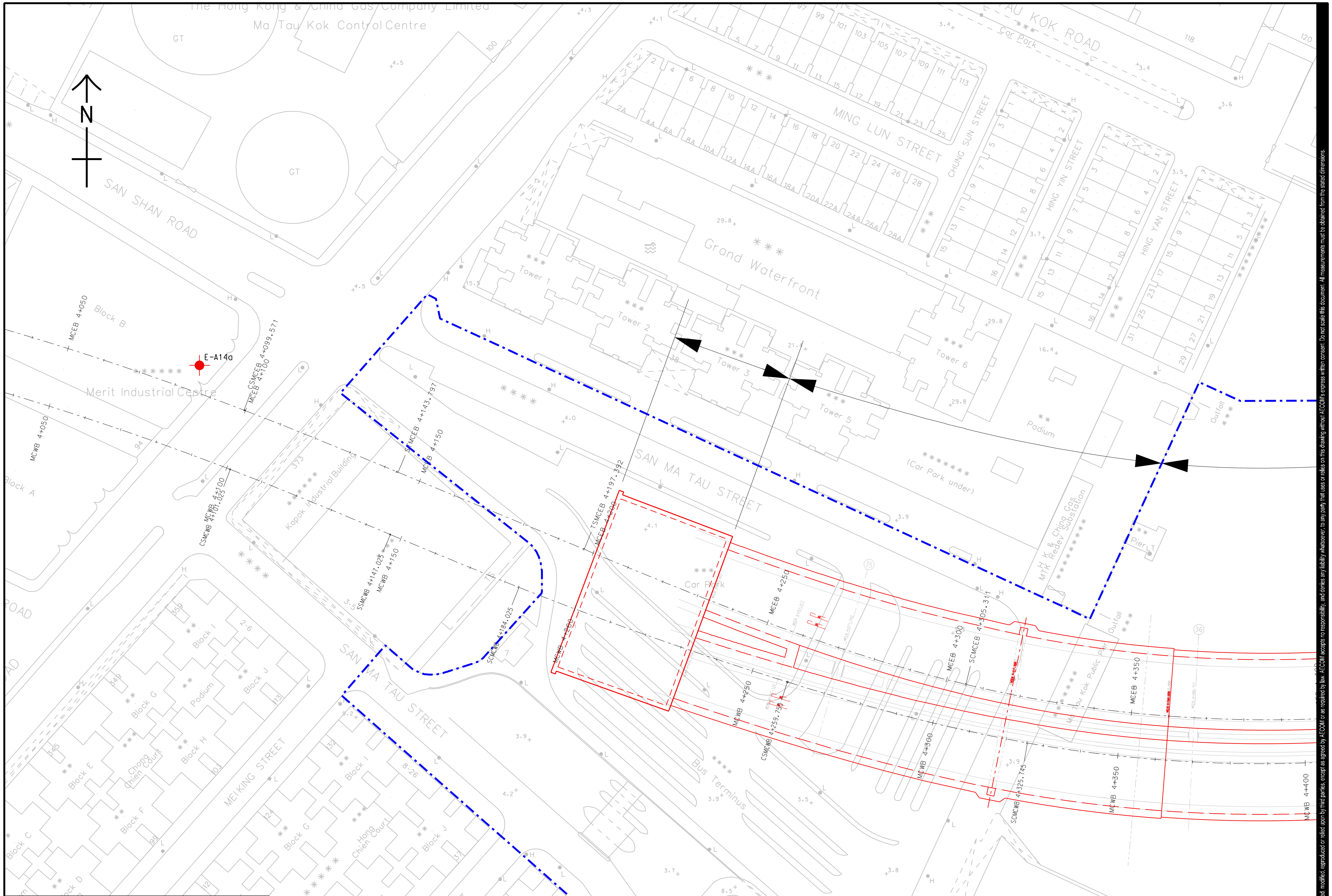
AGREEMENT NO.

SHEET TITLE

SITE LAYOUT PLAN

SHEET NUMBER

FIGURE 1.1


N
SAN SHAN ROAD
Ma Tau Kok Control Centre
Merit Industrial Centre
Block B
E-A14a
Grand Waterfront
Tower 1
Tower 2
Tower 3
Tower 5
Tower 6
MING LUN STREET
CHUNG SUN STREET
HING YIN STREET
HING YUNG STREET
MA TAU KOK ROAD
SAN MA TAU STREET
Kapok Industrial Building
Car Park
Bus Terminus
Ma Tau Kok Public Pier
Ferry Pier
Elevated Road
MEI KING STREET
WALKING STREET
Chong Chien Court
Hong Chien Court
Podium
Outfall
MCWB 4+050
MCEB 4+050
MCWB 4+100
MCEB 4+100
MCWB 4+150
MCEB 4+150
MCEB 4+250
MCWB 4+250
MCEB 4+300
MCWB 4+300
MCEB 4+350
MCWB 4+350
MCWB 4+400

LEGEND:

CKR ALIGNMENT UNDER CONTRACT NO. HY/2014/07

SITE BOUNDARY

BLOCK B MERIT INDUSTRIAL CENTRE (E-A14a)

AECOM

PROJECT

CONTRACT NO. HY/2014/07 CENTRAL KOWLOON ROUTE - KAI TAK WEST

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ISSUE/REVISION

I/R	DATE	DESCRIPTION	CHK.

STATUS

SCALE: A3 1 : 1000

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.

AGREEMENT NO.

SHEET TITLE

LOCATION OF AIR QUALITY MONITORING STATION

SHEET NUMBER

FIGURE 3.1

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Checked:
Designer:
Project Management Initials:
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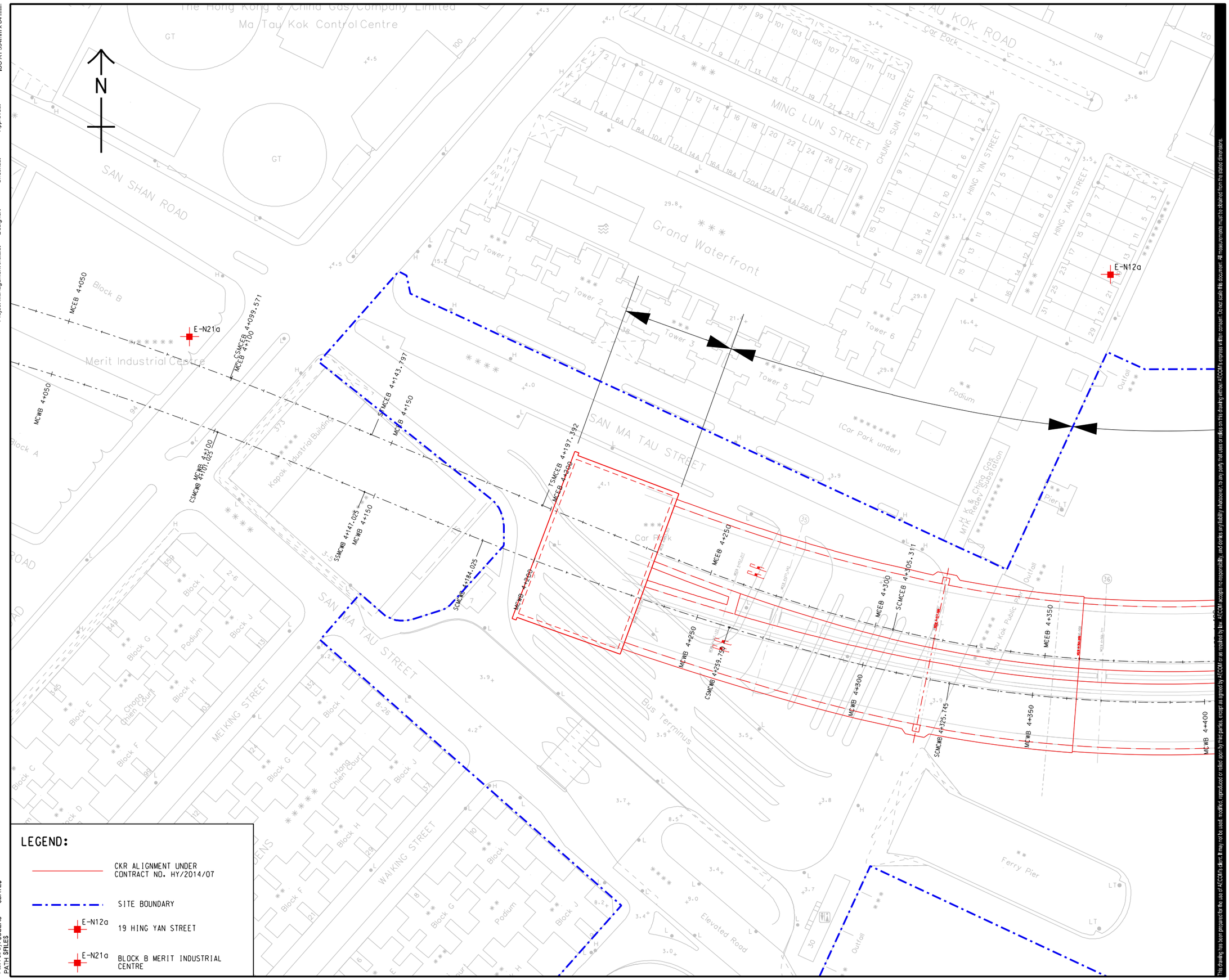
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



LEGEND:

- CKR ALIGNMENT UNDER CONTRACT NO. HY/2014/07
- SITE BOUNDARY
- E-N12a — 19 HING YAN STREET
- E-N21a — BLOCK B MERIT INDUSTRIAL CENTRE

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$DATE$

AECOM

PROJECT

CONTRACT NO. HY/2014/07
CENTRAL KOWLOON ROUTE - KAI TAK WEST

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ISSUE/REVISION

I/R	DATE	DESCRIPTION	CHK.

STATUS

SCALE A3 1 : 1000

DIMENSION UNIT METRES

KEY PLAN

PROJECT NO.

AGREEMENT NO.

SHEET TITLE

LOCATION OF NOISE MONITORING STATION

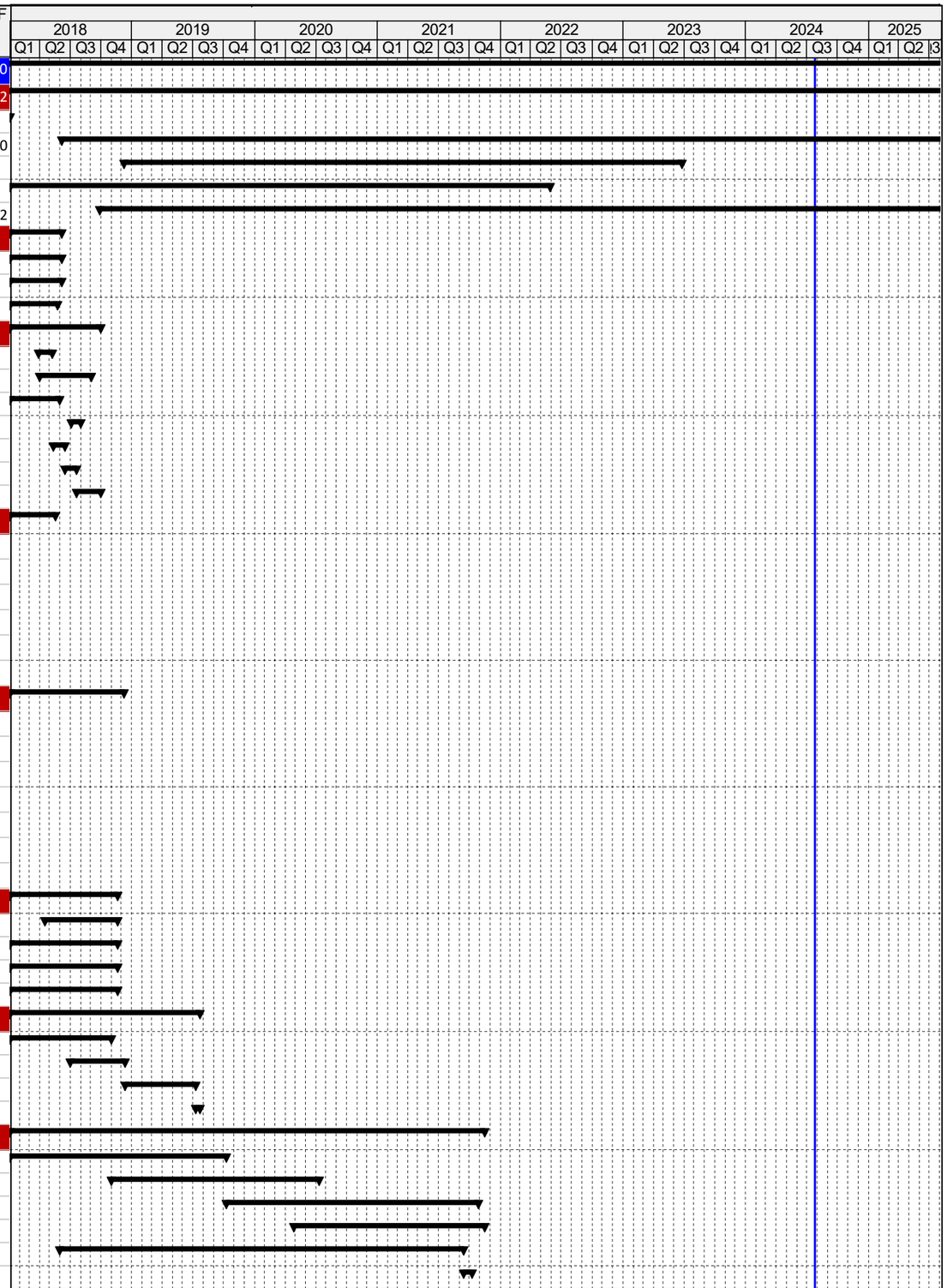
SHEET NUMBER

FIGURE 3.2

APPENDIX A

Construction Programme

ID	Activity	Duration	Start	Finish	TF
	Kai Tak West Works Programme - Recovery Programme - with CNP - 25/07/24 - impact	3093	29-Dec-17 A	17-Jun-26	0
	CONTRACT DATES	3093	29-Dec-17 A	17-Jun-26	-152
	Commencement of the Works	7	29-Dec-17 A	05-Jan-18 A	
	Key Dates	2880	06-Jun-18 A	25-Apr-26	-280
	Critical Dates (For Indication Only)	1689	08-Dec-18 A	27-Jun-23 A	
	Site Possession	1693	05-Jan-18 A	30-May-22 A	
	Site Handover	2815	29-Sep-18 A	17-Jun-26	-152
	All Landside and Marine Side Geotechnical Investigation (KD4A)	153	05-Jan-18 A	06-Jun-18 A	
	Marine	122	05-Jan-18 A	06-Jun-18 A	
	Mau Tau Kok Side	153	05-Jan-18 A	06-Jun-18 A	
	Kai Tak Side	112	05-Jan-18 A	25-May-18 A	
	Demolition of Landside Structures of KCFP and Carpark Reprovisioning (KD01)	268	05-Jan-18 A	29-Sep-18 A	
	TTM Stage 1	43	29-Mar-18 A	10-May-18 A	
	Works After Portion 1B Possession	154	02-Apr-18 A	03-Sep-18 A	
	Preparation Works Prior to Portion 1B Possession	118	05-Jan-18 A	01-Jun-18 A	
	Watermain Diversion	24	05-Jul-18 A	01-Aug-18 A	
	TTM Stage 2	37	11-May-18 A	16-Jun-18 A	
	TTM Stage 3	32	17-Jun-18 A	20-Jul-18 A	
	TTM Stage 4	71	21-Jul-18 A	29-Sep-18 A	
	Trees Felling and Protection in Portion 1B (San Ma Tau St) (KD12)	133	05-Jan-18 A	17-May-18 A	
12-1010	Prepare & Submit Trees Proposal	36	05-Jan-18 A	15-Feb-18 A	
12-1011	Approval for Trees Proposal	23	16-Feb-18 A	17-Mar-18 A	
12-1012	Preparation Works	31	18-Mar-18 A	27-Apr-18 A	
12-1020	Tree Felling, T483-T485, T532-T533 (5 no)	16	28-Apr-18 A	17-May-18 A	
12-1030	Tree Protection, T486	10	06-May-18 A	17-May-18 A	
12-1040	KD 12	0		17-May-18 A	
	Vertical Wall in Portion 3B CH 4759-CH 5085 (KD7A)	338	05-Jan-18 A	08-Dec-18 A	
7A-1010	Submission	61	05-Jan-18 A	20-Mar-18 A	
7A-1013	Approval	18	21-Mar-18 A	14-Apr-18 A	
7A-1016	Preparation Works	6	16-Apr-18 A	21-Apr-18 A	
7A-1020	Pipe Piles along North Wall (372 no, 2P/D), 4WF	186	23-Apr-18 A	03-Dec-18 A	
7A-1030	Type IV Sheetpile (52mx32.5m, 25m2/D), 1WF	39	03-Apr-18 A	20-May-18 A	
7A-1040	Demobilisation	17	20-Nov-18 A	08-Dec-18 A	
7A-1070	KD 7A	0		08-Dec-18 A	
	Dumping Permit, Barging Point, Structural Assessment of Marine Side KCFP (KD4B)	319	05-Jan-18 A	19-Nov-18 A	
	Operational Proposal for Ferry Services	180	16-Apr-18 A	19-Nov-18 A	
	Dumping Permit	259	05-Jan-18 A	19-Nov-18 A	
	Structural Assessment of KCFP	259	05-Jan-18 A	19-Nov-18 A	
	Barging Point	319	05-Jan-18 A	19-Nov-18 A	
	Ventilation Adit at Eastern Interface CH 5015-5082 (KD4C)	566	05-Jan-18 A	24-Jul-19 A	
	Piling	243	05-Jan-18 A	31-Oct-18 A	
	ELS	164	01-Jul-18 A	11-Dec-18 A	
	Adit Structure (6 Bays) - 1 Work Front	167	12-Dec-18 A	10-Jul-19 A	
	Backfilling	14	11-Jul-19 A	24-Jul-19 A	
	Depressed Rd, Underpass, KT C&C at Kai Tak Side (KD7B)	1462	05-Jan-18 A	15-Nov-21 A	
	Piling	645	05-Jan-18 A	11-Oct-19 A	
	ELS	618	01-Nov-18 A	11-Jul-20 A	
	Underpass Structure CH 4890-5085 (19 Bays)	794	10-Oct-19 A	29-Oct-21 A	
	Depressed Road Structure CH 4759-CH 4890 (10 Bays)	545	28-Apr-20 A	15-Nov-21 A	
	Kai Tak Cut & Cover Tunnel - 60m (KD7B)	1294	01-Jun-18 A	15-Sep-21 A	
	Outstanding Work for KD7B	33	16-Sep-21 A	11-Oct-21 A	

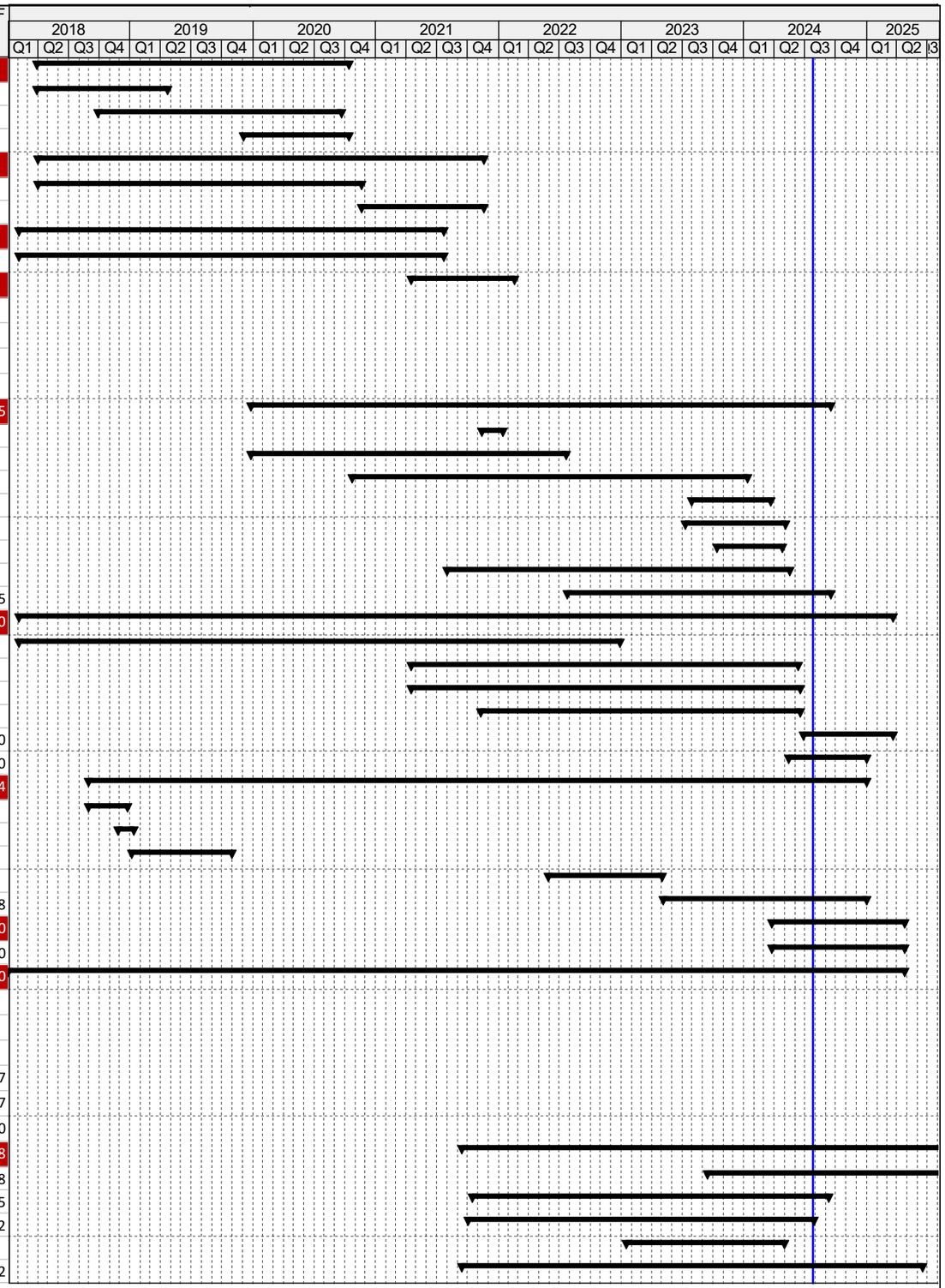


Summary

CONTRACT NO. HY2014/07
CENTRAL KOWLOON ROUTE - KAI TAK WEST
EXECUTIVE SUMMARY PROGRAMME - JUL 2024

Date Date : 25-Jul-24

ID	Activity	Duration	Start	Finish	TF
Cofferdam 2.1 - Access Shaft (KD03)		951	29-Mar-18 A	15-Oct-20 A	
Piling		315	29-Mar-18 A	24-Apr-19 A	
ELS		727	27-Sep-18 A	22-Sep-20 A	
Access Shaft (33m)		334	06-Dec-19 A	15-Oct-20 A	
Landing Steps and Covered Walkway at Ma Tau Kok Side (KD02 & KD10)		1332	03-Apr-18 A	19-Nov-21 A	
Landing Steps and Covered Walkway		784	03-Apr-18 A	20-Nov-20 A	
Establishment Works		370	20-Nov-20 A	19-Nov-21 A	
Cofferdam 1.2 - Marine Tunnel Stage 1 (159m) + Kai Tak C&C Tunnel (60m)		1311	05-Feb-18 A	24-Jul-21 A	
Stage 1 Marine Tunnel (159m) - KD05		1311	05-Feb-18 A	24-Jul-21 A	
Outstanding Works for KD05		120	18-Apr-21 A	19-Feb-22 A	
05-2645	Remove S1, S2 and ELS	99	18-Apr-21 A	08-Sep-21 A	
05-2655	Remove temporary reclamation and seawall reconstruction	99	05-Sep-21 A	19-Feb-22 A	
05-2657	Reinstatement of the remaining seabed within Portion 2A1	4	18-Apr-21 A	19-Feb-22 A	
05-2660	Completion of Outstanding Works for KD 05	0		19-Feb-22 A	
Cofferdam 2.2 - Ma Tau Kok C&C Tunnel (95m) (KD6A)		1729	27-Dec-19 A	17-Sep-24	-145
Preparation Works		30	14-Nov-21 A	15-Jan-22 A	
Piling		905	27-Dec-19 A	21-Jul-22 A	
ELS		1209	24-Oct-20 A	13-Jan-24 A	
Tunnel Structure - Bays MTK-C-B1 to B2 - 1st Work Front		139	01-Aug-23 A	21-Mar-24 A	
Tunnel Structure - Bays MTK-C-B5 to B3 - 2rd Work Front		252	13-Jul-23 A	03-May-24 A	
Tunnel Structure - Bays MTK-C-B8 to B6 - 3rd Work Front		145	14-Oct-23 A	24-Apr-24 A	
Roadwork Inside Tunnel CH 4233-5122		942	01-Aug-21 A	16-May-24 A	
Remaining Works for KD6A		757	25-Jul-22 A	17-Sep-24	-145
Cofferdam 2.3 - Marine Tunnel Stage 2 (212m) (KD06)		2603	05-Feb-18 A	22-Mar-25	0
Preparation Works (not under KD06)		1703	05-Feb-18 A	30-Dec-22 A	
Section 5,6 - Non-Modular Strut		937	18-Apr-21 A	11-Jun-24 A	
Section 7,8,9 - Modular Strut		1067	18-Apr-21 A	17-Jun-24 A	
Section 10 - Modular Strut (Navigation)		943	09-Nov-21 A	17-Jun-24 A	
Outstanding Works for KD06		198	27-Jun-24 A	22-Mar-25	0
Bioremediation Treatment at To Kwa Wan Typoon Shelter		182	15-May-24 A	31-Dec-24	0
U Trough Structures and At-Grade Road Area (KD07)		2314	01-Sep-18 A	31-Dec-24	-24
Piling		115	01-Sep-18 A	24-Dec-18 A	
ELS		39	26-Nov-18 A	12-Jan-19 A	
U Trough Structure (7 Bays) - 1 Work Front - Stage 1		242	07-Jan-19 A	31-Oct-19 A	
Remaining Works after Completion of Works by D3		280	30-May-22 A	05-May-23 A	
Outstanding Works for KD07		493	06-May-23 A	31-Dec-24	-18
Kowloon City Ferry Pier Public Transport Interchange Reinstatement (KD09)		366	25-Mar-24 A	25-Apr-25	-280
Backfilling for Ma Tau Kok C&C Tunnel		366	25-Mar-24 A	25-Apr-25	-280
Preservation and Protection of Trees (KD13)		2668	05-Jan-18 A	25-Apr-25	-280
13-1010	Trees Survey	49	05-Jan-18 A	06-Mar-18 A	
13-1011	Prepare & Submit Proposal	19	07-Mar-18 A	28-Mar-18 A	
13-1012	Approval of Proposal	22	29-Mar-18 A	27-Apr-18 A	
13-1020	Implement measures for Trees Protection	1834	28-Apr-18 A	25-Apr-25	-227
13-1021	Implement measures for Trees Preservation	1834	28-Apr-18 A	25-Apr-25	-227
13-1030	KD 13	0		25-Apr-25	-280
All Remaining Works and Roadwork for Opening to the Public (KD08)		1498	16-Sep-21 A	31-Dec-25	168
Promenade Construction		831	15-Sep-23 A	31-Dec-25	168
Backfilling for Depress Road and Underpass		826	15-Oct-21 A	09-Sep-24	105
Backfill for Kai Tak C&C Tunnel		637	04-Oct-21 A	27-Jul-24	142
Backfilling for At-grade Road		72	17-Jan-23 A	30-Apr-24 A	
Other Works		1028	16-Sep-21 A	17-Jun-25	-152

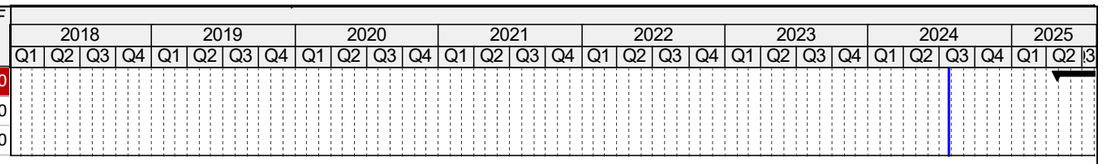


Summary

CONTRACT NO. HY2014/07
CENTRAL KOWLOON ROUTE - KAI TAK WEST
EXECUTIVE SUMMARY PROGRAMME - JUL 2024

Date Date : 25-Jul-24

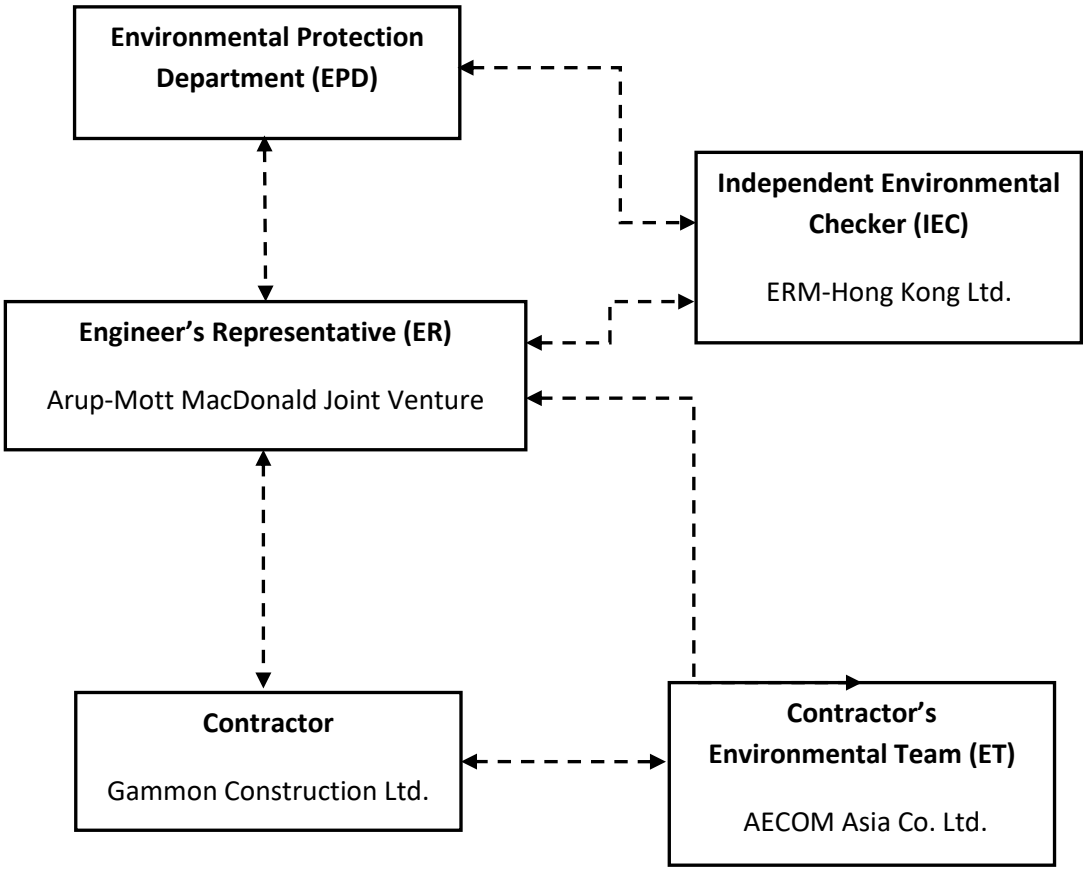
ID	Activity	Duration	Start	Finish	TF
Establishment Works (KD11)		365	26-Apr-25	25-Apr-26	-280
11-1010	Establishment Works (Except in Portion 1E) Period	365	26-Apr-25	25-Apr-26	-280
11-1020	KD 11	0		25-Apr-26	-280



APPENDIX B

Project Organization Structure

Appendix B Project Organization Structure



APPENDIX C

Implementation Schedule of Environmental Mitigation Measures

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Air Quality (Construction Phase)							
S4.3.10	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	V
S4.3.10	D2	● Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.3 L/m^2 to achieve the dust removal efficiency.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	V
S4.3.10	D3	● Proper watering of exposed spoil should be undertaken throughout the construction phase: ● Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; ● Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; ● A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. ● The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; ● Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; ● When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	V V V V V V V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
		● The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; ● Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; ● Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; ● Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; ● Any skip hoist for material transport should be totally enclosed by impervious sheeting; ● Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; ● Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; ● Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and ● Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.					V V V V V V V V V
S4.3.10	D5	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	V
Construction Noise (Airborne)							
S5.4.1	N1	Implement the following good site practices: ● only well-maintained plant should be operated on-site and plant should be serviced	Control construction airborne noise	Contractor	All construction	Construction stage	V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
		regularly during the construction programme; ● machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; ● plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; ● silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; ● mobile plant should be sited as far away from NSRs as possible and practicable; ● material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.			sites		V V V V V
S5.4.1	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	V
S5.4.1	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressors, generators and handheld breakers etc..	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	V
S5.4.1	N4	Use “Quiet plants”	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	V
S5.4.1	N5	Loading/unloading activities should be carried out inside the full enclosure of mucking out points	Reduce the noise levels of loading/unloading activities	Contractor	Mucking out locations	Construction stage	V
S5.4.1	N6	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the	Contractor	All construction sites where practicable	Construction stage	V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
			construction airborne noise				
S5.4.1	N7	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	V
S5.5.2	N8	Install temporary noise barriers along the works area at temporary Kowloon City Ferry Pier Public Transport Interchange	Reduce temporary PTI noise	Contractor	Kowloon City Ferry Pier	Different construction stages	V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Water Quality (Construction Phase)							
S6.9.1.1	W1	In accordance with the Practice Note for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: *Construction Runoff* ● At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. ● The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels 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, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m^3/s a sedimentation basin of $30m^3$ would be required and for a flow rate of 0.5 m^3/s the basin would be 150 m^3. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction. ● All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. ● The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	V V V V V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
		and the reduction of surface sheet flows.					
		● All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas.					V
		● Measures should be taken to minimize the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.					V
		● Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than $50m^3$ 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.					V
		● 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.					V
		● Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are funneling in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.					V
		● 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 sited wheel washing facilities should be provided at every construction site exit where practicable. 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.					V
		● Oil interceptors should be provided in the drainage system downstream of any					V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
		oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. ● Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. ● All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. ● Adopt best management practices ● All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable.					V V V V
S6.9.1.2	W2	*Tunnelling Works and Underground Works* ● Cut-&-cover tunneling work should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. ● Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge ● The wastewater with a high concentration of SS should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater. ● Direct discharge of the bentonite slurry (as a result of D-wall and bored tunneling construction) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.	To minimize construction water quality impact from tunneling works	Contractor	All tunneling portion	Construction stage	V V V V
S6.9.1.3	W3	*Sewage Effluent* ● Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should	To minimize water quality from sewage	Contractor	All construction sites where practicable	Construction stage	V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
		be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.	effluent				
S6.9.1.5	W4	*Groundwater from Potential Contaminated Area:* ● No direct discharge of groundwater from contaminated areas should be adopted. ● A discharge license under the WPCO through the Regional Office of EPD for groundwater results indicated that the groundwater to be generated from the excavation discharge should be applied. Prior to the excavation works within these potentially contaminated areas, the groundwater quality should be reviewed during the process of discharge license application. The compliance to the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-DSS) and the existence of prohibited substance should be confirmed. If the review works would be contaminated, the contaminated groundwater should be either properly treated in compliance with the requirements of the TM-DSS or properly recharged into the ground. ● If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment plant shall meet the requirements as stated in TM-DSS and should be discharged into the foul sewers. ● If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-DSS. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor.	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	V V V V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S6.7.2.1	W5	*Temporary Reclamation* ● During temporary reclamation, regular litter / rubbish clearance and avoidance of illegal discharges within the embayed marine water should be undertaken. ● During temporary reclamation, the perimeter silt curtain should be deployed.	To minimize water quality impact from temporary reclamation	Contractor	Temporary Reclamation	Construction stage	V V
S6.9.1.6	W6	*Accidental spillage* In order to prevent accidental spillage of chemicals, the following is recommended: ● All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains. ● The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. ● Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	V V V
S6.9.2.2	W7	*Dredging Works* The following good practice shall apply for the dredging works: ● Install efficient silt curtains, i.e. at least 75% SS reduction, at the point of seawall dredging to control the dispersion of SS; ● Implement water quality monitoring to ensure effective control of water pollution and recommend additional mitigation measures required; ● The decent speed of grabs should be controlled to minimize the seabed impact and to reduce the volume of over-dredging; ● All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; ● The dredging rates by closed grab dredgers for temporary marine channel outside pipepile wall shall be less than 1,500 m^3/day and 125 m^3/hour (without concurrent dredging with T2 in dry season only) or 750 m^3/day and 62.5 m^3/hour for other	To minimize sediment suspension during dredging	Contractor	Kai Tak Barging Point during dredging works	Dredging period	N/A N/A N/A N/A N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
		conditions respectively. ● Dredging works shall be only for the provision marine channel. No dredging work is required for temporary reclamation; and ● The workfront of temporary reclamation shall be surrounded by cofferdams and the associated excavation and backfilling works for temporary reclamation shall have no contact with seawater.					N/A N/A
S6.9.2.2	W8	● While WSR 2 (Planned Kai Tak Cooling Water Intake). is a planned receiver, the project proponent shall liaise with the project proponent of District Cooling System (DCS) for Kai Tak Development on the implementation programme prior to wet season dredging. In case the DCS would be operated during the dredging period of CKR, additional silt screen to the cooling water intake shall be provided to WSR 2. The following specific mitigation measures shall apply for the dredging works: ● In dry season, the dredging rate shall be less than 1500m^3/day if no concurrent projects. ● In all other scenario, the dredging rate shall be less than 750m^3/day ● Dredging works shall be only for the provision marine channel. No dredging work is required for temporary reclamation. ● The workfront of temporary reclamation shall be surrounded by cofferdams and the associated excavation and backfilling works for temporary reclamation shall have no contact with seawater. ● In case the DCS would be operated during the dredging period of CKR, silt screen shall be provided for WSR2.	To minimize sediment suspension during dredging if the District Cooling System for Kai Tak Development would be operated in the same period	Contractor	Kai Tak Barging Point during dredging works	Dredging period	N/A V V V N/A N/A
S6.9.2	W9	Handling of Dredged Sediment / Barging Operation: ● All barges should be fitted with tight bottom seals to prevent leakage of materials during transport; ● Barges or hoppers should not be filled to a level that will cause overflow of materials or polluted water during loading or transportation; ● All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; and ● Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water.	To minimize and mitigate the water disturbance during dredged sediment handling/barging operation	Contractor	All land- based site and proposed Kwai Chung barging point	Construction stage	N/A V V V

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		• Mitigation measures for land-based activities as outlined above should be applied to minimise water quality impacts from site runoff and open stockpile spoils at the proposed barging facilities where appropriate.					N/A
S6.9	W10	Implement a marine water quality monitoring programme	Monitor marine water quality prior to and during dredging period	Contractor	At identified monitoring location	Prior to and during dredging period	N/A

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Waste Management (Construction Waste)							
S7.4.1	WM1	*On-site sorting of C&D material* ● Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	V
S7.5.1	WM2	*Construction and Demolition Material* ● Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; ● Carry out on-site sorting; ● Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; ● Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; ● Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and ● Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction.	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	V V V V V V
S7.5.1	WM3	*C&D Waste* ● Standard formwork or pre-fabrication should be used as far as practicable in order to	Good site practice to minimize the waste	Contractor	All construction	Construction stage	V

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		minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. ● The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.	generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal		sites		V
S7.5.1	WM5	*Land-based and Marine-based Sediment* ● All construction plant and equipment shall be designed and maintained to minimize the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited in the locations other than designated location; ● All vessels shall be sized such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; ● Before moving the vessels which are used for transporting dredged material, excess material shall be cleaned from the decks and exposed fittings of vessels and the excess materials shall never be dumped into the sea except at the approved locations; ● Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action. ● The Contractors shall monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The Contractor shall keep and produce logs and other records to demonstrate compliance and that journeys are consistent with designated locations and copies of such records shall be submitted to the engineers; ● The Contractors shall comply with the conditions in the dumping licence. ● All bottom dumping vessels (Hopper barges) shall be fitted with tight fittings seals to their bottom openings to prevent leakage of material; ● The material shall be placed into the disposal pit by bottom dumping; ● Contaminated marine mud shall be transported by spit barge of not less than 750m^3 capacity and capable of rapid opening and discharge at the disposal site;	To control pollution due to marine sediment	Contractor	Along CKR alignment	Construction Stage	N/A

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		● Discharge shall be undertaken rapidly and the hoppers shall be closed immediately. Material adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site. ● For Type 3 special disposal treatment, sealing of contaminant with geosynthetic containment before dropping into designated mud pit would be a possible arrangement. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping at the disposal site, thereby fulfilling the requirements for fully confined mud disposal.					
S7.5.1	WM6	*Chemical Waste* ● Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. ● Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. ● The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. ● Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	V V @ V

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S7.5.1	WM7	*General Refuse* ● General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. ● A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. ● Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. ● Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	@ V V V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Land Contamination							
S8.10, S8.12 & Appendix 8.4	LC1	Land contamination investigation works (including field works and laboratory testing at the Kowloon City Ferry Pier Public Transport Interchange (KCFP-PTI) and the To Kwa Wan Vehicle Examination Centre (TKW-VEC) were carried out from 14 April 2018 to 2 January 2019. In order to minimise the potentially adverse environmental impacts arising from the handling of potentially contaminated materials, the following environmental mitigation measures are proposed during the course of soil excavation, stockpiling and backfilling works: ● Excavation profiles must be properly designed and executed. ● Stockpiling site(s) shall be lined with impermeable sheeting and bunded. Stockpiles shall be fully covered by impermeable sheeting to reduce dust emission. ● Excavation and stockpiling should be carried out during dry season as far as possible to minimise potentially contaminated runoffs from the Concerned Soil. ● The truck transferring Concerned Soil shall be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the truck. ● Temporary fencing or warning ribbons will be provided to the boundary of excavation, slope crest and temporarily stockpiled areas. Where necessary, the exposed areas should be temporarily covered with impermeable sheeting during heavy rainstorm.	Minimize the potentially adverse environmental impacts arising from the handling of potentially contaminated materials	Contractor	EBH1, EBH2 and EBH3	Commencement of construction works at the Kowloon City Ferry Pier Public Transport Interchange (PTI) (for EBH1 & EBH2) and the works area adjacent to the To Kwa Wan Vehicle Examination Centre (for EBH3)	V V V V V

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Landscape & Visual							
S10.10.1 Table 10.11	LV3	● Good Site Management Large temporary stockpiles of excavated material shall be covered with unobtrusive sheeting to prevent dust and dirt spreading to adjacent landscape areas and vegetation, and to create a neat and tidy visual appearance. Construction plant and building material shall be orderly and carefully stored in order to create a neat and tidy visual appearance.	Minimize visual impact	Contractor	Within Project Site	Construction Phase	V
S10.10.1 Table 10.11	LV4	● Screen Hoarding Decorative screen hoarding should be erected to screen the public from the construction area. It should be designed to be compatible with the existing urban context.	Minimize visual impact	Contractor	Within Project Site	Construction Phase	V
S10.10.1 Table 10.11	LV5	● Lighting Control during Construction All lighting in the construction site shall be carefully controlled to minimize light pollution and night-time glare to nearby residencies and GIC. The contractor shall consider other security measures, which shall minimize the visual impacts.	Minimize visual impact	Contractor	Within Project Site	Construction Phase	V
S10.10.1 Table 10.11	LV6	● Erosion Control The potential for soil erosion shall be reduced by minimizing the extent of vegetation disturbance on site and by providing a protective cover over newly exposed soil.	Minimize landscape impact	Contractor	Within Project Site	Construction Phase	V
S10.10.1 Table 10.11	LV7	● Tree Protection & Preservation Carefully protected during construction. Tree protection measures will be detailed at the Tree Removal Application stage and plans submitted to the relevant Government Department for approval in due course in accordance with ETWB TC no. 3/2006.	Minimize landscape and visual impact	Contractor	Within Project Site	Design and Construction Phase	V
S10.10.1 Table 10.11	LV9	● Compensatory Planting For trees unavoidably affected by the Project that have to be removed, where practical transplantation will be chosen as the top priority method of removal but if this is not possible or practical compensatory planting will be provided for trees unavoidably felled. All felled trees shall be compensated for by planting trees to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Felling Application process under ETWBTC 3/2006. Compensatory tree planting may be incorporated into public open spaces and along roadside amenity areas affected by the construction works and therefore be part of the bigger wider planting plans. Onsite compensation planting is preferred but if necessary,	Minimize landscape and visual impact	Contractor	Within Project Site and designated off-site locations	Construction Phase	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
		additional receptor sites outside the Works Area shall be agreed separately with Government during the Tree Felling Application process.					
S10.10.1 Table 10.11	LV10	● Screen Planting Tall screen/buffer trees, shrubs and climbers should be planted, in so far as is possible, to soften and screen proposed structures such as roads and central strip, vertical edges and buildings and to enhance streetscape greening effect where appropriate. Indiscriminate use of trees for screening must be avoided and the principle of 'right tree for the right place' must be followed. This detail will be provided at the Detailed Design stage. This measure may additionally form part of the compensatory planting and will improve and create a pleasant pedestrian environment.	Minimize visual impact and also enhance landscape.	Contractor	Within Project Site	Construction Phase	N/A
S10.10.1 Table 10.11	LV11	● Green Roof Roof greening will be established on ventilation and administration buildings to reduce exposure to untreated concrete surfaces and particularly mitigate visual impact to VSRs at high levels.	Minimize landscape and visual impact	Contractor	Within Project Site	Construction Phase	N/A
S10.10.1 Table 10.11	LV12	● Reinstatement All works areas, excavated areas and disturbed areas for tunnel construction and temporary road diversion or any other proposed works shall be reinstated to former conditions or better, with reasonable landscape treatment and to the satisfaction of the relevant Government departments. (Specific mitigation for disturbance to public open space is detailed separately under LV14)	Minimize landscape impact	Contractor	Within Project Site	Construction Phase	N/A
S10.10.1 Table 10.11	LV14	● Landscape enhancement Implement a comprehensive landscape plan to maximize the greening opportunity and create a unique landscape for the project to blend in with the surrounding, including in re-provisioned areas. In particular: - landscape enhancement of re-provisioned Public Transport Interchange; - landscape deck on tunnel portals; - viaduct planters for trailer planting; - vertical greening of piers and walls with climbers or trailer planting; - roadside planting i.e. planting along central dividers and on road islands e.g. in the middle of roundabouts. (Roadside planting i.e. at the road edge and not in the central divider or road island, and vertical greening may be considered part of Screen Planting). - Purpose-built maintenance access without temporary traffic arrangement must be	Minimize landscape and visual impact	Contractor	Along tunnel alignment	Construction phase	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
		provided and detailed design of landscape decks and planting, including details of maintenance access locations, will be sent to maintenance and management parties for endorsement and ensures these mitigation measures are feasible.					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Cultural Heritage Impact (Construction and Operational Phase)							
S11.4.4	CH1	● The contractor should be alerted during the construction on the possibility of locating archaeological remains and as a precautionary measure, AMO shall be informed immediately in case of discovery of antiquities or supposed antiquities in the subject sites.	To preserve any cultural heritage items which may be removed and damaged by the excavation.	Contractor	During construction works for cut and cover tunnels	During the construction phase	N/A
S11.6 para 3	CH2	● The dredging contractor should be alerted during the construction on the possibility of locating archaeological remains, such as cannon and AMO shall be informed immediately in case of discovery of antiquities or supposed antiquities in the subject areas.	To preserve any cultural heritage items which may be removed and damaged by the dredging.	Contractor	During construction of underwater tunnel (north of To Kwa Wan Typhoon Shelter)	During the construction phase	N/A
S12.6.1, Table 12.2	CH8	● A monitoring system for settlement, vibration and tilting will be determined and implemented pending determination of the future grading. A monitoring proposal will be submitted to AMO before commencement of work if a historic building grade is accorded.	Protect the structure from damage from construction works	Contractor	Kowloon City Ferry Pier (CKR-13)	During the construction phase	N/A
S12.6.1, Table 12.2	CH9	● No mitigation is required at present. If the public pier is granted Grade 1, Grade 2 or Grade 3 status, the mitigation will be revised to adhere to the requirements for protective measures for Graded Historic Buildings	To be determined	Contractor	Ma Tau Kok Public Pier (CKR-16)	During the construction phase	N/A
S12.6.1, Table 12.2	CH10	● A monitoring system for settlement, vibration and tilting will be determined and implemented pending determination of the future grading. A monitoring proposal will be submitted to AMO before commencement of work if a historic building grade is accorded.	Protect the structure from damage from construction works	Contractor	The Kowloon City Vehicular Ferry Pier (CKR-17)	During the construction phase	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
EM&A Project							
S13.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	Highways Department	All construction sites	Construction stage	V
S13.2 –13.4	EM2	1) An Environmental Team needs to be employed as per the EM&A Manual. 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	Perform environmental monitoring & auditing	Highways Department / Contractor	All construction sites	Construction stage	V V V

Legends:

V = implemented;

X = not implemented;

@ = partially implemented;

N/A = not applicable

APPENDIX D

Summary of Action and Limit Levels

Appendix D – Summary of Action and Limit Levels

Table 1 Action and Limit Levels for 24-hour TSP

ID	Location	Action Level	Limit Level
E-A14a	Block B of Merit Industrial Centre	197.3 $\mu g/m^3$	260 $\mu g/m^3$

Table 2 Action and Limit Levels for 1-hour TSP

ID	Location	Action Level	Limit Level
E-A14a	Block B of Merit Industrial Centre	302.4 $\mu g/m^3$	500 $\mu g/m^3$

Table 3 Action and Limit Levels for Construction Noise (0700 – 1900 hrs of normal weekdays)

ID	Location	Action Level	Limit Level
E-N12a	19 Hing Yan Street	When one documented complaint is received	75 dB(A)
E-N21a	Block B of Merit Industrial Centre	When one documented complaint is received	75 dB(A)

Table 4 Derived Action and Limit Levels for Water Quality

Parameters	Action Level	Limit Level
Dissolved Oxygen (DO) in mg/L(1)	Surface & Middle: **4.03** (5th percentile of baseline data for surface and middle layer) Bottom: **3.94** (5th percentile of baseline data for bottom layer)	Surface & Middle: **3.88** (1st percentile of baseline data for surface and middle layer) Bottom: **2.00**
Suspended Solids (SS) in mg/L(2)	**13.80** (95th percentile of baseline data) or 120% of upstream control station's SS at the same tide of the same day	**18.70** (99th percentile of baseline data) or 130% of upstream control station's SS at the same tide of the same day
Turbidity in NTU(2)	**7.00** (95th percentile of baseline data) or 120% of upstream control station's Turbidity at the same tide of the same day	**8.40** (99th percentile of baseline data or 130% of upstream control station's Turbidity at the same tide of the same day
Copper in µg/L(2)	**2.00** (95th percentile of baseline data) or 120% of upstream control station's nutrient level at the same tide of the same day	**3.00** (99th percentile of baseline data) or 130% of upstream control station's nutrient level at the same tide of the same day or whichever is the less
Total PAH in µg/L(2)	**1.60** (95th percentile of baseline data) or 120% of upstream control station's nutrient level at the same tide of the same day	**1.60** (99th percentile of baseline data) or 130% of upstream control station's nutrient level at the same tide of the same day or whichever is the less

Note: 1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.

2. For turbidity, SS, Copper and Total PAH, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

APPENDIX E

Calibration Certificates of Equipments

AECOM Asia Company Limited
Tisch TSP Mass Flow Controlled High Volume Air Sampler
Field Calibration Report

Station	Block B, Merit Industrial Centre (E-A14a)	Operator:	Shum Kam Yuen
Cal. Date:	27/6/2024	Next Due Date:	27/8/2024
Model No.:	TE-5170	Serial No.	10280
Equipment No.:	A-001-15T		

Ambient Condition			
Temperature, Ta (K)	306.0	Pressure, Pa (mmHg)	766.8

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	2.02014	Intercept, bc	-0.04198
Last Calibration Date:	15-Jan-24	**mc x Qstd + bc = [H x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	16-Jan-25				

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (m^3/min) **X - axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	7.0	2.62	1.32	45.0	44.61
13	6.0	2.43	1.22	40.0	39.65
10	5.0	2.22	1.12	37.0	36.68
7	4.0	1.98	1.00	32.0	31.72
5	3.1	1.75	0.88	26.0	25.77

By Linear Regression of Y on X

Slope , mw = **41.9091** **Intercept, bw =** **-10.8052**

Correlation Coefficient* = **0.9963**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

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

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

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]$^{1/2}$= **44.06**

Remarks:

QC Reviewer: WS CHAN Signature: Date: 27/6/2024

TISCH Environmental

RECALIBRATION DUE DATE:
January 15, 2025

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	January 15, 2024	**Rootsmeter S/N:** 438320	**Ta:** 293	°K
Operator:	Jim Tisch		**Pa:** 755.9	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **0843**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.3890	3.2	2.00
2	3	4	1	0.9890	6.4	4.00
3	5	6	1	0.8790	8.0	5.00
4	7	8	1	0.8430	8.8	5.50
5	9	10	1	0.6960	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0073	0.7252	1.4224	0.9958	0.7169	0.8805
1.0030	1.0142	2.0116	0.9915	1.0026	1.2452
1.0009	1.1387	2.2490	0.9894	1.1256	1.3921
0.9998	1.1860	2.3588	0.9884	1.1724	1.4601
0.9945	1.4288	2.8448	0.9831	1.4125	1.7609
QSTD	**m=**	**2.02014**	**QA**	**m=**	**1.26498**
	b=	**-0.04198**		**b=**	**-0.02599**
	r=	**0.99994**		**r=**	**0.99994**

Calculations

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

For subsequent flow rate calculations:

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

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

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

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

RECALIBRATION

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

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145 South Miami Avenue
Village of Cleves, OH 45002

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

EQUIPMENT CALIBRATION RECORD

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3B
Equipment No.:	A.005.16a
Sensitivity Adjustment Scale Setting:	521 CPM
Operator:	WS CHAN

Standard Equimment

Equipment:	High Volume Sampler
Venue:	Ma Wan Chung Village
Model No.:	TE-5170
Serial No.:	3383
Last Calibration Date:	4-Aug-23

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): 521 CPM
Sensitivity Adjustment Scale Setting (After Calibration): 521 CPM

Hour	Date (dd/mm/yy)	Time	Ambient Condition		Concentration① (mg/m3) Y-axis	Total Count②	Count/ Minute③ X-axis
			Temp (°C)	R.H.(%)			
1	15/08/23	9:00-10:00	32.0	80	0.038	1569	26.15
2	15/08/23	11:30-12:30	32.0	80	0.035	1335	22.25
3	15/08/23	13:50-14:50	32.0	80	0.041	1744	29.07

Note: ① Monitoring data was measured by High Volume Sampler
② Total Count was logged by Laser Dust Monitor
③ Count/minute was calculated by (Total Count/60)

By Linear Regression of Y on X
Slope (K-factor): 0.0015
Correlation coefficient: 0.9981

Validity of Calibration Record: 15-Aug-24

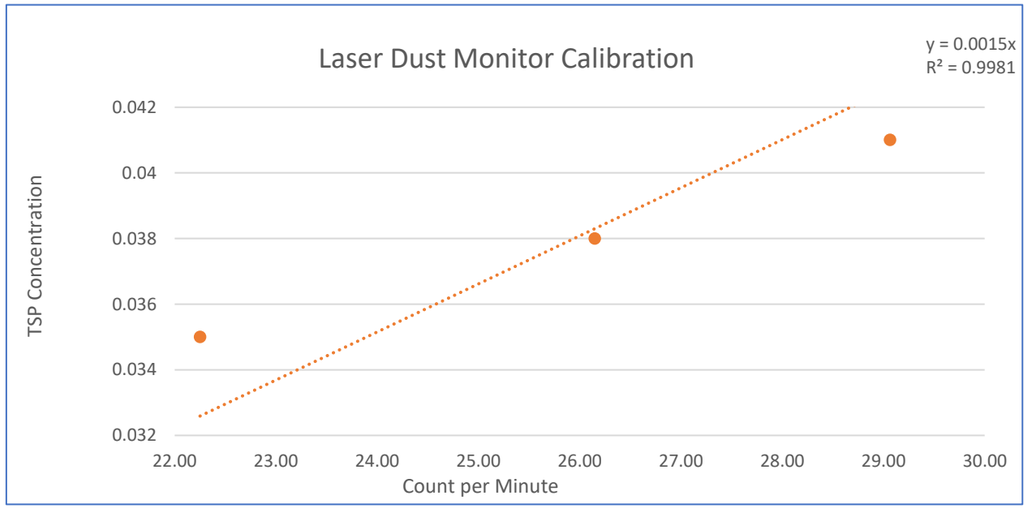
Remarks:

QC Reviewer: Y.W. Fung Signature: Date: 15-Aug-23

Laser Dust Monitor Calibration

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3B
Equipment No.:	A.005.16a
Sensitivity Adjustment Scale Setting:	521 CPM

Hour	Count/Minute X-axis	Concentration (mg/m3) Y-axis
1	26.15	0.038
2	22.25	0.035
3	29.07	0.041



Prepare by: WS CHAN
Date 15-Aug-23

EQUIPMENT CALIBRATION RECORD

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3
Equipment No.:	A.005.07a
Sensitivity Adjustment Scale Setting:	557CPM
Operator:	WS CHAN

Standard Equimment

Equipment:	High Volume Sampler
Venue:	Ma Wan Chung Village
Model No.:	TE-5170
Serial No.:	3383
Last Calibration Date:	4-Aug-23

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): 557 CPM
Sensitivity Adjustment Scale Setting (After Calibration): 557 CPM

Hour	Date (dd/mm/yy)	Time	Ambient Condition		Concentration① (mg/m3) Y-axis	Total Count②	Count/ Minute③ X-axis
			Temp (°C)	R.H.(%)			
1	15/08/23	9:00-10:00	32.0	80	0.038	1542	25.70
2	15/08/23	11:30-12:30	32.0	80	0.035	1355	22.58
3	15/08/23	13:50-14:50	32.0	80	0.041	1792	29.87

Note: ① Monitoring data was measured by High Volume Sampler
② Total Count was logged by Laser Dust Monitor
③ Count/minute was calculated by (Total Count/60)

By Linear Regression of Y on X
Slope (K-factor): 0.0015
Correlation coefficient: 0.9975

Validity of Calibration Record: 15-Aug-24

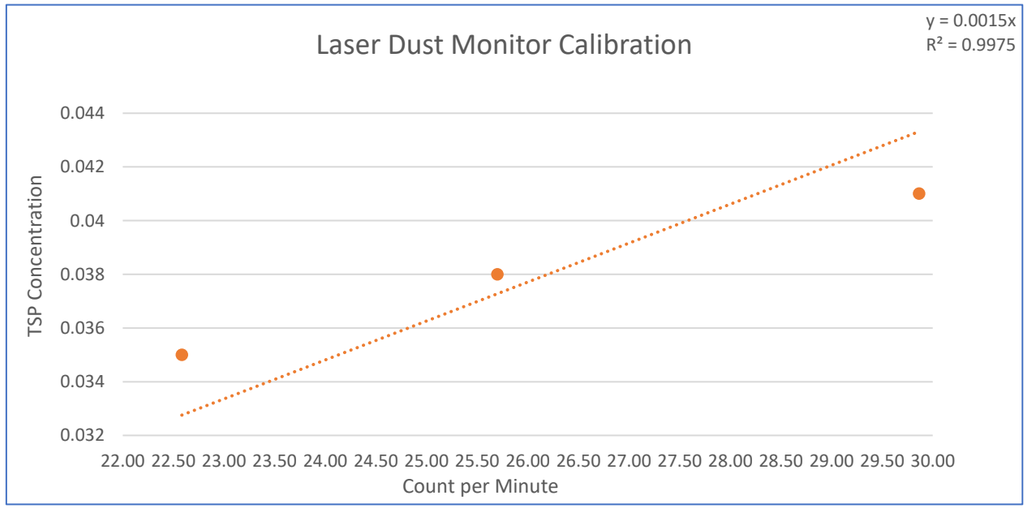
Remarks:

QC Reviewer: Y.W. Fung Signature: Date: 15-Aug-23

Laser Dust Monitor Calibration

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3
Equipment No.:	A.005.07a
Sensitivity Adjustment Scale Setting:	557 CPM

Hour	Count/Minute X-axis	Concentration (mg/m3) Y-axis
1	25.70	0.0380
2	22.58	0.0350
3	29.87	0.0410



Prepare by: WS CHAN
Date 15-Aug-23

EQUIPMENT CALIBRATION RECORD

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3
Equipment No.:	A.005.09a
Sensitivity Adjustment Scale Setting:	797 CPM
Operator:	WS CHAN

Standard Equimment

Equipment:	High Volume Sampler
Venue:	Ma Wan Chung Village
Model No.:	TE-5170
Serial No.:	3383
Last Calibration Date:	4-Aug-23

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): 797 CPM
Sensitivity Adjustment Scale Setting (After Calibration): 797 CPM

Hour	Date (dd/mm/yy)	Time	Ambient Condition		Concentration① (mg/m3) Y-axis	Total Count②	Count/ Minute③ X-axis
			Temp (°C)	R.H.(%)			
1	15/08/23	9:00-10:00	32.0	80	0.038	1580	26.33
2	15/08/23	11:30-12:30	32.0	80	0.035	1360	22.67
3	15/08/23	13:50-14:50	32.0	80	0.041	1752	29.20

Note: ① Monitoring data was measured by High Volume Sampler
② Total Count was logged by Laser Dust Monitor
③ Count/minute was calculated by (Total Count/60)

By Linear Regression of Y on X
Slope (K-factor): 0.0015
Correlation coefficient: 0.9985

Validity of Calibration Record: 15-Aug-24

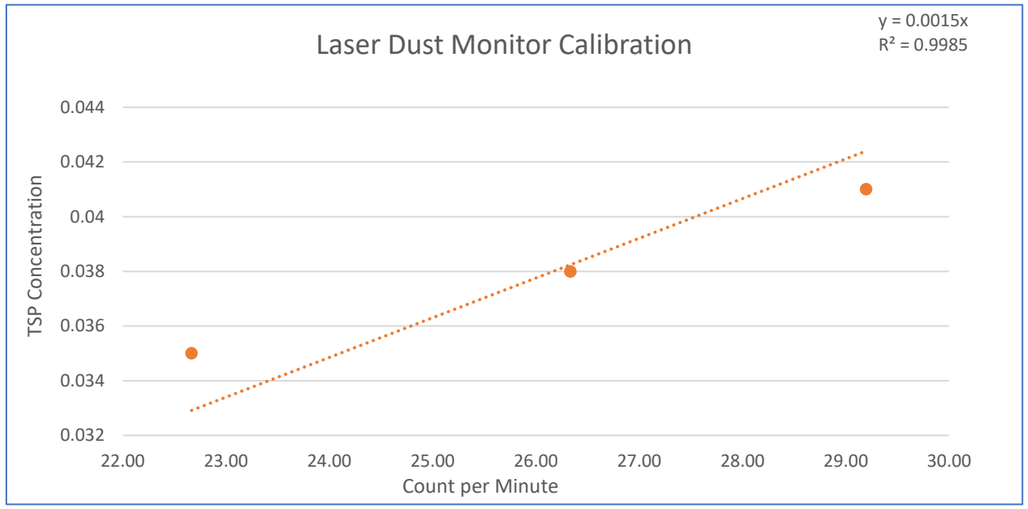
Remarks:

QC Reviewer: Y.W. Fung Signature: Date: 15-Aug-23

Laser Dust Monitor Calibration

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3
Equipment No.:	A.005.09a
Sensitivity Adjustment Scale Setting:	797 CPM

Hour	Count/Minute X-axis	Concentration (mg/m3) Y-axis
1	26.33	0.0380
2	22.67	0.0350
3	29.20	0.0410



Prepare by: WS CHAN
Date 15-Aug-23

EQUIPMENT CALIBRATION RECORD

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3
Equipment No.:	A.005.10a
Sensitivity Adjustment Scale Setting:	753 CPM
Operator:	WS CHAN

Standard Equimment

Equipment:	High Volume Sampler
Venue:	Ma Wan Chung Village
Model No.:	TE-5170
Serial No.:	3383
Last Calibration Date:	4-Aug-23

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): 753 CPM
Sensitivity Adjustment Scale Setting (After Calibration): 753 CPM

Hour	Date (dd/mm/yy)	Time	Ambient Condition		Concentration① (mg/m3) Y-axis	Total Count②	Count/ Minute③ X-axis
			Temp (°C)	R.H.(%)			
1	15/08/23	9:00-10:00	32.0	80	0.0380	1598	26.63
2	15/08/23	11:30-12:30	32.0	80	0.0350	1322	22.03
3	15/08/23	13:50-14:50	32.0	80	0.0410	1713	28.55

Note: ① Monitoring data was measured by High Volume Sampler
② Total Count was logged by Laser Dust Monitor
③ Count/minute was calculated by (Total Count/60)

By Linear Regression of Y on X
Slope (K-factor): 0.0015
Correlation coefficient: 0.9979

Validity of Calibration Record: 15-Aug-24

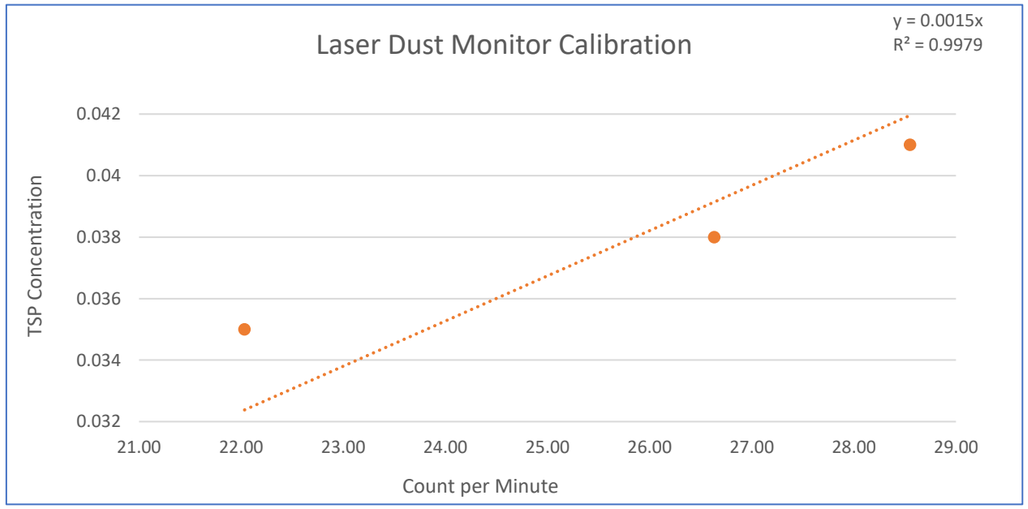
Remarks:

QC Reviewer: Y.W. Fung Signature: Date: 15-Aug-23

Laser Dust Monitor Calibration

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3
Equipment No.:	A.005.10a
Sensitivity Adjustment Scale Setting:	753 CPM

Hour	Count/Minute X-axis	Concentration (mg/m3) Y-axis
1	26.63	0.0380
2	22.03	0.0350
3	28.55	0.0410



Prepare by: WS CHAN
Date 15-Aug-23

EQUIPMENT CALIBRATION RECORD

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3
Equipment No.:	A.005.11a
Sensitivity Adjustment Scale Setting:	799 CPM
Operator:	WS CHAN

Standard Equimment

Equipment:	High Volume Sampler
Venue:	Ma Wan Chung Village
Model No.:	TE-5170
Serial No.:	3383
Last Calibration Date:	4-Aug-23

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): 799 CPM
Sensitivity Adjustment Scale Setting (After Calibration): 799 CPM

Hour	Date (dd/mm/yy)	Time	Ambient Condition		Concentration① (mg/m3) Y-axis	Total Count②	Count/ Minute③ X-axis
			Temp (°C)	R.H.(%)			
1	15/08/23	9:00-10:00	32.0	80	0.038	1536	25.60
2	15/08/23	11:30-12:30	32.0	80	0.035	1321	22.02
3	15/08/23	13:50-14:50	32.0	80	0.041	1721	28.68

Note: ① Monitoring data was measured by High Volume Sampler
② Total Count was logged by Laser Dust Monitor
③ Count/minute was calculated by (Total Count/60)

By Linear Regression of Y on X
Slope (K-factor): 0.0015
Correlation coefficient: 0.9982

Validity of Calibration Record: 15-Aug-24

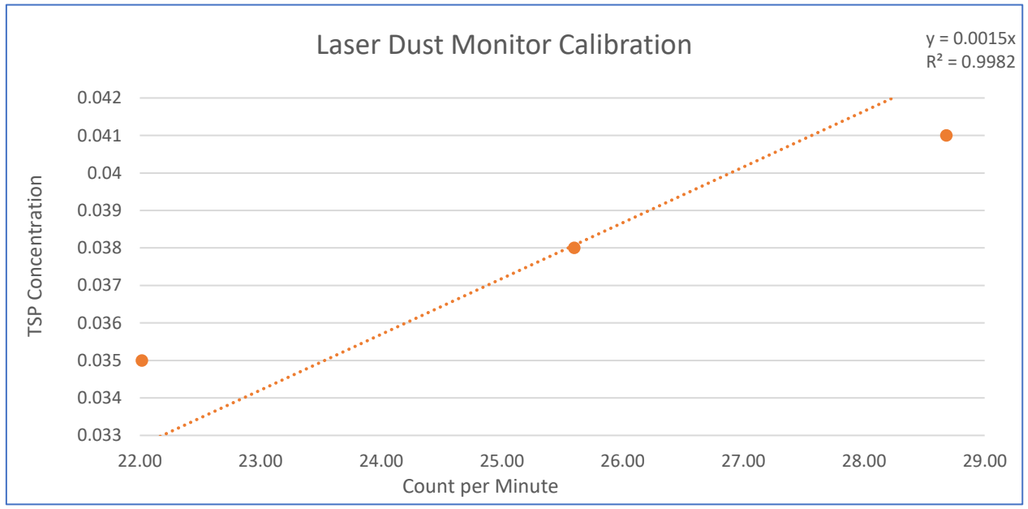
Remarks:

QC Reviewer: Y.W. Fung Signature: Date: 15-Aug-23

Laser Dust Monitor Calibration

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3
Equipment No.:	A.005.11a
Sensitivity Adjustment Scale Setting:	799 CPM

Hour	Count/Minute X-axis	Concentration (mg/m3) Y-axis
1	25.60	0.0380
2	22.02	0.0350
3	28.68	0.0410



Prepare by: WS CHAN
Date 15-Aug-23

EQUIPMENT CALIBRATION RECORD

Type: Laser Dust Monitor
Manufacturer/Brand: SIBATA
Model No.: LD-3B
Equipment No.: A.005.13a
Sensitivity Adjustment Scale Setting: 643 CPM

Operator: WS CHAN

Standard Equimment

Equipment: High Volume Sampler
Venue: Ma Wan Chung Village
Model No.: TE-5170
Serial No.: 3383
Last Calibration Date: 4-Aug-23

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): 643 CPM
Sensitivity Adjustment Scale Setting (After Calibration): 643 CPM

Hour	Date (dd/mm/yy)	Time	Ambient Condition		Concentration① (mg/m3) Y-axis	Total Count②	Count/ Minute③ X-axis
			Temp (°C)	R.H.(%)			
1	15/08/23	9:00-10:00	32.0	80	0.038	1512	25.20
2	15/08/23	11:30-12:30	32.0	80	0.035	1338	22.30
3	15/08/23	13:50-14:50	32.0	80	0.041	1703	28.38

Note: ① Monitoring data was measured by High Volume Sampler
② Total Count was logged by Laser Dust Monitor
③ Count/minute was calculated by (Total Count/60)

By Linear Regression of Y on X
Slope (K-factor): 0.0015
Correlation coefficient: 0.9989

Validity of Calibration Record: 15-Aug-24

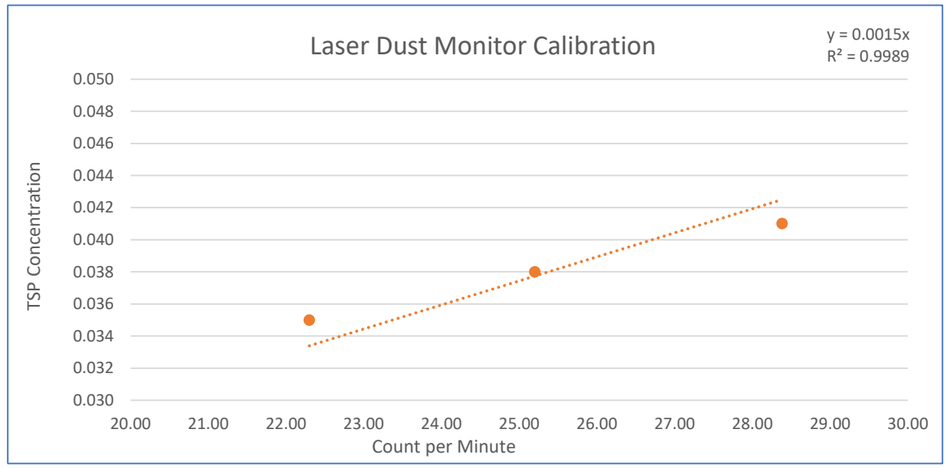
Remarks:

QC Reviewer: Y.W. Fung Signature: Date: 15-Aug-23

Laser Dust Monitor Calibration

Type: Laser Dust Monitor
Manufacturer/Brand: SIBATA
Model No.: LD-3B
Equipment No.: A.005.13a
Sensitivity Adjustment Scale Setting: 643 CPM

Hour	Count/Minute X-axis	Concentration (mg/m3) Y-axis
	0.00	0.0000
1	25.20	0.0380
2	22.30	0.0350
3	28.38	0.0410



Prepare by: WS CHAN
Date 15-Aug-23

綜合試驗有限公司
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Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

CERTIFICATE OF CALIBRATION

Certificate No.: 23CA1109 04-02 **Page:** 1 **of** 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: B & K
Type/Model No.: 4231
Serial/Equipment No.: 3014024 / N004.04
Adaptors used: -

Item submitted by

Curstomer: AECOM ASIA CO LIMITED
Address of Customer: -
Request No.: -
Date of receipt: 09-Nov-2023

Date of test: 13-Nov-2023

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	3257888	15-Aug-2024	SCL
Preamplifier	B&K 2673	3353200	13-Jun-2024	CEPREI
Measuring amplifier	B&K 2610	2346941	13-Jun-2024	CEPREI
Signal generator	DS 360	33873	31-Jan-2024	CEPREI
Digital multi-meter	34401A	US36087050	01-Jun-2024	CEPREI
Audio analyzer	8903B	GB41300350	13-Jun-2024	CEPREI
Universal counter	53132A	MY40003662	07-Jun-2024	CEPREI

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on **page 2** of this certificate.

Approved Signatory: Feng Junqi **Date:** 14-Nov-2023 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 23CA1109 04-02 **Page:** 2 **of** 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	94.08	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz **STF = 0.017 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz **Actual Frequency = 1000.0 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz **TND = 0.8 %**

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

\- End -

Calibrated by: Fung Chi Yip **Date:** 13-Nov-2023 **Checked by:** Chan Yuk Yiu **Date:** 14-Nov-2023

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

HKAS has accredited this laboratory (Reg. No. HOKLAS 028) under HOKLAS for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are traceable to the International System of Units (SI) or recognised measurement standards. The results relate only to the item(s) calibrated. This certificate shall not be reproduced except in full without approval of the laboratory.

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CERTIFICATE OF CALIBRATION

Certificate No.: 24CA0229 06-02 **Page:** 1 **of** 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Rion Co., Ltd.
Type/Model No.: NC-74
Serial/Equipment No.: 34246490 / N.004.10
Adaptors used: -

Item submitted by

Curstomer: AECOM ASIA CO LIMITED
Address of Customer: -
Request No.: -
Date of receipt: 29-Feb-2024

Date of test: 04-Mar-2024

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	3257888	15-Aug-2024	SCL
Preamplifier	B&K 2673	3353200	13-Jun-2024	CEPREI
Measuring amplifier	B&K 2610	2346941	13-Jun-2024	CEPREI
Signal generator	DS 360	61227	28-Jun-2024	CEPREI
Digital multi-meter	34401A	US36087050	01-Jun-2024	CEPREI
Audio analyzer	8903B	GB41300350	13-Jun-2024	CEPREI
Universal counter	53132A	MY40003662	07-Jun-2024	CEPREI

Ambient conditions

Temperature: 20 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

Details of the performed measurements are presented on **page 2** of this certificate.

Approved Signatory: Feng Junqi **Date:** 05-Mar-2024 **Company Chop:**

SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 24CA0229 06-02 **Page:** 2 **of** 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	94.43	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz **STF = 0.009 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz **Actual Frequency = 1002.1**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz **TND = 1.8 %**

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

\- End -

Calibrated by: Fung Chi Yip **Date:** 04-Mar-2024 **Checked by:** Chan Yuk Yiu **Date:** 05-Mar-2024

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

HKAS has accredited this laboratory (Reg. No. HOKLAS 028) under HOKLAS for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are traceable to the International System of Units (SI) or recognised measurement standards. The results relate only to the item(s) calibrated. This certificate shall not be reproduced except in full without approval of the laboratory.

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CERTIFICATE OF CALIBRATION

Certificate No.: 23CA1030 01-03 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	MVI
Type/Model No.:	CAL21
Serial/Equipment No.:	34113610(2011) / N.004.11
Adaptors used:	Yes (BAC21)

Item submitted by

Curstomer:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	30-Oct-2023

Date of test: 01-Nov-2023

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	3257888	15-Aug-2024	SCL
Preamplifier	B&K 2673	3353200	13-Jun-2024	CEPREI
Measuring amplifier	B&K 2610	2346941	13-Jun-2024	CEPREI
Signal generator	DS 360	33873	31-Jan-2024	CEPREI
Digital multi-meter	34401A	US36087050	01-Jun-2024	CEPREI
Audio analyzer	8903B	GB41300350	13-Jun-2024	CEPREI
Universal counter	53132A	MY40003662	07-Jun-2024	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.

2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.

3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on **page 2** of this certificate.

Approved Signatory: Feng Junqi **Date:** 02-Nov-2023 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.

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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 23CA1030 01-03 **Page:** 2 **of** 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	94.14	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz **STF = 0.013 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz **Actual Frequency = 1002.4 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz **TND = 1.7 %**

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

\- End -

Calibrated by: Fung Chi Yip **Date:** 01-Nov-2023 **Checked by:** Chan Yuk Yiu **Date:** 02-Nov-2023

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

HKAS has accredited this laboratory (Reg. No. HOKLAS 028) under HOKLAS for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are traceable to the International System of Units (SI) or recognised measurement standards. The results relate only to the item(s) calibrated. This certificate shall not be reproduced except in full without approval of the laboratory.

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Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

CERTIFICATE OF CALIBRATION

Certificate No.: 23CA1109 04-01 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Class 1)	Microphone	Preamp
Manufacturer:	B & K	B & K	B & K
Type/Model No.:	2250	4189	ZC0032
Serial/Equipment No.:	3001291	3005374	31351
Adaptors used:	-	-	-

Item submitted by

Customer Name: AECOM ASIA CO LIMITED
Address of Customer: -
Request No.: -
Date of receipt: 09-Nov-2023

Date of test: 13-Nov-2023

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	28-Aug-2024	CIGISMEC
Signal generator	DS 360	33873	31-Jan-2024	CEPREI

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 14-Nov-2023 **Company Chop:** SOILS & MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results 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. The results apply to the item as received.

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SOILS & MATERIALS ENGINEERING CO., LTD.
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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 23CA1109 04-01 **Page** 2 **of** 2

1, Electrical Tests

The electrical tests were perfomed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	0.8	
	Lin	Pass	1.6	
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100μs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

\- End -

Calibrated by: Fung Chi Yip **Date:** 13-Nov-2023 **Checked by:** Chan Yuk Yiu **Date:** 14-Nov-2023

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

HKAS has accredited this laboratory (Reg. No. HOKLAS 028) under HOKLAS for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are traceable to the International System of Units (SI) or recognised measurement standards. The results relate only to the item(s) calibrated. This certificate shall not be reproduced except in full without approval of the laboratory.

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Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

CERTIFICATE OF CALIBRATION

Certificate No.: 24CA0229 06-01 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Class 1)	Microphone	Preamp
Manufacturer:	B & K	B & K	B & K
Type/Model No.:	2250-L	4950	ZC0032
Serial/Equipment No.:	2681366	2665582	17190
Adaptors used:	-	-	-

Item submitted by

Customer Name:	AECOM ASIA CO LTD
Address of Customer:	-
Request No.:	-
Date of receipt:	29-Feb-2024

Date of test: 04-Mar-2024

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	28-Aug-2024	CIGISMEC
Signal generator	DS 360	61227	28-Jun-2024	CEPREI

Ambient conditions

Temperature:	20 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1010 ± 5 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 05-Mar-2024 **Company Chop:** SOILS & MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results 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. The results apply to the item as received.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 24CA0229 06-01 **Page** 2 **of** 2

1, Electrical Tests

The electrical tests were perfomed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	0.8	
	Lin	Pass	1.6	
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100μs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

\- End -

Calibrated by: Fung Chi Yip **Date:** 04-Mar-2024 **Checked by:** Chan Yuk Yiu **Date:** 05-Mar-2024

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

HKAS has accredited this laboratory (Reg. No. HOKLAS 028) under HOKLAS for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are traceable to the International System of Units (SI) or recognised measurement standards. The results relate only to the item(s) calibrated. This certificate shall not be reproduced except in full without approval of the laboratory.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

CERTIFICATE OF CALIBRATION

Certificate No.: 23CA1030 01-01 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone	Pream
Manufacturer:	B & K	,	B & K	B & K
Type/Model No.:	2270	,	4950	ZC0032
Serial/Equipment No.:	2644597	,	2879980	29398
Adaptors used:	-	,	-	-

Item submitted by

Customer Name: AECOM ASIA CO. LTD.
Address of Customer: -
Request No.: -
Date of receipt: 30-Oct-2023

Date of test: 31-Oct-2023

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	28-Aug-2024	CIGISMEC
Signal generator	DS 360	33873	31-Jan-2024	CEPREI

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1005 ± 5 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 01-Nov-2023 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results 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. The results apply to the item as received.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 23CA1030 01-01 **Page** 2 **of** 2

1, Electrical Tests

The electrical tests were perfomed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Uncertainty (dB) / Coverage Factor	
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100μs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Uncertainty (dB) / Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3
	Weighting A at 8000 Hz	Pass	0.5

3, Response to associated sound calibrator

N/A

The uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95 %. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: Fung Chi Yip **Date:** 31-Oct-2023 **Checked by:** Chan Yuk Yiu **Date:** 01-Nov-2023

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

HKAS has accredited this laboratory (Reg. No. HOKLAS 028) under HOKLAS for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are traceable to the International System of Units (SI) or recognised measurement standards. The results relate only to the item(s) calibrated. This certificate shall not be reproduced except in full without approval of the laboratory.

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Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

CERTIFICATE OF CALIBRATION

Certificate No.: 23CA1030 01-02 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone	Pream
Manufacturer:	B & K	,	B & K	B & K
Type/Model No.:	2270	,	4189	ZC0032
Serial/Equipment No.:	3007965	,	2846461	17965
Adaptors used:	-	,	-	-

Item submitted by

Customer Name: AECOM ASIA CO. LTD.
Address of Customer: -
Request No.: -
Date of receipt: 30-Oct-2023

Date of test: 31-Oct-2023

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	28-Aug-2024	CIGISMEC
Signal generator	DS 360	33873	31-Jan-2024	CEPREI

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1005 ± 5 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 01-Nov-2023 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results 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. The results apply to the item as received.

綜合試驗有限公司
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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 23CA1030 01-02 **Page** 2 **of** 2

1, Electrical Tests

The electrical tests were perfomed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Uncertainty (dB) / Coverage Factor	
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100μs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Uncertainty (dB) / Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3
	Weighting A at 8000 Hz	Pass	0.5

3, Response to associated sound calibrator

N/A

The uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95 %. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: Fung Chi Yip **Date:** 31-Oct-2023 **Checked by:** Chan Yuk Yiu **Date:** 01-Nov-2023

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

HKAS has accredited this laboratory (Reg. No. HOKLAS 028) under HOKLAS for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are traceable to the International System of Units (SI) or recognised measurement standards. The results relate only to the item(s) calibrated. This certificate shall not be reproduced except in full without approval of the laboratory.

APPENDIX F

EM&A Monitoring Schedules

Central Kowloon Route – Kai Tak West
Impact Environmental Monitoring Schedule for July 2024

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Jul	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul
				24-hour TSP 1-hour TSP Noise		
7-Jul	8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul
			24-hour TSP 1-hour TSP Noise			
14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul
		24-hour TSP 1-hour TSP Noise				
21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul
	24-hour TSP 1-hour TSP Noise					24-hour TSP 1-hour TSP
28-Jul	29-Jul	30-Jul	31-Jul			

Air Quality Monitoring Station
E-A14a: Block B of Merit Industrial Centre

Noise Monitoring Stations
E-N12a: 19 Hing Yan Street
E-N21a: Block B of Merit Industrial Centre

Monitoring Frequency
24-hour TSP: Once every 6 days
1-hour TSP: 3 times every 6 days (as required in case of complaints)

Monitoring Frequency
Once per week

Central Kowloon Route – Kai Tak West
Tentative Impact Environmental Monitoring Schedule for August 2024

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Aug	2-Aug	3-Aug
					24-hour TSP 1-hour TSP Noise	
4-Aug	5-Aug	6-Aug	7-Aug	8-Aug	9-Aug	10-Aug
				24-hour TSP 1-hour TSP Noise		
11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug	17-Aug
			24-hour TSP 1-hour TSP Noise			
18-Aug	19-Aug	20-Aug	21-Aug	22-Aug	23-Aug	24-Aug
		24-hour TSP 1-hour TSP Noise				
25-Aug	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug	31-Aug
	24-hour TSP 1-hour TSP Noise					24-hour TSP 1-hour TSP

Air Quality Monitoring Station
E-A14a: Block B of Merit Industrial Centre

Noise Monitoring Stations
E-N12a: 19 Hing Yan Street
E-N21a: Block B of Merit Industrial Centre

Monitoring Frequency
24-hour TSP: Once every 6 days
1-hour TSP: 3 times every 6 days (as required in case of complaints)

Monitoring Frequency
Once per week

APPENDIX G

Air Quality Monitoring Results and their Graphical Presentations

Appendix G
Air Quality Monitoring Results

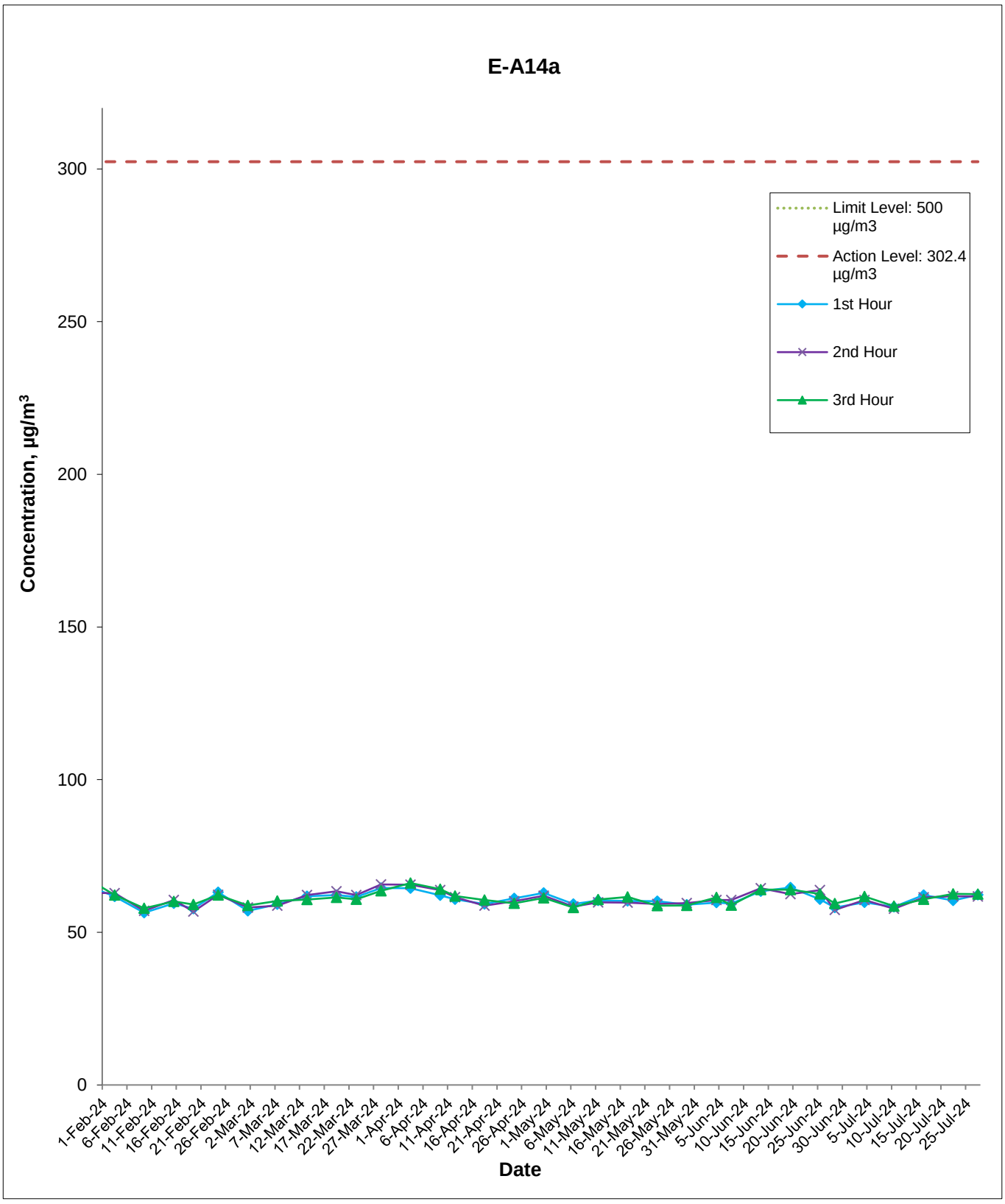
24-hour TSP Monitoring Results at Station E-A14a (Block B, Merit Industrial Centre)

Date	Weather Condition	Air Temp. (^{o}C)	Atmospheric Pressure (hPa)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. (µg/m^3)
				Initial	Final			Initial	Final		Initial	Final		
4-Jul-24	Sunny	30.2	1011.8	1.33	1.33	1.33	1921.0	2.8296	2.8543	0.0247	76050.06	76074.06	24.00	12.9
10-Jul-24	Sunny	30.6	1008.6	1.33	1.33	1.33	1921.0	2.8174	2.8427	0.0253	76074.06	76098.06	24.00	13.2
16-Jul-24	Sunny	29.0	1008.5	1.33	1.33	1.33	1921.0	2.8167	2.8468	0.0301	76098.06	76122.06	24.00	15.7
22-Jul-24	Sunny	30.6	1005.3	1.33	1.33	1.33	1921.0	2.8256	2.8530	0.0274	76122.06	76146.06	24.00	14.3
27-Jul-24	Fine	28.7	1002.8	1.33	1.33	1.33	1921.0	2.8299	2.8750	0.0451	76146.06	76170.06	24.00	23.5
													Average	**15.9**
													Minimum	**12.9**
													Maximum	**23.5**

Appendix G
Air Quality Monitoring Results

1-hour TSP Monitoring Results at Station E-A14a (Block B, Merit Industrial Centre)

Date	Start Time	Weather	1st Hour Conc. ($\mu g/m^3$)	2nd Hour Conc. ($\mu g/m^3$)	3rd Hour Conc. ($\mu g/m^3$)
4-Jul-24	13:00	Sunny	59.8	60.6	61.7
10-Jul-24	13:05	Sunny	58.3	57.7	58.6
16-Jul-24	10:45	Sunny	62.2	61.4	60.8
22-Jul-24	13:00	Sunny	60.4	61.8	62.6
27-Jul-24	13:15	Fine	62.3	61.7	62.5
				Average	60.8
				Min	57.7
				Max	62.6



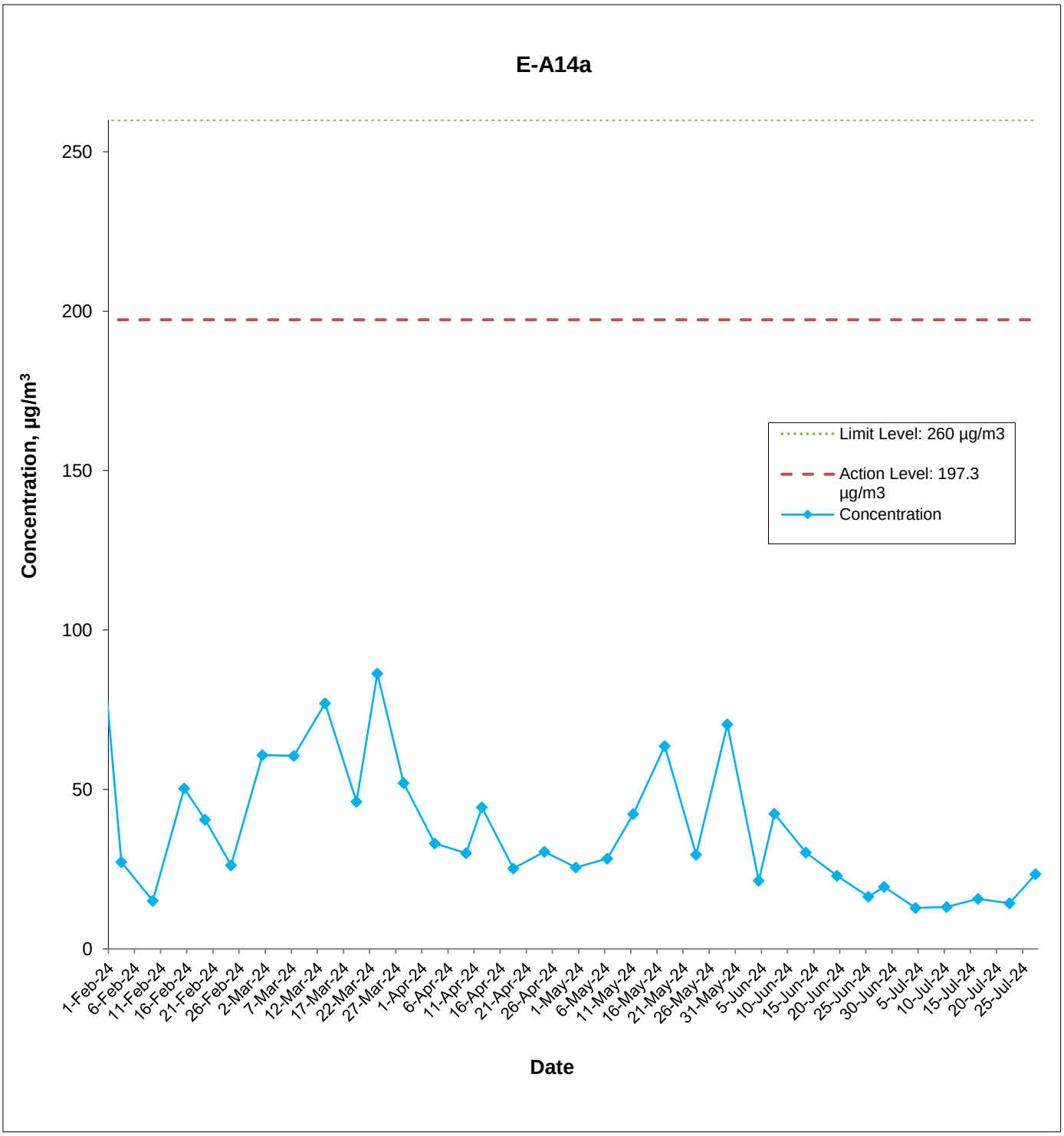
Central Kowloon Route - Kai Tak West (Contract No. HY/2014/07)

AECOM

Graphical Presentation of Impact 1-hour TSP Monitoring Results

Date: August 2024

Appendix G



Central Kowloon Route - Kai Tak West (Contract No. HY/2014/07)

AECOM

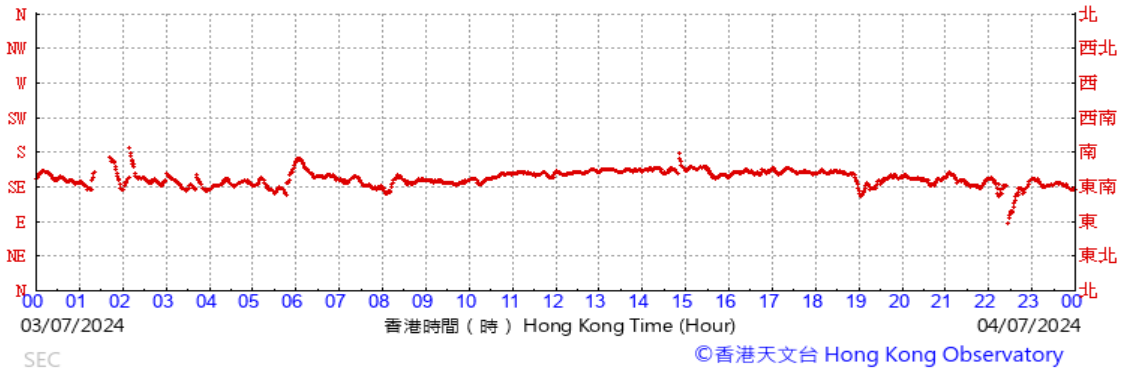
Graphical Presentation of Impact 24-hour TSP Monitoring Results

Date: August 2024

Appendix G

Data of Wind Direction Extracted from Kai Tak Wind Station of the Hong Kong Observatory
July 2024

(於香港時間04/07/2024 00 時 00 分更新) (Updated at 00:00H on 04/07/2024)



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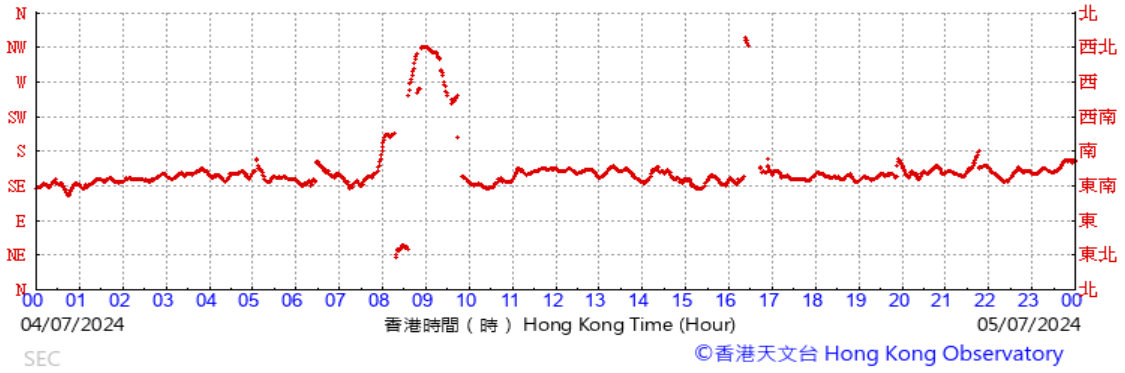

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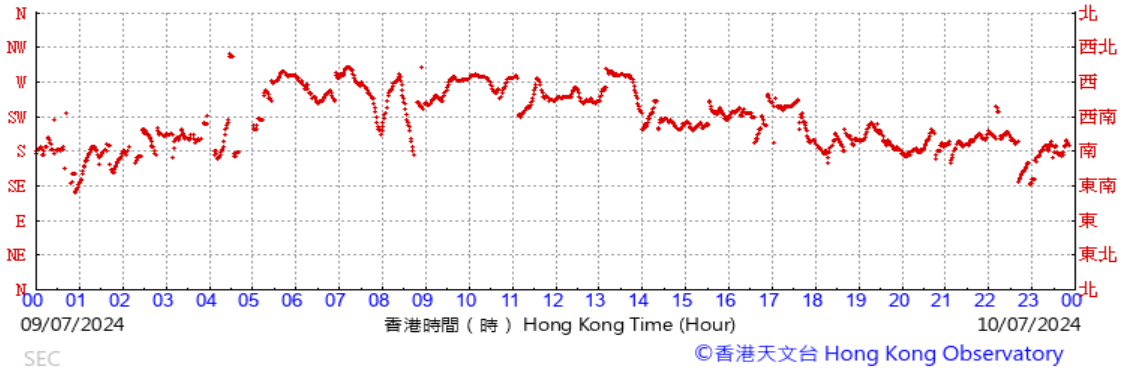

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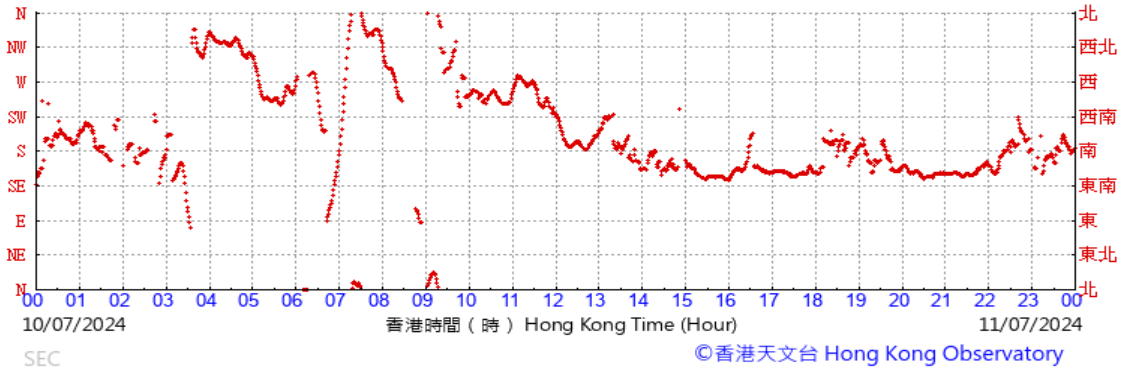
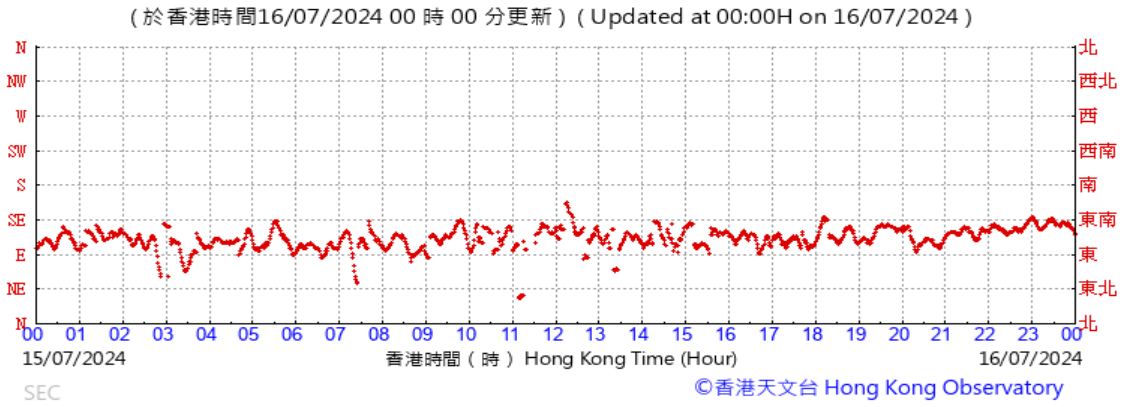
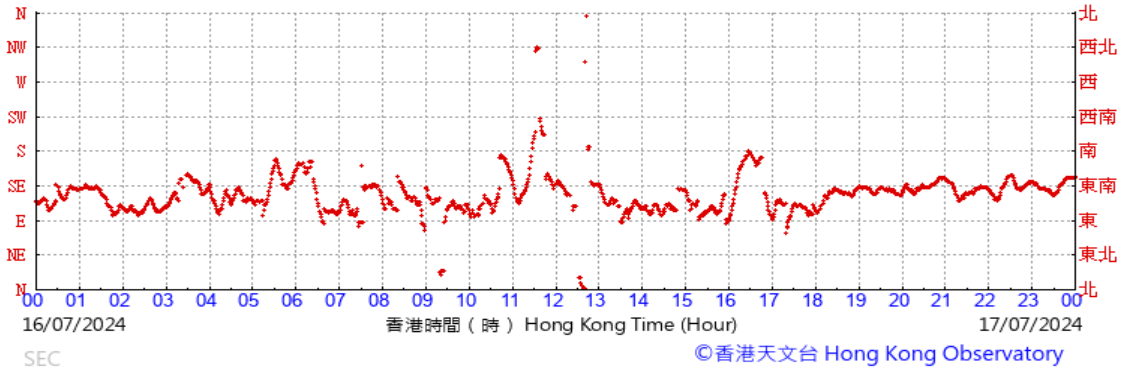
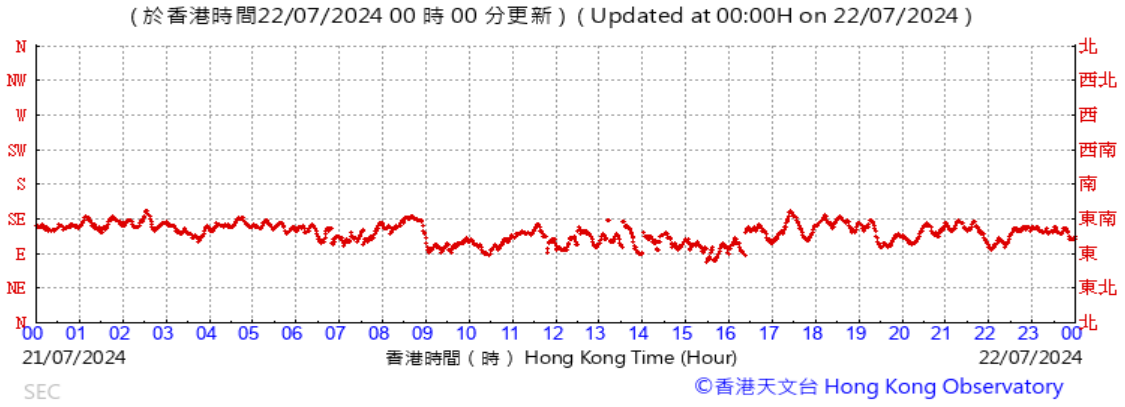
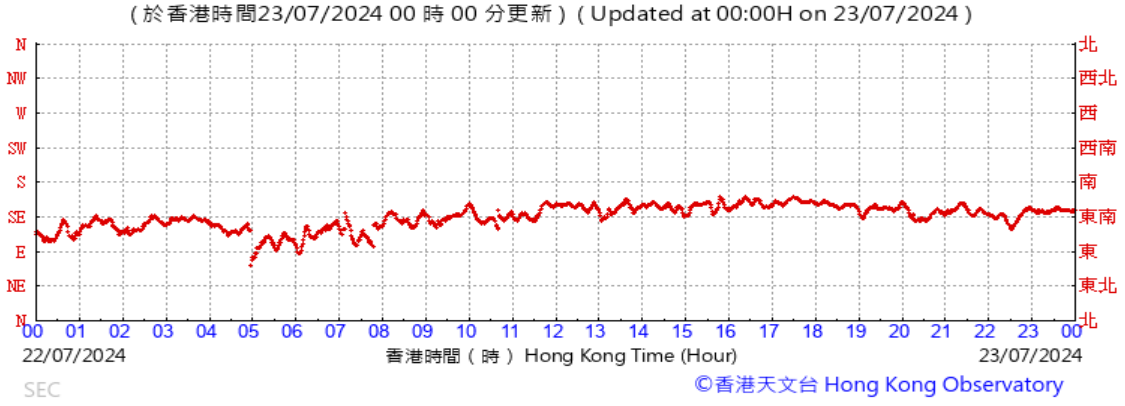


Data of Wind Direction Extracted from Kai Tak Wind Station of the Hong Kong Observatory
July 2024

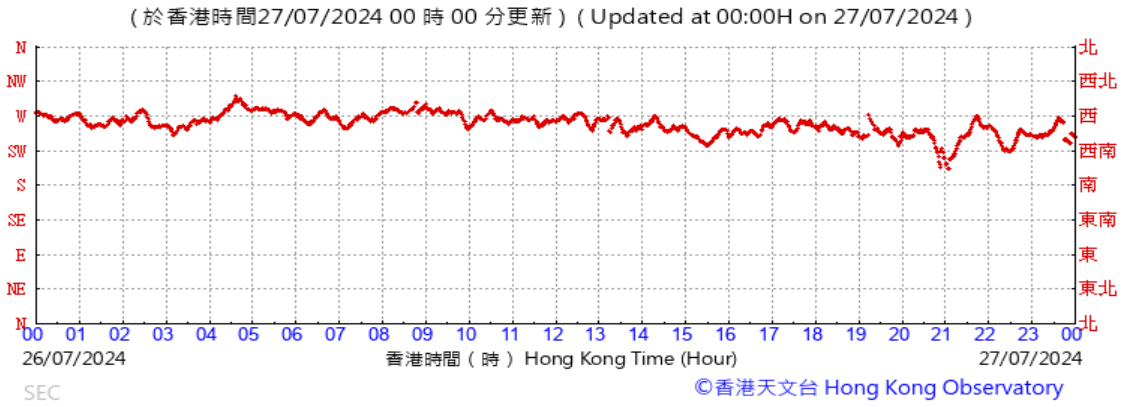


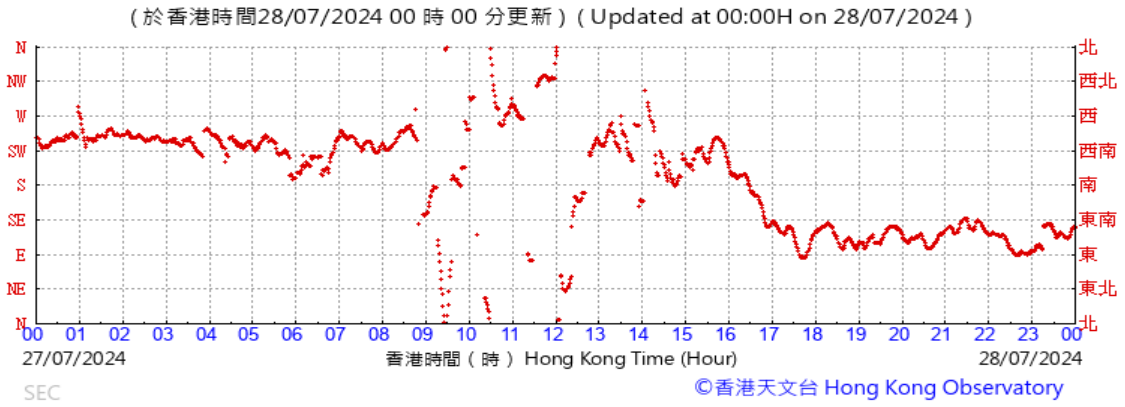




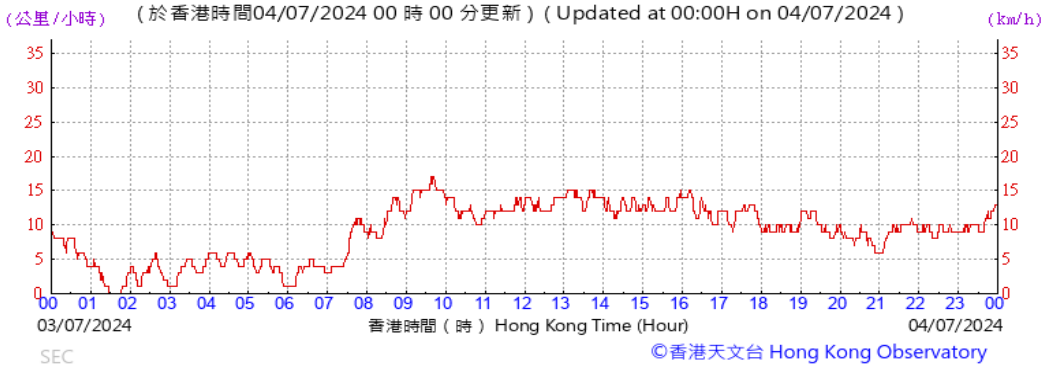


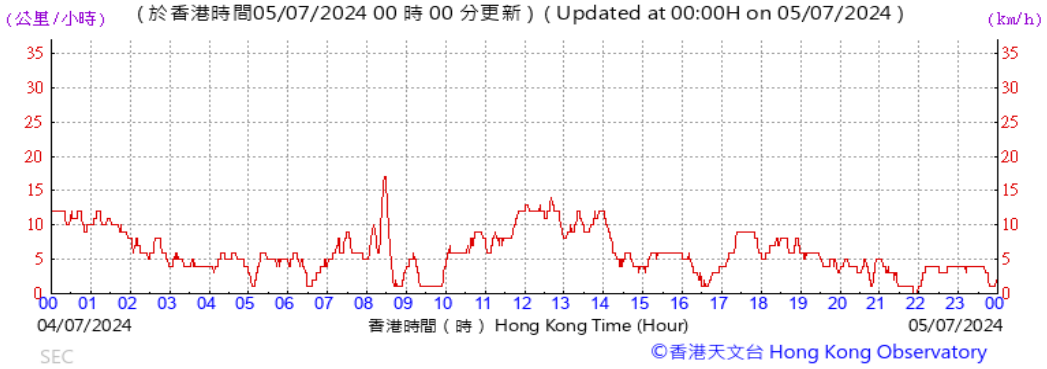
Data of Wind Direction Extracted from Kai Tak Wind Station of the Hong Kong Observatory
July 2024

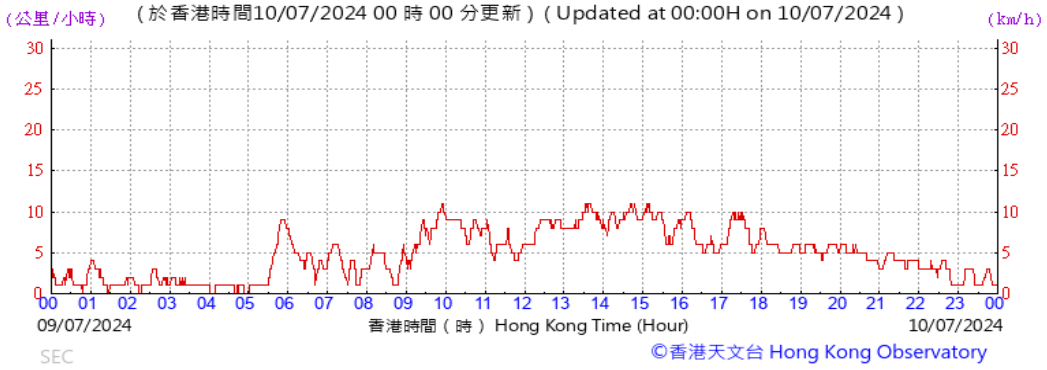


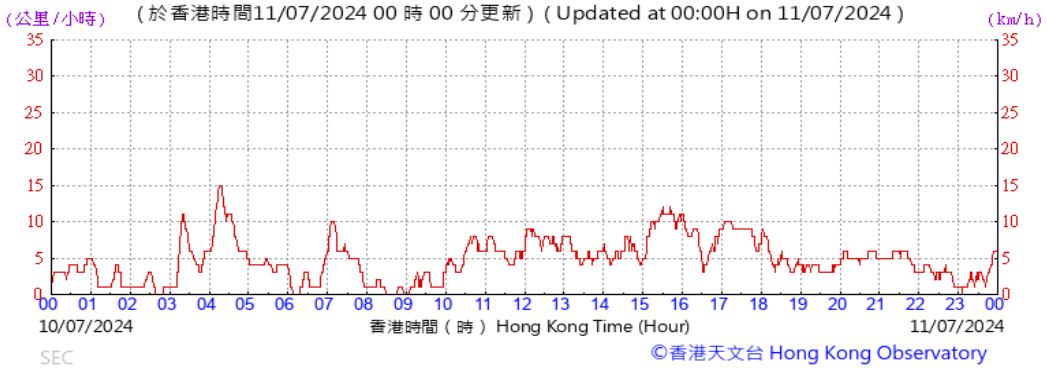


Data of Wind Speed Extracted from Kai Tak Wind Station of the Hong Kong Observatory
July 2024

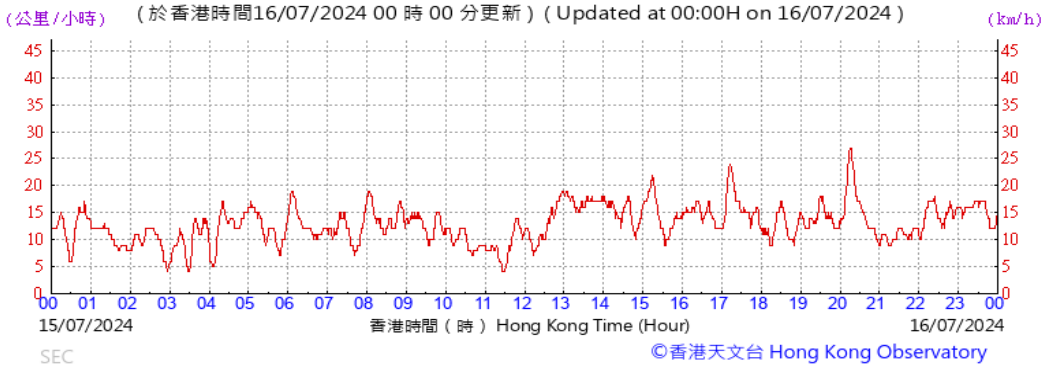


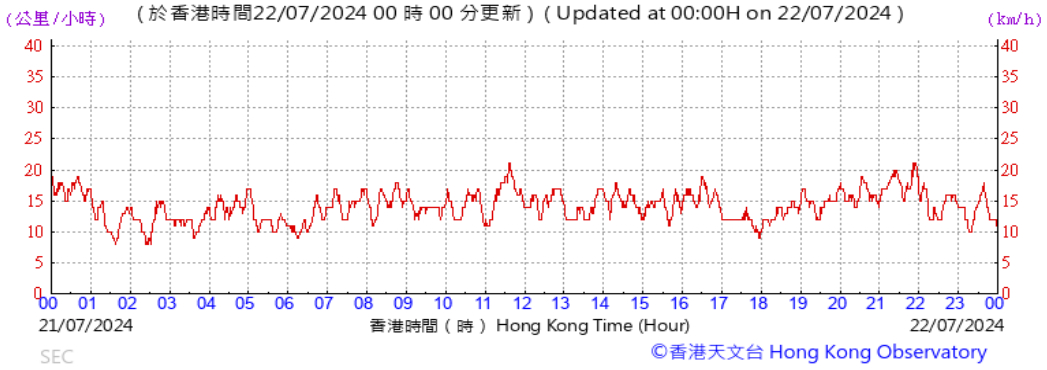


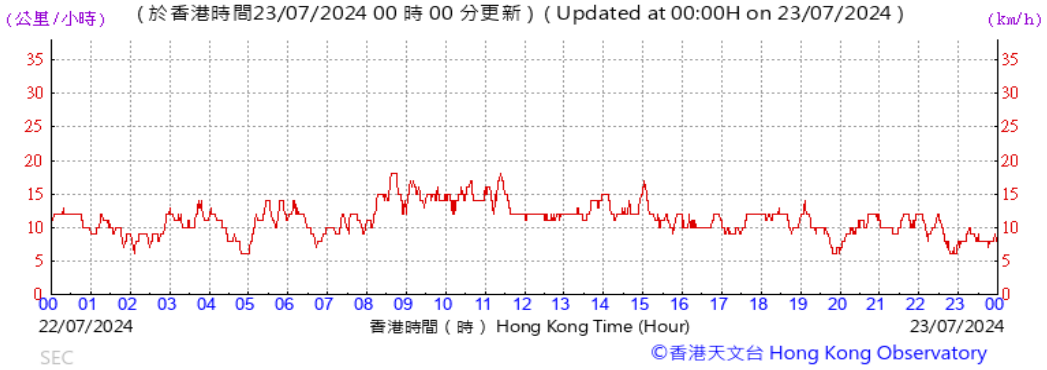




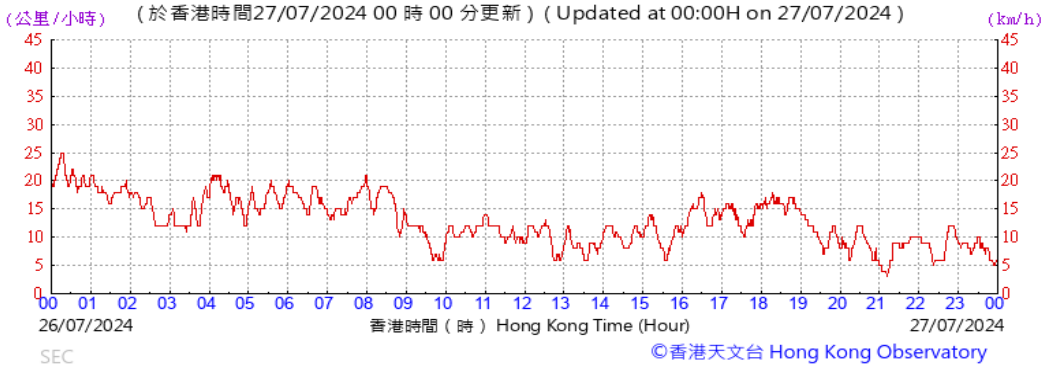
Data of Wind Speed Extracted from Kai Tak Wind Station of the Hong Kong Observatory
July 2024

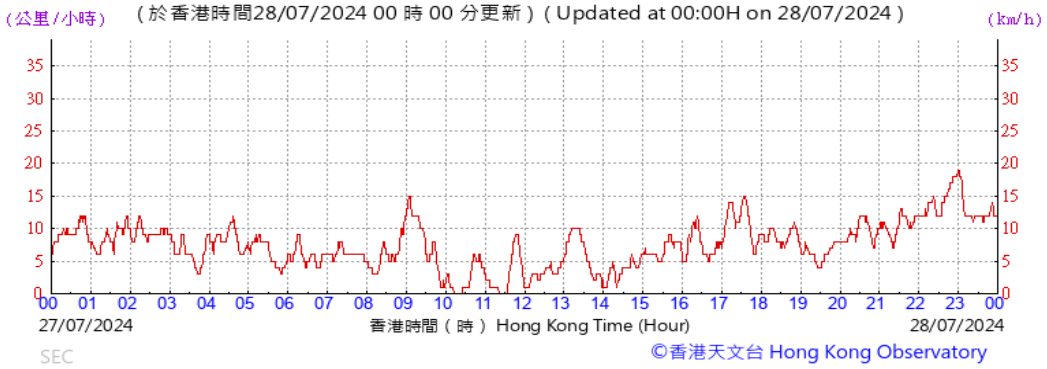






Data of Wind Speed Extracted from Kai Tak Wind Station of the Hong Kong Observatory
July 2024





APPENDIX H

Noise Monitoring Results and their Graphical Presentations

Appendix H Regular Construction Noise Monitoring Results

Daytime Noise Monitoring Results at Station E-N12a (19 Hing Yan Street)

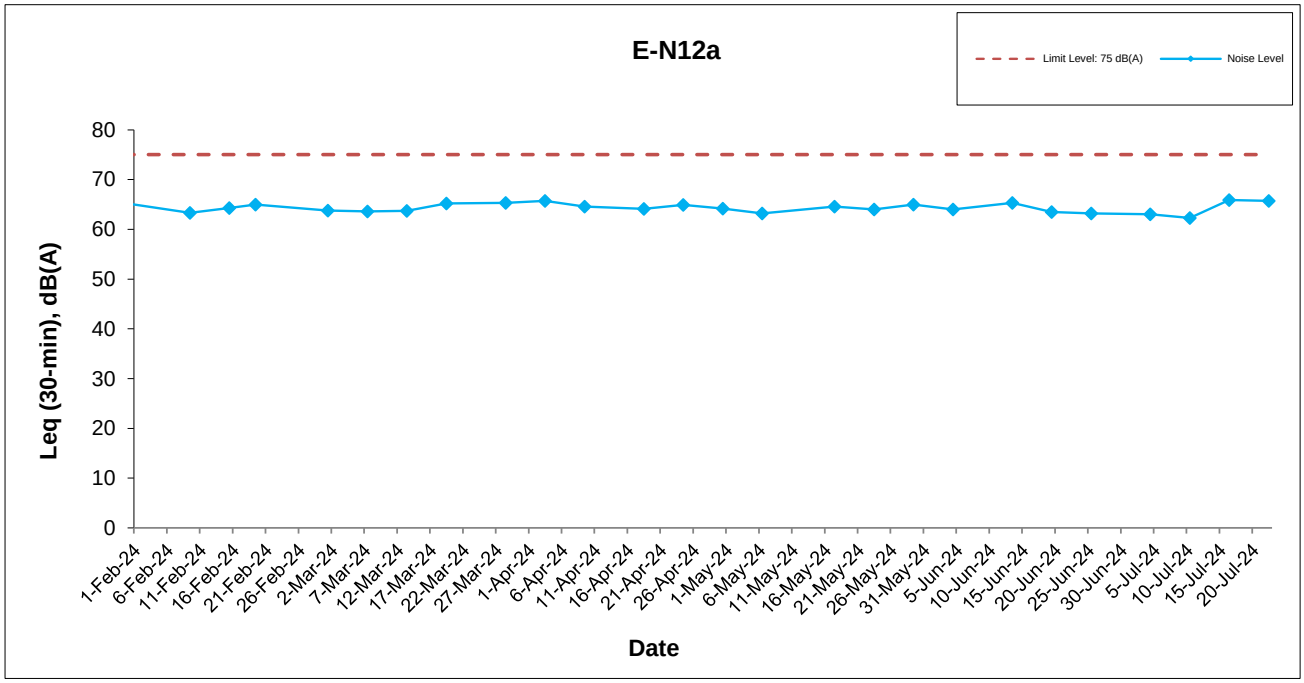
Date	Weather Condition	Noise Level for 30-min, dB(A) [+]				Limit Level, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq		
4-Jul-24	Sunny	13:55	61.4	64.1	63.0	75	N
10-Jul-24	Sunny	13:55	60.9	63.5	62.3	75	N
16-Jul-24	Sunny	13:15	63.3	67.2	65.9	75	N
22-Jul-24	Sunny	13:55	63.2	67.0	65.7	75	N

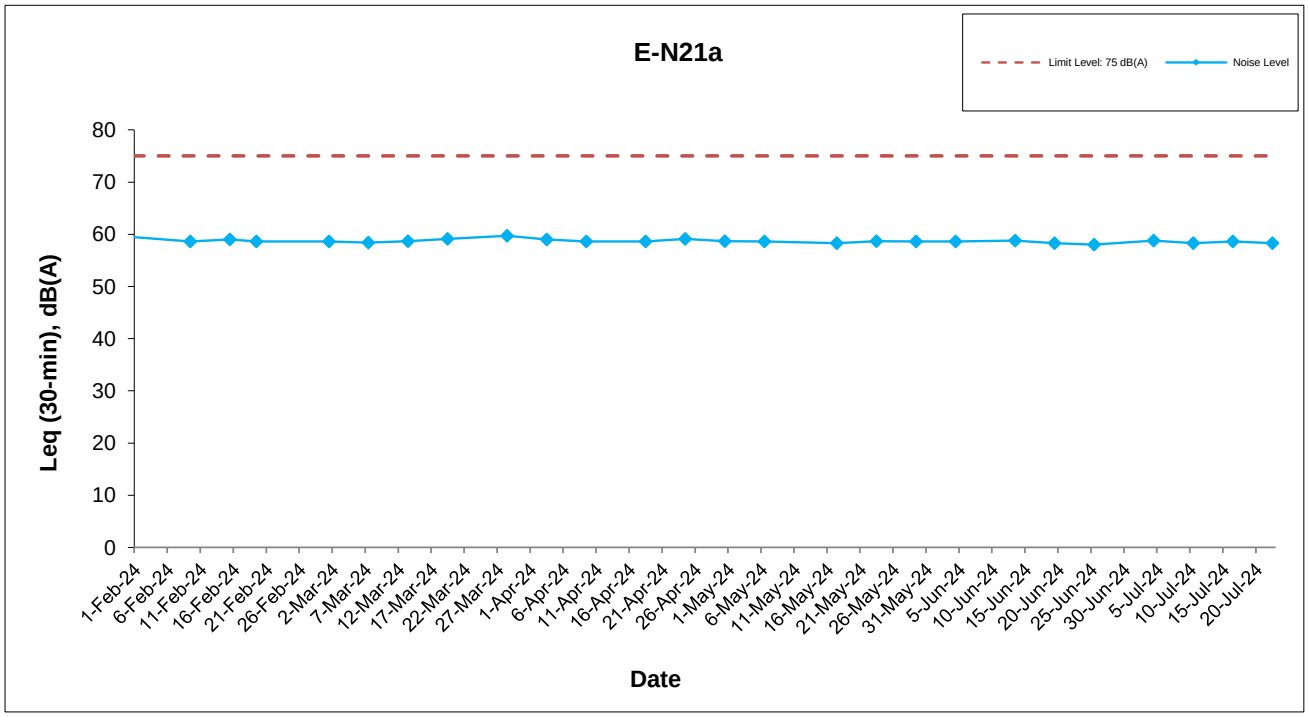
Daytime Noise Monitoring Results at Station E-N21a (Block B of Merit Industrial Centre)

Date	Weather Condition	Noise Level for 30-min, dB(A) [#]				Limit Level, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq		
4-Jul-24	Sunny	13:00	54.3	59.5	58.8	75	N
10-Jul-24	Sunny	13:05	54.8	59.0	58.3	75	N
16-Jul-24	Sunny	14:05	54.7	59.4	58.6	75	N
22-Jul-24	Sunny	13:00	54.1	59.0	58.3	75	N

[+] - Façade measurement.

- A correction of +3dB(A) was made to the free field measurement.





Central Kowloon Route - Kai Tak West (Contract No. HY/2014/07)

AECOM

Graphical Presentation of Impact Noise Monitoring Results

Date: August 2024

Appendix H

APPENDIX I

Event and Action Plan

Appendix I Event Action Plan

Event / Action Plan for Construction Dust Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
ACTION LEVEL				
Exceedance for one sample	1. Inform the Contractor, IEC and ER; 2. Discuss with the Contractor and IEC on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing.	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate.
Exceedance for two or more consecutive samples	1. Inform the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise Implementation of remedial measures.	1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate.

Appendix I Event Action Plan

EVENT	ACTION			
	ET	**IEC**	**ER**	**Contractor**
LIMIT LEVEL				
Exceedance for one sample	1. Inform the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial measures.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; 5. Amend proposal if appropriate.
Exceedance for two or more consecutive samples	1. Notify Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with ET, ER, and Contractor on the potential remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix I Event Action Plan

Event and Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
Exceedance of Action Level	1. Notify the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the contractor; and 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures.	1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; and 4. Implement noise mitigation proposals.
Exceedance of Limit Level	1. Notify the Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix I Event Action Plan

Event and Action Plan for Continuous Noise Monitoring

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
Action/Limit Level	1. Identify source ; 2. Repeat measurement. If two consecutive measurements exceed Action/Limit Level, the exceedance is then confirmed; 3. If exceedance is confirmed, notify IEC, ER and Contractor; 4. Investigate the cause of exceedance and ckeck Contractor's working procedures to determine possible mitigation to be implemented; 5. Discuss jointly with the IEC, ER and Contractor and formulate remedial measures; and 6. Assess effectiveness of Contractor's remedial actions and keep IEC and ER informed of the results.	1. Check monitoring data submitted by the Works Contract 1123 ET; 2. Check the Contractor's working method; 3. Discuss with the ER, Works Contract 1123 ET and Contractor on the potential remedial measures; and 4. Review and advise the Works Contract 1123 ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the Works Contract 1123 ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Ensure the proper implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source with the Works Contract 1123 ET; 2. If exceedance is confirmed, investigation the cause of exceedance and take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET of notification; 4. Implement the agreed proposals; 5. Liaise with ER to optimize the effectiveness of the agreed mitigation; 6. Revise and resubmit proposals if problem still not under control; and 7. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

APPENDIX J

Cumulative Statistics on Complaints, Notification of Summons and Successful Prosecutions

Appendix J

Cumulative Statistics on Complaints, Notification of Summons and Successful Prosecutions

	Date received	Subject	Status	Total no. received in this month	Total no. received since project commencement
Environmental complaints	--	--	--	0	70
Notification of summons	--	--	--	0	0
Successful prosecutions	--	--	--	0	0

APPENDIX K

Monthly Summary Waste Flow Table

Contract No. : HY/2014/07 Central Kowloon Route - Kai Tak West
Gammon Construction Litmited

Monthly Summary Waste Flow Table for 2024 (Year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly (Note 1)												Actual Quantities of Non-inert C&D Materials (i.e. C&D Wastes) Generated Monthly					Actual Quantities of Contaminated Soil Monthly		Actual Quantities of Land-based Sediment Monthly		Actual Quantities of Marine-based sediment Monthly		
	Generated					Disposed				Reused			Recycled			Disposed		Reused	Reused	Disposed		Disposed		
	Fill Material	Artificial Material			Total Quantity Generated	Disposed as Public Fills at TKO137	Disposed as Public Fills at TM38	Disposed as Capping at East Sha Chau (Alluvium)	Total Quantity Disposal	Reused in the Contract	Reused in Other Projects	Total Quantity Reused	Metals	Paper/ cardboard packaging (Note 3)	Plastics	Chemical Waste	General Refuse (Note 2)	Reused in the Contract	Reused in the Contract	Disposed at Designated Site		Disposed at Designated Site		
	Soil and Rock	Broken Concrete	Asphalt	Building Derbis															Type 1 (Cat. L)	Type 1 (Cat. M_p)	Type 2 (Cat. M_f, Cat. H)	Type 1 (Cat. L, Cat. M_p)	Type 2 (Cat. M_f, Cat. H, Cat. H_p)	Type 3 (Cat. H_f)
Unit	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000Kg)	('000Kg)	('000Kg)	('000kg)	('000Kg)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)
Jan	0.173	0.000	0.000	0.000	0.173	0.000	0.000	0.000	0.000	0.000	0.173	0.173	0.000	0.111	0.000	0.000	284.770	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Feb	0.601	0.000	0.000	0.000	0.601	0.000	0.000	0.000	0.000	0.000	0.601	0.601	0.000	0.199	0.000	0.000	120.660	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mar	0.331	0.000	0.000	0.000	0.331	0.000	0.000	0.000	0.000	0.000	0.331	0.331	117.880	0.099	0.000	0.000	243.220	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Apr	0.659	0.000	0.000	0.000	0.659	0.000	0.000	0.000	0.000	0.000	0.659	0.659	1581.740	0.000	0.056	0.000	234.550	0.000	0.000	0.000	0.000	0.000	0.000	0.000
May	0.768	0.000	0.000	0.000	0.768	0.000	0.000	0.000	0.000	0.000	0.768	0.768	0.000	0.000	0.000	0.000	448.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Jun	2.313	0.000	0.000	0.000	2.313	0.000	0.000	0.000	0.000	2.136	0.177	2.313	0.000	0.000	0.000	0.000	277.830	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SUB-TOTAL	4.846	0.000	0.000	0.000	4.846	0.000	0.000	0.000	0.000	2.136	2.710	4.846	1699.620	0.409	0.056	0.000	1609.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Jul	11.820	0.000	0.000	0.000	11.820	0.000	0.000	0.000	0.000	11.820	0.000	11.820	0.000	0.000	0.000	0.000	226.440	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aug	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sep	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Oct	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nov	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Dec	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	16.666	0.000	0.000	0.000	16.666	0.000	0.000	0.000	0.000	13.956	2.710	16.666	1699.620	0.409	0.056	0.000	1835.540	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note:

1. Assume the density of fill is 2 ton/m3.
2. Refuse disposed to NENT landfill.
3. The latest update shall prevail.