# Development at West Kowloon Cultural District

Monthly Environmental Monitoring and Audit (EM&A) Report

for June 2022

12 July 2022

In accordance with the Environmental Permit, Condition 3.4, this Monthly EM&A Report has been certified by the Environmental Team Leader (ETL) and verified by the Independent Environmental Checker (IEC) as complying with the requirements as set out in Sections 1, 10, 11, 12 and 13 of the EM&A Manual.

Certified by:

**CK WU** Environmental Team Leader (ETL) West Kowloon Cultural District Authority

Date

2 July 2022

Verified by:

Claudine LEE Independent Environmental Checker (IEC) Meinhardt Infrastructure and Environment Ltd

Date

12 July Lodd

Development at West Kowloon Cultural District Monthly Environmental Monitoring and Audit (EM&A) Report for June 2022 This Report Consists of:

# Part-1: EM&A at Lyric Theatre Complex

### and

# Part-2: EM&A for Foundation and ELS Works in Zones 2A, 2B & 2C

# Part-1: EM&A at Lyric Theatre Complex



# Lyric Theatre Complex

Mott MacDonald 3/F International Trade Tower 348 Kwun Tong Road Kwun Tong Kowloon Hong Kong

T +852 2828 5757 mottmac.hk

### Contents

Exe	ecutive	summa	ry	1				
1	Intro	duction		3				
	1.1	1 Background						
	1.2	2 Project Organisation						
	1.3	Status o	of Construction Works in the Reporting Period	4				
	1.4	Summa	ry of EM&A Requirements and Alternative Monitoring Locations	4				
		1.4.1	EM&A Requirements	4				
		1.4.2	Alternative Monitoring Locations	5				
2	Impa	act Monit	oring Methodology	7				
	2.1	Introduc	tion	7				
	2.2	Air Qual	lity	7				
		2.2.1	Monitoring Parameters, Frequency and Duration	7				
		2.2.2	Monitoring Locations	7				
		2.2.3	Monitoring Equipment	7				
		2.2.4	Monitoring Methodology	8				
	2.3	Noise		11				
		2.3.1	Monitoring Parameters, Frequency and Duration	11				
		2.3.2	Monitoring Location	11				
		2.3.3	Monitoring Equipment	11				
		2.3.4	Monitoring Methodology	11				
	2.4	Landsca	ape and Visual	12				
		2.4.1	Monitoring Program	12				
3	Mon	itoring R	esults	13				
	3.1	Impact I	Monitoring	13				
	3.2	•	lity Monitoring	13				
		3.2.1	1-hour TSP	13				
		3.2.2	24-hour TSP	13				
	3.3	Noise M	lonitoring	14				
	3.4	Landsca	ape and Visual Impact	14				
4	Site	Environr	mental Management	15				
	4.1	Site Insp	pection	15				
	4.2	•	on the Solid and Liquid Waste Management Status	16				
	4.3		of Environmental Licenses and Permits	16				
	4.4	Recomr	nended Mitigation Measures	17				

5	Com	pliance with Environmental Permit	18
6		rt in Non-compliance, Complaints, Notification of Summons and essful Prosecutions	19
	6.1	Record on Non-compliance of Action and Limit Levels	19
	6.2 6.3	Record on Environmental Complaints Received Record on Notifications of Summons and Successful Prosecution	19 20
7	Futur	e Key Issues	21
	7.1 7.2 7.3	Construction Works for the Coming Month(s) Key Issues for the Coming Month Monitoring Schedule for the Coming Month	21 21 22
8	Conc	lusions and Recommendations	23
	8.1 8.2	Conclusions Recommendations	23 23
Figu	re 1	Site Layout Plan and Monitoring Stations	24
App	endice	S	25
A.	Proje	ct Organisation	26
B.	Tenta	ative Construction Programme	27
C.	Actio	n and Limit Levels for Construction Phase	28
D.	Even Impa	t and Action Plan for Air Quality, Noise, Landscape and Visual ct	29
E.	Moni	toring Schedule	30
F.	Calib	ration Certifications	31
G.	Grap	hical Plots of the Monitoring Results	32
H.	Mete	orological Data Extracted from Hong Kong Observatory	33
I.	Wast	e Flow table	34
J.	Envir	onmental Mitigation Measures – Implementation Status	35

#### K. Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

### **Executive summary**

Mott MacDonald Hong Kong Limited (MMHK) was commissioned to undertake the Environmental Team (ET) services (including environmental monitoring and audit (EM&A)) for the construction of M+ Museum Main Works (Contract No.: CC/2015/3A/022) and Lyric Theatre Complex including the Foundation Works (Contract No.: CC/2015/3A/014), L1 Contract (Contract No. CC/2017/3A/030) and L2 Contract (Contract No. CC/2017/3A/031) at West Kowloon Cultural District (WKCD) (The Project) as part of the WKCD development. The Project Proponent is the West Kowloon Cultural District Authority (WKCDA). The construction works and EM&A programme for M+ Museum was commenced on 31 October 2015 and completed on 28 February 2021; while the construction works and EM&A programme for Lyric Theatre Complex (L1 and L2 Contracts) was commenced on 1 March 2016, and the EM&A programme for L1 Contract was completed on 30 June 2021.

The overall works for the WKCD fall under two separate categories of Designated Project (DP) of the Environmental Impact Assessment Ordinance (EIAO), namely an "engineering feasibility study of urban development projects with a study area covering more than 20 ha or involving a total population of more than 100 000" (Item 1 of Schedule 3) and "an underpass more than 100m in length under the built areas" (Item A.9, Part I, Schedule 2). An Environmental Permit No. EP-453/2013/B (EP) was issued with respect to the "Underpass Road and Austin Road Flyover Serving the West Kowloon Cultural District" which specifically includes the abovementioned category of DP under Item A.9, Part I, Schedule 2 of the EIAO.

This Monthly EM&A Report presents the monitoring works at Lyric Theatre Complex (L2 Contract) from 1 June to 30 June 2022.

#### **Exceedance of Action and Limit Levels**

There was no breach of Action or Limit levels for Air Quality (1-hour TSP and 24-hour TSP) and Noise in this reporting month.

#### **Implementation of Mitigation Measures**

Construction phase weekly site inspections were carried out on 1, 8, 15, 22 and 27 June 2022 for Lyric Theatre Complex (L2 Contract) to confirm the implementation measures undertaken by the Contractor in the reporting month. The outcomes are presented in Section 4 and the status of implementation of mitigation measures in the site is shown in **Appendix J**.

Landscape and visual impact inspections were conducted as part of the abovementioned weekly site inspection during the reporting month. No adverse comment on landscape and visual aspects were made during the inspections.

#### **Record of Complaints**

Three environmental complaints were recorded in the reporting month.

#### **Record of Notifications of Summons and Successful Prosecutions**

No notifications of summons and successful prosecutions were recorded in the reporting month.

#### Future Key Issues

The major site works for L2 to be commissioned in the coming month include:

- LTC construction
  - Structure (Slab, wall, columns and beam)
    - Falsework and formwork erection
    - Reinforcement work
    - Concrete work

ABWF & MEP work

- ASDA and Lyric Theatre Promenade
  - Structure and BS works
  - Hoarding works
- DSC cofferdam (Cofferdam A)
  - Backfill and const. additional blinding layer & retaining wall
- Extended basement
  - ABWF & MEP work
  - RC water tank
  - Late cast RC works (top slab/ backfill sunken etc.)
  - Carpark area plaster and paint
- Underpass and Associated Area
  - RC Structure
  - ABWF & MEP work
- M+ Day 2 Works
  - Backfilling
  - Remove plenum block wall & make good opening for Louvre
- P32 Interim Development
  - Remedial works & scaffold removal
  - Construct dog houses

Potential environmental impacts due to the construction activities, including air quality, noise, water quality, waste, landscape and visual, will be monitored or reviewed. The recommended environmental mitigation measures shall be implemented on site and regular inspections as required will be carried out to ensure that the environmental conditions are acceptable.

### **1** Introduction

#### 1.1 Background

Mott MacDonald Hong Kong Limited (MMHK) was commissioned to undertake the Environmental Team (ET) services (including environmental monitoring and audit (EM&A)) for the construction of M+ Museum Main Works (Contract No.: CC/2015/3A/022) and Lyric Theatre Complex including the Foundation Works (Contract No.: CC/2015/3A/014), L1 Contract (Contract No. CC/2017/3A/030) and L2 Contract (Contract No. CC/2017/3A/031) at West Kowloon Cultural District (WKCD) (The Project) as part of the WKCD development. The Project Proponent is the West Kowloon Cultural District Authority (WKCDA). The construction works and EM&A programme for M+ Museum was commenced on 31 October 2015 and completed on 28 February 2021; while the construction works and EM&A programme for Lyric Theatre Complex (L1 and L2 Contracts) were commenced on 1 March 2016, and the EM&A programme for L1 Contract was completed on 30 June 2021.

The overall works for the WKCD fall under two separate categories of Designated Project (DP) of the Environmental Impact Assessment Ordinance (EIAO), namely an "engineering feasibility study of urban development projects with a study area covering more than 20 ha or involving a total population of more than 100 000" (Item 1 of Schedule 3) and "an underpass more than 100m in length under the built areas" (Item A.9, Part I, Schedule 2). An Environmental Permit No. EP-453/2013/B (EP) was issued with respect to the "Underpass Road and Austin Road Flyover Serving the West Kowloon Cultural District" which specifically includes the abovementioned category of DP under Item A.9, Part I, Schedule 2 of the EIAO. The captioned projects include part of the abovementioned underpass road located within the site boundary also falls under this same category.

The M+ Museum development aims to provide an iconic presence for the M+ Museum, semitransparent vertical plane, housing education facilities, a public restaurant and museum offices. At ground and lower levels, generous access will be provided to the park and other West Kowloon Cultural District facilities, alongside a public resource centre, theatres, retail and dining, and backof-house functions.

The 1,200-seat Lyric Theatre Complex will be Hong Kong's first world-class facility for dance performances, including ballet, contemporary and Chinese dance forms. In the run up to the opening of further major performing arts venues in the WKCD, it will also be used for a wide variety of performing arts events including drama, opera and musical performances. The Lyric Theatre Complex will act as a platform for Hong Kong's leading arts organisations and be a new major venue to show programmes from Asia and worldwide.

The Monthly EM&A Report is prepared in accordance with the Condition 3.4 of the Environmental Permit No. EP-453/2013/B. This Monthly EM&A Report presents the monitoring works at Lyric Theatre Complex (L2 Contract) from 1 June to 30 June 2022. The purpose of this report is to summarise the findings in the EM&A of the project over the reporting period.

#### 1.2 **Project Organisation**

The organisation chart and lines of communication with respect to the on-site environmental management structure together with the contact information of the key personnel are shown in **Appendix A**.

#### 1.3 Status of Construction Works in the Reporting Period

4

During the reporting period, construction works at L2 undertaken include:

- LTC construction
  - Structure (Slab, wall, columns and beam)
    - Falsework and formwork erection
    - Reinforcement work
    - Concrete work

ABWF & MEP work

- ASDA and Lyric Theatre Promenade
  - Structure and BS works
- DSC cofferdam (Cofferdam A)
  - Removal of S1 strut
  - Backfill for portion of water main
  - Trim down portion of pipe pile
- Extended basement
  - ABWF & MEP work
  - RC water tank
  - Late cast RC works (top slab/ backfill sunken etc.)
  - Carpark area plaster and paint
- Underpass and Associated Area
  - RC Structure
  - ABWF & MEP work
- M+ Day 2 Works
  - Construct RC duct
  - Remove plenum block wall & make good opening for Louvre
- P32 Interim Development
  - Structure works (Scaffold/forms/rebar concrete)
  - Construct dog houses

The Construction Works Programme of Lyric Theatre Complex (L2 Contract) is provided in **Appendix B**. A layout plan of the Project is provided in **Figure 1**. Please refer to **Table 4.1** on the status of the environmental licenses.

#### 1.4 Summary of EM&A Requirements and Alternative Monitoring Locations

The EM&A programme requires environmental monitoring of air quality, noise, landscape and visual as specified in the approved EM&A Manual.

#### 1.4.1 EM&A Requirements

A summary of impact EM&A requirements is presented in Table 1.1.

Parameters	Descriptions	Locations	Frequencies
Air Quality	24-Hour TSP	AM1 - International Commerce Centre	At least once every 6 days
	1-Hour TSP	AM1 - International Commerce Centre	At least 3 times every 6 days
	24-Hour TSP	AM2 - The Harbourside Tower 1	At least once every 6 days
	1-Hour TSP	AM2 - The Harbourside Tower 1	At least 3 times every 6 days
Noise	Leq, 30 minutes	NM1- The Harbourside Tower 1	Weekly
Landscape & Visual	Monitor implementation of proposed mitigation measures during the construction stage	As described in Table 9.1 and 9.2 of the EM&A Manual	Bi-weekly

#### Table 1.1: Summary of Impact EM&A Requirements

#### 1.4.2 Alternative Monitoring Locations

In the context of the monitoring activities at M+ Museum and the Lyric Theatre Complex, three monitoring stations had been considered, including AM1 (International Commerce Centre), AM2 (The Harbourside Tower 1) for air monitoring, and NM1 (The Harbourside Tower 1) for noise monitoring. Other monitoring locations (i.e. AM3 to AM5 and NM2 to NM5) were so far away from M+ Museum and the Lyric Complex and could not be representative for impact monitoring.

The Harbourside management office formally rejected our proposal of setting up air quality and noise monitoring equipment on its premises at the podium level of Tower 1 (AM2/NM1) on 10 November 2015. Nevertheless, a suitable air quality monitoring location at AM2 was identified on the ground floor in front of The Harbourside Tower 1, which is at the same location as that of baseline monitoring for consistency. No management approval is required on the ground floor for conducting the air monitoring. However, the electricity supply at AM2 was suspended from 31 August 2016. In order to have a more secure electricity supply, an alternative air monitoring location (AM2A) was identified at Austin Road West opposite to The Harbourside Tower 1, which is close to Lyric Theatre Complex site entrance. This alternative air monitoring location was approved by EPD on 28 September 2016. Due to the works programme, the air monitoring location AM2A has been relocated to the alternative monitoring location AM2B at the 1st floor of Gammon's site office, which was approved by EPD on 21 February 2019. In view of the upcoming construction works to be undertaken at the air monitoring station AM2B, AM2B was no longer available for conducting the impact air quality monitoring. Hence, an alternative air monitoring location was identified on the ground floor in front of The Harbourside Tower 1 (AM2) which is at the same location as the baseline monitoring and this previously approved monitoring location had also been used for the EM&A Programme from November 2015 to August 2016, the relocation was approved by EPD on 27 May 2021.

Alternative noise monitoring location was identified at The Arch (NM2); however, The Arch management office formally rejected our proposal of setting up noise monitoring equipment on its premises on 23 November 2015. On the other hand, noise monitoring at G/F of Harbourside could not be representative. However, approval from the management office of the International Commerce Centre has been granted on 29 February 2016 for conducting noise monitoring at the alternative noise monitoring location identified at the podium floor (NM1A) which is free from screening to the construction activities.

In short, 2 air quality monitoring stations and 1 noise impact monitoring station were confirmed for the impact monitoring.

The Environmental Quality Performance Limits for air quality and noise are shown in **Appendix C**.

The Event and Action Plan for air quality, construction noise, and landscape and visual are shown in **Appendix D**.

The EM&A programme followed the recommended mitigation measures in the EM&A Manual. The EM&A requirements as well as the summary of implementation status of the environmental mitigation measures are provided in **Appendix J**.

### 2 Impact Monitoring Methodology

#### 2.1 Introduction

For air quality and noise, the monitoring methodology, including the monitoring locations, monitoring equipment used, monitoring parameters, and frequency and duration etc., for air quality and noise are detailed in this Section. The environmental monitoring schedules for the reporting period and the tentative monitoring schedule for the coming month are provided in **Appendix E**.

For landscape and visual impact, the relevant EM&A monitoring requirements and details are also presented in this Section.

#### 2.2 Air Quality

#### 2.2.1 Monitoring Parameters, Frequency and Duration

Table 2.1 summarizes the monitoring parameters, frequency and duration of the TSP monitoring.

	All quality monitoring raramotoro, rroqu	intering rurametere, riequeney and Buration					
Parameter	Frequency	Duration					
24-hour TSP	At least once in every six-days	24 hours					
1-hour TSP	At least 3 times every six-days	60 minutes					

#### Table 2.1: Air Quality Monitoring Parameters, Frequency and Duration

#### 2.2.2 Monitoring Locations

Currently, the works under the captioned project are confined in the western part of the WKCD site. Therefore, only the monitoring stations AM1 and AM2 were set up at the proposed locations in accordance with updated EM&A Manual. Location of the monitoring station is given in **Table 2.2** and shown in **Figure 1**.

#### Table 2.2: Air Quality Monitoring Station

Monitoring Station	Location
AM1	International Commerce Centre (ICC)
AM2	The Harbourside Tower 1 – Ground Floor

#### 2.2.3 Monitoring Equipment

For 24-hour TSP air quality monitoring, High Volume Sampler (HVS) was used at air monitoring station AM1 and portable direct reading dust meter was used at air monitoring station AM2 due to the unavailability of power supply for HVS at / in the vicinity of the AM2. The portable direct reading dust meter is capable of producing comparable results as that by the HVS method. For 1-hour TSP monitoring, portable direct reading dust meter was used for the measurement.

**Table 2.3** summarizes the equipment used in the impact air quality monitoring. Copies of the calibration certificates for the calibration kit and portable dust meters are attached in **Appendix F**.

#### Table 2.3: TSP Monitoring Equipment

24-hour TSP monitoring       High Volume Sampler     TE-5170 (Serial No: 0767)       Calibrator     TE-5025A (Orifice I.D.: 2454)	el	Mode				Model	
Calibrator TE-5025A (Orifice I.D.: 2454)	170 (Serial	TE-51				TE-5170 (Serial No: 0	767)
	)25A (Orifi	TE-502				TE-5025A (Orifice I.D	.: 2454)
Portable direct reading dust meter Sibata LD-5R (Serial No.: 831656)	a LD-5R (\$	Sibata		eter		Sibata LD-5R (Serial	No.: 831656)
1-hour TSP monitoring							
Portable direct reading dust meter Sibata LD-3B (Serial No.: 245834 and 43	a LD-3B (\$	Sibata		eter		Sibata LD-3B (Serial	No.: 245834 and 43655

Calibration of the HVS (five point calibration) using Calibration Kit was carried out every two months. The HVS calibration orifice will be calibrated annually. Calibration certificate of the TE-5025A Calibration Kit and the HVS are provided in **Appendix F**.

The portable direct reading dust meter should be determined periodically (e.g. annually) by the HVS to check the validity and accuracy of the results measured by direct reading method.

#### 2.2.4 Monitoring Methodology

#### 24-hour TSP Monitoring (HVS)

#### Installation

The HVS was installed at the site boundary. The following criteria were considered in the installation of the HVS.

- A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
- The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
- A minimum of 2 metres separation from walls, parapets and penthouse was required for rooftop sampler.
- A minimum of 2 metres separation from any supporting structure, measured horizontally was required.
- No furnace or incinerator flues or building vent were nearby.
- Airflow around the sampler was unrestricted.
- The sampler has been more than 20 metres from any drip line.
- Permission was obtained to set up the sampler and to obtain access to the monitoring station.
- A secured supply of electricity is needed to operate the sampler.

#### **Preparation of Filter Papers**

- Glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected.
- The filters used are specified to have a minimum collection efficiency of 99 percent for 0.3 µm (DOP) particles.
- 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 with relative humidity (RH) < 50% and was not variable by more than ±5 %. A convenient working RH was 40%. All preparation of filters was done by Hong Kong Laboratory Accreditation Scheme (HOKLAS) accredited laboratory.

#### **Field Monitoring Procedures**

- The power supply was checked to ensure the HVS works properly.
- The filter holder and the area surrounding the filter were cleaned.
- 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.
- The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
- The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges.
- The shelter lid was closed and was secured with the aluminium strip.
- The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
- A new flow rate record sheet was set into the flow recorder.
- The flow rate of the HVS was checked and adjusted at around 1.3 m<sup>3</sup>/min. The range specified in the EM&A Manual was between 0.6-1.7 m<sup>3</sup>/min.
- The programmable timer was set for a sampling period of 24 hours, and the starting time, weather condition and the filter number were recorded.
- The initial elapsed time was recorded.
- At the end of sampling, the sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
- It was then placed in a clean plastic envelope and sealed.
- All monitoring information was recorded on a standard data sheet.
- Filters were sent to a Hong Kong Laboratory Accreditation Scheme (HOKLAS) accredited laboratory for analysis.

#### Maintenance and Calibration

- The HVS and its accessories are maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- HVSs were calibrated upon installation and thereafter at bi-monthly intervals. The calibration kits were calibrated annually.

#### Weather Condition

 Meteorological data extracted from Hong Kong Observatory for the reporting month is provided in Appendix H.

#### 24-hour TSP Monitoring (Portable direct reading dust meter)

#### **Field Monitoring**

The measuring procedures of the portable direct reading dust meter are in accordance with the Manufacturer's Instruction Manual as follows:

- Turn the power on.
- Close the air collecting opening cover.
- Push the "TIME SETTING" switch to [BG].
- Push "START/STOP" switch to perform background measurement for 6 seconds.
- Turn the knob at SENSI ADJ position to insert the light scattering plate.
- Leave the equipment for 1 minute upon "SPAN CHECK" is indicated in the display.

- Push "START/STOP" switch to perform automatic sensitivity adjustment. This measurement takes 1 minute.
- Pull out the knob and return it to MEASURE position.
- Setting time period of 24 hours for the 24-hour TSP measurement.
- Push "START/STOP" to start the 24-hour TSP measurement.
- Regular checking of the time period setting to ensure monitoring time of 24 hours.

#### **Maintenance and Calibration**

- The portable direct reading dust meter would be checked at 3-month intervals and calibrated at 1-year intervals throughout all stages of the air quality monitoring.
- Calibration records for direct dust meters are shown in Appendix F.

#### Weather Condition

 Meteorological data extracted from Hong Kong Observatory for the reporting month is provided in Appendix H.

#### **1-hour TSP Monitoring**

#### **Field Monitoring**

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

- Turn the power on.
- Close the air collecting opening cover.
- Push the "TIME SETTING" switch to [BG].
- Push "START/STOP" switch to perform background measurement for 6 seconds.
- Turn the knob at SENSI ADJ position to insert the light scattering plate.
- Leave the equipment for 1 minute upon "SPAN CHECK" is indicated in the display.
- Push "START/STOP" switch to perform automatic sensitivity adjustment. This measurement takes 1 minute.
- Pull out the knob and return it to MEASURE position.
- Setting time period of 1 hour for the 1-hour TSP measurement.
- Push "START/STOP" to start the 1-hour TSP measurement.
- Regular checking of the time period setting to ensure monitoring time of 1 hour.

#### **Maintenance and Calibration**

- The 1-hour dust meter would be checked at 3-month intervals and calibrated at 1-year intervals throughout all stages of the air quality monitoring.
- Calibration records for direct dust meters are shown in Appendix F.

#### Weather Condition

 Meteorological data extracted from Hong Kong Observatory for the reporting month is provided in Appendix H.

#### 2.3 Noise

#### 2.3.1 Monitoring Parameters, Frequency and Duration

**Table 2.4** summarizes the monitoring parameters, frequency and duration of noise monitoring. The noise in A-weighted levels  $L_{eq}$ ,  $L_{10}$  and  $L_{90}$  are recorded in a 30-minute interval between 0700 and 1900 hours.

#### Table 2.4: Noise Monitoring Parameters, Period and Frequency

Time Period	Parameters	Frequency
Daytime on normal weekdays (0700-1900 hours)	$L_{eq}(30 \text{ min}), L_{90}(30 \text{ min}) \& L_{10} (30 \text{ min})$	Once every week

#### 2.3.2 Monitoring Location

Currently, the works under the captioned project are confined in the western part of the WKCD site. Therefore, only the monitoring station NM1A was set up. Location of the monitoring station is given in **Table 2.5** and shown in **Figure 1**.

#### Table 2.5: Noise Monitoring Station

Monitoring Station	Location
NM1A	International Commerce Centre (ICC)

#### 2.3.3 Monitoring Equipment

Integrating Sound Level Meter was used for noise monitoring. It was a Type 1 sound level meter capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level ( $L_{Aeq}$ ) and percentile sound pressure level ( $L_x$ ). They comply with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). **Table 2.6** summarizes the noise monitoring equipment model being used.

#### Table 2.6: Noise Monitoring Equipment

Monitoring Station	Equipment Model	
	Integrating Sound Level Meter	Calibrator
NM1A	Rion NL-52 (Serial No. 00710259)	LARSON DAVIS CAL200 (Serial No.10227)

#### 2.3.4 Monitoring Methodology

#### **Field Monitoring**

- The microphone of the Sound Level Meter was set at least 1.2 m above the ground.
- Free Field measurement was made at the monitoring locations.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - frequency weighting: A
  - time weighting: Fast
  - time measurement: 30 minutes intervals (between 0700-1900 on normal weekdays)
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1 kHz. If the difference in the calibration level before and after measurement

was more than 1 dB, the measurement would be considered invalid and has to be repeated after re-calibration or repair of the equipment.

- During the monitoring period, the L<sub>eq</sub>, L<sub>10</sub> and L<sub>90</sub> were recorded. In addition, any site observations and noise sources were recorded on a standard record sheet.
- A correction of +3dB(A) was made to the free field measurements.

#### **Maintenance and Calibration**

- The microphone head of the sound level meter and calibrator is cleaned with soft cloth at quarterly intervals.
- The sound level meter and calibrator are sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.
- Calibration records are shown in Appendix F.

#### Weather Condition

 Meteorological data extracted from Hong Kong Observatory for the reporting month is provided in Appendix H.

#### 2.4 Landscape and Visual

#### 2.4.1 Monitoring Program

**Table 2.7** details the monitoring program (as proposed in the WKCD EIA report) for landscape and visual impact during the construction phase.

### Table 2.7:Monitoring Program for Landscape and Visual Impact during ConstructionPhase

Stage	Monitoring Task	Frequency	Report	Approval
Construction	Monitor implementation of proposed mitigation measures during the construction stage.	Bi-weekly	ET to report on Contractor's compliance	Counter- signed by IEC

During the landscape and visual impact monitoring, any changes in relation to the landscape and visual amenity should be monitored with reference to the baseline conditions of the site. In addition, mitigation measures were proposed in the WKCD EIA report to minimise the landscape and visual impacts during the construction phase. The proposed mitigation measures as shown in Table 9.1 and Table 9.2 of the EM&A Manual should be checked for proper implementation.

### 3 Monitoring Results

#### 3.1 Impact Monitoring

Construction impact monitoring for air quality, noise and landscape and visual impact was undertaken in compliance with the EM&A Manual during the reporting month.

#### 3.2 Air Quality Monitoring

#### 3.2.1 1-hour TSP

Results of 1-hour TSP at the monitoring location AM1 and AM2 are summarised in **Table 3.1**. Graphical plots of the monitoring results are shown in **Appendix G**.

	•			•				
Monitoring	Monitoring	Start	1-hour TSP (µg/m3)			Range	Action	Limit
Station	Date	Time	1st Result	2nd Result	3rd Result	(µg/m3)	Level (µg/m3)	Level (µg/m3)
	06-Jun-22	8:30	36	42	45		45 273.7	500
	10-Jun-22	8:27	21	23	20	19-45		
AM1	16-Jun-22	8:22	31	27	26			
	22-Jun-22	8:27	21	19	25			
	28-Jun-22	8:24	19	22	21			
	06-Jun-22	8:43	55	50	46	21-55 274.		500
	10-Jun-22	8:41	25	29	30		274.2	
AM2	16-Jun-22	8:35	40	36	35			
	22-Jun-22	8:40	25	29	27			
	28-Jun-22	8:38	26	24	21			

Table 3.1: Summary of 1-hour TSP monitoring results

#### 3.2.2 24-hour TSP

Results of 24-hour TSP at the monitoring location AM1 and AM2 are summarised in **Table 3.2**. Graphical plots of the monitoring results are shown in **Appendix G**.

Table 3.2:Summary of 24-hour TSP monitoring results

Table 5.2.	Summary O	24-110ui i	ulis			
Monitoring Station	Monitoring Date	Start Time	Monitoring Results (µg/m³)	Range (µg/m³)	Action Level (µg/m³)	Limit Level (µg/m <sup>3</sup> )
	06-Jun-22	08:28	38			
	10-Jun-22	08:25	16	_		
AM1	16-Jun-22	08:20	28	16-38	143.6	260
	22-Jun-22	08:25	19	_		
	28-Jun-22	08:22	21			
	06-Jun-22	08:41	43			
AM2	10-Jun-22	08:39	21	21-43	151.1	260
	16-Jun-22	08:33	29	_		

Monitoring Station	Monitoring Date	Start Time			Action Level (µg/m³)	Limit Level (µg/m³)
	22-Jun-22	08:38	23			
	28-Jun-22	08:35	22	-		

No exceedance of 1-hour and 24-hour TSP (Action or Limit Level) was recorded in the reporting period.

#### 3.3 Noise Monitoring

The construction noise monitoring results at the monitoring location NM1A are summarized in **Table 3.3**. Graphical plots of the monitoring data and the station set-up of a free-field measurement are shown in **Appendix G**.

Table 3.3:	ble 3.3: Summary of noise monitoring results during normal weekdays				
Monitoring Date	Start Time	End Time	L <sub>eq</sub> (30 mins)*, dB(A)	Limit Level for L <sub>eq</sub> (dB(A))	
06-Jun-22	09:26	09:56	67		
16-Jun-22	09:10	09:40	66		
22-Jun-22	09:23	09:53	67	- 75	
28-Jun-22	09:21	09:51	66	-	

Remarks:

\* +3dB (A) correction was applied to free-field measurement.

No exceedance (Action/Limit Level) of construction noise was recorded in the reporting month.

#### 3.4 Landscape and Visual Impact

Landscape and visual impact inspections were conducted as part of the weekly site inspection on 1, 15 & 27 June 2022 for Lyric Theatre Complex (L2 Contract) during the reporting month. As reviewed by the registered Landscape Architect, no adverse comment on landscape and visual aspects was made during this inspection.

The landscape and visual mitigation measures were implemented during the reporting period. The summary of implementation status of the environmental mitigation measures is provided in **Appendix J**.

### **4** Site Environmental Management

#### 4.1 Site Inspection

Construction phase weekly site inspections were carried out on 1, 8, 15, 22 and 27 June 2022 at Lyric Theatre Complex (L2 Contract). While the site environmental management committee meeting with IEC, ET, ER and Contractor was held on 22 June 2022. All observations have been recorded in the site inspection checklist and passed to the Contractor together with the appropriate recommended mitigation measures where necessary.

The key observations from the site inspections and associated recommendations are summarized in **Table 4.1.** 

Inspection Date	Parameter	Observation / Recommendation	Contactor's Responses / Action(s) Undertaken	Close- out (Date)
01-Jun-22	Waste Management	The contractor was reminded to clean The contractor h up the waste regularly. cleaned up the wa regularly.		01-Jun-22
01-Jun-22	Air Quality	Opened cement bags were observed on ground, the contractor was reminded to cover the cement bags properly.	The contractor has removed the opened cement bags.	04-Jun-22
08-Jun-22	Air Quality	Opened cement bags were observed The contractor has on ground, the contractor was covered the cement bags reminded to cover the cement bags properly. properly.		08-Jun-22
08-Jun-22	Water Quality	Paint was observed on ground, the contractor was reminded to clean up the paint.	The contractor has cleaned up the paint.	14-Jun-22
08-Jun-22	Waste Management	The contractor was reminded to clean up the waste regularly.	The contractor has cleaned up the waste regularly.	10-Jun-22
15-Jun-22	Air Quality	Opened cement bags were observed on ground, the contractor was reminded to cover the cement bags properly.	The contractor has covered the cement bags properly.	15-Jun-22
15-Jun-22	Noise	Broken noise insulating fabric was observed, the contractor was reminded to replace a suitable noise insulating fabric for the breaker.	The contractor has replaced a suitable noise insulating fabric for the breaker.	16-Jun-22
15-Jun-22	Waste Management	General refuse was observed on ground, the contractor was reminded to clean up the waste regularly and provide proper disposal facility.	The contractor has cleaned up the waste and provided a proper storage for general refuse.	20-Jun-22
22-Jun-22	Air Quality	Opened cement bags were observed on ground, the contractor was reminded to cover the cement bags properly.	The contractor has covered the cement bags properly.	24-Jun-22
27-Jun-22	Water Quality	Idle chemicals were observed on ground, the contractor was reminded to remove the idle chemicals regularly.		On-going

#### Table 4.1: Summary of Site Inspections and Recommendations for L2

Inspection Date	Parameter	Observation / Recommendation	Contactor's Responses / Action(s) Undertaken	Close- out (Date)
27-Jun-22	Water Quality	Stagnant water was observed at the drip tray, the contractor was reminded to clear the stagnant water to avoid chemical spillage.	The contractor has cleared the stagnant water.	27-Jun-22
27-Jun-22	Waste Management	General refuse was observed, the contractor was reminded to clean up the waste regularly.	-	On-going

#### 4.2 Advice on the Solid and Liquid Waste Management Status

The Contractor has been registered as a chemical waste producer for the Project. Construction and demolition (C&D) material sorting will be carried out on site. A sufficient number of receptacles were available for general refuse collection.

As advised by the Lyric Theatre Complex (L2 Contract) Contractor, 155.6 tonnes, 7.7 tonnes and 37.1 tonnes of inert C&D materials were disposed of as public fill to Tseung Kwan O Area 137 Public Fill, Tuen Mun Area 38 Public Fill and Chai Wan Public Fill Barging Point respectively in the reporting month, while 447.8 tonnes of general refuse were disposed of at SENT and WENT landfill. 21.1 tonnes of metals, 0.0 tonne of paper/cardboard packaging, 0.0 tonne of plastics and 0.0 tonne of timber were collected by recycling contractors in the reporting month. 0.0 tonne of inert C&D material was reused on site. 0.0 tonne of inert C&D material was reused in other projects and 0.0 tonne of inert C&D material was imported for reuse at site. 0.0 tonne of inert C&D material was disposed to sorting facility and 1.1 tonnes of chemical waste were collected by licensed contractors in the reporting period.

The actual amounts of different types of waste generated by the activities of construction works at Lyric Theatre Complex in the reporting month are shown in **Appendix I**.

#### 4.3 Status of Environmental Licenses and Permits

The environmental permits, licenses, and/or notifications on environmental protection for this Project which were valid during the period are summarised in **Table 4.2**.

Permit / License No. /	Valid F	Period	Status	Remarks		
Notification / Reference No.	From	То	_			
Chemical Waste Producer Re	egistration					
WPN:5213-217-G2347-39	13-Sep-21	-	Valid			
Billing Account Construction	Billing Account Construction Waste Disposal					
7032787	02-Jan-19	-	Account Active			
Construction Noise Permit						
GW-RE0321-22	25-Apr-22	24-Jun-22	Superseded			
GW-RE0581-22	25-Jun-22	24-Aug-22	Valid			
Wastewater Discharge License						
WT-00030694-2018	11-Apr-18	30-Apr-23	Valid			
Notification under Air Polluti	Notification under Air Pollution Control (Construction Dust) Regulation					
448474	27-Aug-19	-	Notified			

#### Table 4.2: Status of Environmental Submissions, Licenses and Permits for L2

#### 4.4 Recommended Mitigation Measures

The EM&A programme followed the recommended mitigation measures in the EM&A Manual. The EM&A requirements as well as the summary of implementation status of the environmental mitigation measures are provided in **Appendix J**. In particular, the following mitigation measures were brought to attention during the site inspections:

#### Air Quality

 High standard of housekeeping should be maintained to prevent emission of fugitive dust

#### Noise

- Noise insulating fabric should be adopted for certain PME

#### Water Quality

Oils and fuels should be stored in designated areas which have pollution prevention facilities

#### Waste Management

All wastes generated at site should be collected and disposed to an appropriate facility regularly

### **5** Compliance with Environmental Permit

The status of the required submission under the EP during the reporting period is summarized in **Table 5.1**.

#### Table 5.1: Status of Submissions under the Environmental Permit

<b>EP Condition</b>	Submission	Submission Date
Condition 3.4	Monthly EM&A Report for May 2022	14 June 2022

### 6 Report in Non-compliance, Complaints, Notification of Summons and Successful Prosecutions

#### 6.1 Record on Non-compliance of Action and Limit Levels

There was no breach of Action or Limit Levels for Air Quality and Noise monitoring in the reporting month.

#### 6.2 Record on Environmental Complaints Received

Three environmental complaints were received in the reporting month.

On 27 June 2022, the EPD received a complaint regarding muddy water discharge at the WKCD construction site. The complainant claimed that the WKCD construction site was continuously discharging muddy water into the sea, follow-up action was also demanded. The complainant had also provided photos and video demonstrating the concerned muddy water discharge. From the information provided by the contractor, no construction activities involving muddy materials or muddy water discharge were undertaken on 27 June 2022. And from the daily self-checking on the effluent quality, the wastewater was properly treated and was within compliance. Various mitigation measures and trainings were properly implemented including bundings at the seafront and regular site environmental committee meeting with subcontractor. From the on-site observation and prompt investigation during the site inspection on 27 June 2022, the brownish layer with bubbles observed was believed to be due to natural fluctuation or algae bloom in hot weather, which was not related to the construction works of Lyric Theatre Complex (L2 Contract). As concluded from the above investigation and findings, it could not directly imply the complaint was attributable to Lyric Theatre Complex (L2 Contract).

On 29 June 2022, the EPD received a complaint from a district councillor regarding polluted water discharge at the WKCD construction site. The complainant (nearby resident) claimed that great amount of polluted water was discharged from the WKCD construction site. The complainant had also provided video demonstrating the concerned polluted water discharge. The case is currently under investigation and the findings will be presented in the next monthly EM&A report.

On 30 June 2022, the EPD received a follow-up complaint from the district councillor regarding polluted water discharge. The complainant claimed that the WKCD construction site was still discharging polluted water, with some white bubbles floating to the water body near to the Harbour City. The complainant had also provided video demonstrating the concerned polluted water discharge. The case is currently under investigation and the findings will be presented in the next monthly EM&A report.

However, the contractor is reminded to strictly implement and maintain good site practices to avoid water pollution to the water body of Victoria Harbour.

The cumulative statistics on complaints were provided in Appendix K.

#### 6.3 Record on Notifications of Summons and Successful Prosecution

No notifications of summons or successful prosecutions were received this month. The cumulative statistics on notifications of summons and successful prosecutions were provided in **Appendix** K.

### 7 Future Key Issues

#### 7.1 Construction Works for the Coming Month(s)

The major site works for L2 to be commissioned in the coming month include:

LTC construction

Structure (Slab, wall, columns and beam)

- Falsework and formwork erection
- Reinforcement work
- Concrete work

ABWF & MEP work

- ASDA and Lyric Theatre Promenade
  - Structure and BS works
  - Hoarding works
- DSC cofferdam (Cofferdam A)
  - Backfill and const. additional blinding layer & retaining wall
- Extended basement
  - ABWF & MEP work
  - RC water tank
  - Late cast RC works (top slab/ backfill sunken etc.)
  - Carpark area plaster and paint
- Underpass and Associated Area
  - RC Structure
  - ABWF & MEP work
- M+ Day 2 Works
  - Backfilling
  - Remove plenum block wall & make good opening for Louvre
- P32 Interim Development
  - Remedial works & scaffold removal
  - Construct dog houses

#### 7.2 Key Issues for the Coming Month

Key issues to be considered at Lyric Theatre Complex in the coming month include:

- Generation of dust from construction works;
- Noise impact from operating equipment and machinery on-site;
- Generation of site surface runoffs and wastewater from activities on-site;
- Management of stockpiles and slopes, particularly on rainy days;
- Sorting, recycling, storage and disposal of general refuse and construction waste;
- Management of chemicals and avoidance of oil spillage on-site; and
- Operating conditions of drainage facilities.

#### 7.3 Monitoring Schedule for the Coming Month

The environmental site inspection and environmental monitoring will be continued in the coming month. The tentative monitoring schedule for the coming month is shown in the **Appendix E**.

### 8 Conclusions and Recommendations

#### 8.1 Conclusions

The EM&A programme as recommended in the EM&A Manual has been undertaken. The construction works and EM&A programme for M+ Museum was commenced on 31 October 2015 and completed on 28 February 2021; while the construction works and EM&A programme for Lyric Theatre Complex (L1 and L2 Contracts) was commenced on 1 March 2016, and the EM&A programme for L1 Contract was completed on 30 June 2021.

Monitoring of air quality and noise with respect to the Project is underway. In particular, the 1-hour TSP, 24-hour TSP, noise level (as  $L_{eq}$ , 30 minutes) under monitoring have been checked against established Action and Limit levels. There was no breach of Action and Limit Levels for 1-hour TSP, 24-hour TSP and noise in the reporting month.

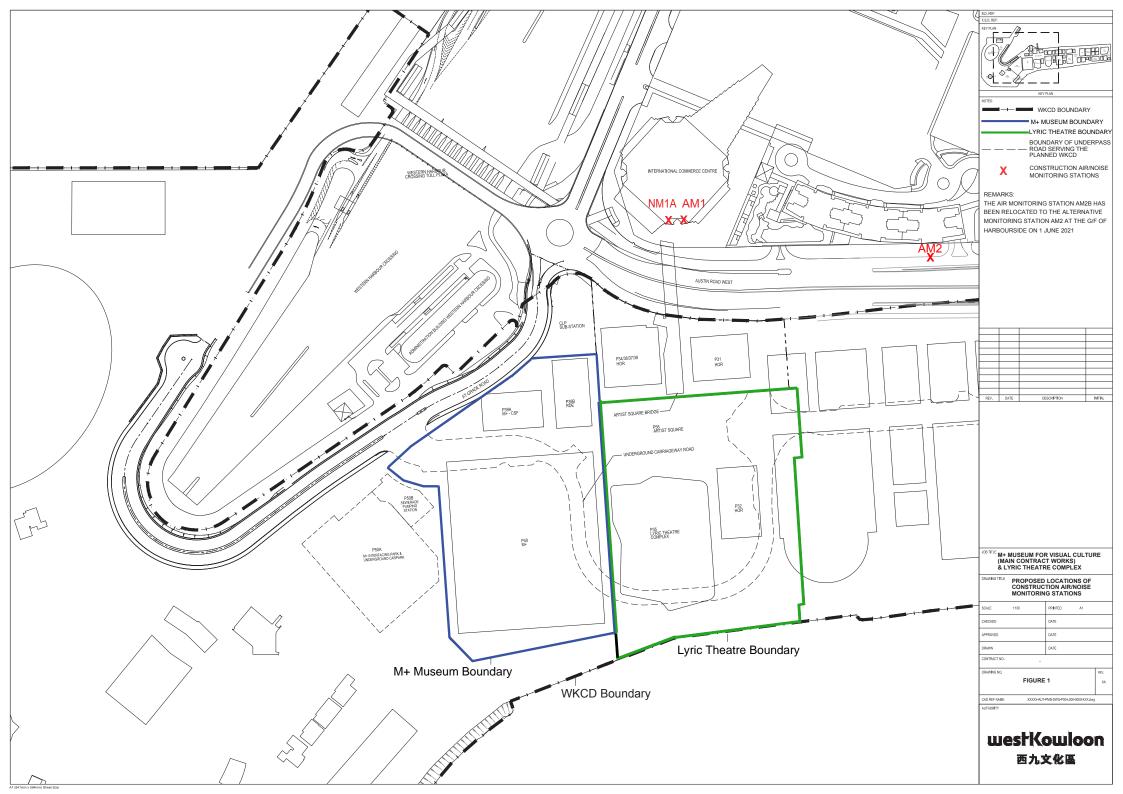
Three environmental complaints were recorded in the reporting month. No notifications of summons or successful prosecutions were received during the reporting month.

Weekly construction phase site inspections and bi-weekly landscape and visual impact inspections were conducted during the reporting month as required. It was observed that the Contractors had implemented all possible and feasible mitigation measures to mitigate the potential environmental impacts during construction phase works.

#### 8.2 Recommendations

Potential environmental impacts due to the construction activities, including air quality, noise, water quality, waste, landscape and visual, will be monitored or reviewed. The recommended environmental mitigation measures shall be implemented on site and regular inspections as required will be carried out to ensure that the environmental conditions are acceptable.

# Figure 1 Site Layout Plan and Monitoring Stations



### **Appendices**

- A. Project Organisation
- B. Tentative Construction Programme
- C. Action and Limit Levels for Construction Phase
- D. Event and Action Plan for Air Quality, Noise, Landscape and Visual Impact
- E. Monitoring Schedule
- F. Calibration Certifications
- G. Graphical Plots of the Monitoring Results
- H. Meteorological Data Extracted from Hong Kong Observatory
- I. Waste Flow table
- J. Environmental Mitigation Measures Implementation Status
- K. Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

## A. Project Organisation

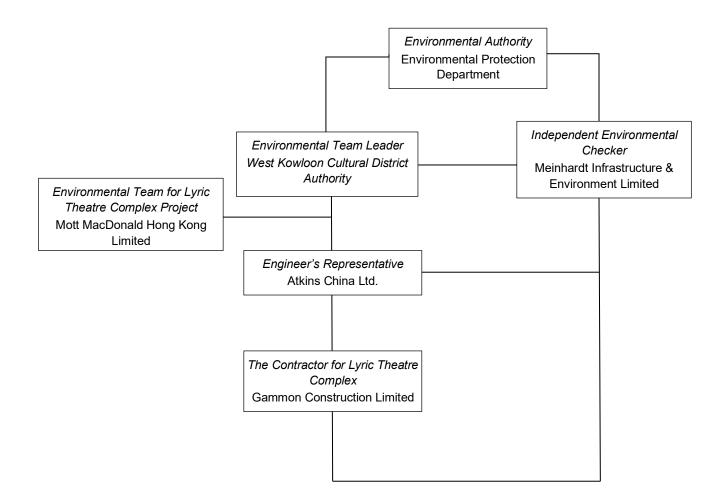


Table A-1: Contact information

Company Name	Role	Name	Telephone	Email
Atkins China Ltd.	Resident Engineer	Ms. Gloria Lui	5506 6361	gloria.lui@atkinsglobal.com
Meinhardt Infrastructure & Environment Limited	Independent Environmental Checker	Ms. Claudine Lee	2859 5409	claudinelee@meinhardt.com.hk
Gammon Construction Limited (L2)	Environmental Manager	Mr. Ivan Chiu	9416 1664	ivan.chiu@gammonconstruction.com
Mott MacDonald Hong Kong Ltd.	Contractor's Environmental Team Leader	Mr. Thomas Chan	2828 5757	thomas.chan@mottmac.com
West Kowloon Cultural District Authority	Senior Project Manager (Safety, Health and Environment)	Mr. C.K. Wu	5506 9178	ck.wu@wkcda.hk

# **B. Tentative Construction Programme**

# TASK filter: L2 UPD: Level 1 Summary.

)	Activity	RD BL Rev	/ 00 BL Rev 00	BL Rev 02	BL Rev 02	Start	Finish	LoE SUMM	2020			2021		2	2022		20	023		2024	- T
		Sta		Start	Finish			TF (approx,	QQ	Q	Q	Q Q	Q	QC	λŐ	Q	QQ	Q		QC	2 Q
								not for use)				ŀ							ШΠП		
L2 CMWP_	R02_03 2nd DRAFT IFA on 27Apr22 - (20th UPD; DD = 31 May 2022)																				
GENER/	AL & PRELIMINARIES								1111		m	1010				1111		1111		11111	m
												<u>++++</u>					+++++			++++	(++++
	t Significant Dates																				
Commen	cament & Completion Dates - CMWP_Rev_01										UII	ШL					ЫШ		ulliti		ШI
Section M	(eydates																				
KD05A	Complete Required Pedestrian Access Corridor and Floor Finishes at AURW	0	28-Feb-21		12-Nov-21		12-Nov-21 A				<b>A</b>		⊗								
KD05B	Complete Required Pedestrian Access Corridor & associated top slab at Avenue Level [if instructed]	0	14-Feb-21		12-Nov-21		12-Nov-21 A						ً⊘								
KD05C	PC for HO of Landscape Area at Avenue & Pedestrian level between P31 & P34 [if instructed]	0	28-Feb-21		05-Oct-22		07-Jan-23*	-94			<b> </b>	TTTT.		1	€	9 I 🕈	1111		9   H H	THE	
KD05	PC for HO of the Remaining Works for M+ Promenade South	0	24-Aug-20		13-Jan-23		02-Mar-23*	-48	18 <b>(A</b> )		CEEE	1111		ТŊ	THP:	}∐@	ð <b>⊽</b> ∷	ITH	0100	THE	a an the second s
KD08	PC for HO Loc ICT/Risers Rms to APC for ICT Sys Instn Wrks	0	10-Feb-23		10-Sep-24		29-Nov-24*	-80				IIII		17		ШР	<b>è</b> [ ] [		000		9 7
KD10	PC for HO of ASDA, Lyric Theatre Promenade South to Authority	0	10-Feb-23		10-Sep-24		29-Nov-24*	-80				THE				HIII	<b>A</b>				୭ ♥
KD09	PC for HO of RDE areas for Tenancy Fit-out Wrks	0	10-Feb-23		10-Sep-24		29-Nov-24*	-80				IIII				HIP	<b>A</b>		8.U.H	€	🤊 🗸
KD11	PC for HO of Extended Basement for HO to Authority & HO of Carriageway to Relevant Govt Authority	0	10-Feb-23		12-Nov-24		05-Feb-25*	-85	1010	880		HH	1311	HH		HIP	<b>A</b>		81DH	180	Ø
KD07	PRACTICAL COMPLETION for C'Way 3A (M+ Day 2 Works)	0	10-Feb-23		09-Dec-24		04-Mar-25*	-53	1911		m			ΠH	THP:	HIP	<b>A</b> H H	TH	a per	THD	Ø
KD13	PRACTICAL COMPLETION for Lyric Theatre, EB & C'Way 3B (Incl. Provisional PPE License)	0	08-Sep-23		10-Jan-25		02-Apr-25*	-82				1111		TV.		IIII		À	000		e
Stage Ke	ydates													N							
KD01	Compl Dsgn Coor/Subm and obtn NNO for L1 Contr Bsmt constn wrks	0	20-Jul-19		20-Jul-19		20-Jul-19 A			1111	c trist	THÉ	11-1-	1111	1111	1777	1111	1111	anti	THE	mt
KD06	PC for Fountain Related Plantroom(s) (allow access to Project Contractor)	0	01-Apr-21		07-Jun-22		19-Jul-22*	-42	THE	F1 F   1	∏ <b>≜</b> [	11111	1111	1117	Ø₹	1111	11111		III III	11111	THE
KD03	OBTAIN OP for Lyric Theatre & Extended Basement	0	12-Dec-22		10-Sep-24		29-Nov-24*	-80						17						€	9 🗸
KD14	Complete U/G road and the associated plantrooms at Zone 3A&3B Integrated Basement	0	04-Aug-22		26-Sep-24		14-Dec-24*	-79								1					⊘ 7
KD02	Obtain BA14 Acknowledge from BD for M+ Day2 A&A Works	0	12-Dec-22		08-Nov-24		28-Jan-25*	-81				1111		T.			1111				Ø
CMWP-	Summary Program - Level 1								1010		CI TI	1717	11-7-	ΠN	1111	1111	11111			1111	1111
SUM10	[LoE] CC B Lyric Theatre - Substructure RC Structural Concrete	0		06-May-20	22-Jan-22	06 May 20 A	22-Jan-22 A					4 - 14 - 14 - 14 - 14 - 14 - 14		<u>.</u>			+	• • • • • • • • • • •	***		
SUM30	[LoE] CC H - Vibration Isolation Spring System Remaining as of 30Apr2020 (AS=30Sep19)	0		09-May-20	10-Feb-21		10-Feb-21 A			L	51-1-1					<u></u>				++++	
SUM25	[LoE] CC E - DCS Cofferdam A Works & Obtain BA14	322		23-Jun-20	23-May-23	23-Jun-20 A		-20				<u>i i i i i</u>	i i i i i	-	ti i i i i i i i i i i i i i i i i i i	÷	i ji i i i	÷			<u></u>
SUM23	[LoE] CC D - Remaining Works for M+ Promenade South	206		18-Feb-21	13-Jan-23	18-Feb-21 A	0	-20		11111				-			× · · · ·	+++++	11-1-1-1-1	++++	$\left\{ + \right\}$
SUM21	[LoE] CC_LT EVA1 & EVA2	653		12-Apr-21	09-Sep-24	12-Apr-21 A		124		Hit -	n i niti	<u></u>		- i i i i i i	<u>Li iii</u>	<u></u>	*****	+	<del>i i i i i i</del>	<u>+++++</u>	He -
SUM21	[LoE] CC_G Extended Basement - ABWF Works (Incl. Deferred Areas Under Deck)	525		15-May-21	02-Feb-24	15-May-21 A		187				4 - 1- 4 - 1-	* -! - 1	- + 4 - + -			* +	+ -  - + -  -		1-1-1-1-1	
SUM28	[LoE] CC_G Extended Basement - MEP 1st Fix to Final Fix (Incl. Deferred Areas Under Deck)	507		17-May-21	12-Jan-24	17-May-21 A		14				,			سننبل			******			<u></u>
SUM14	[LoE] CC B Lyric Theatre - ABWF Work Including Theatres (Exd. Punch List Works)	765		28-May-21	14-Oct-24	28-May-21 A		7				,		-			*****			<del>i i i i i</del>	
SUM35	[LoE] CC J - M+ Day 2 Works (excl. connections to M+ and SZ 1 FS Changeover)	648		03-Jun-21	25-Jun-24	03-Jun-21 A		-19			-+-+	-		-			*****		<del>édebéré</del>		昏谷
SUM23	[LoE] CC C - Artist SQ. Bridge (ASB 1/2/3; ASB 3; P31 2; P34 2; AS 1/2; ASB-6/P31 EVA)	540		21-Jun-21	22-May-24	21-Jun-21 A	0	237	++++	H+++-	- <del></del> -	1000		<u> </u>	<u></u>	<u>i i i i i i</u>	, i i i i i i i		<u> </u>	<b>-</b>	1+1+
SUM15	[LoE] CC_B Lyric Theatre - MEP 1st to Final Fix (Excl. TH SYS done by SVE)	783		22-Jun-21	04-Nov-24	22-Jun-21 A		-29						-		<del>detetete</del>	titti			<del></del>	tetetetetetetetetetetetetetetetetetete
SUM10	[LoE] CC B Lyric Theatre - Superstructure RC Structural Concrete	358		02-Jul-21	22-Jul-23	02-Jul-21 A	28-Sep-23	-3				1		-	تشتقين		1	-		11111	<u> </u>
SUM22	[LoE] CC C - HoR Development (P32-1, P29-1, P31-EVA)	540		03-Aug-21	17-Apr-24	03-Aug-21 A		-5								<u></u>	1	<u></u>	<u>u liti</u>	₩H	i i i i i i
SUM31	[LoE] CC   Carriageway 3B - ABWF Works	275		12-Aug-21	01-Apr-23	12-Aug-21 A	,	411	1111	H÷ B	hidh	it 🚘					÷÷÷÷	10110	firiri		1212
SUM42	[LoE] CC E - DCS Outside of Cofferdam A Works (Connect DIA1,600 & Remove Temp O'fall)	384		08-Sep-21	29-Sep-23	08-Sep-21 A		-7		H+++-	- <del>i i - i</del>	it itiz	<u></u>	-	مەنبەتتە		<u></u>	*****	<b>5</b> 1 1 1 1 1		ittt
SUM32	[LoE] CC I Carriageway 3B - MEP Works (1st Fix to Final Fix)	234		22-Mar-22	13-Feb-23	15-Sep-21 A		251					* -1 - 5 -			<u></u>					
SUM40	[LoE] CC N Lifts & Escalators	545		14-Dec-21	02-Feb-24	14-Dec-21 A		42				1111		<u></u>		3 - 1- 4	1.1.1.1.1	<u>.i.i.i.i.</u>	<u>i li li li</u>		
SUM41	[LoE] CC B Lyric Theatre - Structural Steel by CSD	415		04-Mar-22	20-Oct-23	11-Mar-22 A		-24	计合合	H H H	Htt	1111	111		<b>, and a set of</b>				<b>a</b> ntt	유유님	lttt
SUM26	[LoE] CC F - Mods to Existing Pump Cell Civil & MEP Works (Excl. Options 2 Add. Pumps)	143		01-Mar-22	26-Sep-22	10-Jun-22	15-Dec-22	151	11111	hir i	htt	1::1::	11-1-1	the for	÷	<del></del> -	titit	-tette	11-11-1	급급	ittt
SUM20	[LoE] CC B Lyric Theatre - EWS Weather Tight Type	313		25-Jun-22	09-Sep-23	20-Aug-22	17-Oct-23	44	甘甘甘			itit	:	· · · · · · · · · · · · · · · · · · ·		<u></u>		<u></u>	rititt.		ititi
SUM12	[LoE] CC B Lyric Theatre - TH Systems (by SVE) Incl. T&C, Precom. & Commissioning	726		30-Aug-22	25-Nov-24	30-Aug-22	18-Feb-25	-29	1:::::			++++		17						<u></u>	<u>ai in a</u>
SUM20	[LoE] CC C - LT Promenade & Pocket Square Bridge	543		04-Aug-22	31-Jul-24	22-Sep-22	23-Sep-24	-8				计计		nh <b>∖</b> i∕	甘豆		*****			*****	<b>5</b> 77
SUM29	[LoE] CC G Extended Basement - T&C	301		03-Jan-23	02-Feb-24	04-Mar-23	12-Mar-24	14	甘油油	H the	Htt	tt tt	t t t t	1111		1111	1	****		100	(*†††
SUM33	[LoE] CC   Underpass 3B & Associated Area - T&C	182		13-Apr-23	25-Oct-23	29-May-23	04-Jan-24	66	甘油油	titela de la companya	-+	1111	+	tt 🖌	th:	tttF	11116		st 🗄	++++	(ttt
SUM13	[LoE] CC B Lyric Theatre - EWS Non-Weather Tight Type 4.1 & 4.3	256		23-Mar-23	25-Mar-24	10-Jun-23	17-May-24	56	甘甘甘			itit		···· <b>\</b>	titi	1111	11111		<u></u>	<b>⇒</b> titti	ititt
SUM39	[LoE] CC K - Water Main at Promenade	143		24-May-23	08-Jan-24	10-Aug-23	09-Feb-24	-10	1:::::			1111				<u></u>	+			+++++	
SUM16	[LoE] CC B Lyric Theatre - T&C (Excluding Non-FSD ELV & Electrical)	137		12-Dec-23	11-Jun-24	27-Feb-24	13-Aug-24	8	1000					- Hill	1111	1111			n Lie	, <del>han ha</del>	1111
SUM18	[LoE] CC B Lyric Theatre, EB, C'Way 3B - Stat. Insp. & Approval (from Form 314/501 to BD OP)	98		17-May-24	10-Sep-24	05-Aug-24	29-Nov-24	-66	甘竹竹	H H	HĤ	骨骨	tt-i-	tt <b>f</b> t	甘甘甘	1111	1111	+++++	11-11-1	구단물	in the second se
	[LoE] CC J - M+ Day 2 FS Changeover in 3A SZ 1, Connections to M+, Integrated T&C	51		29-Jul-24	26-Sep-24	17-Oct-24	14-Dec-24	-66	11111	HHH	ŀ†∹ŀ	计计	† - † -	· H H H	tt tt	1211	++++	$\cdot$	11-11-11	<u>+1+</u>	
SUM38																					

Ø ▼ 🔗 Base Line MS Gammon V Milestone

Base Line ACT

Current - Other Works

Rev\_0KD

Current - Struct Works Current - MEP Works

Current - ABWF Works Current - Facade Works Critical Works

L2 CMWP\_R02\_03 2nd DRAFT IFA on 27Apr22 -(20th UPD; DD = 31May2022)

Date Revision Checked Approved 09-Jun-22 CMWP Rev\_2\_03 - 2nd DRAFT 20th Update DD ... NS H

Page 1 / 1

# C. Action and Limit Levels for Construction Phase

# Air Quality

The Action and Limit Levels for 1-hour and 24-hour TSP for the monitoring station are presented in following tables:

Table C-1:	Action and	Limit Levels for 1-hour TSP	
Monitoring	g Station	Action Level (mg/m <sup>3</sup> )	Limit Level (mg/m <sup>3</sup> )
AM	1	273.7	500
AM	2	274.2	500

# Table C-2: Action and Limit Levels for 24-hour TSP

<b>Monitoring Station</b>	Action Level (µg/m³)	Limit Level (µg/m³)
AM1	143.6	260
AM2	151.1	260

# <u>Noise</u>

The Action and Limit Levels for Noise for the monitoring stations are presented in following table:

# Table C-3: Action and Limit Levels for Construction Noise

Time Period & Monitoring Locations	Action Level	Limit Level
NM1A		
0700-1900 hours on normal weekdays	When one valid documented complaint is received.	75 dB(A)

# **D.** Event and Action Plan for Air Quality, Noise, Landscape and Visual Impact

# Air Quality

In case the Action and Limit Levels are not complied during construction stage, the following Event and Action Plan should be followed:

Table D-1: Event and Action	Plan for Air Quality
-----------------------------	----------------------

Event	Action											
	ET	IEC	WKCDA	Contractor								
Action Level												
1. Exceedance for one sample	1. Identify source, investigate the causes of	1. Check monitoring data submitted by ET;	1. Notify Contractor	1. Rectify any unacceptable practice;								
	exceedance and propose remedial measures;	2. Check Contractor's working method.		2. Amend working methods if appropriate.								
	2. Inform IEC and WKCDA;											
	3. Repeat measurement to confirm finding;	)										
	4. Increase monitoring frequency to daily.											
	1. Identify source;	1. Check monitoring data		1. Submit proposals for								
two or more consecutive samples	2. Inform IEC and WKCDA;	submitted by ET; 2. Check Contractor's	in writing;	remedial to WKCDA within three working days of notification;								
Sampies	3. Advise the WKCDA on the effectiveness of the	working method; 3. Discuss with ET and	<ol> <li>Notify Contractor;</li> <li>Ensure remedial</li> </ol>	<ol> <li>Implement the agreed</li> </ol>								
	proposed remedial measures;	Contractor on possible remedial measures;	measures properly implemented.	proposals; 3. Amend proposal if								
	4. Repeat measurements to confirm findings;			appropriate.								
	5. Increase monitoring frequency to daily;	proposed remedial measures;										
	6. Discuss with IEC and Contractor on remedial actions required;	5. Monitor the implementation of remedial measures.										
	7. If exceedance continues, arrange meeting with IEC and WKCDA;											
	8. If exceedance stops, cease additional monitoring.											
Limit Level												
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures;	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> </ol>	notification of failure in writing;	<ol> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for</li> </ol>								
	2. Inform WKCDA, Contractor and EPD;	3. Discuss with ET and Contractor on possible	3. Ensure remedial measures properly	remedial actions to IEC within three working								
	3. Repeat measurement to confirm finding;		implemented.	<ul><li>days of notification;</li><li>3. Implement the agreed</li></ul>								
	4. Increase monitoring frequency to daily;	the effectiveness of the proposed remedial		proposals; 4. Amend proposal if								
	5. Assess effectiveness of Contractor's remedial	measures; 5 Monitor the		appropriate.								

5. Monitor the

implementation of

remedial measures.

Contractor's remedial actions and keep IEC,

informed of the results.

EPD and WKCDA

#### Event

#### Action

2. Exceedance for two or more consecutive	<ol> <li>Notify IEC, WKCDA, Contractor and EPD;</li> <li>Identify source;</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's</li> </ol>		1. Take immediate action to avoid further exceedance;
samples	<ol> <li>Repeat measurement to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>Arrange meeting with IEC and WKCDA to discuss the remedial actions to be taken;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and WKCDA informed of the results;</li> <li>If exceedance stops, cease additional monitoring.</li> </ol>	<ul> <li>working method;</li> <li>3. Discuss amongst WKCDA, ET, and Contractor on the potentia remedial actions;</li> <li>4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the WKCDA accordingly;</li> <li>5. Monitor the implementation of</li> </ul>	<ol> <li>Notify Contractor;</li> <li>In consolidation with the IEC, agree alwith the Contractor on the remedial measures to be implemented;</li> <li>Ensure remedial</li> </ol>	<ol> <li>Submit proposals for remedial actions to IEC within three working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Resubmit proposals if problem still not under control;</li> <li>Stop the relevant portion of works as determined by the WKCDA until the exceedance is abated.</li> </ol>

# **Construction Noise**

In case the Action and Limit Levels are not complied during construction stage, the following Event and Action Plan should be followed:

Event		Actior	1	
_	ET	IEC	WKCDA	Contractor
Action Level	<ol> <li>Notify WKCDA, IEC and Contractor;</li> <li>Carry out investigation;</li> <li>Report the results of investigation to the IEC, WKCDA and Contractor;</li> <li>Discuss with the IEC and Contractor on remedial measures required;</li> <li>Increase monitoring frequency to check mitigation effectiveness.</li> </ol>	investigation results	<ul><li>in writing;</li><li>2. Notify Contractor;</li></ul>	mitigation proposals to IEC and WKCDA;
Limit Level	<ol> <li>Inform IEC, WKCDA, Contractor and EPD;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency;</li> <li>Identify source and investigate the cause of exceedance;</li> <li>Carry out analysis of Contractor's working procedures;</li> <li>Discuss with the IEC, Contractor and WKCDA on remedial measures required;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and WKCDA informed of the results;</li> <li>If exceedance stops, cease additional monitoring.</li> </ol>	<ol> <li>Discuss amongst WKCDA, ET, and Contractor on the potentia remedial actions;</li> <li>Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the WKCDA accordingly.</li> </ol>	<ol> <li>lin writing;</li> <li>Notify Contractor;</li> <li>In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>Supervise the implementation of remedial measures;</li> <li>If exceedance continues, consider stopping the Contractor to</li> </ol>	<ul> <li>action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC and WKCDA within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Submit further proposal if problem still not under control;</li> <li>5. Stop the relevant portion of works as instructed by the WKCDA until the exceedance is abated.</li> </ul>

 Table D-2:
 Event and Action Plan for Construction Noise

# Landscape and Visual Impact

In case of non-compliance of landscape and visual impacts, procedures in accordance with the Event and Action Plan should be followed:

Event		Action		
	ET	IEC	WKCDA	Contractor
Design Check	1. Design check to make sure the design complies with all the proposed mitigation measures in the EIA report;	<ol> <li>Check report submitted by ET;</li> <li>Recommend remedial design if necessary.</li> </ol>	1. Undertake remedial design if necessary.	-
	2. Prepare and submit report.			
Non-conformity on one occasion	1. Identify source of non- conformity;	1. Check and verify source of non-conformity;	<ol> <li>Notify Contractor;</li> <li>Ensure remedial</li> </ol>	1. Amend working method as necessary;
	2. Report to IEC and WKCDA;	2. Discuss remedial actions with ET and	actions are properly implemented.	2. Rectify damage and undertake necessary
	3. Discuss remedial actions with IEC, WKCDA and Contractor;	effectiveness of proposed		replacement and remedial actions.
	4. Monitor remedial actions until rectification has been completed.	remedial actions; 4. Check implementation of remedial actions.		
Repeated non conformity	-1. Identify source of non- conformity;	1. Check and verify source of non-conformity;	<ol> <li>Notify Contractor;</li> <li>Ensure remedial</li> </ol>	1. Amend working method as necessary;
	2. Report to IEC and WKCDA;	2. Check Contractor's working method;	actions are properly	2. Rectify damage and undertake necessary
	<ol> <li>Increase monitoring frequency;</li> </ol>	3. Discuss remedial actions with ET and		replacement and remedial actions.
	4. Discuss remedial actions with IEC, WKCDA and Contractor;	effectiveness of proposed		
	5. Monitor remedial actions until rectification has been completed;	remedial actions; 5. Supervise implementation of		
	6. If non-conformity rectified, reduce monitoring frequency back to normal.	remedial actions.		

# Table D-3: Event and Action Plan for Landscape and Visual Impact

# E. Monitoring Schedule

# June 2022

May'22										Ju	ıly '	22			August '22						
S	Μ	Т	W	Т	F	S		3	Μ	Т	W	Т	F	S	 S	М	Т	W	Т	F	S
1	2	3	4	5	6	7							1	2		1	2	3	4	5	6
8	9	10	11	12	13	14	:	3	4	5	6	7	8	9	7	8	9	10	11	12	13
15	16	17	18	19	20	21	1	0	11	12	13	14	15	16	14	15	16	17	18	19	20
22	23	24	25	26	27	28	1	7	18	19	20	21	22	23	21	22	23	24	25	26	27
29	30	31					2	4	25	26	27	28	29	30	28	29	30	31			
							3	1													

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			<b>1</b> Lyric Landscape & Visual Inspection	2	3	4
5	<b>6</b> AM1, AM2 - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	7	8	9	<b>10</b> AM1, AM2 - 24hrTSP, 1hr TSP x3	11
12	13	14	15 Lyric Landscape & Visual Inspection	<b>16</b> AM1, AM2 - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	17	18
19	20	21	<b>22</b> AM1, AM2 - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	23	24	25
26	27 Lyric Landscape & Visual Inspection	<b>28</b> AM1, AM2 - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	29	30		
		AM2 - The Harboursi	Commerce Centre (IC ide Tower 1 - Ground I Commerce Centre (1	Floor		

July 2022

	June '22								August '22							September '22							
S	М	Т	W	Т	F	S		S	Μ	Т	W	Т	F	S		S	М	Т	W	Т	F	S	
			1	2	3	4			1	2	3	4	5	6						1	2	3	
5	6	7	8	9	10	11		7	8	9	10	11	12	13		4	5	6	7	8	9	10	
12	13	14	15	16	17	18		14	15	16	17	18	19	20		11	12	13	14	15	16	17	
19	20	21	22	23	24	25		21	22	23	24	25	26	27		18	19	20	21	22	23	24	
26	27	28	29	30				28	29	30	31					25	26	27	28	29	30		

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
					1	2	
3	<b>4</b> AM1, AM2 - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	5	6	7	<b>8</b> AM1, AM2 - 24hrTSP, 1hr TSP x3	9	
10	11	12	13	<b>14</b> AM1, AM2 - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	15	16	
17	18	19	<b>20</b> AM1, AM2 - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	21	22	23	
24	25	<b>26</b> AM1, AM2 - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	27	28	29	30	
31		Notes AM1 - International Commerce Centre (ICC) AM2 - The Harbourside Tower 1 - Ground Floor NM1A - International Commerce Centre (ICC)					

# **F.** Calibration Certifications

#### High-Volume TSP Sampler 5-Point Calibration Record Location : AM1(ICC) Calibrated by : K.T.Ho Date : 14/05/2022 Sampler Model TE-5170 : Serial Number S/N 0767 :

Calibration Orifice and Standa	ard Calibrati	ion Relationship
Serial Number	:	2454
Service Date	:	27 December 2021
Slope (m)	:	2.07035
Intercept (b)	:	-0.03737
Correlation Coefficient(r)	:	0.99990
Standard Condition		

Standard Condition		
Pstd (hpa)	:	1013
Tstd (K)	:	298.18
Calibration Condition		
Pa (hpa)	:	1008
Ta(K)	:	296

Resi	stance Plate	dH [green liquid]	Ζ	X=Qstd	IC	Y
		(inch water)		(cubic meter/min)	(chart)	(corrected)
1	18 holes	10.2	3.197	1.562	58	58.05
2	13 holes	7.4	2.723	1.333	50	50.04
3	10 holes	5.6	2.369	1.162	42	42.04
4	7 holes	3.6	1.899	0.935	32	32.03
5	5 holes	2.4	1.551	0.767	22	22.02

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b, Y(Corrected Flow)=IC\*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship

Slope(m):45.156

Intercept(b):-11.180

Correlation Coefficient(r): 0.9961

0 Checked by: Magnum Fan

Date: 17/05/2022



RECALIBRATION DUE DATE: December 27, 2022

Certificate of Calibration

			Calibration	Certificati	on Informat	tion		
Cal. Date:	December	27, 2021	Roots	meter S/N:	438320	Ta: 295		°K
Operator:	Jim Tisch				<b>Pa:</b> 740.4		740.4	mm Hg
Calibration	Calibration Model #: TE-5025A Ca				2454		-	-
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔΡ	ΔΗ	× .
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)	
	1	1	2	. 1	1.4130	3.2	2.00	1
	2	3	4	1	0.9970	6.4	4.00	
• 11	3	5	6	1	0.8950		5.00	
	4	7	8	1	0.8480	8.8	5.50	
	5	9	10	1	0.7060	12.7	8.00	l
			E	Data Tabula	tion			]
	Vstd	Qstd	$\sqrt{\Delta H \left( \frac{Pa}{Pstd} \right)}$	)( <u>Tstd</u> ) Ta)		Qa	$\sqrt{\Delta H(Ta/Pa)}$	
	(m3)	(x-axis)	(y-ax	is)	Va	(x-axis)	(y-axis)	
	0.9799	0.6935	1.402		0.9957	0.7047	0.8927	]
	0.9756	0.9786	1.984		0.9914	0.9943	1.2624	
	0.9736	1.0879	2.218		0.9893	1.1054	1.4114	
	0.9724	1.1467	2.320		0.9881	1.1652	1.4803	
	0.9673	1.3700	2.80		0.9828	1.3921	1.7853	
	OCTO		2.070		<b>~</b>	m=	1.29642	
	QSTD	b= r=	-0.037 0.999		QA	b=	-0.02378	
		1-	0.999			r=	0.99990	]
	Vetela		/Pstd)(Tstd/Ta	Calculatio			·	
	and the second se	Vstd/ATime	/PStu/(IStu/Ia	1)	and the second se	ΔVol((Pa-Δl	~)/Pa)	
		vstu/ 4 mine	For subserv	Qa= Va/∆Time				
		. // []						
	Qstd=	1/m (( √∆H(	Pa (Tstd Pstd Ta	1)-b)	Qa=	1/m(( √ΔF	I(Та/Ра))-b)	ð
		Conditions					e i e ande a te	
Tstd:						RECA	LIBRATION	· · · · ·
Pstd:		mm Hg <b>(ey</b>			US EPA reco	ommends a	nnual recalibratio	on ner 1998
AH: calibrat		ter reading (i	n H2O)				Regulations Part	•••••••••••••••••••••••••••••••••••••••
		eter reading					, Reference Meth	17.3
		perature (°K)					ended Particulat	
		ressure (mm					ere, 9.2.17, page	and the second scores
b: intercept					-01	e Adhosphe	, J.2.17, page	50
m: slope				1				

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

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

# ALS Technichem (HK) Pty Ltd

# ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

#### SUB-CONTRACTING REPORT



CONTACT	: MR K.W. FAN	WORK ORDER : HK2153962
CLIENT	: ENVIROTECH SERVICES CO.	
ADDRESS	: RM113, 1/F, MY LOFT, 9 HOI WING ROAD, TUEN MUN, N.T. HONG KONG	SUB-BATCH : 1 DATE RECEIVED : 31-DEC-2021 DATE OF ISSUE : 13-JAN-2022
PROJECT	:	NO. OF SAMPLES : 1 CLIENT ORDER

## General Comments

- Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.
- Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.
- Calibration was subcontracted to and analysed by Action-United Environmental Services & Consulting.

#### Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories

Position

Kilad Jong

**Richard Fung** 

Managing Director

This is the Final Report and supersedes any preliminary report with this batch number.

All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd Part of the ALS Laboratory Group 11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong Tel. +852 2610 1044 Fax. +852 2610 2021 www.alsglobal.com WORK ORDER SUB-BATCH

CLIENT

PROJECT

: HK2153962

<sup>1</sup> ENVIROTECH SERVICES CO. : ....



+ 2

ALS Lab	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.	
1 11 /0 / 500 00 00 /	S/N: 831656	Equipments	31-Dec-2021	S/N: 831656	A sumeric

# Equipment Verification Report (TSP)

# Equipment Calibrated:

~ .

.1

Туре:	Laser Dust monitor
Manufacturer:	Sibata LD-5R
Serial No.	831656
Equipment Ref:	Nil
Job Order	HK2153962

# Standard Equipment:

Standard Equipment:	Higher Volume Sampler (TSP)
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	5 November 2021

# Equipment Verification Results:

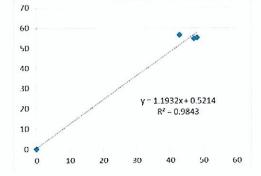
Verification Date:

7 January 2022

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in ug/m <sup>3</sup> (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
2hr	11:55 ~ 13:55	18.6	1021.6	5 <mark>5</mark> .1	5760	48.3
2hr27min	14:23 ~ 16:50	18.6	1021.6	54.8	6913	47.3
2hr09min	16:50 ~ 18:59	18.6	1021.6	56.5	5506	42.7

# Linear Regression of Y or X

Slope (K-factor):	1.1932 (µg/m <sup>3</sup> )/CPM		
Correlation Coefficient (R)	0.9921		
Date of Issue	12 January 2022		



## Remarks:

1. Strong Correlation (R>0.8)

2. Factor 1.1932 (µg/m<sup>3</sup>)/CPM should be applied for TSP monitoring

\*If R<0.5, repair or re-verification is required for the equipment

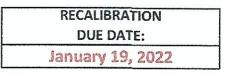
Operator :	Martin Li	Signature : _	the	Date : _	12 January 2022
QC Reviewer :	Ben Tam	Signature : _		Date : _	12 January 2022

# TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

15

Location : Location I	ocation ID : Calibration Room							Date of Calibration: 5-Nov-21 Next Calibration Date: 5-Feb-22
						COND	ITIONS	
	Se	a Level I Temp	Pressure perature		1	012.5 25.6		Corrected Pressure (mm Hg) 759.3 Temperature (K) 2
					CALI	BRATI	ON ORIFICE	
			Calibrat	Make-> Model-> ion Date->	502	CH 25A an-21		Qstd Slope ->2.10574Qstd Intercept ->-0.0098Expiry Date->18-Jan-2
					(	CALIB	RATION	
No.         (in)         (in)         (in)         (m3/min)         (chi           18         6.2         6.2         12.4         1.675         5           13         5         5         10.0         1.504         4           10         3.9         3.9         7.8         1.329         4				(ch 5 4 4 3	2	IC corrected 51.93 47.93 41.94 35.95 27.96	LINEAR REGRESSION Slope = 24.2092 Intercept = 10.8881 Corr. coeff. = 0.9959	
5 <b>Calculatio</b> Qstd = 1/1 IC = I[Sq	m[Sqrt(H rt(Pa/Psto	d)(Tstd/T		0.675 /Ta))-b]	2	60	0.00	FLOW RATE CHART
1920	ected cha chart res rator Qst ator Qst al temper	rt respon ponse d slope l intercep rature dur	ot ring cali	bration ( de ation ( mm		al chart response (	0.00	
For subsequent calculation of sampler flow: 1/m(( I )[Sqrt(298/Tav)(Pav/760)]-b)				a.		0.00		
m = samp b = samp I = chart	oler intere response	cept					0.00	0.500 1.000 1.500 2.0 Standard Flow Rate (m3/min)
Tav = dai Pav = dai						L		





Certificate of Calibration

			Calibration	Certificati	on Informat	ion		******
Cal. Date:	January 19	, 2021		meter S/N:			294	°K
Operator:	Jim Tisch					Pa:	755.1	mm Hg
Calibration		TE-5025A	Calik	orator S/N:	1941			
								7
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔΡ	ΔΗ	
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)	
	1	1	2	1	1.4830	3.2	2.00	
	2	3	4	1	1.0420	6.4	4.00	
	4	5	8	1	0.9290	8.0 8.8	5.00	
	5	9	10	1	0.7340	12.9	8.00	
	<u>_</u>		1				0.00	1
			L	Data Tabula	tion			
	Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$	)( <u>Tstd</u> )		Qa	$\sqrt{\Delta H (Ta/Pa)}$	
	(m3)	(x-axis)	(y-ax	is)	Va	(x-axis)	(y-axis)	
	1.0029	0.6762	1.419		0.9958	0.6715	0.8824	
	0.9986	0.9583	2.007		0.9915	0.9516	1.2479	
	0.9965	1.0726	2.244		0.9894	1.0650	1.3952	
	0.9954	1.1260	2.353		0.9883	1.1180	1.4633	
	0.9899	1.3487 m=	2.838		0.9829	1.3391 m=	1.7648 1.31858	
	QSTD	b=	-0.009		QA	b=	-0.00612	
	2310		0.999		QA		0.99992	
				Calculation	ns			
	Vstd= ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta			a)	Va=	ΔVol((Pa-Δl		
	Qstd=	Vstd/∆Time			Qa=	Va/∆Time		
			For subsequ	ent flow ra				
	<b>Qstd=</b> $1/m \left( \left( \sqrt{\Delta H \left( \frac{Pa}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)} \right) \right)$			))-b)	Qa=	1/m ((√∆H	І(Та/Ра))-ь)	
	Standard	Conditions						
Tstd:	td: 298.15 °K			I		RECA	LIBRATION	
Pstd:		mm Hg			LIS EPA reco	mmends ar	nnual recalibratio	on ner 1000
AH· calibrate		<b>(ey</b> er reading (i	n H2O)				Regulations Part !	-
		eter reading					Reference Meth	Sector Contraction Statements
		perature (°K)			123612		ended Particulat	
		essure (mm	Hg)	-			re, 9.2.17, page	
b: intercept								
m: slope								

Tisch Environmental, Inc.

145 South Miami Avenue Village of Cleves, OH 45002

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

# ALS Technichem (HK) Pty Ltd

# ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



#### SUB-CONTRACTING REPORT

CONTACT	: MR K.W. FAN	WORK ORDER HK2144583
CLIENT	ENVIROTECH SERVICES CO.	
ADDRESS	: RM113, 1/F, MY LOFT, 9 HOI WING ROAD, TUEN MUN, N.T. HONG KONG	SUB-BATCH: 1DATE RECEIVED: 2-NOV-2021DATE OF ISSUE: 11-NOV-2021
PROJECT	:	NO. OF SAMPLES : 1 CLIENT ORDER :

## **General Comments**

- Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.
- Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.
- Calibration was subcontracted to and analysed by Action-United Environmental Services & Consulting.

#### Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories	Position	
Ki hand Jong .		
Richard Fung	Managing Director	

This is the Final Report and supersedes any preliminary report with this batch number.

All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd Part of the ALS Laboratory Group

11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong Tel. +852 2610 1044 Fax. +852 2610 2021 www.alsglobal.com WORK ORDER SUB-BATCH

CLIENT

PROJECT

: HK2144583

1 ENVIROTECH SERVICES CO. : ----



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2144583-001	S/N: 245834	Equipments	02-Nov-2021	245834

# **Equipment Verification Report (TSP)**

# **Equipment Calibrated:**

Туре:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	245834
Equipment Ref:	Nil
Job Order	HK2144583

# **Standard Equipment:**

Standard Equipment:	Higher Volume Sampler (TSP)
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	5 November 2021

# **Equipment Verification Results:**

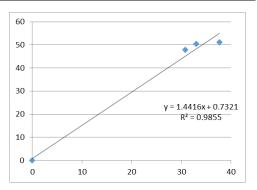
Verification Date:

5 November 2021

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in ug/m <sup>3</sup> (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
2hr01min	09:11 ~ 11:12	25.6	1012.5	51.2	4570	37.7
2hr01min	11:15 ~ 13:16	25.6	1012.5	47.8	3735	30.8
2hr02min	13:20 ~ 15:22	25.6	1012.5	50.4	4022	33.0

# Linear Regression of Y or X

Slope (K-factor): Correlation Coefficient (R) Date of Issue <u>1.4416 (µg/m³)/CPM</u> 0.9927 8 November 2021



# Remarks:

1. **Strong** Correlation (R>0.8)

2. Factor <u>1.4416 (µg/m<sup>3</sup>)/CPM</u> should be applied for TSP monitoring

\*If R<0.5, repair or re-verification is required for the equipment

Operator :	Fai So	Signature :	Ja	Date :	8 November 2021
QC Reviewer :	Ben Tam	Signature :		Date :	8 November 2021

# TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Gold King Industrial Building, Ky Location ID : Calibration Room	wai Ch	ung	Date of Calibration: 5-Nov-21 Next Calibration Date: 5-Feb-22	
	COND	ITIONS		
Sea Level Pressure (hPa)	1012.5 25.6		Corrected Pressure (mm Hg) 759.37 Temperature (K) 29	
CALI	BRATI	ON ORIFIC	CE	
	SCH 25A fan-21		Qstd Slope ->2.10574Qstd Intercept ->-0.00985Expiry Date->18-Jan-22	5
	CALIBI	RATION		
No. (in) (in) (in) (m3/min) (ch	I nart)	IC corrected	LINEAR REGRESSION	
13         5         5         10.0         1.504         4           10         3.9         3.9         7.8         1.329         4           8         2.5         2.5         5.0         1.065         3	52 48 42 36 28	51.93 47.93 41.94 35.95 27.96	Slope = 24.2092 Intercept = 10.8881 Corr. coeff. = 0.9959	
Calculations : Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] Qstd = standard flow rate IC = corrected chart respones I = actual chart response m = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration ( deg K ) Pstd = actual pressure during calibration ( mm Hg ) For subsequent calculation of sampler flow: 1/m(( I )[Sqrt(298/Tav)(Pav/760)]-b) m = sampler slope b = sampler intercept I = chart response Tav = daily average temperature	<b>A</b> <b>A</b> 10.	.00	FLOW RATE CHART	0





Environmental Certificate of Calibration

			Calibration	Certificatio	on Informat	ion		
Cal. Date:	January 19	, 2021	Roots	meter S/N:	438320	Ta:	294	°К
Operator:	Jim Tisch					Pa:	755.1	mm Hg
Calibration	Model #:	TE-5025A	Calil	brator S/N:	1941			
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔP	ΔН	
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)	
	1	1	2	1	1.4830	3.2	2.00	
	2	3	4	1	1.0420	6.4	4.00	
	3	5	6	1	0.9290	8.0	5.00	
	4	7	8	1	0.8840	8.8	5.50	
	5	9	10	1	0.7340	12.9	8.00	
			I	Data Tabula	tion			
	Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$	)( <u>Tstd</u> )		Qa	$\sqrt{\Delta H (Ta/Pa)}$	
	(m3)	(x-axis)	(y-ax	(is)	Va	(x-axis)	(y-axis)	
	1.0029	0.6762	1.41	92	0.9958	0.6715	0.8824	
	0.9986	0.9583	2.00		0.9915	0.9516	1.2479	
	0.9965	1.0726	2.24		0.9894	1.0650	1.3952	
	0.9954	1.1260	2.35	And a second	0.9883	1.1180	1.4633	
	0.9899	1.3487	2.83		0.9829	1.3391	1.7648	
	OCTD	m= b=	-0.00		0.4		1.31858	
	QSTD		0.999		QA	b= r=	-0.00612 0.99992	
				Calculatio	ns			
	Vstd= ΔVol((Pa-ΔP)/Pstd)(Tstd/T			a)	Va=	ΔVol((Pa-Δl	P)/Pa)	
	Qstd=	Vstd/∆Time			Qa=	Va/ATime		
			For subsequ	ent flow ra				
	<b>Qstd=</b> $1/m\left(\left(\sqrt{\Delta H}\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)\right)$			-))-b)	Qa=	$1/m\left(\sqrt{\Delta F}\right)$	l(Та/Ра))-b)	
		Conditions						-
Tstd						RECA	LIBRATION	
Pstd		mm Hg			LIS FPA reco	mmendsa	nnual recalibratio	on ner 1000
AH· calibrat		(ey ter reading (i	n H2O)				Regulations Part !	
		eter reading					, Reference Meth	
		perature (°K)					ended Particulat	
		ressure (mm				-	erded Particulatiere, 9.2.17, page 1	
o: intercept					LD1	e Aunosphe	ne, 5.2.17, page	50
n: slope								

Tisch Environmental, Inc.

145 South Miami Avenue

Village of Cleves, OH 45002

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

# ALS Technichem (HK) Pty Ltd

# ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



112

## SUB-CONTRACTING REPORT

CONTACT	: MR K.W. FAN	WORK ORDER : HK2141279
CLIENT	ENVIROTECH SERVICES CO.	
ADDRESS	: RM113, 1/F, MY LOFT, 9 HOI WING ROAD,	SUB-BATCH : 1
	TUEN MUN, N.T. HONG KONG	DATE RECEIVED : 11-OCT-2021
		DATE OF ISSUE : 21-OCT-2021
ROJECT	:	NO. OF SAMPLES : 1
•		CLIENT ORDER

#### General Comments

- Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.
- Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.

Position

Calibration was subcontracted to and analysed by Action-United Environmental Services & Consulting.

#### Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories

Kilad Jong

Richard Fung

Managing Director

This is the Final Report and supersedes any preliminary report with this batch number.

All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd Partof the ALS Laboratory Group

11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong Tel. +852 2610 1044 Fax. +852 2610 2021 www.alsglobal.com WORK ORDER SUB-BATCH

CLIENT

PROJECT

: HK2141279

<sup>:</sup> 1 : ENVIROTECH SERVICES CO. : ----

4



1.19

ALS Lab	Client's Sample ID	Sample	Sample Date	External Lab Report No.	
ID		Туре			
HK2141279-001	S/N: 436553	Equipments	11-Oct-2021	S/N: 436553	

1. - -

# **Equipment Verification Report (TSP)**

## Equipment Calibrated:

Туре:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	436553
Equipment Ref:	Nil
Job Order	HK2141279

# **Standard Equipment:**

Standard Equipment:	Higher Volume Sampler (TSP)
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	2 August 2021

# **Equipment Verification Results:**

Verification Date:

18 October 2021

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in ug/m <sup>3</sup> (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
2hr01min	09:16 ~ 11:17	23.9	1018.3	40.5	2344	19.3
2hr01min	11:20 ~ 13:21	23.9	1018.3	44.4	2391	19.8
2hr	13:25 ~ 15:25	23.9	1018.3	48.0	2447	20.4

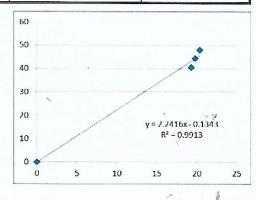
2.2416 (µg/m<sup>3</sup>)/CPM

20 October 2021

0.9956

#### Linear Regression of Y or X

Slope (K-factor): Correlation Coefficient (R) Date of Issue



.

Remarks:

1. Strong Correlation (R>0.8)

2. Factor 2.2416 (µg/m<sup>3</sup>)/CPM should be applied for TSP monitoring

\*If R<0.5, repair or re-verification is required for the equipment

Operator :	Fai So	_ Signature : _	Sav	Date :	20 October 2021	
QC Reviewer :	Ben Tam	Signature :	-\$6	Date :	20 October 2021	

# TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Gold King Industrial Building, Kwa Location ID : Calibration Room							ing		te of Calibration: 2-Aug-2 Calibration Date: 2-Nov-2	
						CONDI	TIONS			
	Se	ea Level I Temp	Pressure perature	. ,		998.3 30.0			ature (Mm Hg) 748.	.725 303
1 -				3. 7. 1	CALI	BRATIC		E		
			Calibrat	Make-> Model-> ion Date->	502	SCH 25A an-21		Qstd Slop Qstd Interce Expiry Da	pt -> -0.009	85
					, (	CALIBR	ATION			
Plate		H2O (R)	H20	Qstd		I	IC		LINEAR	
No.	(in)	(in)	(in)	(m3/min)			corrected	RE	GRESSION	
18	6.4	6.4	12.8	1.677		60	49.22		ope = 30.5541	
13	5.3	5.3	10.6	1.527		8	47.25	Interco		
10	4.4	4.4	8.8	1.391		4	43.31	. Corr. coe	eff. = 0.9906	
8	2.6	2.6	5.2	1.071		1	30.51			
• 5	1.6	1.6	3.2	0.841	2	6	25.59			
Calculatio		00/D /D	(1)/TD - 1	/ ·		60.0		FLOW RATE	CHART	
~	m[Sqrt(H rt(Pa/Pstc			(1a))-b]						
<b>.</b>	1 1 7					50.0	00		/	-
	andard flo								•	
	ected cha		es			0 40		*	*	
	chart res					Actual chart response (IC) 0.05 0.05	T		1	
m = calibrator Qstd slope b = calibrator Qstd intercept						uod				
$\Gamma a = actual temperature during calibration ( deg K )$						Se 30.	00		•	-
		4				char	1. 1. 1	•		
Pstd = actual pressure during calibration ( mm Hg )						20 tra			- 1	
For subsequent calculation of sampler flow:						Act				
1/m(( I )[Sqrt(298/Tav)(Pav/760)]-b)						10.0			- 2 )	
n = samr	pler slope							,		
m = sampler slope						0.0				
= same	b = sampler intercept					0.0	0.000	0.500 1.0	00 1.500 2	.000
- contraction -	response									
= chart	response Iy averag	e temper	ature					Standard Flow R	ate (m3/min)	

Environmental

RECALIBRATION DUE DATE:

January 19, 2022

Certificate of Calibration

0.9 0.9 0.9 0.9 0.9 0.9 0.9	ch #: 1 2 3 4 5 5 9 8 6 9 9 8 6 9 9 8 6	TE-5025A Vol. Init (m3) 1 3 5 7 9 9 Qstd (x-axis) 0.6762 0.9583	Cali Vol. Final (m3) 2 4 6 8 10 10 $\sqrt{\Delta H}\left(\frac{Pa}{Psto}\right)$ (y-ax 1.41	tis)	<b>ΔTime</b> (min) 1.4830 1.0420 0.9290 0.8840 0.7340	Pa: ΔP (mm Hg) 3.2 6.4 8.0 8.8 12.9	294 755.1 (in H2O) 2.00 4.00 5.00 5.50 8.00 $\sqrt{\Delta H(Ta/Pa)}$		
Calibration Model Ru Ru Vst (m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0	#: 1 2 3 4 5 3 4 5 9 8 9 9 8 6 9 9 8 6 9 9 8 5	Vol. Init (m3) 1 3 5 7 9 9 Qstd (x-axis) 0.6762 0.9583	Vol. Final (m3) 2 4 6 8 10 10 $\sqrt{\Delta H}\left(\frac{Pa}{Psto}\right)$ (y-ax 1.41	$\frac{\Delta \text{Vol.}}{(\text{m3})}$ $1$ $1$ $1$ $1$ $1$ Data Tabulat $(\overline{T_{\text{Std}}})$ $(\overline{T_{\text{Std}}})$ $(\overline{T_{\text{Std}}})$	ΔTime (min) 1.4830 1.0420 0.9290 0.8840 0.7340 ion	ΔP (mm Hg) 3.2 6.4 8.0 8.8 12.9 Qa	ΔH (in H2O) 2.00 4.00 5.00 5.50 8.00		
Vst (m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0	1 2 3 4 5 5 ) 029 986 9965	(m3) 1 3 5 7 9 9 Qstd (x-axis) 0.6762 0.9583	(m3) 2 4 6 8 10 1 $\sqrt{\Delta H \left(\frac{Pa}{Psto}\right)}$ (y-ax 1.41	$\frac{(m3)}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ Data Tabulat $\frac{1}{1} \left( \frac{Tstd}{Ta} \right)$ is)	(min) 1.4830 1.0420 0.9290 0.8840 0.7340 ion	(mm Hg) 3.2 6.4 8.0 8.8 12.9 Qa	(in H2O) 2.00 4.00 5.00 5.50 8.00 √ΔH(Ta/Pa)		
Vst (m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0	1 2 3 4 5 5 ) 029 986 9965	(m3) 1 3 5 7 9 9 Qstd (x-axis) 0.6762 0.9583	(m3) 2 4 6 8 10 1 $\sqrt{\Delta H \left(\frac{Pa}{Psto}\right)}$ (y-ax 1.41	$\frac{(m3)}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ Data Tabulat $\frac{1}{1} \left( \frac{Tstd}{Ta} \right)$ is)	(min) 1.4830 1.0420 0.9290 0.8840 0.7340 ion	(mm Hg) 3.2 6.4 8.0 8.8 12.9 Qa	(in H2O) 2.00 4.00 5.00 5.50 8.00 √ΔH(Ta/Pa)		
(m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9	2 3 4 5 ) 029 986 965	1 3 5 7 9 9 0 9 0 9 0 9 0 9 0 9 0 0 5 83	$\frac{2}{4}$ $\frac{4}{6}$ $8$ $10$ $\int \sqrt{\Delta H \left(\frac{Pa}{Pstc}\right)} \left(\frac{V}{V-ax}\right)$ $\frac{1}{1.41}$	$\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ Data Tabulat $\frac{1}{1} \left( \frac{Tstd}{Ta} \right)$ is)	1.4830 1.0420 0.9290 0.8840 0.7340	3.2 6.4 8.0 8.8 12.9 Qa	2.00 4.00 5.00 5.50 8.00		
(m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9	3 4 5 9 9 86 9 65	5 7 9 Qstd (x-axis) 0.6762 0.9583	$\frac{6}{8}$ 10 $\sqrt{\Delta H \left(\frac{Pa}{Psto}\right)}$ (y-ax 1.41	$\frac{1}{1}$ Data Tabulat $\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$	0.9290 0.8840 0.7340	6.4 8.0 8.8 12.9 Qa	4.00 5.00 5.50 8.00		
(m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9	4 5 ) 029 986 965	7 9 Qstd (x-axis) 0.6762 0.9583	$\frac{8}{10}$ $\sqrt{\Delta H \left(\frac{Pa}{Psto}\right)}$ $\frac{\sqrt{\Delta H \left(\frac{Pa}{Psto}\right)}}{(\gamma - ax)}$ 1.41	$\frac{1}{1}$ Data Tabulat $\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$	0.8840 0.7340 ion	8.8 12.9 Qa	5.00 5.50 8.00 √ΔH(Ta/Pa)		
(m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9	5 ) 029 986 965	9 Qstd (x-axis) 0.6762 0.9583	$\frac{10}{\sqrt{\Delta H \left(\frac{Pa}{Pstc}}\right)}$	$\frac{1}{\frac{1}{\frac{1}{1}}}$	0.7340 ion	12.9 Qa	8.00 √ΔH(Ta/Pa)	4	
(m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9	3 ) 029 986 965	Qstd (x-axis) 0.6762 0.9583	$\sqrt{\Delta H \left(\frac{Pa}{Pstc}\right)}$ (y-ax 1.41	Data Tabulat	ion	Qa	√∆H(Ta/Pa)	]	
(m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9	) 029 986 965	(x-axis) 0.6762 0.9583	$\sqrt{\Delta H \left(\frac{Pa}{Psto}\right)}$ (y-ax 1.41	$\frac{1}{1}\left(\frac{T_{std}}{T_a}\right)$				]	
(m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9	) 029 986 965	(x-axis) 0.6762 0.9583	√ <sup>211</sup> \ Psto (y-ax 1.41	is)	Va				
1.0 0.9 0.9 0.9 0.9 0.9 0.9	029 986 965	0.6762 0.9583	1.41		Va	(v avic)	1		
0.9 0.9 0.9 0.9 0.9 0.9 0.9	986 965	0.9583		92		(x-axis)	(y-axis)		
0.9 0.9 0.9 0.9 0.9 0.9 0.9	965		2.00	1.4192		0.6715	0.8824	]	
0.9 0.9 QST			2.0071		0.9915	0.9516	1.2479		
0.9 QST 		1.0726	2.2440		0.9894	1.0650	1.3952		
		1.1260			0.9883	1.1180	1.4633		
	099	1.5467 m=	2.83 2.105	1	0.9829	1.3391	1.7648		
	n	b=	-0.00		QA	m= b=	1.31858		
Q		r=	0.999		UCA	r=	0.99992		
Q				Calculations					
	Vstd=         ΔVol((Pa-ΔP)/Pstd)(Tstd/T           Qstd=         Vstd/ΔTime			a)	Va=	ΔVol((Pa-ΔF	)/Pa)	2.9	
05				Qa= Va/ATime					
05			For subsequ	ent flow rat					
. 4	$\mathbf{Qstd= 1/m}\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)$				$\overline{)}$ -b) Qa= 1/m( $(\sqrt{\Delta H(Ta/Pa)})$ -b)				
Stan	lard	Conditions					1	• <i>†</i>	
, Tstd: 298.15 °K				Ľ		RECAL	IBRATION		
Psta:	Pstd: 760 mm Hg Key				US EPA reco	mmends ar	nual recalibratio	on per'199	
ΔH: calibrator man	met	er reading (i					egulations Part 5	A CONTRACTOR OF CONTRACTOR	
	ΔP: rootsmeter manometer reading (mm Hg)				Appendix E	to Part 50,	Reference Meth	nod for the	
	a: actual absolute temperature (°K)				Determinat	ion of Suspe	ended Particulate	e Matter i	
Pa: actual baromet b: intercept	temp	essure (mm	Hg)				re, 9.2.17, page 3		

Tisch Environmental, Inc.

145 South Miami Avenue

Village of Cleves, OH 45002

www.tisch-env.co TOLL FREE: (877)263-76 FAX: (513)467-90

# ALS Technichem (HK) Pty Ltd

# ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



#### SUB-CONTRACTING REPORT

CONTACT	: MR K.W. FAN	WORK ORDER HK2144583
CLIENT	ENVIROTECH SERVICES CO.	
ADDRESS	: RM113, 1/F, MY LOFT, 9 HOI WING ROAD, TUEN MUN, N.T. HONG KONG	SUB-BATCH: 1DATE RECEIVED: 2-NOV-2021DATE OF ISSUE: 11-NOV-2021
PROJECT	:	NO. OF SAMPLES : 1 CLIENT ORDER :

## **General Comments**

- Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.
- Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.
- Calibration was subcontracted to and analysed by Action-United Environmental Services & Consulting.

#### Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories	Position	
Ki hand Jong .		
Richard Fung	Managing Director	

This is the Final Report and supersedes any preliminary report with this batch number.

All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd Part of the ALS Laboratory Group

11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong Tel. +852 2610 1044 Fax. +852 2610 2021 www.alsglobal.com WORK ORDER SUB-BATCH

CLIENT

PROJECT

: HK2144583

1 ENVIROTECH SERVICES CO. : ----



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2144583-001	S/N: 245834	Equipments	02-Nov-2021	245834

# **Equipment Verification Report (TSP)**

# **Equipment Calibrated:**

Туре:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	245834
Equipment Ref:	Nil
Job Order	HK2144583

# **Standard Equipment:**

Standard Equipment:	Higher Volume Sampler (TSP)
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	5 November 2021

# **Equipment Verification Results:**

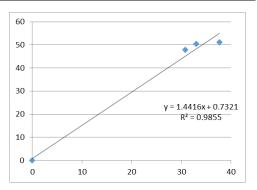
Verification Date:

5 November 2021

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in ug/m <sup>3</sup> (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
2hr01min	09:11 ~ 11:12	25.6	1012.5	51.2	4570	37.7
2hr01min	11:15 ~ 13:16	25.6	1012.5	47.8	3735	30.8
2hr02min	13:20 ~ 15:22	25.6	1012.5	50.4	4022	33.0

# Linear Regression of Y or X

Slope (K-factor): Correlation Coefficient (R) Date of Issue <u>1.4416 (µg/m³)/CPM</u> 0.9927 8 November 2021



# Remarks:

1. **Strong** Correlation (R>0.8)

2. Factor <u>1.4416 (µg/m<sup>3</sup>)/CPM</u> should be applied for TSP monitoring

\*If R<0.5, repair or re-verification is required for the equipment

Operator :	Fai So	Signature :	Ja	Date :	8 November 2021
QC Reviewer :	Ben Tam	Signature :		Date :	8 November 2021

# TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Gold King Industrial Building, Ky Location ID : Calibration Room	Date of Calibra Next Calibration			
	COND	ITIONS		
Sea Level Pressure (hPa) 1 Temperature (°C)	1012.5 25.6		Corrected Pressure (mm H Temperature (K)	Hg) 759.375 299
CALI	BRATI		E	
	SCH 25A an-21		Qstd Slope -> Qstd Intercept -> Expiry Date->	2.10574 -0.00985 18-Jan-22
	CALIBF	RATION		
No. (in) (in) (in) (m3/min) (ch	I nart)	IC corrected	LINEAR REGRESSION	
13         5         5         10.0         1.504         4           10         3.9         3.9         7.8         1.329         4           8         2.5         2.5         5.0         1.065         3	52 48 42 36 28	51.93 47.93 41.94 35.95 27.96	Intercept = $10$ .	2092 8881 9959
Calculations : Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] Qstd = standard flow rate IC = corrected chart respones I = actual chart response m = calibrator Qstd slope b = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration ( deg K ) Pstd = actual pressure during calibration ( mm Hg ) For subsequent calculation of sampler flow: 1/m(( I )[Sqrt(298/Tav)(Pav/760)]-b) m = sampler slope b = sampler intercept I = chart response Tav = daily average temperature	.00 50. 40. 30. 20. 20. 10. 0.	00	FLOW RATE CHART	500 2.000





Environmental Certificate of Calibration

			Calibration	Certificatio	on Informat	ion			
Cal. Date:	January 19, 2021 Roots			meter S/N:	438320	Ta:	<b>Ta:</b> 294		
Operator:	Jim Tisch					Pa:	755.1	mm Hg	
Calibration	Model #:	TE-5025A	Calil	brator S/N:	1941				
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔP	ΔН		
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)		
	1	1	2	1	1.4830	3.2	2.00		
	2	3	4	1	1.0420	6.4	4.00		
	3	5	6	1	0.9290	8.0	5.00		
	4	7	8	1	0.8840	8.8	5.50		
	5	9	10	1	0.7340	12.9	8.00		
			I	Data Tabula	tion				
	Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$	)( <u>Tstd</u> )		Qa	$\sqrt{\Delta H (Ta/Pa)}$		
	(m3)	(x-axis)	(y-ax	(is)	Va	(x-axis)	(y-axis)		
	1.0029	0.6762	1.41	92	0.9958	0.6715	0.8824		
	0.9986	0.9583	2.0071		0.9915	0.9516	1.2479		
	0.9965	1.0726	2.24		0.9894	1.0650	1.3952		
	0.9954	1.1260	2.35	And a second	0.9883	1.1180	1.4633		
	0.9899	1.3487	2.83		0.9829	1.3391	1.7648		
	OCTD	m=	2.105		0.4		1.31858		
	QSTD	b= r=			QA	b= r=	-0.00612 0.99992		
				Calculations					
	Vstd= ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta			a)	Va=	ΔVol((Pa-Δl			
	Qstd=	Vstd/∆Time			Qa=				
			For subsequ	ient flow ra					
	Qstd=	$1/m\left(\sqrt{\Delta H}\right)$	Pa Pstd / Tstd Ta	-))-b)	Qa=				
	Standard	Conditions							
Tstd				[	RECALIBRATION				
Pstd		mm Hg			LIS EDA room	mmonde	anual recalibration	n nor 1000	
Key ΔH: calibrator manometer reading (in H2O)					US EPA recommends annual recalibration per 1998				
$\Delta$ H: calibrator manometer reading (in H2O) $\Delta$ P: rootsmeter manometer reading (mm Hg)					40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the				
		perature (°K)							
		ressure (mm			Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30				
o: intercept					th	e Aunosphe	sie, 9.2.17, page	50	
n: slope									

Tisch Environmental, Inc.

145 South Miami Avenue

Village of Cleves, OH 45002

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

# ALS Technichem (HK) Pty Ltd

# ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



112

## SUB-CONTRACTING REPORT

CONTACT	: MR K.W. FAN	WORK ORDER HK2141279
CLIENT	ENVIROTECH SERVICES CO.	
ADDRESS	: RM113, 1/F, MY LOFT, 9 HOI WING ROAD,	SUB-BATCH : 1
	TUEN MUN, N.T. HONG KONG	DATE RECEIVED : 11-OCT-2021
		DATE OF ISSUE : 21-OCT-2021
RROJECT	:	NO. OF SAMPLES : 1
•		CLIENT ORDER

#### General Comments

- Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.
- Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.

Position

Calibration was subcontracted to and analysed by Action-United Environmental Services & Consulting.

#### Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories

Kilad Jong

Richard Fung

Managing Director

This is the Final Report and supersedes any preliminary report with this batch number.

All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd Partof the ALS Laboratory Group

11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong Tel. +852 2610 1044 Fax. +852 2610 2021 www.alsglobal.com WORK ORDER SUB-BATCH

CLIENT

PROJECT

: HK2141279

<sup>:</sup> 1 : ENVIROTECH SERVICES CO. : ----

4



1.19

ALS Lab	Client's Sample ID	Sample	Sample Date	External Lab Report No.	
ID		Туре			
HK2141279-001	S/N: 436553	Equipments	11-Oct-2021	S/N: 436553	

1 . .

# **Equipment Verification Report (TSP)**

# Equipment Calibrated:

Туре:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	436553
Equipment Ref:	Nil
Job Order	HK2141279

# **Standard Equipment:**

Standard Equipment:	Higher Volume Sampler (TSP)
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	2 August 2021

# **Equipment Verification Results:**

Verification Date:

18 October 2021

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in ug/m <sup>3</sup> (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
2hr01min	09:16 ~ 11:17	23.9	1018.3	40.5	2344	19.3
2hr01min	11:20 ~ 13:21	23.9	1018.3	44.4	2391	19.8
2hr	13:25 ~ 15:25	23.9	1018.3	48.0	2447	20.4

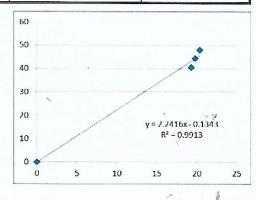
2.2416 (µg/m<sup>3</sup>)/CPM

20 October 2021

0.9956

# Linear Regression of Y or X

Slope (K-factor): Correlation Coefficient (R) Date of Issue



.

Remarks:

1. Strong Correlation (R>0.8)

2. Factor 2.2416 (µg/m<sup>3</sup>)/CPM should be applied for TSP monitoring

\*If R<0.5, repair or re-verification is required for the equipment

Operator :	Fai So	_ Signature : _	Sav	Date :	20 October 2021	
QC Reviewer :	Ben Tam	Signature :	-\$6	Date :	20 October 2021	

# TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location Location		Gold Ki Calibrat		strial Buildi m	ng, Kv	wai Chu	ing		te of Calibration: 2-Aug-2 Calibration Date: 2-Nov-2		
						CONDI	TIONS				
	Se	ea Level I Temp	Pressure perature	. ,		998.3 30.0			ssure (mm Hg) 748. ature (K)	.725 303	
1 -				3. 7. 1	CALI	BRATIC		E			
			Calibrat	Make-> Model-> ion Date->	502	SCH 25A an-21		Qstd Slop Qstd Interce Expiry Da	pt -> -0.009	85	
					, (	CALIBR	ATION				
Plate		H2O (R)	H20	Qstd		I	IC		LINEAR		
No.						corrected	RE	GRESSION			
18	6.4	6.4	12.8	1.677					ope = 30.5541		
13	5.3	5.3	10.6	1.527		8	47.25		Intercept = $-0.5839$		
10	4.4	4.4	8.8	1.391		4	43.31	. Corr. coe	eff. = 0.9906		
8	2.6	2.6	5.2	1.071		1	30.51				
• 5	1.6	1.6	3.2	0.841	2	6	25.59				
Calculatio		00/D /D	(1)/TD - 1	/ ·		60.0		FLOW RATE	CHART		
~	m[Sqrt(H rt(Pa/Pstc			(1a))-b]							
<b>.</b>	1 1 7					50.0	00			-	
	andard flo								•		
	ected cha		es			0 40		*	*		
	chart res					Actual chart response (IC) 0.05 0.05	T		1		
	rator Qsto ator Qstd	State of the state	t			uod					
				aration ( dec	K)	Se 30.	00		•	-	
Ta = actual temperature during calibration ( deg K ) Pstd = actual pressure during calibration ( mm Hg )						char	1. 1. 1	•			
5m – 101	caur pross	are autili	S VUIDI		15/	20 tra			- 1		
-or subs	equent c	alculatio	n of san	pler flow:		Act					
	Sqrt(298/					10.0	00 00		- 2 )		
n = samr	oler slope							,			
	oler interc					0.0					
= same		opt				0.0	0.000	0.500 1.0	00 1.500 2	.000	
- contraction -	response										
= chart	response Iy averag	e temper	ature					Standard Flow R	ate (m3/min)		

Environmental

RECALIBRATION DUE DATE:

January 19, 2022

Certificate of Calibration

0.9 0.9 0.9 0.9 0.9 0.9 0.9	ch #: 1 2 3 4 5 5 9 8 6 9 9 8 6 9 9 8 6	TE-5025A Vol. Init (m3) 1 3 5 7 9 9 Qstd (x-axis) 0.6762 0.9583	Cali Vol. Final (m3) 2 4 6 8 10	tis)	<b>ΔTime</b> (min) 1.4830 1.0420 0.9290 0.8840 0.7340	Pa: ΔP (mm Hg) 3.2 6.4 8.0 8.8 12.9 Qa	294 755.1 (in H2O) 2.00 4.00 5.00 5.50 8.00 $\sqrt{\Delta H(Ta/Pa)}$		
Calibration Model Ru Ru Vst (m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0	#: 1 2 3 4 5 3 4 5 9 8 9 9 8 6 9 9 8 6 9 9 8 5	Vol. Init (m3) 1 3 5 7 9 9 Qstd (x-axis) 0.6762 0.9583	Vol. Final (m3) 2 4 6 8 10 10 $\sqrt{\Delta H}\left(\frac{Pa}{Psto}\right)$ (y-ax 1.41	$\frac{\Delta \text{Vol.}}{(\text{m3})}$ $1$ $1$ $1$ $1$ $1$ Data Tabulat $(\overline{T_{\text{Std}}})$ $(\overline{T_{\text{Std}}})$ $(\overline{T_{\text{Std}}})$	ΔTime (min) 1.4830 1.0420 0.9290 0.8840 0.7340 ion	ΔP (mm Hg) 3.2 6.4 8.0 8.8 12.9 Qa	ΔH (in H2O) 2.00 4.00 5.00 5.50 8.00		
Vst (m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0	1 2 3 4 5 5 ) 029 986 9965	(m3) 1 3 5 7 9 9 Qstd (x-axis) 0.6762 0.9583	(m3) 2 4 6 8 10 1 $\sqrt{\Delta H \left(\frac{Pa}{Psto}\right)}$ (y-ax 1.41	$\frac{(m3)}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ Data Tabulat $\frac{1}{1} \left( \frac{Tstd}{Ta} \right)$ is)	(min) 1.4830 1.0420 0.9290 0.8840 0.7340 ion	(mm Hg) 3.2 6.4 8.0 8.8 12.9 Qa	(in H2O) 2.00 4.00 5.00 5.50 8.00 √ΔH(Ta/Pa)		
Vst (m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0	1 2 3 4 5 5 ) 029 986 9965	(m3) 1 3 5 7 9 9 Qstd (x-axis) 0.6762 0.9583	(m3) 2 4 6 8 10 1 $\sqrt{\Delta H \left(\frac{Pa}{Psto}\right)}$ (y-ax 1.41	$\frac{(m3)}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ Data Tabulat $\frac{1}{1} \left( \frac{Tstd}{Ta} \right)$ is)	(min) 1.4830 1.0420 0.9290 0.8840 0.7340 ion	(mm Hg) 3.2 6.4 8.0 8.8 12.9 Qa	(in H2O) 2.00 4.00 5.00 5.50 8.00		
(m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9	2 3 4 5 ) 029 986 965	1 3 5 7 9 9 0 9 0 9 0 9 0 9 0 9 0 0 0 6 7 6 2 0.9583	$\frac{2}{4}$ $\frac{4}{6}$ $8$ $10$ $\int \sqrt{\Delta H \left(\frac{Pa}{Pstc}\right)} \left(\frac{V}{V-ax}\right)$ $\frac{1}{1.41}$	$\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ Data Tabulat $\frac{1}{1} \left( \frac{Tstd}{Ta} \right)$ is)	1.4830 1.0420 0.9290 0.8840 0.7340	3.2 6.4 8.0 8.8 12.9 Qa	2.00 4.00 5.00 5.50 8.00		
(m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9	3 4 5 9 9 86 9 65	5 7 9 Qstd (x-axis) 0.6762 0.9583	$\frac{6}{8}$ 10 $\sqrt{\Delta H \left(\frac{Pa}{Psto}\right)}$ (y-ax 1.41	$\frac{1}{1}$ Data Tabulat $\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$	0.9290 0.8840 0.7340	6.4 8.0 8.8 12.9 Qa	4.00 5.00 5.50 8.00		
(m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9	4 5 ) 029 986 965	7 9 Qstd (x-axis) 0.6762 0.9583	$\frac{8}{10}$ $\sqrt{\Delta H \left(\frac{Pa}{Psto}\right)}$ $(\gamma-ax)$ 1.41	$\frac{1}{1}$ Data Tabulat $\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$	0.8840 0.7340 ion	8.8 12.9 Qa	5.00 5.50 8.00 √ΔH(Ta/Pa)		
(m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9	5 ) 029 986 965	9 Qstd (x-axis) 0.6762 0.9583	$\frac{10}{\sqrt{\Delta H \left(\frac{Pa}{Pstc}}\right)}$	$\frac{1}{\frac{1}{\frac{1}{1}}}$	0.7340 ion	12.9 Qa	8.00 √ΔH(Ta/Pa)	4	
(m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9	3 ) 029 986 965	Qstd (x-axis) 0.6762 0.9583	$\sqrt{\Delta H \left(\frac{Pa}{Pstc}\right)}$ (y-ax 1.41	Data Tabulat	ion	Qa	√∆H(Ta/Pa)	]	
(m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9	) 029 986 965	(x-axis) 0.6762 0.9583	$\sqrt{\Delta H \left(\frac{Pa}{Psto}\right)}$ (y-ax 1.41	$\frac{1}{1}\left(\frac{T_{std}}{T_a}\right)$		and and a second		]	
(m3 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9	) 029 986 965	(x-axis) 0.6762 0.9583	√ <sup>211</sup> \ Psto (y-ax 1.41	is)	Va	and and a second			
1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9	029 986 965	0.6762 0.9583	1.41		Va	(v avic)	1		
0.9 0.9 0.9 0.9 0.9 0.9 0.9	986 965	0.9583		92		(x-axis)	(y-axis)		
0.9 0.9 0.9 0.9 0.9 0.9 0.9	965		2.00			0.6715	0.8824	]	
0.9 0.9 QST					0.9915	0.9516	1.2479		
0.9 QST 		0.9965 1.0726 2.24			0.9894	1.0650	1.3952		
	0.9954         1.1260         2.35           0.9899         1.3487         2.83				0.9883	1.1180	1.4633		
	099	1.5467 m=	2.85	1	0.9829	1.3391	1.7648		
	n	b=	-0.00		QA	m= b=	1.31858		
Q		r=	0.999		UCA	r=	0.99992		
Q				Calculations					
	Vstd= ΔVol((Pa-ΔP)/Pstd)(Tstd/1 Qstd= Vstd/ΔTime				a) Va=ΔVol((Pa-ΔP)/Pa)				
05						Va/ATime		2.5	
05			For subsequ	ent flow rat	e calculation	15:	1		
. 4	$\mathbf{Qstd} = 1/m \left( \left( \sqrt{\Delta H} \left( \frac{Pa}{Pstd} \right) \right) \left( \frac{Tstd}{Ta} \right) \right)$				Qa=	1/m (( √ΔH	$m\left(\sqrt{\Delta H(Ta/Pa)}-b\right)$		
Stan	lard	Conditions					1	• <i>†</i>	
, Tstd: 298	.15	°K		L		RECAL	IBRATION		
Pstd:		mm Hg Cey			US EPA reco	mmends ar	nual recalibratio	on per'199	
ΔH: calibrator man	met	er reading (i					egulations Part 5	A CONTRACTOR OF CONTRACTOR	
	nome				Appendix E	to Part 50,	Reference Meth	nod for the	
	meter manometer reading (mm Hg)				Determinat	ion of Suspe	ended Particulate	e Matter i	
Pa: actual baromet b: intercept	bsolute temperature (°K)						re, 9.2.17, page		

Tisch Environmental, Inc.

145 South Miami Avenue

Village of Cleves, OH 45002

www.tisch-env.co TOLL FREE: (877)263-76 FAX: (513)467-90



Sun Creation Engineering Limited

**Calibration & Testing Laboratory** 

# Certificate of Calibration 校正證書

Certificate No.: C216702 證書編號

Supplied By / 委託者       : Envirotech Services Co. Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun, New Territories, Hong Kong         TEST CONDITIONS / 測試條件. Temperature / 溫度       : (23 ± 2)°C         Relative Humidity / 相對溫度       : (50 ± 25)%         Line Voltage / 電壓       :         TEST SPECIFICATIONS / 測試規範 Calibration       : (50 ± 25)%         DATE OF TEST / 測試日期       : 20 November 2021         Test RESULTS / 測試結果       : (50 ± 25)%         The results apply to the particular unit-under-test only. The results are detailed in the subsequent page(s).       : (70 ± 25)%         The test equipment used for calibration are traceable to National Standards via : - The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory       : (71 + 100)         Agilent Technologies / Keysight Technologies       : (71 + 100)       : (72 + 100)         Tested By       : (71 + 100)       : (72 + 100)       : (72 + 100)         Tested By       : (72 + 100)       : (72 + 100)       : (72 + 100)         Mather       : (72 + 100)       : (72 + 100)       : (72 + 100)         Tested By       : (72 + 100)       : (72 + 100)       : (72 + 100)         Mather       : (72 + 100)       : (72 + 100)       : (72 + 100)         Mather       : (72 + 100)       : (72 + 100)       : (72 + 100)         M	· <b>ITEM TESTED / 送檢項</b> Description / 儀器名稱 : Manufacturer / 製造商 : Model No. / 型號 : Serial No. / 編號 :	目 (Job No. / 序引編號: IC21-2322) Sound Level Meter Rion NL-52 00710259	Date of Receipt / 收件日期: 9 November 2021
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun, New Territories, Hong Kong         TEST CONDITIONS / 測試條件         Temperature / 溫度 : (23 ± 2)°C         Line Voltage / 電壓 :         TEST SPECIFICATIONS / 測試規範 Calibration         DATE OF TEST / 測試日期 : 20 November 2021         TEST RESULTS / 測試結果         The results apply to the particular unit-under-test only. The results do not exceed manufacturer's specification. (after adjustment) The results are detailed in the subsequent page(s).         The test equipment used for calibration are traceable to National Standards via : - The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory - Agilent Technologies / Keysight Technologies - Fluke Everett Service Center, USA         Tested By 测试			
New Territories, Hong Kong         TEST CONDITIONS / 測試條件         Temperature / 溫度 : (23 ± 2) °C         Line Voltage / 電壓 :         TEST SPECIFICATIONS / 測試規範         Calibration         DATE OF TEST / 測試日期 : 20 November 2021         TEST RESULTS / 測試結果         The results apply to the particular unit-under-test only.         The results do not exceed manufacturer's specification. (after adjustment)         The results do not exceed manufacturer's specification. (after adjustment)         The results do not exceed manufacturer's specification. (after adjustment)         The results do not exceed manufacturer's specification. (after adjustment)         The results do not exceed manufacturer's specification. (after adjustment)         The results do not exceed manufacturer's specification. (after adjustment)         The test equipment used for calibration are traceable to National Standards via :         - The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory         - Agilent Technologies / Keysight Technologies         - Fluke Everett Sprvice Center, USA         Tested By         测試         H T Wong         Assistant Engineer         Certified By         K© Lee			g Road, Tuen Mun.
Temperature / 溫度 : (23 ± 2)°C       Relative Humidity / 相對濕度 : (50 ± 25)%         Line Voltage / 電壓 :       TEST SPECIFICATIONS / 測試規範         Calibration       DATE OF TEST / 測試日期 : 20 November 2021         TEST RESULTS / 測試結果         The results apply to the particular unit-under-test only.         The results apply to the particular unit-under-test only.         The results apply to the particular unit-under-test only.         The results are detailed in the subsequent page(s).         The test equipment used for calibration are traceable to National Standards via :         - The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory         - Agilent Technologies / Keysight Technologies         - Fluke Everett Service Center, USA         Tested By			
Temperature / 溫度 : (23 ± 2)°C       Relative Humidity / 相對濕度 : (50 ± 25)%         Line Voltage / 電壓 :       TEST SPECIFICATIONS / 測試規範         Calibration       DATE OF TEST / 測試日期 : 20 November 2021         TEST RESULTS / 測試結果         The results apply to the particular unit-under-test only.         The results apply to the particular unit-under-test only.         The results apply to the particular unit-under-test only.         The results are detailed in the subsequent page(s).         The test equipment used for calibration are traceable to National Standards via :         - The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory         - Agilent Technologies / Keysight Technologies         - Fluke Everett Service Center, USA         Tested By	TEST CONDITIONS / 測	試條件	
Calibration         DATE OF TEST / 測試日期       20 November 2021         TEST RESULTS / 測試結果         The results apply to the particular unit-under-test only.         The results do not exceed manufacturer's specification. (after adjustment)         The results are detailed in the subsequent page(s).         The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory         - Agilent Technologies / Keysight Technologies         - Fluke Everett Service Center, USA         Tested By         潮試         H T Wong         Assistant Engineer         Certified By         KC Lee         Engineer         Date of Issue         22 November 2021	Temperature / 溫度 : (		Relative Humidity / 相對濕度 : (50 ± 25)%
Calibration         DATE OF TEST / 測試日期       20 November 2021         TEST RESULTS / 測試結果         The results apply to the particular unit-under-test only.         The results do not exceed manufacturer's specification. (after adjustment)         The results are detailed in the subsequent page(s).         The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory         - Agilent Technologies / Keysight Technologies         - Fluke Everett Service Center, USA         Tested By         潮試         H T Wong         Assistant Engineer         Certified By         KC Lee         Engineer         Date of Issue         22 November 2021	TEST SPECIFICATION	5/測試規範	×
TEST RESULTS / 測試結果         The results apply to the particular unit-under-test only.         The results do not exceed manufacturer's specification. (after adjustment)         The results are detailed in the subsequent page(s).         The test equipment used for calibration are traceable to National Standards via :         - The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory         - Agilent Technologies / Keysight Technologies         - Fluke Everett Service Center, USA         Tested By         - H T Wong         Assistant Engineer         Certified By       H T Wong         KC Lee       Brighneer         Engineer       Stor I Saue         22 November 2021			
The results apply to the particular unit-under-test only.         The results do not exceed manufacturer's specification. (after adjustment)         The results are detailed in the subsequent page(s).         The test equipment used for calibration are traceable to National Standards via :         - The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory         - Agilent Technologies / Keysight Technologies         - Fluke Everett Sprvice Center, USA         Tested By         期試         H T Wong         Assistant Engineer         Certified By         K/C Lee         Engineer         Date of Issue       : 22 November 2021         簽發日期         rest equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior	DATE OF TEST / 測試日	期 : 20 November 2021	
The results do not exceed manufacturer's specification. (after adjustment)         The results are detailed in the subsequent page(s).         The test equipment used for calibration are traceable to National Standards via :         - The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory         - Agilent Technologies / Keysight Technologies         - Fluke Everett Service Center, USA         Tested By         期試       H T Wong         Assistant Engineer         Certified By       K/C Lee         Kg證       K/C Lee         Engineer       State of Issue         x test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior	, TEST RESULTS / 測試編	课	
<ul> <li>The Government of The Hong Kong Special Administrative Region Standard &amp; Calibration Laboratory</li> <li>Agilent Technologies / Keysight Technologies</li> <li>Fluke Everett Service Center, USA</li> </ul> Tested By <ul> <li>H T Wong</li> <li>Assistant Engineer</li> </ul> Certified By <ul> <li>KC Lee</li> <li>Engineer</li> </ul> Te test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior	The results do not exceed r	nanufacturer's specification. (after adjus	tment)
<ul> <li>The Government of The Hong Kong Special Administrative Region Standard &amp; Calibration Laboratory</li> <li>Agilent Technologies / Keysight Technologies</li> <li>Fluke Everett Service Center, USA</li> </ul> Tested By <ul> <li>H T Wong</li> <li>Assistant Engineer</li> </ul> Certified By <ul> <li>KC Lee</li> <li>Engineer</li> </ul> Te test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior	The test equipment used for	n colibration are tuncochie to National C	1 × 29
<ul> <li>Agilent Technologies / Keysight Technologies</li> <li>Fluke Everett Service Center, USA</li> <li>Tested By         <ul> <li>H T Wong</li></ul></li></ul>			
Tested By       :	<ul> <li>Agilent Technologies / K</li> </ul>	eysight Technologies	
測試 H T Wong Assistant Engineer Certified By : J Date of Issue : 22 November 2021 核證 K/C Lee Engineer 簽發日期	- Fluke Everett Service Ce	nter, USA	
測試 H T Wong Assistant Engineer Certified By : J Date of Issue : 22 November 2021 核證 K/C Lee Engineer 簽發日期			
測試 H T Wong Assistant Engineer Certified By : J Date of Issue : 22 November 2021 核證 K/C Lee Engineer 簽發日期	1		
Assistant Engineer Certified By 該證 K/C Lee Engineer Date of Issue 22 November 2021 簽發日期 re test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior	-	mt.	
Certified By       :       .       .       Date of Issue       :       22 November 2021         核證       K/C Lee       .       .       .       .       .       .         ne test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior	闪动动		-
核證 KC Lee Engineer Engineer te test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior		Assistant Engineer	
the test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior		K/C Lee	
	(	Engineer	
	he test equipment used for calibration is tra	ceable to the National Standards as specified in this certi	ficate. This certificate shall not be reproduced except in full, without the price



Sun Creation Engineering Limited

**Calibration & Testing Laboratory** 

# Certificate of Calibration 校正證書

Certificate No.: C216702 證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using the internal standard (After Adjustment) was performed before the test 6.1.1.2 to 6.3.2.

- 3. The results presented are the mean of 3 measurements at each calibration point.
- 4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C210084
CL281	Multifunction Acoustic Calibrator	AV210017

- 5. Test procedure : MA101N.
- 6. Results :
- 6.1 Sound Pressure Level
  - 6.1.1 Reference Sound Pressure Level
  - 6.1.1.1 Before Adjustment

	UUT	Setting		Applie	d Value	UUT	IEC 61672
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Class 1 Spec. (dB)
30 - 130	L <sub>A</sub>	A	Fast	94.00	1	* 96.0	± 1.1

# · 6.1.1.2 After Adjustment

	UUT	Setting		Applie	d Value	UUT	IEC 61672
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Class 1 Spec. (dB)
30 - 130	L <sub>A</sub>	A	Fast	94.00	1	94.0	± 1.1

# 6.1.2 Linearity

	UU'	T Setting		Applie	d Value	UUT 1
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)
30 - 130	L <sub>A</sub>	A	Fast	94.00	• 1	94.0 (Ref.)
				104.00		104.1
				114.00		114.1

IEC 61672 Class 1 Spec. :  $\pm$  0.6 dB per 10 dB step and  $\pm$  1.1 dB for overall different.

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。



**Sun Creation Engineering Limited** 

**Calibration & Testing Laboratory** 

# Certificate of Calibration 校正證書

Certificate No.: C216702 證書編號

#### '6.2 Time Weighting

	UUT	Setting		Applie	d Value	UUT	IEC 61672	
Range (dB)	Function	Frequency Weighting	equency Time Level		Freq. (kHz)	Reading (dB)	Class 1 Spec. (dB)	
30 - 130	L <sub>A</sub>	A	Fast Slow	94.00	1	94.0 94.0	Ref. ± 0.3	

# 6.3 Frequency Weighting

# 6.3.1 A-Weighting

~ I.

	UUT	Setting		Appli	ed Value	UUT	IEC 61672
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Class 1 Spec. (dB)
30 - 130	L <sub>A</sub>	A	Fast	94.00	63 Hz	67.7	$-26.2 \pm 1.5$
					125 Hz	77.7	$-16.1 \pm 1.5$
					250 Hz	85.3	$-8.6 \pm 1.4$
					500 Hz	90.7	$-3.2 \pm 1.4$
				4	1 kHz	94.0	Ref.
		1 .		le la	2 kHz	95.2	$+1.2 \pm 1.6$
					4 kHz	95.0	$+1.0 \pm 1.6$
					8 kHz	92.9	-1.1 (+2.1 ; -3.1)
					16 kHz	86.0	-6.6 (+3.5 ; -17.0

#### 6.3.2 C-Weighting

	UUT	Setting		Appli	ed Value	UUT	IEC 61672
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Class 1 Spec.
30 - 130	L <sub>C</sub>	С	Fast	94.00	63 Hz	93.1	$-0.8 \pm 1.5$
					125 Hz	93.8	$-0.2 \pm 1.5$
					250 Hz	94.0	$0.0 \pm 1.4$
٩					500 Hz	94.0	$0.0 \pm 1.4$
					1 kHz	94.0	🥂 Ref. 🕴
					2 kHz	93.8	$-0.2 \pm 1.6$
	100 C				4 kHz	93.2	$-0.8 \pm 1.6$
					8 kHz	91.0	-3.0 (+2.1 ; -3.1)
					16 kHz	84.1	-8.5 (+3.5 ; -17.0)

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。



**Sun Creation Engineering Limited** 

**Calibration & Testing Laboratory** 

# Certificate of Calibration 校正證書

Certificate No. : C216702 證書編號

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 13748

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

alue :	94 dB :	63 Hz - 125 Hz	: ± 0.35 dB
		250 Hz - 500 Hz	$:\pm 0.30 \text{ dB}$
		1 kHz	: ± 0.20 dB
		2 kHz - 4 kHz	: ± 0.35 dB
		8 kHz	$\pm 0.45 \text{ dB}$
		12.5 kHz	: ± 0.70 dB
	104 dB :	1 kHz	$\pm 0.10 \text{ dB}$ (Ref. 94 dB)
	114 dB :	1 kHz	$\pm 0.10 \text{ dB}$ (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :

Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.



10

輝創工程有限公司

Sun Creation Engineering Limited

**Calibration & Testing Laboratory** 

# Certificate of Calibration 校正證書

Certificate No.: C217234 證書編號

ITEM TESTED / 送檢巧	頁目	(Job No. / 序引編號: IC21-2432) Date of Receipt / 收件日期: 25 November 20	)21
Description / 儀器名稱	:	Precision Acoustic Calibrator	
Manufacturer / 製造商	:	LARSON DAVIS	
Model No. / 型號	:	CAL200	
Serial No. / 編號	:	10227	
Supplied By / 委託者	:	Envirotech Services Co.	
		Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,	
		New Territories, Hong Kong	
Supplied By / 安市古	•	Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,	

Temperature / 溫度 : (23 ± 2)°C Line Voltage / 電壓 : --- Relative Humidity / 相對濕度 : (50±25)%

# TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 16 December 2021

# TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only. The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試

K P Cheuk Project Engineer

K C Lee Engineer

Certified By 核證

Date of Issue 簽發日期

:

16 December 2021

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。



Sun Creation Engineering Limited

Calibration & Testing Laboratory

# Certificate of Calibration 校正證書

Certificate No. : C217234 證書編號

- 1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- 2. The results presented are the mean of 3 measurements at each calibration point.
- 3. Test equipment :

Equipment IDDescriptionCertificate No.CL130Universal CounterC213954CL281Multifunction Acoustic CalibratorAV210017TST150AMeasuring AmplifierC201309

- 4. Test procedure : MA100N.
- 5. Results :
- 5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	93.8	± 0.2
114 dB, 1 kHz	113.8	

# 5.2 Frequency Accuracy

UUT Nominal Value	Measured Value	Uncertainty of Measured Value
(kHz)	(kHz)	(Hz)
1	1.000	± 1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

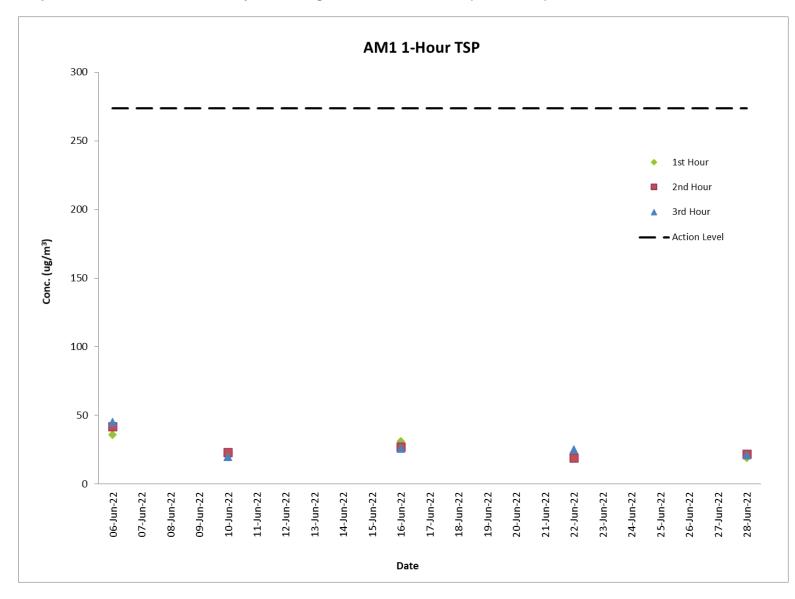
The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory. 本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Note :

# **G.** Graphical Plots of the Monitoring Results

	Weather		(	Conc. (µg/m <sup>3</sup> )	)	Action Level	Limit Level
Date	Condition	Time	1 <sup>st</sup> Hour	2 <sup>nd</sup> Hour	3 <sup>rd</sup> Hour	(µg/m³)	(µg/m³)
06-Jun-22	Cloudy	8:30 - 11:30	36	42	45	273.7	500
10-Jun-22	Cloudy	8:27 - 11:27	21	23	20	273.7	500
16-Jun-22	Cloudy	8:22 - 11:22	31	27	26	273.7	500
22-Jun-22	Cloudy	8:27 - 11:27	21	19	25	273.7	500
28-Jun-22	Sunny	8:24 - 11:24	19	22	21	273.7	500

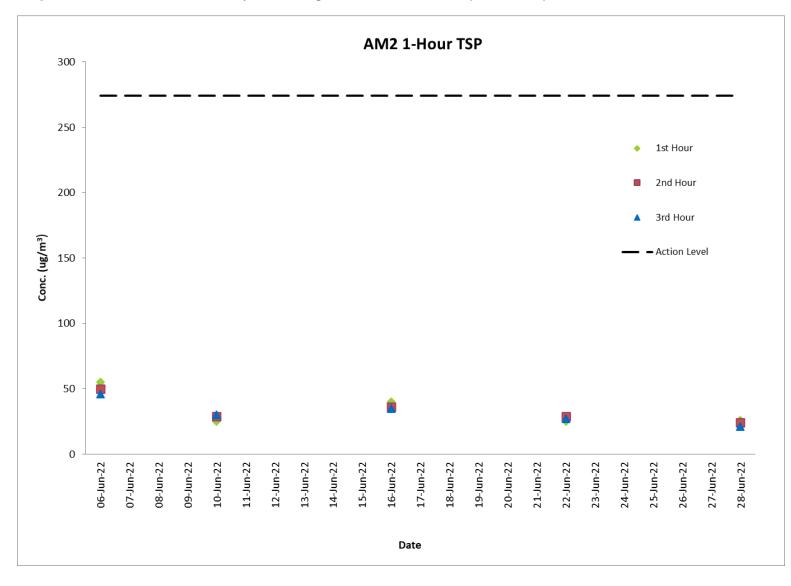
Air Quality Monitoring Result at Station AM1 (1-hour TSP)



Graphical Presentation of Air Quality Monitoring Result at Station AM1 (1-hour TSP)

	Weather			Conc. (µg/m <sup>3</sup> )	)	Action Level	Limit Level
Date	Condition	Time	1 <sup>st</sup> Hour	2 <sup>nd</sup> Hour	3 <sup>rd</sup> Hour	(µg/m³)	(µg/m³)
06-Jun-22	Cloudy	8:43 - 11:43	55	50	46	274.2	500
10-Jun-22	Cloudy	8:41 - 11:41	25	29	30	274.2	500
16-Jun-22	Cloudy	8:35 - 11:35	40	36	35	274.2	500
22-Jun-22	Cloudy	8:40 - 11:40	25	29	27	274.2	500
28-Jun-22	Sunny	8:38 - 11:38	26	24	21	274.2	500

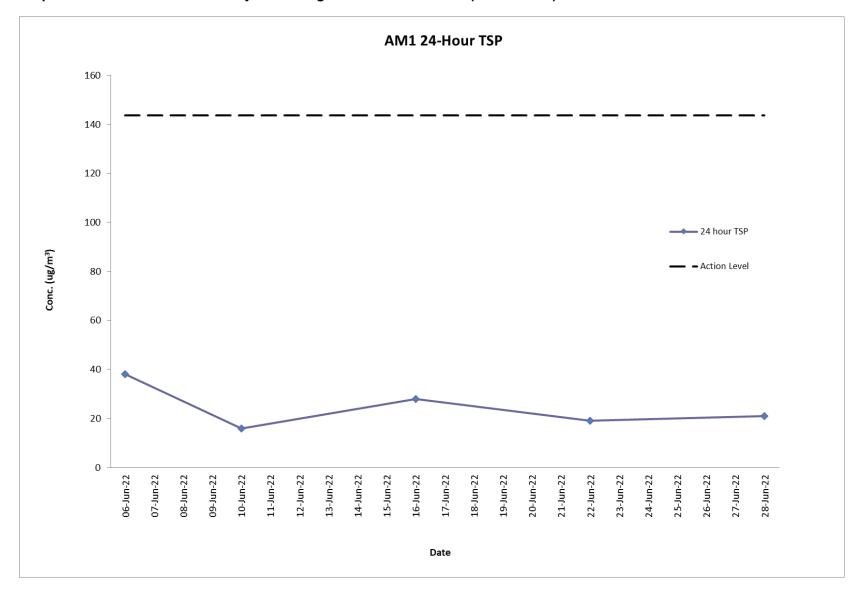
# Air Quality Monitoring Result at Station AM2 (1-hour TSP)



Graphical Presentation of Air Quality Monitoring Result at Station AM2 (1-hour TSP)

Sta	rt	Finis	sh	Filter W	eight (g)	Elapse Rea	2		Conc.	Weather	Action	Limit			
Date	Time	Date	Time	Initial	Final	Initial	Final	Time (hrs)	Initial	Final	Average	(µg/m <sup>3</sup> )	Condition	Level	Level
06-Jun-22	08:28	07-Jun-22	08:28	2.7658	2.8323	25040.38	25064.38	24	1.22	1.22	1.22	38	Cloudy	143.6	260
10-Jun-22	08:25	11-Jun-22	08:25	2.7848	2.8126	25064.38	25088.38	24	1.22	1.22	1.22	16	Cloudy	143.6	260
16-Jun-22	08:20	17-Jun-22	08:20	2.7696	2.8184	25088.38	25112.38	24	1.22	1.22	1.22	28	Cloudy	143.6	260
22-Jun-22	08:25	23-Jun-22	08:25	2.7818	2.8151	25112.38	25136.38	24	1.22	1.22	1.22	19	Cloudy	143.6	260
28-Jun-22	08:22	29-Jun-22	08:22	2.7714	2.8086	25136.38	25160.38	24	1.22	1.22	1.22	21	Sunny	143.6	260

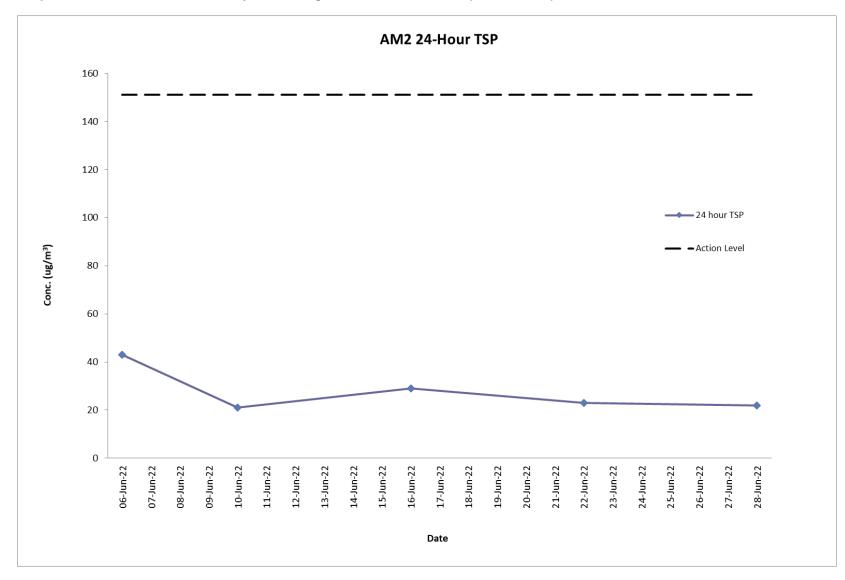
Air Quality Monitoring Result at Station AM1 (24-hour TSP)



Graphical Presentation of Air Quality Monitoring Result at Station AM1 (24-hour TSP)

Sta	rt	Finis	sh	Sampling	Conc.	Weather	Action	
Date	Time	Date	Time	Time (hrs)	(µg/m <sup>3</sup> )	Condition	Level	Limit Level
06-Jun-22	08:41	07-Jun-22	08:41	24	43	Cloudy	151.1	260
10-Jun-22	08:39	11-Jun-22	08:39	24	21	Cloudy	151.1	260
16-Jun-22	08:33	17-Jun-22	08:33	24	29	Cloudy	151.1	260
22-Jun-22	08:38	23-Jun-22	08:38	24	23	Cloudy	151.1	260
28-Jun-22	08:35	29-Jun-22	08:35	24	22	Sunny	151.1	260

Air Quality Monitoring Result at Station AM2 (24-hour TSP)



Graphical Presentation of Air Quality Monitoring Result at Station AM2 (24-hour TSP)

Date	Time	Measured L <sub>10</sub> , dB(A)	Measured L <sub>90</sub> , dB(A)	L <sub>eq</sub> (30 min.)*, dB(A)
06-Jun-22	09:26	65.0	61.9	
06-Jun-22	09:31	66.2	62.6	
06-Jun-22	09:36	65.4	61.7	67
06-Jun-22	09:41	66.5	62.2	07
06-Jun-22	09:46	65.7	61.1	
06-Jun-22	09:51	66.2	62.6	
16-Jun-22	09:10	64.0	60.9	
16-Jun-22	09:15	65.1	61.5	
16-Jun-22	09:20	65.3	61.7	66
16-Jun-22	09:25	64.6	60.4	00
16-Jun-22	09:30	64.5	60.2	
16-Jun-22	09:35	65.7	61.0	
22-Jun-22	09:23	65.8	61.7	
22-Jun-22	09:28	66.0	62.6	
22-Jun-22	09:33	65.1	61.5	67
22-Jun-22	09:38	65.4	61.3	67
22-Jun-22	09:43	66.2	62.4	
22-Jun-22	09:48	66.5	62.6	
28-Jun-22	09:21	65.6	61.7	
28-Jun-22	09:26	64.0	60.5	
28-Jun-22	09:31	66.7	62.4	66
28-Jun-22	09:36	65.2	61.5	66
28-Jun-22	09:41	65.3	61.1	
28-Jun-22	09:46	64.7	60.6	

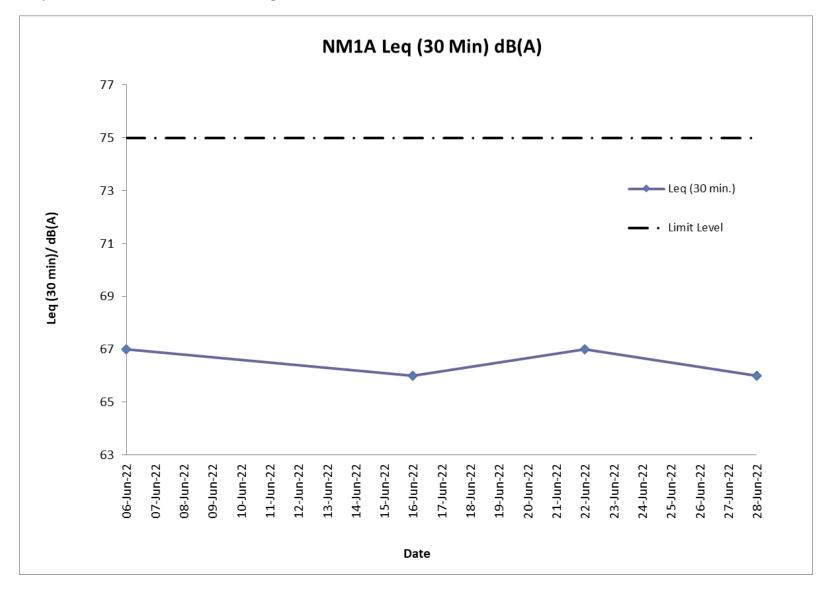
# Noise Monitoring Result at Station NM1A

# **Remarks:**

\* +3dB (A) correction was applied to free-field measurement.



The station set-up of a free-field measurement at Station NM1A.

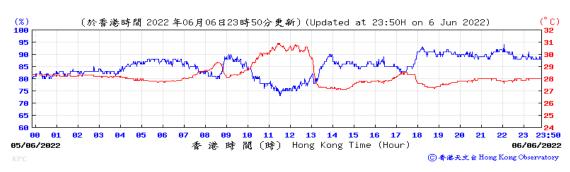


Graphical Presentation Noise Monitoring Result at Station NM1A

# H. Meteorological Data Extracted from Hong Kong Observatory

# Extract of Meteorological Observations for King's Park Automatic Weather Station

#### June 2022



Temperature/Humidity:

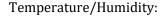
#### Pressure:

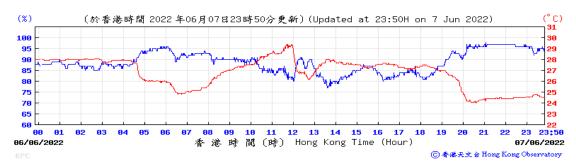


# Wind Direction:









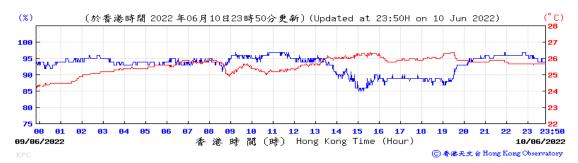
Pressure:



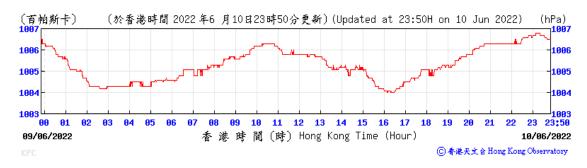
Wind Direction:







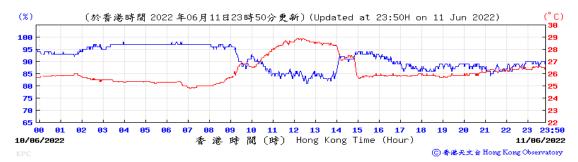
Pressure:



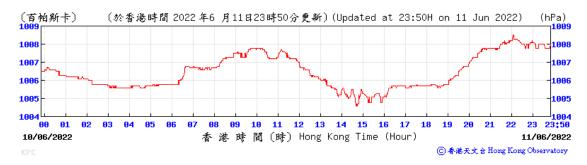
Wind Direction:





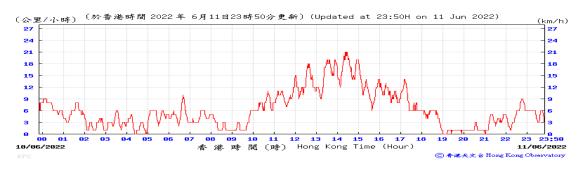


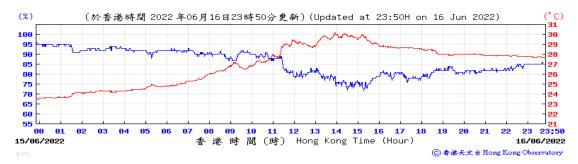
Pressure:



Wind Direction:



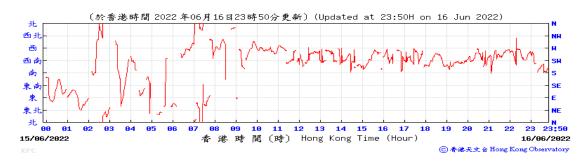




Pressure:



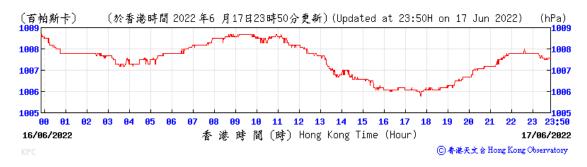
Wind Direction:



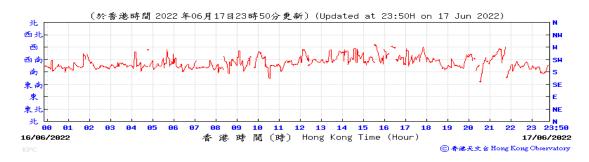




Pressure:



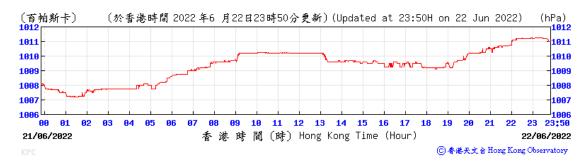
Wind Direction:







Pressure:



Wind Direction:







Pressure:

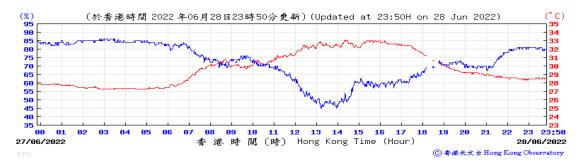


Wind Direction:









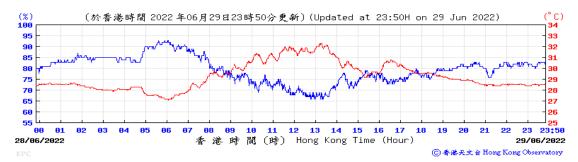
Pressure:



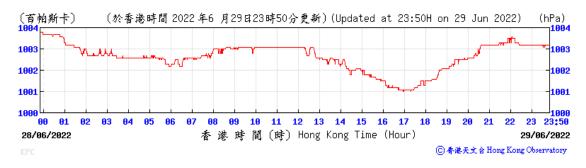
Wind Direction:







Pressure:



Wind Direction:





# I. Waste Flow table

# Table I-1: Monthly Waste Flow Table for Lyric Theatre Complex

		Actual Qu	antities of Ine	rt C&D Mater	rials Generate	Actual Quantities of C&D Wastes Generated Monthly							
Month	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Disposed to Sorting Facilty	Imported Fill	Metals	Paper/ Cardboard Packaging	Plastics	Wood/ Timber	Chemical Waste	Others, e.g. General Refuse
	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)
2016		-							-			-	-
Mar	2702.1	0.0	0.0	0.0	2702.1	0.0	0.0	4.5	0.1	0.0	0.0	0.0	30.6
Apr	8631.5	0.0	0.0	0.0	8631.5	0.0	0.0	16.0	0.0	0.0	0.0	0.0	19.2
May	12487.8	0.0	0.0	0.0	12487.8	0.0	0.0	34.0	0.0	0.0	0.0	0.7	60.5
Jun	8600.8	0.0	0.0	0.0	8600.8	0.0	0.0	31.4	0.2	0.0	0.0	0.5	13.5
Jul	12624.2	0.0	0.0	0.0	12624.2	0.0	0.0	19.6	0.0	0.0	0.0	2.0	9.9
Aug	14419.9	0.0	0.0	0.0	14419.9	0.0	0.0	43.9	0.0	0.0	0.0	0.0	11.1
Sep	13671.3	0.0	0.0	0.0	13671.3	0.0	0.0	59.8	0.0	0.0	0.0	1.6	12.4
Oct	13088.9	0.0	0.0	0.0	13088.9	0.0	0.0	36.9	0.2	1.5	0.0	0.0	15.2
Nov	12424.7	0.0	0.0	0.0	12424.7	0.0	0.0	74.7	0.0	0.0	0.0	1.4	10.2
Dec	12487.6	0.0	0.0	0.0	12487.6	0.0	0.0	13.9	0.0	0.0	0.0	1.3	9.0
Sub-total (2016)	111138.8	0.0	0.0	0.0	111138.8	0.0	0.0	334.5	0.4	1.5	0.0	7.6	191.6
2017	•	•			-						-		
Jan	9607.8	0.0	0.0	0.0	9607.8	0.0	0.0	29.5	0.0	0.0	0.0	0.0	7.3
Feb	9108.2	0.0	0.0	0.0	9108.2	0.0	0.0	50.2	0.2	0.0	0.0	0.7	9.8
Mar	11361.7	0.0	0.0	0.0	11361.7	0.0	0.0	16.1	0.0	0.0	0.0	1.4	8.5
Apr	2591.5	0.0	0.0	0.0	2591.5	0.0	0.0	35.7	0.0	0.0	0.0	0.0	4.7
May	2579.3	0.0	0.0	99.0	2480.3	0.0	0.0	20.9	0.1	0.0	0.0	0.5	10.0
Jun	476.0	0.0	0.0	341.0	129.7	5.3	0.0	0.0	0.0	0.0	0.0	0.0	7.6
Jul	3419.0	0.0	0.0	804.0	2615.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.8
Aug	3730.9	0.0	0.0	1377.5	2353.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4
Sep	2108.2	0.0	0.0	1133.5	974.7	0.0	0.0	34.6	0.2	0.0	0.0	0.0	10.8
Oct	9159.0	0.0	0.0	7868.0	1291.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	9.3
Nov	5095.4	0.0	0.0	4352.0	725.2	18.1	0.0	0.0	0.0	0.0	0.0	0.0	38.8
Dec	3856.2	0.0	0.0	3076.0	780.2	0.0	0.0	0.0	0.2	0.0	0.0	0.4	8.4
Sub-total (2017)	63093.1	0.0	0.0	19051.0	44018.7	23.4	0.0	187.1	0.7	0.0	0.0	3.8	137.3

# Table I-1: Monthly Waste Flow Table for Lyric Theatre Complex

	Actual Quantities of Inert C&D Materials Generated Monthly								Actual Quantities of C&D Wastes Generated Monthly						
Month	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Disposed to Sorting Facilty	Imported Fill	Metals	Paper/ Cardboard Packaging	Plastics	Wood/ Timber	Chemical Waste	Others, e.g. General Refuse		
	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)		
2018															
Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Feb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5		
Mar	6120.2	0.0	0.0	5782.0	338.2	0.0	0.0	0.0	0.0	1.0	0.0	0.5	17.6		
Apr	14460.3	0.0	0.0	12484.1	1976.3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	7.6		
May	59783.7	0.0	0.0	46989.0	12794.7	0.0	0.0	59.6	0.0	0.0	0.0	0.0	9.4		
Jun	53117.5	0.0	0.0	37642.8	15474.7	0.0	0.0	51.5	0.2	0.0	0.0	0.0	12.8		
Jul	89901.5	0.0	0.0	85317.1	4584.4	0.0	165.1	114.6	0.0	0.0	0.0	0.0	41.3		
Aug	35137.3	0.0	0.0	33731.6	1405.7	0.0	214.3	148.1	0.0	0.0	0.0	0.0	48.5		
Sep	4924.3	0.0	0.0	4641.2	196.1	87.0	174.6	40.0	0.0	0.0	0.0	0.0	179.2		
Oct	19099.9	0.0	0.0	11301.0	7642.8	156.1	0.0	106.3	0.4	0.0	0.0	0.0	528.5		
Nov	104168.0	0.0	0.0	79811.6	24351.0	5.3	0.0	54.5	0.0	0.6	0.0	0.0	31.5		
Dec	62989.9	0.0	0.0	51284.4	11699.9	5.6	0.0	95.1	0.0	0.6	0.0	0.0	65.9		
Sub-total (2018)	449702.6	0.0	0.0	368984.8	80463.7	254.0	553.9	669.7	0.5	2.4	0.0	0.5	943.7		
2019															
Jan	74479.1	0.0	0.0	69249.5	5229.7	0.0	318.0	326.7	0.2	0.0	0.0	0.0	76.3		
Feb	21969.9	0.0	0.0	17723.9	4246.0	0.0	16.5	55.2	0.0	0.0	0.0	0.0	26.7		
Mar	19311.9	0.0	0.0	8569.9	10742.0	0.0	337.8	61.5	0.0	0.0	0.0	0.0	36.3		
Apr	28559.9	0.0	0.0	21280.3	7279.6	0.0	0.0	32.6	0.0	0.8	0.0	0.0	24.9		
May	45418.0	0.0	0.0	11200.6	34217.4	0.0	0.0	27.4	0.2	0.5	0.0	0.0	33.7		
Jun	66633.4	0.0	0.0	23874.5	42748.0	10.9	59.2	11.9	0.0	0.9	0.0	0.0	35.3		
Jul	36619.6	0.0	0.0	1632.7	34960.9	26.0	64.4	120.7	0.0	0.0	0.0	0.0	57.9		
Aug	2526.8	0.0	0.0	0.0	2499.0	27.8	31.9	40.2	0.0	0.8	0.0	0.0	66.3		
Sep	4117.6	0.0	0.0	0.0	4088.7	28.9	95.2	19.0	0.0	0.6	0.0	0.0	127.4		
Oct	6974.2	0.0	0.0	0.0	6948.1	26.1	15.9	11.4	0.2	1.0	0.0	0.6	223.6		
Nov	5334.4	0.0	0.0	0.0	5304.1	30.3	0.0	8.9	0.0	0.0	0.0	0.0	151.6		
Dec	6236.8	0.0	0.0	0.0	6236.8	0.0	0.0	70.6	0.0	0.0	0.0	0.0	98.9		
Sub-total (2019)	318181.6	0.0	0.0	153531.3	164500.1	150.1	938.9	785.8	0.6	4.6	0.0	0.6	959.0		

# Table I-1: Monthly Waste Flow Table for Lyric Theatre Complex

	Actual Quantities of Inert C&D Materials Generated Monthly								Actual Quantities of C&D Wastes Generated Monthly						
Month	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Disposed to Sorting Facilty	Imported Fill	Metals	Paper/ Cardboard Packaging	Plastics	Wood/ Timber	Chemical Waste	Others, e.g. General Refuse		
	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)		
2020															
Jan	7089.9	0.0	0.0	0.0	7089.9	0.0	0.0	10.6	0.2	0.0	0.0	0.0	65.7		
Feb	16822.3	0.0	0.0	0.0	16822.3	0.0	0.0	232.2	0.1	0.0	0.0	0.0	66.3		
Mar	6559.0	0.0	0.0	0.0	6559.0	0.0	110.4	63.1	0.0	0.9	0.0	0.0	138.3		
Apr	4997.9	0.0	0.0	1615.7	3382.2	0.0	159.2	1123.9	1.9	0.0	0.0	0.0	113.2		
May	2236.0	0.0	0.0	452.3	1783.6	0.0	0.0	406.5	0.0	0.0	0.0	0.0	188.8		
Jun	1134.3	0.0	0.0	0.0	1134.3	0.0	31.5	262.6	0.2	0.6	0.0	0.0	210.6		
Jul	148.8	0.0	0.0	0.0	148.8	0.0	31.5	458.5	0.5	0.0	0.0	0.0	220.0		
Aug	540.7	0.0	0.0	0.0	540.7	0.0	0.0	340.8	0.0	0.0	0.0	0.0	238.3		
Sep	1432.3	0.0	0.0	0.0	1432.3	0.0	0.0	750.7	0.2	0.0	0.0	0.0	291.9		
Oct	1381.5	0.0	0.0	0.0	1381.5	0.0	0.0	717.9	0.2	0.0	0.0	0.0	400.2		
Nov	1444.1	0.0	0.0	0.0	1437.4	6.7	475.8	473.6	0.2	0.5	0.0	0.0	377.8		
Dec	793.8	0.0	0.0	0.0	793.8	0.0	0.0	478.3	0.2	0.0	0.0	0.0	435.8		
Sub-total (2020)	44580.6	0.0	0.0	2068.1	42505.8	6.7	808.3	5318.7	3.7	2.0	0.0	0.0	2746.8		
2021		•									•		-		
Jan	881.4	0.0	0.0	0.0	881.4	0.0	0.0	835.1	0.4	0.0	0.0	0.0	497.0		
Feb	544.7	0.0	0.0	0.0	544.7	0.0	0.0	100.5	0.3	0.0	0.0	0.0	504.7		
Mar	406.1	0.0	0.0	0.0	406.1	0.0	0.0	455.8	0.3	0.0	0.0	0.0	881.7		
Apr	633.0	0.0	0.0	0.0	633.0	0.0	0.0	429.9	0.7	0.0	0.0	0.0	613.0		
May	1125.8	0.0	0.0	0.0	1125.8	0.0	0.0	355.1	0.2	0.1	0.0	0.0	355.2		
Jun	877.3	0.0	0.0	0.0	877.3	0.0	0.0	98.4	0.2	0.0	0.0	0.4	420.3		
Jul	8.9	0.0	0.0	0.0	0.0	8.9	0.0	43.9	2.0	0.0	0.0	0.0	278.2		
Aug	1296.2	0.0	0.0	0.0	1296.2	0.0	0.0	161.5	0.0	0.0	0.0	0.0	459.1		
Sep	1040.5	0.0	0.0	0.0	490.9	549.6	0.0	62.9	0.0	0.0	0.0	0.0	620.8		
Oct	311.0	0.0	0.0	0.0	311.0	0.0	0.0	85.9	0.3	0.0	0.0	0.0	485.6		
Nov	203.9	0.0	0.0	0.0	203.9	0.0	0.0	65.9	0.0	0.0	0.0	0.0	609.6		
Dec	576.6	0.0	0.0	0.0	576.6	0.0	0.0	13.4	0.0	0.0	0.0	0.0	590.6		
Sub-total (2021)	7905.3	0.0	0.0	0.0	7346.9	558.5	0.0	2708.2	4.4	0.1	0.0	0.4	6315.9		

#### Table I-1: Monthly Waste Flow Table for Lyric Theatre Complex

	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly						
Month	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Disposed to Sorting Facilty	Imported Fill	Metals	Paper/ Cardboard Packaging	Plastics	Wood/ Timber	Chemical Waste	Others, e.g. General Refuse
	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)
2022	2022												
Jan	579.3	0.0	0.0	0.0	579.3	0.0	0.0	23.5	0.4	0.0	0.0	0.0	565.5
Feb	58.9	0.0	0.0	0.0	58.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	172.2
Mar	412.8	0.0	0.0	0.0	412.8	0.0	0.0	12.4	0.3	0.0	0.0	0.0	339.8
Apr	390.2	0.0	0.0	0.0	390.2	0.0	0.0	24.8	0.0	0.0	0.0	0.0	390.9
May	350.1	0.0	0.0	0.0	342.9	7.2	0.0	44.3	0.0	0.1	0.0	0.0	401.9
Jun	200.4	0.0	0.0	0.0	200.4	0.0	0.0	21.1	0.0	0.0	0.0	1.1	447.8
Sub-total (2022)	1991.7	0.0	0.0	0.0	1984.5	7.2	0.0	126.1	0.7	0.1	0.0	1.1	2318.1
Total	996593.6	0.0	0.0	543635.2	451958.5	999.9	2301.1	10129.9	10.9	10.6	0.0	14.0	13612.4

Note:

- 155.64 tonnes, 7.74 tonnes and 37.05 tonnes of inert C&D materials were disposed of as public fill to Tseung Kwan O Area 137 Public Fill, Tuen Mun Area 38 Public Fill and Chai Wan Public Fill Barging Point respectively in the reporting month.

# J. Environmental Mitigation Measures – Implementation Status

## Table J-1: Environmental Mitigation Measures Implementation Status (June 2022)

		Implementation Stage
EM&A Ref.	Recommendation Measures	L2
Air Quality	Impact (Construction)	
2.1 &	General Dust Control Measures	
10.3.1	Frequent water spraying for active construction areas (12 times a day or once every one hour), including Heavy construction activities such as construction of buildings or roads, drilling, ground excavation, cut and fill operations (i.e., earth moving)	$\checkmark$
2.1 &	Best Practice For Dust Control	
10.3.1	The relevant best practices for dust control as stipulated in the Air Pollution Control (construction Dust) Regulation should be adopted to further reduce the construction dust impacts from the Project. These best practices include:	
	Good Site Management	
	<ul> <li>Good site management is important to help reducing potential air quality impact down to an acceptable level. As a general guide, the Contractor should maintain high standard of housekeeping to prevent emission of fugitive dust. Loading, unloading, handling and storage of raw materials, wastes or by-products should be carried out in a manner so as to minimise the release of visible dust emission. Any piles of materials accumulated on or around the work areas should be cleaned up regularly. Cleaning, repair and maintenance of all plant facilities within the work areas should be carried out in a manner minimising generation of fugitive dust emissions. The material should be handled properly to prevent fugitive dust emission before cleaning.</li> </ul>	Obs
	Disturbed Parts of the Roads	
	<ul> <li>Each and every main temporary access should be paved with concrete, bituminous hardcore materials or metal plates and kept clear of dusty materials; or</li> </ul>	$\checkmark$
	<ul> <li>Unpaved parts of the road should be sprayed with water or a dust suppression chemical so as to keep the entire road surface wet.</li> </ul>	$\checkmark$
	Exposed Earth	
	<ul> <li>Exposed earth should be properly treated by compaction, hydroseeding, vegetation planting or seating with latex, vinyl, bitumen within six months after the last construction activity on the site or part of the site where the exposed earth lies.</li> </ul>	N/A No exposed earth in this project.
	Loading, Unloading or Transfer of Dusty Materials	
	<ul> <li>All dusty materials should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.</li> </ul>	$\checkmark$
	Debris Handling	
	<ul> <li>Any debris should be covered entirely by impervious sheeting or stored in a debris collection area sheltered on the top and the three sides.</li> </ul>	$\checkmark$
	Before debris is dumped into a chute, water should be sprayed so that it remains wet when it is dumped.	$\checkmark$

		Implementation Stage
EM&A Ref.		L2
	Transport of Dusty Materials	,
	<ul> <li>Vehicle used for transporting dusty materials/spoils should be covered with tarpaulin or similar material. The cover should extend over the edges of the sides and tailboards.</li> </ul>	$\checkmark$
	Wheel washing	
	<ul> <li>Vehicle wheel washing facilities should be provided at each construction site exit. Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels.</li> </ul>	$\checkmark$
	Use of vehicles	
	<ul> <li>The speed of the trucks within the site should be controlled to about 10km/hour in order to reduce adverse dust impacts and secure the safe movement around the site.</li> </ul>	$\checkmark$
	<ul> <li>Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels.</li> </ul>	$\checkmark$
	<ul> <li>Where a vehicle leaving the construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle.</li> </ul>	$\checkmark$
	Site hoarding	
	<ul> <li>Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4m high from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit.</li> </ul>	✓
2.1 &	Best Practicable Means for Cement Works (Concrete Batching Plant)	
10.3.1	The relevant best practices for dust control as stipulated in the Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93) should be followed and implemented to further reduce the construction dust impacts of the Project. These best practices include:	
	Exhaust from Dust Arrestment Plant	
	<ul> <li>Wherever possible the final discharge point from particulate matter arrestment plant, where is not necessary to achieve dispersion from residual pollutants, should be at low level to minimise the effect on the local community in the case of abnormal emissions and to facilitate maintenance and inspection</li> </ul>	N/A No concrete batching plant in th project.
	Emission Limits	
	• All emissions to air, other than steam or water vapour, shall be colourless and free from persistent mist or smoke	N/A No concrete batching plant in th project.
	Engineering Design/Technical Requirements	
	<ul> <li>As a general guidance, the loading, unloading, handling and storage of fuel, raw materials, products, wastes or by-products should be carried out in a manner so as to prevent the release of visible dust and/or other noxious or offensive emissions</li> </ul>	N/A No concrete batching plant in th project.

		Implementation Stage
EM&A Ref.	Recommendation Measures	L2
	Non-Road Mobile Machinery (NRMM):	
	All NRMMs operating on-site which are subject to emission control of Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation are approved/exempted (as the case may be) and affixed with the requisite approval/exemption labels.	$\checkmark$
Noise Impa	ct (Construction)	
3.1 &	Good Site Practice	
10.4.1	Good site practice and noise management can significantly reduce the impact of construction site activities on nearby NSRs. The following package of measures should be followed during each phase of construction:	
	<ul> <li>only well-maintained plant to be operated on-site and plant should be serviced regularly during the construction works;</li> </ul>	$\checkmark$
	• machines and plant that may be in intermittent use to be shut down between work periods or should be throttled down to a minimum	$\checkmark$
	• plant known to emit noise strongly in one direction, should, where possible, be orientated to direct noise away from the NSRs;	$\checkmark$
	<ul> <li>mobile plant should be sited as far away from NSRs as possible; and</li> </ul>	$\checkmark$
	<ul> <li>material stockpiles and other structures to be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>	$\checkmark$
3.1 &	Adoption of Quieter PME	
10.4.1	The recommended quieter PME adopted in the assessment were taken from the EPD's QPME Inventory and "Sound Power Levels of Other Commonly Used PME" are presented in <b>Table 4.26</b> in the EIA report. It should be noted that the silenced PME selected for assessment can be found in Hong Kong.	$\checkmark$
3.1 &	Use of Movable Noise Barriers	
10.4.1	Movable noise barriers can be very effective in screening noise from particular items of plant when constructing the Project. Noise barriers located along the active works area close to the noise generating component of a PME could produce at least 10 dB(A) screening for stationary plant and 5 dB(A) for mobile plant provided the direct line of sight between the PME and the NSRs is blocked.	$\checkmark$
3.1 &	Use of Noise Enclosure/ Acoustic Shed	
10.4.1	The use of noise enclosure or acoustic shed is to cover stationary PME such as air compressor and concrete pump. With the adoption of the noise enclosure, the PME could be completely screened, and noise reduction of 15 dB(A) can be achieved according to the EIAO Guidance Note No. 9/2010.	$\checkmark$
3.1 &	Use of Noise Insulating Fabric	
10.4.1	Noise insulating fabric can also be adopted for certain PME (e.g. drill rig, pilling machine etc). The fabric should be lapped such that there are no openings or gaps on the joints. According to the approved Tsim Sha Tsui Station Northern Subway EIA report (AEIAR- 127/2008), a noise reduction of 10 dB(A) can be achieved for the PME lapped with the noise insulating fabric.	Obs

		Implementation Stage	
M&A Ref.	Recommendation Measures	L2	
3.1 & 10.4.1	Scheduling of Construction Works outside School Examination Periods During construction phase, the contractor should liaise with the educational institutions (including NSRs LCS and CRGPS) to obtain	N/A	
	the examination schedule and avoid the noisy construction activities during school examination periods.	No educational institutions nearby the site.	
Vater Qua	ality Impact (Construction)		
1.1 &	Construction site runoff and drainage		
10.5.1	The site practices outlined in ProPECC Note PN 1/94 should be followed as far as practicable in order to minimise surface runoff and the chance of erosion. The following measures are recommended to protect water quality and sensitive uses of the coastal area, and when properly implemented should be sufficient to adequately control site discharges so as to avoid water quality impacts:		
	<ul> <li>At the start of site establishment, 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, earth bunds or sand bag barriers should be provided on site to direct storm water to silt removal facilities. The design of the temporary on-site drainage system should be undertaken by the WKCDA's Contractor prior to the commencement of construction;</li> </ul>		
	• Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the TM standards under the WPCO. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC Note PN 1/94. Sizes may vary depending upon the flow rate. The detailed design of the sand/silt traps should be undertaken by the WKCDA's Contractor prior to the commencement of construction.		
	• 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 during rainstorms. Deposited silt and grit should be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.		
	<ul> <li>Measures should be taken to minimize the ingress of site drainage into excavations. If excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from foundation excavations should be discharged into storm drains via silt removal facilities.</li> </ul>		
	<ul> <li>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 facility should be provided at construction site exit where practicable. Wash-water should have sand and silt settled out and removed regularly 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.</li> </ul>		
	• Open stockpiles of construction materials or construction wastes on-site 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.	$\checkmark$	
	<ul> <li>Manholes (including newly constructed ones) should be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and stormwater runoff being directed into foul sewers.</li> </ul>	$\checkmark$	

		Implementation Stage
EM&A Ref.	Recommendation Measures	L2
	<ul> <li>Precautions should be taken at any time of the year when rainstorms are likely. Actions should be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarized in Appendix A2 of ProPECC Note 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.</li> </ul>	$\checkmark$
	<ul> <li>Bentonite slurries used in piling or slurry walling should be reconditioned and reused wherever practicable. Temporary enclosed storage locations 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 Note PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.</li> </ul>	N/A No bentonite slurries are used in this project.
	Barging facilities and activities	
	Recommendations for good site practices during operation of the proposed barging point include:	
	• 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;	N/A No barging facilities in this project.
	• Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water. Barges or hoppers should not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation;	N/A No barging facilities in this project.
	All hopper barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; and	N/A No barging facilities in this project.
	<ul> <li>Construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site.</li> </ul>	N/A No barging facilities in this project.
4.1 &	Sewage effluent from construction workforce	
10.5.1	Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site where necessary to handle sewage from the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.	$\checkmark$
4.1 &	General construction activities	
10.5.1	<ul> <li>Construction solid waste, debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering any nearby storm water drain. Stockpiles of cement and other construction materials should be kept covered when not being used.</li> </ul>	✓
	<ul> <li>Oils and fuels should only be stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to any nearby storm water drain, all fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund should be drained of rainwater after a rain event.</li> </ul>	Obs

		Implementation Stage
EM&A Ref.	Recommendation Measures	L2
Waste Man	agement Implications (Construction)	
6.1 &	Good Site Practices	
10.7.1	Recommendations for good site practices during the construction activities include:	
	<ul> <li>Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site</li> </ul>	$\checkmark$
	<ul> <li>Training of site personnel in proper waste management and chemical handling procedures</li> </ul>	$\checkmark$
	<ul> <li>Provision of sufficient waste disposal points and regular collection of waste</li> </ul>	Rem, Obs
	<ul> <li>Appropriate measures to minimise windblown litter and dust/odour during transportation of waste by either covering trucks or by transporting wastes in enclosed containers</li> </ul>	$\checkmark$
	Provision of wheel washing facilities before the trucks leaving the works area so as to minimise dust introduction to public roads	$\checkmark$
	<ul> <li>Well planned delivery programme for offsite disposal such that adverse environmental impact from transporting the inert or non- inert C&amp;D materials is not anticipated</li> </ul>	$\checkmark$
6.1 &	Waste Reduction Measures	
10.7.1	Recommendations to achieve waste reduction include:	
	<ul> <li>Sort inert C&amp;D material to recover any recyclable portions such as metals</li> </ul>	$\checkmark$
	<ul> <li>Segregation and storage of different types of waste in different containers or skips to enhance reuse or recycling of materials and their proper disposal</li> </ul>	$\checkmark$
	<ul> <li>Encourage collection of recyclable waste such as waste paper and aluminium cans by providing separate labelled bins to enable such waste to be segregated from other general refuse generated by the work force</li> </ul>	$\checkmark$
	<ul> <li>Proper site practices to minimise the potential for damage or contamination of inert C&amp;D materials</li> </ul>	$\checkmark$
	• Plan the use of construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of wastes	$\checkmark$
6.1 &	Inert and Non-inert C&D Materials	
10.7.1	In order to minimise impacts resulting from collection and transportation of inert C&D material for off-site disposal, the excavated materials should be reused on-site as fill material as far as practicable. In addition, inert C&D material generated from excavation works could be reused as fill materials in local projects that require public fill for reclamation.	$\checkmark$
	• The surplus inert C&D material will be disposed of at the Government's PFRFs for beneficial use by other projects in Hong Kong.	$\checkmark$
	<ul> <li>Liaison with the CEDD Public Fill Committee (PFC) on the allocation of space for disposal of the inert C&amp;D materials at PFRF is underway. No construction work is allowed to proceed until all issues on management of inert C&amp;D materials have been resolved and all relevant arrangements have been endorsed by the relevant authorities including PFC and EPD.</li> </ul>	4
	• The C&D materials generated from general site clearance should be sorted on site to segregate any inert materials for reuse or disposal of at PFRFs whereas the non-inert materials will be disposed of at the designated landfill site.	4

		Implementation Stage
EM&A Ref.	Recommendation Measures	L2
	<ul> <li>In order to monitor the disposal of inert and non-inert C&amp;D materials at respectively PFRFs and the designated landfill site, and to control fly-tipping, it is recommended that the Contractor should follow the Technical Circular (Works) No. 6/2010 for Trip Ticket System for Disposal of Construction &amp; Demolition Materials issued by Development Bureau. In addition, it is also recommended that the Contractor should prepare and implement a Waste Management Plan detailing their various waste arising and waste management practices in accordance with the relevant requirements of the Technical Circular (Works) No. 19/2005 Environmental Management on Construction Site.</li> </ul>	✓
6.1 &	Chemical Waste	
10.7.1	<ul> <li>If chemical wastes are produced at the construction site, the Contractor will be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the "Code of Practice on the Packaging Labelling and Storage of Chemical Wastes". Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor should use a licensed collector to transport and dispose of the chemical wastes at the approved Chemical Waste Treatment Centre or other licensed recycling facilities, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</li> </ul>	✓
	<ul> <li>Potential environmental impacts arising from the handling activities (including storage, collection, transportation and disposal of chemical waste) are expected to be minimal with the implementation of appropriate mitigation measures as recommended.</li> </ul>	$\checkmark$
6.1 &	General Refuse	
10.7.1	General refuse should be stored in enclosed bins or compaction units separated from inert C&D materials. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from inert C&D materials. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.	$\checkmark$
Land Cont	amination (Construction)	
7.1 & 10.8.1	The potential for land contamination issues at the TST Fire Station due to its future relocation will be confirmed by site investigation after land acquisition. Where necessary, mitigation measures for minimising potential exposure to contaminated materials (if any) or remediation measures will be identified. If contaminated land is identified (e.g., during decommissioning of fuel oil storage tanks) after the commencement of works, mitigation measures are proposed in order to minimise the potentially adverse effects on the health and safety of construction workers and impacts arising from the disposal of potentially contaminated materials. The following measures are proposed for excavation and transportation of contaminated material:	
	<ul> <li>To minimize the chance for construction workers to come into contact with any contaminated materials, bulk earth-moving excavation equipment should be employed;</li> </ul>	N/A TST Fire Station is out of this project boundary, no mitigation measure is required.

#### Implementation Stage

EM&A Ref.	Re	commendation Measures	L2
	•	Contact with contaminated materials can be minimised by wearing appropriate clothing and personal protective equipment such as gloves and masks (especially when interacting directly with contaminated material), provision of washing facilities and prohibition of smoking and eating on site;	N/A TST Fire Station is out of this project boundary, no mitigation measure is required.
	•	Stockpiling of contaminated excavated materials on site should be avoided as far as possible;	N/A TST Fire Station is out of this project boundary, no mitigation measure is required.
	•	The use of contaminated soil for landscaping purpose should be avoided unless pre-treatment was carried out;	N/A TST Fire Station is out of this project boundary, no mitigation measure is required.
	•	Vehicles containing any contaminated excavated materials should be suitably covered to reduce dust emissions and/or release of contaminated wastewater;	N/A TST Fire Station is out of this project boundary, no mitigation measure is required.
	•	Truck bodies and tailgates should be sealed to stop any discharge;	N/A TST Fire Station is out of this project boundary, no mitigation measure is required.
	•	Only licensed waste haulers should be used to collect and transport contaminated material to treatment/disposal site and should be equipped with tracking system to avoid fly tipping;	N/A TST Fire Station is out of this project boundary, no mitigation measure is required.
	•	Speed control for trucks carrying contaminated materials should be exercised;	N/A TST Fire Station is out of this project boundary, no mitigation measure is required.
	•	Observe all relevant regulations in relation to waste handling, such as Waste Disposal Ordinance (Cap. 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354) and obtain all necessary permits where required; and	N/A TST Fire Station is out of this project boundary, no mitigation measure is required.

## Implementation Stage

EM&A Ref.	Recommendation Measures	L2
	Maintain records of waste generation and disposal quantities and disposal arrangements.	N/A TST Fire Station is out of this project boundary, no mitigation measure is required.
Ecological	Impact (Construction)	
	No mitigation measure is required.	
Landscape	and Visual Impact (Construction)	
Table 9.1 & 10.8 (CM1)	Trees should be retained in situ on site as far as possible. Should tree removal be unavoidable due to construction impacts, trees will be transplanted or felled with reference to the stated criteria in the Tree Removal Applications to be submitted to relevant government departments for approval in accordance to ETWB TCW No. 29/2004 and 3/2006.	✓
Table 9.1 & 10.8 (CM2)	Compensatory tree planting shall be incorporated to the proposed project and maximize the new tree, shrubs and other vegetation planting to compensate tree felled and vegetation removed. Also, implementation of compensatory planting should be of a ratio not less than 1:1 in terms of quality and quantity within the site.	N/A Compensatory tree planting is being reviewed.
Table 9.1 & 10.8 (CM3)	Buffer trees for screening purposes to soften the hard architectural and engineering structures and facilities.	N/A Roof garden is designed to be built, but it has not been completed yet.
Table 9.1 & 10.8 (CM4)	Softscape treatments such as vertical green wall panel /planting of climbing and/or weeping plants, etc, to maximize the green coverage and soften the hard architectural and engineering structures and facilities.	N/A Climbing or weeping plants are designed to be planted, but proposal is being reviewed for the planting location.
Table 9.1 & 10.8 (CM5)	Roof greening by means of intensive and extensive green roof to maximize the green coverage and improve aesthetic appeal and visual quality of the building/structure.	N/A Roof garden is designed to be built, but it has not been completed yet.
Table 9.1 & 10.8 (CM6)	Sensitive streetscape design should be incorporated along all new roads and streets.	N/A Greening along the seafront is proposed, but it has not been completed yet.
Table 9.1 & 10.8 (CM7)	Structure, ornamental planting shall be provided along amenity strips to enhance the landscape quality.	N/A Gardens are designed to be built, but it has not been completed yet.

#### Implementation Stage

EM&A Ref.	Recommendation Measures	L2
Table 9.1 & 10.8 (CM8)	Landscape design shall be incorporated to architectural and engineering structures in order to provide aesthetically pleasing designs.	N/A Roof garden is designed to be built, but it has not been completed yet.
Table 9.1 (CM9)	Minimize the structure of marine facilities to be built on the seabed and foreshore in order to minimize the affected extent to the waterbody	N/A No marine facilities for this project.
Table 9.2 & 10.9 (MCP1)	Use of decorative screen hoarding/boards	V
Table 9.2 & 10.9 (MCP2)	Early introduction of landscape treatments	N/A No landscape treatments during this stage.
Table 9.2 & 10.9 (MCP3)	Adoption of light colour for the temporary ventilation shafts for the basement during the transition period.	N/A No ventilation shafts for this project.
Table 9.2 & 10.9 (MCP4)	Control of night time lighting	V
Table 9.2 & 10.9 (MCP5)	Use of greenery such as grass cover for the temporary open areas will help achieve the visual balance and soften the hard edges of the structures.	N/A No temporary open areas for this project.

N/A - Not Applicable

 $\checkmark$  - Implemented

Obs - Observed

Rem - Reminder

# K. Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Cumulative statistics for complaints, notifications of summons and successful prosecutions for the Project account for period starting from the date of commencement of construction works to the end of the reporting month are summarised in the **Table K-1** below respectively.

# Table K-1: Statistics for complaints, notifications of summons and successful prosecutions for Lyric Theatre Complex

Reporting Period	Cumulative Statistics			
	Complaints	Notifications of summons	Successful prosecutions	
This reporting month	3	0	0	
From 1 March 2016 to end of the reporting month (June 2022)	44	0	0	

# END OF PART-1

# Part-2: EM&A for Foundation and ELS Works in Zones 2A, 2B & 2C



# Foundation and ELS Works in Zones 2A, 2B & 2C

APEX TESTING & CERTIFICATION LIMITED Unit D6A, 10/F, TML Plaza, 3 Hoi Shing Road, Tsuen Wan, N.T. Hong Kong Tel: (852) 39733585 Fax: (852) 30079385 Email: info@apextestcert.com

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

Development at West Kowloon Cultural District Monthly Environmental Monitoring and Audit (EM&A) Report for June 2022

# Contents

Exe	ecutive	summary	( 	1
1	Intro	duction		3
	1.1	Backgrou	nd	3
	1.2	-	rganisation	3
	1.3	-	ion Works Status in the Reporting Period	3
	1.4	Summary	of EM&A Requirements and Alternative Monitoring Locations	4
		1.4.1	EM&A Requirements	4
		1.4.2	Alternative Monitoring Locations	5
2	Impa	act Monito	ring Methodology	7
	2.1	Introductio	on	7
	2.2	Air Quality	у	7
		2.2.1	Monitoring Parameters, Frequency and Duration	7
		2.2.2	Monitoring Locations	7
		2.2.3	Monitoring Equipment	7
		2.2.4	Monitoring Methodology	8
	2.3	Noise		10
		2.3.1	Monitoring Parameters, Frequency and Duration	10
		2.3.2	Monitoring Location	10
		2.3.3	Monitoring Equipment	10
		2.3.4	Monitoring Methodology	11
	2.4		e and Visual	11
		2.4.1	Monitoring Program	11
3	Mon	itoring Re	sults	12
	3.1	Impact Mo	onitoring	12
	3.2	Air Quality	y Monitoring	12
		3.2.1	1-hour TSP	12
		3.2.2	24-hour TSP	12
	3.3	Noise Mo	nitoring	13
	3.4	Landscap	e and Visual Impact	14
4	Site	Environm	ental Management	15
	4.1	Site Inspe	ection	15
		4.1.1 ·	Zone 2A	15
		4.1.2	Zone 2B & 2C	15
	4.2	Advice on	the Solid and Liquid Waste Management Status	17
		4.2.1	Zone 2A	17
		4.2.2	Zone 2B & 2C	17

		4.3.1		
		4.3.1	Zone 2A	18
		4.3.2	Zone 2B & 2C	18
	4.4	Recomm	nended Mitigation Measures	19
		4.4.1	Zone 2A	19
		4.4.2	Zone 2B & 2C	19
5	Com	pliance \	with Environmental Permit	20
6			n-compliance, Complaints, Notification of Summons and rosecutions	21
	6.1 6.2		on Non-compliance of Action and Limit Levels on Environmental Complaints Received	21 21
	6.3		on Notifications of Summons and Successful Prosecution	21
	0.0			
7	Futu	re Key Is	sues	23
	7.1	Construc	ction Works for the Coming Month(s)	23
	7.2	•	ies for the Coming Month	23
		7.2.1	Zone 2A	23
	7.0	7.2.2	Zone 2B & 2C	24
	7.3	Monitorii	ng Schedule for the Coming Month	24
8	Cond	lusions	and Recommendations	25
	8.1	Conclus	ions	25
	8.2	Recomm	nendations	25
Figu	re 1	Site La	yout Plan and Monitoring Stations	26
Арре	endice	es		27
A.	Proje	ect Orgai	nisation	28
B.	Tent	ative Co	nstruction Programme	29
C.	Actio	n and Li	mit Levels for Construction Phase	30
D.	Ever Impa		tion Plan for Air Quality, Noise, Landscape and Visual	31
E.	Moni	toring So	chedule	32
F.	Calib	oration C	ertifications	33

G.	Graphical Plots of the Monitoring Results	34
Н.	Meteorological Data Extracted from Hong Kong Observatory	35
I.	Waste Flow table	36
J.	Environmental Mitigation Measures – Implementation Status	37
K.	Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions	38

## **Executive summary**

Apex Testing & Certification Limited (Apex) was commissioned to undertake the Environmental Team (ET) services (including environmental monitoring and audit (EM&A)) for the construction activities in Zone 2A, consisting of Foundation, Excavation and Lateral Support Works for Integrated Basement and Underground Road (Contract No.: GW/2020/05/073); and Zone 2B & 2C consisting of Piling Works for Integrated Basement and Underground Road (Contract No.: CC/2020/2B/088) at WKCD. The major construction works and EM&A programme for Zone 2A and Zone 2B & 2C commenced on 03 October 2020 and 30 September 2021 respectively.

The Project Proponent is the West Kowloon Cultural District Authority (WKCDA). The overall works for the WKCD fall under two separate categories of Designated Project (DP) of the Environmental Impact Assessment Ordinance (EIAO), namely an "engineering feasibility study of urban development projects with a study area covering more than 20 ha or involving a total population of more than 100 000" (Item 1 of Schedule 3) and "an underpass more than 100m in length under the built areas" (Item A.9, Part I, Schedule 2). An Environmental Permit No. EP-453/2013/B (EP) was issued with respect to the "Underpass Road and Austin Road Flyover Serving the West Kowloon Cultural District" which specifically includes the abovementioned category of DP under Item A.9, Part I, Schedule 2 of the EIAO.

This Monthly EM&A Report presents the monitoring works at Zone 2A and Zone 2B & 2C from 01 to 30 June 2022.

#### **Exceedance of Action and Limit Levels**

There was no breach of Action or Limit levels for Air Quality (1-hour TSP and 24-hour TSP) and Construction Noise in this reporting month.

#### Implementation of Mitigation Measures

Construction phase weekly site inspections were carried out on 02, 09, 16 and 23 June 2022 for Foundation, Excavation and Lateral Support Works in Zone 2A and on 07, 14, 21 and 27 June 2022 for Piling Works in Zone 2B & 2C to confirm the implementation measures undertaken by the Contractors in the reporting month. The outcomes are presented in Section 4 and the status of implementation of mitigation measures in the site is shown in **Appendix J**.

Landscape and visual impact inspections were conducted as part of the abovementioned weekly site inspections during the reporting month. No adverse comment on landscape and visual aspects was made during these inspections.

#### **Record of Complaints**

Three environmental complaints were recorded in the reporting month.

#### **Record of Notifications of Summons and Successful Prosecutions**

No notifications of summons and successful prosecutions were recorded in the reporting month.

#### Future Key Issues

The major site works for Zone 2A scheduled to be commissioned in the coming month include: Zone 2A-1

- ELS (Stage 1) Grouting / Pipe Pile Works
  - King Post & Erection of Steel Column for Working Platform
  - Stage 2 Grouting
- Pumping Test
  - Installation of Pump Wells

#### Zone 2A-2

- ELS (Stage 1) Grouting / Pipe Pile Works
  - King Post & Erection of Steel Column for Working Platform
- Pumping Test
  - Pumping Test

The major site works for Zone 2B & 2C scheduled to be commissioned in the coming month include:

KD03 (Stage 3-1), KD04 (Stage 4-1), KD05 (Section 1), KD06 (Section 2)

- Bored Pile Works
  - RCD Drilling, Airlifting, Cage Installation & Concreting and Excavation

## KD07 (Section 3)

- Predrilling
- Bored Pile Works
  - RCD Drilling, Airlifting, Cage Installation & Concreting and Excavation
- KD08 (Section 4), KD09 (Section 5)
- Bored Pile Works
  - RCD Drilling, Airlifting, Cage Installation & Concreting and Excavation
- Socketed Steel H Piling

Potential environmental impacts due to the construction activities, including air, noise, water quality, waste, landscape and visual, will be monitored or reviewed. The recommended environmental mitigation measures shall be implemented on site and regular inspections as required will be carried out to ensure that the environmental conditions are acceptable.

## **1** Introduction

#### 1.1 Background

Apex Testing & Certification Limited (Apex) was commissioned to undertake the Environmental Team (ET) services (including environmental monitoring and audit (EM&A)) for the construction activities in Zone 2A, consisting of Foundation, Excavation and Lateral Support Works for Integrated Basement and Underground Road (Contract No.: GW/2020/05/073) ; and Zone 2B & 2C consisting of Piling Works for Integrated Basement and Underground Road (Contract No.: GW/2020/05/073) ; and Zone 2B & 2C consisting of Piling Works for Integrated Basement and Underground Road (Contract No.: CC/2020/2B/088) at WKCD. The purpose of the development in Zone 2A and Zone 2B & 2C is to reserve for Integrated Basement (IB) and Underground Road (UR). The Zone 2A construction activities involve the foundation, excavation and lateral support (ELS) works, road works, drainage diversion works, and temporary car parking. The Zone 2B & 2C construction activities involve the piling works. The major construction works and EM&A programme for Zone 2A and Zone 2B & 2C commenced on 03 October 2020 and 30 September 2021 respectively.

The overall works for the WKCD fall under two separate categories of Designated Project (DP) of the Environmental Impact Assessment Ordinance (EIAO), namely an "engineering feasibility study of urban development projects with a study area covering more than 20 ha or involving a total population of more than 100 000" (Item 1 of Schedule 3) and "an underpass more than 100m in length under the built areas" (Item A.9, Part I, Schedule 2). An Environmental Permit No. EP-453/2013/B (EP) was issued with respect to the "Underpass Road and Austin Road Flyover Serving the West Kowloon Cultural District" which specifically includes the abovementioned category of DP under Item A.9, Part I, Schedule 2 of the EIAO. The captioned projects include part of the abovementioned underpass road located within the site boundary falls under this same category.

The Monthly EM&A Report is prepared in accordance with the Condition 3.4 of the Environmental Permit No. EP-453/2013/B. This Monthly EM&A Report presents the monitoring works at Zone 2A and Zone 2B & 2C from 01 to 30 June 2022. The purpose of this report is to summarise the findings in the EM&A of the project over the reporting period.

#### 1.2 **Project Organisation**

The organisation chart and lines of communication with respect to the on-site environmental management structure together with the contact information of the key personnel are shown in **Appendix A**.

#### 1.3 Construction Works Status in the Reporting Period

During the reporting period, construction works at Zone 2A undertaken include:

#### Zone 2A-1

- ELS (Stage 1) Grouting / Pipe Pile Works
  - King Post & Erection of Steel Column for Working Platform
  - Stage 2 Grouting
- Pumping Test
  - Installation of Pump Wells

Zone 2A-2

- ELS (Stage 1) Grouting / Pipe Pile Works
  - King Post & Erection of Steel Column for Working Platform
  - Stage 2 Grouting
- Pumping Test
  - Installation of Pump Wells
  - Baseline Monitoring
  - Pumping Test

During the reporting period, construction works at Zone 2B & 2C undertaken include:

```
KD01 (Stage 1-1)
```

Bored Pile Works

 RCD Drilling, Airlifting, Cage Installation & Concreting and Excavation KD03 (Stage 3-1), KD04 (Stage 4-1)

• Bored Pile Works

RCD Drilling and Excavation

KD05 (Section 1), KD06 (Section 2), KD07 (Section 3)

- Predrilling
- Bored Pile Works

RCD Drilling, Airlifting, Cage Installation & Concreting and Excavation

KD08 (Section 4)

- Bored Pile Works
  - RCD Drilling, Airlifting, Cage Installation & Concreting and Excavation
- Socketed Steel H Piling

KD09 (Section 5)

- Predrilling
- Bored Pile Works
  - RCD Drilling, Airlifting, Cage Installation & Concreting and Excavation
- Socketed Steel H Piling

The Construction Works Programme of Zone 2A and Zone 2B & 2C is provided in **Appendix B**. A layout plan of the Project is provided in **Figure 1**. Please refer to **Table 4.3** and **Table 4.4** on the status of the environmental licenses.

## 1.4 Summary of EM&A Requirements and Alternative Monitoring Locations

#### 1.4.1 EM&A Requirements

The EM&A programme requires environmental monitoring of air quality, noise, landscape and visual as specified in the approved EM&A Manual.

A summary of impact EM&A requirements is presented in Table 1.1.

Parameters	Descriptions	Locations	Frequencies
	24-Hours TSP	AM3-The Victoria Towers Tower 1	At least once every 6 days
	1-Hour TSP	AM3-The Victoria Towers Tower 1	At least 3 times every 6 days
Air Quality	24-Hours TSP	AM4-Canton Road Government Primary School	At least once every 6 days
All Quality	1-Hour TSP	AM4-Canton Road Government Primary School	At least 3 times every 6 days
	24-Hours TSP	AM5-Topside Developments at West Kowloon Terminus Site	At least once every 6 days
	1-Hour TSP	AM5-Topside Developments at West Kowloon Terminus Site	At least 3 times every 6 days
	Leq, 30 minutes	NM2-The Arch, Sun Tower	Weekly
	Leq, 30 minutes	NM3-The Victoria Towers Tower 1	Weekly
Noise	Leq, 30 minutes	NM4-Canton Road Government Primary School	Weekly
	Leq, 30 minutes	NM5-Development next to Austin Station	Weekly
Landscape & Visual	Monitor implementation of proposed mitigation measures during the construction stage	As described in Table 9.1 and 9.2 of the EM&A Manual	Bi-Weekly

#### Table 1.1: Summary of Impact EM&A Requirements

#### **1.4.2** Alternative Monitoring Locations

The EM&A programme for the Project should require 5 noise monitoring station and 5 air quality monitoring stations located closest to the Project area. With regard to the monitoring activities at M+ Museum and the Lyric Complex, three monitoring stations had been considered, including AM1 (International Commerce Centre), AM2 (The Harbourside Tower 1) for air monitoring, and NM1 (The Harbourside Tower 1) for noise monitoring.

In the context of the construction activities in Zone 2A and Zone 2B & 2C, all other monitoring locations including AM3 (The Victoria Towers Tower 1), AM4 (Canton Road Government Primary School), and AM5 (Topside Developments at West Kowloon Terminus Site) for air monitoring; and NM2 (The Arch, Sun Tower), NM3 (The Victoria Towers Tower 1), NM4 (Canton Road Government Primary School) and NM5 (Development next to Austin Station) for noise monitoring, have been taken into account. However, access to all these originally designated monitoring stations was declined as described below point-by-point.

The Arch management office and owners' committee have formally declined the proposal of setting up noise monitoring instrument on its premises at the podium level of Sun Tower (NM2) on 24 July 2014. Thus, alternative noise monitoring location was identified at the ground floor in front of The Arch – Sun Tower (NM2A), which is at the same location as stated in the EM&A Manual for consistency. No management approval is required at the ground floor for conducting the noise monitoring. This alternative air monitoring location was approved by EPD on 29 September 2020.

The Victoria Towers management office formally declined the proposal of setting up air quality and noise monitoring instruments on its premises at the podium area of Tower 1 (AM3/NM3) on

16 June 2020. Alternative air monitoring location was identified at ground floor at the Northeast corner of West Kowloon Station's station box (AM3A), in the same direction to the area of major construction site activities in Zone 2A. This alternative air monitoring location was approved by EPD on 29 September 2020. An alternative noise monitoring location was identified at the ground floor in front of the Xiqu Centre (NM3A), which is set closer to the construction site boundary with more direct line sight to the major site activities and higher exposure to the construction noise with no disturbance to the premises' occupants during noise monitoring activities. No management approval is required at the ground floor for conducting the noise monitoring. This alternative air monitoring location was approved by EPD on 29 September 2020.

Canton Road Government Primary School formally declined the proposal of setting up air quality and noise monitoring instruments on its premise at the podium level (AM4/NM4) on 16 June 2020. Alternative air monitoring location was identified at ground floor at the Southeast corner of West Kowloon Station's station box (AM4A), in same direction to the area of major construction site activities in Zone 2A. This alternative air monitoring location was approved by EPD on 29 September 2020. An alternative noise monitoring location was identified at the ground floor next to Tsim Sha Tsui Fire Station (NM4A), which is set closer to the construction site boundary with more direct line sight to the major site activities and higher exposure to the construction noise with no disturbance to the premises' occupants during noise monitoring activities. No management approval is required at the ground floor for conducting the noise monitoring. This alternative air monitoring location was approved by EPD on 29

MTR also formally declined the access to the designated AM5 location (topside developments at West Kowloon Terminus Site) on 15 July 2020. Alternative air monitoring location was identified at ground floor at the North of West Kowloon Station's station box (AM5A), in same direction to the area of major construction site activities in Zone 2A. This alternative air monitoring location was approved by EPD on 29 September 2020.

Grand Austin property management office formally declined our proposal of setting up noise monitoring instrument on its premises at the podium level (NM5) on 10 July 2020. Alternative noise monitoring location was identified at the Pedestrian road (ground floor) outside West Kowloon Station (NM5A), which is set closer to the construction site boundary with more direct line sight to the major site activities and higher exposure to the construction noise with no disturbance to the premises' occupants during noise monitoring activities. No management approval is required at the ground floor for conducting the noise monitoring. This alternative air monitoring location was approved by EPD on 29 September 2020.

The Environmental Quality Performance Limits for air quality and noise are shown in **Appendix C**.

The Event and Action Plan for air quality, construction noise, and landscape and visual are shown in **Appendix D**.

The EM&A programme followed the recommended mitigation measures in the EM&A Manual. The EM&A requirements as well as the summary of implementation status of the environmental mitigation measures are provided in **Appendix J**.

#### 2 Impact Monitoring Methodology

#### 2.1 Introduction

Air quality and noise monitoring methodology, including the monitoring locations, equipment used, parameters, frequency and duration etc., are described in this Section. The environmental monitoring schedules for the reporting period and the tentative monitoring Schedule for the coming month are provided in Appendix E.

The relevant EM&A monitoring requirements and details for landscape and audit impact, are also presented in this Section.

#### 2.2 **Air Quality**

#### 2.2.1 Monitoring Parameters, Frequency and Duration

Table 2.1 summarizes the monitoring parameters, frequency and duration of the TSP monitoring.

Table 2.1:	Air Quality Monitoring Parameters, Frequency and Duration			
Parameter	Frequency	Duration		
24-hour TSP	At least once in every six-days	24 hours		
1-hour TSP	At least 3 times every six-days	60 minutes		

#### 2.2.2 **Monitoring Locations**

Monitoring stations and locations are given in Table 2.2 and shown in Figure 1.

#### Table 2.2: **Air Quality Monitoring Station**

<b>Monitoring Station</b>	Location Description
AM3A	Northeast corner of West Kowloon Station's station box (G/F)
AM4A	Southeast corner of West Kowloon Station's station box (G/F)
AM5A	North of West Kowloon Station's station box (G/F)

#### 2.2.3 **Monitoring Equipment**

Continuous 24-hour TSP air quality monitoring was conducted using High Volume Sampler (HVS) (Model: TE-5170) located at the designated monitoring station. The HVS meets all the requirements stated in of the EM&A Manual. Portable direct reading dust meter was used to carry out the 1-hour TSP monitoring. Table 2.3 summarizes the equipment used in the impact air quality monitoring. Copies of the calibration certificates for the HVS, calibration kit and portable dust meters are attached in Appendix F.

#### Table 2.3: **TSP Monitoring Equipment**

Equipment	Model
24-hour TSP monitoring	
High Volume Sampler	TE-5170 (Serial No.: 4340; 3998; 4344)

Equipment	Model
Calibrator	TE-5025A (Orifice I.D.: 3543)
1-hour TSP monitoring	
Portable direct reading dust meter	Sibata LD-3B (Serial No.: 235811, 336338, 567188)

Calibration of the HVS (five-point calibration) using Calibration Kit was carried out every two months. The HVS calibration orifice will be calibrated annually. Calibration certificate of the TE-5025A Calibration Kit and the HVS are provided in **Appendix F**.

The 1-hour TSP monitoring should be determined periodically (e.g. annually) by the HVS to check the validity and accuracy of the results measured by direct reading method.

#### 2.2.4 Monitoring Methodology

#### 24-hour TSP Monitoring

#### Installation

The HVS was installed at the site boundary. The following criteria were considered in the installation of the HVS.

- A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
- The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
- A minimum of 2 metres separation from walls, parapets and penthouse was required for rooftop sampler.
- A minimum of 2 metres separation from any supporting structure, measured horizontally was required.
- No furnace or incinerator flues or building vent were nearby.
- Airflow around the sampler was unrestricted.
- The sampler has been more than 20 metres from any drip line.
- Permission was obtained to set up the sampler and to obtain access to the monitoring station.
- A secured supply of electricity is needed to operate the sampler.

#### **Preparation of Filter Papers**

- Glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected.
- The filters used are specified to have a minimum collection efficiency of 99 percent for 0.3 µm (DOP) particles.
- 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 with relative humidity (RH) < 50% and was not variable by more than ±5 %. A convenient working RH was 40%. All preparation of filters was done by Hong Kong Laboratory Accreditation Scheme (HOKLAS) accredited laboratory.

#### **Field Monitoring Procedures**

- The power supply was checked to ensure the HVS works properly.
- The filter holder and the area surrounding the filter were cleaned.

- 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.
- The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
- The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges.
- The shelter lid was closed and was secured with the aluminium strip.
- The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
- A new flow rate record sheet was set into the flow recorder.
- The flow rate of the HVS was checked and adjusted at around 1.3 m<sup>3</sup>/min. The range specified in the EM&A Manual was between 0.6-1.7 m<sup>3</sup>/min.
- The programmable timer was set for a sampling period of 24 hours, and the starting time, weather condition and the filter number were recorded.
- The initial elapsed time was recorded.
- At the end of sampling, the sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
- It was then placed in a clean plastic envelope and sealed.
- All monitoring information was recorded on a standard data sheet.
- Filters were sent to a Hong Kong Laboratory Accreditation Scheme (HOKLAS) accredited laboratory for analysis.

#### **Maintenance and Calibration**

- The HVS and its accessories are maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- HVSs were calibrated upon installation and thereafter at bi-monthly intervals. The calibration kits were calibrated annually.
- Calibration records for HVS and calibration kit are shown in Appendix F.

#### 1-hour TSP Monitoring

#### **Field Monitoring**

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

- Turn the power on.
- Close the air collecting opening cover.
- Push the "TIME SETTING" switch to [BG].
- Push "START/STOP" switch to perform background measurement for 6 seconds.
- Turn the knob at SENSI ADJ position to insert the light scattering plate.
- Leave the equipment for 1 minute upon "SPAN CHECK" is indicated in the display.
- Push "START/STOP" switch to perform automatic sensitivity adjustment. This measurement takes 1 minute.
- Pull out the knob and return it to MEASURE position.
- Setting time period of 1 hour for the 1-hour TSP measurement.
- Push "START/STOP" to start the 1-hour TSP measurement.
- Regular checking of the time period setting to ensure monitoring time of 1 hour.

#### **Maintenance and Calibration**

- The 1-hour dust meter would be checked at 3-month intervals and calibrated at 1-year intervals throughout all stages of the air quality monitoring.
- Calibration records for direct dust meters are shown in Appendix F.

#### Weather Condition

 Meteorological data extracted from Hong Kong Observatory for the reporting month is provided in Appendix H.

#### 2.3 Noise

#### 2.3.1 Monitoring Parameters, Frequency and Duration

**Table 2.4** summarizes the monitoring parameters, frequency and duration of noise monitoring. The noise in A-weighted levels  $L_{eq}$ ,  $L_{10}$  and  $L_{90}$  are recorded in a 30-minute interval between 0700 and 1900 hours.

#### Table 2.4: Noise Monitoring Parameters, Period and Frequency

Time Period	Parameters	Frequency
Daytime on normal weekdays	L <sub>eq</sub> (30 min), L <sub>90</sub> (30 min) & L <sub>10</sub> (30 min)	Once every week
(0700-1900 hours)		
Nate: *70 dD(A) for ashaala and CE	dD(A) during a checkle averaging tion in article	

Note: \*70 dB(A) for schools and 65 dB(A) during school examination periods.

If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.

## 2.3.2 Monitoring Location

Manifestine Otation

Noise monitoring stations and locations are given in Table 2.5 and shown in Figure 1.

A second second

#### Table 2.5: Noise Monitoring Station

Monitoring Station	Location
NM2A	The Arch – Sun Tower (G/F)
NM3A	Xiqu Centre (G/F)
NM4A	Next to Tsim Sha Tsui Fire Station (G/F)
NM5A	Pedestrian road (G/F) outside West Kowloon Station

#### 2.3.3 Monitoring Equipment

Integrating Sound Level Meter was used for noise monitoring. It was a Type 1 sound level meter capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level ( $L_{Aeq}$ ) and percentile sound pressure level ( $L_x$ ). They comply with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). **Table 2.6** summarizes the noise monitoring equipment model being used.

#### Table 2.6: Noise Monitoring Equipment

Equipment Model		
Integrating Sound Level Meter	Calibrator	
AWA5661 (Serial No.: 301135)	Pulsar 100B (Serial No.: 039507)	
	Quest QC-10 (Serial No.: Q19010183)	

#### 2.3.4 Monitoring Methodology

#### **Field Monitoring**

- The microphone of the Sound Level Meter was set at least 1.2 m above the ground.
- Free Field measurement was made at NM5A monitoring location.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - frequency weighting: A
  - time weighting: Fast
  - time measurement: 30 minutes intervals (between 0700-1900 on normal weekdays)
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1 kHz. If the difference in the calibration level before and after measurement was more than 1 dB, the measurement would be considered invalid and has to be repeated after re-calibration or repair of the equipment.
- During the monitoring period, the L<sub>eq</sub>, L<sub>10</sub> and L<sub>90</sub> were recorded. In addition, any site observations and noise sources were recorded on a standard record sheet.
- A correction of +3dB(A) was made to the free field measurements.

#### **Maintenance and Calibration**

- The microphone head of the sound level meter and calibrator is cleaned with soft cloth at quarterly intervals.
- The sound level meter and calibrator are sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.
- Calibration records are shown in **Appendix F**.

#### Weather Condition

 Meteorological data extracted from Hong Kong Observatory for the reporting month is provided in Appendix H.

## 2.4 Landscape and Visual

#### 2.4.1 Monitoring Program

**Table 2.7** details the monitoring program (as proposed in the WKCD EIA report) for landscape and visual impact during the construction phase.

## Table 2.7:Monitoring Program for Landscape and Visual Impact during ConstructionPhase

Stage	Monitoring Task	Frequency	Report	Approval
Construction	Monitor implementation of proposed mitigation measures during the construction stage.	Bi-weekly	ET to report on Contractor's compliance	Counter- signed by IEC

During the landscape and visual impact monitoring, any changes in relation to the landscape and visual amenity should be monitored with reference to the baseline conditions of the site. In addition, mitigation measures were proposed in the WKCD EIA report to minimise the landscape and visual impacts during the construction phase. The proposed mitigation measures as shown in Table 9.1 and Table 9.2 of the EM&A Manual should be checked for proper implementation.

## **3 Monitoring Results**

#### 3.1 Impact Monitoring

Air quality, noise and landscape and visual impact monitoring was undertaken in compliance with the EM&A Manual during the reporting month.

#### 3.2 Air Quality Monitoring

#### 3.2.1 1-hour TSP

Results of 1-hour TSP are summarised in **Table 3.1**. Graphical plots of the monitoring results are shown in **Appendix G**.

Monitoring	Monitoring	Start				Range	Action	Limit
Station	Date	Time	1st Result	2nd Result	3rd Result	(µg/m3)	Level (µg/m3)	Level (µg/m3)
	06-Jun-22	08:01	42	40	44			
	11-Jun-22	14:05	51	53	50			
АМЗА	17-Jun-22	08:03	47	41	41	31-53	280.4	500
	23-Jun-22	14:07	35	39	35			
	27-Jun-22	08:05	38	38	31			
	06-Jun-22	08:09	40	39	42	31-52	278.5	500
	11-Jun-22	14:13	46	45	52			
AM4A	17-Jun-22	08:11	40	39	47			
	23-Jun-22	14:15	31	33	33			
	27-Jun-22	08:13	39	36	33			
AM5A	06-Jun-22	08:24	45	44	43			
	11-Jun-22	14:30	47	47	47	33-47 275.4		500
	17-Jun-22	08:26	44	44	43		275.4	
	23-Jun-22	14:32	33	38	34			
	27-Jun-22	08:28	33	36	39			

#### Table 3.1: Summary of 1-hour TSP monitoring results

#### 3.2.2 24-hour TSP

Results of 24-hour TSP are summarised in **Table 3.2**. Graphical plots of the monitoring results are shown in **Appendix G**.

Table 3.2:	Summary of 24-hour TSP monitoring results							
Monitoring Station	Monitoring Date	Start Time	Monitoring Results (µg/m³)	Range (µg/m³)	Action Level (µg/m³)	Limit Level (µg/m³)		
	06-Jun-22	10:00	36.3			260		
АМЗА	11-Jun-22	10:00	51.6	32.8-51.6	152.4			
AMSA	17-Jun-22	10:00	36.1	32.8-31.0 152.4		260		
	23-Jun-22	10:00	33.8					

## Table 3.2: Summary of 24-hour TSP monitoring results

Monitoring Station	Monitoring Date	Start Time	Monitoring Results (µg/m³)	Range (µg/m³)	Action Level (µg/m³)	Limit Level (µg/m³)
	27-Jun-22	10:00	32.8			
	06-Jun-22	10:00	37.8			
	11-Jun-22	10:00	45.2			
AM4A	17-Jun-22	10:00	35.8	31.2-45.2	152.6	260
	23-Jun-22	10:00	31.2			
	27-Jun-22	10:00	34.6			
	06-Jun-22	10:00	40.3			
	11-Jun-22	10:00	46.4			
AM5A	17-Jun-22	10:00	39.4	34.6-46.4	141.1	260
	23-Jun-22	10:00	34.6			
	27-Jun-22	10:00	35.1			

No exceedance of 1-hour and 24-hour TSP (Action or Limit Level) was recorded in the reporting period.

## 3.3 Noise Monitoring

The construction noise monitoring results are summarized in **Table 3.3**. Graphical plots of the monitoring data and the station set-up as façade and free-field measurements are shown in **Appendix G**.

Table 3.3:	Summarv of noi	se monitorina resul <sup>.</sup>	ts during normal weekday	S

			0	•	
Monitoring Stations	Monitoring Date	Start Time	End Time	L <sub>eq</sub> (30 mins) dB(A)	Limit Level for L <sub>eq</sub> (dB(A))
	06-Jun-22	08:31	09:01	61.6	
	11-Jun-22	14:35	15:05	62.0	
NM2A	17-Jun-22	08:33	09:03	61.6	75
	23-Jun-22	14:37	15:07	61.8	
	27-Jun-22	08:35	09:05	59.7	
	06-Jun-22	10:01	10:31	64.6	
	11-Jun-22	16:08	16:38	64.8	
NM3A	17-Jun-22	10:03	10:33	64.9	75
	23-Jun-22	16:10	16:40	64.6	
	27-Jun-22	10:05	10:35	60.1	
	06-Jun-22	10:36	11:06	63.8	
	11-Jun-22	16:43	17:13	64.0	
NM4A	17-Jun-22	10:38	11:08	64.2	70/65^#
	23-Jun-22	16:45	17:15	64.3	
	27-Jun-22	10:40	11:10	60.0	
	06-Jun-22	09:21	09:51	64.6	
	11-Jun-22	15:27	15:57	64.0	
NM5A*	17-Jun-22	09:23	09:53	64.7	75
	23-Jun-22	15:29	15:59	64.4	
	27-Jun-22	09:25	09:55	63.0	

Remarks:

\* +3dB (A) correction was applied to free-field measurement.

^ 70 dB(A) for schools and 65 dB(A) during school examination periods.

<sup>#</sup> School examination was conducted on 21 to 24 and 27 to 30 June 2022 in the reporting period.

No exceedance of construction noise (Action or Limit Level) was recorded in the reporting month.

Construction works were extended to 1900-2300 hours on 01 to 02, 04, 06 to 11, 13 to 18 and 20 to 25 June 2022; and to holidays 1000-1900 hours on 05, 12, 19 and 26 June 2022 and 1900-2300 hours on 26 June 2022. In accordance with the EM&A Manual, additional monitoring was carried out during the restricted hours on 05, 06, 11, 12, 17, 19, 23 and 26 June 2022. The  $L_{eq}$  (5 mins) is in the range of 56.1-65.1 dB(A). Construction Noise Permits for the works carried out during restricted hours were obtained and listed in **Table 4.3** and **Table 4.4**.

#### 3.4 Landscape and Visual Impact

Landscape and visual impact inspections were conducted as part of the weekly site inspections on 02 and 16 June 2022 for Zone 2A and 14 and 27 June 2022 for Zone 2B & 2C during the reporting month. As reviewed by the registered Landscape Architect, no adverse comment on landscape and visual aspects was made during these inspections.

The landscape and visual mitigation measures were implemented during the reporting period. The summary of implementation status of the environmental mitigation measures is provided in **Appendix J**.

## 4 Site Environmental Management

#### 4.1 Site Inspection

#### 4.1.1 Zone 2A

Construction phase weekly site inspections were carried out on 02, 09, 16 and 23 June 2022 at Zone 2A. Due to the temporary closure of the site for security lockdown from 26 June 2022 to 01 July 2022, no construction works was undertaken during the locked down period, and no weekly site inspection was carried out on the week of 26 June 2022. The joint site inspection with IEC, ET, ER and Contractor for Zone 2A was held on 16 June 2022. All observations have been recorded in the site inspection checklist and passed to the Contractor together with the appropriate recommended mitigation measures where necessary.

The key observations from the site inspections and associated recommendations are summarized in **Table 4.1**.

Inspection Date	Parameter	Observation / Recommendation	Contactor's Responses / Action(s) Undertaken	Close-out (Date)
02-Jun-22	Water Quality	The contractor should provide sufficient nos. of water pump to prevent flooding during rainstorm.	The contractor has provided more water pumps to prevent flooding during rainstorm.	03-Jun-22
09-Jun-22	Water Quality	The contractor should fully cover the stockpile of material during rainstorm.	The contractor has removed the stockpile of material.	11-Jun-22
16-Jun-22	Water Quality	Oil was observed on the ground at 2A-1. The contractor should remove the oil.	Contractor has removed the oil on the ground.	16-Jun-22
23-Jun-22	Water Quality	The contractor should set the pipe connection properly to ensure drainage facilities efficient operation at all time.	The contractor has set pipe connection to ensure drainage facilities efficient operation at all time.	24-Jun-22

Table 4.1: Sumn	mary of Site Inspections a	and Recommendations for Zo	ne 2A
-----------------	----------------------------	----------------------------	-------

#### 4.1.2 Zone 2B & 2C

Construction phase weekly site inspections were carried out on 07, 14, 21 and 27 June 2022 at Zone 2B & 2C. The joint site inspection with IEC, ET, ER and Contractor for Zone 2B & 2C was held on 14 June 2022. All observations have been recorded in the site inspection checklist and passed to the Contractor together with the appropriate recommended mitigation measures where necessary.

The key observations from the site inspections and associated recommendations are summarized in **Table 4.2**.

Inspection Date	Parameter	Observation / Recommendation	Contactor's Responses / Action(s) Undertaken	Close-out (Date)
07-Jun-22	Air Quality	The contractor was reminded that NRMM Label shall be provided for all regulated machinery on site.	The contractor has provided NRMM Label for the regulated machinery.	09-Jun-22
07-Jun-22	Water Quality	The contractor was reminded to improve the concrete bound at the seafront to prevent muddy water flow into the sea.	The contractor has improved the concrete bound at the seafront.	08-Jun-22
07-Jun-22	Water Quality	The contractor was reminded to strengthen the drainage facilities to prevent muddy water discharge form the site.	The contractor has strengthened the runoff barrier.	08-Jun-22
07-Jun-22	Water Quality	The contractor was reminded to remove the oil containers to storage area or placed with drip tray.	The contractor has removed the oil containers.	13-Jun-22
07-Jun-22	Waste Management	The contractor was reminded to clean up the drip tray of regularly to avoid overflow.	The contractor has cleaned up the drip tray.	09-Jun-22
14-Jun-22	Noise impact	The contractor was reminded to properly set up the noise barriers to minimize noise impact to the NSRs.	The contractor has properly set up the noise barriers to minimize noise impact.	16-Jun-22
14-Jun-22	Water Quality	The contractor was reminded to strengthen the runoff barrier to prevent runoff.	The contractor has strengthened the runoff barrier.	17-Jun-22
14-Jun-22	Noise impact	The contractor was reminded to close the door of the power pack/generator when they are in use.	The contractor has closed the door of the power pack/generator.	14-Jun-22
14-Jun-22	Water Quality	The contractor was reminded to strengthen the temporary drainage system to direct storm water to treatment facilities during rainstorm.	The contractor has strengthened the sump pit.	18-Jun-22
14-Jun-22	Water Quality	The contractor was reminded that the idle stockpile of dusty materials shall be fully covered with tarpaulin or removed off site as far as practicable.	The contractor has removed the idle stockpile from the site.	16-Jun-22
21-Jun-22	Noise impact	The contractor was reminded to properly set up the noise barriers to minimize noise impact to the NSRs.	The contractor has properly set up the noise barriers to minimize noise impact.	23-Jun-22
21-Jun-22	Water Quality	The contractor was reminded that temporary drainage path shall be cleaned regularly to ensure efficient operation at all times.	The contractor has cleaned up the temporary drainage path.	24-Jun-22
21-Jun-22	Noise impact	The contractor was reminded to close the door of the power pack/generator when they are in use.	The contractor has closed the door of the power pack/generator.	23-Jun-22

## Table 4.2: Summary of Site Inspections and Recommendations for Zone 2B & 2C

Inspection Date	Parameter	Observation / Recommendation	Contactor's Responses / Action(s) Undertaken	Close-out (Date)
21-Jun-22	Waste Management	The contractor was reminded to remove all general waste to designated landfill facilities regularly.	The contractor has removed general waste to designated landfill facilities.	23-Jun-22
21-Jun-22	Water Quality	The contractor was reminded that oils and fuels shall be stored in designated area or placed with drip tray.	The contractor has removed oils and fuels to designated area.	23-Jun-22
27-Jun-22	Waste Management	The contractor was reminded to clean up the drip tray of regularly to avoid overflow.	The contractor has cleaned up the drip tray.	04-Jul-22
27-Jun-22	Waste Management	The contractor was reminded to seal up the hole of the oil tray to avoid leakage.	The contractor has sealed up the hole of the oil tray.	04-Jul-22
27-Jun-22	Water Quality	The contractor was reminded to strengthen and maintain the cement barrier to prevent any potential stormwater runoff.	The contractor has removed strengthened the cement barrier.	04-Jul-22

#### 4.2 Advice on the Solid and Liquid Waste Management Status

The Contractors have been registered as a chemical waste producer for the Project. Construction and demolition (C&D) material sorting will be carried out on site. A sufficient number of receptacles were available for general refuse collection.

#### 4.2.1 Zone 2A

As advised by the Zone 2A Contractor, 46.87 tonnes and 300.44 tonnes of inert C&D material were disposed of as public fill to Tseung Kwan O Area 137 Public Fill and Tuen Mun Area 38 Public Fill respectively, while 11.76 tonnes of general refuse were disposed of at SENT landfill respectively. 0.0 tonne of metals, 0.0 tonne of paper/cardboard packaging, 0.0 tonne of plastics and 0.0 tonne of timber was collected by recycling contractors in the reporting month. 0.0 tonne of inert C&D material was reused on site. 0.0 tonne of inert C&D material were reused in other projects and 0.0 tonne of inert C&D material was imported for reuse at site in the reporting month. 0.0 tonne of inert C&D material was disposed to sorting facility and 0.0 tonne of chemical waste was collected by licensed contractors in the reporting period.

#### 4.2.2 Zone 2B & 2C

As advised by the Zone 2B & 2C Contractor,3427.35 tonnes and 9142.55 tonnes of inert C&D material were disposed of as public fill to Tseung Kwan O Area 137 Public Fill and Tuen Mun Area 38 Public Fill respectively, while 15.84 tonnes of general refuse were disposed of at SENT landfill. 00.00 tonne of metals, 0.0 tonne of paper/cardboard packaging, 0.0 tonne of plastics and 0.0 tonne of timber was collected by recycling contractors in the reporting month. 3120.62 tonnes of inert C&D material were reused on site. 14645.87 tonnes of inert C&D material were reused in other projects and 0.0 tonne of inert C&D material was imported for reuse at site in the reporting month. 0.0 tonne of inert C&D material was disposed to sorting facility and 0.0 tonne of chemical waste was collected by licensed contractors in the reporting period.

The cumulative waste generation records for Zone 2A and Zone 2B & 2C are shown in **Appendix** I.

#### 4.3 Status of Environmental Licenses and Permits

The environmental permits, licenses, and/or notifications on environmental protection for this Project which were valid during the period are summarised in **Table 4.3**.

#### 4.3.1 Zone 2A

#### Table 4.3: Status of Environmental Submissions, Licenses and Permits for Zone 2A

Permit / License	Valid	Period	Status	Remarks
No. / Notification / Reference No.	From	То	_	
Chemical Waste Produ	cer Registration	-	-	
WPN5113-256- B2597-01	10-Sep-20		Valid	
Billing Account Constr	uction Waste Dispos	al		
7037500	09-Jun-20		Account Active	
Construction Noise Pe	rmit			
GW-RE0432-22	11-May-22	10-Nov-22	Valid	Pumping Test
Wastewater Discharge	License			
WT00037344-2021	01-Feb-21	28-Feb-26	Valid	
Notification under Air F	Pollution Control (Co	nstruction Dust) Reg	ulation	
456376	21-May-20		Notified	

#### 4.3.2 Zone 2B & 2C

The environmental permits, licenses, and/or notifications on environmental protection for this Project which were valid during the period are summarised in **Table 4.4**.

### Table 4.4:Status of Environmental Submissions, Licenses and Permits for Zone 2B& 2C

Permit / License	Valid	Period	Status	Remarks
No. / Notification / Reference No.	From	То	_	
Chemical Waste Produ	cer Registration			
WPN5113-256- V2302-01	17-Aug-21		Valid	
Billing Account Constr	uction Waste Dispos	al		
7041264	11-Aug-21		Account Active	
<b>Construction Noise Pe</b>	rmit			
GW-RE0470-22	22-May-22	21-Jun-22	Valid	
GW-RE0596-22	22-Jun-22	21-Jul-22	Valid	
Wastewater Discharge	License			
WT00039734-2021	25-Nov-21	30-Nov-26	Valid	
Notification under Air I	Pollution Control (Co	nstruction Dust) Reg	ulation	
470022	29-Jul-21		Notified	

#### 4.4 Recommended Mitigation Measures

The EM&A programme followed the recommended mitigation measures in the EM&A Manual. The EM&A requirements as well as the summary of implementation status of the environmental mitigation measures are provided in **Appendix J**. In particular, the following mitigation measures were brought to attention during the site inspections:

#### 4.4.1 Zone 2A

#### **Temporary Water Drainage System & Water Quality**

- Sufficient nos. of water pump shall be provided at the seaside boundary to prevent flooding during rainstorm.
- The temporary drainage system should be well managed and updated with the site condition to ensure drainage facilities efficient operation at all time.
- Idle stockpile should be fully covered with tarpaulin when not being used or removed from the site.
- Regularly cleaning should provide at oils and fuels storage area to prevent leakage from drip tray.

#### 4.4.2 Zone 2B & 2C

#### **Air Quality**

- NRMM Label should be provided for all regulated machinery on site.

#### **Noise Impact**

- Noise barriers should be properly set up to minimize noise impact to NSRs.

#### Waste Management

- Chemical wastes should be properly placed with drip trays/removed to storage area to prevent chemical spillage.
- Carry out waste sorting as far as practicable and remove all general waste to designated landfill facilities regularly.

#### **Temporary Water Drainage System & Water Quality**

- Idle stockpile of dusty materials should be fully covered with tarpaulin when not being used or removed from the site.
- Sandbags barriers/ water pumps shall be provided on site to direct storm water to water treatment facilities during rainstorm.
- Temporary drainage system shall be maintained regularly to ensure efficient operation.

### **5** Compliance with Environmental Permit

The status of the required submission under the EP during the reporting period is summarized in **Table 5.1**.

	Table 5.1:	Status of Submissions under the Environmental Permi	t
--	------------	---	---

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report for May 2022	14 June 2022

### 6 Report in Non-compliance, Complaints, Notification of Summons and Successful Prosecutions

#### 6.1 Record on Non-compliance of Action and Limit Levels

There was no breach of Action or Limit Levels for Air Quality (1-hour TSP and 24-hour TSP) and Construction Noise in the reporting month.

#### 6.2 Record on Environmental Complaints Received

Three environmental complaints were received in the reporting month.

On 27 June 2022, EPD has received a complaint regarding muddy water discharge at WKCD construction site and the complaint was referred by EPD on the same day. The complainant (a resident of the Harbourside) claimed that water from WKCD construction site was observed to be continuously discharged into the sea. The complainant had also provided photos and video demonstrating the concerned muddy water discharge. Investigation reveal that no construction work was undertaken by WKCD Zone 2A site and no abnormalities were found at the seafront of Victoria Harbour on Zone 2A site on 27 June 2022. Besides, no water and site runoff discharge was observed on Zone 2B & 2C site on 27 June 2022. In addition, existing mitigation measures have been properly maintained on site. Thereby, the complaint might not attributable to Zone 2 sites. Nonetheless, the Contractor is recommended to strictly maintain good site practices to avoid water pollution to the waterbody of Victoria Harbour.

On 29 June 2022, EPD has received a complaint from a district councilor regarding polluted water discharge at WKCD construction site. The complaint was referred by EPD on the same day. According to the video taken by the complainant (a resident of Kowloon Station), the complainant claimed that white bubble discharge was observed which contaminated the harbour at around 6:48am. Investigation reveal that no construction work was undertaken by WKCD Zone 2 sites on 29 June 2022. Moreover, as from the video provided by the complainant, the location of discharge was outside WKCD Zone 2 sites boundary. Thereby, the complaint might not attributable to Zone 2 sites. Nonetheless, the Contractor is recommended to strictly maintain good site practices to avoid water pollution to the waterbody of Victoria Harbour.

On 30 June 2022, EPD has received a follow-up complaint from a district councilor regarding polluted water discharge at WKCD construction site. The complaint was referred by EPD on the same day. The complainant (a resident of Kowloon Station) claimed that white bubble discharge was observed at 6:40am and he also claimed that some white bubble even floated to the sea near the Harbour City. The complainant had also provided videos demonstrating the concerned water pollution. Investigation reveal that no construction work was undertaken by WKCD Zone 2 sites on 30 June 2022. Moreover, as from the video provided by the complainant, the location of discharge was outside WKCD Zone 2 sites boundary. Thereby, the complaint might not attributable to Zone 2 sites. Nonetheless, the Contractor is recommended to strictly maintain good site practices to avoid water pollution to the waterbody of Victoria Harbour.

The cumulative statistics on complaints were provided in Appendix K.

#### 6.3 Record on Notifications of Summons and Successful Prosecution

No notifications of summons or successful prosecutions were received this month. The cumulative statistics on notifications of summons and successful prosecutions were provided in **Appendix** K.

### 7 Future Key Issues

#### 7.1 Construction Works for the Coming Month(s)

The major site works for Zone 2A scheduled to be commissioned in the coming month include: Zone 2A-1

- ELS (Stage 1) Grouting / Pipe Pile Works
  - King Post & Erection of Steel Column for Working Platform
  - Stage 2 Grouting
- Pumping Test
  - Installation of Pump Wells

#### Zone 2A-2

- ELS (Stage 1) Grouting / Pipe Pile Works
  - King Post & Erection of Steel Column for Working Platform
- Pumping Test
  - Pumping Test

The major site works for Zone 2B & 2C scheduled to be commissioned in the coming month include:

KD03 (Stage 3-1), KD04 (Stage 4-1), KD05 (Section 1), KD06 (Section 2)

- Bored Pile Works
  - RCD Drilling, Airlifting, Cage Installation & Concreting and Excavation
- KD07 (Section 3)
- Predrilling
- Bored Pile Works

 RCD Drilling, Airlifting, Cage Installation & Concreting and Excavation KD08 (Section 4), KD09 (Section 5)

- Bored Pile Works
  - RCD Drilling, Airlifting, Cage Installation & Concreting and Excavation
- Socketed Steel H Piling

#### 7.2 Key Issues for the Coming Month

#### 7.2.1 Zone 2A

Key issues to be considered in the coming month include:

- Generation of dust from construction works;
- Noise impact from piling works;
- Generation of site surface runoffs and wastewater from activities on-site;
- The temporary drainage system should be well managed and updated with the site condition, particularly on rainy days;
- Management of stockpiles and slopes, particularly on rainy days;
- Management of chemicals and avoidance of oil spillage on-site.

• Sorting, recycling, storage and disposal of general refuse and construction waste; and

#### 7.2.2 Zone 2B & 2C

Key issues to be considered in the coming month include:

- Generation of dust from construction works;
- Noise impact from piling works;
- Generation of site surface runoffs and wastewater from activities on-site;
- Management of stockpiles and slopes, particularly on rainy days;
- Sorting, recycling, storage and disposal of general refuse and construction waste; and
- Management of chemicals and avoidance of oil spillage on-site.

#### 7.3 Monitoring Schedule for the Coming Month

The environmental site inspection and environmental monitoring will be continued in the coming month. Impact monitoring for air quality and noise for Zone 2A and Zone 2B & 2C in accordance with the approved EM&A Manual has commenced since 03 October 2020 and 30 September 2021 respectively. The tentative monitoring schedule for the coming month is shown in the **Appendix E**.

### 8 Conclusions and Recommendations

#### 8.1 Conclusions

The EM&A programme as recommended in the EM&A Manual has been undertaken with the commencement of the construction activities at Zone 2A on 03 October 2020, and the major construction works of Zone 2B & 2C commenced on 30 September 2021.

Monitoring of air quality and noise with respect to the Projects is underway. In particular, the 1-hour TSP, 24-hour TSP, noise level (as L<sub>eq</sub>, 30 minutes) under monitoring have been checked against established Action and Limit levels. There was no breach of Action or Limit levels for Air Quality (1-hour TSP and 24-hour TSP) and Construction Noise in this reporting month.

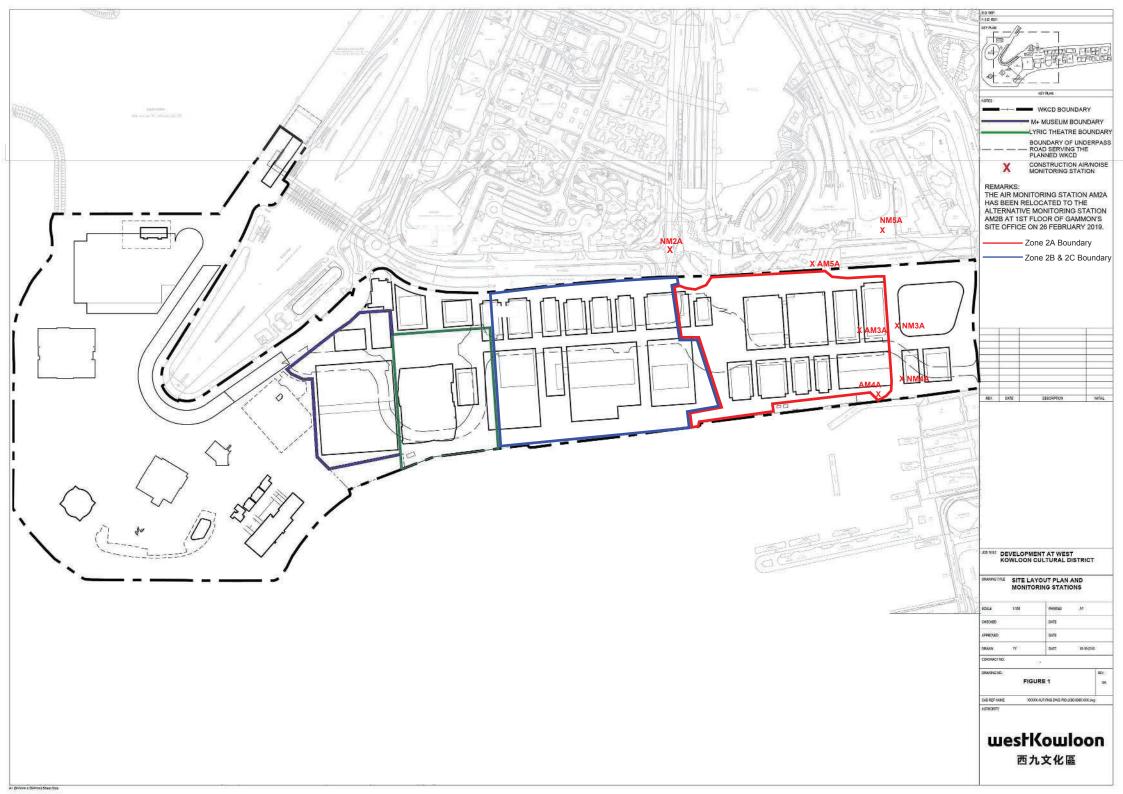
Three environmental complaints were recorded in the reporting month. No notifications of summons or successful prosecutions were received during the reporting month.

Weekly construction phase site inspections and bi-weekly landscape and visual impact inspections were conducted during the reporting month as required. It was observed that the Contractors had implemented all possible and feasible mitigation measures to mitigate the potential environmental impacts during construction phase works.

#### 8.2 Recommendations

Potential environmental impacts due to the construction activities, including air quality, noise, water quality, waste, landscape and visual, will be monitored or reviewed. The recommended environmental mitigation measures shall be implemented on site and regular inspections as required will be carried out to ensure that the environmental conditions are acceptable.

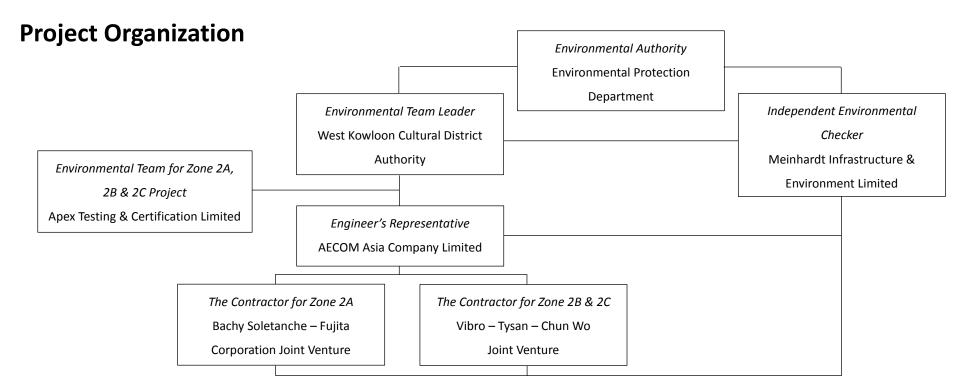
# Figure 1 Site Layout Plan and Monitoring Stations



### **Appendices**

- A. Project Organisation
- B. Tentative Construction Programme
- C. Action and Limit Levels for Construction Phase
- D. Event and Action Plan for Air Quality, Noise, Landscape and Visual Impact
- E. Monitoring Schedule
- F. Calibration Certifications
- G. Graphical Plots of the Monitoring Results
- H. Meteorological Data Extracted from Hong Kong Observatory
- I. Waste Flow table
- J. Environmental Mitigation Measures Implementation Status
- K. Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

# A. Project Organisation



#### Table A-1: Contract Information

Company Name	Role	Name	Telephone	Email
West Kowloon Cultural District Authority	WKCDA Representative & Project ETL	Mr. C.K. WU	5506 9178	ck.wu@wkcda.hk
Meinhardt Infrastructure & Environment Limited	Independent Environmental Checker	Ms. Claudine LEE	2859 5409	caludinelee@meinhardt.com.hk
AECOM Asia Company Limited	Resident Engineer (Zone 2A)	Mr. Alex GBAGUIDI	3619 6287	alex.gbaguidi@aecom.com
AECOM Asia Company Limited	Resident Engineer (Zone 2B & 2C)	Ms. Carmen CHAN	6892 9271	carmen.chan@aecom.com
Bachy Soletanche – Fujita Corporation Joint Venture	Interface & Environmental Manager	Mr. Philip CHAN	9668 8403	philip.chan@soletanche-bachy.com
Vibro – Tysan – Chun Wo Joint Venture	Environmental Sustainability Manager	Mr. Tony YAM	2137 5586	tony_yam@vibro.com.hk
Apex Testing & Certification Limited	Contractor's Environmental Team Leader	Mr. Calvin LUI	9629 9718	calvinlui@apextestcert.com

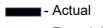
### **B. Tentative Construction Programme**

## Zone 2A

Project Name: Foundation and ELS Works for Integrated Basement and Underground Road in Zone 2A of the West Kowloon Cultural District

3-Month Rolling Programme

	_											202	2						
Activity Description	Duration	Start Date	Finish Date			une				July					ugust			eptembe	
	(Cal. Day)			3			_	_	8	15		29	_	_	19		2 W121	9 W122	16 W123
Zone 2A-1 Foundation, ELS Works and Blinding to Formation (KD01)				100	VV1U;	9 110	•	1 00112	VV113	<b>W</b> 114	WIIS	WITC	<b>v</b> v11/	/   •••11	0 1119	VV120	WIZI	W122	W123
ELS (Stage 1) - Grouting / Pipe Pile Works																			
King Post (8/64 Nos Completed) & Erection of Steel Column for Working Platform (11/41 Nos completed)	472	15-May-21	29-Aug-22																
Stage 2 grouting (293/323 Nos Completed)	347	28-Sep-21	9-Sep-22																
Pumping Test																			
Installation of Pump Wells (17/24 Nos completed)	60	4-Jun-22	2-Aug-22																
Zone 2A-2 Foundation, ELS Works and Blinding to Formation (KD02)						-1								-	-				
ELS (Stage 1) - Grouting / Pipe Pile Works																			
King Post (0/86 Nos Completed) & Erection of Steel Column for Working Platform (0/65 Nos Completed)	181	4-Jun-22	1-Dec-22																
Pipe Pile Construction (461/461 Nos Completed)	533	17-Nov-20	3-May-22																
Stage 2 grouting (472/472 Nos Completed)	250	2-Oct-21	8-Jun-22																
Pumping Test																			
Installation of Pump Wells (90/90 Nos completed)	62	11-Apr-22	11-Jun-22																
Baseline Monitoring	1	21-Jun-22	21-Jun-22																
Pumping Test	14	22-Jun-22	5-Jul-22					1											



- Remaining Works

- Critical Remaining Works

# Zone 2B & 2C

tivity ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual		Total Float		/	Jun 12		July 13	August 14	September 15
					Start	Finsih		Complete	21 2				30 06 13 20 2	
Piling for Integrated Bas	ement and U/G Road in Zone 2B & 2C													
Contract Dates														
Key Dates														
KD for Zone 2B														
										1				
KD01	KD01 (Stage 1-1) - 18 May 2022		18-May-22	0		25-Jun-22*	-33	0%			•			
KD03	KD03 (Stage 3-1) - 26 Aug 2022		26-Aug-22	0		16-Sep-22*	-21	0%					٠	•
KD for Zone 2C														
										[				
KD04	KD04 (Stage 4-1) - 26 Aug 2022		25-Aug-22	0		26-Aug-22*	0	0%					\$	
Optional Works subject	ted to CA's Instruction													
												5 6 8		
	Last CAI date for Optional Works Item No.2A (330 Days	16-Aug-22		0	16-Aug-22		71	0%					\$	
	to 390 Days after Commencement) if item No. 3 is													
Access Dates of Site Po														
270 days after Comme	encement													
										1				
				-										
	Access to Site Portion B35 (To be agreed with the Zone 2A contractor)	18-Apr-22		0	18-Jun-22		-9	0%						
Mobilization Stage														
Site Mobilization Works	e								/					
	ks before Piling Commencement								/					
Fre-Construction wor	rs before Filing Commencement													
-										+				
MOBP.10.1300	Trial Pit for Drillholes & Removal of Existing	19-Aug-21	30-Apr-22	318	19-Aug-21 A	02-Jul-22	85	97%						
	Substructures / Ground Slab [503 nos]	10 / lug 21	00710122	010	10/109 21/1	02 001 22	00	0770						
End of Mobolization														
MOBP.99.1080	End of Mobilization Stage		18-May-22	0		01-Sep-22*	24	0%	>					٠
Construction Stage														
Pile Construction														
								-				Data	Douision Charlest	Annewood
D: 2B2C-20220618_bw	Planned Bar   Milestone	Diling for I	West Kowloo	n Cultu	ural District Au nt and U/G Roa	uthority	20			-		Date 4-Mar-22	Revision Checked Rev.0 KL	Approved B
Data Date: 18-Jun-22 Print Date: 20-Jun-22_11:57	Critical Bar $\blacklozenge$ Critical MS Baseline $\diamondsuit$ Baseline MS	3 M	onth Rolling	Progra	mme as of 17	June 2022	20		IRE	10 I	- (	1.1		
Page 1 of 30					CMWP Rev.0									

D	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual Start	Forecast / Actual Finsih	Total Float	Activity % Complete		Jur 12	ne 2	July 13	August 14	Septe 1
					Junt	THISHT		Complete	21 28	8   04   11	18 25	02 09 16 23	30 06 13 20 2	27 03
nitial Mobilization														
				-										
MO.1010	Initial Mobilization for Predrilling of BP (CCD / KD05 / KD01)	23-Jul-21	07-Sep-21	275	23-Jul-21 A	27-Jun-22	-27	80%			-	6 6 8 8 8 8 8 8 9 8 9 8 9 8 9 8 9 8 9 8		
MO.1020	Initial Mobilization for Predrilling of BP (CCE / KD06)	23-Jul-21	07-Sep-21	249	23-Jul-21 A	27-May-22 A		50%			-	с к к к к к к к к к к к к к к к к к к к		
MO.1030	Initial Mobilization for Predrilling of BP (CCF / KD07 / KD03)	23-Jul-21	07-Sep-21	307	23-Jul-21 A	04-Aug-22	19	85%						
MO.1050	Initial Mobilization for Predrilling of BP (CCH / KD09 / KD02)	23-Jul-21	07-Sep-21	277	23-Jul-21 A	29-Jun-22	99	60%						
redrilling												**************************************	**************************************	1
												1 2 2 1		
PD.1080	Predrilling for BP in KD05 [76 nos.]	30-Sep-21	30-Mar-22	217	30-Sep-21 A		-39	58%				6 8 9		1
PD.1100	Predrilling for BP in KD06 [95 nos.] incl. 5 additional nos.	30-Sep-21	23-May-22	196	30-Sep-21 A	04-Jun-22 A		55%						
PD.1120	Predrilling for BP in KD07 [90 nos.] incl. 2 additional nos.	30-Sep-21	23-May-22	258	30-Sep-21 A	04-Aug-22	150	85%				1	• • • • • • • • • • • • • • • • • • •	
PD.1160	Predrilling for BP in KD09 [149 nos.] incl. 4 additional nos.	30-Sep-21	30-Mar-22	200	30-Sep-21 A	29-Jun-22	86	70%				6 17 18 18 18 18 18 18 18 18 18 18 18 18 18	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
(D01 (Stage 1-1)												r F F		
Bored Piles														
CD07														
07			в.					, and the second se						
CBA-BPC41Jb.10	BP - Excavation	13-Apr-22	22-Apr-22	11	13-May-22 A	26-May-22 A		100%	_			н. Б. Е.		1
CBA-BPC41Jb.20	BP - RCD Drilling	23-Apr-22	05-May-22	4	27-May-22 A	01-Jun-22 A		100%				8. 1. 1. 1.		
CBA-BPC41Jb.30	BP - Airlift, Cage Install and Concrete	06-May-22	12-May-22	12	02-Jun-22 A	17-Jun-22 A		100%						1
14												1 1 1		
CBA-BP04.10	BP - Excavation	12-Apr-22	22-Apr-22	12	20-May-22 A	04-Jun-22 A		100%				1 1 1 1		
CBA-BP04.20	BP - RCD Drilling	23-Apr-22	11-May-22	2	06-Jun-22 A	08-Jun-22 A		100%		-		1		
CBA-BP04.30	BP - Airlift, Cage Install and Concrete	12-May-22	18-May-22	15	09-Jun-22 A	25-Jun-22	-33	0%	_			- 		
CD05												1 1 1		1
05												6 1 1		
P22&P19-BP21.30	BP - Airlift, Cage Install and Concrete	19-Mar-22	28-Mar-22	25	20-Apr-22 A	21-May-22 A		100%				r r		
(D03 (Stage 3-1)														
Bored Piles												1. 1. 1.		
VD06														
											•	Date	Revision Checked	
32C-20220618_bw Date: 18-Jun-22 Date: 20-Jun-22_11:57	Planned Bar       Milestone         Critical Bar       Critical MS         Baseline       Baseline MS	Piling for 1	Integrated Ba onth Rolling	isemer Progra	ural District A nt and U/G Ro mme as of 17 CMWP Rev.0	oad in Zone 2E	3 2C	V	RA	0	H- (		Revision Checked Rev.0 KL	I App B

Activity I	D	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual		Total Float		/		ine 2	July	August	September
						Start	Finsih		Complete	21 2			13 02 09 16 23	30 06 13 20	15 27 03 10 7
	11														-
	P28&P29-BP10.10	BP - Excavation			20	19-May-22 A	13-Jun-22 A		100%					1	
	P28&P29-BP10.20	BP - RCD Drilling			19	14-Jun-22 A	06-Jul-22	37	100%						
	P28&P29-BP10.30	BP - Airlift, Cage Install and Concrete			7	07-Jul-22	14-Jul-22	37	0%						
	VD09									-			5 1 1	4 8 8 8	
	01														
	CBA-BPC54Jb.10	BP - Excavation	26-Feb-22	04-Mar-22	6	18-Jun-22	24-Jun-22	-58	0%						
	CBA-BPC54Jb.20	BP - RCD Drilling	05-Mar-22	11-Apr-22	31	25-Jun-22	01-Aug-22	-58	0%	1			1	<b>_</b>	
	CBA-BPC54Jb.30	BP - Airlift, Cage Install and Concrete	12-Apr-22	21-Apr-22	6	02-Aug-22	08-Aug-22	10	0%	1					
	02														
	CBA-BPC54Ka.10	BP - Excavation	04-Apr-22	11-Apr-22	6	26-Jul-22	01-Aug-22	-58	0%				1	<b>.</b>	
	CBA-BPC54Ka.20	BP - RCD Drilling	12-Apr-22	25-May-22	33	02-Aug-22	08-Sep-22	-58	0%						
	CBA-BPC54Ka.30	BP - Airlift, Cage Install and Concrete	26-May-22	01-Jun-22	6	09-Sep-22	16-Sep-22	-17	0%	-	÷				
K	(D04 (Stage 4-1)												1	4 8 8	
	Bored Piles													8 8 8 8	
	TD01														
	07														
	P30-BP06.10	BP - Excavation	31-May-22	07-Jun-22	6	12-Jul-22	18-Jul-22	7	0%						
	P30-BP06.20	BP - RCD Drilling	08-Jun-22	29-Jun-22	19	19-Jul-22	09-Aug-22	7	0%						
	P30-BP06.30	BP - Airlift, Cage Install and Concrete	30-Jun-22	09-Jul-22	8	10-Aug-22	18-Aug-22	7	0%						
	TD09	, - <b>3</b>			100	J	3			-			1 T 1		
	01										1				
	CBA-BPC54V.10	BP - Excavation	08-Apr-22	14-Apr-22	6	18-Jun-22	24-Jun-22	-55	0%						
		BP - RCD Drilling	19-Apr-22	29-Apr-22	10	25-Jun-22	07-Jul-22	-55	0%				i		
	CBA-BPC54V.30	BP - Airlift, Cage Install and Concrete	30-Apr-22	06-May-22	5	08-Jul-22	13-Jul-22	38	0%						
K	(D05 (Section 1)				12755	1		10000							
													1 1 1		
	MO.1060	Initial Mobilization for BP (CCD / KD05 / KD01)	15-Sep-21	15-Nov-21	208	22-Oct-21 A	07-Jul-22	148	80%		<u>i</u>		1	2 2 2	
	1000		10 000 21	10110721	200	22 00(21)	07 001 22	140	0070						
	Bored Piles														
	CD01													-	
	03														
	P23-BP20.10	BP - Excavation	11-Jan-22	17-Jan-22	6	18-Jun-22	24-Jun-22	59	0%				1	1	
	P23-BP20.20	BP - RCD Drilling	18-Jan-22	07-Feb-22	15	25-Jun-22	13-Jul-22	59	0%						
	P23-BP20.30	BP - Airlift, Cage Install and Concrete	08-Feb-22	15-Feb-22	7	14-Jul-22	21-Jul-22	59	0%	1	1			8 8 8	
	16	and and the second s												2 2 2 2	
	32C-20220618 bw	Planned Bar 🔶 Milestone		Nest Kowles	n Cult	ural District Au	uthority		T		2		Date		ed Approved
	Date: 18-Jun-22	Critical Bar $\diamond$ Critical MS	Piling for I	ntegrated Ba	semer	nt and U/G Ro	ad in Zone 2B	2C					4-Mar-22	Rev.0 KL	В
	Date: 20-Jun-22_11:57	Baseline Saseline MS	3 M			mme as of 17	June 2022		V		10	H- 1	XX		
Page	3 of 30		<u></u>	Bas	ea on	CMWP Rev.0							1.000		

Activity ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual Start	Forecast / Actual Finsih	Total Float	Activity % Complete	/ June 12	July 13	August 14	September 15
P23-BP31.10	BP - Excavation	13-Jun-22	18-Jun-22	17		19-May-22 A		100%		25 02 09 16 2	3 30 06 13 20	27 03 10 7
P23-BP31.20	BP - RCD Drilling	20-Jun-22	07-Jul-22	6		27-May-22 A	47	100%				
P23-BP31.30	BP - Airlift, Cage Install and Concrete	08-Jul-22	15-Jul-22	57	20-11/12/22 A	04-Aug-22	47	100%		7	2 2 2	
02			-	2								
	PD Evenuation	21 Jan 22	00 Eab 22	44	02 http://20.4	16 km 00 A		100%				
CBA-BPC43K.10	BP - Excavation	31-Jan-22	09-Feb-22	11	02-Jun-22 A	16-Jun-22 A	00	100%				
CBA-BPC43K.20	BP - RCD Drilling	10-Feb-22	21-Feb-22	11	17-Jun-22 A	29-Jun-22	28	60%				
CBA-BPC43K.30	BP - Airlift, Cage Install and Concrete	22-Feb-22	26-Feb-22	5	30-Jun-22	06-Jul-22	67	0%				
05												1
CBA-BPC42K.10	BP - Excavation	15-Mar-22	21-Mar-22	6	23-Jun-22	29-Jun-22	28	0%				
CBA-BPC42K.20	BP - RCD Drilling	22-Mar-22	01-Apr-22	10	30-Jun-22	12-Jul-22	28	0%	-			
CBA-BPC42K.30	BP - Airlift, Cage Install and Concrete	02-Apr-22	08-Apr-22	5	13-Jul-22	18-Jul-22	62	0%				
08										н. 		
CBA-BPC43J.20	BP - RCD Drilling	06-May-22	18-May-22	2		19-May-22 A		100%		8 8 8 8	1	
CBA-BPC43J.30	BP - Airlift, Cage Install and Concrete	19-May-22	24-May-22	10	20-May-22 A	01-Jun-22 A		100%		1 1 1		
09												
CBA-BP02.10	BP - Excavation	11-May-22	18-May-22	7	05-Jul-22	12-Jul-22	28	0%				
CBA-BP02.20	BP - RCD Drilling	19-May-22	04-Jun-22	14	13-Jul-22	28-Jul-22	28	0%				1
CBA-BP02.30	BP - Airlift, Cage Install and Concrete	06-Jun-22	11-Jun-22	6	29-Jul-22	04-Aug-22	42	0%		E		1
10												
CBA-BP05.10	BP - Excavation	28-May-22	04-Jun-22	6	22-Jul-22	28-Jul-22	28	0%		-		
CBA-BP05.20	BP - RCD Drilling	06-Jun-22	16-Jun-22	10	29-Jul-22	09-Aug-22	28	0%				
CBA-BP05.30	BP - Airlift, Cage Install and Concrete	17-Jun-22	22-Jun-22	5	10-Aug-22	15-Aug-22	38	0%				
11										1 1 1		
CBA-BPC40Ka.30	BP - Airlift, Cage Install and Concrete	29-Jun-22	05-Jul-22	26	12-Apr-22 A	18-May-22 A		100%		i i i i i i i i i i i i i i i i i i i	1	
12												
CBA-BPC42Jb.10	BP - Excavation	22-Jun-22	28-Jun-22	6	03-Aug-22	09-Aug-22	28	0%		-		
CBA-BPC42Jb.20	BP - RCD Drilling	29-Jun-22	11-Jul-22	10	10-Aug-22	20-Aug-22	28	0%				
	BP - Airlift, Cage Install and Concrete	12-Jul-22	16-Jul-22	5	22-Aug-22	26-Aug-22	28	0%				
13	, ,				3	5	1000			2 1 1 1 1		
CBA-BP01.10	BP - Excavation	25-Mar-22	01-Apr-22	7	18-Jun-22	25-Jun-22	60	0%		• ]		
CBA-BP01.20	BP - RCD Drilling	02-Apr-22	22-Apr-22	14	27-Jun-22	13-Jul-22	60	0%				
CBA-BP01.30	BP - Airlift, Cage Install and Concrete	23-Apr-22	29-Apr-22	6	14-Jul-22	20-Jul-22	60	0%	-			
15								- 10				
CBA-BP06.10	BP - Excavation	04-May-22	11-May-22	6	18-Jun-22	24-Jun-22	51	0%				1
CBA-BP06.20	BP - RCD Drilling	12-May-22	23-May-22	10	25-Jun-22	07-Jul-22	51	0%				
CBA-BP06.30	BP - Airlift, Cage Install and Concrete	24-May-22	28-May-22	5	08-Jul-22	13-Jul-22	60	0%				
		-1		75767			00	1		Date	: Revision Checked	Approved
ID: 2B2C-20220618_bw Data Date: 18-Jun-22 Print Date: 20-Jun-22_11:57 Page 4 of 30	Planned Bar       Milestone         Critical Bar       Critical MS         Baseline       Baseline MS	Piling for I	integrated Ba onth Rolling	asemei Progra	ural District A nt and U/G Ro umme as of 17 CMWP Rev.0	ad in Zone 28	3 2C	V	BRO H	414-00	Rev.0 KL	B

Activity I	D	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual		Total Float			une 12	July 13	August	September 15
						Start	Finsih		Complete			5 02 09 16 23	30 06 13 20 2	
	16													
	CBA-BP03.10	BP - Excavation	16-May-22	23-May-22	7	29-Jun-22	07-Jul-22	51	0%	-	1			
	CBA-BP03.20	BP - RCD Drilling	24-May-22	09-Jun-22	14	08-Jul-22	23-Jul-22	51	0%					
	CBA-BP03.30	BP - Airlift, Cage Install and Concrete	10-Jun-22	16-Jun-22	6	25-Jul-22	30-Jul-22	51	0%		-			
	CD05											1 1 1		
	03													
	P17-BP05.10	BP - Excavation	06-Jan-22	12-Jan-22	6	18-Jun-22	24-Jun-22	-14	0%					
	P17-BP05.20	BP - RCD Drilling	13-Jan-22	29-Jan-22	15	25-Jun-22	13-Jul-22	-14	0%					
	P17-BP05.30	BP - Airlift, Cage Install and Concrete	31-Jan-22	10-Feb-22	7	14-Jul-22	21-Jul-22	59	0%					
	06													
	P22&P19-BP15.10	BP - Excavation	12-Mar-22	18-Mar-22	6	07-Jul-22	13-Jul-22	-14	0%					
	P22&P19-BP15.20	BP - RCD Drilling	19-Mar-22	11-Apr-22	19	14-Jul-22	04-Aug-22	-14	0%					
	P22&P19-BP15.30	BP - Airlift, Cage Install and Concrete	12-Apr-22	23-Apr-22	8	05-Aug-22	13-Aug-22	39	0%					
	08													
	P17-BP01.10	BP - Excavation	30-Apr-22	07-May-22	6	29-Jul-22	04-Aug-22	-14	0%					
	P17-BP01.20	BP - RCD Drilling	10-May-22	26-May-22	15	05-Aug-22	22-Aug-22	-14	0%					
	P17-BP01.30	BP - Airlift, Cage Install and Concrete	27-May-22	04-Jun-22	7	23-Aug-22	30-Aug-22	9	0%					
	09													
	P17-BP09.10	BP - Excavation	20-May-22	26-May-22	6	16-Aug-22	22-Aug-22	-14	0%	6				
	P17-BP09.20	BP - RCD Drilling	27-May-22	18-Jun-22	19	23-Aug-22	14-Sep-22	-14	0%		<b>_</b>			
	P17-BP09.30	BP - Airlift, Cage Install and Concrete	20-Jun-22	28-Jun-22	8	15-Sep-22	23-Sep-22	-3	0%		<b>_</b>			
	10										/			
	P22&P19-BP16.10	BP - Excavation	13-Jun-22	18-Jun-22	6	07-Sep-22	14-Sep-22	-14	0%	4	_			
	P22&P19-BP16.20	BP - RCD Drilling	20-Jun-22	12-Jul-22	19	15-Sep-22	08-Oct-22	-14	0%		2		1	
	11													
	P22&P19-BP26.10	BP - Excavation	06-Jan-22	12-Jan-22	6	18-Jun-22	24-Jun-22	6	0%					
	P22&P19-BP26.20	BP - RCD Drilling	13-Jan-22	18-Feb-22	29	25-Jun-22	29-Jul-22	6	0%			-		
	P22&P19-BP26.30	BP - Airlift, Cage Install and Concrete	19-Feb-22	28-Feb-22	8	30-Jul-22	08-Aug-22	28	0%			1		
	13											· · · · · · · · · · · · · · · · · · ·		
	P22&P19-BP25.10	BP - Excavation	07-Mar-22	12-Mar-22	6	15-Aug-22	20-Aug-22	6	0%					
	P22&P19-BP25.20	BP - RCD Drilling	14-Mar-22	04-Apr-22	19	22-Aug-22	13-Sep-22	6	0%					
	P22&P19-BP25.30	BP - Airlift, Cage Install and Concrete	06-Apr-22	14-Apr-22	8	14-Sep-22	22-Sep-22	6	0%	1				
	14											- - -		
	P22&P19-BP10.30	BP - Airlift, Cage Install and Concrete	03-May-22	12-May-22	25	17-May-22 A	16-Jun-22 A		100%		5			
	15													
	P22&P19-BP17.10	BP - Excavation	25-Apr-22	30-Apr-22	6	18-Jun-22	24-Jun-22	54	0%					
	P22&P19-BP17.20	BP - RCD Drilling	03-May-22	25-May-22	19	25-Jun-22	18-Jul-22	54	0%	-			1	
	200 20220619 hw	Planned Bar 🔷 🔶 Milestone			n Culti	ural District Au	thority		1		_	Date	Revision Checked	Approved
	32C-20220618_bw Date: 18-Jun-22	Critical Bar $\diamond$ Critical MS	Piling for I	ntegrated Ba	semen	nt and U/G Roa	ad in Zone 2B	3 2C			-	4-Mar-22	Rev.0 KL	В
	Date: 20-Jun-22_11:57	Baseline S Baseline MS	3 Mo			mme as of 17	June 2022		V	BRO	H. (			
Page	5 of 30			Bas	eu on	CMWP Rev.0								

Activity ID		Activity Name	Baseline Start	Baseline Finish	Dur		Forecast / Actual	Total Float	Activity %	y Jun 12		ji.	August	September
						Start	Finsih		Complete		18 25 02 09 1	6 23 30 06		7 03 10 7
		BP - Airlift, Cage Install and Concrete	26-May-22	04-Jun-22	8	19-Jul-22	27-Jul-22	54	0%					
	CD04													
	01					1								
	P17-BP03.10	BP - Excavation	24-Nov-21	30-Nov-21	6	18-Jun-22	24-Jun-22	-61	0%					
	P17-BP03.20	BP - RCD Drilling	01-Dec-21	17-Dec-21	15	25-Jun-22	13-Jul-22	<mark>-</mark> 61	0%			_		
	P17-BP03.30	BP - Airlift, Cage Install and Concrete	18-Dec-21	28-Dec-21	7	14-Jul-22	21-Jul-22	52	0%					
	02													
	3.5 GROW R013801 279-52850-00840	BP - Excavation	20-Dec-21	28-Dec-21	6	07-Jul-22	13-Jul-22	-61	0%					
	P17-BP12.20	BP - RCD Drilling	29-Dec-21	15-Jan-22	15	14-Jul-22	30-Jul-22	-61	0%					
	P17-BP12.30	BP - Airlift, Cage Install and Concrete	17-Jan-22	24-Jan-22	7	01-Aug-22	08-Aug-22	44	0%					
	04													
	P17-BP14.10	BP - Excavation	27-Jan-22	05-Feb-22	14	17-May-22 A	02-Jun-22 A		100%					
	P17-BP14.20	BP - RCD Drilling	07-Feb-22	28-Feb-22	7	04-Jun-22 A	13-Jun-22 A		100%					
	P17-BP14.30	BP - Airlift, Cage Install and Concrete	01-Mar-22	09-Mar-22	12	14-Jun-22 A	27-Jun-22	30	100%					
	05													
	P17-BP16.10	BP - Excavation	22-Feb-22	28-Feb-22	6	25-Jul-22	30-Jul-22	-61	0%					
	P17-BP16.20	BP - RCD Drilling	01-Mar-22	17-Mar-22	15	01-Aug-22	17-Aug-22	-61	0%				<b>—</b>	
	P17-BP16.30	BP - Airlift, Cage Install and Concrete	18-Mar-22	25-Mar-22	7	18-Aug-22	25-Aug-22	-13	0%					
	06										5 5			1
	P17-BP02.10	BP - Excavation	11-Mar-22	17-Mar-22	6	11-Aug-22	17-Aug-22	<mark>-</mark> 61	0%			1	_	
	P17-BP02.20	BP - RCD Drilling	18-Mar-22	04-Apr-22	15	18-Aug-22	03-Sep-22	-61	0%					<b>—</b>
	P17-BP02.30	BP - Airlift, Cage Install and Concrete	06-Apr-22	13-Apr-22	7	05-Sep-22	13-Sep-22	-21	0%					
	07													
	P17-BP08.10	BP - Excavation	29-Mar-22	04-Apr-22	6	29-Aug-22	03-Sep-22	<mark>-</mark> 61	0%					<b>—</b>
	P17-BP08.20	BP - RCD Drilling	06-Apr-22	26-Apr-22	15	05-Sep-22	22-Sep-22	<u>-</u> 61	0%					
	14													
	P17-BP17.10	BP - Excavation	09-Jun-22	15-Jun-22	6	25-Jul-22	30-Jul-22	-38	0%					
	P17-BP17.20	BP - RCD Drilling	16-Jun-22	04-Jul-22	15	01-Aug-22	17-Aug-22	-38	0%					
	P17-BP17.30	BP - Airlift, Cage Install and Concrete	05-Jul-22	12-Jul-22	7	18-Aug-22	25-Aug-22	-6	0%					
	15					1								
	P17-BP15.10	BP - Excavation	27-Jun-22	04-Jul-22	6	11-Aug-22	17-Aug-22	-38	0%			0	_	
	P17-BP15.20	BP - RCD Drilling	05-Jul-22	21-Jul-22	15	18-Aug-22	03-Sep-22	-38	0%			=		<b>.</b>
	P17-BP15.30	BP - Airlift, Cage Install and Concrete	22-Jul-22	29-Jul-22	7	05-Sep-22	13-Sep-22	-14	0%					
	16						•							
	P17-BP07.10	BP - Excavation	15-Jul-22	21-Jul-22	6	29-Aug-22	03-Sep-22	-38	0%					<b>i</b>
	P17-BP07.20	BP - RCD Drilling	22-Jul-22	08-Aug-22	15	05-Sep-22	22-Sep-22	-38	0%					
	TD08				0.00		1999 1999 1999 1999 1999 1999 1999 199		2000 T.C.					
	0.00000010		1		K				-			i Date Revisio	on Checked	Approved
	2C-20220618_bw ate: 18-Jun-22	Planned Bar $\blacklozenge$ Milestone Critical Bar $\blacklozenge$ Critical MS				ural District And nt and U/G Ro		3 2C			4-Ma	r-22 Rev.0	KL	В
Print Da	ate: 20-Jun-22_11:58	Baseline Saseline MS		onth Rolling	Progra	mme as of 17			V	BRO I	- \\\			
Page 6	of 30		1	Bas	ed on	CMWP Rev.0								

Activity	ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual		Total Float	Activity %	/	June 12	July	August	September 15
						Start	Finsih		Complete	21 28 04		13 5 02 09 16 23	30 06 13 20	27 03 10 7
	05													
	CBA-BPC400.10	BP - Excavation	08-Jan-22	14-Jan-22	6	18-Jun-22	24-Jun-22	66	0%					
	CBA-BPC400.20	BP - RCD Drilling	15-Jan-22	26-Jan-22	10	25-Jun-22	07-Jul-22	66	0%					
	CBA-BPC400.30	BP - Airlift, Cage Install and Concrete	27-Jan-22	04-Feb-22	5	08-Jul-22	13-Jul-22	66	0%					
	07												*	
	CBA-BPC38Jb.10	BP - Excavation	04-Feb-22	10-Feb-22	14	03-May-22 A	20-May-22 A		100%		-			
	CBA-BPC38Jb.20	BP - RCD Drilling	11-Feb-22	22-Feb-22	10	21-May-22 A	02-Jun-22 A		100%					
	CBA-BPC38Jb.30	BP - Airlift, Cage Install and Concrete	23-Feb-22	28-Feb-22	3	04-Jun-22 A	08-Jun-22 A		100%				1	
	11													
	CBA-BPC40Na.10	BP - Excavation	12-May-22	18-May-22	20	13-May-22 A	07-Jun-22 A		100%					
	CBA-BPC40Na.20	BP - RCD Drilling	19-May-22	30-May-22	3	08-Jun-22 A	11-Jun-22 A		100%				1	
	CBA-BPC40Na.30	BP - Airlift, Cage Install and Concrete	31-May-22	06-Jun-22	4	13-Jun-22 A	17-Jun-22 A		100%					
	13													
	CBA-BPC39K.30	BP - Airlift, Cage Install and Concrete	24-Jun-22	29-Jun-22	2	18-May-22 A	20-May-22 A		100%				*	
	TD07													
	01												1	
	P18-BP10.10	BP - Excavation	19-Nov-21	25-Nov-21	6	18-Jun-22	24-Jun-22	-121	0%					
	P18-BP10.20	BP - RCD Drilling	26-Nov-21	13-Dec-21	15	25-Jun-22	13-Jul-22	-121	0%					
	P18-BP10.30	BP - Airlift, Cage Install and Concrete	14-Dec-21	21-Dec-21	7	14-Jul-22	21-Jul-22	-34	0%				1	
	05													
	P18-BP02.10	BP - Excavation	17-Feb-22	23-Feb-22	6	29-Aug-22	03-Sep-22	-121	0%					-
	P18-BP02.20	BP - RCD Drilling	24-Feb-22	12-Mar-22	15	05-Sep-22	22-Sep-22	-121	0%					
	06													
	P18-BP05.10	BP - Excavation	07-Mar-22	12-Mar-22	6	16-Sep-22	22-Sep-22	-121	0%					
	16									·····				
	P18-BP01.10	BP - Excavation	18-May-22	24-May-22	6	07-Jul-22	13-Jul-22	-9	0%					
	P18-BP01.20	BP - RCD Drilling	25-May-22	16-Jun-22	19	14-Jul-22	04-Aug-22	-9	0%		_			
	P18-BP01.30	BP - Airlift, Cage Install and Concrete	17-Jun-22	25-Jun-22	8	05-Aug-22	13-Aug-22	17	0%					
	17					, i i i i i i i i i i i i i i i i i i i	0				/			
	P18-BP08.10	BP - Excavation	10-Jun-22	16-Jun-22	6	29-Jul-22	04-Aug-22	-9	0%	1		1		
	P18-BP08.20	BP - RCD Drilling	17-Jun-22	09-Jul-22	19	05-Aug-22	26-Aug-22	-9	0%					ji j
	P18-BP08.30	BP - Airlift, Cage Install and Concrete	11-Jul-22	19-Jul-22	8	27-Aug-22	05-Sep-22	6	0%		1		-	
	Optional Item no. 3													
	CD04													
ſ	08												-	
	P17-BP13.10	BP (Optional Item no.3) - Excavation	28-Apr-22	05-May-22	6	16-Sep-22	22-Sep-22	-61	0%					
	12		237 (5) 22	55 may 22	U	10 000 22			0 /0					
				Neet Variation	n Carle	nel District	the suite -		T			Date	Revision Ched	ked Approved
	B2C-20220618_bw Date: 18-Jun-22	Planned Bar $\blacklozenge$ Milestone Critical Bar $\blacklozenge$ Critical MS	Piling for I	ntegrated Ba	asemer	ural District Au nt and U/G Ro	ad in Zone 2B	2C			/	4-Mar-22	Rev.0 KL	В
Print	Date: 20-Jun-22_11:58	Baseline Saseline MS	3 M	onth Rolling	Progra	mme as of 17	June 2022			BRO	-H- (	XX		
Page	e 7 of 30			Bas	ed on	CMWP Rev.0								

Activit	y ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual Start	Forecast / Actual Finsih	Total Float	Activity % Complete	(	Ju 1	2	July 13	August 14	September 15
	P17-BP22.10	BP (Optional Item no.3) - Excavation	03-May-22	10-May-22	6	18-Jun-22	24-Jun-22	-38	0%	21 2	8   04   11	18 25	02 09 16 23	30 06 13 20	27 03 10 7
	P17-BP22.10	BP (Optional Item no.3) - RCD Drilling	11-May-22	27-May-22	15	25-Jun-22	13-Jul-22	-38	0%						
	P17-BP22.30	BP (Optional Item no.3) - Airlift, Cage Install and	28-May-22	06-Jun-22	7	14-Jul-22	21-Jul-22	10	0%		<u> </u>				
		Concrete								1					
	13		6										• • •		
	P17-BP18.10	BP (Optional Item no.3) - Excavation	21-May-22	27-May-22	6	07-Jul-22	13-Jul-22	-38	0%	4				_	
	P17-BP18.20	BP (Optional Item no.3) - RCD Drilling	28-May-22	15-Jun-22	15	14-Jul-22	30-Jul-22	-38	0%						
	P17-BP18.30	BP (Optional Item no.3) - Airlift, Cage Install and Concrete	16-Jun-22	23-Jun-22	7	01-Aug-22	08-Aug-22	2	0%			-			
	17														
	P17-BP04.10	BP (Optional Item no.3) - Excavation	02-Aug-22	08-Aug-22	6	16-Sep-22	22-Sep-22	-38	0%						
	TD08									-					
	10														
	CBA-BPC36Jb.10	BP (Optional Item no.3) - Excavation	28-Apr-22	05-May-22	6	18-Jun-22	24-Jun-22	56	0%						
	CBA-BPC36Jb.20	BP (Optional Item no.3) - RCD Drilling	06-May-22	18-May-22	10	25-Jun-22	07-Jul-22	56	0%	*******					
	CBA-BPC36Jb.30	BP (Optional Item no.3) - Airlift, Cage Install and Concrete	19-May-22	24-May-22	5	08-Jul-22	13-Jul-22	61	0%	٢					
	12														
	CBA-BPC36Ka.10	BP (Optional Item no.3) - Excavation	24-May-22	30-May-22	6	30-Jun-22	07-Jul-22	56	0%			1			
	CBA-BPC36Ka.20	BP (Optional Item no.3) - RCD Drilling	31-May-22	11-Jun-22	10	08-Jul-22	19-Jul-22	56	0%	1					
	CBA-BPC36Ka.30	BP (Optional Item no.3) - Airlift, Cage Install and Concrete	13-Jun-22	17-Jun-22	5	20-Jul-22	25-Jul-22	56	0%			 -			
	TD07														
	18			*-											
	P18-BP04.10	BP (Optional Item no.3) - Excavation	04-Jul-22	09-Jul-22	6	20-Aug-22	26-Aug-22	-9	0%					_	
	P18-BP04.20	BP (Optional Item no.3) - RCD Drilling	11-Jul-22	27-Jul-22	15	27-Aug-22	14-Sep-22	-9	0%						
	P18-BP04.30	BP (Optional Item no.3) - Airlift, Cage Install and Concrete	28-Jul-22	04-Aug-22	7	15-Sep-22	22-Sep-22	-1	0%						
	19	Concrete													
	P18-BP11.10	BP (Optional Item no.3) - Excavation	21-Jul-22	27-Jul-22	6	07-Sep-22	14-Sep-22	-9	0%						
	P18-BP11.20	BP (Optional Item no.3) - RCD Drilling	28-Jul-22	13-Aug-22	15	15-Sep-22	03-Oct-22	-9	0%			I			
		BP (Optional Ren no.3) - RCD Dilling	20-501-22	13-Aug-22	13	13-3ep-22	03-001-22	-9	0 %	_		1			
	KD06 (Section 2)														
	MO 1070	Initial Mabilization for P.D. (CCE (1/D06)	15 Cap 01	15-Nov-21	100	22 Oct 21 A	10. hun 00	202	50%				r • •		
	MO.1070	Initial Mobilization for BP (CCE / KD06)	15-Sep-21	15-1100-21	192	22-Oct-21 A	18-Jun-22	292	50%			T			
	Bored Piles		_		_										
	VD01														
	07											6.	1		
Dat Prir	2B2C-20220618_bw a Date: 18-Jun-22 it Date: 20-Jun-22_11:58 je 8 of 30	Planned Bar       Milestone         Critical Bar       Critical MS         Baseline       Baseline MS	Piling for I	integrated Ba onth Rolling	asemer Progra	ural District An nt and U/G Ro mme as of 17 CMWP Rev.0	ad in Zone 2B	3 2C	V	B		H- (	4-Mar-22	Revision Checke Rev.0 KL	d Approved B

Activity	ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual Start	Forecast / Actual Finsih	Total Float	Activity % / Complete	June 12	July 13	August 14	September 15
	<b>D00 DD10 10</b>			00.1.1.00	- 10	100000			1	21 28 04 11 18	25 02 09 16 23	30 06 13 20	
	P23-BP12.10	BP - Excavation	29-Jun-22	06-Jul-22	19		01-Jun-22 A		100%				
	P23-BP12.20	BP - RCD Drilling	07-Jul-22	28-Jul-22	32	02-Jun-22 A	11-Jul-22	44	100%			-	
	P23-BP12.30	BP - Airlift, Cage Install and Concrete	29-Jul-22	06-Aug-22	8	12-Jul-22	20-Jul-22	188	0%			*	
	14									<u> </u>			
	P23-BP13.30	BP - Airlift, Cage Install and Concrete	06-Feb-23	13-Feb-23	11	13-May-22 A	26-May-22 A		100%	-		2 4 4 2	
	VD02				e;								
	15								10001				
	P24&P27-BP09.10		23-Jul-22	29-Jul-22	50	11-Jun-22 A	09-Aug-22	57	100%				
	P24&P27-BP09.20		30-Jul-22	01-Sep-22	29	10-Aug-22	13-Sep-22	57	0%				
		BP - Airlift, Cage Install and Concrete	02-Sep-22	10-Sep-22	8	14-Sep-22	22-Sep-22	134	0%				
	VD07			-	_						1 1 1	8 6 8	
	02												
	P24&P27-BP27.10		24-Feb-22	02-Mar-22	6	23-Jul-22	29-Jul-22	-52	0%				
	P24&P27-BP27.20		03-Mar-22	24-Mar-22	19	30-Jul-22	20-Aug-22	-52	0%				
		BP - Airlift, Cage Install and Concrete	25-Mar-22	02-Apr-22	8	22-Aug-22	30-Aug-22	153	0%				-
	03												
	P24&P27-BP28.10		18-Mar-22	24-Mar-22	22	29-Apr-22 A			100%			*	
	P24&P27-BP28.20		25-Mar-22	20-Apr-22	36	28-May-22 A	200000000000000000000000000000000000000	188	100%			5 5 5	
		BP - Airlift, Cage Install and Concrete	21-Apr-22	29-Apr-22	8	12-Jul-22	20-Jul-22	188	0%				
	VD08												
			45 1	04 1 00	0	40 1 00	04 1 00	10	00/		1 1 1	*	
	P23-BP07.10	BP - Excavation	15-Jun-22	21-Jun-22	6	18-Jun-22	24-Jun-22	19	0%				
	P23-BP07.20	BP - RCD Drilling	22-Jun-22	14-Jul-22	19	25-Jun-22	18-Jul-22	19	0%				
	P23-BP07.30	BP - Airlift, Cage Install and Concrete	15-Jul-22	23-Jul-22	8	19-Jul-22	27-Jul-22	134	0%	·····			
		DD Exercite	00 1-1 00	44.1.100	0	40.1.1.00	40.1400	10	00/				
	P24&P27-BP06.10		08-Jul-22	14-Jul-22	6	12-Jul-22	18-Jul-22	48	0%				
	P24&P27-BP06.20		15-Jul-22	17-Aug-22	29	19-Jul-22	20-Aug-22	48	0%			1	_
		BP - Airlift, Cage Install and Concrete	18-Aug-22	26-Aug-22	8	22-Aug-22	30-Aug-22	113	0%		у 1 1 1		
	03	DD. Evenuetion	44 4	17	6	45 4	00 4	40	00/				
	P24&P27-BP04.10		11-Aug-22		6	15-Aug-22	20-Aug-22	48	0%		1 1 1		
	P24&P27-BP04.20	BP - RCD Drilling	18-Aug-22	21-Sep-22	29	22-Aug-22	24-Sep-22	48	0%				
	00	DD Execution	00 101 00	44.1.100	6	40.1.1.00	40.141.00	40	00/				
	P24&P27-BP36.10		08-Jul-22	14-Jul-22	6	12-Jul-22	18-Jul-22	19	0%				
	P24&P27-BP36.20		15-Jul-22	05-Aug-22	19	19-Jul-22	09-Aug-22	19	0%				
	P24&P27-BP36.30	BP - Airlift, Cage Install and Concrete	06-Aug-22	15-Aug-22	8	10-Aug-22	18-Aug-22	115	0%				
			00 1 1 00	05 4 00	0	00.4	00.4	40	00/		1		
	P24&P27-BP29.10	BP - Excavation	30-Jul-22	05-Aug-22	6	03-Aug-22	09-Aug-22	19	0%				
Data Print	B2C-20220618_bw Date: 18-Jun-22 Date: 20-Jun-22_11:58 e 9 of 30	Planned Bar       Milestone         Critical Bar       Critical MS         Baseline       Baseline MS	Piling for I	ntegrated Ba onth Rolling	isemer Progra	ural District Ant and U/G Ro mme as of 17 CMWP Rev.0	ad in Zone 28	3 2C	Vī	BRO H	Amar-22	Revision Chedke Rev.0 KL	ed Approved B

Activity	ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual Start	Forecast / Actual Finsih	Total Float	Activity % Complete	/	Ju 1		July 13	August	September 15
						0.0000				21 2			02 09 16 23	30 06 13 20	
	P24&P27-BP29.20		06-Aug-22		19	10-Aug-22	31-Aug-22	19	0%						
	P24&P27-BP29.30	BP - Airlift, Cage Install and Concrete	29-Aug-22	06-Sep-22	8	01-Sep-22	09-Sep-22	104	0%		Ļ				
	10														
	P24&P27-BP05.10	BP - Excavation	22-Aug-22	27-Aug-22	6	25-Aug-22	31-Aug-22	19	0%				1 1 1		-
	P24&P27-BP05.20	BP - RCD Drilling	29-Aug-22	03-Oct-22	29	01-Sep-22	07-Oct-22	19	0%				5 2 5		
	VD10											2			
	01														
	CBA-BPC47K.10	BP - Excavation	02-Jun-22	10-Jun-22	7	18-Jun-22	25-Jun-22	22	0%		6				
	CBA-BPC47K.20	BP - RCD Drilling	11-Jun-22	27-Jun-22	14	27-Jun-22	13-Jul-22	22	0%				0		
	CBA-BPC47K.30	BP - Airlift, Cage Install and Concrete	28-Jun-22	05-Jul-22	6	14-Jul-22	20-Jul-22	146	0%						
	02										1				
	CBA-BPC49K.10	BP - Excavation	20-Jun-22	27-Jun-22	7	06-Jul-22	13-Jul-22	22	0%						
	CBA-BPC49K.20	BP - RCD Drilling	28-Jun-22	14-Jul-22	14	14-Jul-22	29-Jul-22	22	0%			=		1	
	CBA-BPC49K.30	BP - Airlift, Cage Install and Concrete	15-Jul-22	21-Jul-22	6	30-Jul-22	05-Aug-22	138	0%					Ļ.	
	03												5 5 7	2 2 2 3 3	
	CBA-BPC50Ka.10	BP - Excavation	08-Jul-22	14-Jul-22	6	23-Jul-22	29-Jul-22	22	0%					I	
	CBA-BPC50Ka.20	BP - RCD Drilling	15-Jul-22	19-Aug-22	31	30-Jul-22	03-Sep-22	22	0%					<u> </u>	
	CBA-BPC50Ka.30	BP - Airlift, Cage Install and Concrete	20-Aug-22	26-Aug-22	6	05-Sep-22	10-Sep-22	113	0%				1	-	
	04												5 5 5 5		
	CBA-BPC52Jb.10	BP - Excavation	13-Aug-22	19-Aug-22	6	29-Aug-22	03-Sep-22	22	0%				1 1 1 1		<u> </u>
	CBA-BPC52Jb.20	BP - RCD Drilling	20-Aug-22	26-Sep-22	31	05-Sep-22	13-Oct-22	22	0%				r r	_	
	09	-		•		•				-					
	CBA-BPC49J.10	BP - Excavation	19-Apr-22	25-Apr-22	6	18-Jun-22	24-Jun-22	34	0%						
	CBA-BPC49J.20	BP - RCD Drilling	26-Apr-22	02-Jun-22	31	25-Jun-22	01-Aug-22	34	0%		-		<u>r</u>	,	
	CBA-BPC49J.30	BP - Airlift, Cage Install and Concrete	04-Jun-22	10-Jun-22	6	02-Aug-22	08-Aug-22	148	0%	-					
	10						Ū				/		5 5 5		
	CBA-BPC50Ja.10	BP - Excavation	27-May-22	02-Jun-22	6	26-Jul-22	01-Aug-22	34	0%				-	<b>_</b>	
		BP - RCD Drilling	04-Jun-22	11-Jul-22	31	02-Aug-22	06-Sep-22	34	0%		·				
		BP - Airlift, Cage Install and Concrete	12-Jul-22	18-Jul-22	6	07-Sep-22	14-Sep-22	123	0%					5 8 8	
	11	, 3				•	•								
	CBA-BPC48J.10	BP - Excavation	04-Jul-22	11-Jul-22	7	30-Aug-22	06-Sep-22	34	0%					1	ų in the second s
	CBA-BPC48J.20	BP - RCD Drilling	12-Jul-22	27-Jul-22	14	07-Sep-22	23-Sep-22	34	0%						
	12							(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)						-	
	CBA-BPC50Jb.10	BP - Excavation	21-Jul-22	27-Jul-22	6	17-Sep-22	23-Sep-22	34	0%						
	16								- /0						
	CBA-BPC52K.10	BP - Excavation	16-Dec-22	22-Dec-22	148	14-Jun-22 A	07-Dec-22	34	100%		-		* * * * * * * * * * * * * * * * * * *		
	CD08		10 Doo LE	EE BOO EE	110	TT BUT LE / T	of Boo LL	01	10070				1		
											1		Date	Revision Ched	ed Approved
	B2C-20220618_bw Date: 18-Jun-22	Planned Bar $\blacklozenge$ Milestone Critical Bar $\blacklozenge$ Critical MS				t and U/G Ro		3 2C						Rev.0 KL	В
11000000000	Date: 20-Jun-22_11:58	Baseline S Baseline MS		onth Rolling	Progra	mme as of 17					10	H- 🔇			
Page	e 10 of 30			Bas	ed on	CMWP Rev.0									

Image: Note of the start         Finsh         Complete         12           02         CBA-BPC46K.10         BP - Excavation         25-Aug-22         01-Sep-22         81         28-May-22 A         01-Sep-22         42         100%           CBA-BPC46K.20         BP - RCD Drilling         02-Sep-22         19-Sep-22         14         02-Sep-22         19-Sep-22         42         0%           CBA-BPC46L.20         BP - RCD Drilling         02-Sep-22         19-Sep-22         14         02-Sep-22         19-Sep-22         42         0%           CBA-BPC46L.01         BP - Excavation         10-Sep-22         19-Sep-22         7         10-Sep-22         42         0%         1	13 14 15 02 09 16 23 30 06 13 20 27 03 10 7
CBA-BPC46K.10       BP - Excavation       25-Aug-22       01-Sep-22       81       28-May-22 A       01-Sep-22       42       100%         CBA-BPC46K.20       BP - RCD Drilling       02-Sep-22       19-Sep-22       14       02-Sep-22       19-Sep-22       42       0%         03       03       03       03       04       04       04       04	
CBA-BPC46K.20         BP - RCD Drilling         02-Sep-22         19-Sep-22         14         02-Sep-22         19-Sep-22         42         0%           03	
03	
	_
CBA-BPC46 lb 10 BP - Excavation 10-Sen-22 19-Sen-22 7 10-Sen-22 19-Sen-22 42 0%	
05	
CBA-BP09.10 BP - Excavation 17-Oct-22 24-Oct-22 11 14-Jun-22 A 25-Jun-22 127 100%	
CBA-BP09.20 BP - RCD Drilling 25-Oct-22 09-Nov-22 14 27-Jun-22 13-Jul-22 127 0%	
CBA-BP09.30 BP - Airlift, Cage Install and Concrete 10-Nov-22 16-Nov-22 6 14-Jul-22 20-Jul-22 183 0%	
09	
CBA-BPC46J.10 BP - Excavation 16-Dec-22 23-Dec-22 17 25-May-22 A 15-Jun-22 A 100%	
CBA-BPC46J.20 BP - RCD Drilling 24-Dec-22 12-Jan-23 16 16-Jun-22 A 05-Jul-22 158 85.71%	
CBA-BPC46J.30 BP - Airlift, Cage Install and Concrete 13-Jan-23 19-Jan-23 6 06-Jul-22 12-Jul-22 178 0%	
CD06	
01	
P24&P27-BP30.10 BP - Excavation 28-Dec-21 04-Jan-22 6 18-Jun-22 24-Jun-22 -61 0%	
P24&P27-BP30.20 BP - RCD Drilling 05-Jan-22 21-Jan-22 15 25-Jun-22 13-Jul-22 -61 0%	
P24&P27-BP30.30 BP - Airlift, Cage Install and Concrete 22-Jan-22 29-Jan-22 7 14-Jul-22 21-Jul-22 187 0%	
02	
P22&P19-BP22.10 BP - Excavation 15-Jan-22 21-Jan-22 18 28-Apr-22 A 21-May-22 A 100%	
P22&P19-BP22.20 BP - RCD Drilling 22-Jan-22 16-Feb-22 7 23-May-22 A 31-May-22 A 100%	
P22&P19-BP22.30 BP - Airlift, Cage Install and Concrete 17-Feb-22 25-Feb-22 43 01-Jun-22 A 22-Jul-22 170 100%	
03	
P22&P19-BP23.10 BP - Excavation 10-Feb-22 16-Feb-22 6 09-Jul-22 15-Jul-22 -63 0%	
P22&P19-BP23.20 BP - RCD Drilling 17-Feb-22 10-Mar-22 19 16-Jul-22 06-Aug-22 -63 0%	
P22&P19-BP23.30         BP - Airlift, Cage Install and Concrete         11-Mar-22         19-Mar-22         8         08-Aug-22         16-Aug-22         157         0%	
P22&P19-BP28.10 BP - Excavation 04-Mar-22 10-Mar-22 6 01-Aug-22 06-Aug-22 -63 0%	-
P22&P19-BP28.20         BP - RCD Drilling         11-Mar-22         01-Apr-22         19         08-Aug-22         29-Aug-22         -63         0%	
P22&P19-BP28.30         BP - Airlift, Cage Install and Concrete         02-Apr-22         12-Apr-22         8         30-Aug-22         07-Sep-22         146         0%	
P22&P19-BP06.10 BP - Excavation 26-Mar-22 01-Apr-22 11 13-Jun-22 A 24-Jun-22 -27 100%	
P22&P19-BP06.20       BP - RCD Drilling       02-Apr-22       28-Apr-22       19       25-Jun-22       18-Jul-22       -27       0%	
P22&P19-BP06.30       BP - Airlift, Cage Install and Concrete       29-Apr-22       10-May-22       8       19-Jul-22       27-Jul-22       126       0%	
P22&P19-BP01.10 BP - Excavation 22-Apr-22 28-Apr-22 6 23-Aug-22 29-Aug-22 -63 0%	
P22&P19-BP01.20       BP - RCD Drilling       29-Apr-22       23-May-22       19       30-Aug-22       21-Sep-22       -63       0%	
	Date Revision Checked Approved
ID: 2B2C-20220618_bw PlannedBar    Milestone West Kowloon Cultural District Authority Data Date: 18-Jun-22 Critical Bar    Critical Bar    Critical Ms PlannedBar    Plann	4-Mar-22 Rev.0 KL B
Data Date: 18-Jun-22       Critical Bar       Critical Ms       Piling for Integrated Basement and U/G Road in Zone 2B 2C         Print Date: 20-Jun-22_11:58       Baseline       Baseline MS       Baseline MS	
Page 11 of 30 Based on CMWP Rev.0	

Activit	ty ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual		Total Float		/	Ju	ne	July 13	August	September 15
						Start	Finsih		Complete	21 2	8 04 11	18 25		30 06 13 20	
	07														_
	P24&P27-BP12.10	BP - Excavation	17-May-22	23-May-22	6	15-Sep-22	21-Sep-22	-63	0%	-					-
	13														
	P22&P19-BP07.10	BP - Excavation	30-Sep-22	08-Oct-22	28	23-May-22 A	24-Jun-22	106	100%	_					
	P22&P19-BP07.20	BP - RCD Drilling	10-Oct-22	31-Oct-22	19	25-Jun-22	18-Jul-22	106	0%						
	P22&P19-BP07.30	BP - Airlift, Cage Install and Concrete	01-Nov-22	09-Nov-22	8	19-Jul-22	27-Jul-22	174	0%						
	15														
	P22&P19-BP20.10	BP - Excavation	16-Nov-22	22-Nov-22	10	05-May-22 A	18-May-22 A		100%						
	P22&P19-BP20.20	BP - RCD Drilling	23-Nov-22	14-Dec-22	3	19-May-22 A	23-May-22 A		100%						
	P22&P19-BP20.30	BP - Airlift, Cage Install and Concrete	15-Dec-22	23-Dec-22	29	24-May-22 A	27-Jun-22	183	100%		1				
	CD05														
	12											-			
	P22&P19-BP24.10	BP - Excavation	12-Feb-22	18-Feb-22	6	23-Jul-22	29-Jul-22	6	0%						
	P22&P19-BP24.20	BP - RCD Drilling	19-Feb-22	12-Mar-22	19	30-Jul-22	20-Aug-22	6	0%						
	P22&P19-BP24.30	BP - Airlift, Cage Install and Concrete	14-Mar-22	22-Mar-22	8	22-Aug-22	30-Aug-22	17	0%						
	18														
	P22&P19-BP14.10	BP - Excavation	05-Jul-22	11-Jul-22	6	12-Jul-22	18-Jul-22	163	0%		-				
	P22&P19-BP14.20	BP - RCD Drilling	12-Jul-22	02-Aug-22	19	19-Jul-22	09-Aug-22	163	0%						
	P22&P19-BP14.30	BP - Airlift, Cage Install and Concrete	03-Aug-22	11-Aug-22	8	10-Aug-22	18-Aug-22	163	0%			1	· · · · · · · · · · · · · · · · · · ·		1
	CD03														
	03												1 1 1		
	P23-BP25.10	BP - Excavation	11-Jan-22	17-Jan-22	6	18-Jun-22	24-Jun-22	19	0%			<u> ()</u>			
	P23-BP25.20	BP - RCD Drilling	18-Jan-22	11-Feb-22	19	25-Jun-22	18-Jul-22	19	0%						
	P23-BP25.30	BP - Airlift, Cage Install and Concrete	12-Feb-22	21-Feb-22	8	19-Jul-22	27-Jul-22	174	0%	******					
	04														
	P23-BP15.10	BP - Excavation	05-Feb-22	11-Feb-22	6	12-Jul-22	18-Jul-22	19	0%						
	P23-BP15.20	BP - RCD Drilling	12-Feb-22	17-Mar-22	29	19-Jul-22	20-Aug-22	19	0%						
	P23-BP15.30	BP - Airlift, Cage Install and Concrete	18-Mar-22	26-Mar-22	8	22-Aug-22	30-Aug-22	153	0%						
	09												••••••••••••••••••••••••••••••••••••••		
	P23-BP14.10	BP - Excavation	16-Jun-22	22-Jun-22	6	15-Aug-22	20-Aug-22	19	0%				1 1 1		
	P23-BP14.20	BP - RCD Drilling	23-Jun-22	15-Jul-22	19	22-Aug-22	13-Sep-22	19	0%						
	P23-BP14.30	BP - Airlift, Cage Install and Concrete	16-Jul-22	25-Jul-22	8	14-Sep-22	22-Sep-22	110	0%						
	10														
	P23-BP26.10	BP - Excavation	09-Jul-22	15-Jul-22	6	06-Sep-22	13-Sep-22	19	0%	••••••			_		
	P23-BP26.20	BP - RCD Drilling	16-Jul-22	18-Aug-22	29	14-Sep-22	19-Oct-22	19	0%						
	13		A CANADA AND AND AND AND AND AND AND AND AN	0					0.000 00.000						
	P23-BP18.30	BP - Airlift, Cage Install and Concrete	28-Oct-22	05-Nov-22	26	26-Apr-22 A	28-May-22 A		100%						
Dat Prir	2B2C-20220618_bw ta Date: 18-Jun-22 nt Date: 20-Jun-22_11:58 ge 12 of 30	Planned Bar       Milestone         Critical Bar       Critical MS         Baseline       Baseline MS	Piling for I	ntegrated Ba onth Rolling I	semen Progra	Iral District Au It and U/G Ro mme as of 17 CMWP Rev.0	ad in Zone 2B	2C	V	B		H- (	4-Mar-22	Revision Cheo Rev.0 KL	ked Approved B

ty ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual Start	Forecast / Actual Finsih	Total Float	Activity % Complete	/	Jun 12	e	July 13	August 14	Septe 1
CD02					ourt	THISM		Complete	21 2	8   04   11	18 25	02 09 16 23	30 06 13 20	27 03
11			1		-									
		00.0	40.0	0	10 14	00 14 00 4		4000/	<b>_</b>					
P23-BP29.10	BP - Excavation	09-Sep-22	16-Sep-22	9	A REAL PROPERTY AND A REAL PROPERTY	23-May-22 A		100%		2				
P23-BP29.20	BP - RCD Drilling	17-Sep-22	06-Oct-22	8		02-Jun-22 A	170	100%	_					
P23-BP29.30	BP - Airlift, Cage Install and Concrete	07-Oct-22	14-Oct-22	19	04-Jun-22 A	25-Jun-22	176	100%						
KD07 (Section 3)														
Trial Pile (P30-BP76)													-	-
VD03														
01														
P30-BP76.30	BP (Trial Pile for Schedule 1) - Airlift, Cage Install and Concrete	02-Mar-22	11-Mar-22	14	03-May-22 A	20-May-22 A		100%						
MO.1080	Initial Mobilization for BP (CCF / KD07 / KD03)	22-Oct-21	18-Dec-21	230	05-Nov-21 A	16-Aug-22	334	85%						
Bored Piles	A. 50					37//				4 7 9 1			2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
VD01														
05													1	1
P26-BP11.10	BP - Excavation	19-May-22	25-May-22	6	23-Jul-22	29-Jul-22	9	0%						
P26-BP11.20	BP - RCD Drilling	26-May-22	17-Jun-22	19	30-Jul-22	20-Aug-22	9	0%						1
P26-BP11.30	BP - Airlift, Cage Install and Concrete	18-Jun-22	27-Jun-22	8	22-Aug-22	30-Aug-22	245	0%						
08		10-001-22	21-001-22	U	22 Aug 22	507Aug-22	240	070						
P26-BP06.10	BP - Excavation	22-Jul-22	28-Jul-22	6	15-Aug-22	20-Aug-22	9	0%				_		1
P26-BP06.20	BP - RCD Drilling	29-Jul-22	31-Aug-22	29	22-Aug-22	24-Sep-22	9	0%						
10	Di TOD Dinnig	20 001 22	017/ldg 22	20	ZE Adg ZE	24 000 22	0	070						
P26-BP10.20	BP - RCD Drilling	08-Oct-22	29-Oct-22	46	17-May-22 A	11-Jul-22	164	100%						
P26-BP10.30	BP - Airlift, Cage Install and Concrete	31-Oct-22	08-Nov-22	8	12-Jul-22	20-Jul-22	164	0%						
VD02		31-001-22	001107-22	0	12-001-22	20-501-22	104	078	-				1	
02				_										
P24&P27-BP08.10	BP - Excevation	12-Feb-22	18-Feb-22	6	18-Jun-22	24-Jun-22	84	0%						
P24&P27-BP08.10			24-Mar-22	29	25-Jun-22	29-Jul-22	84	0%					-	
	BP - Airlift, Cage Install and Concrete	25-Mar-22	02-Apr-22	8	30-Jul-22	08-Aug-22	264	0%						
04		20 11/01-22	02 / p=22	0	00 00-22	00/10g-22	204	0 70					1	1
P26-BP03.10	BP - Excavation	06-Apr-22	12-Apr-22	6	23-Jul-22	29-Jul-22	84	0%						
P26-BP03.20	BP - RCD Drilling	13-Apr-22	21-May-22	29	30-Jul-22	01-Sep-22	84	0%				1		
P26-BP03.30	BP - Airlift, Cage Install and Concrete	23-May-22	-	8	02-Sep-22	10-Sep-22	188	0%	-					
05		20111049-22	o i may-22	0	02-000-22	10 000-22	100	0 70	1					
B2C-20220618_bw Date: 18-Jun-22	Planned Bar 🔷 🔷 Milestone Critical Bar 🔶 🔶 Critical MS	Piling for 1	Integrated Ba	seme	ural District A nt and U/G Ro	ad in Zone 2E	3 2C			-		Date 4-Mar-22	Revision Check Rev.0 KL	ked Ap B
Date: 20-Jun-22_11:58 a 13 of 30	Baseline S Baseline MS	3 M			mme as of 17 CMWP Rev.0	June 2022		V	B		1. /			

Activity	ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual		Total Float		<u>/</u>		ine 2	July 13		August	September 15
						Start	Finsih		Complete	21 2			02 09 16	23 30 06		
		BP - Excavation	16-May-22		6	26-Aug-22	01-Sep-22	84	0%	2			1			1
	P26-BP01.20	BP - RCD Drilling	23-May-22	14-Jul-22	44	02-Sep-22	26-Oct-22	84	0%				<u></u>			
	12															
	P24&P27-BP14.30	BP - Airlift, Cage Install and Concrete	15-Jun-22	23-Jun-22	14	18-May-22 A	04-Jun-22 A		100%			-				1
	13												1 1 1 1			
	P28&P29-BP05.10	BP - Excavation			6	18-Jun-22	24-Jun-22	57	0%			<b>—</b>				
	P28&P29-BP05.20	BP - RCD Drilling			19	25-Jun-22	18-Jul-22	57	0%					1		
	P28&P29-BP05.30	BP - Airlift, Cage Install and Concrete			8	19-Jul-22	27-Jul-22	166	0%							
	14															
	P28&P29-BP09.10	BP - Excavation			6	12-Jul-22	18-Jul-22	57	0%							
	P28&P29-BP09.20	BP - RCD Drilling			19	19-Jul-22	09-Aug-22	57	0%		1					
	P28&P29-BP09.30	BP - Airlift, Cage Install and Concrete			8	10-Aug-22	18-Aug-22	155	0%							
	16											1				
	P24&P27-BP01.10	BP - Excavation	26-Aug-22	01-Sep-22	31	19-Apr-22 A	27-May-22 A		100%			1	1		_	-
	P24&P27-BP01.20	BP - RCD Drilling	02-Sep-22	08-Oct-22	13	28-May-22 A	14-Jun-22 A		100%							
	P24&P27-BP01.30	BP - Airlift, Cage Install and Concrete	10-Oct-22	18-Oct-22	11	15-Jun-22 A	27-Jun-22	299	100%		1					
	17															
	P24&P27-BP13.10	BP - Excavation	30-Sep-22	08-Oct-22	6	06-Sep-22	13-Sep-22	57	0%	1		-				
	P24&P27-BP13.20	BP - RCD Drilling	10-Oct-22	11-Nov-22	29	14-Sep-22	19-Oct-22	57	0%				1. 1. 1. 1. 1.			
	VD03															
ſ	02															
	P30-BP59.10	BP - Excavation	23-Feb-22	01-Mar-22	111	06-Jan-22 A	26-May-22 A		100%	-						
	P30-BP59.20	BP - RCD Drilling	02-Mar-22	04-Apr-22	7	27-May-22 A	06-Jun-22 A		100%							
	P30-BP59.30	BP - Airlift, Cage Install and Concrete	06-Apr-22	14-Apr-22	6	08-Jun-22 A	15-Jun-22 A		100%							
	06												r 			
	P30-BP75.10	BP - Excavation	23-Jun-22	29-Jun-22	6	06-Sep-22	13-Sep-22	-3	0%	1						
	P30-BP75.20	BP - RCD Drilling	30-Jun-22	03-Aug-22	29	14-Sep-22	19-Oct-22	-3	0%							
	16												1			1
	P30-BP65.10	BP - Excavation	23-Sep-22	29-Sep-22	8	16-Jun-22 A	24-Jun-22	118	100%	1			r i r			
	P30-BP65.20	BP - RCD Drilling	30-Sep-22	04-Nov-22	29	25-Jun-22	29-Jul-22	118	0%				i			
	P30-BP65.30	BP - Airlift, Cage Install and Concrete	05-Nov-22	14-Nov-22	8	30-Jul-22	08-Aug-22	140	0%					ė—		
	VD04						5									
	04															
	P30-BP66.10	BP - Excavation	21-Mar-22	26-Mar-22	38	28-May-22 A	13-Jul-22	24	100%				<u>.</u> 1			1
	P30-BP66.20	BP - RCD Drilling	28-Mar-22	14-Apr-22	15	14-Jul-22	30-Jul-22	24	0%				8	3		
	P30-BP66.30	BP - Airlift, Cage Install and Concrete	19-Apr-22	26-Apr-22	7	01-Aug-22	08-Aug-22	264	0%							
	05		10710122				ser lag LL		- /0							
		· · ·							-		1			: Nate Revisi	on Checked	Approved
Data	B2C-20220618_bw Date: 18-Jun-22 Date: 20-Jun-22_11:58	Planned Bar    Milestone Critical Bar    Critical MS	Piling for I	integrated Ba	semer	ural District A nt and U/G Ro mme as of 17	ad in Zone 2E	3 2C	V			H- (	4 3 4 00 1		KL	В
	24 of 30	Baseline Saseline MS				CMWP Rev.0	oorenteense officielitette and									

Activity	ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual Start	Forecast / Actual Finsih	Total Float	Activity % Complete	<u> </u>	J	une 12	July 13	August 14	September 15
						0.000				21	28 04 1	1 18 25	02 09 16 23	30 06 13 20 2	27 03 10 7
	P30-BP73.10	BP - Excavation	08-Apr-22	14-Apr-22	25		24-May-22 A		100%	Γ_					
	P30-BP73.20	BP - RCD Drilling	19-Apr-22	06-May-22	12	25-May-22 A			100%			_			
	P30-BP73.30	BP - Airlift, Cage Install and Concrete	07-May-22	16-May-22	14	10-Jun-22 A	25-Jun-22	300	100%	<					
		PD Aidiff Care Install and Constate	20 Aug 22	OF Cop 22	14	11 May 22 A	27 May 22 A		100%						
	12	BP - Airlift, Cage Install and Concrete	29-Aug-22	05-5ep-22	14	11-May-22 A	ZI-Way-ZZ A		100%			1	1 1 1 1		
	P30-BP74.10	BP - Excavation	22-Aug-22	27-Aug-22	6	16-Sep-22	22-Sep-22	24	0%						
	VD06														
	02														
	P28&P29-BP11.10	BP - Excavation			6	18-Jun-22	24-Jun-22	99	0%						
	P28&P29-BP11.20	BP - RCD Drilling			15	25-Jun-22	13-Jul-22	99	0%	1	1		1		
	P28&P29-BP11.30	BP - Airlift, Cage Install and Concrete			7	14-Jul-22	21-Jul-22	251	0%						
	03												1 1 1		
	P28&P29-BP03.10	BP - Excavation			11	16-May-22 A	28-May-22 A		100%	<b>—</b>			1 8 8 8		
	P28&P29-BP03.20	BP - RCD Drilling			3	30-May-22 A	02-Jun-22 A		100%	1					
	P28&P29-BP03.30	BP - Airlift, Cage Install and Concrete			7	04-Jun-22 A	13-Jun-22 A		100%						
	04														
	P28&P29-BP01.10	BP - Excavation			20	04-May-22 A	28-May-22 A		100%						
	P28&P29-BP01.20	BP - RCD Drilling			6	30-May-22 A	07-Jun-22 A		100%		<u> </u>		1 1 1 1		
	P28&P29-BP01.30	BP - Airlift, Cage Install and Concrete			44	08-Jun-22 A	29-Jul-22	251	100%			-	1		
	05												1 1 1		
	P28&P29-BP15.10	BP - Excavation			6	07-Jul-22	13-Jul-22	99	0%	1					
	P28&P29-BP15.20	BP - RCD Drilling			15	14-Jul-22	30-Jul-22	99	0%	1					
	P28&P29-BP15.30	BP - Airlift, Cage Install and Concrete			7	01-Aug-22	08-Aug-22	250	0%	1			1 1 1	<b>—</b>	
	06										1				
	P28&P29-BP13.10	BP - Excavation			6	25-Jul-22	30-Jul-22	99	0%	1					
	P28&P29-BP13.20	BP - RCD Drilling			15	01-Aug-22	17-Aug-22	99	0%						
	P28&P29-BP13.30	BP - Airlift, Cage Install and Concrete			7	18-Aug-22	25-Aug-22	242	0%				1. 9. 1.		
	07												1 1 1		
	P28&P29-BP02.10	BP - Excavation			6	11-Aug-22	17-Aug-22	99	0%						
	P28&P29-BP02.20	BP - RCD Drilling			15	18-Aug-22	03-Sep-22	99	0%						1
	P28&P29-BP02.30	BP - Airlift, Cage Install and Concrete			7	05-Sep-22	13-Sep-22	234	0%						
	08												8 8 8 8		
	P28&P29-BP07.10	BP - Excavation			10	14-Jun-22 A	24-Jun-22	144	100%						
	P28&P29-BP07.20	BP - RCD Drilling			15	25-Jun-22	13-Jul-22	144	0%			-	1		
	P28&P29-BP07.30	BP - Airlift, Cage Install and Concrete			7	14-Jul-22	21-Jul-22	272	0%						
	09													1	
Data Print	B2C-20220618_bw Date: 18-Jun-22 Date: 20-Jun-22_11:58 15 of 30	Planned Bar       Milestone         Critical Bar       Critical MS         Baseline       Baseline MS	Piling for 1	Integrated Ba onth Rolling	isemei Progra	ural District A nt and U/G Ro mme as of 17 CMWP Rev.0	ad in Zone 2E	3 2C	V	B	10	H- (	4-Mar-22	Revision Checked Rev.0 KL	B B

Activity	/ ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual		Total Float		/ June 12	July	August	September 15
						Start	Finsih		Complete		02 09 16 23	30 06 13 20 2	
	P28&P29-BP14.10	BP - Excavation			6	29-Aug-22	03-Sep-22	99	0%				
	P28&P29-BP14.20	BP - RCD Drilling			15	05-Sep-22	22-Sep-22	99	0%				
	10												
	P28&P29-BP12.30	BP - Airlift, Cage Install and Concrete			12	16-May-22 A	30-May-22 A		100%				
	12												
	P28&P29-BP24.10	BP - Excavation			6	16-Sep-22	22-Sep-22	99	0%				•
	14												
	P28&P29-BP31.10	BP - Excavation			13	31-May-22 A	16-Jun-22 A		100%				
	P28&P29-BP31.20	BP - RCD Drilling			16	17-Jun-22 A	06-Jul-22	195	40%				
	P28&P29-BP31.30	BP - Airlift, Cage Install and Concrete			7	07-Jul-22	14-Jul-22	243	0%	1000			
	VD07												
	01												
	P24&P27-BP25.10	BP - Excavation	18-Jan-22	24-Jan-22	6	18-Jun-22	24-Jun-22	-52	0%				
	P24&P27-BP25.20	BP - RCD Drilling	25-Jan-22	02-Mar-22	29	25-Jun-22	29-Jul-22	-52	0%				
	P24&P27-BP25.30	BP - Airlift, Cage Install and Concrete	03-Mar-22	11-Mar-22	8	30-Jul-22	08-Aug-22	164	0%		-		
	04												
	P24&P27-BP19.10	BP - Excavation	11-Apr-22	20-Apr-22	6	15-Aug-22	20-Aug-22	-52	0%				
	P24&P27-BP19.20	BP - RCD Drilling	21-Apr-22	26-May-22	29	22-Aug-22	24-Sep-22	-52	0%				
	15												
	P28&P29-BP26.10	BP - Excavation			13	10-Jun-22 A	24-Jun-22	226	100%				
	P28&P29-BP26.20	BP - RCD Drilling			29	25-Jun-22	29-Jul-22	226	0%				
	P28&P29-BP26.30	BP - Airlift, Cage Install and Concrete			8	30-Jul-22	08-Aug-22	248	0%		Ē		
	VD09						7.9						
	03												
	CBA-BPC59Ka.10	BP - Excavation	19-May-22	25-May-22	6	02-Sep-22	08-Sep-22	-58	0%	<			
	CBA-BPC59Ka.20	BP - RCD Drilling	26-May-22	07-Jun-22	10	09-Sep-22	21-Sep-22	-58	0%				
	04												
	CBA-BPC58Jb.10	BP - Excavation	31-May-22	07-Jun-22	6	15-Sep-22	21-Sep-22	-58	0%				
	19												
	CBA-BPC54K.10	BP - Excavation	29-Mar-23	04-Apr-23	18	23-May-22 A	14-Jun-22 A		100%				
	CBA-BPC54K.20	BP - RCD Drilling	06-Apr-23	16-May-23	34	15-Jun-22 A	25-Jul-22	239	58.06%				
	CBA-BPC54K.30	BP - Airlift, Cage Install and Concrete	17-May-23	23-May-23	6	26-Jul-22	01-Aug-22	264	0%				
	VD10	-		_									
1	14												
	CBA-BPC52Ka.10	BP - Excavation	05-Oct-22	11-Oct-22	46	22-Mar-22 A	21-May-22 A		100%				
	CBA-BPC52Ka.20	BP - RCD Drilling	12-Oct-22	16-Nov-22	2		25-May-22 A		100%				
	CBA-BPC52Ka.30	BP - Airlift, Cage Install and Concrete	17-Nov-22	23-Nov-22	12	26-May-22 A	10-Jun-22 A		100%				
Data Prin	2B2C-20220618_bw a Date: 18-Jun-22 t Date: 20-Jun-22_11:58 e 16 of 30	Planned Bar       Image: Second	Piling for I	ntegrated Ba onth Rolling	isemer Progra	ural District An nt and U/G Ro mme as of 17 CMWP Rev.0	ad in Zone 2E	3 2C	V	BRO 🕂 🔇	Date 4-Mar-22	Revision Checked Rev.0 KL	Approved B

Activity	/ ID	Activity Name	Baseline Start	Baseline Finish	Dur		Forecast / Actual	Total Float		/		une 12	July	Augus	st S	eptember
						Start	Finsih		Complete	21			02 09 16 23	30 06 13	20 27	15 03   10  7
	KD08 (Section 4)												1			
	Trial Pile (P30-BP15)															
												4	1			
	MO.1090	Initial Mobilization for BP (CCG / KD08 / KD04)	15-Sep-21	15-Nov-21	230	05-Nov-21 A	16-Aug-22	226	90%		1		1 1 1		1	
	Bored Piles										+			-		
	VD01															
	04															
	P26-BP12.10	BP - Excavation	09-Apr-22	19-Apr-22	6	18-Jun-22	24-Jun-22	9	0%			0				
	P26-BP12.20	BP - RCD Drilling	20-Apr-22	25-May-22	29	25-Jun-22	29-Jul-22	9	0%		1		1			
	P26-BP12.30	BP - Airlift, Cage Install and Concrete	26-May-22	04-Jun-22	8	30-Jul-22	08-Aug-22	156	0%		÷			<u> </u>		
	VD03	5					0						1			
	03												1 1 1 1			
	P30-BP44.10	BP - Excavation	29-Mar-22	04-Apr-22	6	18-Jun-22	24-Jun-22	-3	0%				8 8 1		1	
	P30-BP44.20	BP - RCD Drilling	06-Apr-22	14-May-22	29	25-Jun-22	29-Jul-22	-3	0%							
	P30-BP44.30	BP - Airlift, Cage Install and Concrete	16-May-22	24-May-22	8	30-Jul-22	08-Aug-22	140	0%					÷		
	04															
	P30-BP50.10	BP - Excavation	07-May-22	14-May-22	6	23-Jul-22	29-Jul-22	-3	0%	1						
	P30-BP50.20	BP - RCD Drilling	16-May-22	07-Jun-22	19	30-Jul-22	20-Aug-22	-3	0%		<u> </u>					
	P30-BP50.30	BP - Airlift, Cage Install and Concrete	08-Jun-22	16-Jun-22	8	22-Aug-22	30-Aug-22	129	0%			-	1 1 1			
	05										1					0000000000
	P30-BP55.10	BP - Excavation	31-May-22	07-Jun-22	6	15-Aug-22	20-Aug-22	-3	0%		$\leftarrow$			-	•	
	P30-BP55.20	BP - RCD Drilling	08-Jun-22	29-Jun-22	19	22-Aug-22	13-Sep-22	-3	0%							
	P30-BP55.30	BP - Airlift, Cage Install and Concrete	30-Jun-22	09-Jul-22	8	14-Sep-22	22-Sep-22	118	0%				<u> </u>			
	10															
	P30-BP45.10	BP - Excavation	28-Nov-22	03-Dec-22	29	14-May-22 A	18-Jun-22	144	100%		1					
	P30-BP45.20	BP - RCD Drilling	05-Dec-22	10-Jan-23	29	18-Jun-22	22-Jul-22	144	0%		1		1	1		
	P30-BP45.30	BP - Airlift, Cage Install and Concrete	11-Jan-23	19-Jan-23	8	23-Jul-22	01-Aug-22	154	0%						1	
	VD04												1 1 1			
	01										ļ					
	P30-BP41.10	BP - Excavation	19-Jan-22	25-Jan-22	78		19-May-22 A		100%							
	P30-BP41.20	BP - RCD Drilling	26-Jan-22	15-Feb-22	4	the state of the second second second	25-May-22 A		100%				1 1 1			
	P30-BP41.30	BP - Airlift, Cage Install and Concrete	16-Feb-22	23-Feb-22	10	26-May-22 A	08-Jun-22 A		100%	_	-	-				
	02															
	P30-BP47.10	BP - Excavation	09-Feb-22	15-Feb-22	6	18-Jun-22	24-Jun-22	24	0%							
	P30-BP47.20	BP - RCD Drilling	16-Feb-22	04-Mar-22	15	25-Jun-22	13-Jul-22	24	0%		1		i.	1		
Data Prin	2B2C-20220618_bw a Date: 18-Jun-22 t Date: 20-Jun-22_11:58 e 17 of 30	Planned Bar       Image: State S	Piling for I	ntegrated Ba onth Rolling	asemei Progra	ural District A nt and U/G Ro mme as of 17 CMWP Rev.0	ad in Zone 2B	2C	V	B		H- (	4-Mar-22	Revision Rev.0	Checked B	Approved

Activity	ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual Start	Forecast / Actual Finsih	Total Float	Activity % Complete	/	J	une 12	July 13	AL	igust S 14	September 15
	P30-BP47.30	BP - Airlift, Cage Install and Concrete	05-Mar-22	12-Mar-22	7	14-Jul-22	21-Jul-22	171	0%	21 2	8 04 1	1 18 25	5 02 09 16	23 30 06	13 20 27	03 10 7
	06	BF - Almit, Cage Install and Conclete	05-101-22	12-Wal-22	1	14-Jul-22	Z I-JUI-ZZ	171	0%							
	P30-BP62.10	BP - Excavation	29-Apr-22	06-May-22	6	25-Jul-22	30-Jul-22	24	0%							
	P30-BP62.20	BP - RCD Drilling	07-May-22	25-May-22	15	01-Aug-22	17-Aug-22	24	0%		1			)	-	
	P30-BP62.30	BP - Airlift, Cage Install and Concrete	26-May-22	02-Jun-22	7	18-Aug-22	25-Aug-22	127	0%							
	07		Lo may LL	OL OUT LL		io ridg 22	Loridger	121	070	T	T					
	P30-BP42.10	BP - Excavation	19-May-22	25-May-22	6	11-Aug-22	17-Aug-22	24	0%		1					
	P30-BP42.20	BP - RCD Drilling	26-May-22	13-Jun-22	15	18-Aug-22	03-Sep-22	24	0%			2				
	P30-BP42.30	BP - Airlift, Cage Install and Concrete	14-Jun-22	21-Jun-22	7	05-Sep-22	13-Sep-22	119	0%							
	08		TT GUT EE	LIGUITEE		00 000 22	10 000 22	110	070		1				·····	11210120200
	P30-BP46.10	BP - Excavation	07-Jun-22	13-Jun-22	6	29-Aug-22	03-Sep-22	24	0%			2				.
	P30-BP46.20	BP - RCD Drilling	14-Jun-22	30-Jun-22	15	05-Sep-22	22-Sep-22	24	0%				-			
	09		17001122	oo oun 22	10	00 00p 22	EE COP EE		070							
	P30-BP48.10	BP - Excavation	24-Jun-22	30-Jun-22	14	09-Jun-22 A	24-Jun-22	84	100%							
	P30-BP48.20	BP - RCD Drilling	02-Jul-22	19-Jul-22	15	25-Jun-22	13-Jul-22	84	0%				······			
	P30-BP48.30	BP - Airlift, Cage Install and Concrete	20-Jul-22	27-Jul-22	7	14-Jul-22	21-Jul-22	171	0%					_		
	15															
	P30-BP53.10	BP - Excavation	26-Oct-22	01-Nov-22	17	06-Jun-22 A	24-Jun-22	122	100%		-			-		
	P30-BP53.20	BP - RCD Drilling	02-Nov-22	18-Nov-22	15	25-Jun-22	13-Jul-22	122	0%					-		
	19													1		
	P30-BP54.30	BP - Airlift, Cage Install and Concrete	09-Feb-23	16-Feb-23	14	14-May-22 A	31-May-22 A		100%							
	VD05															
	02										1					
	P30-BP19.10	BP - Excavation	16-Dec-21	22-Dec-21	6	18-Jun-22	24-Jun-22	20	0%							
	P30-BP19.20	BP - RCD Drilling	23-Dec-21	28-Jan-22	29	25-Jun-22	29-Jul-22	20	0%				1			
	P30-BP19.30	BP - Airlift, Cage Install and Concrete	29-Jan-22	10-Feb-22	8	30-Jul-22	08-Aug-22	156	0%		1			Ļ.	1	
	03															
	P30-BP24.30	BP - Airlift, Cage Install and Concrete	24-Feb-22	04-Mar-22	9	12-May-22 A	23-May-22 A		100%			4		-		
	04											7			1	
	P30-BP31.10	BP - Excavation	17-Feb-22	23-Feb-22	6	23-Jul-22	29-Jul-22	20	0%							
	P30-BP31.20	BP - RCD Drilling	24-Feb-22	29-Mar-22	29	30-Jul-22	01-Sep-22	20	0%		1			Ļ.	÷.	
	P30-BP31.30	BP - Airlift, Cage Install and Concrete	30-Mar-22	08-Apr-22	8	02-Sep-22	10-Sep-22	120	0%							
	05															
	P30-BP34.10	BP - Excavation	23-Mar-22	29-Mar-22	6	26-Aug-22	01-Sep-22	20	0%						с į	
	P30-BP34.20	BP - RCD Drilling	30-Mar-22	20-Apr-22	15	02-Sep-22	20-Sep-22	20	0%							
	07										1			1		
	P30-BP28.10	BP - Excavation	05-May-22	12-May-22	6	14-Sep-22	20-Sep-22	20	0%							
Data Print	B2C-20220618_bw Date: 18-Jun-22 Date: 20-Jun-22_11:58 a 18 of 30	Planned Bar       Milestone         Critical Bar       Critical MS         Baseline       Baseline MS	Piling for I	integrated Ba onth Rolling	asemei Progra	ural District A nt and U/G Ro mme as of 17 CMWP Rev.0	ad in Zone 2B	3 2C	V	B		H (	4-Mar-22		Checked KL E	Approved B

Activity ID		Activity Name	Baseline Start	Baseline Finish	Dur		Forecast / Actual	Total Float	Activity % / Complete	J	une 12	July 13	August	September 15
				5		Start	Finsih		Complete	21 28 04 1	1 18 25	02 09 16 2	3 30 06 13	
	09							100						
	P30-BP30.10	BP - Excavation	11-Jun-22	17-Jun-22	22	30-May-22 A	24-Jun-22	166	100%					
	P30-BP30.20	BP - RCD Drilling	18-Jun-22	11-Jul-22	19	25-Jun-22	18-Jul-22	166	0%		-			
	P30-BP30.30	BP - Airlift, Cage Install and Concrete	12-Jul-22	20-Jul-22	8	19-Jul-22	27-Jul-22	166	0%				•	
	10							150	10001				8. 8. 8.	
	P30-BP32.10	BP - Excavation	05-Jul-22	11-Jul-22	39	10-May-22 A	24-Jun-22	156	100%					
	P30-BP32.20	BP - RCD Drilling	12-Jul-22	13-Aug-22	29	25-Jun-22	29-Jul-22	156	0%					
	P30-BP32.30	BP - Airlift, Cage Install and Concrete	15-Aug-22	23-Aug-22	8	30-Jul-22	08-Aug-22	156	0%					-
	17													
	P30-BP27.10	BP - Excavation	08-Aug-22	13-Aug-22	45	30-Apr-22 A	24-Jun-22	171	100%	1				
	P30-BP27.20	BP - RCD Drilling	15-Aug-22	31-Aug-22	15	25-Jun-22	13-Jul-22	171	0%				_	
	P30-BP27.30	BP - Airlift, Cage Install and Concrete	01-Sep-22	08-Sep-22	7	14-Jul-22	21-Jul-22	171	0%					
	18													
	P30-BP22.10	BP - Excavation	25-Aug-22	31-Aug-22	7		02-Jun-22 A		100%				8	
	P30-BP22.20	BP - RCD Drilling	01-Sep-22	19-Sep-22	4	04-Jun-22 A	09-Jun-22 A		100%					
	P30-BP22.30	BP - Airlift, Cage Install and Concrete	20-Sep-22	27-Sep-22	14	10-Jun-22 A	25-Jun-22	170	100%					
	19													
	P30-BP35.10	BP - Excavation	13-Sep-22	19-Sep-22	6	18-Jun-22	24-Jun-22	136	0%				1 1 1	_
	P30-BP35.20	BP - RCD Drilling	20-Sep-22	08-Oct-22	15	25-Jun-22	13-Jul-22	136	0%					
	P30-BP35.30	BP - Airlift, Cage Install and Concrete	10-Oct-22	17-Oct-22	7	14-Jul-22	21-Jul-22	156	0%					
	20							_						
	P30-BP29.10	BP - Excavation	30-Sep-22	08-Oct-22	6	07-Jul-22	13-Jul-22	136	0%			( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )		
	P30-BP29.20	BP - RCD Drilling	10-Oct-22	26-Oct-22	15	14-Jul-22	30-Jul-22	136	0%					
	P30-BP29.30	BP - Airlift, Cage Install and Concrete	27-Oct-22	03-Nov-22	7	01-Aug-22	08-Aug-22	148	0%					
	21													
	P30-BP37.10	BP - Excavation	20-Oct-22	26-Oct-22	6	25-Jul-22	30-Jul-22	136	0%					_
	P30-BP37.20	BP - RCD Drilling	27-Oct-22	17-Nov-22	19	01-Aug-22	22-Aug-22	136	0%					
	P30-BP37.30	BP - Airlift, Cage Install and Concrete	18-Nov-22	26-Nov-22	8	23-Aug-22	31-Aug-22	136	0%					
	TD01									-				
	06								-					
	P30-BP11.10	BP - Excavation	07-May-22	14-May-22	6	18-Jun-22	24-Jun-22	7	0%					
	P30-BP11.20	BP - RCD Drilling	16-May-22	07-Jun-22	19	25-Jun-22	18-Jul-22	7	0%					
	P30-BP11.30	BP - Airlift, Cage Install and Concrete	08-Jun-22	16-Jun-22	8	19-Jul-22	27-Jul-22	18	0%		-		-	
	08					1							1	
	P30-BP02.10	BP - Excavation	23-Jun-22	29-Jun-22	20	16-May-22 A	09-Jun-22 A		100%					
	P30-BP02.20	BP - RCD Drilling	30-Jun-22	18-Jul-22	5	10-Jun-22 A	16-Jun-22 A		100%					
	P30-BP02.30	BP - Airlift, Cage Install and Concrete	19-Jul-22	26-Jul-22	52	17-Jun-22 A	17-Aug-22	140	85.71%		1	>		
ID: 2B2C-20220618_bw Data Date: 18-Jun-22 Print Date: 20-Jun-22_11:58 Page 19 of 30 Page 19 of 30 ID: 2B2C-20220618_bw Data Date: 18-Jun-22 Print Date: 20-Jun-22_11:58 Page 19 of 30 ID: 4Miestone Planned Bar $\diamond$ $\diamond$ Milestone $\diamond$ Critical MS $\diamond$ Baseline MS ID: 4Miestone $\diamond$ Critical MS $\diamond$ Baseline MS ID: 4Miestone $\diamond$ Critical MS $\diamond$ Baseline MS ID: 4Miestone $\phi$ Critical MS $\phi$ Baseline MS											Checked Approved B			

No.         Low         Low <thlow< th=""> <thlow< th=""> <thlow< th=""></thlow<></thlow<></thlow<>	Activity	ID	Activity Name	Baseline Start	Baseline Finish	Dur			Total Float		/	Jun 12		July	August	September 15
P304P1610       BP - Examplion       12-M/22       16-M/22       6       03-M/222       98       0%         P304P1630       BP - AMR, Cage Install and Concete       10-M/222       16-M/222       18-M/222       38       01-Sep-22       298       0%         P304P1630       BP - AMR, Cage Install and Concete       10-M/222       16-M/222       18-M/222       19-M/22	_						Start	Finsih		Complete	21 28				30 06 13 20	27 03 10 7
P304P16.20       BP - RCD Dilling       19-Juli22       19-Juli22       31-Juli222       69       0%         P304P16.30       BP - Attift, Cage Install and Concete       10-Juli22       18-Juli22       18-Juli222       19       00%         P304P16.30       BP - Attift, Cage Install and Concete       10-Juli22       28-Boy22       10-Stopp 22       1																
P2042P18.30       IP - Auft, Cage Install and Concrete       10Aug.22       18Aug.22       8       01-Sep.22       08-Sep.22       128       0%         P3042P14.30       IP - Auft, Cage Install and Concrete       15-Sep.22       2.2 Sep.22       3       19Aug.22       18Aug.22       100%         P3042P14.30       IP - Auft, Cage Install and Concrete       15-Sep.22       2.2 Sep.22       3       19Aug.22       18Aug.22       1900       0%         P3042P14.30       IP - Auft, Cage Install and Concrete       15-Sep.22       0.3 Sep.22       13-Sep.22       0.3 Sep.22       0.9 Se		P30-BP18.10	BP - Excavation	12-Jul-22		6	03-Aug-22	09-Aug-22	69	0%						1
P30       P1-cc       P304P14.30       BP - RCD Dilling       27-Aug-22       14-Sep-22       8       07-May-22 A       19-Mag-22 A       100%         P304P14.30       BP - Axitif, Cage Install and Concrete       15-Sep-22       22-Sep-22       3       19-Mag-22 A       23-Mag-22 A       19-Mag-22 A       100%         P304P16.10       BP - Excavation       07-Sep-22       14-Sep-22       6       25-Mag-22       19-Sep-22       69       0%         P304BP16.10       BP - Excavation       12-Sep-22       10-Sep-22       19-Sep-22       69       0%         P304BP10.10       BP - Excavation       12-Sop-22       12-Nov-22       13-Sep-22       69       0%         P304BP10.10       BP - Excavation       12-Sop-22       12-Nov-22       12		P30-BP18.20	BP - RCD Drilling	19-Jul-22	09-Aug-22	19	10-Aug-22	31-Aug-22	69	0%				5		
P30/26P14.30       BP - Arith, Cage Install and Concrete       15-Sep-22       23       19-May-22A       100%         P30/26P10.30       BP - Excavation       07-Sep-22       14-Sep-22       6       25-May-22A       100%         P30/26P10.30       BP - Excavation       07-Sep-22       14-Sep-22       6       25-May-22A       19-Sep-22       68       0%         P30/26P10.30       BP - Excavation       25-Sep-22       0.3       19-Sep-22       69       0%         P30/26P10.30       BP - Excavation       25-Sep-22       0.3       19-Sep-22       69       0%         P30/26P10.30       BP - Arith, Cage Install and Concrete       15-Oct-22       10-Oct-22       10-Sep-22       69       0%         P30/26P10.30       BP - Arith, Cage Install and Concrete       15-Oct-22       10-Oct-22       10-Sep-22       81       12-Mu/22       172       0%         P30/26P17.20       BP - Arith, Cage Install and Concrete       06-Oct-22       19       25-Mu/22       12-Mu/22       13-Mu/22       12-Mu/22       13-Mu/22		P30-BP18.30	BP - Airlift, Cage Install and Concrete	10-Aug-22	18-Aug-22	8	01-Sep-22	09-Sep-22	128	0%						
P30/26P14.30       BP - Arith, Cage Install and Concrete       15-Sep-22       23       19-May-22A       100%         P30/26P10.30       BP - Excavation       07-Sep-22       14-Sep-22       6       25-May-22A       100%         P30/26P10.30       BP - Excavation       07-Sep-22       14-Sep-22       6       25-May-22A       19-Sep-22       68       0%         P30/26P10.30       BP - Excavation       25-Sep-22       0.3       19-Sep-22       69       0%         P30/26P10.30       BP - Excavation       25-Sep-22       0.3       19-Sep-22       69       0%         P30/26P10.30       BP - Arith, Cage Install and Concrete       15-Oct-22       10-Oct-22       10-Sep-22       69       0%         P30/26P10.30       BP - Arith, Cage Install and Concrete       15-Oct-22       10-Oct-22       10-Sep-22       81       12-Mu/22       172       0%         P30/26P17.20       BP - Arith, Cage Install and Concrete       06-Oct-22       19       25-Mu/22       12-Mu/22       13-Mu/22       12-Mu/22       13-Mu/22		11														
P30       P30-BP010       BP - Excavation       O7-Sep:22       14-Sep:22       0       0%         P30-BP08.20       BP - RCD Dilling       15-Sep:22       03-Oct-22       15       01-Sep:22       19-Sep:22       09       0%         P30-BP06.10       BP - Excavation       26-Sep:22       03-Oct-22       15       01-Sep:22       19-Sep:22       69       0%         P30-BP06.10       BP - Excavation       15-Oct-22       21-Oct-22       20       25-May-22       19-Sep:22       69       0%         P30-BP06.10       BP - Excavation       15-Oct-22       21-Oct-22       20       25-May-22       19-Sep:22		P30-BP14.20	BP - RCD Drilling	27-Aug-22	14-Sep-22	8	07-May-22 A	18-May-22 A		100%						
P30-BP09.10       BP - Excavation       07.5ep-22       14.5ep-22       6       25.4up-22       314.ug+22       69       0%         13       BP - ACD Dilling       15.5ep-22       03.04:22       6       13.5ep-22       09       0%         14       BP - Excavation       26.5ep-22       03.04:22       6       13.5ep-22       09       0%         14       BP - Excavation       15.04:22       21.04:22       20       25.4up-22       19.2ip-22       09       0%         16       BP - Excavation       15.04:22       21.04:22       20       25.4up-22       172       0%         16       BP - Excavation       15.04:22       21.04:22       20       24.4un-22       172       0%         16       BP - Atifft, Cage Install and Concrete       14.4ev-22       25.0e-22       19       25.4up-22       137       100%         P30.BP17.10       BP - Excavation       06-Jan-23       12.van-23       31       20.4pr-22 A       18.4up-22       100%         P30.BP17.20       BP - Atifft, Cage Install and Concrete       06-Jan-23       12.van-23       5       30.4up-22 A       10.0b/42       100%         P30.BP17.20       BP - Atifft, Cage Install and Concrete       06-Jan-22 A       <		P30-BP14.30	BP - Airlift, Cage Install and Concrete	15-Sep-22	22-Sep-22	3	19-May-22 A	23-May-22 A		100%						=
P30.BP09.20       BP - RCD Drilling       19 Sep-22       03 - Od-22       19 - Sep-22       19 - Sep-22       69       0%         P30.BP16.10       BP - Excavation       20 - Sep-22       03 - Od-22       19 - Sep-22       19 - Sep-22       69       0%         P30.BP04.10       BP - Excavation       15 - Od-22       21 - Od-22       22 - Od-22       19 - Sep-22       19 - Sep-22       19 - Sep-22       19 - Od-04         P30.BP04.20       BP - Atift, Cage Install and Concrete       14 - Nov-22       22 - Nov-22       8       16 - Jun-22       11 - Jul-22       17 - Jul-24       10 - Jul-24       10 - Jul-24		12														
13         14         15         16         17         16         17         17         17           14         15         265-8p-22         03-024-22         6         13-Sep-22         69         0%           14         15-024-22         21-024-22         21-024-22         19-Sep-22         69         0%           P30-BP04.10         BP - Excavation         15-024-22         21-024-22         13-Mu-22         172         0%           P30-BP04.30         BP - Axiff, Cage Install and Concrete         14-Mu-22         22-Mu-22         13-Mu-22         172         0%           15         03-08-12.10         BP - Excavation         07-Nu-22         12-Mu-22         13-Mu-22         172         0%           P30-BP12.10         BP - Excavation         07-Nu-22         12-Mu-22         12-Mu-22         13-Mu-22         13-Mu-22         13-Mu-22         13-Mu-22         14-Mu-22         14-M		P30-BP09.10	BP - Excavation	07-Sep-22	14-Sep-22	6	25-Aug-22	31-Aug-22	69	0%					-	
P30-BP16.10       BP - Excavation       26-Sep-22       03-Oct-22       6       13-Sep-22       69       0%         P30-BP04.10       BP - Excavation       15-Oct-22       21-Oct-22       20       25-May-22       18-Jun-22       172       100%         P30-BP04.30       BP - Aviift, Cage Install and Concrete       14-Nov-22       21-Nov-22       19       18-Jun-22       172       0%         P30-BP12.10       BP - Excavation       07-Nov-22       12-Nov-22       8       12-Jul-22       172       0%         P30-BP12.20       BP - Excavation       07-Nov-22       12-Nov-22       8       12-Jul-22       137       100%         P30-BP12.30       BP - Aviift, Cage Install and Concrete       06-Dec-22       14-Dec-22       18-Jul-22       137       100%         P30-BP12.30       BP - Excavation       06-Jan-23       12-Jul-22       27-Jul-22       107       0%         P30-BP17.30       BP - Excavation       06-Jan-23       12-Jul-22       27-Jul-22       100%       100%         P30-BP17.30       BP - Axiift, Cage Install and Concrete       06-Jan-23       12-Jan-22       0-Jul-22       7-Jul-22       50       0%         P30-BP17.30       BP - Excavation       06-Jan-23       12-Jan-22		P30-BP09.20	BP - RCD Drilling	15-Sep-22	03-Oct-22	15	01-Sep-22	19-Sep-22	69	0%						
14         Page Pol.10         PF-Excavation         15-Oct-22         21-Oct-22         172         10%           P30.BP04.30         BP - RCD Dilling         22-Oct-22         12-Alwo-22         1         12-2         172         0%           P30.BP04.30         BP - Axitift, Cage Install and Concrete         14-Nov-22         22-Nov-22         8         12-Jul-22         20-Jul-22         137         100%           P30.BP12.10         BP - Excavation         07-Nov-22         12-Alwo-22         8         16-Jun-22A         24-Jun-22         137         100%           P30.BP12.10         BP - Excavation         07-Nov-22         12-Alwo-22         8         16-Jun-22A         24-Jun-22         137         100%           P30.BP12.20         BP - RCD Dilling         14-Nov-22         12-Alwo-23         12-Jan-23         11         20-Apr-22A         28-May-22A         100%           P30.BP17.20         BP - RCD Dilling         06-Jan-23         12-Jan-23         12-Jan-23         16-Jan-23         100%           P30.BP17.20         BP - RCD Dilling         03-Apr-22         16-Feb-23         6         06-Jun-22         100%           P30.BP17.30         BP - Axitift, Cage Install and Concrete         08-Feb-23         16-Feb-23         08-Jun-22<		13													9 * * * * * * * * * * * * * * * * * * *	
P30-BP04.10       BP - Excavation       15-Od-22       21-Od-22       20       25-May-22 A       18-Jun-22       172       100%         P30-BP04.20       BP - Aitlift, Cage Install and Concrete       14-Nov-22       22-Nov-22       8       12-Jul-22       172       10%         P30-BP04.20       BP - Aitlift, Cage Install and Concrete       14-Nov-22       22-Nov-22       8       12-Jul-22       172       10%         P30-BP12.10       BP - Excavation       07-Nov-22       22-Nov-22       8       16-Jun-22 A       24-Jul-22       173       100%         P30-BP12.30       BP - Aitlift, Cage Install and Concrete       06-Dec-22       18       19-Jul-22       127       10%         P30-BP17.30       BP - Aitlift, Cage Install and Concrete       06-Dec-23       16 - Feb-23       6       06-Jun-22 A       100%         P30-BP17.30       BP - Aitlift, Cage Install and Concrete       08-Feb-23       6       08-Jun-22 A       100%         P30-BP17.30       BP - Aitlift, Cage Install and Concrete       08-Feb-23       6       08-Jun-22 A       100%         P26-BP15.10       BP - Excavation       23-Apr-22       6       08-Jun-22       13-Jul-22       55       0%         P26-BP15.30       BP - RCD Dniling       24-May-22		P30-BP16.10	BP - Excavation	26-Sep-22	03-Oct-22	6	13-Sep-22	19-Sep-22	69	0%						
P30-BP04.20       BP - RCD Drilling       22-Ock-22       12-Mov-22       19       18-Jun-22       11-Jul-22       172       0%         P30-BP04.30       BP - Atrift, Cage Install and Concrete       14-Wov-22       22-Wov-22       8       12-Jul-22       172       0%         15       BP - Excavalion       07-Mov-22       12-Mov-22       8       16-Jun-22       173       10%         P30-BP12.00       BP - Excavalion       07-Mov-22       12-Wov-22       8       16-Jun-22       24-Jun-22       137       10%         P30-BP12.30       BP - Atrift, Cage Install and Concrete       06-Dec-22       14       29-Jun-22       8       19-Jul-22       17.2       0%         P30-BP17.30       BP - Excavation       06-Jan-23       12-Jan-23       31       20-Apr-22A       28-May-22 A       100%         P30-BP17.30       BP - Excavation       06-Jan-23       12-Jan-23       6       08-Jun-22 A       100%         P30-BP17.30       BP - Excavation       06-Jan-22       16-Feb-23       6       08-Jun-22       100%         C6       BP - Excavation       29-Apr-22       6       30-Jun-22       70       100%         C8A-BPC52Va.10       BP - Excavation       19-May-22       19-May-22		14														
P30-BP04.30       BP - Akitft, Cage Install and Concrete       14+Nov-22       22-Nov-22       8       12-Jul-22       172       0%         P30-BP12.10       BP - Excavation       07-Nov-22       12+Nov-22       8       16-Jun-22       137       100%         P30-BP12.20       BP - FCD Drilling       14+Nov-22       05-Dec-22       19       25-Jun-22       18-Jul-22       137       100%         P30-BP12.30       BP - Akitft, Cage Install and Concrete       06-Dec-22       14-Dec-22       8       19-Jul-22       172.0%       0%         P30-BP17.10       BP - Excavation       06-Jan-23       12-Jan-23       31       20-Apr-22.A       29-May-22 A       100%         P30-BP17.30       BP - Akitft, Cage Install and Concrete       06-Jan-23       172       0%-Jun-22.A       100%         P30-BP17.30       BP - Akitft, Cage Install and Concrete       09-Fec22       13-Sphr22       6       30-Jun-22       07-Jul-22       5       0%         CBA-BPC52Va.10       BP - Excavation       23-Apr/22       29-Apr/22       6       30-Jun-22       07-Jul-22       5       0%         CBA-BPC52Va.30       BP - RCD Drilling       30-Apr/22       19-May-22       5       20-Jul-22       19-Jul-22       19-Jul-22       19-Jul-22 </td <td></td> <td>P30-BP04.10</td> <td>BP - Excavation</td> <td>15-Oct-22</td> <td>21-Oct-22</td> <td>20</td> <td>25-May-22 A</td> <td>18-Jun-22</td> <td>172</td> <td>100%</td> <td></td> <td></td> <td>•</td> <td></td> <td></td> <td></td>		P30-BP04.10	BP - Excavation	15-Oct-22	21-Oct-22	20	25-May-22 A	18-Jun-22	172	100%			•			
15         0 <th0< th="">         0         <th0< th=""> <th0< th=""></th0<></th0<></th0<>		P30-BP04.20	BP - RCD Drilling	22-Oct-22	12-Nov-22	19	18-Jun-22	11-Jul-22	172	0%			-			
P30-BP12.10       BP - Excavation       07-Nov-22       12-Nov-22       8       16-Jun-22 A       24-Jun-22       137       100%         P30-BP12.20       BP - RCD Dniling       14-Nov-22       05-Dec-22       19       25-Jun-22       137       10%         P30-BP12.30       BP - Abirtift, Cage Install and Concrete       06-Dec-22       14-Dec-22       8       19-Jul-22       152       0%         P30-BP17.10       BP - Excavation       06-Dec-23       12-Jan-23       11       20-Apr/22A       28-May-22A       100%         P30-BP17.20       BP - RCD Dniling       13-Jan-23       17-Dec-22       5       30-May-22A       100%         P30-BP17.30       BP - Airtift, Cage Install and Concrete       08-Feb-23       16-Feb-23       6       08-Jun-22A       100%         02       CBA-BPC52Va.30       BP - RCD Dniling       30-Apr/22       19-May-22       10       08-Jul-22       55       0%         02       CBA-BPC52Va.30       BP - Airtift, Cage Install and Concrete       14-May-22       19-May-22       10       08-Jul-22       55       0%         02       DB- Excavation       19-May-22       25-Jul-22       30-Jul-22       55       0%         04       P26-BP15.30       BP - Airtift, Ca		P30-BP04.30	BP - Airlift, Cage Install and Concrete	14-Nov-22	22-Nov-22	8	12-Jul-22	20-Jul-22	172	0%					*****************	
P30-BP12.20       BP - RCD Dnilling       14-Nov-22       05-Dec-22       19       25-Jun-22       18-Jul-22       137       0%         P30-BP12.30       BP - Alrift, Cage Install and Concrete       06-Dec-22       14       19-Jul-22       152       0%         P30-BP17.10       BP - Excavation       06-Jan-23       12-Jan-23       31       20-Apr-22 A       28-May-22 A       100%         P30-BP17.20       BP - RCD Dnilling       13-Jan-23       07-Feb-23       5       30-May-22 A       100%         P30-BP17.30       BP - Alrift, Cage Install and Concrete       08-Feb-23       16       08-Jun-22 A       100%         0700       00-Brec22 Va.10       BP - Excavation       23-Apr-22       29-Apr-22       10       08-Jun-22 A       100%         06       08-Feb-23       16       30-Jun-22 A       10.0%       09-Jul-22       55       0%         0700       08       BP - RCD Dnilling       30-Apr-22       19-Apr-22 A       10.0%       08-Jun-22 A       10.0%         08-ABPC52Va.20       BP - RCD Dnilling       30-Apr-22       19-Apr-22 A       10.0%       09-Jul-22 A       55       0%         04       0       09-Apr-22       25-May-22 A       10       08-Sep-22 A       55		15														
P30-BP12.30       BP - Altifit, Cage Install and Concrete       06-Dec/22       14-Dec/22       8       19-Jul-22       27-Jul-22       152       0%         18       P30-BP17.30       BP - Excavation       06-Jan-23       12-Jan-23       31       20-Apr/22 A       28-May-22 A       100%         P30-BP17.30       BP - Aktlift, Cage Install and Concrete       08-Fab-23       6       08-Jun-22       15-Jun-22 A       100%         P30-BP17.30       BP - Aktlift, Cage Install and Concrete       08-Fab-23       6       08-Jun-22       15-Jun-22 A       100%         P30-BP17.30       BP - Aktlift, Cage Install and Concrete       08-Fab-23       6       08-Jun-22       15-Jun-22 A       100%         P30-BP17.30       BP - Excavation       23-Apr/22       29-Apr/22       6       30-Jun-22       17-Jul-22       55       0%         CBA-BPC52Va.20       BP - Excavation       23-Apr/22       19-May-22       19-Jul-22       25-Jul-22       30-Jul-22       55       0%         CBA-BPC52Va.30       BP - Aktlift, Cage Install and Concrete       19-May-22       19-Jul-22       30-Jul-22       55       0%         P26-BP15.30       BP - Aktlift, Cage Install and Concrete       04-Jul-22       02-Jul-22       05-Sep-22       55       0%		P30-BP12.10	BP - Excavation	07-Nov-22	12-Nov-22	8	16-Jun-22 A	24-Jun-22	137	100%		•				
18           P30-BP17.10         BP - Excavation         06-Jan-23         31         20-Apr.22 A         28-May-22 A         100%           P30-BP17.20         BP - RCD Dnilling         13-Jan-23         31         20-Apr.22 A         28-May-22 A         100%           P30-BP17.30         BP - Alifit, Cage Install and Concrete         08-Feb-23         6         08-Jun-22 A         15-Jun-22 A         100%           02         CBA-BPC52Va.20         BP - Excavation         23-Apr.22         29-Apr.22         6         30-Jun-22         07-Jul-22         -55         0%           CBA-BPC52Va.20         BP - RCD Dnilling         30-Apr.22         13-May-22         10         08-Jul-22         55         0%           CBA-BPC52Va.20         BP - RCD Dnilling         30-Apr.22         13-May-22         5         20-Jul-22         55         0%           CBA-BPC52Va.30         BP - Alifit, Cage Install and Concrete         14-May-22         25-Jul-22         30-Jul-22         55         0%           P26-BP15.10         BP - Excavation         19-May-22         02-Jul-22         31         01-Aug-22         05-Sep-22         55         0%           P26-BP15.30         BP - Alifit, Cage Install and Concrete         04-Jul-22         02-Jul-22<		P30-BP12.20	BP - RCD Drilling	14-Nov-22	05-Dec-22	19	25-Jun-22	18-Jul-22	137	0%						
P30-BP17.10       BP - Excavation       06-Jan-23       12-Jan-23       31       20-Apr-22A       28-May-22A       100%         P30-BP17.20       BP - RCD Drilling       13-Jan-23       07-Feb-23       5       30-May-22A       100%         P30-BP17.30       BP - Akrifft, Cage Install and Concrete       08-Feb-23       16-Feb-23       6       08-Jun-22A       100%         000       02       06       08-Feb-23       16-Feb-23       16-Feb-23       16       08-Jun-22       17-Jul-22       55       0%         02       06       08-Feb-23       16-Feb-23       16       08-Jun-22       07-Jul-22       55       0%         02       08       08-Jun-22       10-Jul-22       10-Jul-22       55       0%         04       08       08-Jul-22       10-Jul-22       10-Jul-22       55       0%         04       04       04       04-Jul-22       10-May-22       10-May-22       05-Sep-22       55       0%         05       04       04-Jul-22       02-Jul-22       10-Jul-22       02-Jul-22       10-Sep-22       55       0%         05       06       04-Jul-22       02-Jul-22       10-Sep-22       55       0%       06       06		P30-BP12.30	BP - Airlift, Cage Install and Concrete	06-Dec-22	14-Dec-22	8	19-Jul-22	27-Jul-22	152	0%						
P30-BP17.20       BP - RCD Drilling       13-Jan-23       07-Feb-23       5       30-May-22 A       06-Jun-22 A       100%         P30-BP17.30       BP - Airlift, Cage Install and Concrete       08-Feb-23       16-Feb-23       6       08-Jun-22 A       15-Jun-22 A       100%         003       CBA-BPC52Va.10       BP - Excavation       23-Apr-22       29-Apr-22       6       30-Jun-22       07-Jul-22       -55       0%         CBA-BPC52Va.20       BP - Airlift, Cage Install and Concrete       14-May-22       19-May-22       55       20-Jul-22       -55       0%         CBA-BPC52Va.30       BP - Airlift, Cage Install and Concrete       14-May-22       19-May-22       55       20-Jul-22       -55       0%         P26-BP15.10       BP - Excavation       19-May-22       25-Jul-22       30-Jul-22       -55       0%         P26-BP15.20       BP - Airlift, Cage Install and Concrete       04-Jul-22       09-Jul-22       6       06-Sep-22       13-Sep-22       62       0%         P26-BP15.30       BP - Airlift, Cage Install and Concrete       04-Jul-22       09-Jul-22       7       29-Aug-22       05-Sep-22       -55       0%         05       BP - Excavation       24-Jun-22       02-Jul-22       7       29-Aug-22		18														
P30-BP17.30       BP - Airlift, Cage Install and Concrete       08-Feb-23       16-Feb-23       6       08-Jun-22 A       15-Jun-22 A       100%         100       02       02       03-BP17.30       BP - Excavation       23-Apr-22       29-Apr-22       6       30-Jun-22       07-Jul-22       -55       0%         CBA-BPC52Va.20       BP - RCD Drilling       30-Apr-22       13-May-22       10       08-Jul-22       15-Jun-22       05       0%         CBA-BPC52Va.30       BP - Airlift, Cage Install and Concrete       14-May-22       19-May-22       55       20-Jul-22       25-Jul-22       93       0%         P26-BP15.10       BP - Excavation       19-May-22       25-May-22       6       26-Sep-22       30-Jul-22       55       0%         P26-BP15.20       BP - RCD Drilling       26-May-22       02-Jul-22       31       01-Aug-22       05-Sep-22       455       0%         P26-BP16.10       BP - Excavation       24-Jun-22       02-Jul-22       7       29-Aug-22       05-Sep-22       -55       0%         05       92       BP - RCD Drilling       04-Jul-22       02-Jul-22       7       29-Aug-22       05-Sep-22       -55       0%         06       92       BP - RCD Drilling <td></td> <td>P30-BP17.10</td> <td>BP - Excavation</td> <td>06-Jan-23</td> <td>12-Jan-23</td> <td>31</td> <td>20-Apr-22 A</td> <td>28-May-22 A</td> <td></td> <td>100%</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		P30-BP17.10	BP - Excavation	06-Jan-23	12-Jan-23	31	20-Apr-22 A	28-May-22 A		100%						
1003         23         23         24         23         24         27         29         20         07         Jul-22         -55         0%           CBA-BPC52Va.10         BP - RCD Drilling         30-Apr-22         13-May-22         10         08-Jul-22         -55         0%           CBA-BPC52Va.20         BP - RCD Drilling         30-Apr-22         13-May-22         10         08-Jul-22         -55         0%           CBA-BPC52Va.30         BP - RCD Drilling         30-Apr-22         13-May-22         5         20-Jul-22         25-Jul-22         93         0%           P26-BP15.10         BP - Excavation         19-May-22         25-May-22         6         25-Jul-22         30-Jul-22         -55         0%           P26-BP15.30         BP - RCD Drilling         26-May-22         02-Jul-22         7         29-Aug-22         05-Sep-22         -55         0%           P26-BP16.10         BP - Excavation         24-Jun-22         02-Jul-22         7         29-Aug-22         05-Sep-22         -55         0%           P26-BP16.20         BP - RCD Drilling         04-Jul-22         02-Jul-22         7         29-Aug-22         05-Sep-22         -55         0%           06         06		P30-BP17.20	BP - RCD Drilling	13-Jan-23	07-Feb-23	5	30-May-22 A	06-Jun-22 A		100%						
02         CBA-BPC52Va.10         BP - Excavation         23-Apr-22         29-Apr-22         6         30-Jun-22         07-Jul-22         -55         0%           CBA-BPC52Va.20         BP - RCD Drilling         30-Apr-22         13-May-22         10         08-Jul-22         19-Jul-22         -55         0%           CBA-BPC52Va.20         BP - Airlift, Cage Install and Concrete         14-May-22         19-May-22         5         20-Jul-22         25-Jul-22         33         0%           CBA-BPC52Va.30         BP - Airlift, Cage Install and Concrete         14-May-22         19-May-22         5         20-Jul-22         30-Jul-22         55         0%           P26-BP15.10         BP - Excavation         19-May-22         02-Jul-22         31         01-Aug-22         05-Sep-22         55         0%           P26-BP15.20         BP - Airlift, Cage Install and Concrete         04-Jul-22         09-Jul-22         6         06-Sep-22         13-Sep-22         62         0%           P26-BP16.10         BP - Excavation         24-Jun-22         02-Jul-22         7         29-Aug-22         05-Sep-22         -55         0%           05         06         0         0         0         0         0         0         0      <		P30-BP17.30	BP - Airlift, Cage Install and Concrete	08-Feb-23	16-Feb-23	6	08-Jun-22 A	15-Jun-22 A		100%						
CBA-BPC52Va.10       BP - Excavation       23-Apr-22       29-Apr-22       6       30-Jun-22       07-Jul-22       -55       0%         CBA-BPC52Va.20       BP - RCD Drilling       30-Apr-22       13-May-22       10       08-Jul-22       19-Jul-22       -55       0%         CBA-BPC52Va.30       BP - Airlift, Cage Install and Concrete       14-May-22       19-May-22       5       20-Jul-22       25-Jul-22       93       0%         P26-BP15.00       BP - Excavation       19-May-22       25-May-22       6       25-Jul-22       30-Jul-22       -55       0%         P26-BP15.00       BP - Airlift, Cage Install and Concrete       04-Jul-22       09-Jul-22       31       01-Aug-22       05-Sep-22       -55       0%         P26-BP15.00       BP - Airlift, Cage Install and Concrete       04-Jul-22       09-Jul-22       6       0-Sep-22       13-Sep-22       62       0%         P26-BP16.10       BP - Excavation       24-Jun-22       02-Jul-22       7       29-Aug-22       05-Sep-22       -55       0%         P26-BP16.20       BP - RCD Drilling       04-Jul-22       19-Jul-22       14       06-Sep-22       2-Sep-22       -55       0%         05       06       06       0       0		TD09										-				
CBA-BPC52Va.20       BP - RCD Drilling       30-Apr-22       13-May-22       10       08-Jul-22       19-Jul-22       -55       0%         CBA-BPC52Va.30       BP - Airlift, Cage Install and Concrete       14-May-22       19-May-22       5       20-Jul-22       25-Jul-22       93       0%         04		02														
CBA-BPC52Va.30       BP - Airlift, Cage Install and Concrete       14-May-22       5       20-Jul-22       25-Jul-22       93       0%         P26-BP15.10       BP - Excavation       19-May-22       25-May-22       6       25-Jul-22       30-Jul-22       -55       0%         P26-BP15.20       BP - RCD Drilling       26-May-22       02-Jul-22       31       01-Aug-22       05-Sep-22       -55       0%         P26-BP15.30       BP - Airlift, Cage Install and Concrete       04-Jul-22       09-Jul-22       6       06-Sep-22       13-Sep-22       62       0%         05		CBA-BPC52Va.10	BP - Excavation	23-Apr-22	29-Apr-22	6	30-Jun-22	07-Jul-22	-55	0%	1		ļ			1
CBA-BPC52Va.30       BP - Airlift, Cage Install and Concrete       14-May-22       5       20-Jul-22       25-Jul-22       93       0%         P26-BP15.10       BP - Excavation       19-May-22       25-May-22       6       25-Jul-22       30-Jul-22       -55       0%         P26-BP15.20       BP - RCD Drilling       26-May-22       02-Jul-22       31       01-Aug-22       05-Sep-22       -55       0%         P26-BP15.30       BP - Airlift, Cage Install and Concrete       04-Jul-22       09-Jul-22       6       06-Sep-22       13-Sep-22       62       0%         05		CBA-BPC52Va.20	BP - RCD Drilling	30-Apr-22	13-May-22	10	08-Jul-22	19-Jul-22	-55	0%					*	
P26-BP15.10       BP - Excavation       19-May-22       25-May-22       6       25-Jul-22       30-Jul-22       -55       0%         P26-BP15.20       BP - RCD Drilling       26-May-22       02-Jul-22       31       01-Aug-22       05-Sep-22       -55       0%         P26-BP15.30       BP - Airlift, Cage Install and Concrete       04-Jul-22       02-Jul-22       6       06-Sep-22       13-Sep-22       62       0%         P26-BP16.10       BP - Excavation       24-Jun-22       02-Jul-22       7       29-Aug-22       05-Sep-22       -55       0%         P26-BP16.20       BP - RCD Drilling       04-Jul-22       19-Jul-22       14       06-Sep-22       25-Sep-22       -55       0%         Discourse       04-Jul-22       19-Jul-22       14       06-Sep-22       -55       0%		CBA-BPC52Va.30	BP - Airlift, Cage Install and Concrete	14-May-22	-	5	20-Jul-22	25-Jul-22	93	0%	-					
P26-BP15.20       BP - RCD Drilling       26-May-22       02-Jul-22       31       01-Aug-22       05-Sep-22       -55       0%         P26-BP15.30       BP - Airlift, Cage Install and Concrete       04-Jul-22       09-Jul-22       6       06-Sep-22       13-Sep-22       62       0%         P26-BP16.10       BP - Excavation       24-Jun-22       02-Jul-22       7       29-Aug-22       05-Sep-22       -55       0%         P26-BP16.20       BP - RCD Drilling       04-Jul-22       19-Jul-22       14       06-Sep-22       22-Sep-22       -55       0%         06       US: 282C-20220618_bW         Deta Date: 18-Jun-22       Print Date: 20-Jun-22_11:58       Milestore       Milestore       West Kowloon Cultural District Authority       Piling for Integrated Basement and U/G Road in Zone 2B 2C       3 Month Rolling Programme as of 17 June 2022       VIRTIC Piling       Cheded Approved		04	-										1			
P26-BP15.20       BP - RCD Drilling       26-May-22       02-Jul-22       31       01-Aug-22       05-Sep-22       -55       0%         P26-BP15.30       BP - Airlift, Cage Install and Concrete       04-Jul-22       09-Jul-22       6       06-Sep-22       13-Sep-22       62       0%         P26-BP16.10       BP - Excavation       24-Jun-22       02-Jul-22       7       29-Aug-22       05-Sep-22       -55       0%         P26-BP16.20       BP - RCD Drilling       04-Jul-22       19-Jul-22       14       06-Sep-22       22-Sep-22       -55       0%         06       US: 282C-20220618_bW         Deta Date: 18-Jun-22       Print Date: 20-Jun-22_11:58       Milestore       Milestore       West Kowloon Cultural District Authority       Piling for Integrated Basement and U/G Road in Zone 2B 2C       3 Month Rolling Programme as of 17 June 2022       VIRTIC Piling       Cheded Approved		P26-BP15.10	BP - Excavation	19-May-22	25-May-22	6	25-Jul-22	30-Jul-22	-55	0%	-					
05       05       06         P26-BP16.10       BP - Excavation       24-Jun-22       02-Jul-22       7       29-Aug-22       05-Sep-22       -55       0%         P26-BP16.20       BP - RCD Drilling       04-Jul-22       19-Jul-22       14       06-Sep-22       22-Sep-22       -55       0%         ID: 282C-20220618_bw       Date Date: 18-Jun-22       Planed Bar<       Milestone       West Kowloon Cultural District Authority       Date Revision       Cheded Approved         Pint Date: 20-Jun-22_11:58       Desceline       Seseline MS       Basedine MS       Month Rolling Programme as of 17 June 2022       Vince of 17 June 2022		P26-BP15.20	BP - RCD Drilling	the second se	02-Jul-22	31	01-Aug-22	05-Sep-22	-55	0%						
P26-BP16.10       BP - Excavation       24-Jun-22       02-Jul-22       7       29-Aug-22       05-Sep-22       -55       0%         P26-BP16.20       BP - RCD Drilling       04-Jul-22       19-Jul-22       14       06-Sep-22       22-Sep-22       -55       0%         ID:       2B2C-20220618_bw       Date:       18-Jun-22       Print Date:       20-Jun-22_11:58       West Kowloon Cultural District Authority       District Authority       District Authority       Date:       Approved       Approved         Print Date:       20-Jun-22_11:58       Basedine       Easedine MS       Basedine MS       Basedine MS       Basedine MS       Approved       Approved<		P26-BP15.30	BP - Airlift, Cage Install and Concrete	04-Jul-22	09-Jul-22	6	06-Sep-22	13-Sep-22	62	0%				_		
P26-BP16.20       BP - RCD Drilling       04-Jul-22       19-Jul-22       14       06-Sep-22       22-Sep-22       -55       0%         ID:       2B2C-20220618_bw       bw       Baseline & Instruct       Milestone       West Kowloon Cultural District Authority       District Authority       District Authority       District Authority       District Authority       Piling for Integrated Basement and U/G Road in Zone 2B 2C       Official Bas       Critical Bas       Critical MS       Baseline & Baseline MS       Baseline MS       Baseline MS       Month Rolling Programme as of 17 June 2022       -55       0%       Image: Comparison of the comparison o		05														
P26-BP16.20       BP - RCD Drilling       04-Jul-22       19-Jul-22       14       06-Sep-22       22-Sep-22       -55       0%         ID:       2B2C-20220618_bw       bw       Baseline & Instruct       Milestone       West Kowloon Cultural District Authority       District Authority       District Authority       District Authority       District Authority       Piling for Integrated Basement and U/G Road in Zone 2B 2C       Official Bas       Critical Bas       Critical MS       Baseline & Baseline MS       Baseline MS       Baseline MS       Month Rolling Programme as of 17 June 2022       -55       0%       Image: Comparison of the comparison o		P26-BP16.10	BP - Excavation	24-Jun-22	02-Jul-22	7	29-Aug-22	05-Sep-22	-55	0%				2		
06         ID: 2B2C-20220618_bw         Data Date: 18-Jun-22         Print Date: 20-Jun-22_11:58             Date       Nilestone         West Kowloon Cultural District Authority         Piling for Integrated Basement and U/G Road in Zone 2B 2C         3 Month Rolling Programme as of 17 June 2022		Figure (Freedory Consect) - Discrete (Freedory Consect)	BP - RCD Drilling	Sector Delivery of the	Contraction of the second second second second	14	06-Sep-22	-								
ID: 282C-20220618_bw       Image: Planned Bar       Image:																
Data Date: 18-Jun-22 Print Date: 20-Jun-22_11:58 Critical Bar $\diamond$ $\diamond$ Critical MS Baseline MS Piling for Integrated Basement and U/G Road in Zone 2B 2C 3 Month Rolling Programme as of 17 June 2022				1						1				Date	Revision Checke	d Approved
Print Date: 20-Jun-22_11:58 Page 20 of 30 Based on CMWP Rev.0									20					4-Mar-22		В
Page 20 of 30 Based on CMWP Rev.0	Print	Date: 20-Jun-22_11:58		3 M	onth Rolling I	Progra	mme as of 17	June 2022		V	RR		- N			
	Page	e 20 of 30		1	Bas	ed on	CMWP Rev.0					-	-			

			Baseline Finish	Dur	Forecast / Actual Start	Forecast / Actual Finsih	Iotal Float	Activity % Complete		June 12		July 13	August 14	Septen 15
		40.1-1-00	40.1.1.00	7	100000				21 28	04 11	18 25 0		30 06 13 20	27 03
2.5	BP - Excavation	12-Jul-22	19-Jul-22	7	15-Sep-22	22-Sep-22	-55	0%						
Socketed Steel H- Pile									-					
Socketed Steel H- Pile Constru	uction													
	Socketed Steel H-Piling	21-Apr-22	30-Apr-22	9	18-Jun-22	28-Jun-22	94	0%						
	Socketed Steel H-Piling	30-Apr-22	12-May-22	9	29-Jun-22	09-Jul-22	94	0%			1		1	1
	Socketed Steel H-Piling	12-May-22	21-May-22	9	11-Jul-22	20-Jul-22	94	0%	P. I.	<u></u>				
	Socketed Steel H-Piling	17-May-22	26-May-22	8	02-Jun-22 A	13-Jun-22 A		100%						
SHP-C52Wa-P2	Socketed Steel H-Piling	21-May-22	31-May-22	9	07-May-22 A	19-May-22 A		100%				14		
SHP-C52Wa-P5	Socketed Steel H-Piling	06-Jun-22	15-Jun-22	9	15-Jul-22	25-Jul-22	94	0%		6			1	
SHP-C52Wa-P6	Socketed Steel H-Piling	10-Jun-22	20-Jun-22	9	20-Jul-22	29-Jul-22	94	0%			-			
SHP-C52Xb-P1	Socketed Steel H-Piling	15-Jun-22	24-Jun-22	9	25-Jul-22	03-Aug-22	94	0%			<b>—</b>		-	
SHP-C52Xb-P2	Socketed Steel H-Piling	20-Jun-22	29-Jun-22	44	17-Jun-22 A	08-Aug-22	94	0%			;		1	
SHP-C52Xb-P5	Socketed Steel H-Piling	05-Jul-22	14-Jul-22	7	19-May-22 A	27-May-22 A		100%		1				
SHP-C52Xb-P6	Socketed Steel H-Piling	09-Jul-22	19-Jul-22	9	09-Aug-22	18-Aug-22	94	0%						
SHP-C52Xc-P1	Socketed Steel H-Piling	14-Jul-22	23-Jul-22	9	13-Aug-22	23-Aug-22	94	0%						
SHP-C52Xc-P2	Socketed Steel H-Piling	19-Jul-22	28-Jul-22	9	18-Aug-22	27-Aug-22	94	0%						1
SHP-C52Xc-P3	Socketed Steel H-Piling	23-Jul-22	02-Aug-22	6	16-May-22 A	23-May-22 A		100%					÷	
SHP-C52Xc-P5	Socketed Steel H-Piling	02-Aug-22	11-Aug-22	9	23-Aug-22	01-Sep-22	94	0%	1		1		<u> </u>	-
SHP-C52Xc-P6	Socketed Steel H-Piling	06-Aug-22	16-Aug-22	9	27-Aug-22	06-Sep-22	94	0%						
SHP-C53W-P1	Socketed Steel H-Piling	11-Aug-22	20-Aug-22	9	01-Sep-22	10-Sep-22	94	0%	1					
SHP-C53W-P2	Socketed Steel H-Piling	16-Aug-22	25-Aug-22	8	01-Jun-22 A	11-Jun-22 A		100%						
SHP-C53W-P3	Socketed Steel H-Piling	20-Aug-22	30-Aug-22	9	06-May-22 A	18-May-22 A		100%						<b>_</b>
SHP-C53W-P5	Socketed Steel H-Piling	30-Aug-22	08-Sep-22	9	13-Sep-22	22-Sep-22	94	0%						
SHP-C53W-P6	Socketed Steel H-Piling	03-Sep-22	14-Sep-22	9	17-Sep-22	27-Sep-22	94	0%			_			
SHP-C53X-P5	Socketed Steel H-Piling	28-Sep-22	10-Oct-22	104	16-Jun-22 A	19-Oct-22	94	0%		-	1			1
	Socketed Steel H-Piling	05-Oct-22	14-Oct-22	8	0.65 10.8070.0=0.050.050.0	30-May-22 A		100%						
	Socketed Steel H-Piling	27-Jun-22	07-Jul-22	8	07-Jun-22 A	16-Jun-22 A		100%				<b></b>		
CONTRACTOR DATA ANTONIA CONTRACTOR DE CONTRACT	Socketed Steel H-Piling	07-Jul-22	16-Jul-22	9	18-Jun-22	28-Jun-22	129	0%					1	
	Socketed Steel H-Piling	12-Jul-22	21-Jul-22	9	23-Jun-22	04-Jul-22	129	0%						
Contraction Contraction (Vero	Socketed Steel H-Piling	22-Jul-22	01-Aug-22	17	09-Jun-22 A	28-Jun-22	133	0%						
	Socketed Steel H-Piling	27-Jul-22	05-Aug-22	6	28-May-22 A			100%			1		-	
	Socketed Steel H-Piling	10-Aug-22	19-Aug-22	9	05-Jul-22	14-Jul-22	129	0%	·····	·····				
	Socketed Steel H-Piling	15-Aug-22	24-Aug-22	9	09-Jul-22	19-Jul-22	129	0%						
	Socketed Steel H-Piling	19-Aug-22	29-Aug-22	36	11-Jun-22 A	23-Jul-22	129	0%						_
505 400 50 100 500 100 100 100	Socketed Steel H-Piling	24-Aug-22	02-Sep-22	7	A DATE OF CANODALI CREME DODA	02-Jun-22 A		100%		v j			-	
	Planed Bar   Milestone		West Kowloo					10070			1	Date	Revision Chedka	ed Appro

Activit	y ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual Start	Forecast / Actual Finsih	Total Float	Activity % Complete	/ June 12	July 13	August 14	September 15
						100000					5 02 09 16 23 3	0 06 13 20	
	SHP-C54Xa-P5	Socketed Steel H-Piling	07-Sep-22	17-Sep-22	9	25-Jul-22	03-Aug-22	129	0%				
	SHP-C54Xa-P6	Socketed Steel H-Piling	13-Sep-22	22-Sep-22	9	29-Jul-22	08-Aug-22	129	0%		1		-
	SHP-C54Xb-P1	Socketed Steel H-Piling	17-Sep-22	27-Sep-22	9	03-Aug-22	12-Aug-22	129	0%				e
	SHP-C54Xb-P2	Socketed Steel H-Piling	22-Sep-22	03-Oct-22	55	14-Jun-22 A	17-Aug-22	129	0%				
	SHP-C54Xb-P5	Socketed Steel H-Piling	08-Oct-22	18-Oct-22	9	18-Aug-22	27-Aug-22	129	0%				
	SHP-C54Xb-P6	Socketed Steel H-Piling	13-Oct-22	22-Oct-22	7	23-May-22 A	31-May-22 A		100%				
	KD09 (Section 5)												
	Trial Piles (P23-BP68)	)											
													1
	MO.1100	Initial Mobilization for BP (CCH / KD09 / KD02)	15-Sep-21	15-Nov-21	242	22-Oct-21 A	16-Aug-22	242	60%		1		
	Bored Piles												
	CD01			-	-								
	05			07 5 4 00		07.1.1.00		150	0.01				
	P23-BP53.10	BP - Excavation	28-Jan-22	07-Feb-22	6	07-Jul-22	13-Jul-22	153	0%				
	P23-BP53.20	BP - RCD Drilling	08-Feb-22	01-Mar-22	19	14-Jul-22	04-Aug-22	153	0%	·····			
	P23-BP53.30	BP - Airlift, Cage Install and Concrete	02-Mar-22	10-Mar-22	8	05-Aug-22	13-Aug-22	160	0%				
	06											-	
	P23-BP40.10	BP - Excavation	23-Feb-22	01-Mar-22	6	29-Jul-22	04-Aug-22	153	0%		1		1
	P23-BP40.20	BP - RCD Drilling	02-Mar-22	18-Mar-22	15	05-Aug-22	22-Aug-22	153	0%				
	P23-BP40.30	BP - Airlift, Cage Install and Concrete	19-Mar-22	26-Mar-22	7	23-Aug-22	30-Aug-22	153	0%				
	09												
	P23-BP64.30	BP - Airlift, Cage Install and Concrete	27-May-22	06-Jun-22	24	06-May-22 A	06-Jun-22 A		100%				
	10				2.27								
	P23-BP62.10	BP - Excavation	20-May-22	26-May-22	52	04-Apr-22 A	11-Jun-22 A		100%				
	P23-BP62.20	BP - RCD Drilling	27-May-22	18-Jun-22	24	13-Jun-22 A	11-Jul-22	188	100%		· · · · · · · · · · · · · · · · · · ·		
	P23-BP62.30	BP - Airlift, Cage Install and Concrete	20-Jun-22	28-Jun-22	8	12-Jul-22	20-Jul-22	188	0%				
	11			r									1
	P23-BP41.30	BP - Airlift, Cage Install and Concrete	08-Jul-22	15-Jul-22	16	12-May-22 A	31-May-22 A		100%				
	and the second sec		00 14 00	00 14 00	0	40 1	04 h == 00	47	00/				
	P23-BP52.10	BP - Excavation	20-May-22	26-May-22	6	18-Jun-22	24-Jun-22	47	0%	$\boldsymbol{<}$	<u></u>		
	P23-BP52.20	BP - RCD Drilling	27-May-22	18-Jun-22	19	25-Jun-22	18-Jul-22	47	0%				
	P23-BP52.30	BP - Airlift, Cage Install and Concrete	20-Jun-22	28-Jun-22	8	19-Jul-22	27-Jul-22	47	0%				
	CD02												
	02			00 D 01	0	10.1.00			00/				
	P23-BP37.10	BP - Excavation	21-Dec-21	29-Dec-21	6	18-Jun-22	24-Jun-22	-29	0%		<u> </u>		
Data Prin	2B2C-20220618_bw a Date: 18-Jun-22 nt Date: 20-Jun-22_11:58 ge 22 of 30	Planned Bar       Milestone         Critical Bar       Critical MS         Baseline       Baseline MS	Piling for I	integrated Ba onth Rolling	asemer Progra	ural District A nt and U/G Ro mme as of 17 CMWP Rev.0	ad in Zone 2B	2C	V	BRO H	4-Mar-22 R	Revision Checked lev.0 KL	d Approved B

Activity I	D	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual Start	Forecast / Actual Finsih	Total Float	Activity % Complete	/	June 12	July 13	August 14	September 15
						1000000	10000000			21 2		8 25 02 09 16 23	30 06 13 20	27 03 10 7
	P23-BP37.20	BP - RCD Drilling	30-Dec-21	05-Feb-22	29	25-Jun-22	29-Jul-22	-29	0%				<u> </u>	
	P23-BP37.30	BP - Airlift, Cage Install and Concrete	07-Feb-22	15-Feb-22	8	30-Jul-22	08-Aug-22	164	0%					
	03				-									
	P23-BP48.10	BP - Excavation	27-Jan-22	05-Feb-22	6	23-Jul-22	29-Jul-22	-29	0%					
	P23-BP48.20	BP - RCD Drilling	07-Feb-22	11-Mar-22	29	30-Jul-22	01-Sep-22	-29	0%					
	P23-BP48.30	BP - Airlift, Cage Install and Concrete	12-Mar-22	21-Mar-22	8	02-Sep-22	10-Sep-22	143	0%					
	05													
	P23-BP50.10	BP - Excavation	28-Mar-22	02-Apr-22	6	26-Aug-22	01-Sep-22	-29	0%					
	P23-BP50.20	BP - RCD Drilling	04-Apr-22	29-Apr-22	19	02-Sep-22	24-Sep-22	-29	0%					
	09													
	P23-BP60.20	BP - RCD Drilling	22-Jul-22	24-Aug-22	11	06-May-22 A	20-May-22 A		100%					
	P23-BP60.30	BP - Airlift, Cage Install and Concrete	25-Aug-22	02-Sep-22	31	21-May-22 A	27-Jun-22	207	100%					÷
	TD09													
	03													
	CBA-BPC52U.10	BP - Excavation	06-May-22	13-May-22	6	13-Jul-22	19-Jul-22	-55	0%			-		
	CBA-BPC52U.20	BP - RCD Drilling	14-May-22	25-May-22	10	20-Jul-22	30-Jul-22	-55	0%		***********		•	
	CBA-BPC52U.30	BP - Airlift, Cage Install and Concrete	26-May-22	31-May-22	5	01-Aug-22	05-Aug-22	88	0%					
	TD08	_	-											
	14			-										
	CBA-BPC40P.10	BP - Excavation	17-Jun-22	23-Jun-22	6	13-Jul-22	19-Jul-22	131	0%					
	CBA-BPC40P.20	BP - RCD Drilling	24-Jun-22	06-Jul-22	10	20-Jul-22	30-Jul-22	131	0%					
	CBA-BPC40P.30	BP - Airlift, Cage Install and Concrete	07-Jul-22	12-Jul-22	5	01-Aug-22	05-Aug-22	162	0%					
	15					, , , , , , , , , , , , , , , , , , ,	5							
	CBA-BPC40Q.10	BP - Excavation	28-Jun-22	06-Jul-22	7	23-Jul-22	30-Jul-22	131	0%			<b>—</b>		
	CBA-BPC40Q.20	BP - RCD Drilling	07-Jul-22	22-Jul-22	14	01-Aug-22	16-Aug-22	131	0%					
	CBA-BPC40Q.30	BP - Airlift, Cage Install and Concrete	23-Jul-22	29-Jul-22	6	17-Aug-22	23-Aug-22	153	0%					
	16						0							
	CBA-BPC40S.10	BP - Excavation	15-Jul-22	22-Jul-22	65	31-May-22 A	16-Aug-22	131	100%	0				
	CBA-BPC40S.20	BP - RCD Drilling	23-Jul-22	08-Aug-22	14	17-Aug-22	01-Sep-22	131	0%					i i i i i i i i i i i i i i i i i i i
	CBA-BPC40S.30	BP - Airlift, Cage Install and Concrete	09-Aug-22	15-Aug-22	6	02-Sep-22	08-Sep-22	145	0%					
	17			·····g		<b>F</b> ===					•••••••••••••••••••••••••••••••••••••••			
	CBA-BPC40Pa.10	BP - Excavation	02-Aug-22	08-Aug-22	21	21-May-22 A	16-Jun-22 A		100%					
	CBA-BPC40Pa.20		09-Aug-22	19-Aug-22	1	17-Jun-22 A	18-Jun-22	195	100%					
		BP - Airlift, Cage Install and Concrete	20-Aug-22	25-Aug-22	5	18-Jun-22	23-Jun-22	204	0%					
	18				•		and the second second		- /0		Г			
	CBA-BPC40R.10	BP - Excavation	12-Aug-22	19-Aug-22	7	25-Aug-22	01-Sep-22	131	0%		*************			•••••••••••••••••••••••••••••••••••••••
	CBA-BPC40R.20	BP - RCD Drilling	20-Aug-22	05-Sep-22	14	02-Sep-22	19-Sep-22	131	0%					
			-1					191	1			: Date	Revision Checke	d Approved
Data I Print I	32C-20220618_bw Date: 18-Jun-22 Date: 20-Jun-22_11:58 23 of 30	Planned Bar       Milestone         Critical Bar       Critical MS         Baseline       Baseline MS	Piling for I	integrated Ba onth Rolling	asemei Progra	ural District A nt and U/G Ro mme as of 17 CMWP Rev.0	ad in Zone 2E	3 2C	V	IBR	T H	- 4Mar-22	Rev.0 KL	B

vity ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual		Total Float		/	Ju 1:		July 13	Au	igust 14	Septem 15
					Start	Finsih		Complete	21 28				30 06	13 20 2	
TD07															
02															
P18-BP16.10	BP - Excavation	20-Dec-21	28-Dec-21	6	07-Jul-22	13-Jul-22	-121	0%							1
P18-BP16.20	BP - RCD Drilling	29-Dec-21	15-Jan-22	15	14-Jul-22	30-Jul-22	-121	0%							
P18-BP16.30	BP - Airlift, Cage Install and Concrete	17-Jan-22	24-Jan-22	7	01-Aug-22	08-Aug-22	-42	0%					-		
03													1		1
P18-BP23.10	BP - Excavation	10-Jan-22	15-Jan-22	6	25-Jul-22	30-Jul-22	-121	0%							
P18-BP23.20	BP - RCD Drilling	17-Jan-22	05-Feb-22	15	01-Aug-22	17-Aug-22	-121	0%							
P18-BP23.30	BP - Airlift, Cage Install and Concrete	07-Feb-22	14-Feb-22	7	18-Aug-22	25-Aug-22	-50	0%		*********					1
04															
P18-BP21.10	BP - Excavation	27-Jan-22	05-Feb-22	6	11-Aug-22	17-Aug-22	-121	0%					-	•	
P18-BP21.20	BP - RCD Drilling	07-Feb-22	23-Feb-22	15	18-Aug-22	03-Sep-22	-121	0%					1		<b>.</b>
P18-BP21.30	BP - Airlift, Cage Install and Concrete	24-Feb-22	03-Mar-22	7	05-Sep-22	13-Sep-22	-58	0%					1		
22															
P18-BP14.10	BP - Excavation	13-Sep-22	19-Sep-22	15	08-Jun-22 A	24-Jun-22	187	100%					1		
P18-BP14.20	BP - RCD Drilling	20-Sep-22	08-Oct-22	15	25-Jun-22	13-Jul-22	187	0%							
P18-BP14.30	BP - Airlift, Cage Install and Concrete	10-Oct-22	17-Oct-22	7	14-Jul-22	21-Jul-22	187	0%							
TD06												1	-		1
01			-		Í.										
P18-BP36.10	BP - Excavation	20-Dec-21	28-Dec-21	6	18-Jun-22	24-Jun-22	-48	0%					1		1
P18-BP36.20	BP - RCD Drilling	29-Dec-21	15-Jan-22	15	25-Jun-22	13-Jul-22	-48	0%					-		
P18-BP36.30	BP - Airlift, Cage Install and Concrete	17-Jan-22	24-Jan-22	7	14-Jul-22	21-Jul-22	180	0%							
02													1		
P18-BP40.10	BP - Excavation	10-Jan-22	15-Jan-22	6	07-Jul-22	13-Jul-22	-48	0%							
P18-BP40.20	BP - RCD Drilling	17-Jan-22	05-Feb-22	15	14-Jul-22	30-Jul-22	-48	0%							1
P18-BP40.30	BP - Airlift, Cage Install and Concrete	07-Feb-22	14-Feb-22	7	01-Aug-22	08-Aug-22	172	0%							
03															
P18-BP38.10	BP - Excavation	27-Jan-22	05-Feb-22	27	12-May-22 A	14-Jun-22 A		100%					1		
P18-BP38.20	BP - RCD Drilling	07-Feb-22	28-Feb-22	22	15-Jun-22 A	11-Jul-22	-31	94.74%							
P18-BP38.30	BP - Airlift, Cage Install and Concrete	01-Mar-22	09-Mar-22	8	12-Jul-22	20-Jul-22	91	0%					1		
04															
P18-BP33.10	BP - Excavation	22-Feb-22	28-Feb-22	6	25-Jul-22	30-Jul-22	-48	0%				Image:			
P18-BP33.20	BP - RCD Drilling	01-Mar-22	17-Mar-22	15	01-Aug-22	17-Aug-22	-48	0%						-	1
P18-BP33.30	BP - Airlift, Cage Install and Concrete	18-Mar-22	25-Mar-22	7	18-Aug-22	25-Aug-22	67	0%							
05					<b>3</b>	-5									1
P18-BP28.10	BP - Excavation	11-Mar-22	17-Mar-22	6	11-Aug-22	17-Aug-22	-48	0%							
P18-BP28.20	BP - RCD Drilling	18-Mar-22	04-Apr-22	15	18-Aug-22	03-Sep-22	-48	0%							
2B2C-20220618_bw ta Date: 18-Jun-22 nt Date: 20-Jun-22_11:58 ge 24 of 30	Planned Bar  Milestone Critical Bar Baseline Baseline Baseline	Piling for 1	integrated Ba onth Rolling	asemei Progra	ural District Au nt and U/G Ro mme as of 17 CMWP Rev.0	ad in Zone 2	3 2C	V	RR	0	H- (	Date 4-Mar-22	Revision Rev.0	Checked KL	Appro B

Activity	ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual Start	Forecast / Actual Finsih	Total Float	Activity % Complete	/	J	une 12	July	August	September 15	7
						Landers .			Contraction of the second second	21 2	28   04   1	1 18 2	5 02 09 16 23	30 06 13 20	27 03 10	Ľ
	P18-BP28.30	BP - Airlift, Cage Install and Concrete	06-Apr-22	13-Apr-22	7	05-Sep-22	13-Sep-22	59	0%							-
	06							I annual I	No. of Acres							
	P18-BP42.10	BP - Excavation	29-Mar-22	04-Apr-22	6	29-Aug-22	03-Sep-22	-48	0%							
	P18-BP42.20	BP - RCD Drilling	06-Apr-22	26-Apr-22	15	05-Sep-22	22-Sep-22	-48	0%				1 1 1	4 8 8		-
	07												1 1 1 1			
	P18-BP31.10	BP - Excavation	20-Apr-22	26-Apr-22	6	16-Sep-22	22-Sep-22	-48	0%							
	18															
	P18-BP27.10	BP - Excavation	18-May-22	24-May-22	6	07-Jul-22	13-Jul-22	99	0%					_		
	P18-BP27.20	BP - RCD Drilling	25-May-22	11-Jun-22	15	14-Jul-22	30-Jul-22	99	0%		-				1	
	P18-BP27.30	BP - Airlift, Cage Install and Concrete	13-Jun-22	20-Jun-22	7	01-Aug-22	08-Aug-22	141	0%		1	-				
	19															
	P18-BP37.10	BP - Excavation	06-Jun-22	11-Jun-22	6	25-Jul-22	30-Jul-22	99	0%		-					
	P18-BP37.20	BP - RCD Drilling	13-Jun-22	05-Jul-22	19	01-Aug-22	22-Aug-22	99	0%			_	<u></u>			
	P18-BP37.30	BP - Airlift, Cage Install and Concrete	06-Jul-22	14-Jul-22	8	23-Aug-22	31-Aug-22	129	0%			N I				
	20													8		
	P18-BP35.10	BP - Excavation	28-Jun-22	05-Jul-22	6	16-Aug-22	22-Aug-22	99	0%				<u> </u>			~
	P18-BP35.20	BP - RCD Drilling	06-Jul-22	22-Jul-22	15	23-Aug-22	08-Sep-22	99	0%							8
	P18-BP35.30	BP - Airlift, Cage Install and Concrete	23-Jul-22	30-Jul-22	7	09-Sep-22	17-Sep-22	122	0%		1		-	=		Į.
	21												8. 8. 8. 8.	8 9 8		
	P18-BP19.10	BP - Excavation	16-Jul-22	22-Jul-22	6	02-Sep-22	08-Sep-22	99	0%							
	P18-BP19.20	BP - RCD Drilling	23-Jul-22	13-Aug-22	19	09-Sep-22	03-Oct-22	99	0%				. –			4
	TD05				0											-
	01													4 4		
	P18-BP48.10	BP - Excavation	20-Dec-21	28-Dec-21	6	18-Jun-22	24-Jun-22	-38	0%					8 8 8		
	P18-BP48.20	BP - RCD Drilling	29-Dec-21	15-Jan-22	15	25-Jun-22	13-Jul-22	-38	0%							
	P18-BP48.30	BP - Airlift, Cage Install and Concrete	17-Jan-22	24-Jan-22	7	14-Jul-22	21-Jul-22	92	0%							
	02															2
	P18-BP60.10	BP - Excavation	10-Jan-22	15-Jan-22	6	07-Jul-22	13-Jul-22	-38	0%						1	
	P18-BP60.20	BP - RCD Drilling	17-Jan-22	10-Feb-22	19	14-Jul-22	04-Aug-22	-38	0%							
	P18-BP60.30	BP - Airlift, Cage Install and Concrete	11-Feb-22	19-Feb-22	8	05-Aug-22	13-Aug-22	80	0%							
	03															
	P18-BP63.10	BP - Excavation	04-Feb-22	10-Feb-22	6	29-Jul-22	04-Aug-22	-38	0%					-		1
	P18-BP63.20	BP - RCD Drilling	11-Feb-22	04-Mar-22	19	05-Aug-22	26-Aug-22	-38	0%		1		4 1 1			
	P18-BP63.30	BP - Airlift, Cage Install and Concrete	05-Mar-22	14-Mar-22	8	27-Aug-22	05-Sep-22	69	0%							
	04															
	P18-BP62.10	BP - Excavation	26-Feb-22	04-Mar-22	6	20-Aug-22	26-Aug-22	-38	0%				1			
	P18-BP62.20	BP - RCD Drilling	05-Mar-22	26-Mar-22	19	27-Aug-22	19-Sep-22	-38	0%						1	-
Data Print	B2C-20220618_bw Date: 18-Jun-22 Date: 20-Jun-22_11:58 e 25 of 30	Planned Bar       Milestone         Critical Bar       Critical MS         Baseline       Baseline MS	Piling for I	ntegrated Ba onth Rolling	isemer Progra	ural District A nt and U/G Ro mme as of 17 CMWP Rev.0	ad in Zone 2E	3 2C	V	B	TO	Ĥ∙(	Date 4-Mar-22	Revision Checks Rev.0 KL	B B	

Activit	ty ID	Activity Name	Baseline Start	Baseline Finish	Dur		Forecast / Actual	Total Float			June 12		July	August	September 15
						Start	Finsih		Complete	21 28		18 25	02 09 16 23	30 06 13 20 2	
	05														
	P18-BP61.10	BP - Excavation	21-Mar-22	26-Mar-22	6	13-Sep-22	19-Sep-22	-38	0%			1			
	TD04														
	04													1	
	P23-BP107.10	BP - Excavation	04-Jan-22	10-Jan-22	6	18-Jun-22	24-Jun-22	67	0%					1	
	P23-BP107.20	BP - RCD Drilling	11-Jan-22	04-Feb-22	19	25-Jun-22	18-Jul-22	67	0%						
	P23-BP107.30	BP - Airlift, Cage Install and Concrete	05-Feb-22	14-Feb-22	8	19-Jul-22	27-Jul-22	142	0%						
	05														
	P23-BP75.10	BP - Excavation	26-Jan-22	04-Feb-22	6	12-Jul-22	18-Jul-22	67	0%						
	P23-BP75.20	BP - RCD Drilling	05-Feb-22	26-Feb-22	19	19-Jul-22	09-Aug-22	67	0%					1	
	P23-BP75.30	BP - Airlift, Cage Install and Concrete	28-Feb-22	08-Mar-22	8	10-Aug-22	18-Aug-22	131	0%	1		1			
	06											1			
	P23-BP73.10	BP - Excavation	21-Feb-22	26-Feb-22	6	03-Aug-22	09-Aug-22	67	0%			į			
	P23-BP73.20	BP - RCD Drilling	28-Feb-22	21-Mar-22	19	10-Aug-22	31-Aug-22	67	0%			1			<b></b>
	P23-BP73.30	BP - Airlift, Cage Install and Concrete	22-Mar-22	30-Mar-22	8	01-Sep-22	09-Sep-22	120	0%				****************	******************	
	07														
	P23-BP97.10	BP - Excavation	15-Mar-22	21-Mar-22	6	25-Aug-22	31-Aug-22	67	0%			÷			<b>≓</b>
	P23-BP97.20	BP - RCD Drilling	22-Mar-22	28-Apr-22	29	01-Sep-22	07-Oct-22	67	0%			i			
	11									ļ		1 1 1 1			
	P23-BP108.10	BP - Excavation	26-Jan-22	04-Feb-22	6	18-Jun-22	24-Jun-22	47	0%		•••••				1
	P23-BP108.20	BP - RCD Drilling	05-Feb-22	10-Mar-22	29	25-Jun-22	29-Jul-22	47	0%						
	P23-BP108.30	BP - Airlift, Cage Install and Concrete	11-Mar-22	19-Mar-22	8	30-Jul-22	08-Aug-22	156	0%			1			
	12											ł			
	P23-BP74.10	BP - Excavation	04-Mar-22	10-Mar-22	6	23-Jul-22	29-Jul-22	47	0%						
	P23-BP74.20	BP - RCD Drilling	11-Mar-22	01-Apr-22	19	30-Jul-22	20-Aug-22	47	0%						1
	P23-BP74.30	BP - Airlift, Cage Install and Concrete	02-Apr-22	12-Apr-22	8	22-Aug-22	30-Aug-22	145	0%			-		1	
	13			10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -								1			
	P23-BP84.10	BP - Excavation	26-Mar-22	01-Apr-22	6	15-Aug-22	20-Aug-22	47	0%			1			
	P23-BP84.20	BP - RCD Drilling	02-Apr-22	12-May-22	29	22-Aug-22	24-Sep-22	47	0%						-
	14	-					•								
	P23-BP106.10	BP - Excavation	05-May-22	12-May-22	33	23-Apr-22 A	04-Jun-22 A		100%		_	-			
	P23-BP106.20	BP - RCD Drilling	13-May-22	04-Jun-22	9	06-Jun-22 A	a service as a service in		100%						
	P23-BP106.30	BP - Airlift, Cage Install and Concrete	06-Jun-22	14-Jun-22	9	17-Jun-22 A	27-Jun-22	207	75%						
	17														
	P23-BP116.10	BP - Excavation	06-Aug-22	12-Aug-22	26	14-May-22 A	15-Jun-22 A		100%						1
	P23-BP116.20	BP - RCD Drilling	13-Aug-22	03-Sep-22	21	16-Jun-22 A	11-Jul-22	169	63.16%						_
	P23-BP116.30	BP - Airlift, Cage Install and Concrete	05-Sep-22	14-Sep-22	8	12-Jul-22	20-Jul-22	180	0%		1			1	
									T	4		1	Date	Revision Checked	Approved
Dat Prir	2B2C-20220618_bw ta Date: 18-Jun-22 nt Date: 20-Jun-22_11:58 ge 26 of 30	Planned Bar       Milestone         Citical Bar       Citical MS         Baseline       Baseline MS	Piling for I	ntegrated Ba	isemei Progra	ural District A nt and U/G Ro mme as of 17 CMWP Rev.0	ad in Zone 2B	2C	V	BR	īi	ł 🐧	4-Mar-22	Rev.0 KL	В
		<u>.</u>		-77									L		

vity ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual Start	Forecast / Actual Finsih	Total Float	Activity % Complete	/	Ju 1	ne 2	July 13	August 14	Septem 15
					Start	FIIISIII		Complete	21 28	04   11	18 25	02 09 16 23	30 06 13 20	
TD03														
02						and the second second								
P23-BP101.10	BP - Excavation	20-Jan-22	26-Jan-22	19	02-Jun-22 A	24-Jun-22	20	100%	-					
P23-BP101.20	BP - RCD Drilling	27-Jan-22	21-Feb-22	19	25-Jun-22	18-Jul-22	20	0%						
P23-BP101.30	BP - Airlift, Cage Install and Concrete	22-Feb-22	02-Mar-22	8	19-Jul-22	27-Jul-22	150	0%						
03														
P23-BP110.20	BP - RCD Drilling	22-Feb-22	15-Mar-22	9	14-May-22 A	25-May-22 A		100%						
P23-BP110.30	BP - Airlift, Cage Install and Concrete	16-Mar-22	24-Mar-22	5	26-May-22 A	01-Jun-22 A		100%		-	4			
04												-		1
P23-BP109.10	BP - Excavation	09-Mar-22	15-Mar-22	6	12-Jul-22	18-Jul-22	20	0%						
P23-BP109.20	BP - RCD Drilling	16-Mar-22	07-Apr-22	19	19-Jul-22	09-Aug-22	20	0%						
P23-BP109.30	BP - Airlift, Cage Install and Concrete	08-Apr-22	20-Apr-22	8	10-Aug-22	18-Aug-22	139	0%						
05														
P23-BP99.10	BP - Excavation	31-Mar-22	07-Apr-22	6	03-Aug-22	09-Aug-22	20	0%						
P23-BP99.20	BP - RCD Drilling	08-Apr-22	04-May-22	19	10-Aug-22	31-Aug-22	20	0%						
P23-BP99.30	BP - Airlift, Cage Install and Concrete	05-May-22	14-May-22	8	01-Sep-22	09-Sep-22	128	0%						
06														
P23-BP77.10	BP - Excavation	27-Apr-22	04-May-22	6	25-Aug-22	31-Aug-22	20	0%						-
P23-BP77.20	BP - RCD Drilling	05-May-22	27-May-22	19	01-Sep-22	23-Sep-22	20	0%				т. т. т.	8 9 9	
07												1		
P23-BP55.10	BP - Excavation	21-May-22	27-May-22	6	17-Sep-22	23-Sep-22	20	0%				*	1	
08														
P23-BP57.20	BP - RCD Drilling	21-Jun-22	25-Jul-22	11	14-May-22 A	27-May-22 A		100%						
P23-BP57.30	BP - Airlift, Cage Install and Concrete	26-Jul-22	03-Aug-22	10	28-May-22 A	10-Jun-22 A		100%			_			
13														
P23-BP56.10	BP - Excavation	31-Oct-22	05-Nov-22	8	16-Jun-22 A	24-Jun-22	172	100%						
P23-BP56.20	BP - RCD Drilling	07-Nov-22	09-Dec-22	29	25-Jun-22	29-Jul-22	172	0%						
P23-BP56.30	BP - Airlift, Cage Install and Concrete	10-Dec-22	19-Dec-22	8	30-Jul-22	08-Aug-22	172	0%			1			
15										1			4 8 8	1
P23-BP98.10	BP - Excavation	02-Jun-22	09-Jun-22	132	11-Jan-22 A	24-Jun-22	77	100%		1				
P23-BP98.20	BP - RCD Drilling	10-Jun-22	02-Jul-22	19	25-Jun-22	18-Jul-22	77	0%		F				
P23-BP98.30	BP - Airlift, Cage Install and Concrete	04-Jul-22	12-Jul-22	8	19-Jul-22	27-Jul-22	142	0%						
16														
P23-BP78.10	BP - Excavation	25-Jun-22	02-Jul-22	6	12-Jul-22	18-Jul-22	77	0%				-		
P23-BP78.20	BP - RCD Drilling	04-Jul-22	25-Jul-22	19	19-Jul-22	09-Aug-22	77	0%			1			1
P23-BP78.30	BP - Airlift, Cage Install and Concrete	26-Jul-22	03-Aug-22	8	10-Aug-22	18-Aug-22	131	0%						
17								- / 0						
	Planned Bar 🔶 Milestone	T	West Kaulaa	m Cult		white a state of		1	ii		1	Date	Revision Ched	ked Appr
): 2B2C-20220618_bw ata Date: 18-Jun-22	Planned Bar				ural District A nt and U/G Ro		3 2C			-	-	4-Mar-22	Rev.0 KL	В
rint Date: 20-Jun-22_11:58			onth Rolling	Progra	amme as of 17			V	BR	<b>•</b>	H- 🔇			
age 27 of 30			Bas	sed on	CMWP Rev.0									

Activity ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual Start	Forecast / Actual Finsih	Total Float	Activity % Complete	/ June 12	July 13	August 14	September 15
		40.1.1.00	05 1 1 00		100000						30 06 13 20	27 03 10 7
P23-BP67.10	BP - Excavation	19-Jul-22	25-Jul-22	6	03-Aug-22	09-Aug-22	77	0%				
P23-BP67.20	BP - RCD Drilling	26-Jul-22	27-Aug-22	29	10-Aug-22	13-Sep-22	77	0%		-		
P23-BP67.30	BP - Airlift, Cage Install and Concrete	29-Aug-22	06-Sep-22	8	14-Sep-22	22-Sep-22	110	0%				
18											1	
P23-BP102.10	BP - Excavation	22-Aug-22	27-Aug-22	6	06-Sep-22	13-Sep-22	77	0%	••••••• <mark>•</mark> ••••••			
P23-BP102.20	BP - RCD Drilling	29-Aug-22	20-Sep-22	19	14-Sep-22	07-Oct-22	77	0%				
TD02												
03												
P23-BP71.10	BP - Excavation	04-Mar-22	10-Mar-22	6	18-Jun-22	24-Jun-22	2	0%		1		
P23-BP71.20	BP - RCD Drilling	11-Mar-22	14-Apr-22	29	25-Jun-22	29-Jul-22	2	0%				·
P23-BP71.30	BP - Airlift, Cage Install and Concrete	19-Apr-22	27-Apr-22	8	30-Jul-22	08-Aug-22	123	0%				
04												
P23-BP83.10	BP - Excavation	08-Apr-22	14-Apr-22	6	23-Jul-22	29-Jul-22	2	0%			1	
P23-BP83.20	BP - RCD Drilling	19-Apr-22	24-May-22	29	30-Jul-22	01-Sep-22	2	0%				
P23-BP83.30	BP - Airlift, Cage Install and Concrete	25-May-22	02-Jun-22	8	02-Sep-22	10-Sep-22	102	0%				
05												
P23-BP93.10	BP - Excavation	18-May-22	24-May-22	6	26-Aug-22	01-Sep-22	2	0%				
P23-BP93.20	BP - RCD Drilling	25-May-22	28-Jun-22	29	02-Sep-22	08-Oct-22	2	0%				
11										-		
P23-BP113.20	BP - RCD Drilling	11-Mar-22	01-Apr-22	10	-	18-May-22 A		100%				
P23-BP113.30	BP - Airlift, Cage Install and Concrete	02-Apr-22	12-Apr-22	6	19-May-22 A	26-May-22 A		100%				
12												
P23-BP111.10	BP - Excavation	26-Mar-22	01-Apr-22	6	18-Jun-22	24-Jun-22	47	0%				
P23-BP111.20	BP - RCD Drilling	02-Apr-22	28-Apr-22	19	25-Jun-22	18-Jul-22	47	0%				1
P23-BP111.30	BP - Airlift, Cage Install and Concrete	29-Apr-22	10-May-22	8	19-Jul-22	27-Jul-22	158	0%				
13												
P23-BP92.10	BP - Excavation	22-Apr-22	28-Apr-22	6	12-Jul-22	18-Jul-22	47	0%				1
P23-BP92.20	BP - RCD Drilling	29-Apr-22	04-Jun-22	29	19-Jul-22	20-Aug-22	47	0%				
P23-BP92.30	BP - Airlift, Cage Install and Concrete	06-Jun-22	14-Jun-22	8	22-Aug-22	30-Aug-22	137	0%				
14												1
P23-BP58.10	BP - Excavation	28-May-22	04-Jun-22	59	13-Jun-22 A	20-Aug-22	47	100%				
P23-BP58.20	BP - RCD Drilling	06-Jun-22	09-Jul-22	29	22-Aug-22	24-Sep-22	47	0%				
16												
P23-BP112.10	BP - Excavation	06-Aug-22	12-Aug-22	23	28-May-22 A	24-Jun-22	134	100%				
P23-BP112.20	BP - RCD Drilling	13-Aug-22	03-Sep-22	19	25-Jun-22	18-Jul-22	134	0%				<u> </u>
P23-BP112.30	BP - Airlift, Cage Install and Concrete	05-Sep-22	14-Sep-22	8	19-Jul-22	27-Jul-22	174	0%				
18												
ID: 2B2C-20220618_bw Data Date: 18-Jun-22 Print Date: 20-Jun-22_11:58 Page 28 of 30	Planned Bar       Milestone         Critical Bar       Critical MS         Baseline       Baseline MS	Piling for I	ntegrated Ba onth Rolling	semen Progra	Iral District A It and U/G Ro mme as of 17 CMWP Rev.0	ad in Zone 2B	3 2C	V	BRO #	4-Mar-22	Revision Ched Rev.0 KL	ked Approved B

y ID	Activity Name	Dusenne otart	Baseline Finish	Dur	Forecast / Actual Start	Finsih	Iotarrioat	Complete		12	2	13		ugust 14	15
						10000000			21 28			02 09 16	23 30 06	13 20 2	7 03
P23-BP72.10	BP - Excavation	05-Oct-22	11-Oct-22	22		07-Jun-22 A		100%	- 1						
P23-BP72.20	BP - RCD Drilling	12-Oct-22	14-Nov-22	38	08-Jun-22 A	22-Jul-22	159	100%							1
P23-BP72.30	BP - Airlift, Cage Install and Concrete	15-Nov-22	23-Nov-22	8	23-Jul-22	01-Aug-22	170	0%							1
Optional Item no. 3										/					
TD07												1 1 1			1
15															1
P18-BP18.10	BP (Optional Item no.3) - Excavation	28-Apr-22	05-May-22	6	18-Jun-22	24-Jun-22	-9	0%							
P18-BP18.20	BP (Optional Item no.3) - RCD Drilling	06-May-22	24-May-22	15	25-Jun-22	13-Jul-22	-9	0%							
P18-BP18.30	BP (Optional Item no.3) - Airlift, Cage Install and Concrete	25-May-22	01-Jun-22	7	14-Jul-22	21-Jul-22	29	0%							
TD06												* * *			
17															
P18-BP30.10	BP (Optional Item no.3) - Excavation	28-Apr-22	05-May-22	6	18-Jun-22	24-Jun-22	99	0%							1
P18-BP30.20	BP (Optional Item no.3) - RCD Drilling	06-May-22	24-May-22	15	25-Jun-22	13-Jul-22	99	0%			i.	1. 1.			
P18-BP30.30	BP (Optional Item no.3) - Airlift, Cage Install and Concrete	25-May-22	01-Jun-22	7	14-Jul-22	21-Jul-22	149	0%							
Socketed Steel H- Pil	los								1 3			1	1		4
Trial Pile															
KD09.SSHP.0020	Submission and Approval of Installation Report by BD	27-Jan-22	02-Feb-22	7	18-Jun-22	24-Jun-22	188	0%							
		27-Jan-22	02-Feb-22	7	18-Jun-22	24-Jun-22	188	0%							
KD09.SSHP.0020 Socketed Steel H- Pile Const	truction	27-Jan-22		7											
KD09.SSHP.0020 Socketed Steel H- Pile Constr SHP-BW-52Y1b-P;	truction Socketed Steel H-Piling	08-Feb-22	16-Feb-22	7	25-Jun-22	05-Jul-22	188	0%							
KD09.SSHP.0020 Socketed Steel H- Pile Const	truction														
KD09.SSHP.0020 Socketed Steel H- Pile Constr SHP-BW-52Y1b-P;	truction Socketed Steel H-Piling	08-Feb-22	16-Feb-22	8	25-Jun-22 06-Jun-22 A	05-Jul-22		0%							
KD09.SSHP.0020 Socketed Steel H- Pile Const SHP-BW-52Y1b-P; SHP-C52W-P1	truction Socketed Steel H-Pilling Socketed Steel H-Pilling	08-Feb-22 11-Feb-22	16-Feb-22 19-Feb-22	8	25-Jun-22 06-Jun-22 A	05-Jul-22 15-Jun-22 A		0% 100%							
KD09.SSHP.0020 Socketed Steel H- Pile Constr SHP-BW-52Y1b-P; SHP-C52W-P1 SHP-C52W-P2	truction Socketed Steel H-Piling Socketed Steel H-Piling Socketed Steel H-Piling	08-Feb-22 11-Feb-22 15-Feb-22	16-Feb-22 19-Feb-22 23-Feb-22	8	25-Jun-22 06-Jun-22 A 11-May-22 A	05-Jul-22 15-Jun-22 A 21-May-22 A	155	0% 100% 100%							
KD09.SSHP.0020 Socketed Steel H- Pile Constr SHP-BW-52Y1b-P; SHP-C52W-P1 SHP-C52W-P2 SHP-C52W-P5	Truction Socketed Steel H-Piling	08-Feb-22 11-Feb-22 15-Feb-22 25-Feb-22	16-Feb-22 19-Feb-22 23-Feb-22 05-Mar-22	8 8 9 8	25-Jun-22 06-Jun-22 A 11-May-22 A 29-Jun-22	05-Jul-22 15-Jun-22 A 21-May-22 A 08-Jul-22	155	0% 100% 100% 0%							
KD09.SSHP.0020 Socketed Steel H- Pile Const SHP-BW-52Y1b-P; SHP-C52W-P1 SHP-C52W-P2 SHP-C52W-P5 SHP-C52W-P6	truction Socketed Steel H-Piling	08-Feb-22 11-Feb-22 15-Feb-22 25-Feb-22 01-Mar-22	16-Feb-22 19-Feb-22 23-Feb-22 05-Mar-22 09-Mar-22	8 8 9 8 8 8	25-Jun-22 06-Jun-22 A 11-May-22 A 29-Jun-22 04-Jul-22 07-Jul-22	05-Jul-22 15-Jun-22 A 21-May-22 A 08-Jul-22 12-Jul-22	155 155 155	0% 100% 100% 0%							
KD09.SSHP.0020 Socketed Steel H-Pile Constr SHP-BW-52Y1b-P; SHP-C52W-P1 SHP-C52W-P2 SHP-C52W-P5 SHP-C52W-P6 SHP-C52X-P1	truction Socketed Steel H-Piling	08-Feb-22 01-Feb-22 15-Feb-22 25-Feb-22 01-Mar-22 04-Mar-22	16-Feb-22 19-Feb-22 23-Feb-22 05-Mar-22 09-Mar-22 12-Mar-22	8 8 9 8 8 8 8	25-Jun-22 06-Jun-22 A 11-May-22 A 29-Jun-22 04-Jul-22 07-Jul-22	05-Jul-22 15-Jun-22 A 21-May-22 A 08-Jul-22 12-Jul-22 15-Jul-22	155 155 155	0% 100% 100% 0% 0%							
KD09.SSHP.0020 Socketed Steel H- Pile Constr SHP-BW-52Y1b-P: SHP-C52W-P1 SHP-C52W-P2 SHP-C52W-P5 SHP-C52W-P6 SHP-C52X-P1 SHP-C52X-P1 SHP-C52X-P2	Truction Socketed Steel H-Piling	08-Feb-22 11-Feb-22 15-Feb-22 25-Feb-22 01-Mar-22 04-Mar-22 08-Mar-22	16-Feb-22 19-Feb-22 23-Feb-22 05-Mar-22 09-Mar-22 12-Mar-22 16-Mar-22	8 8 9 8 8 8 8 21	25-Jun-22 06-Jun-22 A 11-May-22 A 29-Jun-22 04-Jul-22 07-Jul-22 13-May-22 A	05-Jul-22 15-Jun-22 A 21-May-22 A 08-Jul-22 12-Jul-22 15-Jul-22 08-Jun-22 A	155 155 155 155	0% 100% 100% 0% 0% 0% 100%							
KD09.SSHP.0020 Socketed Steel H-Pile Const SHP-BW-52Y1b-P: SHP-C52W-P1 SHP-C52W-P1 SHP-C52W-P2 SHP-C52W-P5 SHP-C52W-P6 SHP-C52X-P1 SHP-C52X-P2 SHP-C52X-P2 SHP-C52X-P5	Truction Socketed Steel H-Piling	08-Feb-22 11-Feb-22 15-Feb-22 25-Feb-22 01-Mar-22 04-Mar-22 08-Mar-22 18-Mar-22	16-Feb-22 19-Feb-22 23-Feb-22 05-Mar-22 09-Mar-22 12-Mar-22 16-Mar-22 26-Mar-22	8 8 9 8 8 8 8 21 8	25-Jun-22 06-Jun-22 A 11-May-22 A 29-Jun-22 04-Jul-22 07-Jul-22 13-May-22 A 16-Jul-22	05-Jul-22 15-Jun-22 A 21-May-22 A 08-Jul-22 12-Jul-22 15-Jul-22 08-Jun-22 A 25-Jul-22	155 155 155 155 155	0% 100% 100% 0% 0% 100% 0%							
KD09.SSHP.0020 Socketed Steel H-Pile Constr SHP-BW-52Y1b-P; SHP-C52W-P1 SHP-C52W-P2 SHP-C52W-P5 SHP-C52W-P6 SHP-C52X-P1 SHP-C52X-P1 SHP-C52X-P2 SHP-C52X-P5 SHP-C52X-P6	truction Socketed Steel H-Piling	08-Feb-22 11-Feb-22 15-Feb-22 25-Feb-22 01-Mar-22 04-Mar-22 08-Mar-22 18-Mar-22	16-Feb-22 19-Feb-22 23-Feb-22 05-Mar-22 09-Mar-22 12-Mar-22 16-Mar-22 26-Mar-22 30-Mar-22	8 8 9 8 8 8 8 21 8 8	25-Jun-22 06-Jun-22 A 11-May-22 A 29-Jun-22 04-Jul-22 07-Jul-22 13-May-22 A 16-Jul-22 20-Jul-22	05-Jul-22 15-Jun-22 A 21-May-22 A 08-Jul-22 12-Jul-22 15-Jul-22 08-Jun-22 A 25-Jul-22	155 155 155 155 155 155	0% 100% 100% 0% 0% 100% 100%							
KD09.SSHP.0020 Socketed Steel H- Pile Constr SHP-BW-52Y1b-P: SHP-C52W-P1 SHP-C52W-P2 SHP-C52W-P5 SHP-C52W-P6 SHP-C52X-P1 SHP-C52X-P1 SHP-C52X-P5 SHP-C52X-P6 SHP-C52X-P1	Fruction         Socketed Steel H-Piling         Socketed Steel H-Piling	08-Feb-22 11-Feb-22 15-Feb-22 25-Feb-22 01-Mar-22 04-Mar-22 08-Mar-22 18-Mar-22 22-Mar-22 25-Mar-22	16-Feb-22 19-Feb-22 23-Feb-22 05-Mar-22 09-Mar-22 12-Mar-22 16-Mar-22 26-Mar-22 30-Mar-22 02-Apr-22	8 8 9 8 8 8 8 21 8 8 8 8 8	25-Jun-22 06-Jun-22 A 11-May-22 A 29-Jun-22 04-Jul-22 07-Jul-22 13-May-22 A 16-Jul-22 20-Jul-22 23-Jul-22 27-Jul-22	05-Jul-22 15-Jun-22 A 21-May-22 A 08-Jul-22 12-Jul-22 15-Jul-22 08-Jun-22 A 25-Jul-22 28-Jul-22 01-Aug-22	155 155 155 155 155 155 155 155	0% 100% 100% 0% 0% 100% 0% 0%							
KD09.SSHP.0020 Socketed Steel H-Pile Const SHP-BW-52Y1b-P: SHP-C52W-P1 SHP-C52W-P1 SHP-C52W-P2 SHP-C52W-P5 SHP-C52W-P6 SHP-C52X-P1 SHP-C52X-P1 SHP-C52X-P5 SHP-C52X-P5 SHP-C52Xa-P1 SHP-C52Xa-P1 SHP-C52Xa-P2 SHP-C52Xa-P3	Truction Socketed Steel H-Piling	08-Feb-22 11-Feb-22 15-Feb-22 01-Mar-22 04-Mar-22 08-Mar-22 18-Mar-22 22-Mar-22 25-Mar-22 29-Mar-22 01-Apr-22	16-Feb-22 19-Feb-22 23-Feb-22 05-Mar-22 09-Mar-22 12-Mar-22 16-Mar-22 26-Mar-22 30-Mar-22 02-Apr-22 07-Apr-22 11-Apr-22	8 8 9 8 8 8 21 8 8 8 8 8 8 8 5	25-Jun-22 06-Jun-22 A 11-May-22 A 29-Jun-22 04-Jul-22 07-Jul-22 13-May-22 A 16-Jul-22 20-Jul-22 23-Jul-22 27-Jul-22 17-May-22 A	05-Jul-22 15-Jun-22 A 21-May-22 A 08-Jul-22 12-Jul-22 15-Jul-22 08-Jun-22 A 25-Jul-22 28-Jul-22 01-Aug-22 04-Aug-22 23-May-22 A	155 155 155 155 155 155 155 155	0% 100% 100% 0% 0% 100% 0% 0% 0% 0% 100%						Chedded	Appr
KD09.SSHP.0020 Socketed Steel H- Pile Const SHP-BW-52Y1b-P: SHP-C52W-P1 SHP-C52W-P2 SHP-C52W-P5 SHP-C52W-P6 SHP-C52X-P1 SHP-C52X-P1 SHP-C52X-P2 SHP-C52X-P5 SHP-C52X-P5 SHP-C52Xa-P1 SHP-C52Xa-P1 SHP-C52Xa-P2 SHP-C52Xa-P3	Socketed Steel H-Piling Socketed Steel H-Piling	08-Feb-22 11-Feb-22 25-Feb-22 01-Mar-22 04-Mar-22 08-Mar-22 18-Mar-22 22-Mar-22 25-Mar-22 29-Mar-22 01-Apr-22	16-Feb-22 19-Feb-22 23-Feb-22 05-Mar-22 09-Mar-22 12-Mar-22 16-Mar-22 26-Mar-22 30-Mar-22 02-Apr-22 07-Apr-22 11-Apr-22	8 8 9 8 8 8 21 8 8 8 8 8 5 5	25-Jun-22 06-Jun-22 A 11-May-22 A 29-Jun-22 04-Jul-22 07-Jul-22 13-May-22 A 16-Jul-22 20-Jul-22 23-Jul-22 27-Jul-22 17-May-22 A	05-Jul-22 15-Jun-22 A 21-May-22 A 08-Jul-22 12-Jul-22 08-Jul-22 08-Jul-22 28-Jul-22 01-Aug-22 01-Aug-22 04-Aug-22 23-May-22 A	155 155 155 155 155 155 155 155	0% 100% 100% 0% 0% 100% 0% 0% 0% 0% 100%						Cheded	Appr B
KD09.SSHP.0020 Socketed Steel H- Pile Const SHP-BW-52Y1b-P; SHP-C52W-P1 SHP-C52W-P2 SHP-C52W-P5 SHP-C52W-P6 SHP-C52X-P1 SHP-C52X-P1 SHP-C52X-P2 SHP-C52X-P5 SHP-C52X-P5 SHP-C52Xa-P1 SHP-C52Xa-P1 SHP-C52Xa-P2 SHP-C52Xa-P3	Socketed Steel H-Piling Socketed Steel H-Piling	08-Feb-22 11-Feb-22 25-Feb-22 01-Mar-22 04-Mar-22 08-Mar-22 18-Mar-22 22-Mar-22 25-Mar-22 29-Mar-22 01-Apr-22	16-Feb-22 19-Feb-22 23-Feb-22 05-Mar-22 09-Mar-22 12-Mar-22 16-Mar-22 26-Mar-22 30-Mar-22 02-Apr-22 07-Apr-22 11-Apr-22	8 8 9 8 8 21 8 8 8 8 5 on Cultures Program	25-Jun-22 06-Jun-22 A 11-May-22 A 29-Jun-22 04-Jul-22 07-Jul-22 13-May-22 A 16-Jul-22 20-Jul-22 23-Jul-22 27-Jul-22 17-May-22 A	05-Jul-22 15-Jun-22 A 21-May-22 A 08-Jul-22 12-Jul-22 08-Jul-22 08-Jul-22 28-Jul-22 01-Aug-22 01-Aug-22 04-Aug-22 23-May-22 A	155 155 155 155 155 155 155 155	0% 100% 100% 0% 0% 100% 0% 0% 0% 0% 100%						-	Appr

Activi	ty ID	Activity Name	Baseline Start	Baseline Finish	Dur	Forecast / Actual	Forecast / Actual	Total Float	Activity %	/		une		July	August	Sept	ember
						Start	Finsih		Complete			12		13	14		15
	127					2012/02/20				21 2	8 04 1	1 18 3	5 02	09 16 23	30 06 13 3	20 27 03	10
	SHP-C52Xa-P5	Socketed Steel H-Piling	09-Apr-22	21-Apr-22	8	30-Jul-22	08-Aug-22	155	0%								
	Attendance to Other P	roject Contractors (optional works item no. 2A to 2E)											1				
										100							
	S1.AT.0020	Attendance at Section 1 Area (optional works item no. 2A) if item No. 3 is instructed (Duration TBC)	16-Aug-22	04-Sep-22	20	16-Aug-22	04-Sep-22	71	0%				1 1 1 1 1				1000-109-00-0

ID: 2B2C-20220618 bw Data Date: 18-Jun-22 Print Date: 20-Jun-22\_11:58 Page 30 of 30

Planned Bar 🔷 Milestone Critical Bar 🛛 🔶 Critical MS

Baseline 0 Baseline MS West Kowloon Cultural District Authority Piling for Integrated Basement and U/G Road in Zone 2B 2C 3 Month Rolling Programme as of 17 June 2022 Based on CMWP Rev.0



B

# C. Action and Limit Levels for Construction Phase

### Air Quality

The Action and Limit Levels for 1-hour and 24-hour TSP for the monitoring stations are presented in following tables:

### Table C-1: Action and Limit Levels for 1-hour TSP

Monitoring Station	Action Level (µg/m3)	Limit Level (µg/m3)
AM3A	280.4	500
AM4A	278.5	500
AM5A	275.4	500

### Table C-2: Action and Limit Levels for 24-hour TSP

Monitoring Station	Action Level (µg/m3)	Limit Level (μg/m3)
AM3A	152.4	260
AM4A	152.6	260
AM5A	141.1	260

### <u>Noise</u>

The Action and Limit Levels for Noise for the monitoring stations are presented in following table:

### Table C-3: Action and Limit Levels for Construction Noise

Time Period & Monitoring Locations	Action Level	Limit Level
NM2A, NM3A, NM4A and NM5A		
0700-1900 hours on normal weekdays	When one valid documented complaint is	75
	received from any one of the sensitive receiver	

Note:

\*Reduce to 70dB(A) for school and 65 dB(A) during school examination period.

## **D.** Event and Action Plan for Air Quality, Noise, Landscape and Visual Impact

### Air Quality

In case the Action and Limit Levels are not complied during construction stage, the following Event and Action Plan should be followed:

Event		Acti	on	
Event	ET	IEC	WKCDA	Contractor
Action Level				
1. Exceedance for one sample	<ol> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform IEC and WKCDA;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily.</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method.</li> </ol>	1. Notify Contractor	<ol> <li>Rectify any unacceptable practice;</li> <li>Amend working methods if appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol> <li>Identify source;</li> <li>Inform IEC and WKCDA;</li> <li>Advise the WKCDA on the effectiveness of the proposed remedial measures;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Discuss with IEC and Contractor on remedial actions required;</li> <li>If exceedance continues, arrange meeting with IEC and WKCDA;</li> <li>If exceedance stops, cease additional monitoring.</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise the ET on the effectiveness of the proposed remedial measures;</li> <li>Monitor the implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ol>	<ol> <li>Submit proposals for remedial to</li> <li>WKCDA within three working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ol>

### Table D-1: Typical Event and Action Plan for Air Quality

Event	Action					
Event	ET	IEC	WKCDA	Contractor		
Limit Level						
1. Exceedance for one sample	<ol> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform WKCDA, Contractor and EPD;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and WKCDA informed of the results.</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise the WKCDA on the effectiveness of the proposed remedial measures;</li> <li>Monitor the implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ol>	<ol> <li>Take immediate action to avoid furthe exceedance;</li> <li>Submit proposals for remedial actions to IEC within three working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ol>		
2. Exceedance for two or more consecutive samples	<ol> <li>Notify IEC, WKCDA,</li> <li>Contractor and EPD;</li> <li>Identify source;</li> <li>Repeat measurement</li> <li>to confirm findings;</li> <li>Increase monitoring</li> <li>frequency to daily;</li> <li>Carry out analysis of</li> <li>Contractor's working</li> <li>procedures to determine</li> <li>possible mitigation to be</li> <li>implemented;</li> <li>Arrange meeting with</li> <li>IEC and WKCDA to</li> <li>discuss the remedial</li> <li>actions to be taken;</li> <li>Assess effectiveness</li> <li>of Contractor's remedial</li> <li>actions and keep IEC,</li> <li>EPD and WKCDA</li> <li>informed of the results;</li> <li>If exceedance stops,</li> <li>cease additional</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss amongst WKCDA, ET, and Contractor on the potential remedial actions;</li> <li>Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the WKCDA accordingly;</li> <li>Monitor the implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>Ensure remedial measures properly implemented;</li> <li>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.</li> </ol>	<ol> <li>Take immediate         <ul> <li>action to avoid further</li> <li>exceedance;</li> <li>Submit proposals             for remedial actions             to IEC within three             working days of             notification;</li> <li>Implement the             agreed proposals;</li> <li>Resubmit proposals             if problem still not             under control;</li> <li>Stop the relevant             portion of works as             determined by the             WKCDA until the             exceedance is abated.</li> </ul> </li> </ol>		

### **Construction Noise**

In case the Action and Limit Levels are not complied during construction stage, the following Event and Action Plan should be followed:

### Table D-2: Event and Action Plan for Construction Noise

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

### Landscape and Visual Impact

In case of non-compliance of landscape and visual impacts, procedures in accordance with the Event and Action Plan should be followed:

<b>F</b>		Action		
Event	Action	Event	Action	Event
Design Check	<ol> <li>Design check to make sure the design complies with all the proposed mitigation measures in the EIA report;</li> <li>Prepare and submit report.</li> </ol>	<ol> <li>Check report submitted by ET;</li> <li>Recommend remedial design if necessary.</li> </ol>	1. Undertake remedial design if necessary.	-
Non-conformity on one occasion	<ol> <li>Identify source of non-conformity;</li> <li>Report to IEC and WKCDA;</li> <li>Discuss remedial actions with IEC, WKCDA and Contractor;</li> <li>Monitor remedial actions until rectification has been completed.</li> </ol>	<ol> <li>Check and verify source of non- conformity;</li> <li>Discuss remedial actions with ET and Contractor;</li> <li>Advise WKCDA on effectiveness of proposed remedial actions;</li> <li>Check implementation of remedial actions.</li> </ol>	<ol> <li>Notify Contractor;</li> <li>Ensure remedial actions are properly implemented.</li> </ol>	<ol> <li>Amend working method as necessary;</li> <li>Rectify damage and undertake necessary replacement and remedial actions.</li> </ol>
Repeated non- conformity	<ol> <li>Identify source of non-conformity;</li> <li>Report to IEC and WKCDA;</li> <li>Increase monitoring frequency;</li> <li>Discuss remedial actions with IEC, WKCDA and Contractor;</li> <li>Monitor remedial actions until rectification has been completed;</li> <li>If non-conformity rectified, reduce monitoring frequency back to normal.</li> </ol>	<ol> <li>Check and verify source of non- conformity;</li> <li>Check Contractor's working method;</li> <li>Discuss remedial actions with ET and Contractor;</li> <li>Advise WKCDA on effectiveness of proposed remedial actions;</li> <li>Supervise implementation of remedial actions.</li> </ol>	<ol> <li>Notify Contractor;</li> <li>Ensure remedial actions are properly implemented.</li> </ol>	<ol> <li>Amend working method as necessary;</li> <li>Rectify damage and undertake necessary replacement and remedial actions.</li> </ol>

### Table D-3: Event and Action Plan for Landscape and Visual Impact

## E. Monitoring Schedule

Notes:

AM3A - Northeast corner of West Kowloon Station's station box (G/F)

AM4A - Southeast corner of West Kowloon Station's station box (G/F)

AM5A - North of West Kowloon Station's station box (G/F)

NM2A - The Arch – Sun Tower (G/F)

NM3A - Xiqu Centre (G/F)

NM4A - Next to Tsim Sha Tsui Fire Station (G/F)

NM5A - Pedestrian road (G/F) outside West Kowloon Station

## June 2022 (Hong Kong)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	31	1	2 Landscape & Visual Inspection Zone 2A	3 • Dragon Boat Festival	4
5	AM3A,AM4A,AM5A - 24-hr TSP, 1-hr TSP X 3 NM2A,NM3A,NM4A,NM5A - Noise Impact Monitoring	7	8	9	10	AM3A,AM4A,AM5A - 24-hr TSP, 1-hr TSP X 3 NM2A,NM3A,NM4A,NM5A - Noise Impact Monitoring
12	13	14 Landscape & Visual Inspection Zone 2B & 2C	15	16 Landscape & Visual Inspection Zone 2A	17 AM3A,AM4A,AM5A - 24-hr TSP, 1-hr TSP X 3 NM2A,NM3A,NM4A,NM5A - Noise Impact Monitoring	18
<b>19</b> Father's Day	20	21	22	23 AM3A,AM4A,AM5A - 24-hr TSP, 1-hr TSP X 3 NM2A,NM3A,NM4A,NM5A - Noise Impact Monitoring	24	25
26 • Federal Holidays	27 AM3A,AM4A,AM5A - 24-hr TSP, 1-hr TSP X 3 NM2A,NM3A,NM4A,NM5A - Noise Impact Monitoring Landscape & Visual Inspection Zone 2B & 2C ● Local Holidays ● Multiple Events	28	29	30	1 • Hong Kong Special Administrative Region Establishment Day	2

Notes:

AM3A - Northeast corner of West Kowloon Station's station box (G/F)

AM4A - Southeast corner of West Kowloon Station's station box (G/F)

AM5A - North of West Kowloon Station's station box (G/F)

NM2A - The Arch – Sun Tower (G/F)

NM3A - Xiqu Centre (G/F)

NM4A - Next to Tsim Sha Tsui Fire Station (G/F)

NM5A - Pedestrian road (G/F) outside West Kowloon Station

## July 2022 (Hong Kong)

Note: Impact monitoring on 02/07 has rescheduled to 04/07 due to Tropical Cyclone Warning Signal No.8

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28	29	30	1 • Hong Kong Special Administrative Region Establishment Day	2 Amsa, AM4A, AM5A 24-h Nm Cancelled MM5A - Noise Impact Monitoring
<b>3</b> Note: Impact monitoring on 02/07 has rescheduled to 04/07 due to Tropical Cyclone Warning Signal No.8	<b>4</b> AM3A,AM4A,AM5A - 24-hr TSP, 1-hr TSP X 3 NM2A,NM3A,NM4A,NM5A - Noise Impact Monitoring	5 AM3A,AM4A,AM5A - 24-hr TSP, 1-hr TSP X 3 NM2A,NM3A,NM4A,NM5A - Noise Impact Monitoring	6	7 Landscape & Visual Inspection Zone 2A	8	9
10	<b>11</b> AM3A,AM4A,AM5A - 24-hr TSP, 1-hr TSP X 3 NM2A,NM3A,NM4A,NM5A - Noise Impact Monitoring	12 Landscape & Visual Inspection Zone 2B & 2C	13	14	15	16 AM3A,AM4A,AM5A - 24-hr TSP, 1-hr TSP X 3 NM2A,NM3A,NM4A,NM5A - Noise Impact Monitoring
17	18	19	20	21 Landscape & Visual Inspection Zone 2A	22 AM3A,AM4A,AM5A - 24-hr TSP, 1-hr TSP X 3 NM2A,NM3A,NM4A,NM5A - Noise Impact Monitoring	23
24	25	26 Landscape & Visual Inspection Zone 2B & 2C	27	28 AM3A,AM4A,AM5A - 24-hr TSP, 1-hr TSP X 3 NM2A,NM3A,NM4A,NM5A - Noise Impact Monitoring	29	30
31	1	2	3	4	5	6

## **F.** Calibration Certifications



RECALIBRATION **DUE DATE:** 

October 20, 2022

Certificate of Calibration

					on Informat	· ·		
Cal. Date:	October 20	), 2021	Roots	meter S/N:	438320	Ta:	295	°К
Operator:	Jim Tisch					Pa:	753.9	mm Hg
<b>Calibration</b>	Model #:	TE-5025A	Calil	orator S/N:	3543			
		No.1 Justa	Mal Pinal		A 771			1
	Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Ha)	ΔH (i= 1120)	
	1	<u>(ms)</u>	2	1		(mm Hg) 3.2	(in H2O) 2.00	
	2	3	4	1	1.0060	6.4	4.00	
	3	5	6	1	0.8990	7.9	5.00	
	4	7	8	1	0.8550	8.8	5.50	
	5	9	10	1	0.7050	12.8	8.00	
			<u> </u>	Data Tabula	tion			1
				V Tetal			[	
	Vstd	Qstd	$\sqrt{\Delta H \left( \frac{Pa}{Pstd} \right)}$	<u>)(Tstd</u> ) Ta		Qa	√∆H( Ta/Pa )	
	(m3)	(x-axis)	(y-ax	is)	Va	(x-axis)	(y-axis)	
	0.9978	0.6977	1.41		0.9958	0.6963	0.8847	
	0.9935	0.9876	2.002	20	0.9915	0.9856	1.2511	
	0.9915	1.1029	2.238		0.9895	1.1007	1.3988	
	0.9903	1.1583	2.34		0.9883	1.1559	1.4670	
	0.9850	1.3972	2.83		0.9830	1.3944	1.7693	
	QSTD	b=	2.024		0.0	<u>m=</u> b=	1.26761 0.00217	
	QJID	r=	1.000		QA	r=	1.00000	
		·····		Calculatio	nc			
	Vstd=	ΔVol((Pa-ΔP)	/Pstd)(Tstd/Ta			ΔVol((Pa-Δl	P)/Pa)	
		Vstd/∆Time	// 500/(1500/ /2	·,		Va/ΔTime	<u>,,,, u,</u>	
			For subsequ	ent flow ra	te calculation			
	Qstd=	1/m (( \\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Pa <u>Tstd</u> Pstd Ta	) ) -b)	Qa=	1/m ((√∆⊦	(Ta/Pa))-b)	
	Standard	Conditions						
						RECA	IBRATION	
Tstd:	298.15							
Tstd: Pstd:	760	mm Hg			US EPA reco	mmonds a	nual recalibratio	n nor 100
Pstd:	760 K	mm Hg Cey	n H2O)				nual recalibratio	-
Pstd: AH: calibrate	760 K pr manomet	mm Hg C <b>ey</b> er reading (ii			40 Code	of Federal F	egulations Part 5	50 to 51,
Pstd: ΔH: calibrato ΔP: rootsme	760 K pr manomet ter manome	mm Hg Cey			40 Code Appendix E	of Federal <del>F</del> 8 to Part 50,	egulations Part 5 Reference Meth	50 to 51, od for the
Pstd: ΔΗ: calibrato ΔΡ: rootsme Γa: actual ab	760 K or manomet ter manome solute temp	mm Hg er reading (ii eter reading (	(mm Hg)		40 Code Appendix E Determinat	of Federal <del>F</del> 8 to Part 50, ion of Susp	egulations Part 5	50 to 51, od for the Matter in

Tisch Environmental, Inc.

145 South Miami Avenue Village of Cleves, OH 45002

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



			Site I	nformation		
Teetien			Cite TD:	Zones 2A a		Deter 12 Apre 22
Location:				Kowloon Cu	litural	Date: 13-Apr-22
Sampler:	TE-5170		Serial No:	4340		Tech: CS Tang
			Site (	Conditions		
	Barometric Pre	essure (in Hg): 2	9.73		Corrected Pres	ssure (mm Hg): 755
	-	erature (deg F): 7			-	erature (deg K): 298
		Press. (in Hg): 2				erage (mm Hg): 755
	Average	Temp. (deg F): 7	7		Average	Temp. (deg K): 298
			Calibra	tion Orifice		
	Make:				Qstd Slope:	
		TE-5025A			Qstd Intercept:	
	Serial#:	3543			Date Certified:	20-Oct-21
			Calibratio	on Informatic	on	
Plate or	H2O	Qstd	I	IC		
Test #	(in)	(m3/min)	(chart)	(corrected)		Linear Regression
1	12.50	1.739	53.0	52.83		Slope: 31.3621
2 3	10.70 7.70	1.609 1.365	48.0 41.0	47.85 40.87		Intercept: -1.9304 Corr. Coeff: 0.9971
3 4	4.70	1.365	41.0 33.0	40.87		Con. Coen: 0.9971
5	2.80	0.822	23.0	22.93	# c	of Observations: 5
			C	alculations		
std = 1/m[Sqrt(	H2O(Pa/Pstd)(Ts	std/Ta))-b]	_		m = sampler slo	pe
= I[Sqrt(Pa/Ps	std)(Tstd/Ta)]				b = sampler inte	ercept
					I = chart response	se
td = standard f	low rate				Tav = daily avera	age temperature
= corrected ch	art response				Pav = daily avera	ge pressure
actual chart re	esponse					
actual chall I						verage I (chart): 40
= calibrator Q					Averag	ge Flow Calculation m3/min
= calibrator Q = calibrator Qs						
= calibrator Q = calibrator Qs = actual tempo	erature during cal					1.320179067
= calibrator Q = calibrator Qs = actual tempo = actual press	erature during cal ure during calibra				-	e Flow Calculation in CFM
= calibrator Q = calibrator Qs = actual tempo = actual press td = 298 deg K	erature during cal ure during calibra K				-	te Flow Calculation in CFM 46.61552284
= calibrator Q = calibrator Qs = actual temporest = actual pressont td = 298 deg K td = 760 mm H	erature during cal ure during calibra K Ig	ation (mm Hg)			Sam	te Flow Calculation in CFM 46.61552284 ple Time (Hrs): 1.0
= calibrator Q = calibrator Qs = actual tempo = actual pressi td = 298 deg K td = 760 mm H r subsequent ca	erature during cal ure during calibra K Ig alculation of sam	ation (mm Hg) upler flow:			Sam	te Flow Calculation in CFM 46.61552284 ple Time (Hrs): 1.0 Total Flow in m3/min
= calibrator Q = calibrator Qs = actual tempo = actual pressi td = 298 deg K td = 760 mm H or subsequent ca	erature during cal ure during calibra K Ig	ation (mm Hg) upler flow:			Sam	te Flow Calculation in CFM 46.61552284 ple Time (Hrs): 1.0 Total Flow in m3/min 79.210744
= calibrator Q = calibrator Qs = actual tempo = actual pressi td = 298 deg K td = 760 mm H or subsequent ca	erature during cal ure during calibra K Ig alculation of sam	ation (mm Hg) upler flow:			Sam	te Flow Calculation in CFM 46.61552284 ple Time (Hrs): 1.0 Total Flow in m3/min



$\begin{array}{c c} \hline & & & & & & & & & & & & & & & & & & $				Site I	nformation		
Barometric Pressure (in Hg): 29.69Corrected Pressure (mm Hg): 754 Temperature (deg K): 299 Average Press. (in Hg): 29.69 Average Temp. (deg F): 79Corrected Average (mm Hg): 754 Temperature (deg K): 299Calibration OrificeCalibration OrificeMake: Tisch Model: TE-5025A Serial#: 3543Qstd Slope: 2.02434 Qstd Slope: 2.02434 Qstd Slope: 2.02434 Model: TE-5025A Serial#: 3543Calibration OrificeCalibration InformationPlate or H2O Test # (in) (m3/min) (chart) (chart)Corrected) Linear Regression112.401.72853.052.70Slope: 30.7807210.501.59048.047.73Intercept: -0.824137.801.37041.040.77Corr. Coeff: 0.997744.601.05233.032.8155CalculationsMay appendent of the sponseQstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]m = sampler slopeDe sampler interceptI= chart responseI= chart responseI= atual chart responsem= calibrator Qstd SlopeA4.0A4.0A4.0A4.0A4.0B= sampler slopeIC = corrected chart responseII = actual chart responseII = actual chart responseII = actual chart response<					Kowloon Cu		
Temperature (deg F): 79Temperature (deg K): 299Average Press. (in Hg): 29,69Corrected Average (mm Hg): 754Average Temp. (deg F): 79Average Temp. (deg K): 299Calibration OrificeCalibration OrificeMake: TischQstd Slope: 2.02434Model: TE-5025AQstd Intercept: 0.00347Serial#: 3543Date Certified: 20-Oct-21Calibration InformationPlate orH2OQstdIIICTest #(in)(m3/min)(chart)112.401.72853.052.70210.501.59048.047.7337.801.37041.040.7744.601.05233.032.8152.600.79023.022.87# of Observations: 5CalculationsQstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]m = sampler slopeC = corrected chart responsem = sampler interceptI = actual chart responseTav = daily average pressureI = actual chart responseTav = daily average pressureI = actual chart responseFav = daily average pressureI = actual chart responseAverage I (chart): 40				Site C	Conditions		
Make: Ti sch Model: TE-5025A Serial#: $3543$ Qstd Slope: $2.02434$ Qstd Intercept: $0.00347$ Date Certified: $20-Oct-21$ Calibration InformationPlate orH2O (m3/min)QstdI (chart)IC (corrected)112.401.728 $53.0$ $52.70$ Slope: $30.7807$ 210.501.590 $48.0$ $47.73$ Intercept: $-0.8241$ 37.801.370 $41.0$ $40.77$ Corr. Coeff: $0.9977$ 4 $4.60$ 1.052 $33.0$ $32.81$ $5$ CalculationsQstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]m = sampler slope b = sampler intercept I = chart responseQstd = standard flow rate IC = corrected chart response I = actual chart response m = calibrator Qstd slopem = calibrator Qstd slopeAverage I (chart): $40$		Tempe Average	erature (deg F): 7 Press. (in Hg): 2	9 9.69		Temp Corrected Ave	erature (deg K): 299 erage (mm Hg): 754
Model:TE-5025A Serial#:Qstd Intercept: $0.00347$ Date Certified: $20-\text{Oct}-21$ Calibration InformationPlate orH2OQstdIICTest #(in)(m3/min)(chart)(corrected)Linear Regression112.401.72853.052.70Slope:30.7807210.501.59048.047.73Intercept: $-0.8241$ 37.801.37041.040.77Corr. Coeff: $0.9977$ 44.601.05233.032.815 $5$ $5$ CalculationsQstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]m = sampler slope b = sampler intercept I = chart responseQstd = standard flow rate IC = corrected chart response I = actual chart response I = actual chart response m = calibrator Qstd slopeM erage I (chart): 40				Calibra	tion Orifice		
Plate or         H2O         Qstd         I         IC           Test #         (in)         (m3/min)         (chart)         (corrected)         Linear Regression           1         12.40         1.728         53.0         52.70         Slope: 30.7807           2         10.50         1.590         48.0         47.73         Intercept: -0.8241           3         7.80         1.370         41.0         40.77         Corr. Coeff: 0.9977           4         4.60         1.052         33.0         32.81		Model:	TE-5025A			Qstd Intercept:	0.00347
Test #       (in)       (m3/min)       (chart)       (corrected)       Linear Regression         1       12.40       1.728 $53.0$ $52.70$ Slope: $30.7807$ 2       10.50       1.590 $48.0$ $47.73$ Intercept: $-0.8241$ 3       7.80       1.370 $41.0$ $40.77$ Corr. Coeff: $0.9977$ 4       4.60       1.052 $33.0$ $32.81$ $977$ 5       2.60 $0.790$ $23.0$ $22.87$ # of Observations: $5$ Calculations         Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]       m = sampler slope $b$ = sampler intercept         IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] $B$ = sampler intercept       I = chart response         Qstd = standard flow rate       Tav = daily average temperature       Pav = daily average pressure         I = actual chart response       Pav = daily average pressure       Pav = daily average pressure         I = actual chart response       M = calibrator Qstd slope       Average I (chart): $40$				Calibratio	on Informatic	n	
Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]m = sampler slopeIC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]b = sampler interceptI = chart responseI = chart responseQstd = standard flow rateTav = daily average temperatureIC = corrected chart responsePav = daily average pressureI = actual chart responsePav = daily average pressurem = calibrator Qstd slopeAverage I (chart): 40	Test # 1 2 3 4	(in) 12.40 10.50 7.80 4.60	(m3/min) 1.728 1.590 1.370 1.052	(chart) 53.0 48.0 41.0 33.0	(corrected) 52.70 47.73 40.77 32.81	# (	Slope: 30.7807 Intercept: -0.8241 Corr. Coeff: 0.9977
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]       b = sampler intercept         I = chart response       I = chart response         Qstd = standard flow rate       Tav = daily average temperature         IC = corrected chart response       Pav = daily average pressure         I = actual chart response       Pav = daily average pressure         m = calibrator Qstd slope       Average I (chart): 40				Ca	alculations		
	IC = I[Sqrt(Pa/Pst Qstd = standard fl IC = corrected cha	td)(Tstd/Ta)] low rate art response	td/Ta))-b]			b = sampler inte I = chart respon Tav = daily avera	ercept ise age temperature
Ta = actual temperature during calibration (deg K)1.305956055Pa = actual pressure during calibration (mm Hg)Average Flow Calculation in CFMTstd = 298 deg K46.1133083Pstd = 760 mm HgSample Time (Hrs): 1.0For subsequent calculation of sampler flow:Total Flow in m3/min1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)78.3573633Total Flow in CFM2766.798498	m = calibrator Qs b = calibrator Qs Ta = actual tempe Pa = actual pressu Tstd = 298 deg K Pstd = 760 mm H. For subsequent ca	std slope td intercept erature during cal ure during calibra g lculation of sam	ation (mm Hg) pler flow:			Averag Averag Sam	ge Flow Calculation m3/min 1.305956055 ge Flow Calculation in CFM 46.1133083 uple Time (Hrs): 1.0 Total Flow in m3/min 78.3573633 Total Flow in CFM



			Site I	nformation		
Location: 7	ΔΜΑ Δ		Site TDe	Zones 2A a Kowloon Cu		Date: 13-Apr-22
Sampler:			Sile ID. Serial No:		illurar	Tech: CS Tang
Sampler:	18 5170		Serial INO:	5500		Tech: C5 Tally
			Site (	Conditions		
		essure (in Hg): 2			Corrected Pressu	<b>ire (mm Hg):</b> 755
	-	erature (deg F): 7				ture (deg K): 298
		Press. (in Hg): 2				<b>ge (mm Hg):</b> 755
	Average '	Temp. (deg F): 7	7		Average Te	emp. (deg K): 298
			Calibra	tion Orifice		
	Make: '				Qstd Slope: 2.	
		TE-5025A			Qstd Intercept: 0.	
	Serial#:	3543			Date Certified: 20	-Oct-21
			Calibratio	on Informatio	n	
Plate or	H2O	Qstd	Ι	IC		
Test #	(in)	(m3/min)	(chart)	(corrected)		Linear Regression
1	12.60	1.746	53.0	52.83		Slope: 30.0314
2	10.80	1.616	48.0	47.85		Intercept: 0.1648
3	7.50	1.347	41.0	40.87		Corr. Coeff: 0.9965
4	4.50	1.043	33.0	32.89		o1 / -
5	2.60	0.792	23.0	22.93	# OI (	Observations: 5
			Ca	alculations		
	H2O(Pa/Pstd)(Ts	std/Ta))-b]	C	alculations	m = sampler slope	
		std/Ta))-b]	C	alculations	b = sampler interc	
= I[Sqrt(Pa/Ps	td)(Tstd/Ta)]	std/Ta))-b]	C	alculations	b = sampler interce I = chart response	ept
= I[Sqrt(Pa/Pst td = standard f]	td)(Tstd/Ta)] low rate	std/Ta))-b]	C	alculations	<ul><li>b = sampler interce</li><li>I = chart response</li><li>Tav = daily average</li></ul>	ept e temperature
= I[Sqrt(Pa/Pst td = standard fl = corrected cha	td)(Tstd/Ta)] low rate art response	td/Ta))-b]	C	alculations	b = sampler interce I = chart response	ept e temperature
= I[Sqrt(Pa/Pst td = standard fl = corrected ch actual chart re	td)(Tstd/Ta)] low rate art response esponse	td/Ta))-b]	C	alculations	<ul> <li>b = sampler interco</li> <li>I = chart response</li> <li>Tav = daily average</li> <li>Pav = daily average</li> </ul>	ept e temperature e pressure
= I[Sqrt(Pa/Pst td = standard fl = corrected ch: actual chart re = calibrator Qs	td)(Tstd/Ta)] low rate art response sponse std slope	ttd/Ta))-b]	C	alculations	<ul> <li>b = sampler interc</li> <li>I = chart response</li> <li>Tav = daily average</li> <li>Pav = daily average</li> </ul>	ept e temperature e pressure rage I (chart): 40
= I[Sqrt(Pa/Pst td = standard fl = corrected ch actual chart re = calibrator Qs = calibrator Qs	td)(Tstd/Ta)] low rate art response esponse std slope td intercept		C	alculations	<ul> <li>b = sampler interc</li> <li>I = chart response</li> <li>Tav = daily average</li> <li>Pav = daily average</li> </ul>	ept e temperature e pressure rage I (chart): 40 Flow Calculation m3/min
= I[Sqrt(Pa/Pst td = standard fl = corrected ch actual chart re = calibrator Qs = actual tempe	td)(Tstd/Ta)] low rate art response esponse std slope std slope erature during ca	libration (deg K)	C	alculations	b = sampler interco I = chart response Tav = daily average Pav = daily average Average	ept e temperature e pressure rage I (chart): 40 Flow Calculation m3/min 1.308912086
= I[Sqrt(Pa/Pst td = standard fl = corrected ch actual chart re = calibrator Qs = actual tempe = actual pressu	td)(Tstd/Ta)] low rate art response esponse std slope std slope erature during ca ure during calibra	libration (deg K)	C	alculations	<ul> <li>b = sampler interce</li> <li>I = chart response</li> <li>Tav = daily average</li> <li>Pav = daily average</li> <li>Average</li> <li>Average</li> <li>Average</li> </ul>	ept e temperature e pressure rage I (chart): 40 Flow Calculation m3/min 1.308912086 Flow Calculation in CFM
= I[Sqrt(Pa/Pst td = standard fl = corrected ch actual chart re = calibrator Qs = actual tempe = actual pressu d = 298 deg K	td)(Tstd/Ta)] low rate art response sponse std slope td intercept erature during ca are during calibra	libration (deg K)	C	alculations	<ul> <li>b = sampler interce</li> <li>I = chart response</li> <li>Tav = daily average</li> <li>Pav = daily average</li> <li>Average</li> <li>Average</li> </ul>	ept e temperature e pressure rage I (chart): 40 Flow Calculation m3/min 1.308912086 Flow Calculation in CFM 46.21768576
= I[Sqrt(Pa/Pst td = standard fl = corrected ch: actual chart re = calibrator Qs = actual tempe = actual pressu d = 298 deg K d = 760 mm H	td)(Tstd/Ta)] low rate art response sponse std slope td intercept erature during ca are during calibra	libration (deg K) ation (mm Hg)	C	alculations	<ul> <li>b = sampler interce</li> <li>I = chart response</li> <li>Tav = daily average</li> <li>Pav = daily average</li> <li>Average</li> <li>Average</li> <li>Sample</li> </ul>	ept e temperature e pressure rage I (chart): 4 0 Flow Calculation m3/min 1.308912086 Flow Calculation in CFM 46.21768576 e Time (Hrs): 1.0
= I[Sqrt(Pa/Pst td = standard fl = corrected ch: actual chart re = calibrator Qs = actual tempe = actual pressu d = 298 deg K d = 760 mm H r subsequent ca	td)(Tstd/Ta)] low rate art response esponse std slope td intercept erature during cal ure during calibra lg alculation of sam	libration (deg K) ation (mm Hg) pler flow:	C	alculations	<ul> <li>b = sampler interce</li> <li>I = chart response</li> <li>Tav = daily average</li> <li>Pav = daily average</li> <li>Average</li> <li>Average</li> <li>Sample</li> </ul>	ept e temperature e pressure rage I (chart): 4 0 Flow Calculation m3/min 1.308912086 Flow Calculation in CFM 46.21768576 e Time (Hrs): 1.0 tal Flow in m3/min
= I[Sqrt(Pa/Pst td = standard fl = corrected ch: actual chart re = calibrator Qs = actual tempe = actual pressu td = 298 deg K td = 760 mm H r subsequent ca	td)(Tstd/Ta)] low rate art response sponse std slope td intercept erature during ca are during calibra	libration (deg K) ation (mm Hg) pler flow:	C	alculations	<ul> <li>b = sampler interco</li> <li>I = chart response</li> <li>Tav = daily average</li> <li>Pav = daily average</li> <li>Average</li> <li>Average</li> <li>Sample</li> <li>To</li> </ul>	ept e temperature e pressure rage I (chart): 40 Flow Calculation m3/min 1.308912086 Flow Calculation in CFM 46.21768576 e Time (Hrs): 1.0 tal Flow in m3/min 78.53472517
= I[Sqrt(Pa/Pst td = standard fl = corrected ch: actual chart re = calibrator Qs = actual tempe = actual pressu td = 298 deg K td = 760 mm H r subsequent ca	td)(Tstd/Ta)] low rate art response esponse std slope td intercept erature during cal ure during calibra lg alculation of sam	libration (deg K) ation (mm Hg) pler flow:	C	alculations	<ul> <li>b = sampler interco</li> <li>I = chart response</li> <li>Tav = daily average</li> <li>Pav = daily average</li> <li>Average</li> <li>Average</li> <li>Sample</li> <li>To</li> </ul>	ept e temperature e pressure rage I (chart): 4 0 Flow Calculation m3/min 1.308912086 Flow Calculation in CFM 46.21768576 e Time (Hrs): 1.0 tal Flow in m3/min



			Site Iı	nformation			
Location: 2	<b>N N 4 N</b>			Zones 2A a		Deter 10 True 22	
			Site ID: Serial No:	Kowloon Cu 2998	liculai	Date: 10-Jun-22 Tech: CS Tang	
Sampler:	11 5170		Senai Ino:	5550		Tech: CD Tang	
				Conditions			
Barometric Pressure (in Hg): 29.69					Corrected Pressure (mm Hg): 754		
	-	erature (deg F): 7			Temperature (deg K): 299		
Average Press. (in Hg): 29.69					Corrected Average (mm Hg): 754		
	Average	Temp. (deg F): 7	9		Average T	emp. (deg K): 299	
			Calibra	tion Orifice			
	Make:				Qstd Slope: 2		
		TE-5025A			Qstd Intercept: 0		
	Serial#:	3543			Date Certified: 2	0-Oct-21	
			Calibratic	n Informatic	n		
Plate or	H2O	Qstd	Ι	IC			
Test #	(in)	(m3/min)	(chart)	(corrected)		Linear Regression	
1	12.50	1.735	53.0	52.70		Slope: 29.5963	
2	10.80	1.612	48.0	47.73		Intercept: 0.8281	
3	7.70	1.361	41.0	40.77		Corr. Coeff: 0.9962	
4	4.40	1.029	33.0	32.81	л. ц.		
5	2.50	0.775	23.0	22.87	# OI	Observations: 5	
			Ca	alculations			
	H2O(Pa/Pstd)(Ts	std/Ta))-b]			m = sampler slop		
= I[Sqrt(Pa/Ps	td)(Tstd/Ta)]				b = sampler inter		
					I = chart response		
td = standard f					Tav = daily averag		
= corrected ch					Pav = daily averag	e pressure	
actual chart re	-						
a = calibrator Qstd slope					erage I (chart): 40		
= calibrator Qstd intercept				Average	Flow Calculation m3/min		
a = actual temperature during calibration (deg K)				<b>A</b>	1.302392012		
	a = actual pressure during calibration (mm Hg)					Flow Calculation in CFM	
= actual pressu	std = 298  deg K					45.98746193	
= actual pressi td = 298 deg K		std = 760  mm Hg				le Time (Hrs): 1.0	
= actual pressu td = 298 deg K td = 760 mm H	[g	plar flow:		or subsequent calculation of sampler flow:			
= actual pressu td = 298 deg K td = 760 mm H r subsequent ca	lg alculation of sam				Te	otal Flow in m3/min	
= actual pressu td = 298 deg K td = 760 mm H r subsequent ca	[g					78.14352069	
= actual pressu td = 298 deg K td = 760 mm H r subsequent ca	lg alculation of sam						



			Site I	nformation			
Location: 2	λμελ			Zones 2A a Kowloon Cu		Date: 13-Apr-22	
Sampler:			Serial No:		liculai	Tech: CS Tang	
Sampler.	11 3170					Tech: es rang	
				Conditions	~		
Barometric Pressure (in Hg): 29.73					Corrected Pressure (mm Hg): 755		
Temperature (deg F): 77					Temperature (deg K): 298		
Average Press. (in Hg): 29.73					Corrected Average (mm Hg): 755		
	Average	Temp. (deg F): 7	/		Average	Temp. (deg K): 298	
			Calibra	tion Orifice			
	Make:				Qstd Slope: 2		
		TE-5025A			Qstd Intercept:		
	Serial#:	3543			Date Certified: 2	20-Oct-21	
			Calibratic	n Informatic	n		
Plate or	H2O	Qstd	Ι	IC			
Test #	(in)	(m3/min)	(chart)	(corrected)		Linear Regression	
1	12.50	1.739	53.0	52.83		Slope: 30.8323	
2	10.80	1.616	48.0	47.85		Intercept: -1.2402	
3	7.80	1.374	41.0	40.87		<b>Corr. Coeff:</b> 0.9974	
4 5	4.70 2.70	1.066 0.807	33.0 23.0	32.89 22.93	# ~	f Observations: 5	
J	2.70	0.007			#0		
			Ca	alculations			
	H2O(Pa/Pstd)(Ts	std/Ta))-b]			m = sampler slop		
= I[Sqrt(Pa/Ps	td)(Tstd/Ta)]				b = sampler inte		
	~				I = chart response		
td = standard f					Tav = daily avera		
= corrected ch					Pav = daily average	ge pressure	
actual chart re	-				· · · ·		
a = calibrator Qstd slope					verage I (chart): 40		
= calibrator Qstd intercept				Averag	e Flow Calculation m3/min		
a = actual temperature during calibration (deg K)				A	1.320480237		
a = actual pressure during calibration (mm Hg)					e Flow Calculation in CFM		
td - 200 daa V	std = 298 deg K					46.62615715 ple Time (Hrs): 1.0	
	-	nler flow.			-	Fotal Flow in m3/min	
td = 760 mm H	or subsequent calculation of sampler flow:				1 '	79.22881419	
td = 760 mm H r subsequent ca		m((I)[Sqrt(298/Tav)(Pav/760)]-b)					
td = 760 mm H r subsequent ca		))					
td = 760 mm H r subsequent ca		))				<b>Total Flow in CFM</b> 2797.569429	



			Site Iı	nformation			
Location: AM5A Sampler: TE-5170		Site ID:	Zones 2A at West Site ID: Kowloon Cultural Serial No: 4344		Date: 10-Jun-22 Tech: CS Tang		
			Site (	Conditions			
	Barometric Pro	essure (in Hg): 2			Corrected Press	ure (mm Hg): 754	
Temperature (deg F): 79					Temperature (deg K): 299		
Average Press. (in Hg): 29.69					Corrected Average (mm Hg): 754		
	Average	Temp. (deg F): 7	9		Average T	emp. (deg K): 299	
			Calibra	tion Orifice			
	Make:				Qstd Slope: 2		
		TE-5025A			Qstd Intercept: 0		
	Serial#:	3543			Date Certified: 2	0-0ct-21	
			Calibratic	n Informatic	n		
Plate or	H2O	Qstd	I	IC			
Test #	(in)	(m3/min)	(chart)	(corrected)		Linear Regression	
1	12.30 10.70	1.721 1.605	53.0 48.0	52.70 47.73		Slope: 30.2523 Intercept: -0.1430	
2							
2						-	
3	7.90	1.379	41.0	40.77		Corr. Coeff: 0.9972	
					<b>#</b> of	-	
3 4	7.90 4.60	1.379 1.052	41.0 33.0 23.0	40.77 32.81	# of	<b>Corr. Coeff:</b> 0.9972	
3 4 5	7.90 4.60	1.379 1.052 0.775	41.0 33.0 23.0	40.77 32.81 22.87	<b># of</b> m = sampler slop	Corr. Coeff: 0.9972 Observations: 5	
3 4 5 td = 1/m[Sqrt(I	7.90 4.60 2.50 H2O(Pa/Pstd)(Ts	1.379 1.052 0.775	41.0 33.0 23.0	40.77 32.81 22.87		Corr. Coeff: 0.9972 Observations: 5	
3 4 5 td = 1/m[Sqrt(I	7.90 4.60 2.50 H2O(Pa/Pstd)(Ts	1.379 1.052 0.775	41.0 33.0 23.0	40.77 32.81 22.87	m = sampler slop	Corr. Coeff: 0.9972 Observations: 5 e cept	
3 4 5 cd = 1/m[Sqrt(I = I[Sqrt(Pa/Pst	7 . 90 4 . 60 2 . 50 H2O(Pa/Pstd)(Ts td)(Tstd/Ta)]	1.379 1.052 0.775	41.0 33.0 23.0	40.77 32.81 22.87	m = sampler slop b = sampler inter	Corr. Coeff: 0.9972 Observations: 5 e cept	
3 4 5 d = 1/m[Sqrt(I = I[Sqrt(Pa/Pst d = standard fl = corrected ch.	7.90 4.60 2.50 H2O(Pa/Pstd)(Ts td)(Tstd/Ta)] low rate lart response	1.379 1.052 0.775	41.0 33.0 23.0	40.77 32.81 22.87	m = sampler slop b = sampler inter I = chart response	Corr. Coeff: 0.9972 Observations: 5 e cept e temperature	
3 4 5 td = 1/m[Sqrt(I = I[Sqrt(Pa/Pst td = standard fl = corrected ch. actual chart re	7.90 4.60 2.50 H2O(Pa/Pstd)(Ts td)(Tstd/Ta)] low rate hart response esponse	1.379 1.052 0.775	41.0 33.0 23.0	40.77 32.81 22.87	m = sampler slop b = sampler inter I = chart response Tav = daily averag Pav = daily averag	Corr. Coeff: 0.9972 Observations: 5 e cept e temperature e pressure	
3 4 5 td = 1/m[Sqrt(I = I[Sqrt(Pa/Pst td = standard fl = corrected ch actual chart re = calibrator Qs	7.90 4.60 2.50 H2O(Pa/Pstd)(Ts td)(Tstd/Ta)] low rate esponse esponse std slope	1.379 1.052 0.775	41.0 33.0 23.0	40.77 32.81 22.87	m = sampler slop b = sampler inter I = chart response Tav = daily averag Pav = daily averag Ave	Corr. Coeff: 0.9972 Observations: 5 e ccept e temperature e pressure erage I (chart): 40	
3 4 5 td = 1/m[Sqrt(I = I[Sqrt(Pa/Pst td = standard fl = corrected ch actual chart re = calibrator Qs = calibrator Qs	7.90 4.60 2.50 H2O(Pa/Pstd)(Ts td)(Tstd/Ta)] low rate esponse esponse std slope std intercept	1.379 1.052 0.775	41.0 33.0 23.0	40.77 32.81 22.87	m = sampler slop b = sampler inter I = chart response Tav = daily averag Pav = daily averag Ave	Corr. Coeff: 0.9972 Observations: 5 e cept e temperature e pressure erage I (chart): 40 Flow Calculation m3/min	
3 4 5 td = 1/m[Sqrt(I = I[Sqrt(Pa/Pst td = standard fl = corrected cha actual chart re = calibrator Qs = actual tempe	7.90 4.60 2.50 H2O(Pa/Pstd)(Ts td)(Tstd/Ta)] low rate lart response esponse lstd slope std intercept erature during cal	1.379 1.052 0.775 std/Ta))-b]	41.0 33.0 23.0	40.77 32.81 22.87	m = sampler slop b = sampler inter I = chart response Tav = daily averag Pav = daily averag Average	Corr. Coeff: 0.9972 Observations: 5 e cept e temperature e pressure erage I (chart): 40 Flow Calculation m3/min 1.306252765	
3 4 5 td = 1/m[Sqrt(I = I[Sqrt(Pa/Pst td = standard fl = corrected ch actual chart re = calibrator Qs = actual tempe = actual pressu	7.90 4.60 2.50 H2O(Pa/Pstd)(Ts td)(Tstd/Ta)] low rate lart response esponse std slope std slope std intercept erature during calibra	1.379 1.052 0.775 std/Ta))-b]	41.0 33.0 23.0	40.77 32.81 22.87	m = sampler slop b = sampler inter I = chart response Tav = daily averag Pav = daily averag Average	Corr. Coeff: 0.9972 Observations: 5 e e cept e temperature e pressure trage I (chart): 40 Flow Calculation m3/min 1.306252765 Flow Calculation in CFM	
3 4 5 td = 1/m[Sqrt(I = I[Sqrt(Pa/Pst td = standard fl = corrected ch: actual chart re = calibrator Qs = actual temps = actual pressu d = 298 deg K	7.90 4.60 2.50 H2O(Pa/Pstd)(Ts td)(Tstd/Ta)] low rate eart response esponse std slope std slope std intercept erature during calibra	1.379 1.052 0.775 std/Ta))-b]	41.0 33.0 23.0	40.77 32.81 22.87	m = sampler slop b = sampler interv I = chart response Tav = daily averag Pav = daily averag Average Average	Corr. Coeff: 0.9972 Observations: 5 e cept e temperature e pressure erage I (chart): 40 Flow Calculation m3/min 1.306252765 Flow Calculation in CFM 46.12378514	
3 4 5 td = 1/m[Sqrt(I = I[Sqrt(Pa/Pst td = standard fl = corrected ch: actual chart re = calibrator Qs = actual temps = actual pressu td = 298 deg K td = 760 mm H	7.90 4.60 2.50 H2O(Pa/Pstd)(Ts td)(Tstd/Ta)] low rate exponse esponse std slope std slope std intercept erature during calibra sta	1.379 1.052 0.775 std/Ta))-b] libration (deg K) ation (mm Hg)	41.0 33.0 23.0	40.77 32.81 22.87	m = sampler slop b = sampler interv I = chart response Tav = daily averag Pav = daily average Average Average Samp	Corr. Coeff: 0.9972 Observations: 5 e cept e temperature e pressure erage I (chart): 40 Flow Calculation m3/min 1.306252765 Flow Calculation in CFM 46.12378514 le Time (Hrs): 1.0	
3 4 5 td = 1/m[Sqrt(I = I[Sqrt(Pa/Pst td = standard fl = corrected ch. actual chart re = calibrator Qs = actual tempe = actual pressu td = 298 deg K td = 760 mm H r subsequent ca	7.90 4.60 2.50 H2O(Pa/Pstd)(Ts td)(Tstd/Ta)] low rate eart response esponse lstd slope std intercept erature during calibra t lig alculation of sam	1.379 1.052 0.775 std/Ta))-b] libration (deg K) ation (mm Hg) pler flow:	41.0 33.0 23.0	40.77 32.81 22.87	m = sampler slop b = sampler interv I = chart response Tav = daily averag Pav = daily average Average Average Samp	Corr. Coeff: 0.9972 Observations: 5 e e cept e temperature e pressure e rage I (chart): 40 Flow Calculation m3/min 1.306252765 Flow Calculation in CFM 46.12378514 le Time (Hrs): 1.0 otal Flow in m3/min	
3 4 5 td = 1/m[Sqrt(I = I[Sqrt(Pa/Pst td = standard fl = corrected ch. actual chart re = calibrator Qs = actual tempe = actual pressu td = 298 deg K td = 760 mm H r subsequent ca	7.90 4.60 2.50 H2O(Pa/Pstd)(Ts td)(Tstd/Ta)] low rate exponse esponse std slope std slope std intercept erature during calibra sta	1.379 1.052 0.775 std/Ta))-b] libration (deg K) ation (mm Hg) pler flow:	41.0 33.0 23.0	40.77 32.81 22.87	m = sampler slop b = sampler inter I = chart response Tav = daily averag Pav = daily averag Average Average Samp Te	Corr. Coeff: 0.9972 Observations: 5 e cept e temperature e pressure erage I (chart): 40 Flow Calculation m3/min 1.306252765 Flow Calculation in CFM 46.12378514 le Time (Hrs): 1.0	



# **CERTIFICATE OF ACCREDITATION**

This is to attest that

### **AQUALITY TESTCONSULT LIMITED**

11A&B, KAI FONG GARDEN, PING CHE ROAD FANLING, HONG KONG

**Calibration Laboratory CL-207** 

has met the requirements of AC204, *IAS Accreditation Criteria for Calibration Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories*. This organization is accredited to provide the services specified in the scope of accreditation.

Effective Date December 17, 2021

Expiration Date December 1, 2022



President

Visit www.iasonline.org for current accreditation information.

International Accreditation Service, Inc. 3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | www.iasonline.org

## **AQUALITY TESTCONSULT LIMITED**

### Contact Name Lee Mei Yee

Contact Phone + 852-6309-2280

Accredited to ISO/IEC 17025:2017

Effective Date December 17, 2021

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*					
RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION PROCEDURE AND/OR STANDARD EQUIPMENT USED			
Dimens	ional				
0 mm to 300 mm	30 µm	Checker by comparison method (BS 887:1982)			
1 mm to 1000 mm	280 µm	Reference Steel Rule by comparison method (BS 4372:1968)			
0 mm to 50 mm	8 µm	Reference micrometer head by comparison method (BS 907:2008)			
0.01 mm to 1 mm	8 µm	Reference Dial Gauge by comparison method (BS 957: 2008)			
0 m to 5 m	1200 µm	Reference steel ruler by comparison method (BS 4035:1966)			
Length: 0 mm to 160 mm	20 µm	Reference engineering square and Feeler Gauge (BS 939:2007)			
Diameter: 0 mm to 200 mm Thickness: 1.5 mm Height: 0 mm to 300 mm	560 μm 100 μm 560 μm	Reference Caliper & Reference Steel ruler by direct measurement (Verification in accordance with in-house method for the dimensional requirements as specified CS1:1990 Vol.1 A4; CS1: 2010 Vol. 1, A5)			
	RANGE         Dimens         0 mm to 300 mm         1 mm to 1000 mm         1 mm to 50 mm         0 mm to 50 mm         0.01 mm to 1 mm         0.01 mm to 1 mm         0 m to 5 m         Length:         0 mm to 160 mm         Diameter:         0 mm to 200 mm         Thickness: 1.5 mm	RANGE         UNCERTAINTY <sup>1,2</sup> (±)           Dimensional         0 mm to 300 mm         30 μm           0 mm to 300 mm         280 μm         280 μm           0 mm to 50 mm         8 μm         30 μm           0 mm to 50 mm         8 μm         30 μm           0 mm to 50 mm         20 μm         30 μm           0 mm to 50 mm         20 μm         30 μm			

\* If information in this CMC is presented in non-SI units, the conversion factors stated in NIST Special Publication 811 "Guide for the Use of the International System of Units (SI)" apply.





Effective Date December 17, 2021 Page 2 of 5 IAS/CL/100-3

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | www.iasonline.org

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION PROCEDURE AND/OR STANDARD EQUIPMENT USED
Tamping rod <sup>3</sup>	Diameter: 0 mm to 16 mm	600 µm	Reference steel ruler & Reference Caliper by direct
	Length: 600 mm	950 µm	measurement (Verification in accordance with in-house method for the dimensional requirements as specified CS1:1990 Vol.1 A5; CS1: 2010 Vol. 1, A6)
Cube mould <sup>3</sup>	(Max dimensions 150 mm per side)		Reference Caliper, straight edge & feeler gauge by
	Dimension	50 µm	direct measurement. (Verification in accordance with in-house method for the
	Flatness	10 µm	dimensional requirements as specified in BS1881: Part
	Perpendicularity	10 µm	108:1983; CS1:1990 Vol1, A21; CS1:2010 Vol 1, A25;
	Parallelism	50 µm	BS EN 12390-2:2000)
Compacting Bar <sup>3</sup>	Ramming Face: 25 mm	100 µm	Reference Caliper & Steel ruler by direct measurement.
	Length: 380 mm	560 µm	(Verification in accordance with in-house method for the
	Weight: 1.8 kg	1 g	dimensional & mass requirements as specified in BS 1881: Part 105:1984 Cl 3.3; CS1:1990 Vol 2, E3 CS1:2010 Vol 1, A15.3; BS EN 12350 -5:2000 Cl 4.3.)
Covermeter	20 mm to 103 mm	2.9 mm	Reference concrete block (Verification in accordance with in-house method for the dimensional requirements as specified in BS 1881- 204:1988 CI.6.4- Method C)
Flow table <sup>3</sup>	15 kg to 17 kg 1 mm up to 71 mm	12 g 600 μm	Weighing Balance, Reference caliper & Reference steel ruler by direct measurement
Test Sieve <sup>3</sup>	4 mm to 50 mm	50 µm	Reference Caliper by direct measurement
	Mechar	nical	
Force Measuring Machine <sup>3</sup> (Compression Mode)		0.4 %	Reference Load cell by direct measurement BS 1610: Part 1:1985; BS 1610: Part 1:1992; BS EN ISO 12390-4:2000 Annex B; BS EN ISO 7500-1:2004





Effective Date December 17, 2021 Page 3 of 5 IAS/CL/100-3

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | www.iasonline.org

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION PROCEDURE AND/OR STANDARD EQUIPMENT USED
Laser Dust Meter <sup>3</sup>	Dust particles 0.001 mg/m <sup>3</sup> to 10.00 mg/m <sup>3</sup>	0.9 mg/m <sup>3</sup>	By comparison method by using reference laser dust meter
Rebound Hammer <sup>3</sup>	80 unit (hardness)	1.6 rebound count	Reference Rebound count by comparison method. BS1881: Part 202:1986; BS EN 12504-2:2001; BS EN 12504-2:2012
Mass (F2 class and coarser)	0 g to 200 g 200 g to 5 kg 5 kg to 10 kg 10 kg to 50 kg	1.3 mg 0.5 g 0.88 g 3 g	Standard Weight E2/ F1 Class & Weighing Balances by comparison method (OIML-R-111)
Weighing Scale & Balance <sup>3</sup>	0 g to 200 g 0 kg to 5 kg 0 kg to 50 kg	0.8 mg 0.13 g 7.7 g	Standard weight of E2/F1 Grade by direct measurement (OIML-R-111)
Volumetric Glassware	1 mL to 100 mL 100 mL to 1000 mL	0.004 mL 0.09 mL	Standard weight E2 Class, Weighing Balances & Distilled water by gravimetric method
	Ther	mal	
Digital/Liquid in Glass Thermometers & RTD/ Thermocouples with or without Indicators	15 °C to 55 °C 55 °C to 95 °C	0.4 °C 0.9 °C	Water Baths, Reference Sensor and Indictor by Comparison Method (OIML R133)
Curing Tank <sup>3</sup>	(Calibration at 20 °C & 27 °C @ 30 min) 20 °C Temperature distribution 27 °C Temperature distribution Efficiency of circulation	0.4 °C 0.8 °C 5 s	Reference Temperature datalogger by Mapping Method & Reference Stop Watch (Verification in accordance with in-house method for the Temp & Time requirements as specified in BS1881-111:1983 CS1:1990 Vol 1 App A24 CS1:2010 Vol 1 App A28 BE EN 12390-2:2000
Oven <sup>3</sup>	40.0 °C to 180.0 °C	1.5 °C	Reference Temperature datalogger by Mapping Method (AS 2853:1986)
Furnace <sup>3</sup>	200 °C to 1300 °C	6 °C	Reference Thermocouple with Indicator By single point Calibration (AS 2853:1986)
Water bath <sup>3</sup>	15 °C to 95 °C	0.2 °C	Reference Temperature datalogger by Mapping Method (AS 2853:1986)





International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | www.iasonline.org

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION PROCEDURE AND/OR STANDARD EQUIPMENT USED			
	Time and Frequency					
Stop Watch / Timer <sup>3</sup>	0 s to 3600 s 0 s to 21600 s (6 hours) 0 s to 86400 s (24 hours)	0.2 s 0.6 s 0.61 s	Reference stop watch			
Grout Flow Cone <sup>3</sup>	7 s to 9 s	0.2 s	Reference stop watch by direct method (ASTM C939-10 Cl.9)			

<sup>1</sup>The uncertainty covered by the Calibration and Measurement Capability (CMC) is expressed as the expanded uncertainty having a coverage probability of approximately 95 %. It is the smallest measurement uncertainty that a laboratory can achieve within its scope of accreditation when performing calibrations of a best existing device. The measurement uncertainty reported on a calibration certificate may be greater than that provided in the CMC due to the behavior of the calibration item and other factors that may contribute to the uncertainty of a specific calibration.

<sup>2</sup>When uncertainty is stated in relative terms (such as percent, a multiplier expressed as a decimal fraction or in scientific notation), it is in relation to instrument reading or instrument output, as appropriate, unless otherwise indicated.

<sup>3</sup>Also available as site calibration. Note that actual measurement uncertainties achievable at a customer's site can normally be expected to be larger than the uncertainties listed on this Scope of Accreditation





## FAQ / Information

## Mutual Recognition Arrangements (MRA) / Multilateral Recognition Arrangements (MLA)

### Mutual Recognition Arrangement (MRA) Partners for HOKLAS 🔨

Every effort is made to promote acceptance of test data from accredited laboratories, both internationally and locally. HKAS has concluded mutual recognition arrangements with accreditation bodies listed below by being one of the signatories of the <u>International Laboratory Accreditation</u> <u>Cooperation Mutual Recognition Arrangement (ILAC MRA)</u> and the <u>Asia Pacific Accreditation Cooperation</u> <u>Mutual Recognition Arrangement (APAC MRA)</u> for testing, calibration, medical testing, Proficiency Testing Providers (PTP) and Reference Material Producers (RMP). Click <u>here</u> to view the up-to-date signatories of ILAC and <u>here</u> to access the up-to-date signatories of APAC.

Visitors checking the names, logos and accreditation symbols shown on an endorsed certificate or report should note that some of our MRA partners may have their names, logos or accreditation symbols changed recently and test reports or certificates endorsed by displaying their old accreditation symbols may still be valid during the change-over period. For details, please visit their websites or contact them directly.

» Mutual Recognition Arrangement (MRA) Partners for HOKLAS

HKAS MRA partners will recognise HOKLAS endorsed test certificates as having the same technical validity as certificates endorsed by their respective schemes.

### Multilateral Recognition Arrangements (MLA) for HKCAS 🔨

HKAS has been a signatory of <u>Asia Pacific Accreditation Cooperation Mutual Recognition Arrangement</u> (<u>APAC MRA</u>) for Quality Management System (QMS), Environmental Management System (EMS), Food Safety Management System (FSMS), Energy Management System (EnMS), Occupational Health and Safety Management System (OHSMS) certifications, product certifications, and Greenhouse Gas (GHG) validation and verification.

HKAS has also been a signatory of the <u>International Accreditation Forum Multilateral Recognition</u> <u>Arrangement (IAF MLA)</u> for Quality Management System (QMS), Environmental Management System (EMS), Food Safety Management System (FSMS), Energy Management System (EnMS), Occupational Health and Safety Management System (OHSMS) certifications, product certifications, and Greenhouse Gas (GHG) validation and verification.

Click <u>here</u> to view the up-to-date signatories of IAF and <u>here</u> to access the up-to-date signatories of APAC.

» Mutual / Multilateral Recognition Arrangements (MRA / MLA) Partners for HKCAS

### Mutual Recognition Arrangement (MRA) Partners for HKIAS <

HKAS has concluded mutual recognition arrangements with accreditation bodies listed below by being one of the signatories of the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement (ILAC MRA) and Asia Pacific Accreditation Cooperation Mutual Recognition Arrangement (APAC MRA) for inspection. Click here to view the up-to-date signatories of ILAC and here to access the up-to-date signatories of APAC.

HKAS MRA partners will recognise HKIAS endorsed inspection reports or certificates having the same technical validity as reports or certificates endorsed by their respective schemes.

» Mutual Recognition Arrangement (MRA) Partners for HKIAS

🕤 back

Economy	Logo	Name of Partner	URL	Test Area
United States of America	IAS INTERNATIONAL ACCREDITATION SERVICE*	International Accreditation Service Inc. (IAS)	www.iasonline.org	Calibration, Non-medical Testing
United States of America	galvn	National Voluntary Laboratory Accreditation Program (NVLAP)	www.nist.gov/nvlap	Calibration, Non-medical Testing
United States of America	PILA	Perry Johnson Laboratory Accreditation, Inc. (PJLA)	www.pjlabs.com	Calibration, Medical Testing, Reference Material Producer, Non-medical Testing
Uruguay	ORGANISMO URUGUANO DE ACREDITACION	Organismo Uruguayo de Acreditación (OUA)	www.organismouruguayo deacreditacion.org	Calibration, Non-medical Testing
Viet Nam		Accreditation Office for Standards Conformity Assessment Capacity (AOSC)	aosc.vn/	Calibration, Medical Testing, Non-medical Testing
Viet Nam		Bureau of Accreditation (BoA)	www.boa.gov.vn	Calibration, Medical Testing, Non-medical Testing

# Hong Kong Laboratory Accreditation Scheme (HOKLAS) - Mutual Recognition Arrangement (MRA) Partners

# **AQuality**

東恒測試顧問有限公司

AQUALITY TESTCONSULT LIMITED

#### 香港新界粉嶺坪董路啟芳園11A&11B號

No. 11A&B, KAI FONG GARDEN, PING CHE ROAD, FANLING, NEW TERRITORIES, HONG KONG TEL : 852-3582-9589 FAX : 852-2674-1177 EMAIL : cal.aqtl@gmail.com WEBSITE: www.aqtlgroup.com

	CERTIFICATE OF CALIBRATION
Report Number	: 210918MCA-126F
Date of Report	: 21-Sep-21
Page Number	: 1 of 2
Customer *	: Apex Testing & Certification Ltd.
Customer Address*	: Unit D6A, 10/F, TML Tower, 3 Hoi Shing Road, Tsuen Wan, N.T., HK
Customers Ref. *	: A005
Item Under Calibration (IUC)	*
Equipment No.	: N/A
Manufacturer	· Sibata Scientific Technology Ltd

Equipment No.	$\cdot 1$ V/A
Manufacturer	: Sibata Scientific Technology Ltd
Model No.	: LD-3B
Serial No.	: 235811
Scale Division	: 0.001 mg/m3
Range	: 0.001 to 1 mg/m3
Condition of Item	: Normal
- Dessired	. 10 Car 01

Date Item Received	: 18	8-Sep-21		
Date Calibrated	: 18	8-Sep-21		
Calibration Location	: A	Quality Ca	alibration Lab.	
Date of Next Calibration	:17	-Sep-22		
Calibrated By	: Je	ssica Liu		
Test Environment				
Ambient Temperature	:	28.3	°C to	33.2
Relative Humidity	:	55	% to	79

# **Calibration Results**

Reference True Reading (mg/m3)	Average IUC Reading $(mg/m^3)$	Correction (mg/m <sup>3</sup> )	Error of IUC Reading (%)	Expanded Uncertainty (mg/m <sup>3</sup> )	Coverage Factor K
0.158	0.167	-0.008	5.1%	0.020	2.0
5.164	5.647	-0.484	8.5%	0.463	2.0
10.100	11.141	-1.041	9.3%	0.904	2.0

## <u>Remarks</u>

- 1. \* Denotes information supplied by customer.
- 2. The results relate only to the items calibrated.
- 3. The results apply to the items as received.

:

- 4. Correction = Average of (Ref reading IUC reading)
- 5. The technical requirement of laser dust meter. +/- 20% error for the particles concentration.

°C %

Approved by:

LEE Mei Yee, Julia Managing Director

The results shown in this certificate are metrologically traceable to the International System of Units (SI) or recognised measurement standards. The certificate shall not be reproduced except in full without approval of the laboratory.



AQuality AQUALITY TESTCONSULT LIMITED

#### 香港新界粉嶺坪黃路啟芳園11A&11B號

No. 11A&11B, KAI FONG GARDEN, PING CHE ROAD, FANLING, NEW TERRITORIES, HONG KONG TEL: 852-3582-9589 FAX: 852-2674-1177 EMAIL: cal.aqtl@gmail.com WEBSITE: www.aqtlgroup.com

|--|

Report Number	: 210918MCA-126F
Date of Report	: 21-Sep-21
Page Number	: 2 of 2
Customer *	: Apex Testing & Certification Ltd.
Customers Ref. *	: A005

#### **Details of Calibration**

- 1. The calibration was performed in accordance with AQuality Testconsult Procedure Number ENV-L-003 (in-house method), by comparison with the laboratory's reference equipment which have traceable international standards of measurement.
- 2. The item under calibration (IUC) was allowed to stabilize in the laboratory for 0.25 hour before commencement of calibration.
- 3. A set of readings were made at each calibration concentration. The values quoted in the results are the average of each set of readings.
- 4. The values given in this calibration certificate only relate to the values measured at the time of calibration. Any uncertainties quoted do not include allowance for the capabiliy of any other laboratory to repeat the measurement. The uncertainty quoted relate only to item at time of calibration. AQuality Testconsult Limited is not liable for any loss or damage resulting from the use of this equipment.
- 5. The identification, calibration certificate numbers for the reference equipment used were as follows :

Equipment Number	Certificate Number	Description
CH-LDM-1	HBW202001563	粉尘测试仪

6. Copies of the Calibration certificates of the reference equipment used in this calibration may be obtained from AQuality Testconsult Limited, if necessary.

- End of Report -



# 東恒測試顧問有限公司 AQUALITY TESTCONSULT LIMITED 香港新界粉嶺坪輋路啟芳園11A&11B號

No. 11A&11B, KAI FONG GARDEN, PING CHE ROAD, FANLING, N.T., HONG KONG

# **CERTIFICATE OF CALIBRATION**

Apex Testing & Certification Ltd.	Test Report No.	210918MCA-126F
Unit D6A 10/E TML Tower 2 Hoi Shing	Date of Issue	21-Sep-21
Unit D6A, 10/F, TML Tower, 3 Hoi Shing	Date of Testing	18-Sep-21
Road, Tsuen Wan, N.T., HK	Page	1 of 1

## **Item for Calibration**

Description	: Laser Dust Monitor
Manufacturer	: Sibata Scientific Technology Ltd
Model No.	: LD-3B
Serial No.	: 235811

# **Standard Equipment**

Description	:	High Volume Sampler / Calibration Orifice
Manufacturer	:	Tisch Environmental, Inc.
Model No.	:	TE-5170 / TE-5025A
Serial No.		3476 / 3543
Last Calibration	:	17-SEP-21 / 2-Nov-20

Date	Time	Mean Temp	Mean Pressure	Concentration Standard	Concentration Calibrated
				Equipment	Equipment
		(°C)	(hPa)	(mg/m3)	(mg/m3)
18-Sep-21	19:00	30.8	1011.1	0.0613	0.0616
18-Sep-21	20:05	30.8	1011.1	0.0587	0.0586
18-Sep-21	21:10	30.8	1011.1	0.0596	0.0600

By Linear Regression of	Y or X	0.064				
Slope (K-factor)	: 1.1031	0.062		y = 1.1031x R <sup>2</sup> = 0.9		
Correlation Coefficient	: 0.9804	0.06		K = 0.9		
Validity of Calibration	: 17-Sep-22	0.058			•	
·		0.056				
		0.054				
		0.052				
		0.05	0.045 0	0.05 0.055	5 0.06	0.065
Recorded by	: Jessica Liu	Signature	Jessin Mary	I	Date: <u>18</u>	3-Sep-21

Checked by

Signature:

S Tang

:

Date: 18-Sep-21

# **AQuality**

東恒測試顧問有限公司

AQUALITY TESTCONSULT LIMITED

#### 香港新界粉嶺坪董路啟芳園11A&11B號

No. 11A&B, KAI FONG GARDEN, PING CHE ROAD, FANLING, NEW TERRITORIES, HONG KONG TEL : 852-3582-9589 FAX : 852-2674-1177 EMAIL : cal.aqtl@gmail.com WEBSITE: www.aqtlgroup.com

	CERTIFICATE OF CALIBRATION
Report Number	: 210918MCA-123F
Date of Report	: 21-Sep-21
Page Number	: 1 of 2
Customer *	: Apex Testing & Certification Ltd.
Customer Address*	: Unit D6A, 10/F, TML Tower, 3 Hoi Shing Road, Tsuen Wan, N.T., HK
Customers Ref. * : A005	
Item Under Calibration (IUC)	*
Equipment No.	: N/A
Manufacturer	: Sibata Scientific Technology Ltd
Model No.	: LD-3B
Serial No.	: 336338
Scale Division	: 0.001 mg/m3

Condition of Item	: No	rmal			
Date Item Received Date Calibrated Calibration Location Date of Next Calibration Calibrated By	: 18- : AQ : 17-	-Sep-21 -Sep-21 Quality Ca -Sep-22 osica Liu	llibration Lab.		
Test Environment					
Ambient Temperature	:	28.3	°C to	33.2	°C
Relative Humidity	:	55	% to	79	%

: 0.001 to 1 mg/m3

# **Calibration Results**

Range

Reference True Reading (mg/m3)	Average IUC Reading $(mg/m^3)$	Correction (mg/m <sup>3</sup> )	Error of IUC Reading (%)	Expanded Uncertainty (mg/m <sup>3</sup> )	Coverage Factor K
0.158	0.168	-0.010	5.7%	0.026	2.0
5.164	5.562	-0.398	7.1%	0.462	2.0
10.100	10.936	-0.837	7.6%	0.905	2.0

### Remarks

- 1. \* Denotes information supplied by customer.
- 2. The results relate only to the items calibrated.
- 3. The results apply to the items as received.

:

- 4. Correction = Average of (Ref reading IUC reading)
- 5. The technical requirement of laser dust meter. +/- 20% error for the particles concentration.

Approved by:

LEE Mei Yee, Julia Managing Director

The results shown in this certificate are metrologically traceable to the International System of Units (SI) or recognised measurement standards. The certificate shall not be reproduced except in full without approval of the laboratory.



AQuality AQUALITY TESTCONSULT LIMITED

#### 香港新界粉嶺坪黃路啟芳園11A&11B號

No. 11A&11B, KAI FONG GARDEN, PING CHE ROAD, FANLING, NEW TERRITORIES, HONG KONG TEL: 852-3582-9589 FAX: 852-2674-1177 EMAIL: cal.aqtl@gmail.com WEBSITE: www.aqtlgroup.com

<b>CERTIFICATE OF</b>	CALIBRATION

Report Number	: 210918MCA-123F
Date of Report	: 21-Sep-21
Page Number	: 2 of 2
Customer *	: Apex Testing & Certification Ltd.
Customers Ref. *	: A005

### **Details of Calibration**

- 1. The calibration was performed in accordance with AQuality Testconsult Procedure Number ENV-L-003 (in-house method), by comparison with the laboratory's reference equipment which have traceable international standards of measurement.
- 2. The item under calibration (IUC) was allowed to stabilize in the laboratory for 0.25 hour before commencement of calibration.
- 3. A set of readings were made at each calibration concentration. The values quoted in the results are the average of each set of readings.
- 4. The values given in this calibration certificate only relate to the values measured at the time of calibration. Any uncertainties quoted do not include allowance for the capabiliy of any other laboratory to repeat the measurement. The uncertainty quoted relate only to item at time of calibration. AQuality Testconsult Limited is not liable for any loss or damage resulting from the use of this equipment.
- 5. The identification, calibration certificate numbers for the reference equipment used were as follows :

Equipment Number	Certificate Number	Description
CH-LDM-1	HBW202001563	粉尘测试仪

6. Copies of the Calibration certificates of the reference equipment used in this calibration may be obtained from AQuality Testconsult Limited, if necessary.

- End of Report -



# 東恒測試顧問有限公司 AQUALITY TESTCONSULT LIMITED 香港新界粉嶺坪輋路啟芳園11A&11B號

No. 11A&11B, KAI FONG GARDEN, PING CHE ROAD, FANLING, N.T., HONG KONG

# **CERTIFICATE OF CALIBRATION**

Apex Testing & Certification Ltd.	Test Report No.	210918MCA-123F
Unit D6A 10/F TML Tower 3 Hoi Shing	Date of Issue	21-Sep-21
	Date of Testing	18-Sep-21
	Page	1 of 1

## **Item for Calibration**

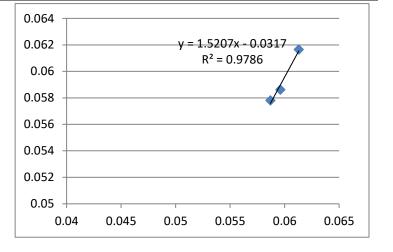
Description	: Laser Dust Monitor
Manufacturer	: Sibata Scientific Technology Ltd
Model No.	: LD-3B
Serial No.	: 336338

## **Standard Equipment**

Description	: High Volume Sampler / Calibration Orifice
Manufacturer	: Tisch Environmental, Inc.
Model No.	: TE-5170 / TE-5025A
Serial No.	3476 / 3543
Last Calibration	: 17-SEP-21 / 2-Nov-20
Lust Cultorution	

Date	Time	Mean Temp	Mean Pressure	Concentration Standard Equipment	Concentration Calibrated Equipment
		(°C)	(hPa)	(mg/m3)	(mg/m3)
18-Sep-21	19:00	30.8	1011.1	0.0613	0.0617
18-Sep-21	20:05	30.8	1011.1	0.0587	0.0578
18-Sep-21	21:10	30.8	1011.1	0.0596	0.0586

By Linear Regression of Y or X			
Slope (K-factor) :	1.5207		
Correlation Coefficient :	0.9786		
Validity of Calibration :	17-Sep-22		



Recorded by	:	Jessica Liu	Signature:	Jeasin	Date:	18-Sep-21
Checked by	:	S Tang	Signature:	Trug	Date:	18-Sep-21

# **AQuality**

東恒測試顧問有限公司

AQUALITY TESTCONSULT LIMITED

#### 香港新界粉嶺坪輩路啟芳園11A&11B號

No. 11A&B, KAI FONG GARDEN, PING CHE ROAD, FANLING, NEW TERRITORIES, HONG KONG TEL : 852-3582-9589 FAX : 852-2674-1177 EMAIL : cal.aqtl@gmail.com WEBSITE: www.aqtlgroup.com

	CERTIFICATE OF CALIBRATION
Report Number	: 210918MCA-125F
Date of Report	: 21-Sep-21
Page Number	: 1 of 2
Customer *	: Apex Testing & Certification Ltd.
Customer Address*	: Unit D6A, 10/F, TML Tower, 3 Hoi Shing Road, Tsuen Wan, N.T., HK
Customers Ref. *	: A005
Item Under Calibration (IUC) <sup>3</sup>	*
Equipment No.	: N/A
Manufacturer	: Sibata Scientific Technology Ltd
Model No.	: LD-3B
Serial No.	: 567188
Scale Division	: 0.001 mg/m3
Range	: 0.001 to 1 mg/m3

Condition of Item	: No	ormal	-		
Date Item Received Date Calibrated Calibration Location Date of Next Calibration	: 18 : A	8-Sep-21 8-Sep-21 Quality Ca 7-Sep-22	alibration Lab.		
Calibrated By		ssica Liu			
Test Environment					
Ambient Temperature	:	28.3	°C to	33.2	°C
Relative Humidity	:	55	% to	79	%

# **Calibration Results**

Referen True Rea (mg/m	ading	Average IUC Reading $(mg/m^3)$	Correction (mg/m <sup>3</sup> )	Error of IUC Reading (%)	Expanded Uncertainty (mg/m <sup>3</sup> )	Coverage Factor K
0.158		0.167	-0.008	4.9%	0.023	2.0
5.164		5.693	-0.530	9.3%	0.463	2.0
10.100	)	11.045	-0.945	8.6%	0.905	2.0

### Remarks

- 1. \* Denotes information supplied by customer.
- 2. The results relate only to the items calibrated.
- 3. The results apply to the items as received.

:

- 4. Correction = Average of (Ref reading IUC reading)
- 5. The technical requirement of laser dust meter. +/- 20% error for the particles concentration.

Approved by:

LEE Mei Yee, Julia Managing Director

The results shown in this certificate are metrologically traceable to the International System of Units (SI) or recognised measurement standards. The certificate shall not be reproduced except in full without approval of the laboratory.



AQuality AQUALITY TESTCONSULT LIMITED

#### 香港新界粉嶺坪黃路啟芳園11A&11B號

No. 11A&11B, KAI FONG GARDEN, PING CHE ROAD, FANLING, NEW TERRITORIES, HONG KONG TEL: 852-3582-9589 FAX: 852-2674-1177 EMAIL: cal.aqtl@gmail.com WEBSITE: www.aqtlgroup.com

|--|

Report Number	: 210918MCA-125F
Date of Report	: 21-Sep-21
Page Number	: 2 of 2
Customer *	: Apex Testing & Certification Ltd.
Customers Ref. *	: A005

### **Details of Calibration**

- 1. The calibration was performed in accordance with AQuality Testconsult Procedure Number ENV-L-003 (in-house method), by comparison with the laboratory's reference equipment which have traceable international standards of measurement.
- 2. The item under calibration (IUC) was allowed to stabilize in the laboratory for 0.25 hour before commencement of calibration.
- 3. A set of readings were made at each calibration concentration. The values quoted in the results are the average of each set of readings.
- 4. The values given in this calibration certificate only relate to the values measured at the time of calibration. Any uncertainties quoted do not include allowance for the capabiliy of any other laboratory to repeat the measurement. The uncertainty quoted relate only to item at time of calibration. AQuality Testconsult Limited is not liable for any loss or damage resulting from the use of this equipment.
- 5. The identification, calibration certificate numbers for the reference equipment used were as follows :

Equipment Number	Certificate Number	Description
CH-LDM-1	HBW202001563	粉尘测试仪

6. Copies of the Calibration certificates of the reference equipment used in this calibration may be obtained from AQuality Testconsult Limited, if necessary.

- End of Report -



# 東恒測試顧問有限公司 AQUALITY TESTCONSULT LIMITED 香港新界粉嶺坪輋路啟芳園11A&11B號

No. 11A&11B, KAI FONG GARDEN, PING CHE ROAD, FANLING, N.T., HONG KONG

# **CERTIFICATE OF CALIBRATION**

Apex Testing & Certification Ltd.	Test Report No.	210918MCA-125F
Unit D6A 10/E TML Tower 2 Hoi	Date of Issue	21-Sep-21
Unit D6A, 10/F, TML Tower, 3 Hoi Shing Road, Tsuen Wan, N.T., HK	Date of Testing	18-Sep-21
Sinnig Koad, Tsuen Wan, N.T., HK	Page	1 of 1

## **Item for Calibration**

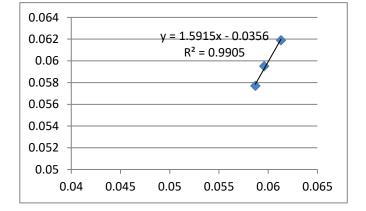
Description	: Laser Dust Monitor
Manufacturer	: Sibata Scientific Technology Ltd
Model No.	: LD-3B
Serial No.	: 567188

## **Standard Equipment**

Description	: High Volume Sampler / Calibration Orifice
Manufacturer	: Tisch Environmental, Inc.
Model No.	: TE-5170 / TE-5025A
Serial No.	3476 / 3543
Last Calibration	: 17-SEP-21 / 2-Nov-20

Date	Time	Mean Temp	Mean Pressure	Concentration Standard Equipment	Concentration Calibrated Equipment
		(°C)	(hPa)	(mg/m3)	(mg/m3)
18-Sep-21	19:00	30.8	1011.1	0.0613	0.0619
18-Sep-21	20:05	30.8	1011.1	0.0587	0.0577
18-Sep-21	21:10	30.8	1011.1	0.0596	0.0595

By Linear Regression of Y or X			
Slope (K-factor) :	1.5915		
Correlation Coefficient :	0.9905		
Validity of Calibration :	17-Sep-22		







#### 综合試驗有限公司 SOILS & MATERIALS ENGINEERING CO., LTD. 香港新界葵涌水基路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.:	21CA0928 03-05		Page	1	of	2
Item tested						
Description: Manufacturer: Type/Model No.: Serial/Equipment No.: Adaptors used:	Sound Level Mete Hangzhou Aihua I AWA5661 301135 -	er (Class 1) , Instruments Co., Ltd , , ,	Microphone - AWA14425 15338 -			
Item submitted by						
Customer Name: Address of Customer: Request No.: Date of receipt:	Apex Testing & C Unit D6A, 10/F, T - 28-Sep-2021		g Road, Tsuen Wan, N.T.			
Date of test:	04-Oct-2021					
Reference equipment	used in the calib	oration				
Description: Multi function sound calibrator Signal generator	Model: B&K 4226 DS 360	Serial No. 2288444 61227	Expiry Date: 23-Aug-2022 31-Dec-2021		<b>Traceal</b> CIGISME CEPREI	
Ambient conditions						
Temperature: Relative humidity:	22 ± 1 °C 55 ± 10 % 1005 ± 5 hPa					

- 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:** 06-Oct-2021 **Company Chop:** 0 Date: Feng Junqi

**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.

© Soils & Materials Engineering Co., Ltd.

Form No.CARP152-1/Issue 1/Rev.C/01/02/2007



#### 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**

(Continuation Page)

 Certificate No.:
 21CA0928 03-05
 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 Uncertanity (dB)	Coverage Factor
Self-generated noise	Α	Pass	0.3	
	С	Pass	0.8	2.1
	Lin	Pass	1.6	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	
	С	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 <sup>3</sup> at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 <sup>4</sup> 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 Uncertanity (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: Checked by: Chan Yuk Yiu ina Chi Yip 06-Oct-2021 Date: 04 Oct-2021 Date:

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.

© Soils & Materials Engineering Co., Ltd.

Form No.CARP152-2/Issue 1/Rev.C/01/02/2007



## 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



Test Data for So	und Level Me	ter				Page 1 of 5
Sound level me	eter type:	AWA5661	Serial No.	301135	Date	04-Oct-2021
Microphone	type:	AWA14425	Serial No.	15338	Report	: 21CA0928 03-05

# SELF GENERATED NOISE TEST

The noise test is performed in the most sensitive range of the SLM with the microphone replaced by an equivalent impedance.

Noise level in A weighting	11.7	dB
Noise level in C weighting	12.5	dB
Noise level in Lin	16.7	dB

### LINEARITY TEST

The linearity is tested relative to the reference sound pressure level using a continuous sinusoidal signal of frequency 4 kHz. The measurement is made on the reference range for indications at 5 dB intervals starting from the 94 dB reference sound pressure level. And until within 5 dB of the upper and lower limits of the reference range, the measurements shall be made at 1 dB intervals.(SLM set to LEQ/SPL)

Reference/Expected level	Actual level		Tolerance	Devia	Deviation		
Neierence/Expected level	non-integrated	integrated		non-integrated	integrated		
dB	dB	dB	+/- dB	dB	dB		
94.0	94.0	94.0	0.7	0.0	0.0		
99.0	99.0	99.0	0.7	0.0	0.0		
104.0	104.0	104.0	0.7	0.0	0.0		
109.0	109.0	109.0	0.7	0.0	0.0		
114.0	114.0	114.0	0.7	0.0	0.0		
115.0	115.0	115.0	0.7	0.0	0.0		
116.0	116.0	116.0	0.7	0.0	0.0		
117.0	117.0	117.0	0.7	0.0	0.0		
118.0	118.0	118.0	0.7	0.0	0.0		
119.0	119.0	119.0	0.7	0.0	0.0		
120.0	120.0	120.0	0.7	0.0	0.0		
89.0	89.1	89.1	0.7	0.1	0.1		
84.0	84.1	84.1	0.7	0.1	0.1		
79.0	79.1	79.1	0.7	0.1	0.1		
74.0	74.1	74.1	0.7	0.1	0.1		
69.0	69.1	69.1	0.7	0.1	0.1		
64.0	64.1	64.1	0.7	0.1	0.1		
59.0	59.1	59.1	0.7	0.1	0.1		
54.0	54.1	54.1	0.7	0.1	0.1		
49.0	49.1	49.1	0.7	0.1	0.1		
44.0	44.0	44.0	0.7	0.0	0.0		
39.0	39.0	39.0	0.7	0.0	0.0		
34.0	34.0	34.0	0.7	0.0	0.0		
29.0	29.1	29.1	0.7	0.1	0.1		
28.0	28.1	28.1	0.7	0.1	0.1		

(c)Soils Materials Eng. Co., Ltd.



# 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



Page 2 of 5

Test Data for Sound Level Meter

Sound level meter type: Microphone type:	AWA5661 AWA14425			301135 15338	Date	e 04-Oct-2	
27.0	27.1	27.1	0.7		0.1	0.1	
26.0	26.2	26.2	0.7		0.2	0.2	
25.0	25.3	25.3	0.7		0.3	0.3	

Measurements for an indication of the reference SPL on all other ranges which include it

Other ranges	Expected level	Actual level	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
25-120	94.0	94.0	0.7	0.0
45-140	94.0	93.9	0.7	-0.1

Measurements on all level ranges for indications 2 dB below the upper limit and 2 dB above the lower limit

Ranges	Reference/Expected level	Actual level	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
25-120	27.0	27.1	0.7	0.1
25-120	118.0	118.0	0.7	0.0
45 140	47.0	47.0	0.7	0.0
45-140	138.0	137.7	0.7	-0.3

## FREQUENCY WEIGHTING TEST

The frequency response of the weighting netwoks are tested at octave intervals over the frequency ranges 31.5 Hz to 12500 Hz. The signal level at 1000 Hz is set to give an indication of the reference SPL. Frequency weighting A:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
Hz	dB	dB	dB	+	-	dB
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	54.6	54.3	1.5	1.5	-0.3
63.1	94.0	67.8	67.7	1.5	1.5	-0.1
125.9	94.0	77.9	77.8	1.0	1.0	-0.1
251.2	94.0	85.4	85.3	1.0	1.0	-0.1
501.2	94.0	90.8	90.7	1.0	1.0	-0.1
1995.0	94.0	95.2	95.2	1.0	1.0	0.0
3981.0	94.0	95.0	95.2	1.0	1.0	0.2
7943.0	94.0	92.9	93.5	1.5	3.0	0.6
12590.0	94.0	89.7	89.4	3.0	6.0	-0.3

Frequency weighting C:

ricqueries weigi	iting 0.					
Frequency	Ref. level	Expected level	Actual level	Tolerar	nce(dB)	Deviation
Hz	dB	dB	dB	+	-	dB
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	91.0	90.8	1.5	1.5	-0.2
63.1	94.0	93.2	93.1	1.5	1.5	-0.1
125.9	94.0	93.8	93.8	1.0	1.0	0.0

(c)Soils Materials Eng. Co., Ltd.



#### 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



Page 3 of 5

Test Data for Sound Level Meter

Sound level mete Microphone		A5661 A14425	Serial No. Serial No.	301 153		Date 04-0 Report: 21C	Dct-2021 A0928 03-05
251.2	94.0	94.0	93.9	1.0	1.0	-0.1	
501.2	94.0	94.0	94.0	1.0	1.0	0.0	
1995.0	94.0	93.8	93.1	1.0	1.0	-0.7	
3981.0	94.0	93.2	93.4	1.0	1.0	0.2	
7943.0	94.0	91.0	91.6	1.5	3.0	0.6	
12590.0	94.0	87.8	87.5	3.0	6.0	-0.3	
Frequency weigh	nting Lin:						
Frequency	Ref. level	Expected level	Actual level	Tolerar	nce(dB)	Deviation	
Hz	dB	dB	dB	+	-	dB	
1000.0	94.0	94.0	94.0	0.0	0.0	0.0	
31.6	94.0	94.0	93.9	1.5	1.5	-0.1	
63.1	94.0	94.0	94.0	1.5	1.5	0.0	
125.9	94.0	94.0	94.0	1.0	1.0	0.0	
251.2	94.0	94.0	94.0	1.0	1.0	0.0	
501.2	94.0	94.0	94.0	1.0	1.0	0.0	
1995.0	94.0	94.0	94.0	1.0	1.0	0.0	
3981.0	94.0	94.0	94.0	1.0	1.0	0.0	
7943.0	94.0	94.0	94.0	1.5	3.0	0.0	
12590.0	94.0	94.0	93.9	3.0	6.0	-0.1	

## TIME WEIGHTING FAST TEST

Time weighting F is tested on the reference range with a single sinusoidal burst of duration 200 ms at a frequency 2000 Hz and an amplitude which produces an indication 4 dB below the upper limit of the primary indicator range when the signal is continuous. (Weight A, Maximum hold)

			T		
Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
dB	dB	dB	+	-	dB
116.0	115.0	115.0	1.0	1.0	0.0

#### TIME WEIGHTING SLOW TEST

Time weighting S is tested on the reference range with a single sinusoidal burst of duration 500 ms at a frequency 2000 Hz and an amplitude which produces an indication 4 dB below the upper limit of the primary indicator range when the signal is continuous. (Weight A. Maximum hold)

5	1 0 1				
Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
dB	dB	dB	+	-	dB
116.0	111.9	111.9	1.0	1.0	0.0

#### PEAK RESPONSE TEST

The onset time of the peak detector is tested on the reference range by comparing the response to a 100 us rectangular test pulse with the response to a 10 ms reference pulse of the same amplitude. The amplitude of the 10 ms reference pulse is such as to produce an indication 1 dB below the upper limit of the primary indicator range. Positive polarities: (Weighting Z, set the generator signal to single, Lzpeak)

r ositive polarities.	(Weighting E, oet the gen	ierater eignar te en	igio, Espoury	
Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation

(c)Soils Materials Eng. Co., Ltd.



#### 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



Test Data for Sound Level Meter	r				Page 4 of 5
Sound level meter type: Microphone type:	AWA5661 AWA14425	Serial No. Serial No.	301135 15338	Date 04-0 Report: 21C	Oct-2021 A0928 03-05
dB	dB	dB	+/- dB	dB	
119.0	119.0	119.3	2.0	0.3	
Negative polarities:					
Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation	
dB	dB	dB	+/- dB	dB	
119.0	119.0	119.3	2.0	0.3	

#### RMS ACCURACY TEST

The RMS detector accuracy is tested on the reference range for a crest factor of 3. 2000 Hz Test frequency: Amplitude: 2 dB below the upper limit of the primary indicator range. Burst repetition frequency: 40 Hz 11 cycles of a sine wave of frequency 2000 Hz. (Set to INT) Tone burst signal: Deviation Ref. Level Expected level Tone burst signal Tolerance dB indication(dB) +/- dB dB Time wighting dB Slow 116.0 115.8 0.5 -0.2 116.0+6.6

#### TIME WEIGHTING IMPULSE TEST

Time weighting I is tested on	the reference range	(Set the SLM to LAImax)
Test frequency:	2000 Hz	
Amplitude:	The upper limit of the	e primary indicator range.
Single sinusoidal burst of duration	n 5 ms:	

Ref. Level	Single burst indication		Tolerance	Deviation
dB	Expected (dB)	Actual (dB)	+/- dB	dB
120.0	111.2	111.1	2.0	-0.1

Repeated at 100 Hz

Ref. Level	Repeated bu	Repeated burst indication		Deviation
dB	Expected (dB)	Actual (dB)	+/- dB	dB
120.0	117.3	117.1	1.0	-0.2

#### TIME AVERAGING TEST

This test compares the SLM reading for continuous sine signals with readings obtained from a sine tone burst sequence having the same RMS level. The test level is 30 dB below the upper limit of the linearity range and repeated for Type 1 SLM with 40 dB below the upper limit of the linearity.

Frequency of tone burst: 4000 Hz

riequency of tone burst.	4000112					
Duration of tone burst:	1 ms					
Repetition Time	Level of	Expected	Actual	Tolerance	Deviation	Remarks
	tone burst	Leq	Leq			_
msec	dB	dB	dB	+/- dB	dB	
1000	90.0	90.0	89.8	1.0	-0.2	60s integ.
10000	80.0	80.0	79.8	1.0	-0.2	6min. integ.

#### PULSE RANGE AND SOUND EXPOSURE LEVEL TEST

The test tone burst signal is superimposed on a baseline signal corresponding to the lower limit of reference range

(c)Soils Materials Eng. Co., Ltd.



#### 综合試驗有限公司 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



Test Data for Sour	nd Level Meter					Page 5 of 5
Sound level met Microphone		/A5661 /A14425	Serial No. Serial No.	301135 15338		-Oct-2021 CA0928 03-05
Test frequency:	400	00 Hz				
Integration time:	10	sec				
The integrating s	sound level meter	set to Leq:				
Duration	Rms level of	Expected	Actual	Tolerance	Deviation	
msec	tone burst (dB)	dB	dB	+/- dB	dB	
10	90.0	60.0	59.8	1.7	-0.2	
<b>T</b> I						

#### The integrating sound level meter set to SEL:

Duration	Rms level of	Expected	Actual	Tolerance	Deviation
msec	tone burst (dB)	dB	dB	+/- dB	dB
10.0	90.0	70.0	70.0	1.7	0.0

#### OVERLOAD INDICATION TEST

For SLM capable of operating in a non-integrating mode.

I of or in oupdable	or operating in a	non integrating n	i cu ci			
Test frequer	uency: 2000 Hz					
Amplitude:		2 dB below the upper limit of the primary indicator range.				
Burst repetit	ion frequency:	40 Hz				
Tone burst s	ignal:	11 cycles of a sine wave of frequency 2000 Hz.				
Level	Level reduced by	Further reduced	Difference	Tolerance	Deviation	
at overload (dB)	1 dB	3 dB	dB	dB	dB	
115.6	114.6	111.6	3.0	1.0	0.0	

For integrating SLM, with the instrument indicating Leq.

For integrating SLM, with the instrument indicating Leq and set to the reference range. The test signal as following:<br/>The test tone burst signal is superimposed on a baseline signal corresponding to the lower limit of reference range<br/>Test frequency:<br/>4000 Hz<br/>Integration time:4000 Hz

Single burst duration: 1 msec

Rms level	Level reduced by	Expected level	Actual level	Tolerance	Deviation
at overload (dB)	1 dB	dB	dB	dB	dB
121.9	120.9	80.9	80.7	2.2	-0.2

### ACOUSTIC TEST

The acoustic test of the complete SLM is tested at the frequency 125 Hz and 8000 Hz using a B&K type 4226 Multifunction Acoustic Calibrator. The test is performed in A weighting.

Frequency	Expected level	Actual level	Tolerar	nce (dB)	Deviation
Hz	dB	Measured (dB)	+	-	dB
1000	94.0	94.0	0.0	0.0	0.0
125	77.9	78.2	1.0	1.0	0.3
8000	92.9	93.6	1.5	3.0	0.7

-----END------

(c)Soils Materials Eng. Co., Ltd.



#### **综合試驗 有限公司** SOILS & MATERIALS ENGINEERING CO., LTD. 香港新界葵涌永基路 2 2 - 2 4 號好爸爸創科大廈

官 福 新 好 奕 福 太 桽 邱 2 2 - 2 4 號 好 巴 巴 葡 杆 八 度 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.:	21CA0616 01-02	2	Page:	1	of	2
Item tested						
Description:	Acoustical Calib	rator (Class 1)				
Manufacturer:	Pulsar					
Type/Model No.:	100B					
Serial/Equipment No.:	039507					
Adaptors used:	Yes					
Item submitted by						
Customer:	Apex Testing & (					
Address of Customer:	Unit D6A, 10/F,	TML Tower, 3 Hoi Shing I	Road, Tsuen Wan, N.T.			
Request No.:	-					
Date of receipt:	16-Jun-2021					
Date of test:	18-Jun-2021					
Reference equipment	used in the cali	bration	2			
Description:	Model:	Serial No.	Expiry Date:		Traceab	le to:
Lab standard microphone	B&K 4180	2341427	04-May-2022		SCL	
Preamplifier	B&K 2673	2239857	31-May-2022		CEPREI	
Measuring amplifier	B&K 2610	2346941	01-Jun-2022		CEPREI	
Signal generator	DS 360	33873	27-May-2022		CEPREI	
Digital multi-meter	34401A	US36087050	27-May-2022		CEPREI	
Audio analyzer	8903B	GB41300350	28-May-2022		CEPREI	
Universal counter	53132A	MY40003662	02-Jun-2022		CEPREI	
Ambient conditions						
Temperature:	22 ± 1 °C					
Relative humidity:	55 ± 10 %					

#### **Test specifications**

Air pressure:

- 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

1010 ± 5 hPa

19-Jun-2021 Company Chop:



**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.

Date:

© Soils & Materials Engineering Co., Ltd.

Form No.CARP156-1/Issue 1/Rev.D/01/03/2007



#### 綜合試驗有限公司 SOILS & MATERIALS ENGINEERING CO., LTD.

21CA0616 01-02

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**

(Continuation Page)

Certificate No.:

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.

Frequency	Output Sound Pressure	Measured Output	Estimated Expanded
Shown		Sound Pressure Level	Uncertainty
	Level Setting		
Hz	dB	dB	dB
1000	94.00	94.15	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 = 0.019 dB

Estimated expanded uncertainty

#### 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:

0.005 dB

At 1000 Hz	Actual Frequency = 999.86 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 = 0.9 %
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.

	Λ	- End -	1 [
Calibrated by:	1 - ()-	Checked by:	Joele
Date:	Fung Chi Yip 18-Jun-2021	Date:	Chan Yuk Yiu 19-Jun-2021

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.

© Soils & Materials Engineering Co., Ltd.

Form No.CARP156-2/Issue 1/Rev.C/01/05/2005



#### 综合試驗有限公司 SOILS & MATERIALS ENGINEERING CO., LTD. 香港新界葵涌永基路 2 2 - 2 4 號好爸爸創科大廈

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.:	21CA0928 03-07		Page:	1 of	2
Item tested					
Description:	Acoustical Calibra	tor (Class 1)			
Manufacturer:	Quest				
Type/Model No.:	QC-10				
Serial/Equipment No.:	QI9010183				
Adaptors used:	-				
Item submitted by					
Curstomer:	Apex Testing & Ce	ertification Ltd.			
Address of Customer:		ML Tower, 3 Hoi Shing I	Road, Tsuen Wan, N.T.		
Request No.:	-	. 0	5 <b>1</b>		
Date of receipt:	28-Sep-2021				
Date of test:	05-Oct-2021				
Reference equipment		ration			
Reference equipment	used in the calib Model:	Serial No.	Expiry Date:	Tracea	ble to:
Reference equipment Description: Lab standard microphone	used in the calib Model: B&K 4180	<b>Serial No.</b> 2341427	04-May-2022	SCL	
Reference equipment Description: Lab standard microphone Preamplifier	used in the calib Model: B&K 4180 B&K 2673	Serial No. 2341427 2239857	04-May-2022 31-May-2022	SCL CEPRE	3
Reference equipment Description: Lab standard microphone Preamplifier Measuring amplifier	used in the calib Model: B&K 4180 B&K 2673 B&K 2610	Serial No. 2341427 2239857 2346941	04-May-2022 31-May-2022 01-Jun-2022	SCL CEPRE CEPRE	1
Reference equipment Description: Lab standard microphone Preamplifier Measuring amplifier Signal generator	used in the calib Model: B&K 4180 B&K 2673 B&K 2610 DS 360	Serial No. 2341427 2239857 2346941 33873	04-May-2022 31-May-2022 01-Jun-2022 27-May-2022	SCL CEPRE CEPRE CEPRE	] ] ]
Reference equipment Description: Lab standard microphone Preamplifier Measuring amplifier Signal generator Digital multi-meter	used in the calib Model: B&K 4180 B&K 2673 B&K 2610 DS 360 34401A	Serial No. 2341427 2239857 2346941 33873 US36087050	04-May-2022 31-May-2022 01-Jun-2022 27-May-2022 27-May-2022	SCL CEPRE CEPRE CEPRE CEPRE	:  :  :  :
Reference equipment Description: Lab standard microphone Preamplifier Measuring amplifier Signal generator Digital multi-meter Audio analyzer	used in the calib Model: B&K 4180 B&K 2673 B&K 2610 DS 360 34401A 8903B	Serial No. 2341427 2239857 2346941 33873 US36087050 GB41300350	04-May-2022 31-May-2022 01-Jun-2022 27-May-2022 27-May-2022 28-May-2022	SCL CEPRE CEPRE CEPRE CEPRE CEPRE	
Reference equipment	used in the calib Model: B&K 4180 B&K 2673 B&K 2610 DS 360 34401A	Serial No. 2341427 2239857 2346941 33873 US36087050	04-May-2022 31-May-2022 01-Jun-2022 27-May-2022 27-May-2022	SCL CEPRE CEPRE CEPRE CEPRE	1 1 1 1 1
Reference equipment Description: Lab standard microphone Preamplifier Measuring amplifier Signal generator Digital multi-meter Audio analyzer	used in the calib Model: B&K 4180 B&K 2673 B&K 2610 DS 360 34401A 8903B	Serial No. 2341427 2239857 2346941 33873 US36087050 GB41300350	04-May-2022 31-May-2022 01-Jun-2022 27-May-2022 27-May-2022 28-May-2022	SCL CEPRE CEPRE CEPRE CEPRE CEPRE	1 1 1 1 1
Reference equipment Description: Lab standard microphone Preamplifier Measuring amplifier Signal generator Digital multi-meter Audio analyzer Universal counter	used in the calib Model: B&K 4180 B&K 2673 B&K 2610 DS 360 34401A 8903B	Serial No. 2341427 2239857 2346941 33873 US36087050 GB41300350	04-May-2022 31-May-2022 01-Jun-2022 27-May-2022 27-May-2022 28-May-2022	SCL CEPRE CEPRE CEPRE CEPRE CEPRE	1 1 1 1 1
Reference equipment Description: Lab standard microphone Preamplifier Measuring amplifier Signal generator Digital multi-meter Audio analyzer Universal counter Ambient conditions	used in the calib Model: B&K 4180 B&K 2673 B&K 2610 DS 360 34401A 8903B 53132A	Serial No. 2341427 2239857 2346941 33873 US36087050 GB41300350	04-May-2022 31-May-2022 01-Jun-2022 27-May-2022 27-May-2022 28-May-2022	SCL CEPRE CEPRE CEPRE CEPRE CEPRE	1 1 1 1 1

#### **Test specifications**

- 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 me	easurements/are prese	ented on pag	e 2 of this certifica	ite.	SUNS ENGINEERIE
Approved Signatory:	Feng Junqi	Date:	05-Oct-2021	Company Chop:	综合試驗 有限公司 STOS * TOL

**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.

© Soils & Materials Engineering Co., Ltd.

Form No.CARP156-1/Issue 1/Rev.D/01/03/2007



#### 綜合試驗有限公司 SOILS & MATERIALS ENGINEERING CO., LTD.

21CA0928 03-07

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**

(Continuation Page)

Certificate No.:

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	Output Sound Pressure	Measured Output	Estimated Expanded
Shown	Level Setting	Sound Pressure Level	Uncertainty
Hz	dB	dB	dB
1000	114.00	114.00	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 = 0.012 dB

Estimated expanded uncertainty

#### 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:

0.005 dB

At 1000 Hz	Actual Frequency = 1003.1 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 = 0.2 %
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.

L	1 /	-	End -	11
Calibrated by:	$1 \sim 1$		Checked by:	Jack
	Fung Chi Yip			Chan Yuk Yiu
Date:	05-Oct-2021		Date:	05-Oct-2021

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.

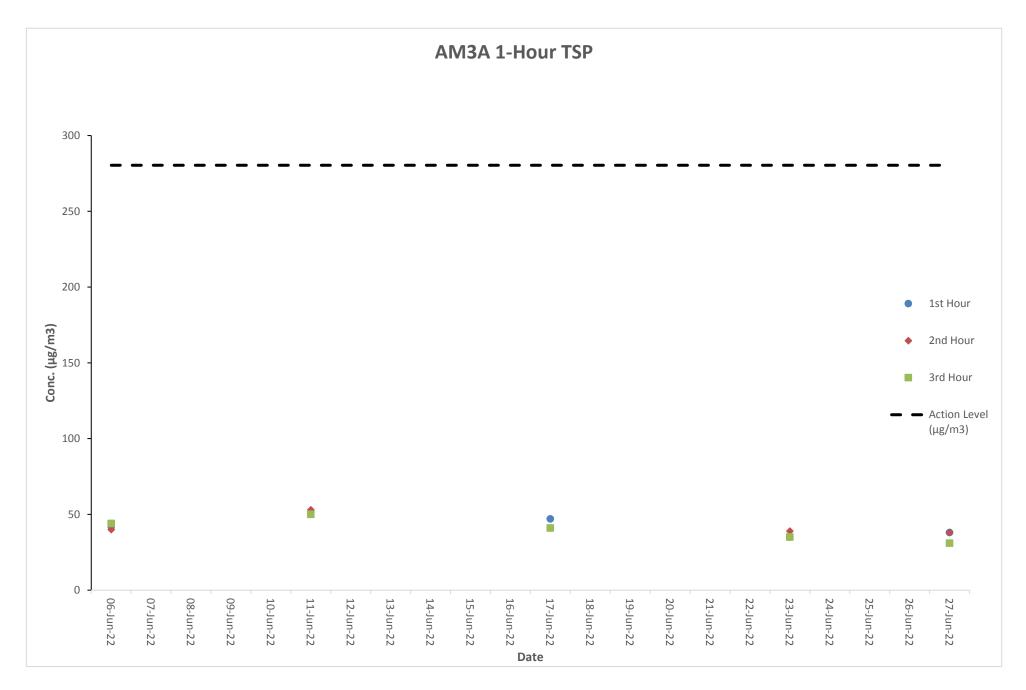
© Soils & Materials Engineering Co., Ltd.

Form No.CARP156-2/Issue 1/Rev.C/01/05/2005

# **G.** Graphical Plots of the Monitoring Results

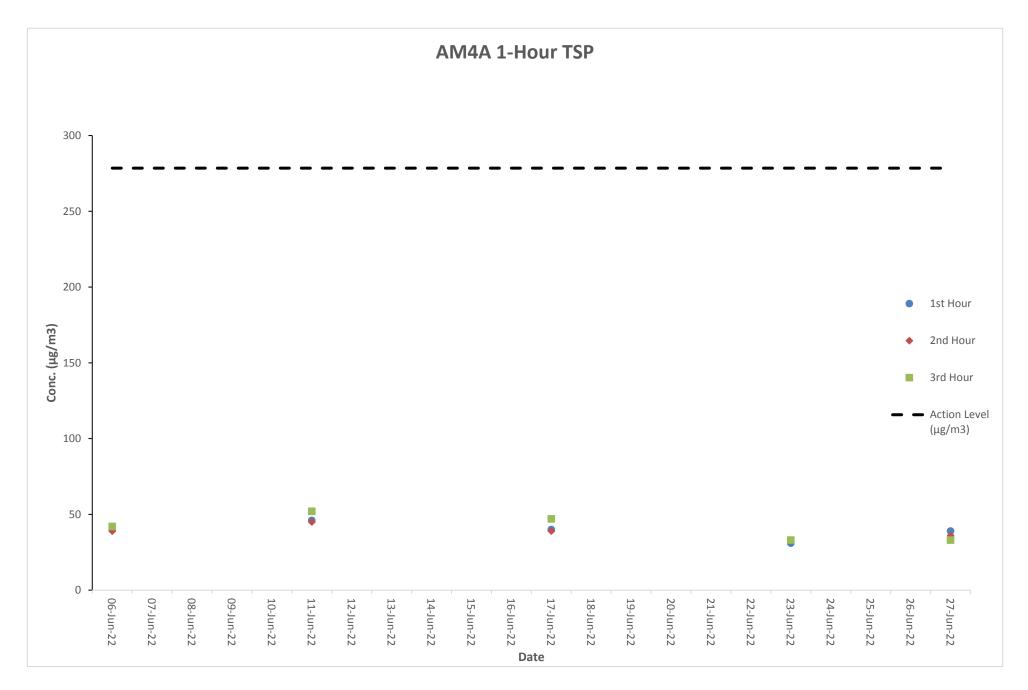
## Air Quality Monitoring Result at Station AM3A (1-hour TSP)

Date	Weather	Tir	ne	C	onc. (µg/m3	3)	Action	Limit
Dale	Condition	Start	Finish	1st Hour	2nd Hour	3rd Hour	Level	Level
06-Jun-22	Cloudy	8:01	11:01	42	40	44	280.4	500
11-Jun-22	Cloudy	14:05	17:05	51	53	50	280.4	500
17-Jun-22	Cloudy	8:03	11:03	47	41	41	280.4	500
23-Jun-22	Fine	14:07	17:07	35	39	35	280.4	500
27-Jun-22	Cloudy	8:05	11:05	38	38	31	280.4	500



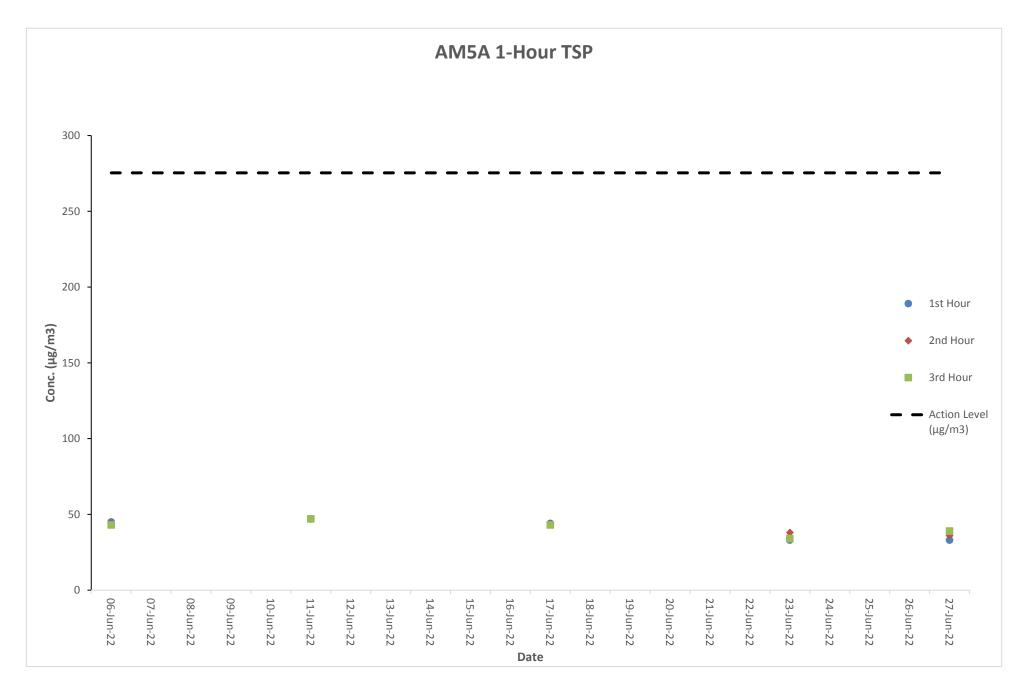
## Air Quality Monitoring Result at Station AM4A (1-hour TSP)

Date	Weather	Tir	ne	C	onc. (µg/m3	3)	Action	Limit
Dale	Condition	Start	Finish	1st Hour	2nd Hour	3rd Hour	Level	Level
06-Jun-22	Cloudy	8:09	11:09	40	39	42	278.5	500
11-Jun-22	Cloudy	14:13	17:13	46	45	52	278.5	500
17-Jun-22	Cloudy	8:11	11:11	40	39	47	278.5	500
23-Jun-22	Fine	14:15	17:15	31	33	33	278.5	500
27-Jun-22	Cloudy	8:13	11:13	39	36	33	278.5	500



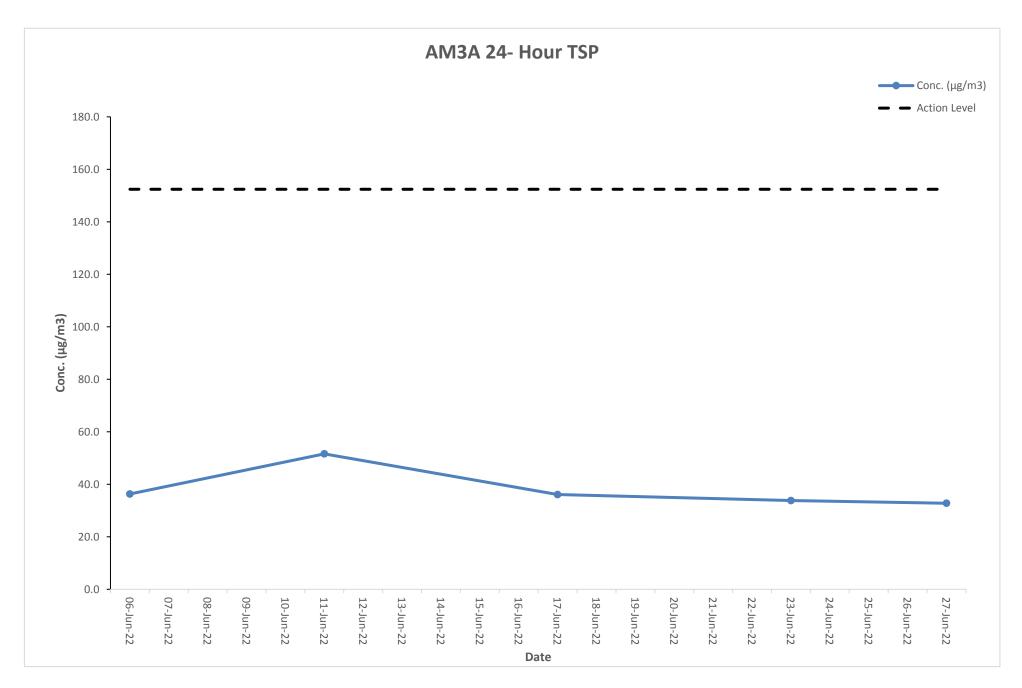
## Air Quality Monitoring Result at Station AM5A (1-hour TSP)

Date	Weather	Tir	ne	C	onc. (µg/m3	3)	Action	Limit
Dale	Condition	Start	Finish	1st Hour	2nd Hour	3rd Hour	Level	Level
06-Jun-22	Cloudy	8:24	11:24	45	44	43	275.4	500
11-Jun-22	Cloudy	14:30	17:30	47	47	47	275.4	500
17-Jun-22	Cloudy	8:26	11:26	44	44	43	275.4	500
23-Jun-22	Fine	14:32	17:32	33	38	34	275.4	500
27-Jun-22	Cloudy	8:28	11:28	33	36	39	275.4	500



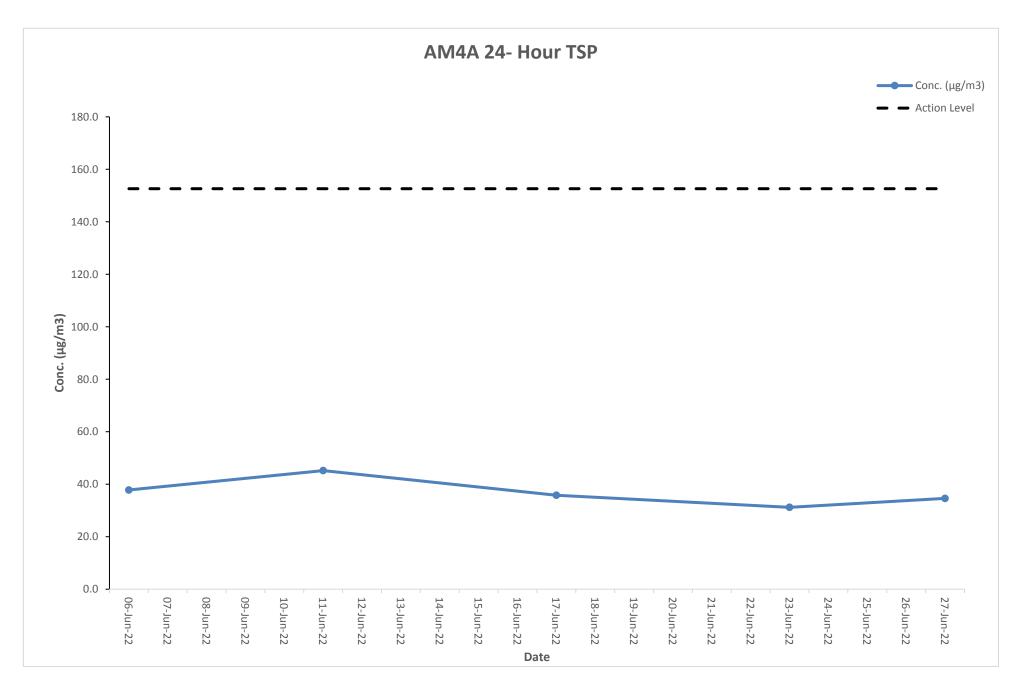
## Air Quality Monitoring Result at Station AM3A (24-hour TSP)

Sta	ırt	Fini	sh	Filter W	eight (g)	Elapsed Tir	ne Reading	Sampling	Flow Rate (m <sup>3</sup> /min)		Flow Rate (m <sup>3</sup> /min) Conc.		Weather	Action	Limit
Date	Time	Date	Time	Initial	Final	Initial	Final	Time (hrs)	Initial	Final	Average	(µg/m3)	Condition	Level	Level
06-Jun-22	10:00AM	07-Jun-22	10:00AM	2.8066	2.8650	3674.8	3698.8	24	1.12	1.12	1.12	36.3	Rainy	152.4	260
11-Jun-22	10:00AM	12-Jun-22	10:00AM	2.8047	2.8877	3698.8	3722.8	24	1.12	1.12	1.12	51.6	Rainy	152.4	260
17-Jun-22	10:00AM	18-Jun-22	10:00AM	2.8087	2.8669	3722.8	3746.8	24	1.12	1.12	1.12	36.1	Cloudy	152.4	260
23-Jun-22	10:00AM	24-Jun-22	10:00AM	2.8064	2.8608	3746.8	3770.8	24	1.12	1.12	1.12	33.8	Sunny	152.4	260
27-Jun-22	10:00AM	28-Jun-22	10:00AM	2.8063	2.8591	3770.8	3794.8	24	1.12	1.12	1.12	32.8	Cloudy	152.4	260



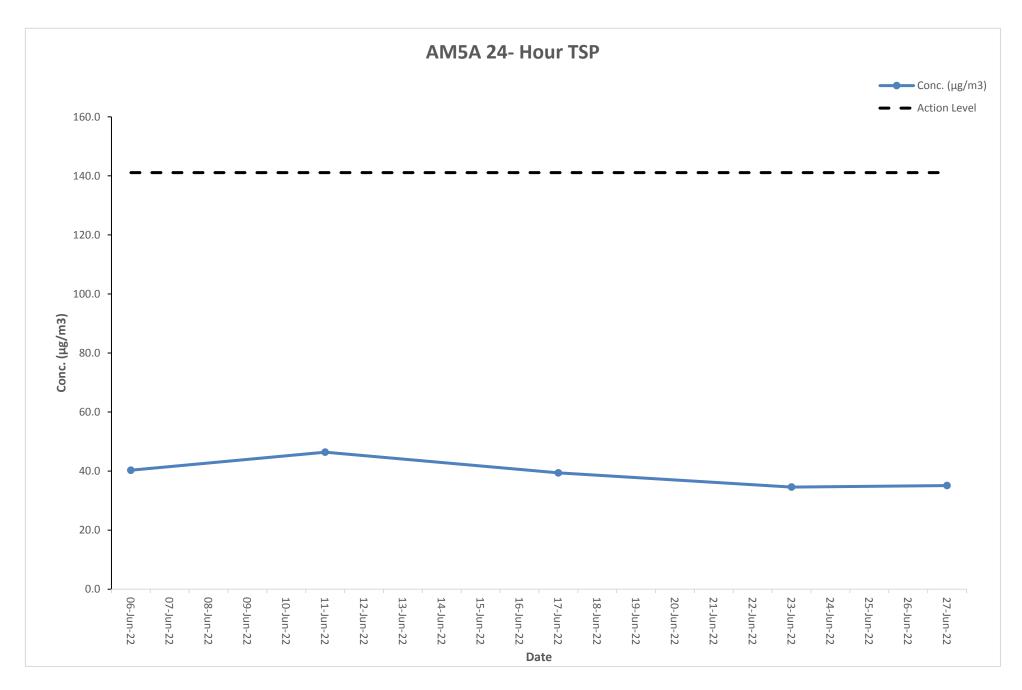
## Air Quality Monitoring Result at Station AM4A (24-hour TSP)

Sta	rt	Fini	sh	Filter W	eight (g)	Elapsed Tir	ne Reading	Sampling	Flow Rate (m <sup>3</sup> /min)		Flow Rate (m <sup>3</sup> /min) Conc.		Weather	Action	Limit
Date	Time	Date	Time	Initial	Final	Initial	Final	Time (hrs)	Initial	Final	Average	(µg/m3)	Condition	Level	Level
06-Jun-22	10:00AM	07-Jun-22	10:00AM	2.8045	2.8653	4094.4	4118.4	24	1.12	1.12	1.12	37.8	Rainy	152.6	260
11-Jun-22	10:00AM	12-Jun-22	10:00AM	2.8087	2.8815	4118.4	4142.4	24	1.12	1.12	1.12	45.2	Rainy	152.6	260
17-Jun-22	10:00AM	18-Jun-22	10:00AM	2.8073	2.8650	4142.4	4166.4	24	1.12	1.12	1.12	35.8	Cloudy	152.6	260
23-Jun-22	10:00AM	24-Jun-22	10:00AM	2.8081	2.8583	4166.4	4190.4	24	1.12	1.12	1.12	31.2	Sunny	152.6	260
27-Jun-22	10:00AM	28-Jun-22	10:00AM	2.8066	2.8623	4190.4	4214.4	24	1.12	1.12	1.12	34.6	Cloudy	152.6	260



## Air Quality Monitoring Result at Station AM5A (24-hour TSP)

Sta	ırt	Fini	sh	Filter W	eight (g)	Elapsed Tir	ne Reading	Sampling	Flow Rate (m <sup>3</sup> /min)		Flow Rate (m <sup>3</sup> /min) Conc		Weather	Action	Limit
Date	Time	Date	Time	Initial	Final	Initial	Final	Time (hrs)	Initial	Final	Average	(µg/m3)	Condition	Level	Level
06-Jun-22	10:00AM	07-Jun-22	10:00AM	2.8083	2.8732	4234.6	4258.6	24	1.12	1.12	1.12	40.3	Rainy	141.1	260
11-Jun-22	10:00AM	12-Jun-22	10:00AM	2.8067	2.8815	4258.6	4282.6	24	1.12	1.12	1.12	46.4	Rainy	141.1	260
17-Jun-22	10:00AM	18-Jun-22	10:00AM	2.8036	2.8670	4282.6	4306.6	24	1.12	1.12	1.12	39.4	Cloudy	141.1	260
23-Jun-22	10:00AM	24-Jun-22	10:00AM	2.8060	2.8616	4306.6	4330.6	24	1.12	1.12	1.12	34.6	Sunny	141.1	260
27-Jun-22	10:00AM	28-Jun-22	10:00AM	2.8051	2.8616	4330.6	4354.6	24	1.12	1.12	1.12	35.1	Cloudy	141.1	260

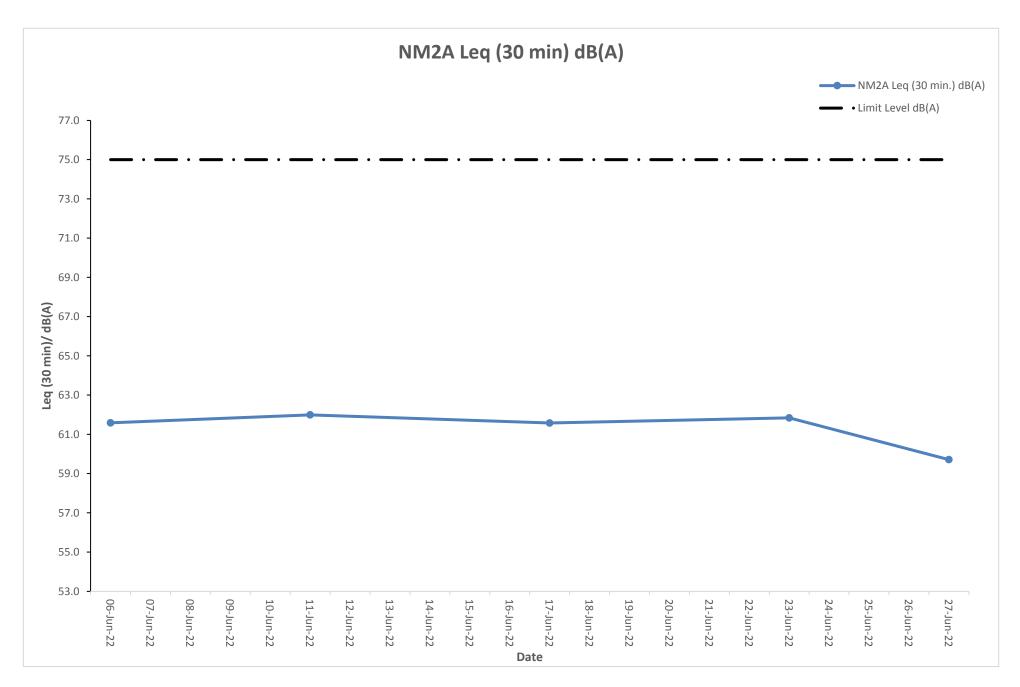


#### Noise Monitoring Result at Station NM2A

Date	Time	Measured L10 dB(A)	Measured L90 dB(A)	Leq (30 min.) dB(A)
06-Jun-22	8:31	63.9	58.9	
06-Jun-22	8:36	63.7	58.9	
06-Jun-22	8:41	64.4	59.4	61.6
06-Jun-22	8:46	64.1	60.2	01.0
06-Jun-22	8:51	63.5	59.8	
06-Jun-22	8:56	63.3	59.6	
11-Jun-22	14:35	64.3	59.9	
11-Jun-22	14:40	64.1	59.1	
11-Jun-22	14:45	64.7	59.2	62.0
11-Jun-22	14:50	62.9	59.4	02.0
11-Jun-22	14:55	63.9	59.8	
11-Jun-22	15:00	64.7	59.7	
17-Jun-22	8:33	64.4	58.6	
17-Jun-22	8:38	64.7	59.8	
17-Jun-22	8:43	64.0	59.7	61.6
17-Jun-22	8:48	63.6	58.6	01.0
17-Jun-22	8:53	63.4	60.2	
17-Jun-22	8:58	63.6	60.1	
23-Jun-22	14:37	63.0	60.3	
23-Jun-22	14:42	62.9	59.8	
23-Jun-22	14:47	62.9	59.1	61.8
23-Jun-22	14:52	63.7	59.3	01.8
23-Jun-22	14:57	63.9	59.0	
23-Jun-22	15:02	64.6	59.9	
27-Jun-22	8:35	62.6	57.4	
27-Jun-22	8:40	61.9	58.2	
27-Jun-22	8:45	61.7	58.3	59.7
27-Jun-22	8:50	61.7	58.4	59.7
27-Jun-22	8:55	62.5	58.0	
27-Jun-22	9:00	61.4	58.1	



The station set-up of a façade measurement at station NM2A.

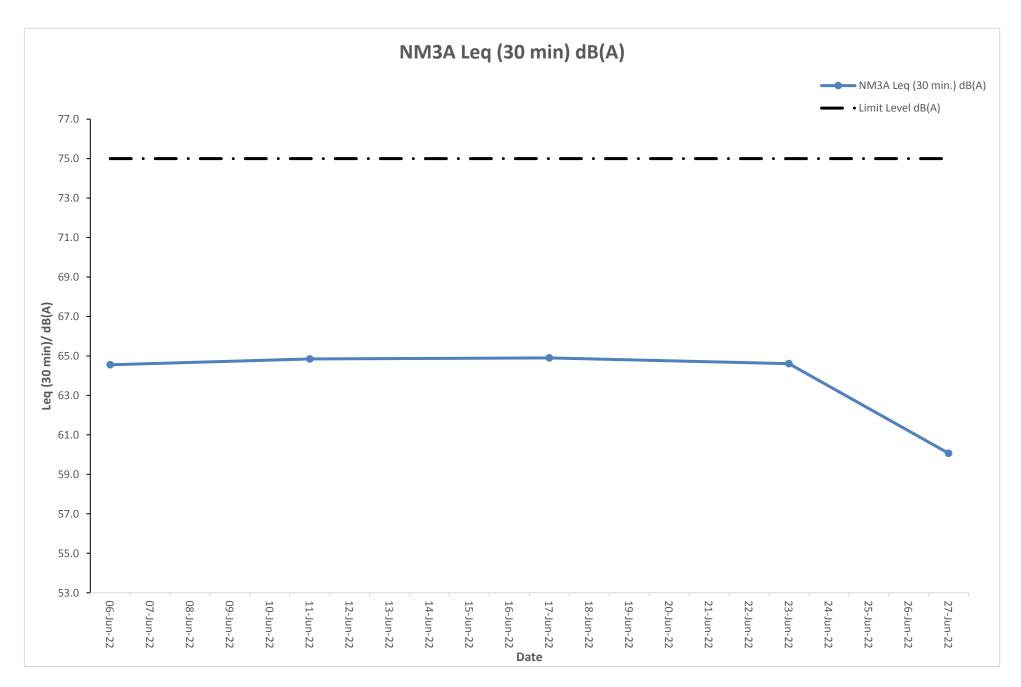


#### Noise Monitoring Result at Station NM3A

Date	Time	Measured L10 dB(A)	Measured L90 dB(A)	Leq (30 min.) dB(A)	
06-Jun-22	10:01	66.2	61.5		
06-Jun-22	10:06	66.7	61.7		
06-Jun-22	10:11	66.3	62.1	64.6	
06-Jun-22	10:16	67.5	61.8	04.0	
06-Jun-22	10:21	67.7	60.5		
06-Jun-22	10:26	67.0	61.7		
11-Jun-22	16:08	67.9	61.5		
11-Jun-22	16:13	67.6	61.5		
11-Jun-22	16:18	67.5	61.5	64.8	
11-Jun-22	16:23	66.4	62.0	04.8	
11-Jun-22	16:28	66.3	60.8		
11-Jun-22	16:33	66.0	61.9		
17-Jun-22	10:03	67.2	60.6		
17-Jun-22	10:08	67.0	61.9		
17-Jun-22	10:13	67.4	60.7	64.9	
17-Jun-22	10:18	66.2	61.2	04.9	
17-Jun-22	10:23	67.7	61.1		
17-Jun-22	10:28	67.5	61.6		
23-Jun-22	16:10	67.4	61.2		
23-Jun-22	16:15	66.5	61.4		
23-Jun-22	16:20	66.8	60.6	64.6	
23-Jun-22	16:25	67.3	60.6	04.0	
23-Jun-22	16:30	67.8	61.3		
23-Jun-22	16:35	66.0	61.2		
27-Jun-22	10:05	62.8	57.3		
27-Jun-22	10:10	61.8	57.1		
27-Jun-22	10:15	62.9	56.0	60.1	
27-Jun-22	10:20	62.8	56.4	60.1	
27-Jun-22	10:25	61.9	57.7		
27-Jun-22	10:30	62.8	56.9		



The station set-up of a façade measurement at station NM3A.

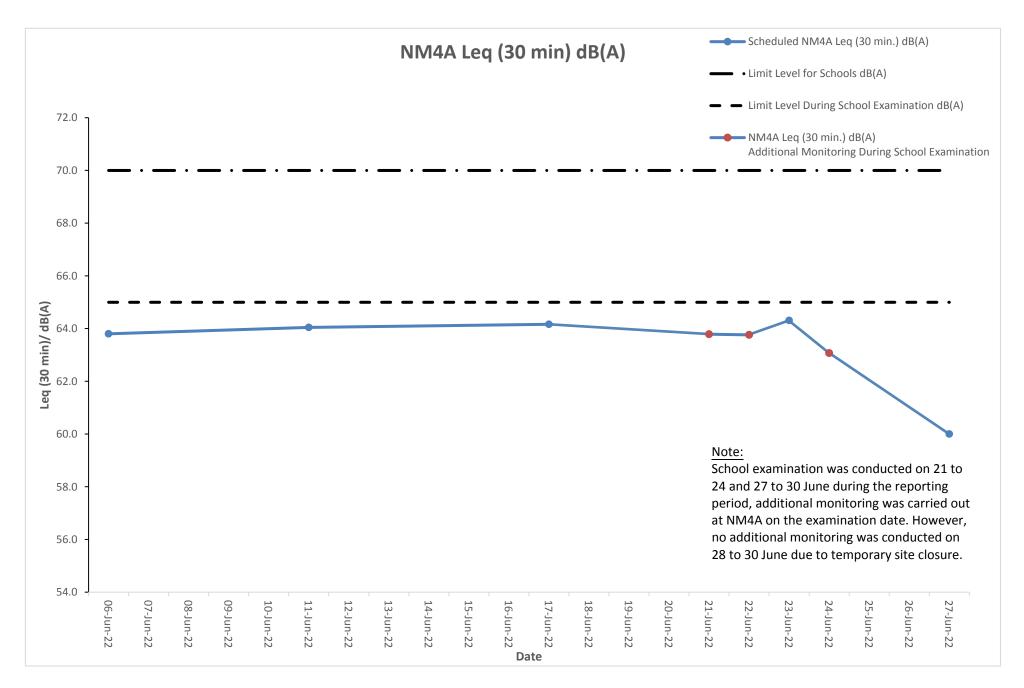


#### Noise Monitoring Result at Station NM4A

Date	Time	Measured L10 dB(A)	Measured L90 dB(A)	Leq (30 min.) dB(A)	
06-Jun-22	10:36	65.0	62.7		
06-Jun-22	10:41	65.9	61.3		
06-Jun-22	10:46	65.0	62.9	63.8	
06-Jun-22	10:51	65.6	62.2	03.0	
06-Jun-22	10:56	66.1	63.0		
06-Jun-22	11:01	65.1	62.6		
11-Jun-22	16:43	65.0	62.3		
11-Jun-22	16:48	65.6	62.8		
11-Jun-22	16:53	66.9	61.9	64.0	
11-Jun-22	16:58	66.9	63.1	04.0	
11-Jun-22	17:03	65.3	62.5		
11-Jun-22	17:08	65.5	61.9		
17-Jun-22	10:38	66.9	61.4		
17-Jun-22	10:43	65.6	61.7		
17-Jun-22	10:48	66.0	61.5	64.2	
17-Jun-22	10:53	65.7	62.2	04.2	
17-Jun-22	10:58	66.7	62.7		
17-Jun-22	11:03	66.3	61.9		
23-Jun-22	16:45	65.7	61.4		
23-Jun-22	16:50	66.4	62.0		
23-Jun-22	16:55	66.8	62.0	64.3	
23-Jun-22	17:00	65.8	61.5	04.5	
23-Jun-22	17:05	66.5	62.1		
23-Jun-22	17:10	66.0	61.8		
27-Jun-22	10:40	62.5	58.6		
27-Jun-22	10:45	62.3	57.5		
27-Jun-22	10:50	62.6	58.2	60.0	
27-Jun-22	10:55	61.8	57.8	60.0	
27-Jun-22	11:00	62.2	57.6		
27-Jun-22	11:05	61.7	57.6		



The station set-up of a façade measurement at station NM4A.



#### Noise Monitoring Result at Station NM5A

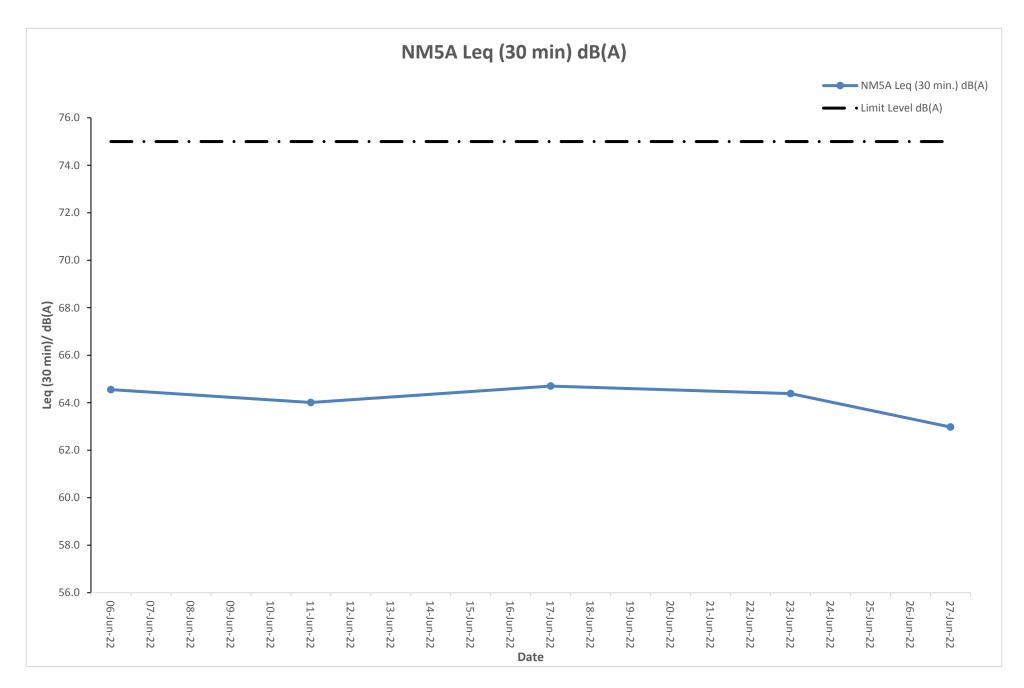
Date	Time	Measured L10 dB(A)	Measured L90 dB(A)	Leq (30 min.) dB(A)	Leq (30 min.) +3 dB(A)	
06-Jun-22	9:21	62.9	58.9			
06-Jun-22	9:26	62.6	59.6			
06-Jun-22	9:31	63.7	59.7	61.6	64.6	
06-Jun-22	9:36	62.7	58.7	01.0	04.0	
06-Jun-22	9:41	62.3	58.5			
06-Jun-22	9:46	63.5	59.4			
11-Jun-22	15:27	63.1	59.4			
11-Jun-22	15:32	63.0	58.7			
11-Jun-22	15:37	63.2	58.2	61.0	64.0	
11-Jun-22	15:42	62.6	59.4	01.0	04.0	
11-Jun-22	15:47	63.0	59.5			
11-Jun-22	15:52	64.1	58.6			
17-Jun-22	9:23	62.4	59.2		64.7	
17-Jun-22	9:28	63.7	58.6			
17-Jun-22	9:33	62.3	58.3	61.7		
17-Jun-22	9:38	62.9	58.5	01.7		
17-Jun-22	9:43	64.1	57.8			
17-Jun-22	9:48	63.8	57.9			
23-Jun-22	15:29	62.5	59.7			
23-Jun-22	15:34	64.2	59.2			
23-Jun-22	15:39	63.8	59.6	61.4	64.4	
23-Jun-22	15:44	63.3	59.1	U1. <del>T</del>	т. <del>т</del>	
23-Jun-22	15:49	62.5	59.0			
23-Jun-22	15:54	64.0	59.7			
27-Jun-22	9:25	61.7	56.9			
27-Jun-22	9:30	62.7	56.7	60.0		
27-Jun-22	9:35	62.6	57.2		63.0	
27-Jun-22	9:40	61.4	56.7		05.0	
27-Jun-22	9:45	60.9	56.4			
27-Jun-22	9:50	62.4	57.7			

### Remarks:

+3dB(A) correction was applied to free-field measurement.

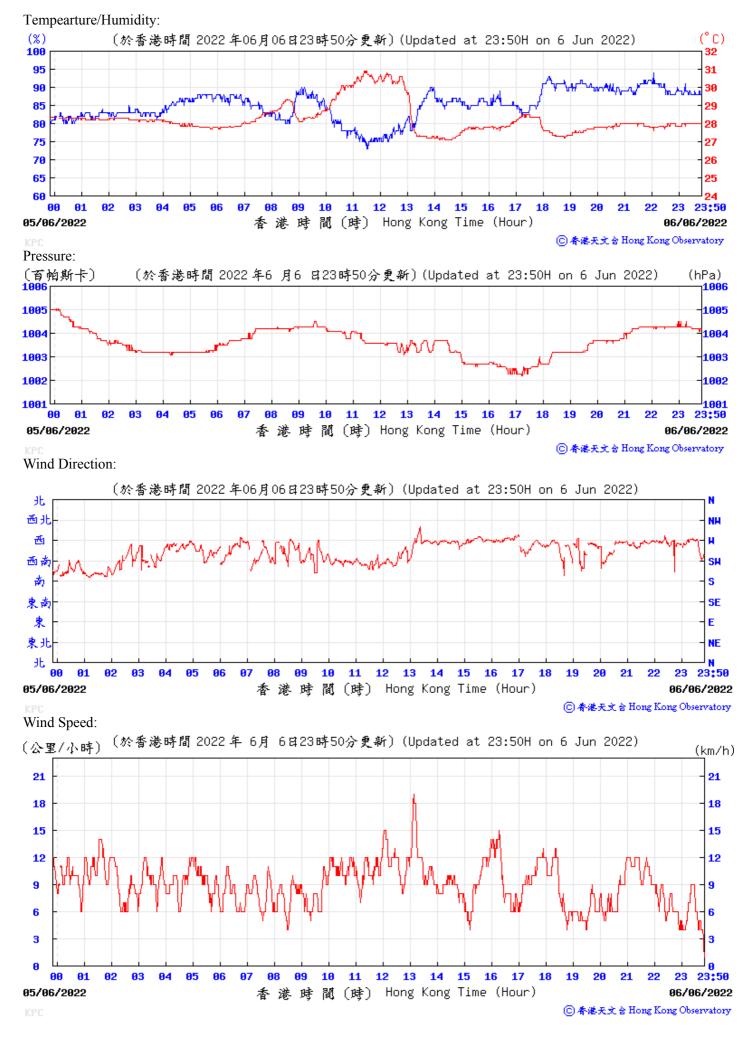


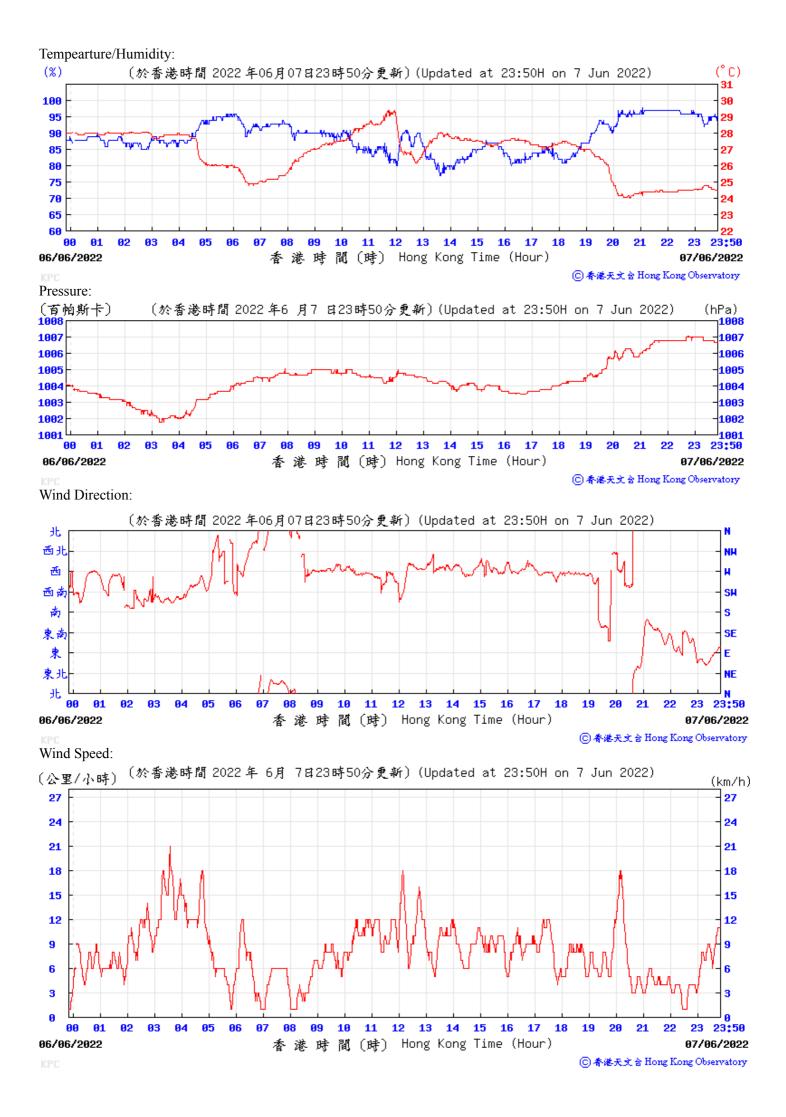
The station set-up of a free-field measurement at station NM5A.

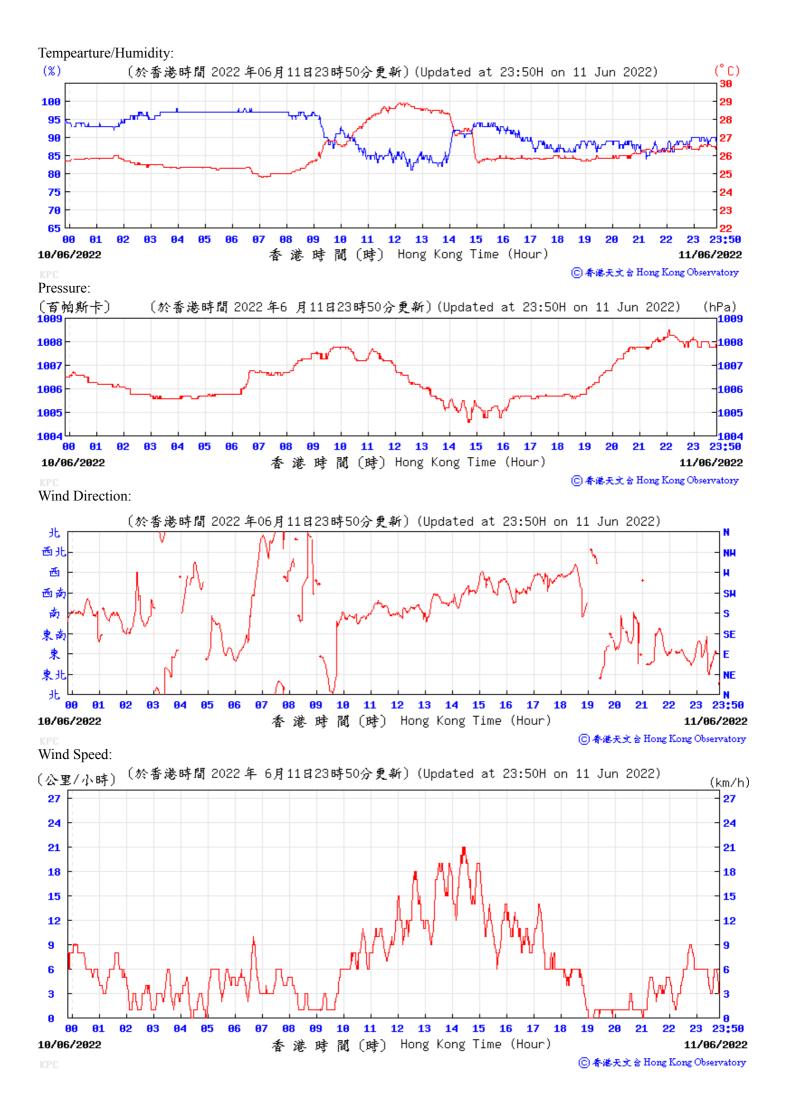


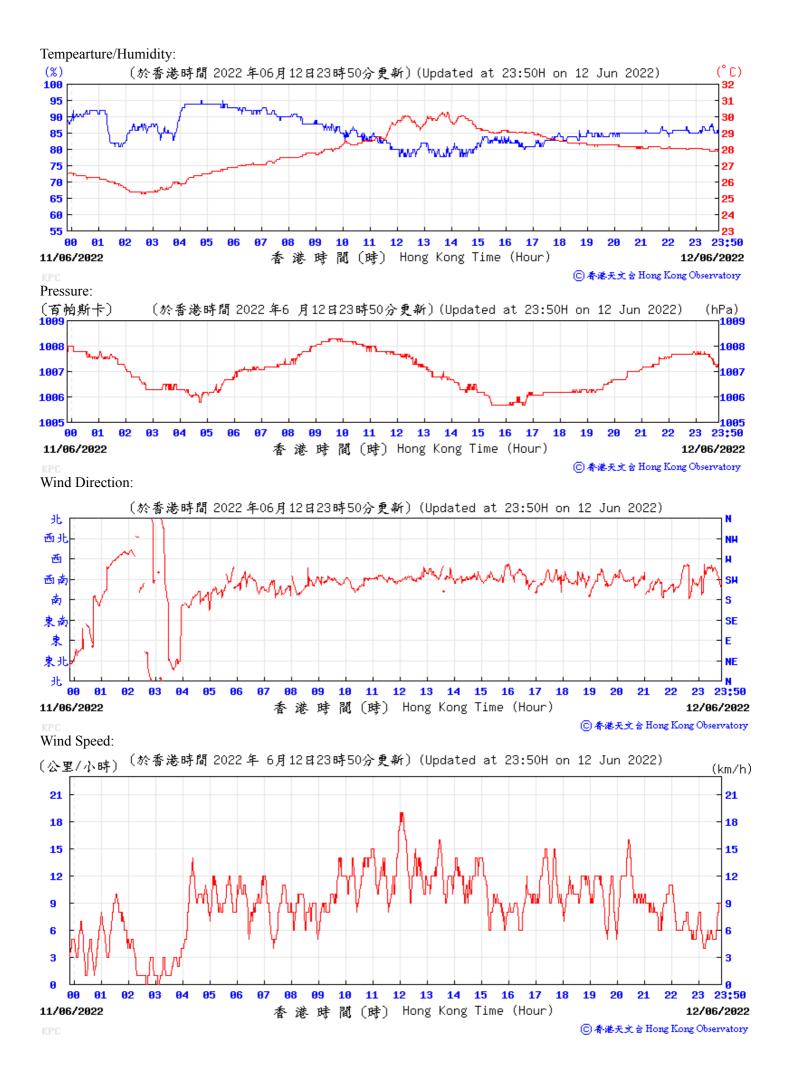
# H. Meteorological Data Extracted from Hong Kong Observatory

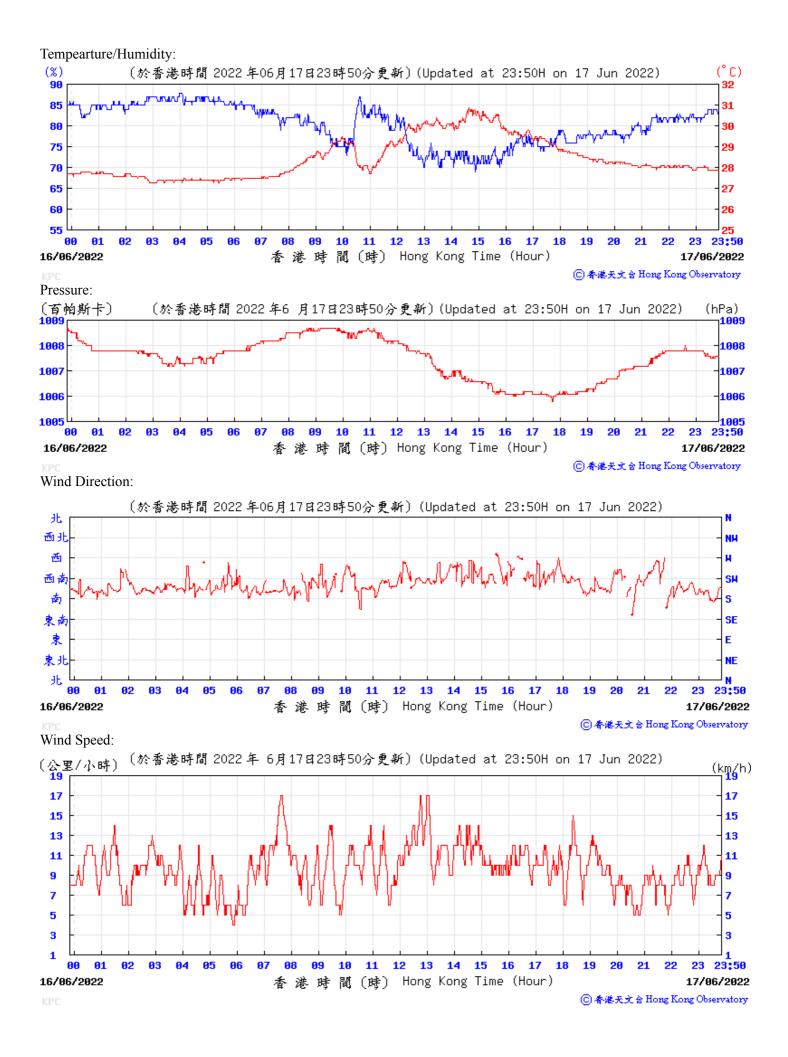
### Extract of Meteorological Observations for King's Park Automatic Weather Station, June 2022

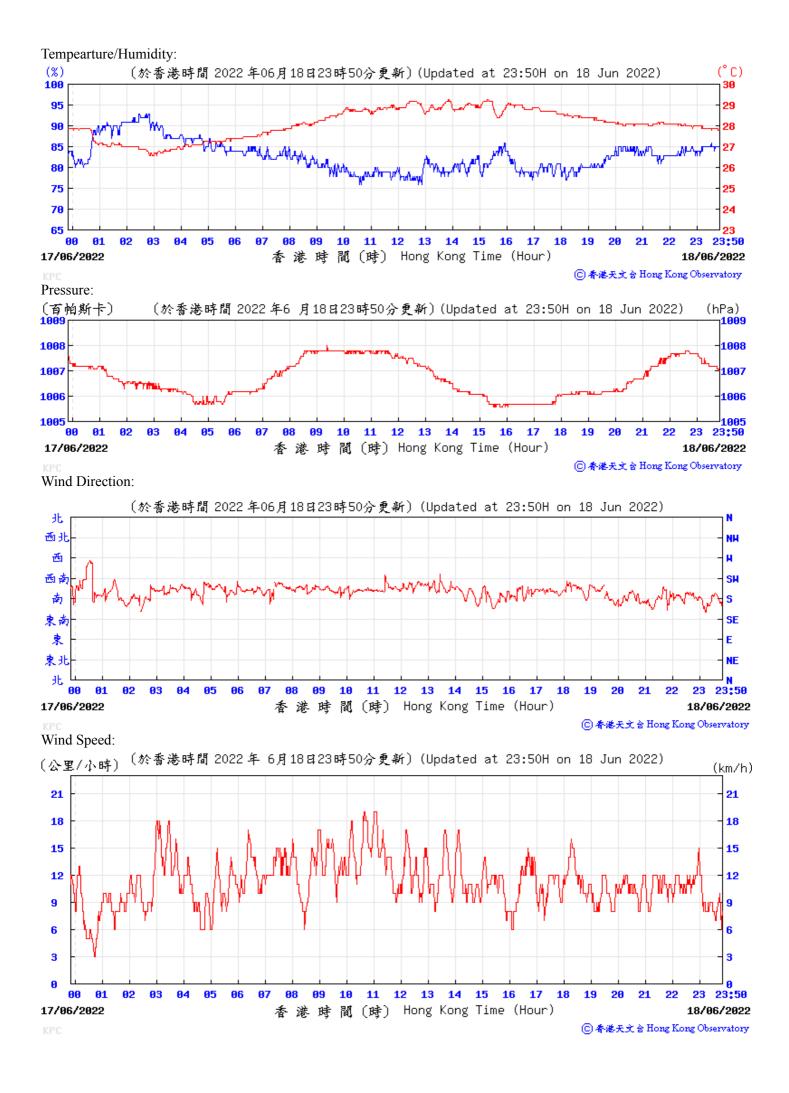


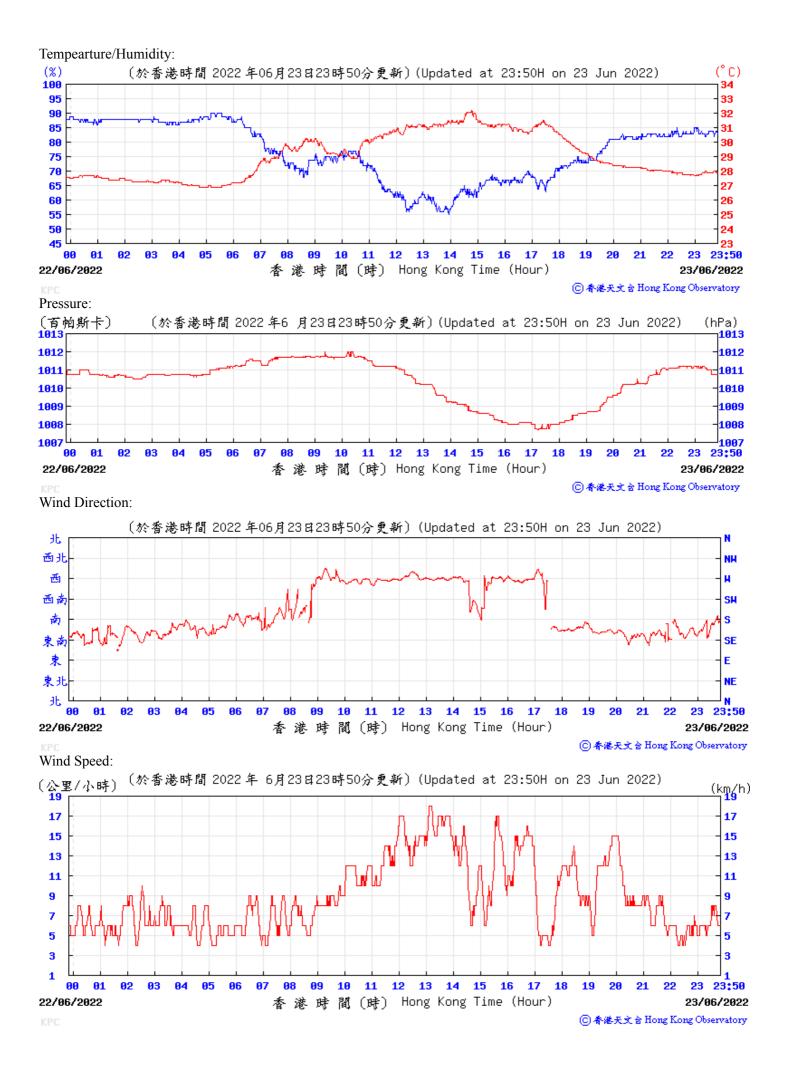


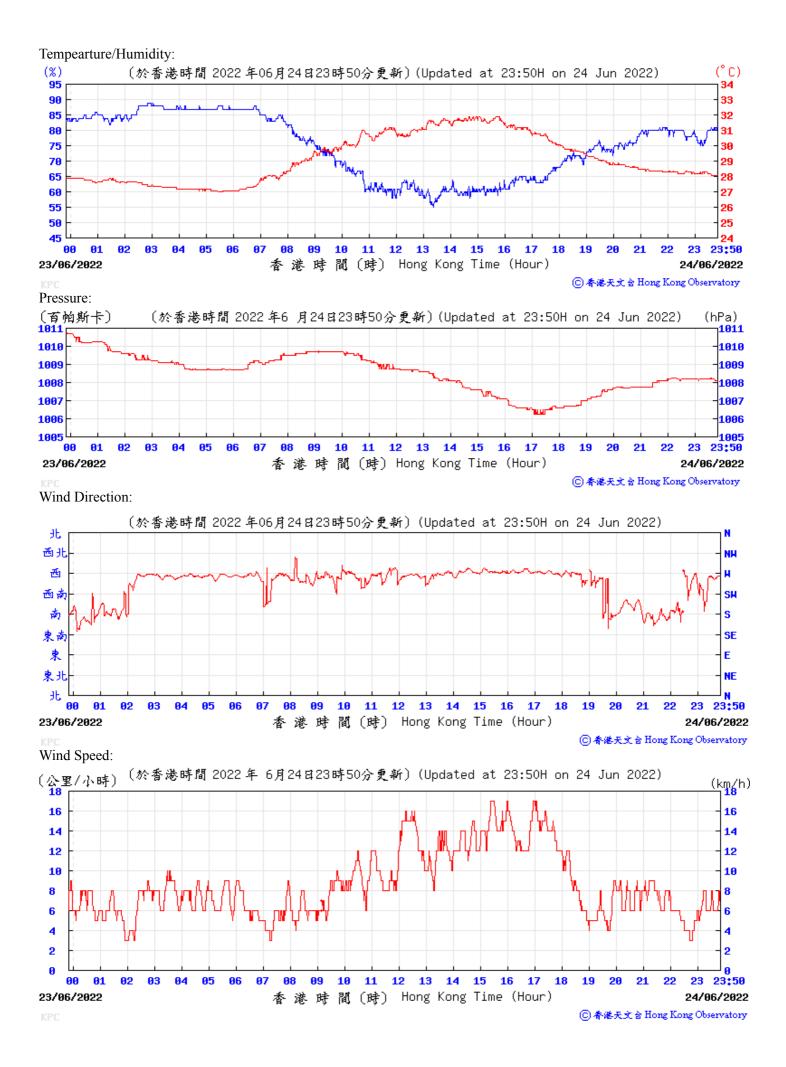


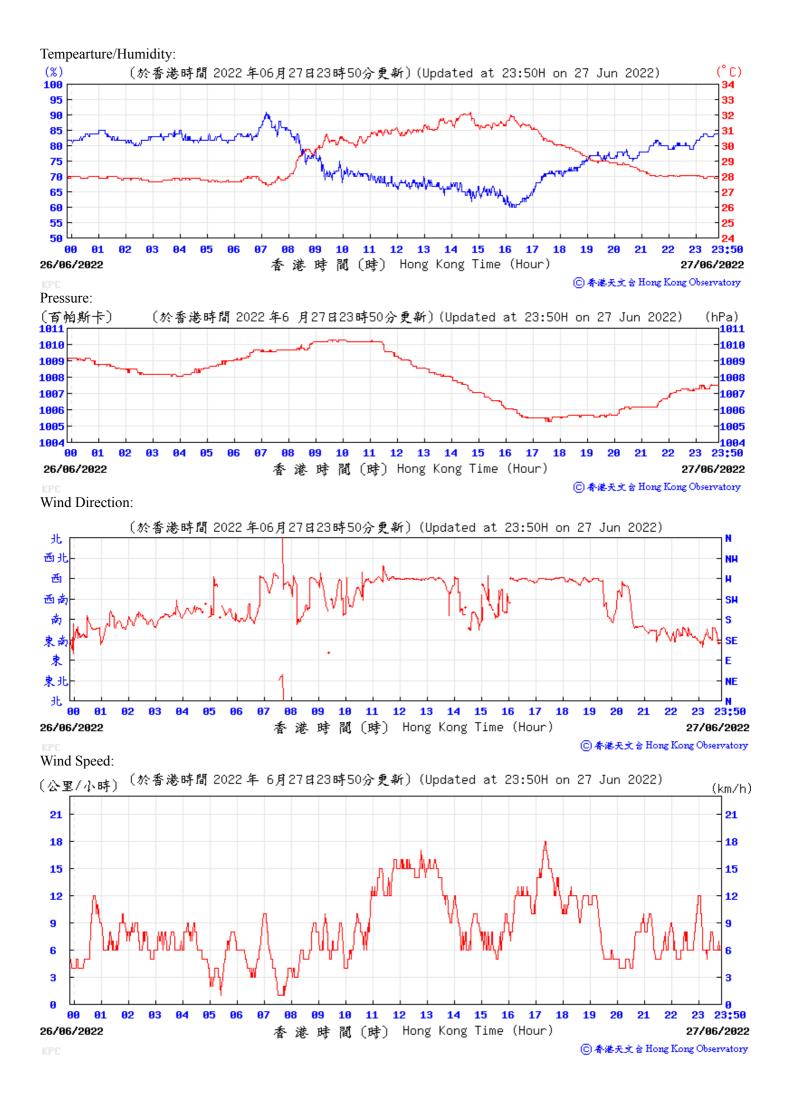


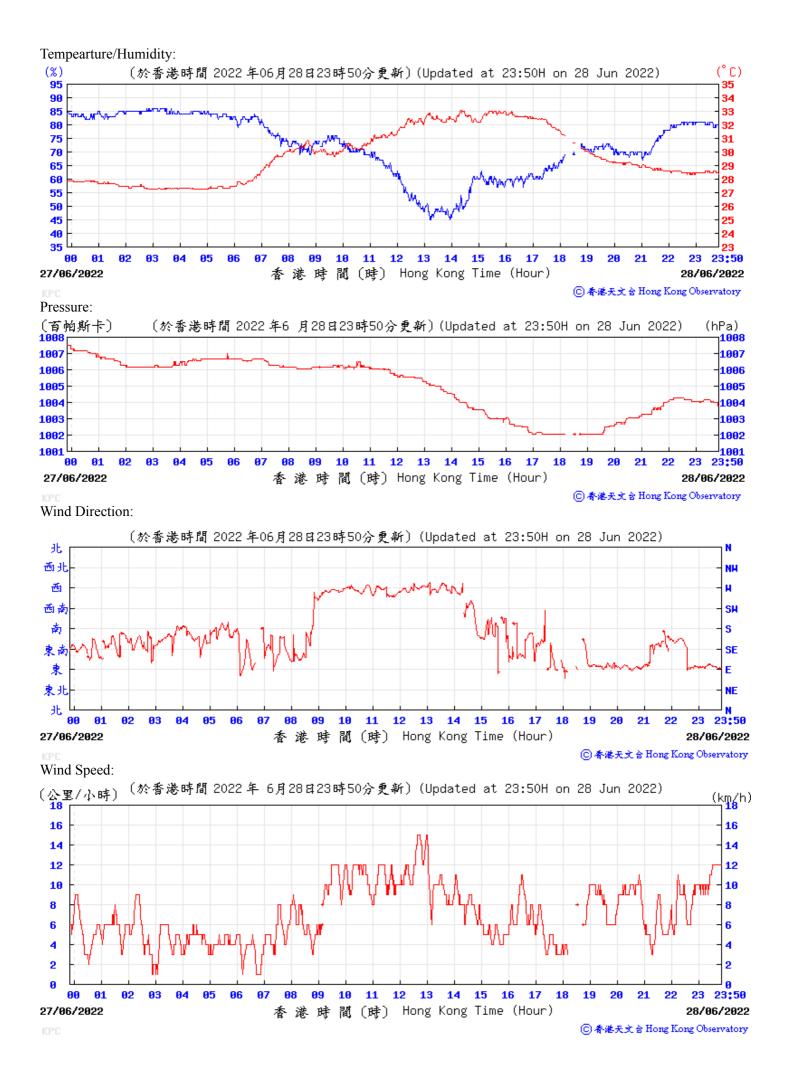












### I. Waste Flow table

### Zone 2A

### Table I-1: Monthly Waste Flow Table for Zone 2A

	Actual Quantities of Inert C&D Materials Generated Monthly Actual Quantities of C&D Materials Generated Month						у	Actu	ual Quantitie	s of C&D N	laterials Ge	nerated Mor	nthly
Month	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Disposed to Sroting Facility	Imported Fill	Metals	Paper/ Cardboard Packaging	Plastics	Wood/ Timber	Chemical Waste	Others, e.g. General Refuse
	(in tonnes)		(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)
2020						· · · · ·							
Oct	2623.48	0.00	0.00	0.00	2623.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.94
Nov	8838.69	0.00	685.23	1198.56	6954.90	0.00	1194.93	0.00	0.00	0.00	0.00	0.00	17.49
Dec	8890.70	0.00	510.59	1675.21	6704.90	0.00	51.51	0.00	0.00	0.00	0.00	0.00	11.75
Sub-total (2020)	20352.87	0.00	1195.82	2873.77	16283.28	0.00	1246.44	0.00	0.00	0.00	0.00	0.00	51.18
2021		Ł	Ł								<u>.</u>	1	
Jan	6849.66	0.00	52.90	0.00	6796.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.94
Feb	4591.95	0.00	0.00	0.00	4591.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.11
Mar	7318.44	0.00	0.00	339.94	6978.50	0.00	0.00	75.57	0.00	0.00	0.00	0.20	15.79
Apr	7208.22	0.00	0.00	1109.51	6098.71	0.00	0.00	0.00	0.00	0.00	0.00	0.40	19.29
May	7976.23	0.00	0.00	1853.51	6122.72	0.00	0.00	125.49	0.00	0.00	0.00	0.20	18.43
Jun	7741.45	0.00	0.00	1989.41	5752.04	0.00	0.00	4.53	0.00	0.00	0.00	0.00	18.65
Jul	8067.17	0.00	0.00	1289.08	6778.09	0.00	0.00	4.11	0.00	0.00	0.00	0.20	147.95
Aug	6530.27	0.00	0.00	1082.63	5447.64	0.00	0.00	10.70	0.00	0.00	0.00	0.40	18.85
Sep	3645.12	0.00	0.00	192.81	3452.31	0.00	0.00	0.00	0.00	0.00	0.00	0.40	16.81
Oct	2158.48	0.00	0.00	0.32	2158.16	0.00	0.00	0.00	0.00	0.00	0.00	0.20	13.30
Nov	3682.03	0.00	0.00	0.00	3682.03	0.00	0.00	0.00	0.00	0.00	0.00	0.20	20.87
Dec	2434.31	0.00	24.00	0.00	2410.31	0.00	0.00	0.00	0.00	0.00	0.00	0.40	12.35
Sub-total (2021)	68203.33	0.00	76.90	7857.21	60269.22	0.00	0.00	220.40	0.00	0.00	0.00	2.60	338.34
2022													
Jan	1868.21	0.00	120.00	0.00	1748.21	0.00	0.00	0.00	0.00	0.00	0.00	0.40	16.33
Feb	1594.19	0.00	0.00	395.98	1198.21	0.00	0.00	13.41	0.00	0.00	0.00	0.00	6.41
Mar	2369.83	0.00	0.00	487.20	1882.63	0.00	0.00	4.47	0.00	0.00	0.00	0.00	10.92
Apr	874.03	0.00	0.00	194.65	679.38	0.00	0.00	2.00	0.00	0.00	0.00	0.40	7.69
May	0.00	0.00	0.00	0.00	*421.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.04
Jun	403.76	0.00	0.00	0.00	403.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.76
Jul													

### Table I-1: Monthly Waste Flow Table for Zone 2A

	А	ctual Quant	tities of Iner	t C&D Mate	rials Genera	ated Monthl	у	Actual Quantities of C&D Materials Generated Monthly				nthly	
Month	Total Quantity Generated	Hard Rocks and Large Broken Concrete		Reused in other Projects	Disposed as Public Fill		Imported Fill	Metals	Paper/ Cardboard Packaging	Plastics	Wood/ Timber	Chemical Waste	Others, e.g. General Refuse
	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)
Aug													
Sep													
Oct													
Nov													
Dec													
Sub-total (2022)	7110.02	0.00	120.00	1077.83	5912.19	0.00	0.00	19.88	0.00	0.00	0.00	0.80	63.15
Total	95666.22	0.00	1392.72	11808.81	82464.69	0.00	1246.44	240.28	0.00	0.00	0.00	3.40	452.67

Note:

- 46.87 tonnes and 300.44 tonnes of inert C&D material were disposed of as public fill to Tseung Kwan O Area 137 Public Fill, and Tuen Mun Area 38 respectively in the reporting month.

\* 56.45 tonnes of Inert C&D Materials to be included in Jun-2022 due to data delay in May-2022

### Zone 2B & 2C

### Table I-1: Monthly Waste Flow Table for Zone 2B & 2C

	Actual Quantities of Inert C&D Materials Generated Monthly Actual Quantities of C&D Materials Generated							nerated Mo	nthly				
Month	Total Quantity Generated	Hard Rocks and Large Broken Concrete		Reused in other Projects	Disposed as Public Fill	Disposed to Sroting Facility	Imported Fill	Metals	Paper/ Cardboard Packaging		Wood/ Timber	Chemical Waste	Others, e.g. General Refuse
	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)
2021													
Sep	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oct	22.58	22.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.19
Nov	9265.04	10.45	125.93	0.00	9128.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.12
Dec	13462.30	62.94	1041.17	0.00	12358.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.62
Sub-total (2021)	22749.92	95.97	1167.10	0.00	21486.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.93
2022													
Jan	17427.64	0.00	2091.32	100.04	15236.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.60
Feb	18230.98	0.00	991.53	1719.99	15519.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.90
Mar	24777.12	0.00	2176.32	11721.21	10879.59	0.00	0.00	0.00	0.00	0.00	0.00	1.40	16.15
Apr	32749.58	0.00	2409.00	22393.87	7946.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.79
May	18262.89	0.00	3141.32	15121.57	*12852.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.31
Jun	30747.96	0.00	3120.62	14645.87	12981.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.84
Jul													
Aug													
Sub-total (2022)	142196.16	0.00	13930.10	65702.55	62563.51	0.00	0.00	0.00	0.00	0.00	0.00	1.40	76.59
Total	164946.07	95.97	15097.19	65702.55	84050.36	0.00	0.00	0.00	0.00	0.00	0.00	1.40	120.52

#### Note:

- 3427.35 tonnes and 9142.55 tonnes of inert C&D material were disposed of as public fill toTseung Kwan O Area 137 Public Fill and Tuen Mun Area 38 respectively in the reporting month.

- For inert C&D materials reused in other projects, the projects refer to (1)Ting On Street, (2)Sai Sha (Site B) and (3)Poly U.

\* 411.57 tonnes of Inert C&D Materials to be included in Jun-2022 due to data delay in May-2022

### J. Environmental Mitigation Measures – Implementation Status

### Table J-1: Environmental Mitigation Measures Implementation Status (June 2022)

		Implementation Stage			
EM&A F	Ref. Recommendation Measures	Zone 2A	Zone 2B & 2C		
Air Quali	ty Impact (Construction)				
2.1	General Dust Control Measures	1	1		
	Frequent water spraying for active construction areas (12 times a day or once every one hour),				
	including Heavy construction activities such as construction of buildings or roads, drilling,				
	ground excavation, cut and fill operations (i.e., earth moving)				
2.1	Best Practice For Dust Control				
	The relevant best practices for dust control as stipulated in the Air Pollution Control				
	(construction Dust) Regulation should be adopted to further reduce the construction dust				
	impacts from the Project. These best practices include:				
	Good Site Management	1	$\checkmark$		
	• Good site management is important to help reducing potential air quality impact down to				
	an acceptable level. As a general guide, the Contractor should maintain high standard of				
	housekeeping to prevent emission of fugitive dust. Loading, unloading, handling and				
	storage of raw materials, wastes or by-products should be carried out in a manner so as				
	to minimise the release of visible dust emission. Any piles of materials accumulated on or				
	around the work areas should be cleaned up regularly. Cleaning, repair and maintenance				
	of all plant facilities within the work areas should be carried out in a manner minimising				
	generation of fugitive dust emissions. The material should be handled properly to prevent				
	fugitive dust emission before cleaning.				
	Disturbed Parts of the Roads	1	$\checkmark$		
	• Each and every main temporary access should be paved with concrete, bituminous				
	hardcore materials or metal plates and kept clear of dusty materials; or				
	<ul> <li>Unpaved parts of the road should be sprayed with water or a dust suppression chemical</li> </ul>	1	$\checkmark$		
	so as to keep the entire road surface wet.				
	Exposed Earth	N/A	N/A		
	• Exposed earth should be properly treated by compaction, hydroseeding, vegetation	No exposed earth in this	No exposed earth in thi		
	planting or seating with latex, vinyl, bitumen within six months after the last construction	project.	project.		

EM&A Ref.	Recommendation Measures	Zone 2A	Zone 2B & 2C		
	activity on the site or part of the site where the exposed earth lies.				
	Loading, Unloading or Transfer of Dusty Materials	$\checkmark$	$\checkmark$		
	• All dusty materials should be sprayed with water immediately prior to any loading or				
	transfer operation so as to keep the dusty material wet.				
	Debris Handling	$\checkmark$	$\checkmark$		
	• Any debris should be covered entirely by impervious sheeting or stored in a debris				
	collection area sheltered on the top and the three sides.				
	• Before debris is dumped into a chute, water should be sprayed so that it remains wet	N/A	N/A		
	when it is dumped.	No debris chute on-site	No debris chute on-site		
	Transport of Dusty Materials	/	/		
	<ul> <li>Vehicle used for transporting dusty materials/spoils should be covered with tarpaulin or</li> </ul>	v	v		
	similar material. The cover should extend over the edges of the sides and tailboards.				
	Wheel washing	/	/		
	• Vehicle wheel washing facilities should be provided at each construction site exit.	v	v		
	Immediately before leaving the construction site, every vehicle should be washed to				
	remove any dusty materials from its body and wheels.				
	Use of vehicles	1			
	• The speed of the trucks within the site should be controlled to about 10km/hour in order	v	v		
	to reduce adverse dust impacts and secure the safe movement around the site.				
	<ul> <li>Immediately before leaving the construction site, every vehicle should be washed to</li> </ul>				
	remove any dusty materials from its body and wheels.	v	v		
	<ul> <li>Where a vehicle leaving the construction site is carrying a load of dusty materials, the load</li> </ul>				
	should be covered entirely by clean impervious sheeting to ensure that the dusty	·	·		
	materials do not leak from the vehicle.				
	Site hoarding	<u> </u>	1		
	• Where a site boundary adjoins a road, street, service lane or other area accessible to the	-	·		
	public, hoarding of not less than 2.4m high from ground level should be provided along				
	the entire length of that portion of the site boundary except for a site entrance or exit.				

		Implemen	tation Stage
EM&A Ref.	Recommendation Measures	Zone 2A	Zone 2B & 2C
2.1	Best Practicable Means for Cement Works (Concrete Batching Plant)		
	The relevant best practices for dust control as stipulated in the Guidance Note on the Best		
	Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93) should be followed		
	and implemented to further reduce the construction dust impacts of the Project. These best		
	practices include:		
	Exhaust from Dust Arrestment Plant	N/A	N/A
	• Wherever possible the final discharge point from particulate matter arrestment plant,	No concrete batching plant in	No concrete batching plant in in
	where is not necessary to achieve dispersion from residual pollutants, should be at low	this project.	this project.
	level to minimise the effect on the local community in the case of abnormal emissions and		
	to facilitate maintenance and inspection		
	Emission Limits	N/A	N/A
	• All emissions to air, other than steam or water vapour, shall be colourless and free from	No concrete batching plant in	No concrete batching plant in in
	persistent mist or smoke	this project.	this project.
	Engineering Design/Technical Requirements	N/A	N/A
	• As a general guidance, the loading, unloading, handling and storage of fuel, raw materials,	No concrete batching plant in	No concrete batching plant in
	products, wastes or by-products should be carried out in a manner so as to prevent the	this project.	this project.
	release of visible dust and/or other noxious or offensive emissions		
	Non-Road Mobile Machinery (NRMM):	✓	Obs
	All NRMMs operating on-site which are subject to emission control of Air Pollution Control (Non-		
	road Mobile Machinery) (Emission) Regulation are approved/exempted (as the case may be)		
	and affixed with the requisite approval/exemption labels.		
Noise Impact	(Construction)		

		Implemen	tation Stage
EM&A Ref.	Recommendation Measures	Zone 2A	Zone 2B & 2C
3.1	Good Site Practice		
	Good site practice and noise management can significantly reduce the impact of construction		
	site activities on nearby NSRs. The following package of measures should be followed during		
	each phase of construction:		
	<ul> <li>only well-maintained plant to be operated on-site and plant should be serviced regularly</li> </ul>	1	1
	during the construction works;		
	• machines and plant that may be in intermittent use to be shut down between work	1	1
	periods or should be throttled down to a minimum		
	• plant known to emit noise strongly in one direction, should, where possible, be orientated	1	1
	to direct noise away from the NSRs;		
	<ul> <li>mobile plant should be sited as far away from NSRs as possible; and</li> </ul>	1	1
	• material stockpiles and other structures to be effectively utilised, where practicable, to	1	1
	screen noise from on-site construction activities.		
3.1	Adoption of Quieter PME	1	1
	The recommended quieter PME adopted in the assessment were taken from the EPD's QPME		
	Inventory and "Sound Power Levels of Other Commonly Used PME" are presented in Table 4.26		
	in the EIA report. It should be noted that the silenced PME selected for assessment can be found		
	in Hong Kong.		
3.1	Use of Movable Noise Barriers	✓	Obs
	Movable noise barriers can be very effective in screening noise from particular items of plant		
	when constructing the Project. Noise barriers located along the active works area close to the		
	noise generating component of a PME could produce at least 10 dB(A) screening for stationary		

		Implemen	ntation Stage
EM&A Ref.	Recommendation Measures	Zone 2A	Zone 2B & 2C
	plant and 5 dB(A) for mobile plant provided the direct line of sight between the PME and the		
	NSRs is blocked.		
3.1	Use of Noise Enclosure/ Acoustic Shed	✓	Obs
	The use of noise enclosure or acoustic shed is to cover stationary PME such as air compressor		
	and concrete pump. With the adoption of the noise enclosure, the PME could be completely		
	screened, and noise reduction of 15 dB(A) can be achieved according to the EIAO Guidance Note		
	No. 9/2010.		
3.1	Use of Noise Insulating Fabric	$\checkmark$	$\checkmark$
	Noise insulating fabric can also be adopted for certain PME (e.g. drill rig, pilling machine etc).		
	The fabric should be lapped such that there are no openings or gaps on the joints. According to		
	the approved Tsim Sha Tsui Station Northern Subway EIA report (AEIAR-127/2008), a noise		
	reduction of 10 dB(A) can be achieved for the PME lapped with the noise insulating fabric.		
3.1	Scheduling of Construction Works outside School Examination Periods	✓	$\checkmark$
	During construction phase, the contractor should liaise with the educational institutions		
	(including NSRs LCS and CRGPS) to obtain the examination schedule and avoid the noisy		
	construction activities during school examination periods.		
Water Qualit	y Impact (Construction)		
4.1	Construction site runoff and drainage		
	The site practices outlined in ProPECC Note PN 1/94 should be followed as far as practicable in		
	order to minimise surface runoff and the chance of erosion. The following measures are		
	recommended to protect water quality and sensitive uses of the coastal area, and when properly		
	implemented should be sufficient to adequately control site discharges so as to avoid water		

		Implemen	ntation Stage
EM&A Ref.	Recommendation Measures	Zone 2A	Zone 2B & 2C
	quality impacts:		
	• At the start of site establishment, perimeter cut-off drains to direct off-site water around	$\checkmark$	$\checkmark$
	the site should be constructed with internal drainage works and erosion and		
	sedimentation control facilities implemented. Channels, earth bunds or sand bag barriers		
	should be provided on site to direct storm water to silt removal facilities. The design of		
	the temporary on-site drainage system should be undertaken by the WKCDA's Contractor		
	prior to the commencement of construction;		
	• Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided	$\checkmark$	$\checkmark$
	to remove sand/silt particles from runoff to meet the requirements of the TM standards		
	under the WPCO. The design of efficient silt removal facilities should be based on the		
	guidelines in Appendix A1 of ProPECC Note PN 1/94. Sizes may vary depending upon the		
	flow rate. The detailed design of the sand/silt traps should be undertaken by the WKCDA's		
	Contractor prior to the commencement of construction.		
	• All drainage facilities and erosion and sediment control structures should be regularly	Obs	Obs
	inspected and maintained to ensure proper and efficient operation at all times and		
	particularly during rainstorms. Deposited silt and grit should be regularly removed, at the		
	onset of and after each rainstorm to ensure that these facilities are functioning properly		
	at all times.		
	• Measures should be taken to minimize the ingress of site drainage into excavations. If	$\checkmark$	$\checkmark$
	excavation of trenches in wet periods is necessary, they should be dug and backfilled in		
	short sections wherever practicable. Water pumped out from foundation excavations		
	should be discharged into storm drains via silt removal facilities.		
	• All vehicles and plant should be cleaned before leaving a construction site to ensure no	1	1

			Implementation Stage	
EM&A Ref. Re	commendation Measures	Zone 2A	Zone 2B & 2C	
	earth, mud, debris and the like is deposited by them on roads. An adequately designed			
	and sited wheel washing facility should be provided at construction site exit where			
	practicable. Wash-water should have sand and silt settled out and removed regularly 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.			
•	Open stockpiles of construction materials or construction wastes onsite should be covered	Obs	Obs	
	with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent			
	the washing away of construction materials, soil, silt or debris into any drainage system.			
•	Manholes (including newly constructed ones) should be adequately covered and	$\checkmark$	$\checkmark$	
	temporarily sealed so as to prevent silt, construction materials or debris being washed			
	into the drainage system and stormwater runoff being directed into foul sewers.			
•	Precautions should be taken at any time of the year when rainstorms are likely. Actions	Obs	1	
	should be taken when a rainstorm is imminent or forecasted and actions to be taken			
	during or after rainstorms are summarized in Appendix A2 of ProPECC Note 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.			
•	Bentonite slurries used in piling or slurry walling should be reconditioned and reused	N/A	N/A	
	wherever practicable. Temporary enclosed storage locations should be provided on-site	No bentonite slurries are used	No bentonite slurries are used	
	for any unused bentonite that needs to be transported away after all the related	in this project.	in this project.	
	construction activities are completed. The requirements in ProPECC Note PN 1/94 should			
	be adhered to in the handling and disposal of bentonite slurries.			

		Implementation Stage	
EM&A Ref.	Recommendation Measures	Zone 2A	Zone 2B & 2C
4.1	Barging facilities and activities		
	Recommendations for good site practices during operation of the proposed barging point		
	include:		
	• All vessels should be sized so that adequate clearance is maintained between vessels and	N/A	N/A
	the seabed in all tide conditions, to ensure that undue turbidity is not generated by	No barging facilities in this	No barging facilities in this
	turbulence from vessel movement or propeller wash;	project at this stage.	project at this stage.
	• Loading of barges and hoppers should be controlled to prevent splashing of material into	N/A	N/A
	the surrounding water. Barges or hoppers should not be filled to a level that will cause the	No barging facilities in this	No barging facilities in this
	overflow of materials or polluted water during loading or transportation;	project at this stage.	project at this stage.
	• All hopper barges should be fitted with tight fitting seals to their bottom openings to	N/A	N/A
	prevent leakage of material; and	No barging facilities in this	No barging facilities in this
		project at this stage.	project at this stage.
	• Construction activities should not cause foam, oil, grease, scum, litter or other	N/A	N/A
	objectionable matter to be present on the water within the site.	No barging facilities in this	No barging facilities in this
		project at this stage.	project at this stage.
4.1	Sewage effluent from construction workforce	✓	✓
	Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site		
	where necessary to handle sewage from the workforce. A licensed contractor should be		
	employed to provide appropriate and adequate portable toilets and be responsible for		
	appropriate disposal and maintenance.		
4.1	General construction activities		
	• Construction solid waste, debris and refuse generated on-site should be collected,	1	1

		Impleme	ntation Stage
EM&A Ref.	Recommendation Measures	Zone 2A	Zone 2B & 2C
	handled and disposed of properly to avoid entering any nearby storm water drain.		
	Stockpiles of cement and other construction materials should be kept covered when not		
	being used.		
	• Oils and fuels should only be stored in designated areas which have pollution prevention	Obs	Obs
	facilities. To prevent spillage of fuels and solvents to any nearby storm water drain, all fuel		
	tanks and storage areas should be provided with locks and be sited on sealed areas, within		
	bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund		
	should be drained of rainwater after a rain event.		
Waste Mana	gement Implications (Construction)		
6.1	Good Site Practices		
	Recommendations for good site practices during the construction activities include:		
	• Nomination of an approved person, such as a site manager, to be responsible for good site	1	Obs
	practices, arrangements for collection and effective disposal to an appropriate facility, of		
	all wastes generated at the site		
	• Training of site personnel in proper waste management and chemical handling procedures	$\checkmark$	$\checkmark$
	<ul> <li>Provision of sufficient waste disposal points and regular collection of waste</li> </ul>	$\checkmark$	$\checkmark$
	• Appropriate measures to minimise windblown litter and dust/odour during transportation	$\checkmark$	$\checkmark$
	of waste by either covering trucks or by transporting wastes in enclosed containers		
	• Provision of wheel washing facilities before the trucks leaving the works area so as to	$\checkmark$	$\checkmark$
	minimise dust introduction to public roads		
	• Well planned delivery programme for offsite disposal such that adverse environmental	$\checkmark$	$\checkmark$
	impact from transporting the inert or non-inert C&D materials is not anticipated		

		Implemen	tation Stage
EM&A Ref.	Recommendation Measures	Zone 2A	Zone 2B & 2C
6.1	Waste Reduction Measures		
	Recommendations to achieve waste reduction include:		
	• Sort inert C&D material to recover any recyclable portions such as metals	$\checkmark$	1
	• Segregation and storage of different types of waste in different containers or skips to	$\checkmark$	1
	enhance reuse or recycling of materials and their proper disposal		
	• Encourage collection of recyclable waste such as waste paper and aluminium cans by	$\checkmark$	1
	providing separate labelled bins to enable such waste to be segregated from other general		
	refuse generated by the work force		
	• Proper site practices to minimise the potential for damage or contamination of inert C&D	$\checkmark$	Obs
	materials		
	• Plan the use of construction materials carefully to minimise amount of waste generated	1	1
	and avoid unnecessary generation of wastes		
6.1	Inert and Non-inert C&D Materials		
	In order to minimise impacts resulting from collection and transportation of inert C&D material		
	for off-site disposal, the excavated materials should be reused on-site as fill material as far as		
	practicable. In addition, inert C&D material generated from excavation works could be reused		
	as fill materials in local projects that require public fill for reclamation.		
	• The surplus inert C&D material will be disposed of at the Government's PFRFs for	✓	1
	beneficial use by other projects in Hong Kong.		
	• Liaison with the CEDD Public Fill Committee (PFC) on the allocation of space for disposal	1	1
	of the inert C&D materials at PFRF is underway. No construction work is allowed to		
	proceed until all issues on management of inert C&D materials have been resolved and all		
	relevant arrangements have been endorsed by the relevant authorities including PFC and		

		Implementation Stage	
EM&A Ref.	Recommendation Measures	Zone 2A	Zone 2B & 2C
	EPD.		
	• The C&D materials generated from general site clearance should be sorted on site to	✓	$\checkmark$
	segregate any inert materials for reuse or disposal of at PFRFs whereas the non-inert		
	materials will be disposed of at the designated landfill site.		
	• In order to monitor the disposal of inert and non-inert C&D materials at respectively PFRFs	$\checkmark$	$\checkmark$
	and the designated landfill site, and to control fly-tipping, it is recommended that the		
	Contractor should follow the Technical Circular (Works) No. 6/2010 for Trip Ticket System		
	for Disposal of Construction & Demolition Materials issued by Development Bureau. In		
	addition, it is also recommended that the Contractor should prepare and implement a		
	Waste Management Plan detailing their various waste arising and waste management		
	practices in accordance with the relevant requirements of the Technical Circular (Works)		
	No. 19/2005 Environmental Management on Construction Site.		
6.1	Chemical Waste		

1

1

- chemical waste
  - If chemical wastes are produced at the construction site, the Contractor will be required • to register with the EPD as a chemical waste producer and to follow the guidelines stated in the "Code of Practice on the Packaging Labelling and Storage of Chemical Wastes". Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor should use a licensed collector to transport and dispose of the chemical wastes at the approved Chemical Waste Treatment Centre or other licensed recycling facilities, in accordance with the Waste Disposal (Chemical Waste) (General)

		Implement	ation Stage
EM&A Ref.	Recommendation Measures	Zone 2A	Zone 2B & 2C
	Regulation.		
	• Potential environmental impacts arising from the handling activities (including storage,	$\checkmark$	1
	collection, transportation and disposal of chemical waste) are expected to be minimal		
	with the implementation of appropriate mitigation measures as recommended.		
6.1	General Refuse	✓	1
	General refuse should be stored in enclosed bins or compaction units separated from inert C&D		
	materials. A reputable waste collector should be employed by the Contractor to remove general		
	refuse from the site, separately from inert C&D materials. Preferably an enclosed and covered		
	area should be provided to reduce the occurrence of 'wind blown' light material.		
Land Contam	ination (Construction)		
7.1	The potential for land contamination issues at the TST Fire Station due to its future relocation		
	will be confirmed by site investigation after land acquisition. Where necessary, mitigation		
	measures for minimising potential exposure to contaminated materials (if any) or remediation		
	measures will be identified. If contaminated land is identified (e.g., during decommissioning of		
	fuel oil storage tanks) after the commencement of works, mitigation measures are proposed in		
	order to minimise the potentially adverse effects on the health and safety of construction		
	workers and impacts arising from the disposal of potentially contaminated materials. The		
	following measures are proposed for excavation and transportation of contaminated material:		
	• To minimize the chance for construction workers to come into contact with any	N/A	N/A
	contaminated materials, bulk earth-moving excavation equipment should be employed;	TST Fire Station is out of this	TST Fire Station is out of this
		project boundary, no mitigation	project boundary, no mitigatio
		measure is required.	measure is required.

EM&A Ref.	Rec	commendation Measures	Zone 2A	Zone 2B & 2C
	•	Contact with contaminated materials can be minimised by wearing appropriate clothing	N/A	N/A
		and personal protective equipment such as gloves and masks (especially when interacting	TST Fire Station is out of this	TST Fire Station is out of this
		directly with contaminated material), provision of washing facilities and prohibition of	project boundary, no mitigation	project boundary, no mitigation
		smoking and eating on site;	measure is required.	measure is required.
	•	Stockpiling of contaminated excavated materials on site should be avoided as far as	N/A	N/A
		possible;	TST Fire Station is out of this	TST Fire Station is out of this
			project boundary, no mitigation	project boundary, no mitigation
			measure is required.	measure is required.
	•	The use of contaminated soil for landscaping purpose should be avoided unless pre-	N/A	N/A
		treatment was carried out;	TST Fire Station is out of this	TST Fire Station is out of this
			project boundary, no mitigation	project boundary, no mitigation
			measure is required.	measure is required.
	•	Vehicles containing any contaminated excavated materials should be suitably covered to	N/A	N/A
		reduce dust emissions and/or release of contaminated wastewater;	TST Fire Station is out of this	TST Fire Station is out of this
			project boundary, no mitigation	project boundary, no mitigation
			measure is required.	measure is required.
	•	Truck bodies and tailgates should be sealed to stop any discharge;	N/A	N/A
			TST Fire Station is out of this	TST Fire Station is out of this
			project boundary, no mitigation	project boundary, no mitigatior
			measure is required.	measure is required.
	•	Only licensed waste haulers should be used to collect and transport contaminated	N/A	N/A
		material to treatment/disposal site and should be equipped with tracking system to avoid	TST Fire Station is out of this	TST Fire Station is out of this
		fly tipping;	project boundary, no mitigation	project boundary, no mitigation

EM&A Ref	. Recommendation Measures	Zone 2A	Zone 2B & 2C
		measure is required.	measure is required.
	• Speed control for trucks carrying contaminated materials should be exercised;	N/A	N/A
		TST Fire Station is out of this	TST Fire Station is out of this
		project boundary, no mitigation	project boundary, no mitigation
		measure is required.	measure is required.
	• Observe all relevant regulations in relation to waste handling, such as Waste Disposal	N/A	N/A
	Ordinance (Cap. 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354)	TST Fire Station is out of this	TST Fire Station is out of this
	and obtain all necessary permits where required; and	project boundary, no mitigation	project boundary, no mitigation
		measure is required.	measure is required.
	• Maintain records of waste generation and disposal quantities and disposal arrangements.	N/A	N/A
		TST Fire Station is out of this	TST Fire Station is out of this
		project boundary, no mitigation	project boundary, no mitigation
		measure is required.	measure is required.
Ecological Ir	npact (Construction)		
	No mitigation measure is required.		
Landscape a	and Visual Impact (Construction)		
Table 9.1	Trees should be retained in situ on site as far as possible. Should tree removal be unavoidable	1	✓
(CM1)	due to construction impacts, trees will be transplanted or felled with reference to the stated		
	criteria in the Tree Removal Applications to be submitted to relevant government departments		
	for approval in accordance to ETWB TCW No. 29/2004 and 3/2006.		
Table 9.1	Compensatory tree planting shall be incorporated to the proposed project and maximize the	N/A	N/A
(CM2)	new tree, shrubs and other vegetation planting to compensate tree felled and vegetation	Compensatory tree planting is	Compensatory tree planting is

		implementation stage	
EM&A Ref.	Recommendation Measures	Zone 2A	Zone 2B & 2C
	removed. Also, implementation of compensatory planting should be of a ratio not less than 1:1	being reviewed.	being reviewed.
	in terms of quality and quantity within the site.		
Table 9.1	Buffer trees for screening purposes to soften the hard architectural and engineering structures	N/A	N/A
(CM3)	and facilities.	Roof garden is designed to be	Roof garden is designed to be
		built, but it has not been	built, but it has not been
		completed yet.	completed yet.
Table 9.1	Softscape treatments such as vertical green wall panel /planting of climbing and/or weeping	N/A	N/A
(CM4)	plants, etc, to maximize the green coverage and soften the hard architectural and engineering	Climbing or weeping plants are	Climbing or weeping plants are
	structures and facilities.	designed to be planted, but	designed to be planted, but
		proposal is being reviewed for	proposal is being reviewed for
		the planting location.	the planting location.
Table 9.1	Roof greening by means of intensive and extensive green roof to maximize the green coverage	N/A	N/A
(CM5)	and improve aesthetic appeal and visual quality of the building/structure.	Roof garden is designed to be	Roof garden is designed to be
		built, but it has not been	built, but it has not been
		completed yet.	completed yet.
Table 9.1	Sensitive streetscape design should be incorporated along all new roads and streets.	N/A	N/A
(CM6)		Greening along the seafront is	Greening along the seafront is
		proposed, and under review.	proposed, and under review.
Table 9.1	Structure, ornamental planting shall be provided along amenity strips to enhance the landscape	N/A	N/A
(CM7)	quality.	Gardens are designed to be	Gardens are designed to be
		built, and under review.	built, and under review.
Table 9.1	Landscape design shall be incorporated to architectural and engineering structures in order to	N/A	N/A

EM&A Ref.	Recommendation Measures	Zone 2A	Zone 2B & 2C
(CM8)	provide aesthetically pleasing designs.	Roof garden is designed to be	Roof garden is designed to be
		built, and under review.	built, and under review.
Table 9.1	Minimize the structure of marine facilities to be built on the seabed and foreshore in order to	N/A	N/A
(CM9)	minimize the affected extent to the waterbody	No marine facilities for this	No marine facilities for this
		project.	project.
Table 9.2	Use of decorative screen hoarding/boards	✓	$\checkmark$
(MCP1)			
Table 9.2	Early introduction of landscape treatments	N/A	N/A
(MCP2)		No landscape treatments during	No landscape treatments during
		this stage.	this stage.
Table 9.2	Adoption of light colour for the temporary ventilation shafts for the basement during the	N/A	N/A
(MCP3)	transition period.	No ventilation shafts for this	No ventilation shafts for this
		project.	project.
Table 9.2	Control of night time lighting	✓	$\checkmark$
(MCP4)			
Table 9.2	Use of greenery such as grass cover for the temporary open areas will help achieve the visual	N/A	N/A
(MCP5)	balance and soften the hard edges of the structures.	No temporary open areas for	No temporary open areas for
		this project.	this project.

N/A - Not Applicable

Implemented

Obs - Observed

Rem - Reminder

### K. Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Cumulative statistics for complaints, notifications of summons and successful prosecutions for the Project account for period starting from the date of commencement of construction works (i.e. 3 October 2020 for Zone 2A Foundation, Excavation and Lateral Support Works; 30 September 2021 for Zone 2B & 2C Piling Works) to the end of the reporting month and are summarised in the Table K-1 and Table K-2 below respectively.

# Table K-1: Statistics for complaints, notifications of summons and successful prosecutions for Zone2A Foundation, Excavation and Lateral Support Works

Reporting Period	Cumulative Statistics			
	Complaints	Notifications of summons	Successful prosecutions	
This reporting month	2	0	0	
(June 2022)	3	0	0	
From 03 October 2020 to	24	0	0	
end of the reporting month	31	0	0	

## Table K-2: Statistics for complaints, notifications of summons and successful prosecutions for Zone2B & 2C Piling Works

Reporting Period	Cumulative Statistics			
	Complaints	Notifications of summons	Successful prosecutions	
This reporting month	2	0	0	
(June 2022)	3	0	0	
From 30 September 2021 to		0	0	
end of the reporting month	16	0	0	

# END OF THE REPORT