

MTR Corporation Limited

**Shatin to Central Link –  
Hung Hom to Admiralty Section**

Monthly EM&A Report No. 100

[Period from 1 to 31 August 2022]

(September 2022)

Verified by:   
\_\_\_\_\_ Claudine LEE

Position: Independent Environmental Checker

Date: \_\_\_\_\_ 13 September 2022

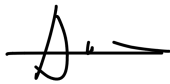
MTR Corporation Limited

**Shatin to Central Link –  
Hung Hom to Admiralty Section**

Monthly EM&A Report No. 100

[Period from 1 to 31 August 2022]

(September 2022)

Certified by:  Alex Siu  

---

Position: Environmental Team Leader  

---

Date: 13 September 2022  

---



**MTR Corporation Limited**

Consultancy Agreements  
 No. C11033B

**Shatin to Central Link - Hung Hom to  
 Admiralty Section**

**Monthly EM&A Report No. 100**

[Period from 1 to 31 August 2022]

	Name	Signature
Prepared & Checked:	<i>JT</i> Joanne Tsoi	
Reviewed & Approved:	<i>FC</i> Freeman Cheung	

Version: A	Date: 13 September 2022
<p>This Monthly EM&amp;A Report is prepared for MTR Corporation Limited and is given for its sole benefit in relation to and pursuant to Consultancy Agreement No. C11033B and may not be disclosed to, quoted to or relied upon by any person other than MTR Corporation Limited without our prior written consent. No person (other than MTR Corporation Limited) into whose possession a copy of this report comes may rely on this plan without our express written consent and MTR Corporation Limited may not rely on it for any purpose other than as described above.</p>	

<p>AECOM Asia Co. Ltd.        8/F, Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, NT, Hong Kong        Tel: (852) 3922 9000 Fax: (852) 3922 9797 www.aecom.com</p>
--

## Table of Contents

	Page
<b>1 INTRODUCTION.....</b>	<b>2</b>
1.1 Background .....	2
1.2 Project Programme .....	2
1.3 Purpose of the Report.....	3
<b>2 ENVIRONMENTAL MONITORING AND AUDIT .....</b>	<b>4</b>
2.1 EM&A Results .....	4
<b>3 IMPLEMENTATION STATUS ON THE ENVIRONMENTAL PROTECTION REQUIREMENTS .....</b>	<b>6</b>

### List of Tables

Table 1.1	Summary of Awarded Works Contracts
Table 2.1	Summary of Major Construction Activities in the Reporting Period
Table 2.2	Summary of 24-Hour TSP Monitoring Results in the Reporting Period
Table 2.3	Summary of Construction Noise Monitoring Results in the Reporting Period
Table 2.4	Log for Environmental Complaints, Notification of Summons and Successful Prosecutions for the Reporting Month
Table 3.1	Summary of EP Submissions Status

### List of Appendices

Appendix A	Monthly EM&A Report for August 2022 – SCL Works Contract 1123 Exhibition Station and Western Approach Tunnel
------------	--

## 1 INTRODUCTION

### 1.1 Background

- 1.1.1 The Shatin to Central Link (SCL) is a 17 km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai to Hung Hom via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH) and Stabling Sidings at Hung Hom Freight Yard (HHS); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).
- 1.1.2 Shatin to Central Link – Hung Hom to Admiralty Section [SCL (HUH – ADM)] (hereafter referred to as “the Project”) is part of the SCL.
- 1.1.3 The Environmental Impact Assessment (EIA) Report for SCL (HUH-ADM) (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) (EP No.: EP-436/2012) was granted on 22 March 2012 for construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-436/2012 and the latest Environmental Permit (EP No: EP-436/2012/F) was issued by Director of Environmental Protection (DEP) on 23 January 2019.

### 1.2 Project Programme

- 1.2.1 Eight civil construction works contracts of the Project have been awarded since January 2014. The construction of the Project commenced in May 2014 and is expected to complete in 2021<sup>1</sup>. The Project will have to interface with other infrastructure projects, including Wan Chai Development Phase II and Central-Wan Chai Bypass. **Table 1.1** summarises the information of the awarded Works Contracts.

**Table 1.1 Summary of Awarded Works Contracts**

Works Contract	Description	Construction Start Date	Contractor	Environmental Team
1121 <sup>(1)(8)</sup>	NSL Cross Harbour Tunnels	March 2015	Penta-Ocean – China State JV	Wellab Limited
1122 <sup>(2)</sup>	Admiralty South Overrun Tunnel	August 2016	Vinci Construction Grands Projects	AECOM Asia Co. Ltd.
1123	Exhibition Station and Western Approach Tunnels	June 2015	Leighton – China State JV	AECOM Asia Co. Ltd.
1124 <sup>(6)</sup>	Admiralty SCL Related Works	February 2017	Build King SCL 1124 JV	Action-United Environmental Services and Consulting (AUES)
1126 <sup>(3)</sup>	Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool	July 2014	Kaden Leader JV	Cinotech Consultants Ltd. (Cinotech)
1128 <sup>(7)</sup>	South Ventilation Building to Admiralty Tunnels	November 2014	Dragages Bouygues J.V.	AECOM Asia Co. Ltd.
1129 <sup>(4)</sup>	SCL – Advance Works for NSL	May 2014	Hsin Chong Construction Co. Ltd.	AECOM Asia Co. Ltd.

<sup>1</sup> The commissioning date of SCL(HUH-ADM) will very likely be deferred to 2021 to allow flexibility for the topside development of the Exhibition Station, and to cater for the construction works under other infrastructure projects on Hong Kong Island.

<b>Works Contract</b>	<b>Description</b>	<b>Construction Start Date</b>	<b>Contractor</b>	<b>Environmental Team</b>
11227 <sup>(5)</sup>	Advance Works for NSL Cross Harbour Tunnels	August 2014	Concentric-Hong Kong River Joint Venture	Cinotech Consultants Ltd. (Cinotech)

Note:

- (1) The environmental team of Works Contract 1121 was taken over by Wellab Limited since 1 January 2019.
- (2) Construction works under Works Contract 1122 were substantially completed since 10 November 2020 and the EM&A programme of the Project was terminated on 12 December 2020.
- (3) Construction works under Works Contract 1126 was completed on 17 May 2015.
- (4) Construction works under Works Contract 1129 was completed on 20 July 2015.
- (5) Construction works in Victoria Harbour and Shek O Casting Basin under Works Contract 11227 were completed on 15 and 20 December 2014 respectively.
- (6) Construction works under Works Contract 1124 were substantially completed since 30 September 2021 and the EM&A programme of the Project was terminated on 30 November 2021.
- (7) Construction works under Works Contract 1128 were substantially completed since 30 September 2021 and the EM&A programme of the Project was terminated on 30 November 2021.
- (8) Construction works under Works Contract 1121 were substantially completed since 30 October 2021 and the EM&A programme of the Project was terminated on 31 January 2022.

### **1.3 Purpose of the Report**

- 1.3.1 The Environmental Monitoring and Audit (EM&A) programme for the Project commenced in May 2014. This is the one hundredth EM&A Report for the Project which summarises the EM&A works undertaken by the respective Contractor's ET during the period from 1 to 31 August 2022.

## 2 ENVIRONMENTAL MONITORING AND AUDIT

### 2.1 EM&A Results

- 2.1.1 The EM&A Report for Works Contract 1123 prepared by the Contractor's ET is provided in **Appendix A**. The EM&A Report provides details of the project information, EM&A requirements, impact monitoring and audit results for the Contract.
- 2.1.2 A summary of the major construction activities undertaken by the Contractor of Works Contract during the reporting period are presented in **Table 2.1**.

**Table 2.1 Summary of Major Construction Activities in the Reporting Period**

Works Contract	Site	Construction Activities
1123	Overall	<ul style="list-style-type: none"> <li>The Station was Handed Over to MTR Operation Team.</li> </ul>
	Zone 1 – PTI Area	<ul style="list-style-type: none"> <li>N/A.</li> </ul>
	Zone 2	<ul style="list-style-type: none"> <li>N/A.</li> </ul>
	Zone 3 – Swimming Pool Area (including W4, W5, partial W6, W7a and W7b)	<ul style="list-style-type: none"> <li>LCSD Access Road – Drainage Works, Foundation for External Fence and Backfilling, Road / Footpath Pavement, Fence / Access Gates Installation.</li> </ul>
	Zone 4 – Tunnel at Tonnochy Road	<ul style="list-style-type: none"> <li>Wan Chai Sports Ground (WCSG) Reprovision Works – Cast Ground Slab and Construction of Spectator Stand.</li> </ul>
	Western Vent Shaft and WAT - Area C	<ul style="list-style-type: none"> <li>Reinstatement of Staircase.</li> </ul>
	WAT - Area B	<ul style="list-style-type: none"> <li>N/A.</li> </ul>
	WAT - Area A	<ul style="list-style-type: none"> <li>Reinstatement of Staircase.</li> </ul>
	Area W22	<ul style="list-style-type: none"> <li>Material Storage.</li> </ul>

- 2.1.3 During the reporting month, impact monitoring for air quality and construction noise were conducted in accordance with the EM&A Manual. Continuous noise monitoring was not required in the reporting period according to the Continuous Noise Monitoring Plan (CNMP). No exceedances of the Action / Limit Level of 24-hour TSP and construction noise due to the Project construction were recorded. Results of air quality and construction noise are summarised in **Tables 2.2** and **2.3** respectively. Details of the monitoring requirements, locations, equipment and methodology are presented in the EM&A Report (**Appendix A**).

**Table 2.2 Summary of 24-Hour TSP Monitoring Results in the Reporting Period**

Monitoring Station ID	Location	TSP Concentration ( $\mu\text{g}/\text{m}^3$ )	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )	Exceedance due to the Project Construction (Yes/No)
<b>Works Contract 1123<sup>(1)</sup></b>					
AM2	Wan Chai Sports Ground <sup>(2)(3)</sup>	8.9 – 21.5	160	260	No
AM4	Pedestrian Plaza <sup>(4)</sup>	15.3 – 43.7	198	260	No

Note:

- (1) Dust monitoring at AM3 (Existing Harbour Road Sports Centre) was handed over from Works Contract 1126 to Works Contract 1123 in June 2015 and terminated on 6 May 2017 as demolition of Existing Harbour Road Sports Centre commenced on 8 May 2017.
- (2) The spectator stand at Wan Chai Sports Ground was not available for impact dust monitoring, therefore impact monitoring was conducted at the existing water pump room area at Wan Chai Sports Ground.
- (3) Dust monitoring at AM2 (Wan Chai Sports Ground) was handed over to Works Contract 1123 from Works Contract 1128 on 28 October 2015.

- (4) Dust monitoring at AM4 (Pedestrian Plaza) was handed over to Works Contract 1123 from Works Contract 1128 on 1 April 2021.

**Table 2.3 Summary of Construction Noise Monitoring Results in the Reporting Period**

Monitoring Station ID	Location	Noise Level (L <sub>Aeq,30mins</sub> , dB(A))			Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
		Measured	Baseline	Corrected <sup>(1)</sup>		
<b>Works Contract 1123</b>						
NM2 <sup>(2)(3)(4)</sup>	Harbour Centre	64.6–66.2	69.6	< Baseline	75	No

Note:

- (1) The measured noise levels are corrected against the corresponding baseline noise levels.  
(2) The impact monitoring at NM2 was handed over from Works Contract 1126 to Works Contract 1123 in June 2015.  
(3) Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring under Works Contract 1126. Alternative noise monitoring location proposed at Harbour Centre was approved by the ER and agreed by IEC. It was approved by EPD on 18 December 2017. Impact noise monitoring was carried out at Harbour Centre from 20 August 2014 onwards.  
(4) Impact noise monitoring has been carrying out on 7/F of Harbour Centre between 20 August and 15 December 2014, and on 8/F from 19 December 2014 onwards.

- 2.1.4 No environmental complaints, notification of summons and successful prosecutions were recorded in the reporting period. Log for environmental complaints, notification of summons and successful prosecutions is provided in **Table 2.5**.

**Table 2.4 Log for Environmental Complaints, Notification of Summons and Successful Prosecutions for the Reporting Month**

Works Contract	Environmental Complaints	Notification of Summons	Successful Prosecutions
1123	0	0	0

- 2.1.5 Regular site inspections were conducted by the Contractor's ET on a weekly basis to check the implementation of environmental pollution control and mitigation measures for the Project. No non-conformance was identified in the reporting period.



### 3 IMPLEMENTATION STATUS ON THE ENVIRONMENTAL PROTECTION REQUIREMENTS

3.1.1 The Contractor has implemented all mitigation measures and requirements as stated in the EIA Report, EM&A Manual and EP (EP-436/2012/F). The status of required submissions under the EP as of the reporting period are summarised in **Table 3.1**.

**Table 3.1 Summary of EP Submissions Status**

EP Condition (EP-436/2012/F)	Submission	Submission date
Condition 1.11	Notification of Commencement Date of Construction of the Project	19 Dec 2012
Condition 2.3	Notification of Setup of Community Liaison Group	22 Jun 2016
Condition 2.5	Management Organisation of Main Construction Companies	5 Jan 2017
Condition 2.6	Construction Programme and EP Submission Schedule	5 Jan 2017
Condition 2.7	Construction Noise Mitigation Measures Plan (CNMMP)	9 Jun 2014 (1 <sup>st</sup> Submission)  24 Apr 2015 (1 <sup>st</sup> Submission) 7 Jul 2015 (2 <sup>nd</sup> Submission) 2 Oct 2015 (3 <sup>rd</sup> Submission) 2 Jun 2016 (4 <sup>th</sup> Submission) 28 Oct 2019 (5 <sup>th</sup> Submission)
	Works Contract 1126: Construction Noise Mitigation Measures Plan (CNMMP)	
	Works Contract 1123: Construction Noise Mitigation Measures Plan (CNMMP)	
Condition 2.8	Continuous Noise Monitoring Plan (CNMP)	9 Jun 2014 (1 <sup>st</sup> Submission)  24 Apr 2015 (1 <sup>st</sup> Submission) 7 Jul 2015 (2 <sup>nd</sup> Submission) 2 Jun 2016 (3 <sup>rd</sup> Submission) 28 Oct 2019 (4 <sup>th</sup> Submission)
	Works Contract 1126: Continuous Noise Monitoring Plan (CNMP)	
	Works Contract 1123: Continuous Noise Monitoring Plan (CNMP)	
Condition 2.9	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1 <sup>st</sup> Submission) 12 Sep 2012 (2 <sup>nd</sup> Submission) 15 Oct 2012 (Approved)
Condition 2.10	Works Contract 11227: Silt Curtain Deployment Plan for Trial Trenching in Victoria Harbour	11 Jul 2014
	Works Contract 1121: Silt Curtain Deployment Plan for Hung Hom Landfall and Trial Trench in Victoria Harbour	17 Feb 2015 (1 <sup>st</sup> Submission) 2 Apr 2015 (2 <sup>nd</sup> Submission) 27 Oct 2015 (3 <sup>rd</sup> Submission) 29 Mar 2016 (4 <sup>th</sup> Submission) 19 Dec 2017 & 15 Jan 2018 (5 <sup>th</sup> Submission)
	Works Contract 1128: Silt Curtain Deployment Plan	21 Mar 2018 (1 <sup>st</sup> Submission) 13 Apr 2018 (2 <sup>nd</sup> Submission) 17 Apr 2018 (Approved)
Condition 2.11	Works Contract 11227: Silt Screen Deployment Plan	11 Jul 2014
	Works Contract 1121: Silt Screen Deployment Plan	13 Feb 2015

EP Condition (EP-436/2012/F)	Submission	Submission date
Condition 2.12	Sediment Management Plan	6 Jul 2012 (1 <sup>st</sup> Submission) 12 Sep 2012 (2 <sup>nd</sup> Submission) 5 Oct 2012 (3 <sup>rd</sup> Submission) 15 Oct 2012 (Approved) 3 Jul 2014 (4 <sup>th</sup> Submission)
Condition 2.14	Visual, Landscape, Tree Planting & Tree Protection Plan	14 Nov 2012 (1 <sup>st</sup> Submission) 3 Dec 2013 (2 <sup>nd</sup> Submission) 21 Aug 2014 (3 <sup>rd</sup> Submission) 9 Feb 2015 (4 <sup>th</sup> Submission) 27 May 2016 (5 <sup>th</sup> Submission) 29 Nov 2016 (6 <sup>th</sup> Submission) 19 Jan 2017 (7 <sup>th</sup> Submission) 11 Apr 2017 (8 <sup>th</sup> Submission) 20 Apr 2017 (Approved) 7 Feb 2018 (9 <sup>th</sup> Submission on 1122 revised landscape plans) 7 Mar 2018 (10 <sup>th</sup> Submission) 9 Mar 2018 (Approved) 18 Jun 2019 (11 <sup>th</sup> Submission on 1122 revised landscape plan) 5 Sep 2019 (12 <sup>th</sup> Submission) 19 Aug 2020 (13 <sup>th</sup> Submission on 1122 revised landscape plan) 21 Sep & 14 Oct 2020 (14 <sup>th</sup> Submission) 28 Oct 2020 (Approved) 20 Oct 2021 (15 <sup>th</sup> Submission) 28 Mar 2022 (Final Version)
Condition 2.23.1	Works Contract 11227: Silt Curtain Deployment Plan for Shek O  Works Contract 1121: Silt Curtain Deployment Plan for Shek O	23 Jul 2014 (1 <sup>st</sup> Submission) 31 Jul 2014 (Approved)  4 Feb 2015 (1 <sup>st</sup> Submission) 4 Mar 2015 (2 <sup>nd</sup> Submission) 9 Mar 2015 (Approved)
Condition 2.24	Contamination Assessment Plan (CAP) and Contamination Assessment Report (CAR) Remedial Action Plan (RAP) for the above-ground diesel tanks for Wan Chai Swimming Pool	CAP: 25 Sep 2012 (1 <sup>st</sup> Submission) 12 Nov 2012 (2 <sup>nd</sup> Submission) 22 Nov 2012 (Approved)  CAR: 19 Mar 2013 (1 <sup>st</sup> Submission) 16 Apr 2013 (2 <sup>nd</sup> Submission) 21 May 2013 (3 <sup>rd</sup> Submission) 7 Jun 2013 (Approved)
Condition 2.26	As-built Drawings for Landscape and Visual Mitigation Measures	5 Jan 2018 (1 <sup>st</sup> Submission on Lo Wu Access Road) 11 Dec 2020 (2 <sup>nd</sup> Submission on Works Contract 1122) 2 Jun 2022 (3 <sup>rd</sup> Submission on Works Contract 1121, 1124 and 1128)
Condition 2.28	Operational Ground-borne Noise Mitigation Measures Plan – Batch 1  Operational Ground-borne Noise Mitigation Measures Plan – Batch 2	26 Jun 2018 (1 <sup>st</sup> Submission) 2 Apr 2019 (2 <sup>nd</sup> Submission) 22 May 2019 (3 <sup>rd</sup> Submission)  21 Mar 2019 (1 <sup>st</sup> Submission) 22 May 2019 (2 <sup>nd</sup> Submission) 31 Jul 2019 (3 <sup>rd</sup> Submission)  15 Oct 2019 (Approved)

<b>EP Condition (EP-436/2012/F)</b>	<b>Submission</b>	<b>Submission date</b>
	Final Operational Ground-borne Noise Mitigation Measures Plan	
Condition 2.29	As-built Drawing for Operational Ground-borne Noise Mitigation Measures	21 Sep 2020 (1 <sup>st</sup> Submission)
Condition 2.30	Noise Performance Test Report	14 Jan 2022 (1 <sup>st</sup> Submission) 28 Feb 2022 (Approved)
Condition 2.31	Fixed Plant Noise Audit Report	14 Mar 2022 (1 <sup>st</sup> Submission) 22 Mar 2022 (Approved)
Condition 3.3	Baseline Monitoring Report (for noise and air quality)	4 Dec 2013 (1 <sup>st</sup> Submission) 5 Feb 2014 (2 <sup>nd</sup> Submission)
	Baseline Water Quality Monitoring Report	23 Sep 2014 (1 <sup>st</sup> Submission) 18 Dec 2014 (2 <sup>nd</sup> Submission)
	Baseline Water Quality Monitoring Report for Temporary Marine Works at Shek O Casting Basin	8 Jul 2014 (1 <sup>st</sup> Submission) 11 Aug 2014 (2 <sup>nd</sup> Submission)
Condition 3.4	Monthly EM&A Reports No.1 - 98	Reported in previous Monthly EM&A Reports
	Final EM&A Review Report for Works Contract 1127	12 Feb 2015
	Final EM&A Review Report for Works Contract 1126	25 Jun 2015 (1 <sup>st</sup> Submission) 4 Sep 2015 (2 <sup>nd</sup> Submission)
	Final EM&A Review Report for Works Contract 1129	30 Sep 2015
	Final EM&A Review Report for Works Contract 1122	11 Feb 2021
	Final EM&A Review Report for Works Contract 1124	14 Jan 2022
	Final EM&A Review Report for Works Contract 1128	14 Jan 2022
	Final EM&A Review Report for Works Contract 1121	15 Feb 2022
	Monthly EM&A Report No.99	12 Aug 2022

---

**Appendix A**

**Monthly EM&A Report for August 2022 – SCL Works Contract  
1123 Exhibition Station and Western Approach Tunnel**

---





Leighton – China State J.V.

**Shatin to Central Link -  
Hung Hom to Admiralty Section**

**Works Contract 1123 -  
Exhibition Station and Western Approach Tunnel**

**Monthly EM&A Report for  
August 2022**

[September 2022]

	Name	Signature
Prepared & Checked:	Lemon Lam	
Reviewed, Approved & Certified:	Y W Fung (Contractor's Environmental Team Leader)	

Version: 0

Date: 9 September 2022

**Disclaimer**

This Environmental Monitoring and Audit Report is prepared for Leighton – China State J.V. and is given for its sole benefit in relation to and pursuant to SCL1123 and may not be disclosed to, quoted to or relied upon by any person other than Leighton – China State J.V. without our prior written consent. No person (other than Leighton – China State J.V. into whose possession a copy of this report comes may rely on this plan without our express written consent and Leighton – China State J.V. may not rely on it for any purpose other than as described above.

AECOM Asia Co. Ltd.

12/F, Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, NT, Hong Kong

Tel: (852) 3922 9000

Fax: (852) 2317 7609

www.aecom.com

**Table of Contents**

	Page
<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>1 INTRODUCTION.....</b>	<b>3</b>
1.1 Purpose of the Report .....	3
1.2 Report Structure.....	3
<b>2 PROJECT INFORMATION.....</b>	<b>4</b>
2.1 Background .....	4
2.2 Site Description .....	4
2.3 Construction Programme and Activities .....	5
2.4 Project Organisation.....	6
2.5 Status of Environmental Licences, Notification and Permits .....	7
<b>3 ENVIRONMENTAL MONITORING REQUIREMENT .....</b>	<b>8</b>
3.1 Construction Dust Monitoring.....	8
3.2 Construction Noise Monitoring .....	10
3.3 Continuous noise monitoring .....	11
3.4 Landscape and Visual.....	11
<b>4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES.....</b>	<b>12</b>
<b>5 MONITORING RESULTS .....</b>	<b>13</b>
5.1 Construction Dust Monitoring.....	13
5.2 Regular Construction Noise Monitoring .....	13
5.3 Waste Management .....	14
5.4 Landscape and Visual.....	14
<b>6 ENVIRONMENTAL SITE INSPECTION AND AUDIT.....</b>	<b>15</b>
<b>7 ENVIRONMENTAL NON-CONFORMANCE.....</b>	<b>16</b>
7.1 Summary of Monitoring Exceedances .....	16
7.2 Summary of Environmental Non-Compliance.....	16
7.3 Summary of Environmental Complaints.....	16
7.4 Summary of Environmental Summon and Successful Prosecutions.....	16
<b>8 FUTURE KEY ISSUES .....</b>	<b>17</b>
8.1 Construction Programme for the Next Three Month.....	17
8.2 Key Issues for the Coming Month.....	17
8.3 Monitoring Schedule for the Next Three Month .....	17
<b>9 CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>18</b>
9.1 Conclusions.....	18
9.2 Recommendations .....	18

**List of Tables**

Table 2.1	Major Construction Activities in the Reporting Month
Table 2.2	Contact Information of Key Personnel
Table 2.3	Status of Environmental Licenses, Notifications and Permits
Table 3.1	Air Quality Monitoring Equipment
Table 3.2	Locations of Construction Dust Monitoring Station
Table 3.3	Noise Monitoring Parameters, Frequency and Duration
Table 3.4	Noise Monitoring Equipment for Regular Noise Monitoring
Table 3.5	Noise Monitoring Station during Construction Phase
Table 4.1	Status of Required Submission under Environmental Permit
Table 5.1	Summary of 24-hour TSP Monitoring Result in the Reporting Period
Table 5.2	Summary of Construction Noise Monitoring Results in the Reporting Period
Table 6.1	Observations and Recommendations of Site Audit
Table 8.1	Major Construction for the Next Three Month

**List of Figures**

Figure 1.1	Site Layout Plan of SCL1123
Figure 3.1	Air Quality and Noise Monitoring Locations

**List of Appendices**

Appendix A	Construction Programme
Appendix B	Project Organisation Structure
Appendix C	Implementation Schedule of Environmental Mitigation Measures
Appendix D	Summary of Action and Limit Levels
Appendix E	Calibration Certificates of Equipment
Appendix F	EM&A Monitoring Schedules
Appendix G	Air Quality Monitoring Results and their Graphical Presentations
Appendix H	Noise Monitoring Results and their Graphical Presentations
Appendix I	Event and Action Plan
Appendix J	Cumulative Statistics on Complaints, Notification of Summons and Successful Prosecutions
Appendix K	Monthly Summary Waste Flow Table

## EXECUTIVE SUMMARY

Shatin to Central Link Contract 1123 – Exhibition Station and Western Approach Tunnel (hereafter called “the Project”) covers part of the construction of the Shatin to Central Link (SCL).

The Project comprises the construction of an underground station (Exhibition Station) and 300 m of cut and cover tunnel (Western Approach Tunnel) along Convention Avenue.

The EM&A programme commenced on 1 June 2015. The impact EM&A for the Project includes air quality and noise monitoring.

This report documents the findings of EM&A works conducted in the period between 1 and 31 August 2022. As informed by the Contractor, major activities in the reporting period were:

Location	Site Activities
Overall	<ul style="list-style-type: none"> <li>The station was handed over to MTR operation team.</li> </ul>
Exhibition Station (Zone 1 - PTI Area)	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Harbour Road Sport Centre (Zone 2)	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Exhibition Station (Zone 3 - Swimming Pool Area) (including W7a, W7b, W4, W5 and partial W6)	<ul style="list-style-type: none"> <li>LCSD Access Road - Drainage Works, foundation for external fence and backfilling, road/footpath pavement, fence/access gates installation</li> </ul>
Exhibition Station (Zone 4 - Tunnel at Tonnochy Road)	<ul style="list-style-type: none"> <li>Wan Chai Sports Ground (WCSG) reprovision works – Cast ground slab and construction of spectator stand</li> </ul>
Western Vent Shaft and WAT Area C	<ul style="list-style-type: none"> <li>Reinstatement of staircase</li> </ul>
WAT Area B	<ul style="list-style-type: none"> <li>N/A</li> </ul>
WAT Area A	<ul style="list-style-type: none"> <li>Reinstatement of staircase</li> </ul>
Area W22	<ul style="list-style-type: none"> <li>Material Storage</li> </ul>

### Breaches of Action and Limit Levels for Air Quality

No exceedance of Action and Limit Level of air quality was recorded in the reporting month.

### Breaches of Action and Limit Levels for Noise

#### Regular Noise Monitoring

No Action Level exceedance was recorded since no noise related complaint was received in the reporting month.

No exceedance of Limit Level of noise was recorded in the reporting month.

### Complaint, Notification of Summons and Successful Prosecution

No complaint, notification of summons and successful prosecution were received in the reporting month.

### Reporting Changes

There was no reporting change in the reporting month.



### Future Key Issues

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

Location	Site Activities
Overall	<ul style="list-style-type: none"> <li>The station was handed over to MTR operation team.</li> </ul>
Exhibition Station (Zone 1 - PTI Area)	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Harbour Road Sport Centre (Zone 2)	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Exhibition Station (Zone 3 - Swimming Pool Area) (including W7a, W7b, W4, W5 and partial W6)	<ul style="list-style-type: none"> <li>LCSD Access Road - Drainage Works, foundation for external fence and backfilling, road/footpath pavement, fence/access gates installation</li> </ul>
Exhibition Station (Zone 4 - Tunnel at Tonnochy Road)	<ul style="list-style-type: none"> <li>Wan Chai Sports Ground (WCSG) reprovision works – Cast ground slab and construction of spectator stand</li> </ul>
Western Vent Shaft and WAT Area C	<ul style="list-style-type: none"> <li>Reinstatement of staircase</li> </ul>
WAT Area B	<ul style="list-style-type: none"> <li>N/A</li> </ul>
WAT Area A	<ul style="list-style-type: none"> <li>Reinstatement of staircase</li> </ul>
Area W22	<ul style="list-style-type: none"> <li>Material Storage</li> </ul>

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

## 1 INTRODUCTION

Leighton – China State Joint Venture (JV) was commissioned by MTR as the Civil Contractor for Works Contract 1123. AECOM Asia Company Limited (AECOM) was appointed by JV as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Project.

### 1.1 Purpose of the Report

- 1.1.1 This is the 85<sup>th</sup> monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period between 1 and 31 August 2022.

### 1.2 Report Structure

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

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

## 2 PROJECT INFORMATION

### 2.1 Background

- 2.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).
- 2.1.2 The Environmental Impact Assessment (EIA) Reports for SCL – Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) was granted on 22 March 2012, which covers SCL (HUH-ADM) EP No.: EP-436/2012), for the construction and operation. Variation of EP (VEP) was subsequently applied and the latest EP (EP No. EP-436/2012/F) was issued by the Director of Environmental Protection (DEP) on 23 January 2019.
- 2.1.3 The construction of the SCL is divided into different civil construction works contracts and Works Contract 1123 – Exhibition Station and Western Approach involves the construction of an underground station (Exhibition Station) and 300m of cut and cover tunnel (Western Approach Tunnel) along Convention Avenue.
- 2.1.4 The site layout plan of the Project is shown in **Figure 1.1**.

### 2.2 Site Description

- 2.2.1 The major construction activities under Works Contract 1123 include:
- (a) Site preparation;
  - (b) Demolition works;
  - (c) Utilities works;
  - (d) Box Culvert works;
  - (e) Diaphragm wall construction and piling works;
  - (f) Pile Removal works;
  - (g) Excavation & Lateral Support (ELS) works; and
  - (h) Re-provisioning/ Reinstatement works.

**2.3 Construction Programme and Activities**

2.3.1 The major construction activities undertaken in the reporting month are summarised below:

**Table 2.1 Major Construction Activities in the Reporting Month**

<b>Location</b>	<b>Site Activities</b>
Overall	<ul style="list-style-type: none"> <li>The station was handed over to MTR operation team.</li> </ul>
Exhibition Station (Zone 1 - PTI Area)	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Harbour Road Sport Centre (Zone 2)	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Exhibition Station (Zone 3 - Swimming Pool Area) (including W7a, W7b, W4, W5 and partial W6)	<ul style="list-style-type: none"> <li>LCSD Access Road - Drainage Works, foundation for external fence and backfilling, road/footpath pavement, fence/access gates installation</li> </ul>
Exhibition Station (Zone 4 - Tunnel at Tonnochy Road)	<ul style="list-style-type: none"> <li>Wan Chai Sports Ground (WCSG) reprovision works – Cast ground slab and construction of spectator stand</li> </ul>
Western Vent Shaft and WAT Area C	<ul style="list-style-type: none"> <li>Reinstatement of staircase</li> </ul>
WAT Area B	<ul style="list-style-type: none"> <li>N/A</li> </ul>
WAT Area A	<ul style="list-style-type: none"> <li>Reinstatement of staircase</li> </ul>
Area W22	<ul style="list-style-type: none"> <li>Material Storage</li> </ul>

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

## 2.4 Project Organisation

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

**Table 2.2 Contact Information of Key Personnel**

Party	Role	Position	Name	Telephone	Fax
MTR	Residential Engineer (ER)	Senior Construction Manager – SCL Civil	Mr. Mike Bezzano	3959 2128	3959 2200
		SCL Project Environmental Team Leader	Mr. Alex Siu	3127 6292	3127 6422
Meinhardt	Independent Environmental Checker	Independent Environmental Checker	Ms. Claudine Lee	2859 5409	2540 1580
JV	Contractor	Project Director	Mr. Eric Fong	6191 9337	31051126
		Environmental Engineer	Mr. Andy Leung	3973 1498	
AECOM	Contractor's Environmental Team (ET)	ET Leader	Mr. Y W Fung	3922 9366	2317 7609

**2.5 Status of Environmental Licences, Notification and Permits**

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

**Table 2.3 Status of Environmental Licenses, Notifications and Permits**

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
<b>Environmental Permit</b>				
EP-436/2012/F	23 Jan 2019	-	Valid	
<b>Construction Noise Permit</b>				
GW-RS0017-22	21 Jan 2022	17 Jul 2022	Valid (suspended by GW-RS0562-22)	EXH (General) 24-hr Temporary Footbridge Remedial works (Welding set, hand-drill/grinder) + ABWF works (Ground & Underground)
GW-RS0562-22	15 Jul 2022	10 Jan 2023	Valid	EXH (General) 24-hr Temporary Footbridge Remedial works (Welding set, hand-drill/grinder) + ABWF works (Ground & Underground)
GW-RS0215-22	1 Apr 2022	27 Sep 2022	Valid	WAT Area B surface crane relocation + Battery drill
<b>Wastewater Discharge License</b>				
WT00031573-2018	23 Jul 2018	31 Jul 2023	Valid	For W15d, W13 & W6
WT00031235-2018	23 Jul 2018	31 Jul 2023	Valid	For W25
WT00037120-2020	18 Jan 2021	30 Sep 2025	Valid	For W1a, 1b
WT00038058-2021	13 Jul 2021	30 Apr 2025	Valid	For site portion W15a, W16, W17 & 18a
WT00038215-2021	13 Jul 2021	30 Jun 2025	Valid	For site portion W9a, W9b, W10 W12T
<b>Chemical Waste Producer Registration</b>				
5213-135-L2881-01	02 Apr 2015	End of Contract	Valid	For whole site at Wan Chai Area
<b>Marine Dumping Permit</b>				
-	-	-	-	-
<b>Billing Account for Construction Waste Disposal</b>				
7021736	16 Feb 2015	End of Contract	Valid	For Disposal of C&D Waste
<b>Notification Under Air Pollution Control (Construction Dust) Regulation</b>				
385128	1 Mar 2015	End of Contract	Valid	For whole site at Wan Chai Area

### 3 ENVIRONMENTAL MONITORING REQUIREMENT

#### 3.1 Construction Dust Monitoring

##### *Monitoring Requirements*

- 3.1.1 In accordance with the approved EM&A Manuals, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required. Impact 24-hour TSP monitoring should be carried out for at least once every 6 days. The Action and Limit level of the air quality monitoring is provided in **Appendix D**.

##### *Monitoring Equipment*

- 3.1.2 24-hour TSP air quality monitoring was performed using High Volume Sampler (HVS) located at the designated monitoring stations. The HVS meets all the requirements of the EM&A Manual. Brand and model of the equipment is given in **Table 3.1**.

**Table 3.1 Air Quality Monitoring Equipment**

Equipment	Brand and Model
High Volume Sampler (24-hour TSP)	Andersen Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model No. GS 2310 (S/N:809 & 10273))
Calibration Kit	TISCH Environmental Orifice (Model TE-5025A (Orifice I.D.: 843))

##### *Monitoring Locations*

- 3.1.3 The monitoring station for construction dust monitoring pertinent to the Project has been identified based on the approved EM&A Manual for SCL (HUH-ADM) of the Project. The location of the construction dust monitoring stations are summarised in **Table 3.2** and shown in **Figure 3.1**.

**Table 3.2 Locations of Construction Dust Monitoring Station**

ID	Air Sensitive Receiver (ASR) ID in EIA Report	Dust Monitoring Station
AM2 <sup>[1]</sup>	EXA6	Wanchai Sports Ground
AM3 <sup>[2][3]</sup>	EXA5	Existing Harbour Road Sports Centre
AM4 <sup>[4]</sup>	EXA4	Pedestrian Plaza

Note:

[1] The impact monitoring at AM2 was handed over from Contract SCL1128 on 28 October 2015.

[2] The impact monitoring at AM3 was handed over from Contract SCL1126 in June 2015.

[3] The impact monitoring at AM3 terminated on 6 May 2017 as demolition of Existing Harbour Road Sports Centre commenced on 8 May 2017.

[4] The impact monitoring at AM4 was handed over from Contract SCL1128 in April 2021.

##### *Monitoring Methodology*

#### 3.1.4 24-hour TSP Monitoring

- (a) The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS as far as practicable:-
- (i) A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
  - (ii) Two samplers should not be placed less than 2m apart from each others;
  - (iii) The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
  - (iv) A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.

- (v) A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
  - (vi) No furnace or incinerator flues nearby.
  - (vii) Airflow around the sampler was unrestricted.
  - (viii) The sampler was located more than 20 meters from any dripline.
  - (ix) Any wire fence and gate, required to protect the sampler, did not obstruct the monitoring process.
  - (x) Permission was obtained to set up the samplers and access to the monitoring station.
  - (xi) A secured supply of electricity was obtained to operate the sampler.
- (b) Preparation of Filter Papers
- (i) Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
  - (ii) All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than  $\pm 3$  °C; the relative humidity (RH) was < 50% and not variable by more than  $\pm 5\%$ . A convenient working RH was 40%.
  - (iii) All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.
- (c) Field Monitoring
- (i) The power supply was checked to ensure the HVS works properly.
  - (ii) The filter holder and the area surrounding the filter were cleaned.
  - (iii) The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
  - (iv) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
  - (v) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
  - (vi) Then the shelter lid was closed and was secured with the aluminium strip.
  - (vii) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
  - (viii) A new flow rate record sheet was set into the flow recorder.
  - (ix) On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.3 m<sup>3</sup>/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m<sup>3</sup>/min).
  - (x) The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
  - (xi) The initial elapsed time was recorded.
  - (xii) At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
  - (xiii) The final elapsed time was recorded.
  - (xiv) The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
  - (xv) It was then placed in a clean envelope and sealed.
  - (xvi) All monitoring information was recorded on a standard data sheet.
  - (xvii) Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.
- (d) Maintenance and Calibration
- (i) The HVS and its accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
  - (ii) HVSs were calibrated using TE-5025A Calibration Kit upon installation and thereafter at bi-monthly intervals.
  - (iii) Calibration certificate of the TE-5025A Calibration Kit and the HVSs are provided in **Appendix E**.



**Monitoring Schedule for the Reporting Month**

3.1.5 The schedule for environmental monitoring in August 2022 is provided in Appendix F.

**3.2 Construction Noise Monitoring****Monitoring Requirements**

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

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

Parameter and Duration	Frequency
30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. Leq, L <sub>10</sub> and L <sub>90</sub> would be recorded.	At least once per week

**Monitoring Equipment**

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

**Table 3.4 Noise Monitoring Equipment for Regular Noise Monitoring**

Equipment	Brand and Model
Integrated Sound Level Meter	Model No. B&K 2250 (S/N: 3001291) Model No. B&K 2270 (S/N: 3007965)
Acoustic Calibrator	Model No. B&K 4231 (S/N: 3014024 / N.004.04) Model No. Rion NC-74 (S/N:34246490 / N.004.10)

**Monitoring Locations**

3.2.3 The monitoring station for construction noise monitoring pertinent to the Project has been identified based on the approved EM&A Manual for SCL (HUH-ADM) of the Project. Location of the noise monitoring station is summarised in **Table 3.5** and shown in **Figure 3.1**.

**Table 3.5 Noise Monitoring Station during Construction Phase**

Identification No.	Noise Sensitive Receiver (NSR) ID in EIA Report	Noise Monitoring Station	Alternative Noise Monitoring Location
NM2 <sup>[1]</sup>	EX1	Causeway Centre, Block A	Harbour Centre <sup>[2]</sup>

Note:

[1] The impact monitoring at NM2 was handed over from Works Contract SCL1126 in June 2015.

[2] The Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring under Works Contract 1126. An alternative monitoring location at Harbour Centre was approved by the ER, agreed by IEC. The alternative monitoring location was approved by EPD on 18 December 2017.

**Monitoring Methodology**

3.2.4 Monitoring Procedure

- (a) Façade measurements were made at NM2.
- (b) The battery condition was checked to ensure the correct functioning of the meter.
- (c) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - (i) frequency weighting: A
  - (ii) time weighting: Fast
  - (iii) time measurement:  $L_{eq(30\text{-minutes})}$  during non-restricted hours i.e. 0700 – 1900 on normal weekdays.
- (d) Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator for 94 dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- (e) During the monitoring period, the  $L_{eq}$ ,  $L_{10}$  and  $L_{90}$  were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- (f) Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.
- (g) Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind with gusts exceeding 10m/s.

#### 3.2.5 Maintenance and Calibration

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

#### **Monitoring Schedule for the Reporting Month**

3.2.6 The schedule for environmental monitoring in August 2022 is provided in **Appendix F**.

### **3.3 Continuous noise monitoring**

3.3.1 According to EP conditions under EP-436/2012/F (Condition 2.7 and 2.8), the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP) were submitted to EPD in June 2016, it is predicted that no residual air-borne construction noise impact exceeding the relevant noise criteria is anticipated. No continuous noise monitoring is required under this Contract.

### **3.4 Landscape and Visual**

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

**4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES**

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

**Table 4.1 Status of Required Submission under Environmental Permit**

<b>EP Condition</b>	<b>Submission</b>	<b>Submission Date</b>
Condition 3.4 (EP-436/2012/F)	Monthly EM&A Report for July 2022	12 August 2022

## 5 MONITORING RESULTS

### 5.1 Construction Dust Monitoring

- 5.1.1 The monitoring station at AM2 was handed over from Contract SCL1128 on 28 October 2015.
- 5.1.2 The monitoring station at AM4 was handed over from Contract SCL1128 in April 2021.
- 5.1.3 The monitoring results for 24-hour TSP are summarised in **Table 5.1**. Detailed air quality monitoring results and wind monitoring data extracted from the nearest Automatic Weather Station are presented in **Appendix G**.

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

ID	Average ( $\mu\text{g}/\text{m}^3$ )	Range ( $\mu\text{g}/\text{m}^3$ )	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )
AM2 <sup>[1]</sup>	15.4	8.9 – 21.5	160	260
AM4 <sup>[2]</sup>	25.6	15.3 – 43.7	198	260

Note:

[1] The impact monitoring at AM2 was handed over from Contract SCL1128 on 28 October 2015

[2] The impact monitoring at AM4 was handed over from Contract SCL1128 in April 2021.

- 5.1.4 No Action and Limit Level exceedance were recorded for 24-hour TSP monitoring at the monitoring locations in the reporting month.
- 5.1.5 The event and action plan is annexed in **Appendix I**.
- 5.1.6 Major dust sources during the monitoring included construction dust, nearby traffic emission and other nearby construction sites.

### 5.2 Regular Construction Noise Monitoring

- 5.2.1 The monitoring results for noise are summarized in **Table 5.2** and the monitoring data is provided in **Appendix H**.

**Table 5.2 Summary of Construction Noise Monitoring Results in the Reporting Period**

ID	Range, dB(A), $L_{eq}$ (30 mins)	Limit Level, dB(A), $L_{eq}$ (30 mins)
NM2 <sup>(*)</sup>	<Baseline	75

(\*) Baseline correction will be made to the measured  $L_{eq}$  when the measured noise level exceeded the corresponding baseline noise level and presented in the table.

- 5.2.2 No Action Level exceedance was recorded since no noise related complaint was received in the reporting month.
- 5.2.3 No Limit Level exceedance of noise was recorded at the monitoring station in the reporting month.
- 5.2.4 The event and action plan is annexed in **Appendix I**.
- 5.2.5 Major noise sources during the monitoring included construction noise from the Project site, nearby traffic noise and the community.

### 5.3 Waste Management

- 5.3.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.
- 5.3.2 As advised by the Contractor, 164 m<sup>3</sup> of inert C&D material was generated and disposed of as public fill in the reporting month. No inert C&D materials were reused in other projects or in the Contract in the reporting month. No fill material was imported in the reporting month. 55 m<sup>3</sup> general refuse was generated in the reporting month. 167,525 kg of metal, 310 kg of paper/cardboard packaging material and 35 kg of plastic were collected by recycle contractor in the reporting month. No chemical waste was collected by licensed contractor in the reporting month. No Type 1 and Type 2 of Marine sediment were disposed of at Confined Marine Disposal Facility to the East of Sha Chau. The waste flow table is annexed in **Appendix K**.
- 5.3.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.
- 5.3.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

### 5.4 Landscape and Visual

- 5.4.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 3 and 17 August 2022. A summary of the site inspection is provided in **Appendix C**. The observations and recommendations made during the site inspections are presented in **Table 6.1**.

## 6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

- 6.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix C**.
- 6.1.2 In the reporting month, 4 site inspections were carried out on 5, 10, 17 and 24 August 2022. Joint inspections with the IEC, ER, the Contractor and the ET were conducted on 17 August 2022. No non-compliance was recorded during the site inspection. Details of observations recorded during the site inspections are presented in **Table 6.1**.

**Table 6.1 Observations and Recommendations of Site Audit**

Parameters	Date	Observations and Recommendations	Follow-up
<b>Air Quality</b>	24 Aug 2022	<ul style="list-style-type: none"> <li>Idle stockpiles were observed next to W3. The Contractor should provide watering/ cover the stockpile for dust suppression.</li> </ul>	This item was rectified on 31 Aug 2022
<b>Noise</b>	Nil	Nil	Nil
<b>Water Quality</b>	Nil	Nil	Nil
<b>Waste/ Chemical Management</b>	5 Aug 2022	<u>Reminder</u> <ul style="list-style-type: none"> <li>The Contractor was reminded to clean up the general refuse at Zone 4 properly.</li> </ul>	This item was rectified on 10 Aug 2022
<b>Landscape &amp; Visual</b>	Nil	Nil	Nil
<b>Permits/ Licenses</b>	Nil	Nil	Nil

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

## **7 ENVIRONMENTAL NON-CONFORMANCE**

### **7.1 Summary of Monitoring Exceedances**

- 7.1.1 All 24-hour TSP result was below the Action and Limit level at all monitoring locations in the reporting month.
- 7.1.2 No Action Level exceedance was recorded since no noise related complaint was received in the reporting month.
- 7.1.3 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.

### **7.2 Summary of Environmental Non-Compliance**

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

### **7.3 Summary of Environmental Complaints**

- 7.3.1 No environmental related complaint was received in the reporting month. Cumulative statistics on environmental complaints is provided in **Appendix J**.

### **7.4 Summary of Environmental Summon and Successful Prosecutions**

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

## 8 FUTURE KEY ISSUES

### 8.1 Construction Programme for the Next Three Month

8.1.1 The major construction works between September to November 2022 will be:

**Table 8.1 Major Construction for the Next Three Month**

Location	Site Activities
Overall	<ul style="list-style-type: none"> <li>The station was handed over to MTR operation team.</li> </ul>
Exhibition Station (Zone 1 - PTI Area)	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Harbour Road Sport Centre (Zone 2)	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Exhibition Station (Zone 3 - Swimming Pool Area) (including W7a, W7b, W4, W5 and partial W6)	<ul style="list-style-type: none"> <li>LCSD Access Road - Drainage Works, foundation for external fence and backfilling, road/footpath pavement, fence/access gates installation</li> </ul>
Exhibition Station (Zone 4 - Tunnel at Tonnochy Road)	<ul style="list-style-type: none"> <li>Wan Chai Sports Ground (WCSG) reprovision works – Cast ground slab and construction of spectator stand</li> </ul>
Western Vent Shaft and WAT Area C	<ul style="list-style-type: none"> <li>Reinstatement of staircase</li> </ul>
WAT Area B	<ul style="list-style-type: none"> <li>N/A</li> </ul>
WAT Area A	<ul style="list-style-type: none"> <li>Reinstatement of staircase</li> </ul>
Area W22	<ul style="list-style-type: none"> <li>Material Storage</li> </ul>

### 8.2 Key Issues for the Coming Month

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

### 8.3 Monitoring Schedule for the Next Three Month

8.3.1 The tentative schedules for environmental monitoring in between September to November 2022 are provided in **Appendix F**.



## 9 CONCLUSIONS AND RECOMMENDATIONS

### 9.1 Conclusions

- 9.1.1 24-hour TSP and noise monitoring were carried out in the reporting month.
- 9.1.2 No Action and Limit Level exceedance was recorded for 24-hour TSP monitoring at the monitoring locations in the reporting month.
- 9.1.3 No Action Level exceedance was recorded since no noise related complaint was received in the reporting month.
- 9.1.4 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.
- 9.1.5 4 nos. of environmental site inspections were carried out in August 2022. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.
- 9.1.6 No environmental complaint was received in the reporting month.
- 9.1.7 No notification of summons and successful prosecution were received in the reporting month.
- 9.1.8 Referring to the Contractor's information, no notification of summons and successful prosecution was received in the reporting month.

### 9.2 Recommendations

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

#### Air Quality Impact

- The Contractor was reminded to provide mitigation measures for open/idle stockpile to prevent dust emission, e.g., covering and/or regular watering.

#### Construction Noise Impact

- No specific observation was identified in the reporting month.

#### Water Quality Impact

- No specific observation was identified in the reporting month.

#### Chemical and Waste Management

- The Contractor was reminded to clean up the general refuse frequently.

#### Landscape & Visual Impact

- No specific observation was identified in the reporting month.

#### Permits/licenses

- No specific observation was identified in the reporting month.

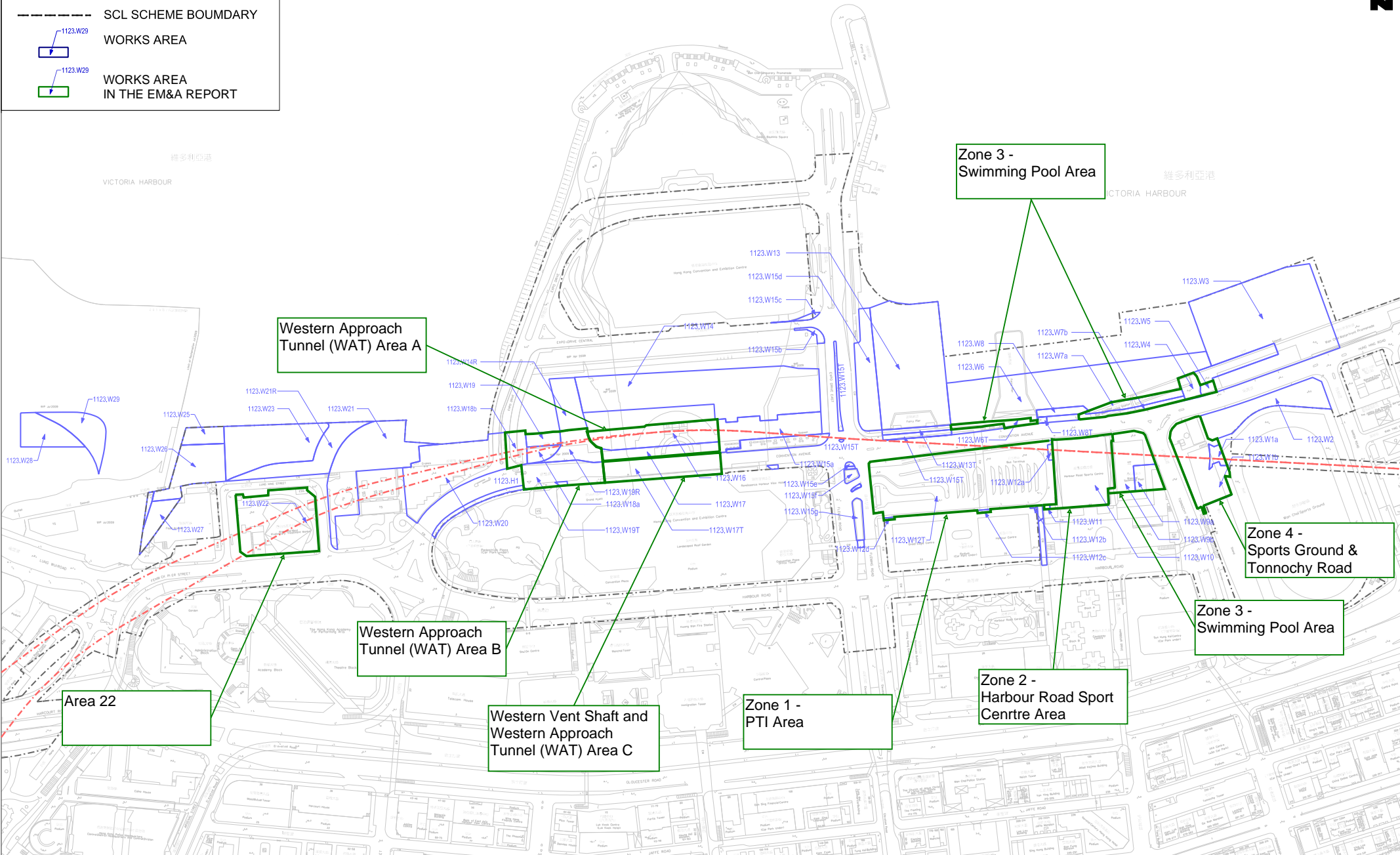
---

## FIGURES

---

**LEGEND:**

- PROPOSED SCL ALIGNMENT
- SCL SCHEME BOUNDARY
- WORKS AREA
- WORKS AREA IN THE EM&A REPORT



C:\ProgramData\Bentley\MicroStation\11\1\SELECTuser1\WorkSpace\System\to11\Fig1123\_scl\_0382a.dgn  
 PLOT DRW: C:\ProgramData\Bentley\MicroStation\11\1\SELECTuser1\WorkSpace\System\to11\Fig1123\_scl\_0382a.dgn  
 FILENAME: 2\BKES\SA\PF\PD\20\comm\to11\1123.LCS\_SK\_0382A.dgn

REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED

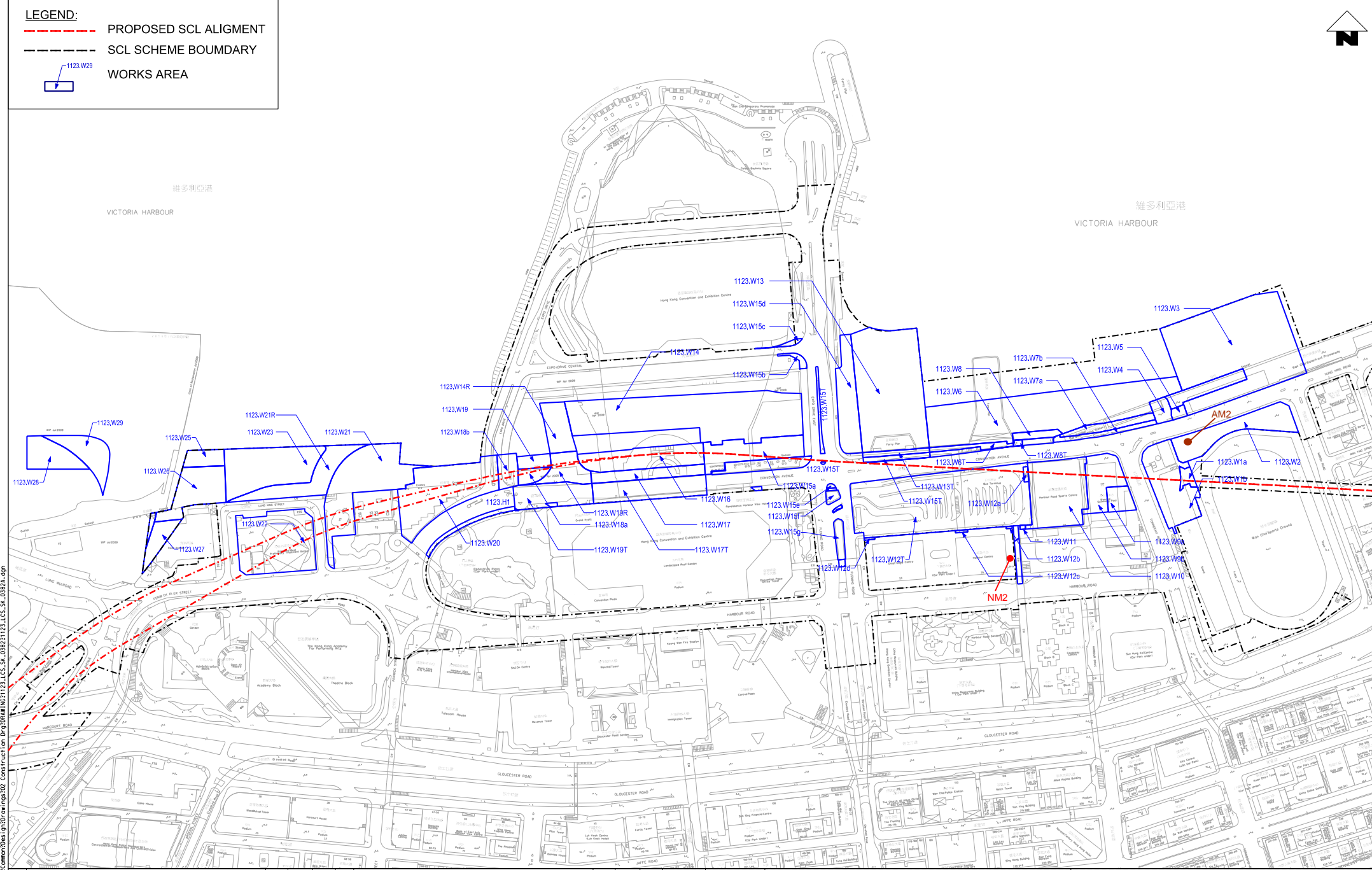
  

DRAWN	C. F. WOOD	 <b>SHATIN TO CENTRAL LINK – CONTRACT 1123</b> ORIGINATOR  <small>Leighton - China State Joint Venture</small>
DESIGNED		
CHECKED		
APPROVED		
DATE	19/MAR/2015	

TITLE	<b>CONTRACT 1123</b>	
	<b>EXHIBITION STATION AND WESTERN APPROACH TUNNEL</b>	
	SITE LAYOUT PLAN AND WORKS AREA	
SCALE	1 : 3000 @A3	DRAWING NO. Figure 1.1
CADD REF.	1123.LCS_SK_0382A.dgn	REV. A

**LEGEND:**

- - - - - PROPOSED SCL ALIGNMENT
- - - - - SCL SCHEME BOUNDARY
- [ ] WORKS AREA



C:\ProgramData\Bentley\MicroStation\Bentley\Map\SpaceSystems\1123\1123.LCS\_Sk\_0382A.dgn  
 FILENAME: 2\BKS\1123\1123.LCS\_Sk\_0382A.dgn  
 DATE: 19/MAR/2015

REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED

DRAWN	C. F. WOOD
DESIGNED	---
CHECKED	---
APPROVED	---
DATE	19/MAR/2015

**SHATIN TO CENTRAL LINK - CONTRACT 1123**  
 ORIGINATOR  
  
 Leighton - China State Joint Venture  
 CADD REF. 1123.LCS\_Sk\_0382A.dgn

**CONTRACT 1123**  
**EXHIBITION STATION AND WESTERN APPROACH TUNNEL**  
 AIR QUALITY AND NOISE MONITORING LOCATIONS  
 SCALE 1 : 3000 @A3  
 DRAWING NO. Figure 3.1  
 REV. A

---

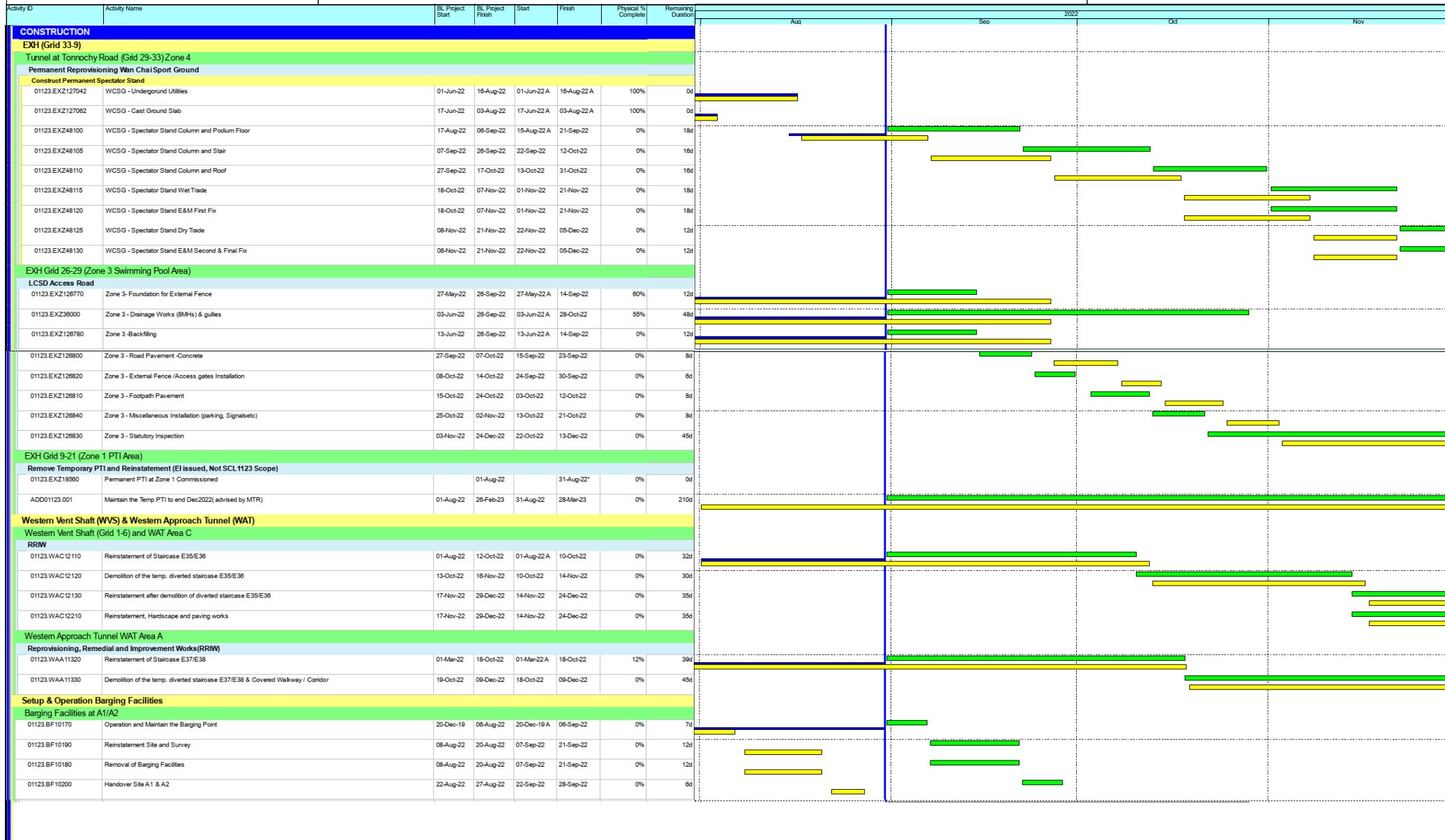
**APPENDIX A**

**Construction Programme**

---

Data Date: 31-Aug-22  
 Print Date: 06-Sep-22

## MTR Shatin to Central Link - Contract 1123 EXH and Western Approach Tunnel



- ◆ AT Milestone
- Actual Work
- Remaining Works
- last month

### 3 Month Rolling Programme Sep 2022 to Nov 2022

Project ID: 1123-MR92  
 Layout: 1123 - PMP Progress1\_1

Date	Revision	Checked	Approved
16-Mar-15	0		
12-May-15	A		
16-Jun-15	B		

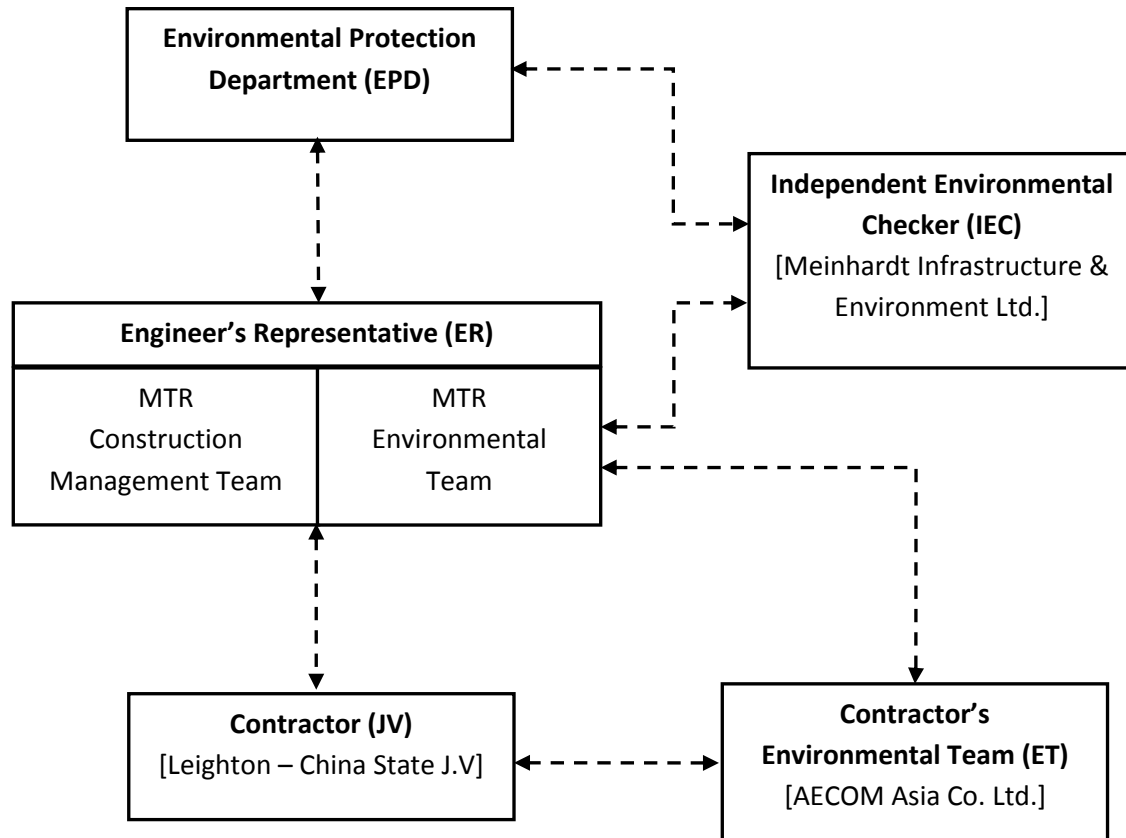
---

**APPENDIX B**

**Project Organization Structure**

---

## Appendix B Project Organisation Structure





---

**APPENDIX C**

**Implementation Schedule of Environmental Mitigation  
Measures**

---

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
<b>Cultural Heritage Impact</b>						
S4.93 & Table 4.2	Erection of decorative and sensibly designed hoarding along the boundary of the works area	To mitigate the temporary visual impact due to surface works.	Contractor	Works Areas in Causeway Bay and Wan Chai, and Works Shaft in Admiralty	Construction Phase	V
<b>Ecological Impact</b>						
S5.134	Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216 and 11.219 to 11.256 of the EIA Report shall be adopted.	To minimize the contamination of wastewater discharge	Contractor	All land based works areas	Construction Phase	N/A
<b>Landscape and Visual Impact</b>						
<b>Construction Phase</b>						
Table 7.9	CM1 - Trees unavoidably affected by the works shall be transplanted as far as possible in accordance with ETWB TC(W) 3/2006 – Tree Preservation.	Transplanting and reuse of affected trees.	MTR	Works Sites	Construction Phase	V
Table 7.9	CM2a - Compensatory tree planting shall be provided in accordance with ETWB TC(W) 3/2006 – Tree Preservation to compensate for felled trees and maintained until end of the establishment period.	Compensation for the removal of existing trees due to the Project.	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM2b - Compensatory shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas.	Compensation for the removal of existing shrub planting due to the Project.	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM3 - Control of night-time lighting glare	Minimize the night time glare due to the Project during construction phase	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM4 - Erection of decorative screen hoarding compatible with the surrounding setting.	Minimize the visual impact of the Project during construction phase	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs	Control of height and deposition/ arrangement of temporary facilities in works areas	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM6 - All hard and soft landscape areas disturbed temporarily during construction shall be reinstated on like-to-like basis to the satisfaction of the relevant Government Departments.	Reinstatement of temporary works areas.	MTR	Works Sites	Construction Phase	N/A
<b>Construction Dust Impact</b>						
Table 8.5	Barging facilities: (i) Transportation of spoils to the barging point – Pave all road surfaces within the barging facilities and provide watering once along with the haul road for every working hours to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.0 L/m <sup>2</sup> once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.0 L/m <sup>2</sup> to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual.	To minimize dust impacts	Contractor	All barging points	Construction phase	N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	(ii) Unloading of spoil materials – Undertake the unloading process within a 3-sided screen with top tipping hall. Provide water spraying and flexible dust curtains at the discharge point for dust suppression. (iii) Vehicles leaving the barging facilities – Pass vehicles through the wheel washing facilities provided at site exits.					N/A  N/A
S8.63	For concrete batching plant, the requirements and mitigation measures stipulated in the <i>Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93)</i> shall be followed and implemented.	To minimize dust impact	Contractor	Concrete Batching Plant	Construction phase	N/A
Table 8.6	During operation of concrete batching plant: (i) Unloading of aggregates from the tipper trucks to receiving hopper – unload the aggregates from the tipper trucks to the receiving hopper equipped with enclosures on 3 sides and top cover, and water spraying system. (ii) Unloading of cement and PFA from tankers into the silo – Directly load the cement and PFA into the silo via a flexible duct. Install dust collectors at cement/PFA silos. (iii) Storage of aggregates in overhead storage bins – Store the aggregates in fully enclosed overhead storage bins. Cover the top of overhead storage bins with cladding. Install water spraying system at the top of storage bins for watering the aggregates, and fully enclose aggregates storage bins. (iv) Weighing and batching of cementitious materials – Perform the whole process of weighing and mixing in a fully enclosed environment. Equip all the mixers with dust collectors. (v) Loading of concrete from mixer into transit mixer of a truck – Directly load the concrete from the mixer into the transit mixer of a truck in “wet form”. (vi) Tipper trucks and cement tankers leaving the Concrete Batching Plant – Haul road within the site is unpaved. Install wheel washing pit at the gate of the concrete batching plant. (vii) Transportation of materials within the plant – Provide watering twice a day would be provided.	To minimize dust impacts	Contractor	Concrete Batching Plant	Construction phase	N/A
S8.89	Watering once every working hour on active works areas, exposed areas and paved haul roads to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m <sup>2</sup> for Kowloon side and 1.0 L/m <sup>2</sup> for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m <sup>2</sup> for Kowloon side and 1.0 L/m <sup>2</sup> for Hong Kong side to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual.	To minimize dust impact	Contractor	Works areas	Construction Phase	V
S8.89	Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall, provision of water spraying and flexible dust curtains to reduce dust emission	To minimize dust impact	Contractor	All barging points	Construction phase	N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S8.90	<p>Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices:</p> <ul style="list-style-type: none"> <li>Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.</li> <li>Use of frequent watering for particularly dusty construction areas and areas close to ASRs.</li> <li>Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.</li> <li>Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.</li> <li>Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.</li> <li>Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.</li> <li>Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods.</li> <li>Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit.</li> <li>Imposition of speed controls for vehicles on site haul roads.</li> <li>Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs.</li> <li>Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.</li> <li>Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise</li> </ul>	To minimize dust impacts	Contractor	Works areas	Construction phase	<p style="text-align: center;">V V V  @  V V @   V  V N/A  V  V</p>
/	<p><b>Dust suppression measures (con't)</b></p> <ul style="list-style-type: none"> <li>De-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement</li> <li>The portion of any road where along the site boundary should be kept clear of dusty materials.</li> <li>Use of frequent watering for any dusty construction process (e.g. breaking works) to reduce dust emissions.</li> </ul>	To minimize dust impacts	Contractor	Works areas	Construction phase	<p style="text-align: center;">V  V V</p>
/	<p><b>Emission from Vehicles and Plants</b></p> <ul style="list-style-type: none"> <li>All vehicles shall be shut down in intermittent use.</li> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.</li> <li>All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)</li> </ul>	Reduce air pollution emission from construction vehicles and plants	Contractor	Works areas	Construction phase	<p style="text-align: center;">V V  V</p>
<b>Airborne Noise Impact</b>						
<b>Construction Phase</b>						
S9.55	<p>The following good site practices shall be implemented:</p> <ul style="list-style-type: none"> <li>Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program</li> <li>Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program</li> <li>Mobile plant, if any, shall be sited as far from NSRs as possible</li> <li>Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum</li> <li>Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs</li> </ul>	To minimize construction noise impact	Contractor	Works areas	Construction phase	<p style="text-align: center;">V  V  V V  N/A</p>

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	<ul style="list-style-type: none"> <li>Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities</li> </ul>					N/A
/	<ul style="list-style-type: none"> <li>Install movable noise barriers, acoustic mat or full enclosure, screen the noisy plants during operation</li> <li>Air compressors or Hand-held breaker shall be fitted with valid noise emission labels during operation</li> </ul>	To minimize construction noise impact	Contractor	Works areas	Construction phase	V V
S9.56 & Table 9.16	<p>The following quiet PME shall be used:</p> <ul style="list-style-type: none"> <li>Crane lorry, mobile</li> <li>Crane, mobile</li> <li>Asphalt paver</li> <li>Backhoe with hydraulic breaker</li> <li>Breaker, excavator mounted (hydraulic)</li> <li>Hydraulic breaker</li> <li>Concrete lorry mixer</li> <li>Poker, vibrator, hand-held</li> <li>Concrete pump</li> <li>Crawler crane, mobile</li> <li>Mobile crane</li> <li>Dump truck</li> <li>Excavator</li> <li>Truck</li> <li>Rock drill</li> <li>Lorry</li> <li>Wheel loader</li> <li>Roller vibratory</li> </ul>	To minimize construction noise impact	Contractor	<p>Works areas at:</p> <ul style="list-style-type: none"> <li>Hung Hom</li> <li>Cross Harbour section up to Breakwater of CBTS</li> <li>Breakwater of CBTS to SOV</li> <li>SOV to EXH</li> <li>EXH</li> <li>EXH to open space at the junction of Expo Drive and Convention Avenue</li> <li>Open space at the junction of Expo Drive and Convention Avenue to north of ADM</li> <li>South of ADM to Overrun Tunnel</li> </ul>	Construction phase	V V N/A V N/A N/A N/A N/A V V V V V N/A N/A N/A N/A
S9.58 – S9.59 & Table 9.17	<p>Movable noise barrier shall be used for the following PME:</p> <ul style="list-style-type: none"> <li>Air compressor</li> <li>Asphalt paver</li> <li>Backhoe with hydraulic breaker</li> <li>Bar bender</li> <li>Bar bender and cutter (electric)</li> <li>Breaker, excavator mounted</li> <li>Concrete pump</li> <li>Concrete pump, stationary/lorry mounted</li> <li>Excavator</li> <li>Generator</li> <li>Grout pump</li> <li>Hand held breaker</li> <li>Hydraulic breaker</li> <li>Saw, concrete</li> </ul>	To minimize construction noise impact	Contractor	<p>Works areas at:</p> <ul style="list-style-type: none"> <li>Cross Harbour section up to Breakwater of CBTS</li> <li>Breakwater of CBTS to SOV</li> <li>SOV to EXH</li> <li>EXH</li> <li>EXH to open space at the junction of Expo Drive and Convention Avenue</li> <li>Open space at the junction of Expo Drive and Convention Avenue to north of ADM</li> <li>South of ADM to Overrun Tunnel</li> </ul>	Construction phase	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
S9.60 & Table 9.17	<p>Noise insulating fabric shall be used for</p> <ul style="list-style-type: none"> <li>Drill rig, rotary type</li> <li>Piling, diaphragm wall, bentonite filtering plant</li> <li>Piling, diaphragm wall, grab and chisel</li> <li>Piling, diaphragm wall, hydraulic extractor</li> <li>Piling, large diameter bored, grab and chisel</li> <li>Piling, hydraulic extractor</li> <li>Piling, earth auger, auger</li> <li>Rock drill, crawler mounted (pneumatic)</li> </ul>	To minimize construction noise impact	Contractor	<p>Works areas at:</p> <ul style="list-style-type: none"> <li>Cross Harbour section up to Breakwater of CBTS</li> <li>Breakwater of CBTS to SOV</li> <li>SOV to EXH</li> <li>EXH</li> <li>EXH to open space at the junction of Expo Drive and Convention Avenue</li> <li>Open space at the junction of Expo Drive and Convention Avenue to north of ADM</li> <li>South of ADM to Overrun</li> </ul>	Construction phase	N/A N/A N/A N/A N/A N/A N/A N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
				Tunnel		
<b>Water Quality Impact</b>						
<b>Construction Phase</b>						
S11.216	<p>The following mitigation measures are proposed to minimize the potential water quality impacts from the construction works at or close to the seafront:</p> <ul style="list-style-type: none"> <li>• Temporary storage of construction materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction and demolition materials shall be located well away from the seawater front and storm drainage during carrying out of the works.</li> <li>• Stockpiling of construction and demolition materials and dusty materials shall be covered and located away from the seawater front and storm drainage.</li> <li>• Construction debris and spoil shall be covered up and/or disposed of as soon as possible to avoid being washed into the nearby receiving waters.</li> </ul>	To minimize release of construction wastes from construction works at or close to the seafront	Contractor	Construction works at or close to the seafront	Construction Phase	V  V N/A
S11.222 to 11.245	<p>The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" shall be followed where practicable. <u>Surface Run-off</u></p> <ul style="list-style-type: none"> <li>• Surface run-off from construction sites shall be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers shall be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries shall be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks.</li> <li>• Silt removal facilities, channels and manholes shall be maintained and the deposited silt and grit shall be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage shall comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distances of 100 m shall be maintained between the discharge points of construction site runoff and the existing saltwater intakes.</li> <li>• Construction works shall be programmed to minimize soil excavation works in rainy seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels shall be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm.</li> <li>• Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels shall be provided where necessary.</li> <li>• Measures shall be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they shall be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities.</li> <li>• Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms.</li> <li>• Manholes (including newly constructed ones) shall always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.</li> <li>• Good site practices shall be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis.</li> </ul>	To minimize water quality impacts from construction site runoff and general construction activities	Contractor	Works areas	Construction Phase	V  @  V  N/A  N/A  V V V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	<p><u>Boring and Drilling Water</u></p> <ul style="list-style-type: none"> <li>Water used in ground boring and drilling for site investigation or rock / soil anchoring shall as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater shall be discharged into storm drains via silt removal facilities.</li> </ul> <p><u>Wheel Washing Water</u></p> <ul style="list-style-type: none"> <li>All vehicles and plant shall be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay shall be provided at every site exit if practicable and wash-water shall have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road shall be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.</li> </ul> <p><u>Bentonite Slurries</u></p> <ul style="list-style-type: none"> <li>Bentonite slurries used in diaphragm wall and bore-pile construction shall be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the bentonite slurries shall either be dewatered or mixed with inert fill material for disposal to a public filling area.</li> <li>If the used bentonite slurry is intended to be disposed of through the public drainage system, it shall be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS.</li> </ul> <p><u>Water for Testing &amp; Sterilization of Water Retaining Structures and Water Pipes</u></p> <ul style="list-style-type: none"> <li>Water used in water testing to check leakage of structures and pipes shall be used for other purposes as far as practicable. Surplus unpolluted water will be discharged into storm drains.</li> <li>Sterilization is commonly accomplished by chlorination. Specific advice from EPD shall be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water shall be used again wherever practicable.</li> </ul> <p><u>Acid Cleaning, Etching and Pickling Wastewater</u></p> <ul style="list-style-type: none"> <li>Acidic wastewater generated from acid cleaning, etching, pickling and similar activities shall be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater shall be tankered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters.</li> </ul> <p><u>Wastewater from Site Facilities</u></p> <ul style="list-style-type: none"> <li>Wastewater collected from any temporary canteen kitchens, including that from basins, sinks and floor drains, shall be discharged into foul sewer via grease traps. In case connection to the public foul sewer is not feasible, wastewater generated from kitchens or canteen, if any, shall be collected in a temporary storage tank. A licensed waste collector shall be deployed to clean the temporary storage tank on a regular basis.</li> <li>Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass.</li> <li>Vehicle and plant servicing areas, vehicle wash bays and lubrication bays shall as far as possible be located within roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor. Oil leakage or spillage shall be contained and cleaned up immediately. Waste oil shall be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.</li> </ul>					<p style="text-align: center;">V</p> <p style="text-align: center;">V</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">V</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">V</p> <p style="text-align: center;">V</p>
S11.246 & 11.247	<p>Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment. The Contractor shall also be responsible for waste disposal and maintenance practices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment.</p>	<p>To minimize water quality impacts due to sewage generated from construction workforce</p>	<p>Contractor</p>	<p>Works areas</p>	<p>Construction Phase</p>	<p style="text-align: center;">N/A</p>
S11.248	<p>In case seepage of uncontaminated groundwater occurs, groundwater shall be pumped out from the works areas and discharged into the storm system via silt removal facilities. Uncontaminated groundwater from dewatering process shall also be discharged into the storm system via silt traps.</p>	<p>To minimize impact from discharge of uncontaminated groundwater</p>	<p>Contractor</p>	<p>Works areas</p>	<p>Construction Phase</p>	<p style="text-align: center;">V</p>

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S11.249	If land contaminated site is identified from the Stage 2 SI work (refer to Sections 11.188 to 11.191 of the EIA Report), the following mitigation measures shall be implemented for the identified contaminated area. Any transient pile of contaminated soil / material shall be minimized and shall be bottom-lined, banded and covered with impervious membrane during rain event to avoid generation of contaminated runoff. Appropriate intercepting channels and partial shelters shall be provided where necessary to prevent rainwater from collecting within trenches or footing excavations. Any contaminated water and wastewater generated from the decontamination process shall not be directly discharged to public sewers or site drainage. They shall be treated or tanked away as necessary for proper disposal in compliance with the TM-DSS.	To control site run-off generated from any potential contaminated works areas.	Contractor	Any potential contaminated areas to be identified from the Stage 2 SI	Construction Phase	N/A
S11.250 & S11.251	No direct discharge of groundwater from contaminated areas shall be adopted. If land contamination impact and generation of contaminated groundwater is identified from the Stage 2 SI works (refer to Sections 11.189 to 11.192 of the EIA Report), the following mitigation measures shall be adopted. Any contaminated groundwater shall be either properly treated in compliance with the requirements of the TM-DSS or properly recharged into the ground. If wastewater treatment is deployed for treating the contaminated groundwater, the wastewater treatment unit shall deploy suitable treatment processes (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (such as TPH) to an undetectable range. All treated effluent from the wastewater treatment plant shall meet the requirements as stated in TM-DSS and shall be discharged into the foul sewers. If groundwater recharging wells are deployed, the recharging wells shall be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells shall be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in Section 2.3 of the TM-DSS. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substance such as TPH products shall be removed as necessary by installing the petrol interceptor. The Contractor shall apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.	To minimize potential water quality impact from discharge of contaminated groundwater	Contractor	Any potential contaminated areas to be identified from the Stage 2 SI	Construction Phase	N/A
S11.252	The following good site practices shall be adopted for the proposed barging points: <ul style="list-style-type: none"> <li>• all vessels shall 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</li> <li>• all hopper barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material</li> <li>• construction activities shall not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site</li> <li>• loading of barges and hoppers shall be controlled to prevent splashing of material into the surrounding water. Barges or hoppers shall not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation</li> </ul>	To minimize water quality impacts generated from the barging points.	Contractor	Barging points	Construction Phase	N/A
S11.253	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas shall be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distances of 100 m shall be maintained between the discharge points of construction site effluent and the existing seawater intakes. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimize water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring shall be carried out in accordance with the WPCO license which is under the ambit of Regional Office (RO) of EPD.	To minimize water quality impact from effluent discharges from construction sites	Contractor	All construction works areas	Construction Phase	V



Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S11.254	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation shall be observed and complied with for control of chemical wastes.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V
S11.255	Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	N/A
S11.256	Disposal of chemical wastes shall be carried out in compliance with the Waste Disposal Ordinance. The "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes" published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: <ul style="list-style-type: none"> <li>Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.</li> <li>Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.</li> <li>Storage area shall be selected at a safe location on site and adequate space shall be allocated to the storage area.</li> </ul>	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V V V
<b>Waste Management Implications</b>						
<b>Construction Phase</b>						
S12.75	<b>Good Site Practices and Waste Reduction Measures</b> <ul style="list-style-type: none"> <li>Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites;</li> <li>Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures;</li> <li>Provision of sufficient waste disposal points and regular collection of waste;</li> <li>Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;</li> <li>Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and</li> <li>Separation of chemical wastes for special handling and appropriate treatment.</li> </ul>	To reduce waste management impacts	Contractor	All Work Sites	Construction Phase	V V V V N/A V
S12.76	<b>Good Site Practices and Waste Reduction Measures (con't)</b> <ul style="list-style-type: none"> <li>Sorting of demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.);</li> <li>Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li> <li>Encourage collection of aluminum cans by providing separate labeled bins to enable this waste to be segregated from other general refuse generated by the workforce;</li> <li>Proper storage and site practices to minimize the potential for damage or contamination of construction materials;</li> <li>Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and</li> <li>Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.</li> </ul>	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	N/A V V V V V
S12.77	<b>Good Site Practices and Waste Reduction Measures (con't)</b> The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan shall incorporate site specific factors, such as the	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis.					
S12.78	<b>Good Site Practices and Waste Reduction Measures (con't)</b> C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort.	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	N/A
S12.79	<b>Storage, Collection and Transportation of Waste</b> Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: <ul style="list-style-type: none"> <li>Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution;</li> <li>Maintain and clean storage areas routinely;</li> <li>Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and</li> <li>Different locations shall be designated to stockpile each material to enhance reuse.</li> </ul>	To minimize potential adverse environmental impacts arising from waste storage	Contractor	Work Sites	Construction Phase	N/A V V N/A
S12.80	<b>Storage, Collection and Transportation of Waste (con't)</b> Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal outlets. The following suggestions shall be enforced to minimize the potential adverse impacts: <ul style="list-style-type: none"> <li>Remove waste in timely manner</li> <li>Waste collectors shall only collect wastes prescribed by their permits</li> <li>Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers</li> <li>Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28)</li> <li>Waste shall be disposed of at licensed waste disposal facilities</li> <li>Maintain records of quantities of waste generated, recycled and disposed</li> </ul>	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	Work Sites	Construction Phase	V V N/A V V V
S12.81	<b>Storage, Collection and Transportation of Waste (con't)</b> <ul style="list-style-type: none"> <li>Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) shall be proposed.</li> </ul>	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	Work Sites	Construction Phase	V
S12.83 – 12.86	<b>Sorting of C&amp;D Materials</b> <ul style="list-style-type: none"> <li>Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site.</li> <li>Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials.</li> <li>The C&amp;D materials shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills.</li> <li>Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach tunnels.</li> </ul>	To minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials	Contractor	Work Sites	Construction Phase	V V V N/A
S12.88	<b>Sediments</b> <ul style="list-style-type: none"> <li>The basic requirements and procedures for excavated / dredged sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is managing the disposal facilities in Hong Kong for the dredged and excavated sediment, while EPD is the authority of issuing</li> </ul>	To ensure the sediment to be disposed of in an authorized and least impacted way	Contractor	All works areas with sediments concern	Construction Phase	N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	marine dumping permit under the Dumping at Sea Ordinance.					
S12.89	<p><b>Sediments (con't)</b></p> <ul style="list-style-type: none"> <li>The contractor for the excavation / dredging works shall apply for the site allocations of marine sediment disposal based on the prior agreement with MFC/CEDD. A request for reservation of sediment disposal space have been submitted to MFC for onward discussions of disposal approach and feasible disposal sites and the letter is attached in Appendix 12.6. The Project proponent shall also be responsible for the application of all necessary permits from relevant authorities, including the dumping permit as required under DASO from EPD, for the disposal of dredged and excavated sediment prior to the commencement of the excavation works.</li> </ul>	To determine the best handling and disposal option of the sediments	MTR / Contractor	All works areas with sediments concern	Detailed Design Stage and Construction Phase	N/A
S12.91 – 12.94	<p><b>Sediments (con't)</b></p> <ul style="list-style-type: none"> <li>Stockpiling of contaminated sediments shall be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment shall be covered by tarpaulin and the area shall be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas shall be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas shall be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO).</li> <li>In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.</li> <li>The barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP.</li> <li>In order to minimise the exposure to contaminated materials, workers shall, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site.</li> </ul>	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	N/A
S12.95	<p><b>Sediments (con't)</b></p> <ul style="list-style-type: none"> <li>A possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal. The technology is readily available for the manufacture of the geosynthetic containers to the project-specific requirements. Similar disposal methods have been used for projects in Europe, the USA and Japan and the issues of fill retention by the geosynthetic fabrics, possible rupture of the containers and sediment loss due to impact of the container on the seabed have been addressed.</li> </ul>	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	N/A
S12.97	<p><b>Containers for Storage of Chemical Waste</b></p> <p>The Contractor shall register with 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. Containers used for storage of chemical waste shall:</p> <ul style="list-style-type: none"> <li>Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed;</li> <li>Have a capacity of less than 450 liters unless the specifications have been approved by EPD; and</li> </ul>	To register with EPD as a Chemical waste producer and store chemical waste in appropriate containers	Contractor	Work Sites	Construction Phase	V V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	<ul style="list-style-type: none"> <li>Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation.</li> </ul>					V
S12.98	<p><b>Chemical Waste Storage Area</b></p> <ul style="list-style-type: none"> <li>Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only;</li> <li>Be enclosed on at least 3 sides;</li> <li>Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest;</li> <li>Have adequate ventilation;</li> <li>Be covered to prevent rainfall from entering; and</li> <li>Be properly arranged so that incompatible materials are adequately separated.</li> </ul>	To prepare appropriate storage areas for chemical waste at works areas	Contractor	Work Sites	Construction Phase	V V V V V
S12.99	<p><b>Chemical Waste</b></p> <ul style="list-style-type: none"> <li>Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place.</li> </ul>	To clearly label the chemical waste at works areas	Contractor	Work Sites	Construction Phase	V
S12.100	<p><b>Collection and Disposal of Chemical Waste</b> <i>A trip-ticket system shall be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation</i> to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the <i>Waste Disposal (Chemical Waste) (General) Regulation</i>.</p>	To monitor the generation, reuse and disposal of chemical waste	Contractor	Work Sites	Construction Phase	N/A
S12.101	<p><b>General Refuse</b> General refuse shall be stored in enclosed bins or compaction units separate from C&amp;D materials and chemical waste. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&amp;D materials and chemical wastes. Preferably, an enclosed and covered area shall be provided to reduce the occurrence of wind-blown light material.</p>	To properly store and separate from other C&D materials for subsequent collection and disposal	Contractor	Work Sites	Construction Phase	V
S12.102	<p><b>General Refuse (con't)</b> The recyclable component of general refuse, such as aluminum cans, paper and cleansed plastic containers shall be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste shall be set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.</p>	To facilitate recycling of recyclable portions of refuse	Contractor	Work Sites	Construction Phase	V
S12.103	<p><b>General Refuse (con't)</b> The Contractor shall carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins shall also be provided in the sites as reminders.</p>	To raise workers' awareness on recycling issue	Contractor	Work Sites	Construction Phase	V
/	<p><b>Accidental spillage</b> To prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> <li>Proper storage and handling facilities will be provided.</li> <li>All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains.</li> <li>The contractor will register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings.</li> <li>Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.</li> </ul>	To minimize potential adverse environmental impacts arising from accidental spillage	Contractor	Work Sites	Construction Phase	V V V V
<b>Land Contamination Impact</b>						
S13.23–13.24	<p>For construction works at sites under the current stage of site investigation (Stage 1 SI):</p> <ul style="list-style-type: none"> <li>Precautionary measures such as visual inspection are recommended to be undertaken during construction activities that disturb soil. The inspection process shall involve a visual observation of excavated soils for discolouration and the presence of oils, together with identifying the presence of</li> </ul>	To act as a general precautionary measure to screen soils for the presence contamination	Contractor	Within Project Boundary where signs of contamination is identified	During excavation works for Cut-and-Cover	N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	<p>odours, which may also indicate soil and/or groundwater contamination.</p> <ul style="list-style-type: none"> <li>If soil materials suspected to be contaminated are encountered during excavation, sampling and testing shall be undertaken to verify the presence of contamination. The soil extracted during demolition, excavation and cut &amp; cover construction shall be temporary stockpiled. Shall concentrations of contaminants of concern (COCs) exceed relevant RBRGs as indicated by laboratory analyses, remediation works shall be undertaken with reference to the Contamination Assessment Report (CAR) and Remediation Action Plans (RAP).</li> </ul>	during excavation works for Cut-and-Cover.				
S13.30	<p>For some sites with currently no SI proposed (i.e. sites ID 2-02, 2-18, 2-22, 2-23, 2-27, 2-28), to be conservative, visual inspection shall be conducted during demolition and excavation to detect any abnormal colour, smell or other characteristics of the soil, due to the nearby land use and/ or construction method. If abnormal colour, smell or other characteristics of contamination are identified for any of these sites, sampling and testing shall be undertaken to verify the presence of contamination. The soil extracted during demolition, excavation and cut &amp; cover construction shall be temporary stockpiled. Should the concentrations of contaminants of concern (COCs) exceed relevant RBRGs as indicated by laboratory analyses, remediation works shall be undertaken with reference to the CAR and RAP.</p>	To act as a general precautionary measure to screen soils for the presence contamination during excavation works for Cut-and-Cover.	Contractor	Areas with no SI proposed (Sites ID 2-02, 2-18, 2-22, 2-23, 2-27, 2-28)	During excavation works for Cut-and-Cover	N/A
S13.36 – 13.38	<p>For areas inaccessible for proper site appraisal and investigation (Stage 2 SI)</p> <p>(i) Site 2-15</p> <ul style="list-style-type: none"> <li>Upon site access being granted, visual inspection shall be carried out where intrusive works and soil excavation is encountered, for attention on any potential contamination due to its current operation</li> <li>A supplementary CAP shall then be submitted to EPD for endorsement.</li> <li>A CAR/RAP shall be prepared and submitted to EPD for endorsement on completion of the SI and analytical testing.</li> <li>Shall remediation be undertaken a Remediation Report (RR) shall be prepared and submitted to EPD for endorsement to demonstrate that the decontamination work is adequate and is carried out in accordance with the endorsed CAR and RAP. Information such as soil treatment/ disposal records (including trip tickets), confirmatory sampling results, and photographs shall be included in the aforesaid RR.</li> <li>No construction work shall be carried out prior to the endorsement of the RR by EPD.</li> </ul>	<p>To identify areas with land contamination concern, report laboratory results and propose remediation measures if necessary.</p> <p>To ensure remediation works have been undertaken to before the commencement of any construction works of the Project.</p>	Contractor	Areas unable to be accessed during Stage 1 SI (Site 2-15)	After land resumption and prior to the construction works commencement at the site	N/A
S13.39	<p>Potential Remediation of Contaminated Soil</p> <ul style="list-style-type: none"> <li>Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety;</li> <li>Excavation shall be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils;</li> <li>Supply of suitable clean backfill material is needed after excavation;</li> <li>If remediation is required with chemical oxidation proposed as a contaminant mass reduction technology, chemicals will be securely and separately stored away from sources of ignition or oxidisable items. Handling will be undertaken by personnel with appropriate training and personal protective equipment (PPE).</li> <li>Vehicles containing any excavated materials shall be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates shall be sealed to prevent any discharge during transport or during wet conditions;</li> <li>Speed control for the trucks carrying contaminated materials shall be enforced;</li> <li>Vehicle wheel and body washing facilities at the site's exit points shall be established and used; and</li> <li>Pollution control measures for air emissions e.g. from biopile blower, noise emissions e.g. from blower, and water discharges e.g. runoff control shall be implemented and complied with relevant regulations and guidelines.</li> </ul>	To remediate contaminated soil	Contractor	Identified contaminated sites	Site remediation	N/A
S13. 40	<p>In order to minimize the potential adverse effects on health and safety of construction workers during the course of site remediation, the Occupation Safety and Health Ordinance (OSHO) (Chapter 509) and its subsidiary Regulations shall be followed by all site personnel working on the site at all times. In addition, the following basic health and safety measures shall be implemented as far as possible:</p> <ul style="list-style-type: none"> <li>Set up a list of safety measures for site workers;</li> <li>Provide written information and training on safety for site workers;</li> <li>Keep a log-book and plan showing the contaminated zones and clean zones;</li> </ul>	To minimise the potentially adverse effects on health and safety of construction workers during the course of site	Contractor	Identified contaminated sites	Site remediation and prior to construction phase	N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	<ul style="list-style-type: none"> <li>• Maintain a hygienic working environment;</li> <li>• Avoid dust generation;</li> <li>• Provide face and respiratory protection gear to site workers;</li> <li>• Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers; and</li> <li>• Provide first aid training and materials to site workers.</li> </ul>	remediation.				

Legend: V = implemented;  
 x = not implemented;  
 @ = partially implemented;  
 N/A = not applicable

---

**APPENDIX D**

**Summary of Action and Limit Levels**

---

**Appendix D – Summary of Action and Limit Levels****Table 1 Action and Limit Levels for 24-hour TSP**

ID	Location	Action Level	Limit Level
AM2 <sup>[1]</sup>	Wan Chai Sports Ground	160 µg/m <sup>3</sup>	260 µg/m <sup>3</sup>
AM3 <sup>[2][3]</sup>	Existing Harbour Road Sports Centre	169 µg/m <sup>3</sup>	260 µg/m <sup>3</sup>
AM4 <sup>[4]</sup>	Pedestrian Plaza	198 µg/m <sup>3</sup>	260 µg/m <sup>3</sup>

Note:

[1] The impact monitoring at AM2 was handed over from Contract SCL1128 on 28 October 2015.

[2] The impact monitoring at AM3 was handed over from Contract SCL1126 in June 2015.

[3] The impact monitoring at AM3 terminated on 6 May 2017 as demolition of Existing Harbour Road Sports Centre commenced on 8 May 2017.

[4] The impact monitoring at AM4 will be handed over from Contract SCL1128 in April 2021.

**Table 2 Action and Limit Levels for Construction Noise  
(0700 – 1900 hrs of normal weekdays)**

ID	Location	Action Level	Limit Level
NM2 <sup>[1]</sup>	Harbour Centre <sup>[2]</sup>	When one documented complaint is received	75 dB(A)

Note:

[1] The impact monitoring at NM2 was handed over from Works Contract SCL1126 in June 2015.

[2] The Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring under Works Contract 1126. An alternative monitoring location at Harbour Centre was approved by the ER, agreed by IEC. The alternative monitoring location was approved by EPD on 18 December 2017.



---

**APPENDIX E**

**Calibration Certificates of Equipments**

---

**AECOM Asia Company Limited**  
**TSP High Volume Sampler**  
**Field Calibration Report**

Station Wanchai Sports Ground Operator: Choi Wing Ho  
 Cal. Date: 14-Jun-22 Next Due Date: 14-Aug-22  
 Equipment No.: A-001-72T Serial No. 809

Ambient Condition			
Temperature, Ta (K)	298	Pressure, Pa (mmHg)	752.0

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	2.02086	Intercept, bc	-0.03672
Last Calibration Date:	27-Dec-21	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Dec-22				

Calibration of TSP Sampler					
Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m <sup>3</sup> /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	6.8	2.59	1.30	43.0	42.77
13	5.9	2.42	1.21	39.0	38.79
10	4.5	2.11	1.06	32.0	31.83
7	3.5	1.86	0.94	27.0	26.86
5	2.5	1.57	0.80	21.0	20.89

By Linear Regression of Y on X

Slope, mw = 43.3106 Intercept, bw = -13.7959

Correlation Coefficient\* = 0.9993

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

**Set Point Calculation**

From the TSP Field Calibration Curve, take Qstd = 1.30m<sup>3</sup>/min

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

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

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]<sup>1/2</sup> = 42.73

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

QC Reviewer: WS CHAN

Signature: [Signature]

Date: 14/06/22

**AECOM Asia Company Limited**  
**TSP High Volume Sampler**  
**Field Calibration Report**

Station Wanchai Sports Ground Operator: Choi Wing Ho  
 Cal. Date: 11-Aug-22 Next Due Date: 11-Oct-22  
 Equipment No.: A-001-72T Serial No. 809

Ambient Condition			
Temperature, Ta (K)	302.9	Pressure, Pa (mmHg)	752.0

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	2.02086	Intercept, bc	-0.03672
Last Calibration Date:	27-Dec-21	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Dec-22				

Calibration of TSP Sampler					
Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)] <sup>1/2</sup>	Qstd (m <sup>3</sup> /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	6.9	2.59	1.30	43.0	42.43
13	5.9	2.40	1.20	39.0	38.48
10	4.5	2.09	1.05	32.0	31.57
7	3.5	1.85	0.93	27.0	26.64
5	2.5	1.56	0.79	22.0	21.71

By Linear Regression of Y on X

Slope, mw = 41.1705 Intercept, bw = -11.3138

Correlation Coefficient\* = 0.9974

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

**Set Point Calculation**

From the TSP Field Calibration Curve, take Qstd = 1.30m<sup>3</sup>/min

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

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

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]<sup>1/2</sup> = 42.78

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

QC Reviewer: WS CHAN Signature:  Date: 11/08/22

# AECOM Asia Company Limited

## TSP High Volume Sampler

### Field Calibration Report

Station Pedestrian Plaza Operator: Choi Wing Ho  
 Cal. Date: 14-Jun-22 Next Due Date: 14-Aug-22  
 Equipment No.: A-001-70T Serial No. 10273

Ambient Condition			
Temperature, Ta (K)	299	Pressure, Pa (mmHg)	752.0

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	2.02086	Intercept, bc	-0.03672
Last Calibration Date:	27-Dec-21	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Dec-22				

Calibration of TSP Sampler					
Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)] <sup>1/2</sup>	Qstd (m <sup>3</sup> /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	7.1	2.65	1.33	44.0	43.69
13	6.0	2.43	1.22	39.0	38.73
10	5.0	2.22	1.12	34.0	33.76
7	3.8	1.94	0.98	26.0	25.82
5	2.8	1.66	0.84	20.0	19.86

**By Linear Regression of Y on X**

Slope, mw = 49.6983 Intercept, bw = -22.1248

Correlation Coefficient\* = 0.9985

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

**Set Point Calculation**

From the TSP Field Calibration Curve, take Qstd = 1.30m<sup>3</sup>/min

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

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

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]<sup>1/2</sup> = 42.78

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

QC Reviewer: W S CHAN

Signature: [Signature]

Date: 14/6/22

# AECOM Asia Company Limited

## TSP High Volume Sampler

### Field Calibration Report

Station: Pedestrian Plaza Operator: Choi Wing Ho  
 Cal. Date: 11-Aug-22 Next Due Date: 11-Oct-22  
 Equipment No.: A-001-70T Serial No.: 10273

Ambient Condition			
Temperature, Ta (K)	302.9	Pressure, Pa (mmHg)	752.0

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	2.02086	Intercept, bc	-0.03672
Last Calibration Date:	27-Dec-21	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Dec-22				

Calibration of TSP Sampler					
Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)] <sup>1/2</sup>	Qstd (m <sup>3</sup> /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	7.0	2.61	1.31	43.0	42.43
13	6.0	2.42	1.21	39.0	38.48
10	5.0	2.21	1.11	34.0	33.55
7	3.7	1.90	0.96	26.0	25.65
5	2.8	1.65	0.84	20.0	19.73

**By Linear Regression of Y on X**

Slope, mw = 48.3979 Intercept, bw = -20.5572  
 Correlation Coefficient\* = 0.9988

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

**Set Point Calculation**

From the TSP Field Calibration Curve, take Qstd = 1.30m<sup>3</sup>/min

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

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

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]<sup>1/2</sup> = 42.93

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

QC Reviewer: WIS CHAN Signature: [Signature] Date: 11/08/22

# Certificate of Calibration

Calibration Certification Information			
Cal. Date: December 27, 2021	Rootsmeter S/N: 438320	Ta: 295	°K
Operator: Jim Tisch		Pa: 740.4	mm Hg
Calibration Model #: TE-5025A	Calibrator S/N: <b>0843</b>		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.3770	3.2	2.00
2	3	4	1	0.9710	6.4	4.00
3	5	6	1	0.8740	7.9	5.00
4	7	8	1	0.8340	8.8	5.50
5	9	10	1	0.6870	12.7	8.00

Data Tabulation					
Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left( \frac{Pa}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H (Ta/Pa)}$ (y-axis)
0.9799	0.7116	1.4029	0.9957	0.7231	0.8927
0.9756	1.0048	1.9841	0.9914	1.0210	1.2624
0.9736	1.1140	2.2183	0.9893	1.1320	1.4114
0.9724	1.1660	2.3265	0.9881	1.1848	1.4803
0.9673	1.4079	2.8059	0.9828	1.4306	1.7853
<b>QSTD</b>	m=	<b>2.02086</b>	<b>QA</b>	m=	<b>1.26543</b>
	b=	<b>-0.03672</b>		b=	<b>-0.02336</b>
	r=	<b>0.99992</b>		r=	<b>0.99992</b>

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

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg
Key	
ΔH: calibrator manometer reading (in H2O)	
ΔP: rootsmeter manometer reading (mm Hg)	
Ta: actual absolute temperature (°K)	
Pa: actual barometric pressure (mm Hg)	
b: intercept	
m: slope	

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



## CERTIFICATE OF CALIBRATION

Certificate No.: 21CA1019 03-01 Page 1 of 2

### Item tested

Description:	Sound Level Meter (Class 1)	Microphone	Preamp
Manufacturer:	B & K	B & K	B & K
Type/Model No.:	2250	4950	ZC0032
Serial/Equipment No.:	3001291	3005374	23853
Adaptors used:	-	-	-

### Item submitted by

Customer Name:	AECOM ASIA CO LIMITED
Address of Customer:	-
Request No.:	-
Date of receipt:	19-Oct-2021

Date of test: 21-Oct-2021

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2022	CIGISMEC
Signal generator	DS 360	61227	31-Dec-2021	CEPREI

### Ambient conditions

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

### Test specifications

- 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.
- 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%.
- 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 responsiveness 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:  Date: 22-Oct-2021 Company Chop: 

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.



## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA1019 03-01 Page 2 of 2

### 1, Electrical Tests

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

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

### 2, Acoustic tests

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

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

### 3, Response to associated sound calibrator

N/A

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

Calibrated by:  Date: 21-Oct-2021  
Checked by:  Date: 22-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.



## CERTIFICATE OF CALIBRATION

Certificate No.: 21CA0929 03 Page 1 of 2

### Item tested

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

### Item submitted by

Customer Name: AECOM ASIA CO. LTD.  
 Address of Customer: -  
 Request No.: -  
 Date of receipt: 29-Sep-2021

Date of test: 05-Oct-2021

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2022	CIGISMEC
Signal generator	DS 360	61227	31-Dec-2021	CEPREI

### Ambient conditions

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

### Test specifications

- 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.
- 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%.
- 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 responsiveness 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:  Date: 06-Oct-2021 Company Chop: 

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.



## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA0929 03 Page 2 of 2

### 1, Electrical Tests

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

Test:	Subtest:	Status:	Uncertainty (dB) / Coverage Factor	
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0 2.1	
	Lin	Pass	2.0 2.2	
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
Linearity range for SPL	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
	Frequency weightings	A	Pass	0.3
Time weightings	C	Pass	0.3	
	Lin	Pass	0.3	
	Single Burst Fast	Pass	0.3	
Peak response	Single Burst Slow	Pass	0.3	
	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
Pulse range	1 ms burst duty factor 1/10 <sup>4</sup> at 4kHz	Pass	0.3	
	Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4
	Overload indication	Single burst 10 ms at 4 kHz	Pass	0.4
Leq	SPL	Pass	0.3	
	Leq	Pass	0.4	

### 2, Acoustic tests

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

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

### 3, Response to associated sound calibrator

N/A

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

Calibrated by:  Date: 05-Oct-2021  
 Checked by:  Date: 06-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.





## CERTIFICATE OF CALIBRATION

Certificate No.: 21CA1105 03 Page: 1 of 2

### Item tested

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

### Item submitted by

Customer: AECOM ASIA CO LIMITED  
 Address of Customer: -  
 Request No.: -  
 Date of receipt: 05-Nov-2021

Date of test: 08-Nov-2021

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	04-May-2022	SCL
Preamplifier	B&K 2673	2743150	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 %  
 Air pressure: 1005 ± 5 hPa

### 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.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- 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:  Date: 09-Nov-2021 Company Chop: 

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.



## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA1105 03 Page: 2 of 2

### 1, Measured Sound Pressure Level

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

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	94.05	0.10

(Output level in dB re 20 µPa)

### 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 = 0.014 dB  
 Estimated expanded uncertainty 0.005 dB

### 3, Actual Output Frequency

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

At 1000 Hz Actual Frequency = 1000.0 Hz  
 Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

### 4, Total Noise and Distortion

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

At 1000 Hz TND = 0.5 %  
 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.

Calibrated by:  Date: 08-Nov-2021  
 Checked by:  Date: 09-Nov-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.



## CERTIFICATE OF CALIBRATION

Certificate No.: 21CA1019 03-02 Page: 1 of 2

### Item tested

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

### Item submitted by

Customer: AECOM ASIA CO LIMITED  
 Address of Customer: -  
 Request No.: -  
 Date of receipt: 19-Oct-2021

Date of test: 21-Oct-2021

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable 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 %  
 Air pressure: 1005 ± 5 hPa

### 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.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- 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:  Date: 22-Oct-2021 Company Chop: 

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.



## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA1019 03-02 Page: 2 of 2

### 1, Measured Sound Pressure Level

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

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

(Output level in dB re 20 µPa)

### 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 0.005 dB

### 3, Actual Output Frequency

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

At 1000 Hz Actual Frequency = 1002.1  
 Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

### 4, Total Noise and Distortion

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

At 1000 Hz TND = 1.7 %  
 Estimated expanded uncertainty 0.7 %

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

Calibrated by:  Date: 21-Oct-2021  
 Checked by:  Date: 22-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.

---

**APPENDIX F**

**EM&A Monitoring Schedules**

---

**Shatin to Central Link Contract 1123 - Exhibition Station and Western Approach Tunnel  
Impact Monitoring Schedule for August 2022**

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

**Air Quality Monitoring Station**

AM2 Wan Chai Sports Ground  
AM4 Pedestrian Plaza

**Noise Monitoring Station**

NM2 Harbour Centre

**Monitoring Frequency**

24-hr TSP Once every 6 days

**Monitoring Frequency**

Once per week

**Shatin to Central Link Contract 1123 - Exhibition Station and Western Approach Tunnel  
Tentative Impact Monitoring Schedule for September 2022**

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

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

**Air Quality Monitoring Station**

AM2 Wan Chai Sports Ground  
AM4 Pedestrian Plaza

**Noise Monitoring Station**

NM2 Harbour Centre

**Monitoring Frequency**

24-hr TSP Once every 6 days

**Monitoring Frequency**

Once per week

**Shatin to Central Link Contract 1123 - Exhibition Station and Western Approach Tunnel  
Tentative Impact Monitoring Schedule for October 2022**

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

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

**Air Quality Monitoring Station**

AM2 Wan Chai Sports Ground  
AM4 Pedestrian Plaza

**Noise Monitoring Station**

NM2 Harbour Centre

**Monitoring Frequency**

24-hr TSP Once every 6 days

**Monitoring Frequency**

Once per week

**Shatin to Central Link Contract 1123 - Exhibition Station and Western Approach Tunnel  
Tentative Impact Monitoring Schedule for November 2022**

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

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

**Air Quality Monitoring Station**

AM2 Wan Chai Sports Ground  
AM4 Pedestrian Plaza

**Noise Monitoring Station**

NM2 Harbour Centre

**Monitoring Frequency**

24-hr TSP Once every 6 days

**Monitoring Frequency**

Once per week

---

**APPENDIX G**

**Air Quality Monitoring Results and  
their Graphical Presentations**

---



**Appendix G**  
**Air Quality Monitoring Results**

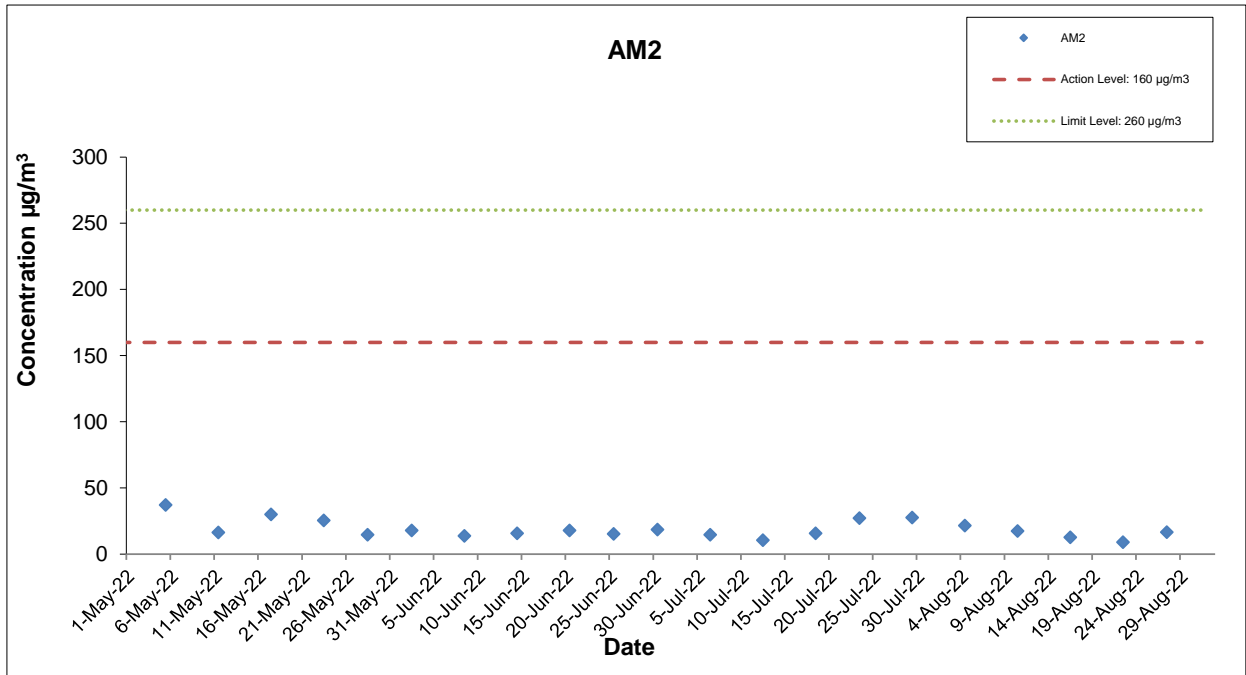
24-hour TSP Monitoring Results at Station AM2 (Wan Chai Sports Ground)

Start		End		Weather Condition	Air Temp. (°C)	Atmospheric Pressure (hPa)	Flow Rate (m <sup>3</sup> /min.)		Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. (µg/m <sup>3</sup> )
Date	Time	Date	Time				Initial	Final			Initial	Final		Initial	Final		
4-Aug-22	0:00	5-Aug-22	0:00	Rainy	27.1	1004.5	1.34	1.34	1.34	1925.3	2.7740	2.8153	0.0413	29072.67	29096.67	24.00	21.5
10-Aug-22	0:00	11-Aug-22	0:00	Rainy	27.4	1004.1	1.34	1.34	1.34	1925.3	2.7874	2.8208	0.0334	29096.67	29120.67	24.00	17.3
16-Aug-22	0:00	17-Aug-22	0:00	Fine	29.4	1005.6	1.34	1.34	1.34	1925.3	2.7617	2.7860	0.0243	29120.67	29144.67	24.00	12.6
22-Aug-22	0:00	23-Aug-22	0:00	Sunny	30.1	1006.9	1.34	1.34	1.34	1925.3	2.7674	2.7845	0.0171	29144.67	29168.67	24.00	8.9
27-Aug-22	0:00	28-Aug-22	0:00	Sunny	29.7	1009.2	1.34	1.34	1.34	1925.3	2.7651	2.7970	0.0319	29168.67	29192.67	24.00	16.6
<b>Average</b>																<b>15.4</b>	
<b>Minimum</b>																<b>8.9</b>	
<b>Maximum</b>																<b>21.5</b>	

**Appendix G  
Air Quality Monitoring Results**

**24-hour TSP Monitoring Results at Station AM4 (Pedestrian Plaza)**

Start		End		Weather Condition	Air Temp. (°C)	Atmospheric Pressure (hPa)	Flow Rate (m <sup>3</sup> /min.)		Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. (µg/m <sup>3</sup> )
Date	Time	Date	Time				Initial	Final			Initial	Final		Initial	Final		
4-Aug-22	0:00	7-Jul-22	0:00	Rainy	27.1	1004.5	1.33	1.33	1.33	1921.0	2.7691	2.8531	0.0840	28799.07	28823.07	24.00	43.7
10-Aug-22	0:00	13-Jul-22	0:00	Rainy	27.4	1004.1	1.33	1.33	1.33	1921.0	2.7765	2.8138	0.0373	28703.07	28727.07	24.00	19.4
16-Aug-22	0:00	19-Jul-22	0:00	Fine	29.4	1005.6	1.33	1.33	1.33	1921.0	2.7572	2.8005	0.0433	28727.07	28751.07	24.00	22.5
22-Aug-22	0:00	23-Aug-22	0:00	Sunny	30.1	1006.9	1.33	1.33	1.33	1916.6	2.7606	2.7900	0.0294	28751.07	28775.07	24.00	15.3
27-Aug-22	0:00	28-Aug-22	0:00	Sunny	29.7	1009.2	1.33	1.33	1.33	1921.0	2.7685	2.8206	0.0521	28775.07	28799.07	24.00	27.1
<b>Average</b>																25.6	
<b>Minimum</b>																15.3	
<b>Maximum</b>																43.7	



\* The monitoring station at AM2 was handed over from Contract SCL1128 on 28 October 2015.

This Drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent.

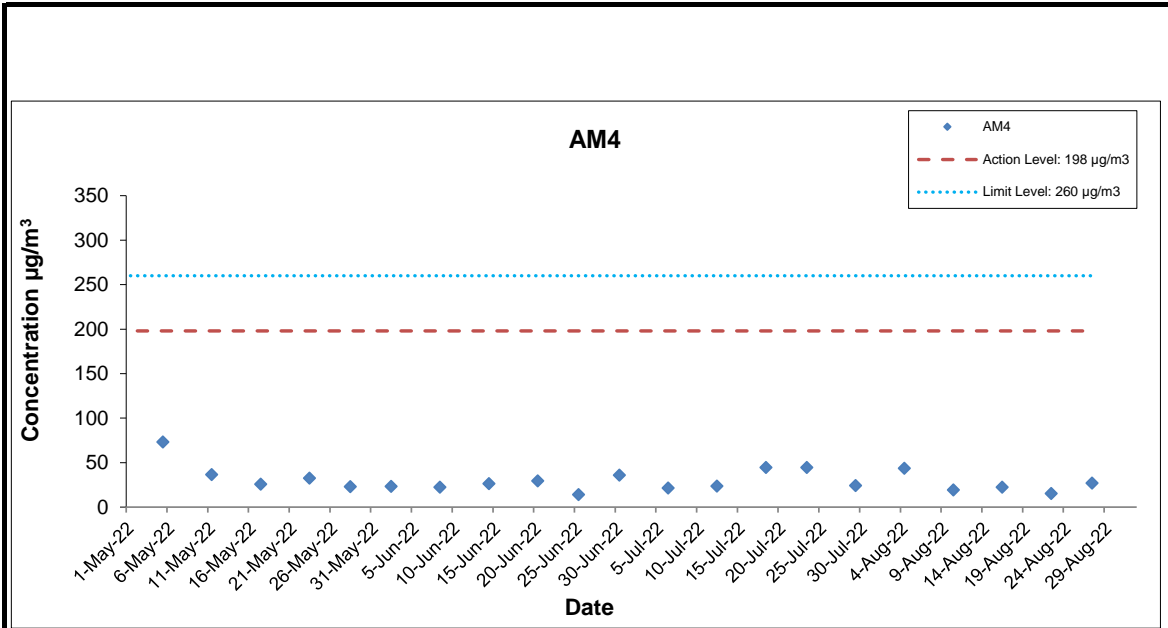
**Shatin Central Link Contract No. 1123**  
**Exhibition Station and Western Approach Tunnel**



**Graphical Presentation of Impact 24-hr TSP  
 Monitoring Results**

Date: September 2022

Appendix G



\* The impact monitoring at AM4 will be handed over from Contract SCL1128 in April 2021.

This Drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent.

**Shatin Central Link Contract No. 1123**  
**Exhibition Station and Western Approach Tunnel**



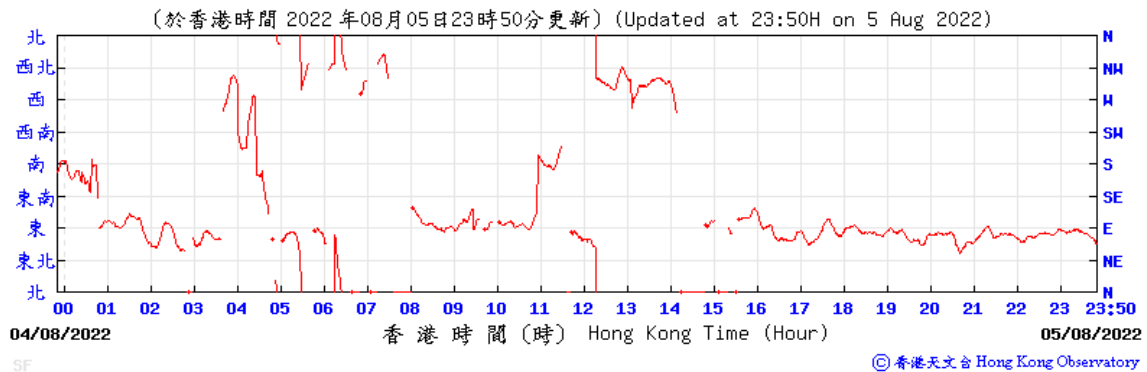
**Graphical Presentation of Impact 24-hr TSP  
 Monitoring Results**

Date: September 2022

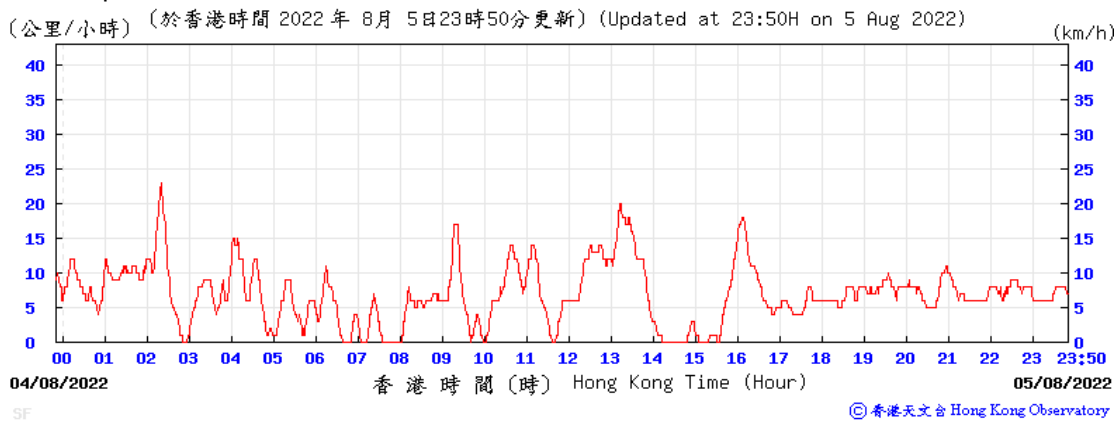
Appendix G

Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station  
August 2022

Wind Direction:

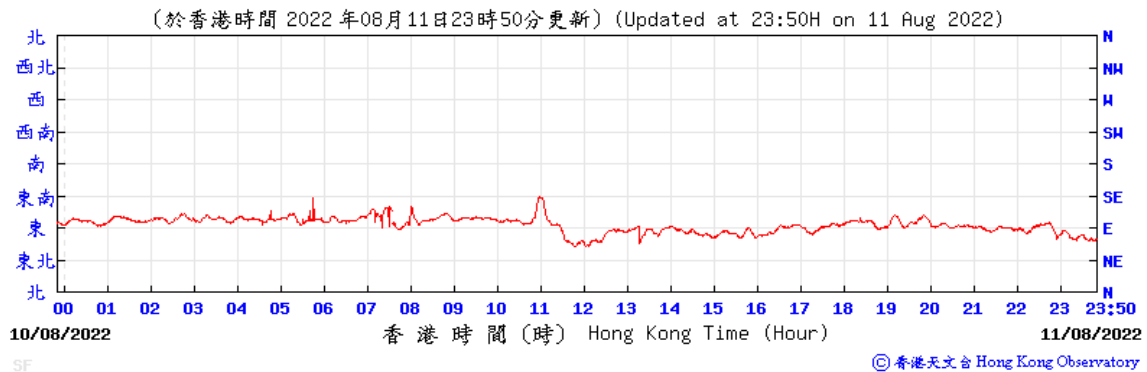


Wind Speed:

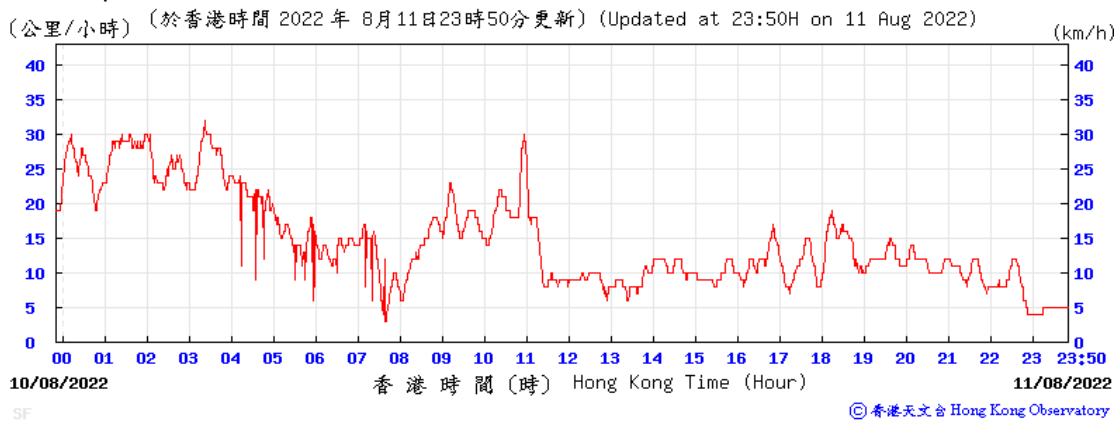


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station  
August 2022

Wind Direction:

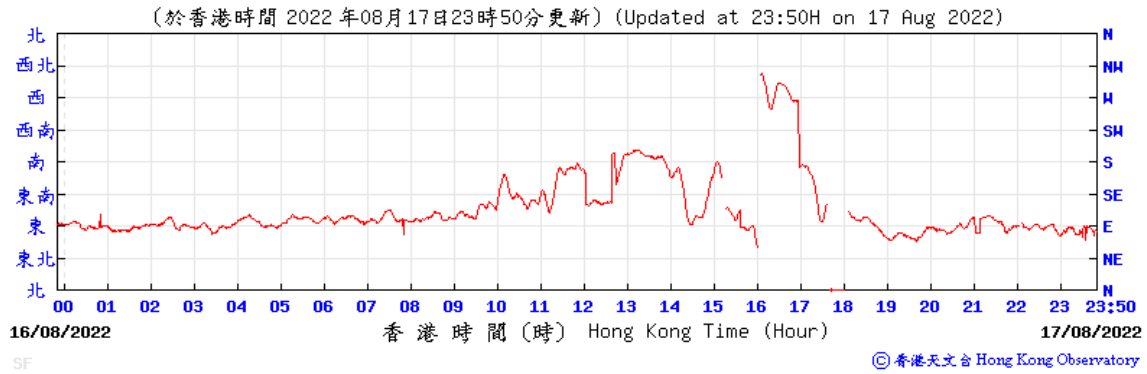


Wind Speed:

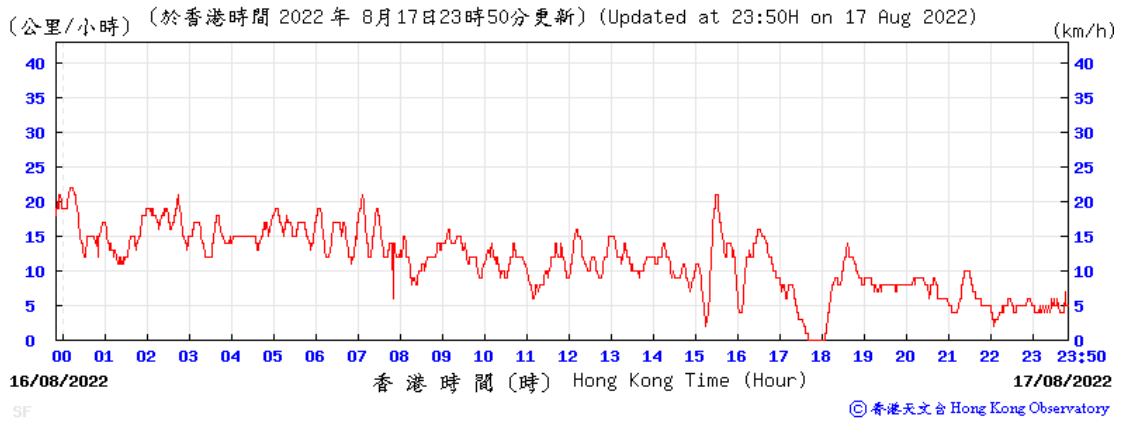


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station  
August 2022

Wind Direction:

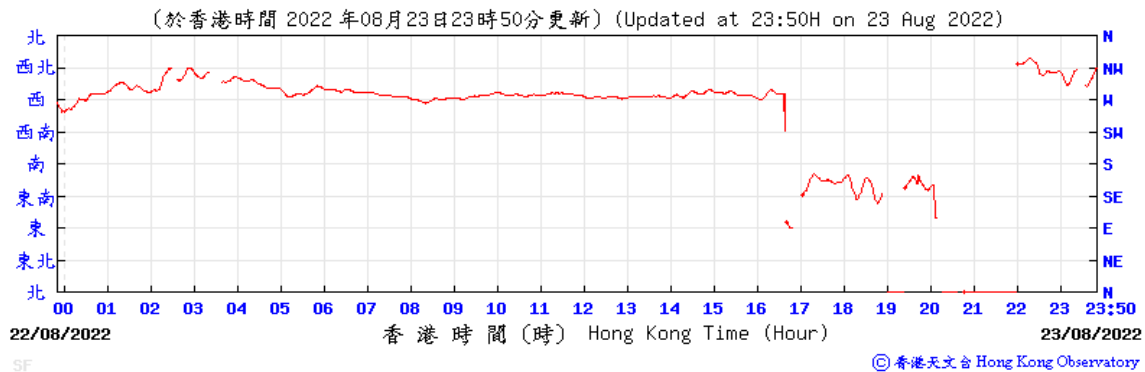


Wind Speed:

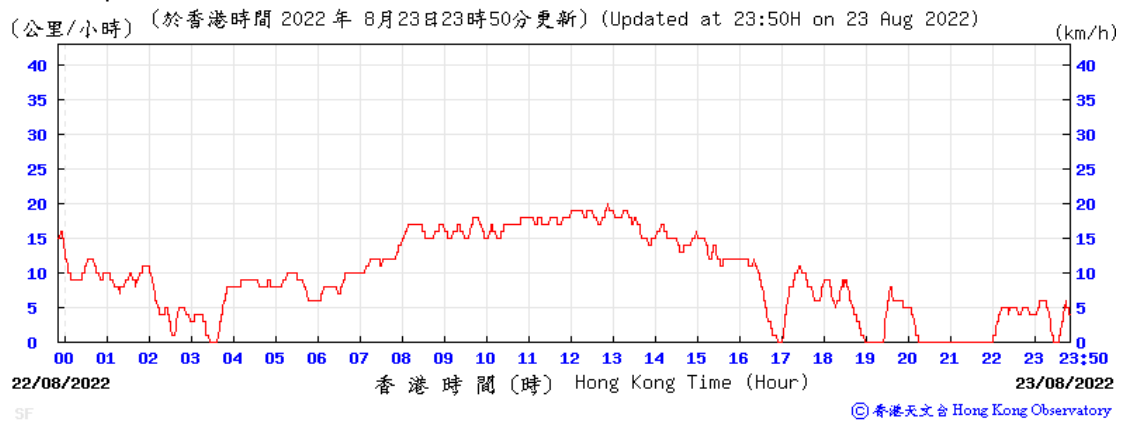


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station  
August 2022

Wind Direction:



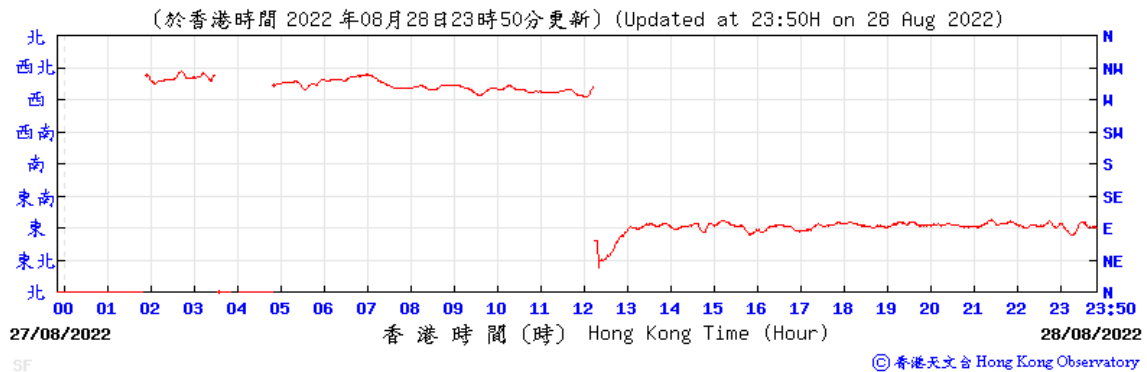
Wind Speed:



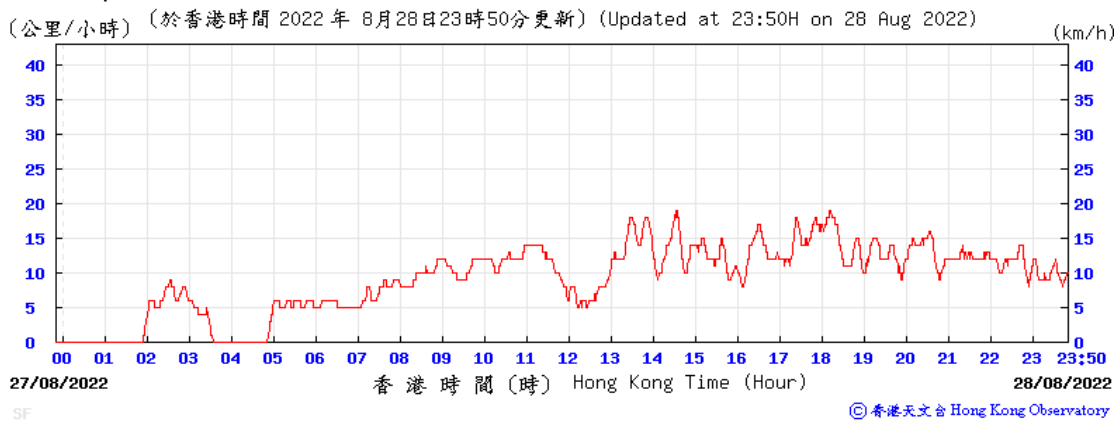


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station  
August 2022

Wind Direction:



Wind Speed:



---

**APPENDIX H**

**Noise Monitoring Results and  
their Graphical Presentations**

---

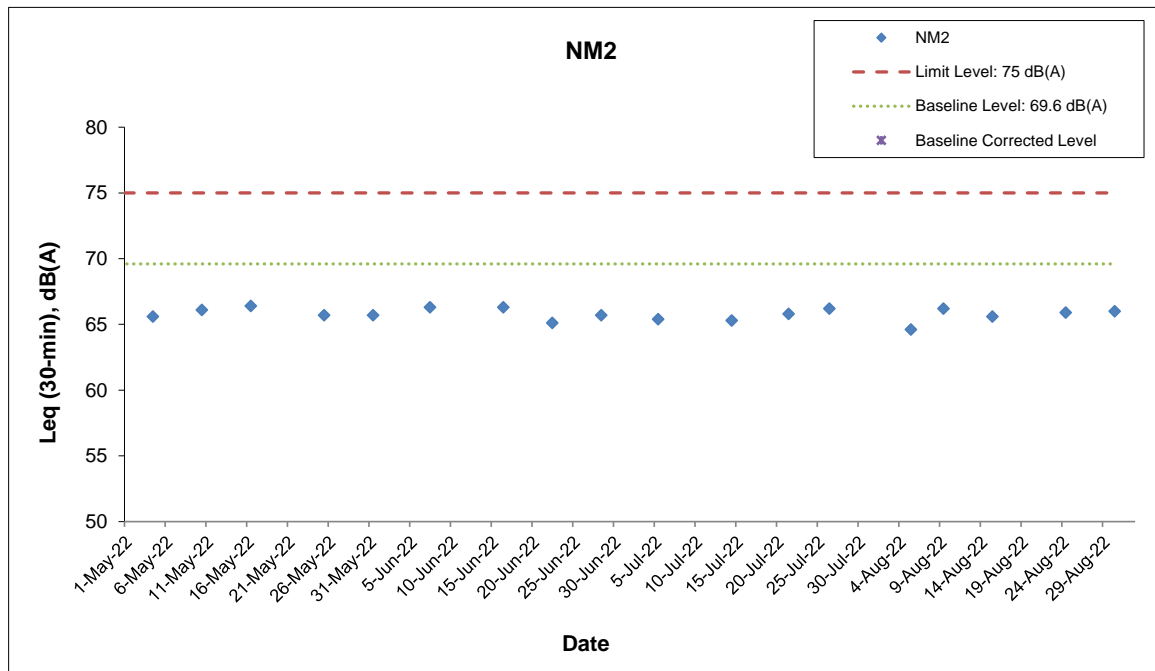
## Appendix H Regular Construction Noise Monitoring Results

Daytime Noise Monitoring Results at Station NM2 (Harbour Centre)

Date	Weather Condition	Noise Level for 30-min, dB(A) <sup>+</sup>				Baseline Corrected Level, dB(A)	Baseline Noise Level, dB(A)	Limit Level, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
5-Aug-22	Cloudy	11:30	61.3	65.3	64.6	<Baseline	69.6	75	N
9-Aug-22	Cloudy	13:20	62.8	67.1	66.2	<Baseline	69.6	75	N
15-Aug-22	Sunny	11:05	63.8	67.7	65.6	<Baseline	69.6	75	N
24-Aug-22	Sunny	11:00	64.2	66.7	65.9	<Baseline	69.6	75	N
30-Aug-22	Sunny	13:10	63.8	67.1	66.0	<Baseline	69.6	75	N

<sup>+</sup> - Façade measurement

## Appendix H Regular Construction Noise Monitoring Results



This Drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent.

**Shatin Central Link Contract No. 1123**  
**Exhibition Station and Western Approach Tunnel**

### Graphical Presentation of Impact Noise Monitoring Results

Date: September-2022

Appendix H

---

**APPENDIX I**

**Event Action Plan**

---

**Appendix I Event Action Plan**

Event / Action Plan for Construction Dust Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
<b>ACTION LEVEL</b>				
Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Inform the Contractor, IEC and ER;</li> <li>2. Discuss with the Contractor and IEC on the remedial measures required;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring frequency</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s), investigate the causes of exceedance and propose remedial measures;</li> <li>2. Implement remedial measures;</li> <li>3. Amend working methods agreed with the ER as appropriate.</li> </ol>
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Inform the Contractor, IEC and ER;</li> <li>2. Discuss with the ER, IEC and Contractor on the remedial measures required;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. If exceedance continues, arrange meeting with the IEC, ER and Contractor;</li> <li>6. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Review and agree on the remedial measures proposed by the Contractor;</li> <li>3. Supervise Implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the causes of exceedance;</li> <li>2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Amend proposal as appropriate.</li> </ol>

**Appendix I Event Action Plan**

EVENT	ACTION			
	ET	IEC	ER	Contractor
<b>LIMIT LEVEL</b>				
Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Inform the Contractor, IEC, EPD and ER;</li> <li>2. Repeat measurement to confirm findings;</li> <li>3. Increase monitoring frequency to daily;</li> <li>4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check the Contractor's working method;</li> <li>3. Discuss with the ET, ER and Contractor on possible remedial measures;</li> <li>4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Review and agree on the remedial measures proposed by the Contractor;</li> <li>3. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s) and investigate the causes of exceedance;</li> <li>2. Take immediate action to avoid further exceedance;</li> <li>3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification;</li> <li>4. Implement the agreed proposals;</li> <li>5. Amend proposal if appropriate.</li> </ol>
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Notify Contractor, IEC, EPD and ER ;</li> <li>2. Repeat measurement to confirm findings;</li> <li>3. Increase monitoring frequency to daily;</li> <li>4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented;</li> <li>5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken;</li> <li>6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results;</li> <li>7. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check the Contractor's working method;</li> <li>3. Discuss with ET, ER, and Contractor on the potential remedial measures;</li> <li>4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>3. Supervise the implementation of remedial measures;</li> <li>4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s) and investigate the causes of exceedance;</li> <li>2. Take immediate action to avoid further exceedance;</li> <li>3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification;</li> <li>4. Implement the agreed proposals;</li> <li>5. Revise and resubmit proposals if problem still not under control;</li> <li>6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>

**Appendix I Event Action Plan**

Event and Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
Exceedance of Action Level	<ol style="list-style-type: none"> <li>1. Notify the Contractor, IEC and ER;</li> <li>2. Discuss with the ER, IEC and Contractor on the remedial measures required; and</li> <li>3. Increase monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the investigation results submitted by the contractor; and</li> <li>2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of complaint in writing;</li> <li>2. Review and agree on the remedial measures proposed by the Contractor; and</li> <li>3. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Investigate the complaint and propose remedial measures;</li> <li>2. Report the results of investigation to the IEC, ET and ER;</li> <li>3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; and</li> <li>4. Implement noise mitigation proposals.</li> </ol>
Exceedance of Limit Level	<ol style="list-style-type: none"> <li>1. Notify the Contractor, IEC, EPD and ER ;</li> <li>2. Repeat measurement to confirm findings;</li> <li>3. Increase monitoring frequency;</li> <li>4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken;</li> <li>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances;</li> <li>7. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check the Contractor's working method;</li> <li>3. Discuss with the ER, ET and Contractor on the potential remedial measures; and</li> <li>4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>3. Supervise the implementation of remedial measures; and</li> <li>4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the causes of exceedance;</li> <li>2. Take immediate action to avoid further exceedance;</li> <li>3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification;</li> <li>4. Implement the agreed proposals;</li> <li>5. Revise and resubmit proposals if problem still not under control; and</li> <li>6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>



**Appendix I Event Action Plan**

Event and Action Plan for Continuous Noise Monitoring

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

---

**APPENDIX J**

**Cumulative Statistics of Exceedances, Complaints,  
Notification of Summons and Successful Prosecutions**

---

**Appendix J****Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions**

	<b>Date Received</b>	<b>Subject</b>	<b>Status</b>	<b>Total no. received in this month</b>	<b>Total no. received since project commencement</b>
<b>Environmental complaints</b>	-	-	-	0	17
<b>Notification of summons</b>	-	-	-	0	2
<b>Successful Prosecutions</b>	-	-	-	0	0

---

**APPENDIX K**

**Waste Flow Table**

---

**MONTHLY SUMMARY WASTE FLOW TABLE**

Contract No.:MTR SCL 1123 - Exhibition Station and Western Approach  
 Reporting Month: August 2022

**Monthly Summary Waste Flow Table for 2022**

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					Actual Quantities of Marine Dumping Monthly	
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. general refuse	Type 1	Type 2
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )
Jan	1.394	0.000	0.000	0.000	1.394	0.000	4.125	1.650	0.580	0.000	0.290	0.000	0.000
Feb	1.145	0.000	0.000	0.000	1.145	0.000	31.710	0.000	0.000	0.000	0.191	0.000	0.000
Mar	1.930	0.000	0.000	0.000	1.930	0.000	0.010	0.390	0.080	0.000	0.197	0.000	0.000
Apr	0.826	0.000	0.000	0.000	0.826	0.000	0.005	0.245	0.060	0.000	0.230	0.000	0.000
May	0.948	0.000	0.000	0.000	0.948	0.000	0.005	0.300	0.045	0.000	0.289	0.000	0.000
Jun	0.220	0.000	0.000	0.000	0.220	0.000	0.034	2.255	0.211	0.000	0.266	0.000	0.000
Sub-total	6.462	0.000	0.000	0.000	6.462	0.000	35.889	4.840	0.976	0.000	1.463	0.000	0.000
July	0.307	0.000	0.000	0.000	0.307	0.000	0.015	0.720	0.145	0.000	0.031	0.000	0.000
August	0.164	0.000	0.000	0.000	0.164	0.000	167.525	0.310	0.035	0.000	0.055	0.000	0.000
September													
October													
November													
December													
Total	6.934	0.000	0.000	0.000	6.934	0.000	203.429	5.870	1.156	0.000	1.549	0.000	0.000

Comments:

- 1) Assumption: The densities of Rock, Soil, Mixed Rock and Soil, and Regular Spoil are 2.0 ton/m<sup>3</sup>; the density of general refuse is 1.0 ton/m<sup>3</sup>; the density of waste oil is 1.0 kg/L.
- 2) The cut-off date of waste amount in August is 31/8/2022 for Public Fill Facilities and Landfill.
- 3) The amounts of waste in August are 55.06 tons for Landfill and 327.64 tons for Public Fill.
- 4) The amount of import fill in August is 0 tons, for cut-off date as 31/8/2022.
- 5) The amount of metal waste generated in August is 15 kg, for cut-off date as 31/8/2022.
- 6) The amount of paper waste generated in August is 720 kg, for cut-off date as 31/8/2022.
- 7) The amount of plastic waste generated in August is 145 kg, for cut-off date as 31/8/2022.