

**Contract No. HY/2017/10
Tuen Mun - Chek Lap Kok Link -
Northern Connection Tunnel
Buildings, Electrical and Mechanical
Works**

Tenth Quarterly EM&A Report

15 March 2021

Environmental Resources Management
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Contract No. HY/2017/10 Tuen Mun – Chek Lap Kok Link – Northern Connection Tunnel Buildings, Electrical and Mechanical Works

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Tenth Quarterly EM&A Report

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Client: Gammon		Project No: 0463091			
Summary: This document presents the Tenth Quarterly EM&A Report for Tuen Mun – Chek Lap Kok Link – Northern Connection Tunnel Buildings, Electrical and Mechanical Works.		Date: 15 March 2021			
		Approved by: 			
		Mr Craig Reid Partner			
		Certified by: 			
		Dr Jasmine Ng ET Leader			
	Tenth Quarterly Monthly EM&A Report	CW	JN	CAR	15/03/21
Revision	Description	By	Checked	Approved	Date
This report has been prepared by Environmental Resources Management the trading name of 'ERM Hong-Kong, Limited', with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.		Distribution <input type="checkbox"/> Internal <input checked="" type="checkbox"/> Public <input type="checkbox"/> Confidential			
		 			

By Fax (2783 0155) and By Post

AECOM Asia Company Limited
Supervising Officer's Representative Office
No. 8 Mong Fat Street, Tuen Mun, New Territories, Hong Kong

Attention: Mr. Desmond Fung

Dear Mr. Fung,

**Re: Agreement No. CE 48/2011 (EP)
Environmental Project Office for the
HZMB Hong Kong Link Road, HZMB Hong Kong Boundary Crossing Facilities, and
Tuen Mun-Chek Lap Kok Link – Investigation**

**Contract No. HY/2017/10
TM-CLKL – Northern Connection Tunnel Buildings, E&M Works
10th Quarterly EM&A Report for September 2020 – November 2020**

Reference is made to the Environmental Team's submission of the quarterly EM&A report for September 2020 – November 2020 (ET's ref.: "0463091_10th Quarterly EM&A_20210315.doc" dated 15 March 2021) certified by the ET Leader and provided to us via e-mail on 15 March 2021.

Please be informed that we have no adverse comments on the captioned submission.

Thank you for very much your attention. Please feel free to contact the undersigned or the ENPO Leader, Mr. Y H Hui, should you require further information.

Yours sincerely,
For and on behalf of
Ramboll Hong Kong Limited



Manson Yeung
Independent Environmental Checker
Tuen Mun-Chek Lap Kok Link

C.c.

HyD	Mr. Patrick Ng	(By Fax: 3188 6614)
HyD	Mr. Alan Ip	(By Fax: 3188 6614)
AECOM	Mr. Conrad Ng	(By Fax: 3922 9797)
ERM	Dr. Jasmine Ng	(By Fax: 2723 5660)
Gammon	Mr. Max Poon	(By Fax: 3520 0486)

Internal: DY, YH, ENPO Site

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EXECUTIVE SUMMARY

Under *Contract No. HY/2017/10*, Gammon Construction Limited (GCL) is commissioned by the Highways Department (HyD) to undertake Northern Connection Tunnel Buildings, Electrical and Mechanical Works of the Tuen Mun – Chek Lap Kok Link Project (TM-CLK Link Project) while AECOM Asia Company Limited was appointed by HyD as the Engineer. For implementation of the environmental monitoring and audit (EM&A) programme under the Contract, ERM-Hong Kong, Limited (ERM) has been appointed as the Environmental Team (ET) in accordance with *Environmental Permit No. EP-354/2009/A*. Ramboll Hong Kong Ltd. was employed by HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO). Subsequent applications for variation of environmental permits (VEP), *EP-354/2009/B*, *EP-354/2009/C* and *EP-354/2009/D*, were granted on 28 January 2014, 10 December 2014 and 13 March 2015, respectively.

The construction phase of the Contract commenced on 7 June 2018 and will tentatively be completed by 2021. The impact monitoring of the EM&A programme, including air quality and environmental site inspections, were commenced on 7 June 2018.

This is the Tenth Quarterly EM&A Report presenting the EM&A works carried out during the period from 1 September 2020 to 30 November 2020 for the *Contract No. HY/2017/10 Northern Connection Tunnel Buildings, Electrical and Mechanical Works* (the “Contract”) in accordance with the Updated EM&A Manual of the TM-CLK Link Project. As informed by the Contractor, major activities in the reporting period included:

September 2020

Land-based Works

- Handover Inspection at Main Control Building;
- Electrical and Mechanical Works at Ventilation Plant Room;
- Handover Inspection at North Ventilation Building;
- Handover Inspection at Administration Building;
- Handover Inspection at Maintenance Depot;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Fire Services Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Customs and Excise Department Building;

- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at N1;
- Electrical and Mechanical Works at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at underpass at C3 area;
- Handover Inspection at Satellite Control Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Kiosk S2;
- Handover Inspection at South Ventilation Building; and
- Soil Mix and Landscape Works at Northern Landfall and Southern Landfall.

October 2020

Land-based Works

- Handover Inspection at Main Control Building;
- Handover Inspection at Ventilation Plant Room;
- Handover Inspection at North Ventilation Building;
- Handover Inspection at Administration Building;
- Handover Inspection at Maintenance Depot;
- Handover Inspection at Fire Services Department Building;
- Handover Inspection at Customs and Excise Department Building;
- Handover Inspection at N1;
- Handover Inspection at Kiosk N2;
- T&C and FSI at the Tunnel;
- Handover Inspection at underpass at C3 area;
- Handover Inspection at Satellite Control Building;
- Handover Inspection at Kiosk S2;
- Handover Inspection at South Ventilation Building; and
- Landscape Works at Northern Landfall and Southern Landfall.

November 2020

Land-based Works

- Handover Inspection at Main Control Building;
- Handover Inspection at Ventilation Plant Room;
- Handover Inspection at North Ventilation Building;
- Handover Inspection at Administration Building;
- Handover Inspection at Maintenance Depot;
- Handover Inspection at Fire Services Department Building;
- Handover Inspection at Customs and Excise Department Building;
- Handover Inspection at N1;
- Handover Inspection at Kiosk N2;
- T&C and FSI at the Tunnel;
- Handover Inspection at underpass at C3 area;
- Handover Inspection at Satellite Control Building;
- Handover Inspection at Kiosk S2;
- Handover Inspection at South Ventilation Building; and
- Landscape Works at Northern Landfall and Southern Landfall.

A summary of monitoring and audit activities conducted in the reporting period is listed below ⁽¹⁾:

24-hour TSP Monitoring	19 sessions
1-hour TSP Monitoring	19 sessions
Landfill Gas Hazard Monitoring	75 days
Joint Environmental Site Inspection	13 sessions

Summary of Breaches of Action/Limit Levels

Breaches of Action and Limit Levels for Air Quality

(1) ET justification on the Contract Specific Environmental Monitoring and Audit activities under this Contract was submitted to ENPO on 11 September 2018

Eight (8) Action Level and two (2) Limit Level exceedances for 1-hour TSP and two (2) Action Level exceedances for 24-hour TSP were recorded by the Environmental Team of Contract No. HY/2012/08 during the reporting period.

Breaches of Action Level for Landfill Gas Hazard Monitoring

No exceedance of Action and Limit Level exceedance was recorded for landfill gas hazard monitoring in the reporting period.

Environmental Complaints, Non-compliance & Summons

There was no environmental complaint, notification of summons or successful prosecution recorded in the reporting period.

Reporting Change

Landscape and visual monitoring for 24-month establishment period conducted by Contract No. HY/2012/07 and HY/2013/12 was reported in the *Thirtieth EM&A report* for this Contract.

Upcoming Works for the Next Reporting Period

Works to be undertaken in the coming quarter include the following:

December 2020

Land-based Works

- Handover Inspection at Main Control Building;
- Handover Inspection at Ventilation Plant Room;
- Handover Inspection at North Ventilation Building;
- Handover Inspection at Administration Building;
- Handover Inspection at Maintenance Depot;
- ABWF Works at Fire Services Department Building;
- External cladding & louvre installation, E&M works and final finishing works at Customs and Excise Department Building;
- Handover Inspection at Kiosk N1;
- Handover Inspection at Kiosk N2;
- Handover Inspection at the Tunnel;
- Handover Inspection at C3 area;
- Handover Inspection at Satellite Control Building;

- Handover Inspection at Kiosk S2;
- Handover Inspection at South Ventilation Building; and
- Handover Inspection at Northern Landfall and Southern Landfall.

January 2021

Land-based Works

- Architectural Builder's Work and Finishes Works and Handover Inspection at Fire Services Department Building; and
- External cladding & luvre installation, E&M works, final finishing works and Handover Inspection at Customs and Excise Department Building.

February 2021

Land-based Works

- Architectural Builder's Work and Finishes Works and Handover Inspection at Fire Services Department Building; and
- E&M works, Final finishing works and Handover Inspection at Customs and Excise Department Building.

Future Key Issues

Potential environmental impacts arising from the above upcoming construction activities in the coming quarterly period are mainly associated with waste management and landfill gas monitoring issues.

1.1

BACKGROUND

According to the findings of the Northwest New Territories (NWNT) Traffic and Infrastructure Review conducted by the Transport Department, Tuen Mun Road, Ting Kau Bridge, Lantau Link and North Lantau Highway would be operating beyond capacity after 2016. This forecast has been based on the estimated increase in cross boundary traffic, developments in the Northwest New Territories (NWNT), and possible developments in North Lantau, including the Airport developments, the Lantau Logistics Park (LLP) and the Hong Kong – Zhuhai – Macao Bridge (HZMB). In order to cope with the anticipated traffic demand, two new road sections between NWNT and North Lantau – Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) are proposed.

An Environmental Impact Assessment (EIA) of TM-CLKL (the Project) was prepared in accordance with the EIA Study Brief (No. ESB-175/2007) and the *Technical Memorandum of the Environmental Impact Assessment Process (EIAO-TM)*. The EIA Report was submitted under the Environmental Impact Assessment Ordinance (EIAO) in August 2009. Subsequent to the approval of the EIA Report (EIAO Register Number AEIAR-146/2009), an Environmental Permit (EP-354/2009) for TM-CLKL was granted by the Director of Environmental Protection (DEP) on 4 November 2009, and EP variation (VEP) (EP-354/2009/A) was issued on 8 December 2010. Subsequent applications for variation of environmental permits (VEPs), *EP-354/2009/B*, *EP-354/2009/C* and *EP-354/2009/D*, were granted on 28 January 2014, 10 December 2014 and 13 March 2015, respectively.

Under *Contract No. HY/2017/10*, Gammon Construction Limited (GCL) is commissioned by the Highways Department (HyD) to undertake the Northern Connection Tunnel Buildings, Electrical and Mechanical Works of TM-CLKL while AECOM Asia Company Limited was appointed by HyD as the Engineer. For implementation of the environmental monitoring and audit (EM&A) programme under the Contract, ERM-Hong Kong, Limited (ERM) has been appointed as the Environmental Team (ET). Ramboll Hong Kong Ltd. was employed by HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO).

The construction phase of the Contract commenced on 7 June 2018 and will be tentatively completed by 2021. The impact monitoring phase of the EM&A programme, including air quality and environmental site inspections, commenced on 7 June 2018.

The general layout plan of the Contract components is presented in *Figures 1.1 & 1.2a to c*.

Project Management Initials: Designer: KATH Checked: SYLC Approved: CWN ISO A1 594mm x 841mm

Plot File by: Jerry Wong 23-Jan-18
 PATH: Y:\TO TO RSS\MSL\C4 Drawings\C4 Drawings\CON\60240249_C4_7051.dgn



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AECOM

PROJECT
 TUEN MUN -
 CHEK LAP KOK LINK

CONTRACT TITLE
 TUEN MUN - CHEK LAP KOK LINK
 - NORTHERN CONNECTION TUNNEL
 BUILDINGS, ELECTRICAL AND
 MECHANICAL WORKS

CLIENT

 路政署 HIGHWAYS DEPARTMENT
 港珠澳大橋香港工程管理有限公司
 Hong Kong - Zhuhai - Macao Bridge
 Hong Kong Project Management Office

CONSULTANT
 AECOM Asia Company Ltd.
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SUB-CONSULTANTS

Figure 1.1

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.
A	JAN.18	TENDER ADDENDUM NO.1	SYLC
-	DEC.17	TENDER DRAWING	SYLC

STATUS

SCALE
 A1 1:40000

DIMENSION UNIT
 MILLIMETRES

KEY PLAN

PROJECT NO. 60240249
CONTRACT NO. HY/2017/10

SHEET TITLE
 OVERALL SITE PLAN

SHEET NUMBER
 60240249/C4/7051A

Plot File by: Jerry Wong 23-Jan-18
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 Project Management Initials: Designer: WATH Chenweid SYLC Approved: CWN ISO 1194mm x 847mm
 01/7071
 01/7072




AECOM

PROJECT
1.3

TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
TUEN MUN - CHEK LAP KOK LINK - NORTHERN CONNECTION TUNNEL BUILDINGS, ELECTRICAL AND MECHANICAL WORKS

CLIENT

 **HIGHWAYS DEPARTMENT**
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 香港 - 珠海 - 澳門大橋
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Figure 1.2a

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.
A	JAN.18	TENDER ADDENDUM NO.1	SYLC
-	DEC.17	TENDER DRAWING	SYLC

STATUS

SCALE: 1:2500
DIMENSION UNIT: MILLIMETRES

KEY PLAN

PROJECT NO. 60240249
CONTRACT NO. HY/2017/10

SHEET TITLE
ZONING PLAN (SHEET 1)

SHEET NUMBER
60240249/C4/7061A

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


AECOM

PROJECT
TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
 TUEN MUN - CHEK LAP KOK LINK
 - NORTHERN CONNECTION TUNNEL
 BUILDINGS, ELECTRICAL AND
 MECHANICAL WORKS

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Figure 1.2b

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.
A	JAN.16	TENDER ADDENDUM NO.1	SYLC
	DEC.17	TENDER DRAWING	SYLC

STATUS

SCALE: A1 1:2500
 DIMENSION UNIT: MILLIMETRES

KEY PLAN

PROJECT NO.: 60240249
 CONTRACT NO.: HY/2017/10

SHEET TITLE: ZONING PLAN (SHEET 2)

SHEET NUMBER: 60240249/C4/7062A

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Project Management Initials: Designer: KATH; Checked: SYLC; Approved: CWN ISO A1 554mm x 841mm

Plot File by: Jerrywong 17-Jan-18
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PROJECT
 TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
 TUEN MUN - CHEK LAP KOK LINK - NORTHERN CONNECTION TUNNEL BUILDINGS, ELECTRICAL AND MECHANICAL WORKS

CLIENT
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 HIGHWAYS DEPARTMENT
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 Hong Kong Project Management Office

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Figure 1.2c

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.
A	JAN. 18	TENDER ADDENDUM NO. 1	SYLC
	DEC. 17	TENDER DRAWING	SYLC

STATUS

SCALE: A1 1:2500
 DIMENSION UNIT: MILLIMETRES

KEY PLAN

PROJECT NO.: 60240249
 CONTRACT NO.: HY/2017/10

SHEET TITLE
 ZONING PLAN (SHEET 3)

SHEET NUMBER
 60240249/C4/7063A

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1.2 SCOPE OF REPORT

This is the Tenth Quarterly EM&A Report under the *Contract No. HY/2017/10 Tuen Mun – Chek Lap Kok Link – Northern Connection Tunnel Buildings, Electrical and Mechanical Works*. This report presents a summary of the environmental monitoring and audit works from 1 September 2020 to 30 November 2020.

1.3 ORGANIZATION STRUCTURE

The organization structure of the Contract is shown in *Appendix A*. The key personnel contact names and contact details are summarized in *Table 1.1* below.

Table 1.1 *Contact Information of Key Personnel*

Party	Position	Name	Telephone	Fax
HyD (Highways Department)	Project Coordinator	Joseph Lee	2762 4958	3188 6614
	Senior Engineer	Cheng Pan	2762 3383	3188 6614
ER (AECOM Asia Company Limited)	Principle Resident Engineer	S. W. Fok	2293 6200	2293 6300
	Resident Engineer	Desmond Fung	2293 6200	2293 6300
ENPO / IEC (Ramboll Hong Kong Ltd.)	ENPO Leader	Y.H. Hui	3465 2850	3465 2899
	IEC	Manson Yeung	9700 6767	3465 2899
Contractor (Gammon Construction Limited)	Site Agent	H. H. Lee	6096 6281	-
	Environmental Officer	Phoebe Ng	9869 1105	-
ET (ERM-HK)	ET Leader	Dr. Jasmine Ng	2271 3311	2723 5660

1.4 SUMMARY OF CONSTRUCTION WORKS

The construction phase of the Contract commenced on 7 June 2018. The rolling construction programme for the period of June to August 2020 is shown in *Appendix B*.

As informed by the Contractor, details of the major works carried out in this reporting period are listed below:

September 2020

Land-based Works

- Handover Inspection at Main Control Building;

- Electrical and Mechanical Works at Ventilation Plant Room;
- Handover Inspection at North Ventilation Building;
- Handover Inspection at Administration Building;
- Handover Inspection at Maintenance Depot;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Fire Services Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at N1;
- Electrical and Mechanical Works at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at the Tunnel;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at underpass at C3 area;
- Handover Inspection at Satellite Control Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes at Kiosk S2;
- Handover Inspection at South Ventilation Building; and
- Soil Mix and Landscape Works at Northern Landfall and Southern Landfall.

October 2020

Land-based Works

- Handover Inspection at Main Control Building;
- Handover Inspection at Ventilation Plant Room;
- Handover Inspection at North Ventilation Building;
- Handover Inspection at Administration Building;
- Handover Inspection at Maintenance Depot;
- Handover Inspection at Fire Services Department Building;
- Handover Inspection at Customs and Excise Department Building;
- Handover Inspection at N1;

- Handover Inspection at Kiosk N2;
- T&C and FSI at the Tunnel;
- Handover Inspection at underpass at C3 area;
- Handover Inspection at Satellite Control Building;
- Handover Inspection at Kiosk S2;
- Handover Inspection at South Ventilation Building; and
- Landscape Works at Northern Landfall and Southern Landfall.

November 2020

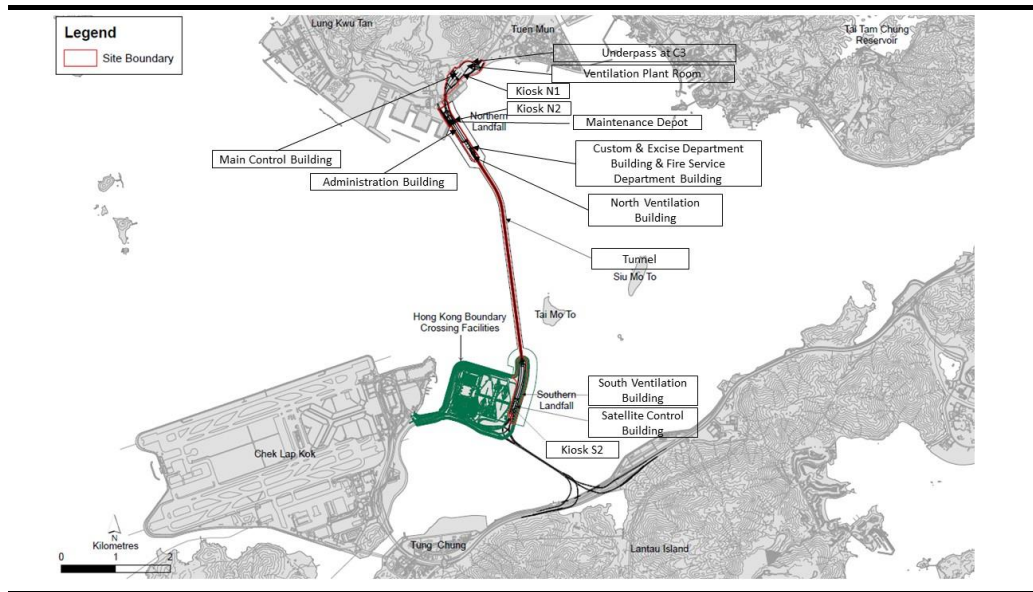
Land-based Works

- Handover Inspection at Main Control Building;
- Handover Inspection at Ventilation Plant Room;
- Handover Inspection at North Ventilation Building;
- Handover Inspection at Administration Building;
- Handover Inspection at Maintenance Depot;
- Handover Inspection at Fire Services Department Building;
- Handover Inspection at Customs and Excise Department Building;
- Handover Inspection at N1;
- Handover Inspection at Kiosk N2;
- T&C and FSI at the Tunnel;
- Handover Inspection at underpass at C3 area;
- Handover Inspection at Satellite Control Building;
- Handover Inspection at Kiosk S2;
- Handover Inspection at South Ventilation Building; and
- Landscape Works at Northern Landfall and Southern Landfall.

The locations of the construction activities are shown in *Figure 1.3*. The Environmental Sensitive Receivers in the vicinity of the Contract are shown in *Figure 1.4*.

The implementation schedule of environmental mitigation measures is presented in *Appendix C*.

Figure 1.3 *Locations of Major Construction Activities in the Reporting Period*



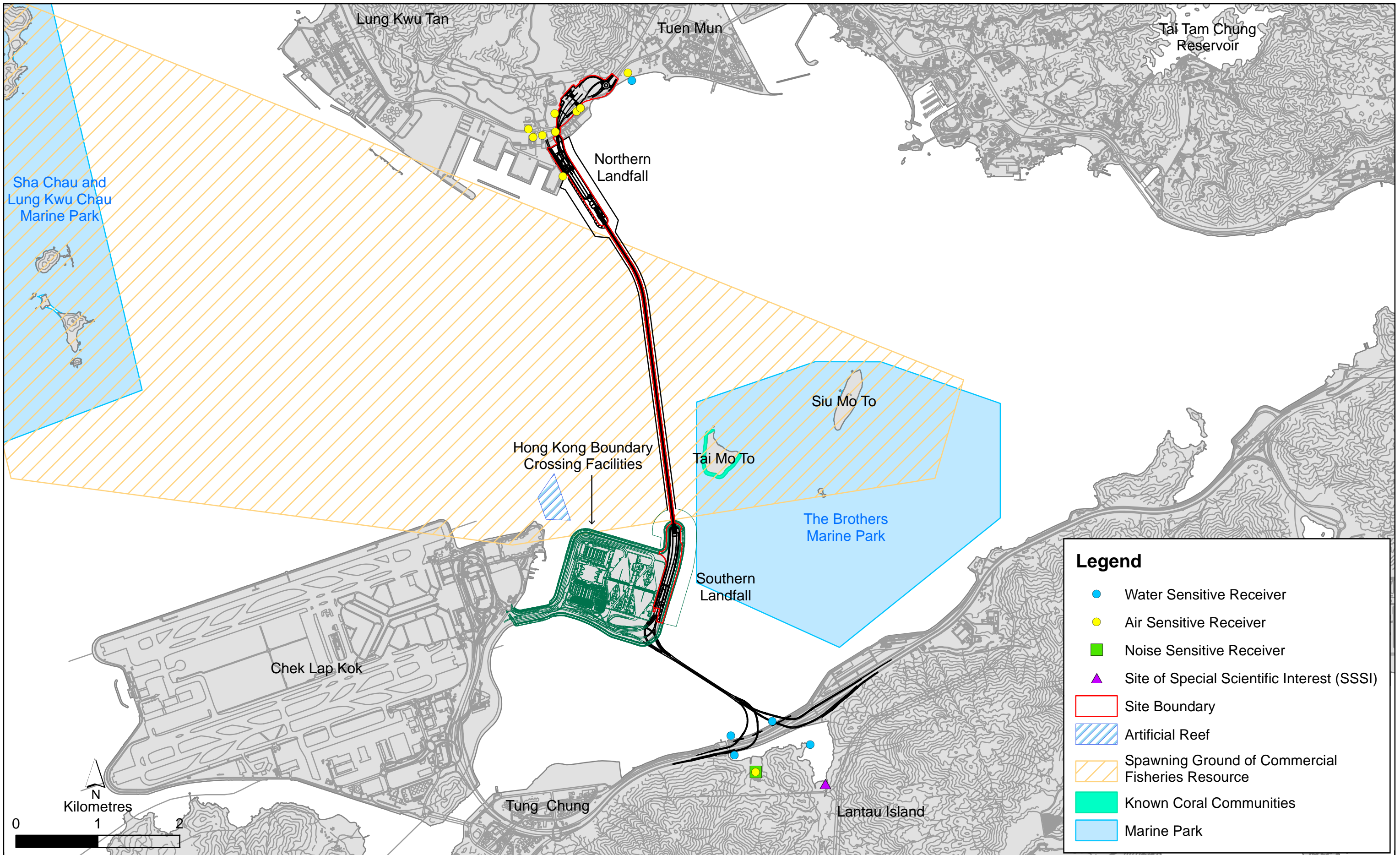


Figure 1.4

Environmental Sensitive Receivers in the Vicinity of the Project

The EM&A programme required environmental monitoring for air quality and environmental site inspections for air quality, water quality and waste management. The EM&A requirements and related findings for each component are summarized in the following sections

2.1 AIR QUALITY

2.1.1 Monitoring Requirements and Equipment

In accordance with the Updated EM&A Manual and the Enhanced TSP Monitoring Plan, impact 1-hour TSP monitoring was conducted three (3) times every six (6) days and impact 24-hour TSP monitoring was carried out once every six (6) days when the highest dust impact was expected. 1-hr and 24-hr TSP monitoring frequency was increased to three times per day every three days and daily every three days, respectively, as excavation works for launching shaft under *Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section* commenced on 24 October 2014.

Informed by the Environmental Team of *Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section*, excavation works for launching shaft were completed and notification of change on air quality monitoring frequency was submitted to EPD on 14 September 2020. 1-hr and 24-hr TSP monitoring frequency was changed to three times per day every six days and daily every six days, respectively, since 14 September 2020.

Results of air quality monitoring were adopted from the published EM&A data of *Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section* ⁽¹⁾.

The Action and Limit Levels of the air quality monitoring were adopted from the published EM&A reports of *Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section* ⁽²⁾. The Action and Limit Levels are provided in *Appendix D*.

The locations of the monitoring stations overlapped with *Contract No. HY/2012/08* are shown in *Figure 2.1* and presented in *Table 2.1*.

(1) Published EM&A data for impact air quality monitoring by *Contract No. HY/2012/08* are available at: <http://www.hzmbenpo.com/>

(2) Published EM&A reports of *Contract No. HY/2012/08* are available at: <http://www.hzmbenpo.com/>

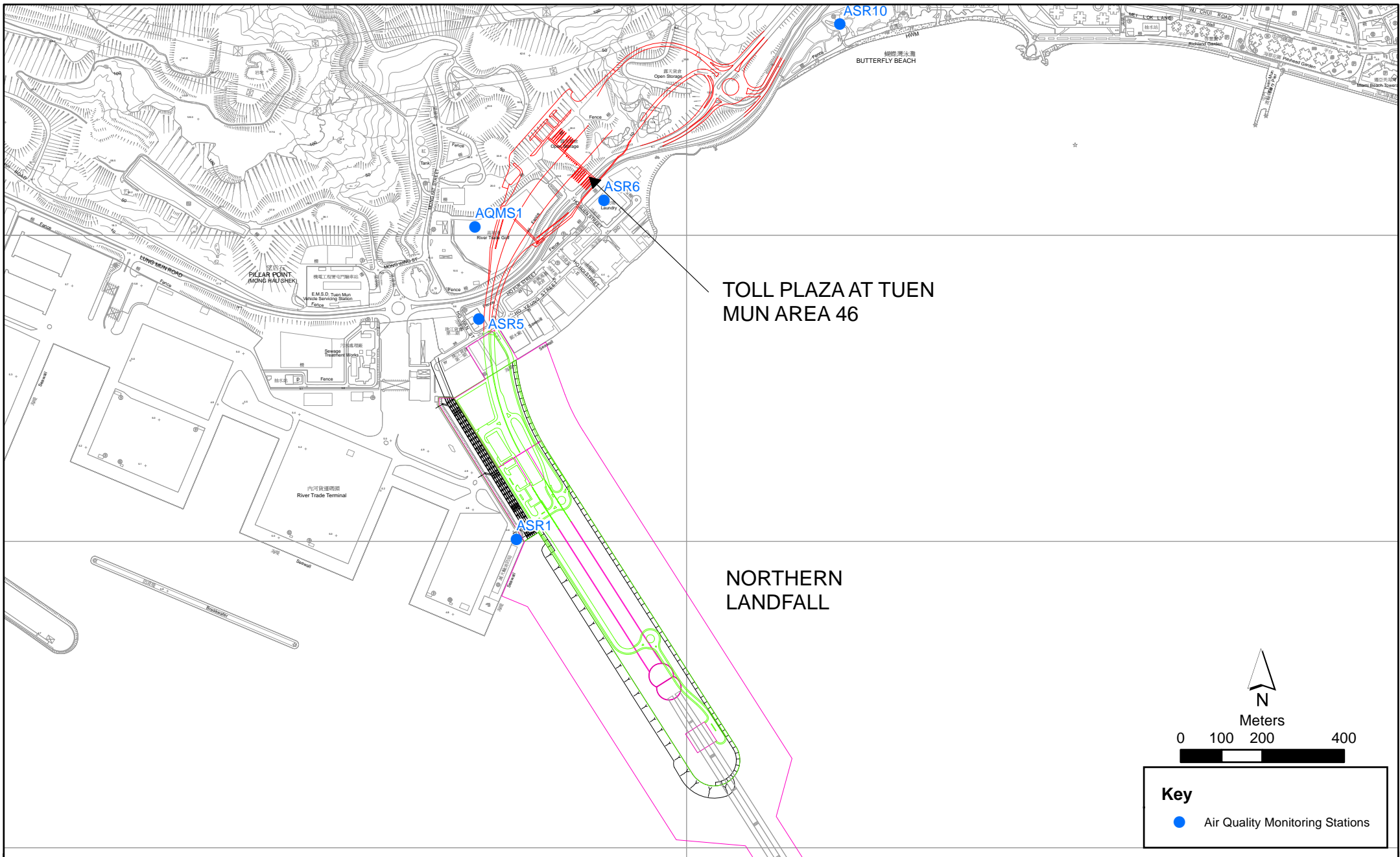


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring
 (Source: Adopted from Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link -
 Northern Connection Sub-sea Tunnel Section)

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 Date: 21/2/2014

Key

- Air Quality Monitoring Stations

N
 Meters
 0 100 200 400

Environmental
 Resources
 Management



Table 2.1 *Locations of Impact Air Quality Monitoring Stations and its Corresponding Monitoring Requirements*

Monitoring Station	Monitoring Dates	Location	Description	Parameters & Frequency
ASR1	2, 5, 8, 11, 14, 17, 23 and 29 September 2020	Tuen Mun Fireboat Station	Office	TSP monitoring
ASR5	5, 9, 15, 21 and 27 October 2020	Pillar Point Fire Station	Office	<ul style="list-style-type: none"> 1-hour Total Suspended Particulates (1-hour TSP, $\mu\text{g}/\text{m}^3$), 3 times in every 6 days 24-hour Total Suspended Particulates (24-hour TSP, $\mu\text{g}/\text{m}^3$), daily for 24-hour in every 6 days
AQMS1	2, 6, 12, 18, 24 and 30 November 2020	Previous River Trade Golf	Bare ground	Enhanced TSP monitoring (commenced on 24 October 2014 under <i>Contract No. HY/2012/08</i>)
ASR6		Butterfly Beach Laundry	Office	<ul style="list-style-type: none"> 1-hour Total Suspended Particulates (1-hour TSP, $\mu\text{g}/\text{m}^3$), 3 times in every 3 days 24-hour Total Suspended Particulates (24-hour TSP, $\mu\text{g}/\text{m}^3$), daily for 24-hour in every 3 days
ASR10		Butterfly Beach Park	Recreational uses	

2.1.2 *Results and Observations*

Results of air quality monitoring were adopted from the published EM&A data of *Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section* ⁽¹⁾.

Eight (8) Action Level and two (2) Limit Level exceedances for 1-hour TSP and two (2) Action Level exceedances for 24-hour TSP were recorded by the Environmental Team of *Contract No. HY/2012/08* during the reporting period. The exceedances were considered not related to this Contract upon further investigation and the investigation report is presented in *Appendix I*. No action is required to be undertaken in accordance with the Event Action Plan as presented in *Appendix E*.

2.2 *EM&A SITE INSPECTION*

Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. Thirteen (13) site inspections were carried out in the reporting period on 4, 11, 18, 25 and 30 September 2020, 9, 16, 23 and 30 October 2020 and 6, 13, 20 and 27 November 2020.

Key observations and recommendations during the site inspections in this reporting period are summarized in *Table 2.2*.

(1) Published EM&A data for impact air quality monitoring by *Contract No. HY/2012/08* are available at: <http://www.hzmbenpo.com/>

Table 2.2 Specific Observations and Recommendations during the Weekly Site Inspection in this Reporting Period

Inspection Date	Observations	Recommendations/ Remarks
4 September 2020	Southern Landfall <ul style="list-style-type: none"> A chemical did not have clear identification label. 	Southern Landfall <ul style="list-style-type: none"> The Contractor was reminded to identify and clearly label the chemical.
11 September 2020	Southern Landfall <ul style="list-style-type: none"> Drip tray was observed full of retained water. Chemical container was observed not placed on drip tray. 	Southern Landfall <ul style="list-style-type: none"> The Contractor was reminded to cleanup the drip tray. The Contractor was reminded to place chemical containers on drip tray.
18 September 2020	South Ventilation Building <ul style="list-style-type: none"> Accumulated residuals were observed on site. 	South Ventilation Building <ul style="list-style-type: none"> The Contractor was reminded to keep better housekeeping.
25 September 2020	Southern Landfall <ul style="list-style-type: none"> The stockpiles were not covered on site. 	Southern Landfall <ul style="list-style-type: none"> The Contractor was reminded to cover the stockpiles.
30 September 2020	Fire Services Department Building <ul style="list-style-type: none"> Chemical containers were not placed on the drip tray. Customs and Excise Department Building <ul style="list-style-type: none"> Cement bags were not placed and covered properly. Southern Landfall <ul style="list-style-type: none"> Improper disposal of waste was observed. Mud was observed on the road. 	Fire Services Department Building <ul style="list-style-type: none"> The Contractor was reminded to place chemical containers on drip tray. Customs and Excise Department Building <ul style="list-style-type: none"> The Contractor was reminded to cover the cement bags. Southern Landfall <ul style="list-style-type: none"> The Contractor was reminded to dispose the recycling materials at designated location. The Contractor was reminded to clean the mud on the road and avoid carrying the mud to public road.
9 October 2020	Satellite Control Building <ul style="list-style-type: none"> Chemical was observed not placed in trip tray. Cement was not properly covered. Accumulated residual was observed on site. Tunnel <ul style="list-style-type: none"> Chemical was observed not placed in trip tray. Container Village <ul style="list-style-type: none"> Accumulated residual was observed on site. Construction site should be watered regularly to reduce dust emission. 	Satellite Control Building <ul style="list-style-type: none"> The Contractor was reminded to place chemical in trip tray. The Contractor was reminded to cover the cement properly. The Contractor was reminded to clear accumulated residuals. Tunnel <ul style="list-style-type: none"> The Contractor was reminded to place chemical in trip tray. Container Village <ul style="list-style-type: none"> The Contractor was reminded to clear accumulated residuals. The Contractor was reminded to provide regular watering.
16 October 2020	Administration Building <ul style="list-style-type: none"> Accumulated general refuse was observed on site. 	Administration Building <ul style="list-style-type: none"> The Contractor was reminded to clear accumulated refuse.

Inspection Date	Observations	Recommendations/ Remarks
23 October 2020	Northern Landfall <ul style="list-style-type: none"> Chemicals were observed not placed in trip tray. General residuals were observed on site. Satellite Control Building <ul style="list-style-type: none"> Chemicals were observed not placed in trip tray. Excessive dust emission was observed on site. Administration Building <ul style="list-style-type: none"> Chemicals were observed not placed in trip tray. 	Northern Landfall <ul style="list-style-type: none"> The Contractor was reminded to place chemicals in trip tray. The Contractor was reminded to keep better housekeeping. Satellite Control Building <ul style="list-style-type: none"> The Contractor was reminded to place chemicals in trip tray The Contractor was reminded to water the road more frequently. Administration Building <ul style="list-style-type: none"> The Contractor was reminded to place chemicals in trip tray.
30 October 2020	Southern Landfall <ul style="list-style-type: none"> Nil. 	Southern Landfall <ul style="list-style-type: none"> Nil.
6 November 2020	South Ventilation Building <ul style="list-style-type: none"> Accumulated residual was observed on site. 	South Ventilation Building <ul style="list-style-type: none"> The Contractor was reminded to keep better housekeeping.
13 November 2020	Customs and Excise Department Building <ul style="list-style-type: none"> Nil. 	Customs and Excise Department Building <ul style="list-style-type: none"> Nil.
20 November 2020	C3 Bridge Container Village <ul style="list-style-type: none"> Chemical containers without drip tray were observed on site. 	C3 Bridge Container Village <ul style="list-style-type: none"> The Contractor was reminded to place chemical containers in trip tray.
27 November 2020	Customs and Excise Department Building <ul style="list-style-type: none"> Chemical was not placed in drip tray. 	Customs and Excise Department Building <ul style="list-style-type: none"> The Contractor was reminded to place chemical in trip tray.

The Contractor has rectified all of the observations as identified during environmental site inspections in the reporting period.

2.3 LANDFILL GAS HAZARD MONITORING

In accordance with the Updated EM&A Manual of the TM-CLK Link Project, landfill gas hazard monitoring should be performed to ensure that the works area at Pillar Point Valley (PPV) Landfill is free of landfill gas during any excavations works. A total of 75 days of landfill gas hazard monitoring was conducted at Main Control Building during 1 September to 30 November 2020 during the reporting period (*Appendix F*).

The Action and Limit Levels of the landfill gas hazard monitoring were adopted from the Undated EM&A Manual of the TM-CLK Link Project and are provided in *Appendix D*.

2.3.1 Results and Observations

Results for landfill gas hazard monitoring are summarized in *Table 2.3* and the monitoring data is provided in *Appendix G*.

No exceedance of Action and Limit Levels for methane, oxygen and carbon dioxide was recorded in the reporting period.

Table 2.3 Summary of Landfill Gas Hazard Monitoring Results in the Reporting Period

		Average (%)	Range (%)	Action/ Limit Level (%)
September 2020	Methane	0	0	10/20
	Oxygen	20.8	20.8-20.8	19/18
	Carbon Dioxide	0.03	0.03-0.03	0.5/1.5
October 2020	Methane	0	0	10/20
	Oxygen	20.8	20.8-20.8	19/18
	Carbon Dioxide	0.03	0.03-0.03	0.5/1.5
November 2020	Methane	0	0	10/20
	Oxygen	20.8	20.8-20.8	19/18
	Carbon Dioxide	0.03	0.03-0.03	0.5/1.5

2.4 WASTE MANAGEMENT STATUS

The Contractor had submitted application form for registration as chemical waste producer under the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.

Wastes generated during this reporting period included mainly construction wastes (inert and non-inert). Reference has been made to the waste flow table prepared by the Contractor (*Appendix H*). The quantities of different types of wastes are summarized in *Table 2.4*.

Table 2.4 Quantities of Different Waste Generated in the Reporting Period

Month/Year	Inert C&D Materials ^(a) (m ³)	Inert Construction Waste Re-used (m ³)	Non-inert Construction Waste ^(b) (kg)	Imported Fill (m ³)	Recyclable Materials ^(c) (kg)	Chemical Wastes (kg)
September 2020	33	0	89,120	0	28 ^(d)	0
October 2020	210	0	184,460	0	28 ^(d)	0
November 2020	114	0	150,600	0	14	0

Notes:

- (a) Inert construction wastes include hard rock and large broken concrete disposed as public fill.
- (b) Non-inert construction wastes include general refuse disposed at landfill.
- (c) Recyclable materials include metals, paper, cardboard, plastics, timber and others.
- (d) Updated figures were presented.

The Contractor was advised to properly maintain on site C&D materials and waste collection, sorting and recording system, dispose of C&D materials and wastes at designated ground and maximize reuse/ recycle of C&D materials and wastes. The Contractor was also reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.

For chemical waste containers, the Contractor was reminded to treat chemical waste properly and store the containers 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*.

2.5

ENVIRONMENTAL LICENSES AND PERMITS

The status of environmental licensing and permit is summarized in *Table 2.5* below.

Table 2.5 Summary of Environmental Licensing and Permit Status

License/ Permit	License or Permit No.	Date of Issue	Date of Expiry	License/ Permit Holder	Remarks
Environmental Permit	EP-354/2009/D	13 March 2015	N/A	HyD	Tuen Mun- Chek Lap Kok Link
APCO Construction Dust Notification	433493	14 May 2018	N/A	GCL	For Tuen Mun working area
Construction Waste Billing Account	7030836	15 May 2018	N/A	GCL	N/A
Chemical Waste Producer Registration	5213-422-G2827-01	13 June 2018	N/A	GCL	N/A
Discharge License under WPCO for Buildings at C2 area	WT00031783-2018	22 October 2018	31 October 2023	GCL	Sampling Frequency: Bimonthly
Discharge License under WPCO for Buildings at C3 area	WT00032062-2018	30 October 2018	31 October 2023	GCL	Sampling Frequency: Quarterly
Discharge License under WPCO for Southern Landfall	WT00034878-2019	1 April 2020	31 March 2025	GCL	Sampling Frequency: Quarterly
Construction Noise Permit	GW-RW0351-20	3 August 2020	29 January 2021	GCL	For Northern Landfall and Tunnel
Construction Noise Permit	GW-RS0413-20	19 June 2020	15 December 2020	GCL	For HKBCF Area
Construction Noise Permit	GW-RW0501-20	27 October 2020	24 December 2020	GCL	For Lung Mun Road Overnight Works

2.6 **IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES**

In response to the site audit findings, the Contractors carried out all corrective actions.

A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in *Appendix C*. The necessary mitigation measures relevant to this Contract were implemented properly.

2.7 **SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT**

Eight (8) Action Level and two (2) Limit Level exceedances for 1-hour TSP and two (2) Action Level exceedances for 24-hour TSP were recorded by the Environmental Team of Contract No. *HY/2012/08* during the reporting period. The exceedances were considered not related to this Contract upon further investigation and the investigation report is presented in *Appendix I*. No action is required to be undertaken in accordance with the Event Action Plan as presented in *Appendix E*.

No exceedance of Action and Limit Levels for methane, oxygen and carbon dioxide was recorded landfill gas hazard monitoring in the reporting period

Cumulative statistics are provided in *Appendix I*.

2.8 **SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS**

The Environmental Complaint Handling Procedure is provided in *Figure 2.2*.

There was no environmental complaint, notification of summons or successful prosecution recorded in the reporting period.

Statistics on complaints, notifications of summons, successful prosecutions are summarized in *Appendix I*.

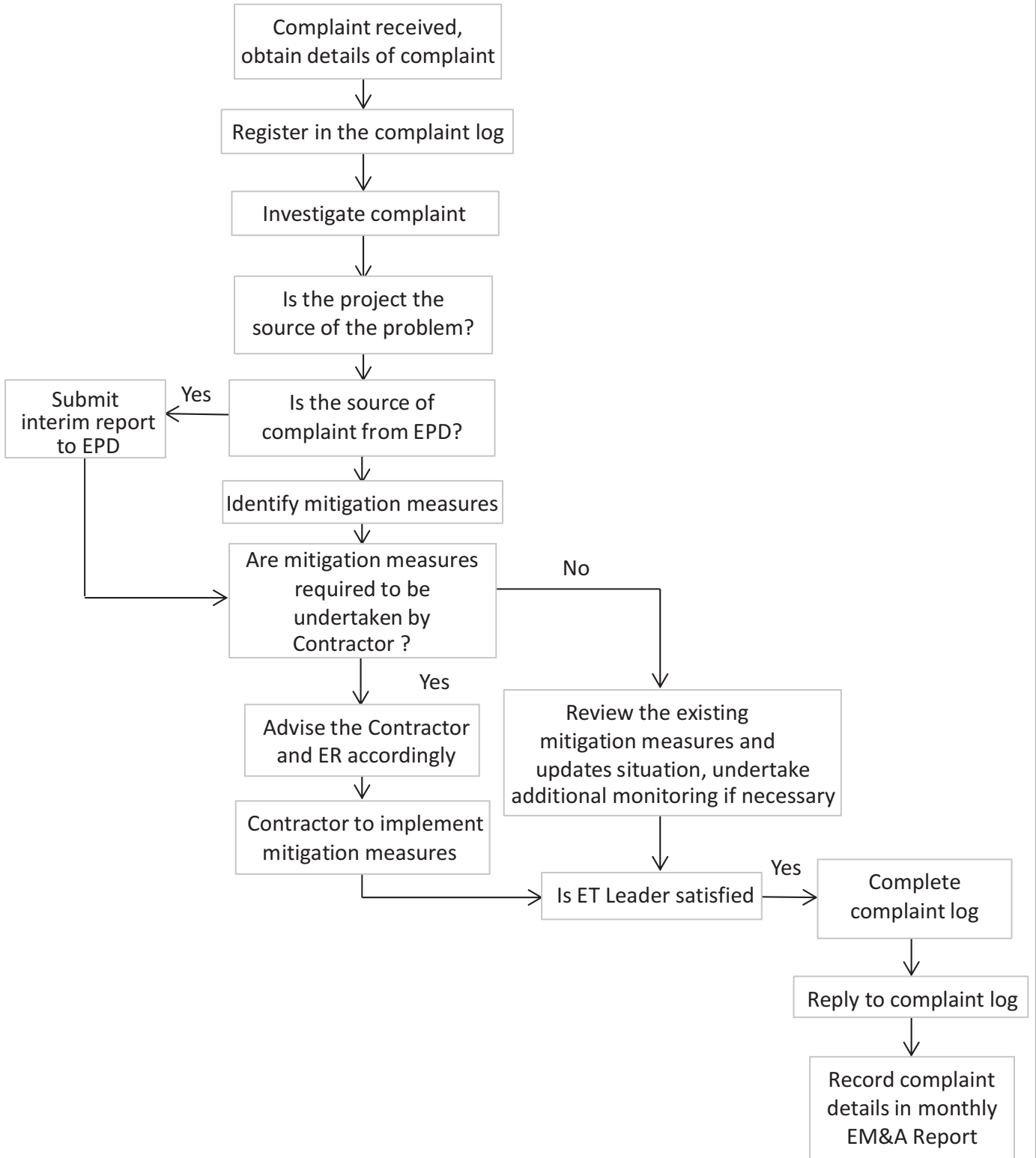


Figure 2.2

Environmental Complaint Handling Procedure

3.1 CONSTRUCTION ACTIVITIES FOR THE COMING QUARTER

As informed by the Contractor, the major works for the Contract in the coming quarter are summarized below:

December 2020***Land-based Works***

- Handover Inspection at Main Control Building;
- Handover Inspection at Ventilation Plant Room;
- Handover Inspection at North Ventilation Building;
- Handover Inspection at Administration Building;
- Handover Inspection at Maintenance Depot;
- ABWF Works at Fire Services Department Building;
- External cladding & louvre installation, E&M works and final finishing works at Customs and Excise Department Building;
- Handover Inspection at Kiosk N1;
- Handover Inspection at Kiosk N2;
- Handover Inspection at the Tunnel;
- Handover Inspection at C3 area;
- Handover Inspection at Satellite Control Building;
- Handover Inspection at Kiosk S2;
- Handover Inspection at South Ventilation Building; and
- Handover Inspection at Northern Landfall and Southern Landfall.

January 2021***Land-based Works***

- Architectural Builder's Work and Finishes Works and Handover Inspection at Fire Services Department Building; and

- External cladding & luvre installation, E&M works, final finishing works and Handover Inspection at Customs and Excise Department Building.

February 2021

Land-based Works

- Architectural Builder's Work and Finishes Works and Handover Inspection at Fire Services Department Building; and

E&M works, Final finishing works and Handover Inspection at Customs and Excise Department Building. December 2020

Land-based Works

- Handover Inspection at Main Control Building;
- Handover Inspection at Ventilation Plant Room;
- Handover Inspection at North Ventilation Building;
- Handover Inspection at Administration Building;
- Handover Inspection at Maintenance Depot;
- ABWF Works at Fire Services Department Building;
- External cladding & louvre installation, E&M works and final finishing works at Customs and Excise Department Building;
- Handover Inspection at Kiosk N1;
- Handover Inspection at Kiosk N2;
- Handover Inspection at the Tunnel;
- Handover Inspection at C3 area;
- Handover Inspection at Satellite Control Building;
- Handover Inspection at Kiosk S2;
- Handover Inspection at South Ventilation Building; and
- Handover Inspection at Northern Landfall and Southern Landfall.

January 2021

Land-based Works

- Architectural Builder's Work and Finishes Works and Handover Inspection at Fire Services Department Building; and

- External cladding & luvre installation, E&M works, final finishing works and Handover Inspection at Customs and Excise Department Building.

February 2021

Land-based Works

- Architectural Builder's Work and Finishes Works and Handover Inspection at Fire Services Department Building; and
- E&M works, Final finishing works and Handover Inspection at Customs and Excise Department Building.

3.2

KEY ISSUES FOR THE COMING QUARTER

Potential environmental impacts arising from the above upcoming construction activities are mainly associated with waste management and landfill gas monitoring issues.

4.1 CONCLUSIONS

This Tenth Quarterly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 September 2020 to 30 November 2020, in accordance with the Updated EM&A Manual and the requirements of EP-354/2009/D.

Air quality monitoring (including 1-hour TSP and 24-hour TSP) was carried out in this reporting period.

Eight (8) Action Level and two (2) Limit Level exceedances for 1-hour TSP and two (2) Action Level exceedances for 24-hour TSP were recorded by the Environmental Team of Contract No. *HY/2012/08* during the reporting period. The exceedances were considered not related to this Contract upon further investigation and the investigation report is presented in *Appendix I*. No action is required to be undertaken in accordance with the Event Action Plan as presented in *Appendix E*.

No exceedance of Action and Limit Levels for methane, oxygen and carbon dioxide was recorded during landfill gas hazard monitoring in the reporting period.

Environmental site inspection was carried out thirteen (13) times in the reporting period. Remedial actions recommended for the deficiencies identified during the site audits were properly implemented by the Contractor.

There was no environmental complaint, notification of summons or successful prosecution recorded in the reporting period.

The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Appendix A

Project Organization for Environmental Works



↔ Line of Communication

Appendix B

Construction Programme

ID	Activity	Duration (Days)	Activity % Complete	Start	Finish	Total Float	2018												2019												2020											
							May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov					
ABWF Works (for All)																																										
	ASCB1020	ABWF Works to Plant Rooms G/F	60	100%		-10																																				
	ASCB1070	ABWF second fix & final fix	56	95%		18																																				
Key Date 5 - E&M Works for TCB, Toll Area, Kiosk N1, Underpass, Plant Rm, and Approach Roads																																										
E&M Works for TCB																																										
Remaining Works for TCB (Non-FSI related)																																										
	KD5-OSW-1000	Remaining Works (Non FSI related)	42	95%		16																																				
Approach Roads																																										
Under Portions IX, XI, XX																																										
	AR150	T&C of Roading Lighting	30	40%		4																																				
Under Portion X																																										
	AR200	T&C of Roading Lighting in portion X	30	40%		4																																				
Key Date 7 - E&M Works for Satellite Control Building and Kiosks S1&S2																																										
E&M Works for Satellite Control Building																																										
E&M Works																																										
Remaining Works for SCB (Non-FSI related)																																										
	KD7-OSW-1010	Remaining Works (Non-FSI related)	42	95%		4																																				
Key Date 6C - E&M Works for South Ventilation Building																																										
Remaining Works for SVB (Non-FSI related)																																										
	KD6C-OSW-1000	Remaining Works (Non-FSI related)	42	95%		4																																				
Key Date 6A - E&M Works for Approach Roads at North Side																																										
Approach Roads																																										
	EAR130	Road Ligting Installation & Termination	50	95%		-63																																				
	EAR140	T&C & Miscellaneous Works for Statutory Inspection	12	0%		-63																																				
Key Date 10 - FSD Building Structure & E&M Works																																										
ABWF Works																																										
	AFSD1030	ABWF Works to Office and Corridors G/F	124	99%		-135																																				
	AFSD1031	ABWF Works to Office and Corridors 1/F	124	99%		-135																																				
	AFSD1040	ABWF Works to Toilets G/F	136	99%		-135																																				
	AFSD1060	External Cladding and Wall Plastering	101	95%		-94																																				
	AFSD1070	ABWF second fix & final fix	73	90%		-99																																				
E&M Works																																										
Installation																																										
G/F																																										
	FSDB-EMGF1160	E&M Installation - Eiv Plant Rooms - G/F	50	90%		-140																																				
1/F																																										
	FSDB-EM1F1140	E&M Installation - PD Plant Rooms - 1/F	60	90%		-145																																				
Testing and Commissioning																																										
	FSDB-TC1030	Non-Essential T&C	30	98%		-99																																				
Statutory Inspections and approvals																																										
	FSDB-SI1060	WSD Inspection of Plumbing Installation (PL)	4	0%		-145																																				
	FSDB-SI1080	Water Samples Test	24	0%		-145																																				
	FSDB-SI1090	Obtain Water Certificate and water supply connection - FS	4	0%		-115																																				
	FSDB-SI1100	Obtain Water Certificate and water supply connection - PL	4	0%		-145																																				
	FSDB-SI1120	FSD Inspection	12	0%		-116																																				
	FSDB-SI1130	Obtain FSI Certificate FS 172	0	0%		-116																																				
	FSDB-SI1140	KD10 Achieved	0	0%		-145																																				
Key Date 7A - E&M Works for Approach Roads at South Side																																										
Approach Roads																																										
	EAR200	T&C	12	20%		4																																				
Tunnel																																										
Remaining Works for Tunnel (CH2500 - 1800)																																										
	A1010	Remaining Works (Non FSI related)	98	90%		-35																																				
Key Date 9 - C&ED Building & E&M Works																																										
ABWF Works																																										
	ACED1010	Door and Window Frames	48	100%																																						
	ACED1020	ABWF Works to Plant Rooms G/F	60	95%		-141																																				
	ACED1021	ABWF Works to Plant Rooms 1/F	60	85%		-141																																				
	ACED1022	ABWF Works to Plant Rooms 2/F	60	85%		-141																																				

CONTRACT NO. HY2017/10

TM-CLKL NORTHERN CONNECTION TUNNEL BUILDINGS, E&M WORKS

THREE MONTHLY PROGRAMME AS OF 20 Sep 2020

P 2	Date	Revision	Checked	Approved
	20-Sep-20			

Appendix C

Environmental Mitigation and Enhancement Measure Implementation Schedules

(In reference to CINOTECH (2011) Agreement No.
CE35/2011 EP Baseline Environmental Monitoring for
Hong Kong-Zhuhai-Macao Bridge Tuen Mun-Chek Lap
Kok Link - Investigation. Updated EM&A Manual for
Tuen Mun-Chek Lap Kok Link)

Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link
Northern Connection Tunnel Buildings, Electrical and Mechanical Works
Environmental Mitigation and Enhancement Measure Implementation Schedule

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
Air Quality									
4.8.1	3.8	Watering of the construction sites in Lantau for 8 times/day and in Tuen Mun for 12 times/day to reduce dust emissions by 87.5% and 91.7% respectively and shall be undertaken.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	The Contractor shall, to the satisfaction of the Engineer, install effective dust suppression measures and take such other measures as may be necessary to ensure that at the Site boundary and any nearby sensitive receiver, dust levels are kept to acceptable levels.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	The Contractor shall not burn debris or other materials on the works areas.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	In hot, dry or windy weather, the watering programme shall maintain all exposed road surfaces and dust sources wet.	All unpaved haul roads / throughout construction period in hot, dry or windy weather	Contractor	TMEIA Avoid smoke impacts and disturbance		Y		↔
4.8.1	3.8	Where breaking of oversize rock/concrete is required, watering shall be implemented to control dust. Water spray shall be used during the handling of fill material at the site and at active cuts, excavation and fill sites where dust is likely to be created.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	Open dropping heights for excavated materials shall be controlled to a maximum height of 2m to minimise the fugitive dust arising from unloading.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	During transportation by truck, materials shall not be loaded to a level higher than the side and tail boards, and shall be dampened or covered before transport.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300mm over the edges of the side and tail boards.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	No earth, mud, debris, dust and the like shall be deposited on public roads. Wheel washing facility shall be usable prior to any earthworks excavation activity on the site.	All site exits / throughout construction period	Contractor	TMEIA Avoid dust		Y		✓

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link
Northern Connection Tunnel Buildings, Electrical and Mechanical Works
Environmental Mitigation and Enhancement Measure Implementation Schedule

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
4.8.1	3.8	Areas of exposed soil shall be minimised to areas in which works have been completed shall be restored as soon as is practicable.	All exposed surfaces / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		↔
4.8.1	3.8	All stockpiles of aggregate or spoil shall be enclosed or covered and water applied in dry or windy condition.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.11	Section 3	EM&A in the form of 1 hour and 24 hour dust monitoring and site audit.	All representative existing ASRs/ throughout construction period	Contractor	EM&A Manual		Y		N/A (Results adopted from published EM&A data of Contract No. HY.2012/08)
WATER QUALITY (LAND WORKS)									
6.10	-	Wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Sewage effluent and discharges from on- site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Temporary access roads should be surfaced with crushed stone or gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓

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Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link
Northern Connection Tunnel Buildings, Electrical and Mechanical Works
Environmental Mitigation and Enhancement Measure Implementation Schedule

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
6.10	-	Open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	5.8	Manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	All vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site disposal.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		N/A
6.10	-	The Contractor shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance.	All areas/ throughout construction period	Contractor	TM-EIAO Waste Disposal Ordinance		Y		✓

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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
6.10	-	All fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		∠
6.10	-	Surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Roadside gullies to trap silt and grit shall be provided prior to discharging the stormwater into the marine environment. The sumps will be maintained and cleaned at regular intervals.	Roadside/design and operation	Design Consultant/ Contractor	TM-EIAO	Y		Y	✓
6.10	Section 11	All construction works shall be subject to routine audit to ensure implementation of all EIA recommendations and good working practice.	All areas/ throughout construction period	Contractor	EM&A Manual		Y		✓
WASTE									
12.6		The Contractor shall identify a coordinator for the management of waste.	Contract mobilisation	Contractor	TMEIA		Y		✓
12.6		The Contractor shall prepare and implement a Waste Management Plan which specifies procedures such as a ticketing system, to facilitate tracking of loads and to ensure that illegal disposal of wastes does not occur, and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed. A recording system for the amount of waste generated, recycled and disposed (locations) should be established.	Contract mobilisation	Contractor	TMEIA, Works Branch Technical Circular No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material		Y		✓
12.6		The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges.	Contract mobilisation	Contractor	TMEIA, Land (Miscellaneous Provisions) Ordinance (Cap 28); Waste Disposal Ordinance (Cap 354); Dumping at Sea Ordinance (Cap 466); Water Pollution Control Ordinance.		Y		✓
12.6	8.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures including waste reduction, reuse and recycling.	Contract Mobilisation	Contractor	TMEIA		Y		✓

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Tuen Mun – Chek Lap Kok Link
Northern Connection Tunnel Buildings, Electrical and Mechanical Works
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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
12.6	8.1	The extent of cutting operation should be optimised where possible. Earth retaining structures and bored pile walls should be proposed to minimise the extent of cutting.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	The site and surroundings shall be kept tidy and litter free.	All areas / throughout construction period	Contractor	TMEIA		Y		<>
12.6	8.1	No waste shall be burnt on site.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	The Contractor shall be prohibited from disposing of C&D materials at any sensitive locations. The Contractor should propose the final disposal sites in the EMP and WMP for approval before implementation.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Stockpiled material shall be covered by tarpaulin and /or watered as appropriate to prevent windblown dust/ surface run off.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Excavated material in trucks shall be covered by tarpaulins to reduce the potential for spillage and dust generation.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Wheel washing facilities shall be used by all trucks leaving the site to prevent transfer of mud onto public roads.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Standard formwork or pre-fabrication should be used as far as practicable so as to minimise the C&D materials arising. The use of more durable formwork/plastic facing for construction works should be considered. The use of wooden hoardings should be avoided and metal hoarding should be used to facilitate recycling. Purchasing of construction materials should avoid over-ordering and wastage.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	The Contractor should recycle as many C&D materials (this is a waste section) as possible on-site. The public fill and C&D waste should be segregated and stored in separate containers or skips to facilitate the reuse or recycling of materials and proper disposal. Where practicable, the concrete and masonry should be crushed and used as fill materials. Steel reinforcement bar should be collected for use by scrap steel mills. Different areas of the sites should be considered for segregation and storage activities.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	All falsework will be steel instead of wood.	All areas / throughout construction period	Contractor	TMEIA		Y		✓

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*Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link
Northern Connection Tunnel Buildings, Electrical and Mechanical Works
Environmental Mitigation and Enhancement Measure Implementation Schedule*

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
12.6	8.1	Chemical waste producers should register with the EPD. Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows: f suitable for the substance to be held, resistant to corrosion, maintained in good conditions and securely closed; f Having a capacity of <450L unless the specifications have been approved by the EPD; and w Chinese according to the instructions prescribed in Schedule 2 of the Regulations. f Clearly labelled and used solely for the storage of chemical wastes; f Enclosed with at least 3 sides; f Impermeable floor and bund with capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest; f Adequate ventilation; f Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and f Incompatible materials are adequately separated.	All areas / throughout construction period	Contractor	TMEIA		Y		<>
12.6	8.1	Waste oils, chemicals or solvents shall not be disposed of to drain,	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Adequate numbers of portable toilets should be provided for on-site workers. Portable toilets should be maintained in reasonable states, which will not deter the workers from utilising them.	All areas / throughout construction period	Contractor	TMEIA		Y		✓

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Environmental Mitigation and Enhancement Measure Implementation Schedule

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
12.6	8.1	Night soil should be regularly collected by licensed collectors.	All areas / throughout construction period	Contractor	TMEIA		Y		N/A
12.6	8.1	General refuse arising on-site should be stored in enclosed bins or compaction units separately from C&D and chemical wastes. Sufficient dustbins shall be provided for storage of waste as required under the Public Cleansing and Prevention of Nuisances By-laws. In addition, general refuse shall be cleared daily and shall be disposed of to the nearest licensed landfill or refuse transfer station. Burning of refuse on construction sites is prohibited.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	All waste containers shall be in a secure area on handstanding;	All areas / throughout construction period	Contractor	TMEIA		Y		◁
12.6	8.1	Office wastes can be reduced by recycling of paper if such volume is sufficiently large to warrant collection. Participation in a local collection scheme by the Contractor should be advocated. Waste separation facilities for paper, aluminium cans, plastic bottles, etc should be provided on-site.	Site Offices/ throughout construction period	Contractor	TMEIA		Y		✓
12.6	Section 8	EM&A of waste handling, storage, transportation, disposal procedures and documentation through the site audit programme shall be undertaken.	All areas / throughout construction period	Contractor	EM&A Manual		Y		✓
LANDSCAPE AND VISUAL									
10.9	7.6	Existing trees on boundary of the Project Area shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas (Tree protection measures will be detailed at Tree Removal Application Stage) (CM1)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A

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Tuen Mun – Chek Lap Kok Link
Northern Connection Tunnel Buildings, Electrical and Mechanical Works
Environmental Mitigation and Enhancement Measure Implementation Schedule

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
10.9	7.6	Trees unavoidably affected by the works shall be transplanted where practical. Trees will be transplanted straight to their final receptor site and not held in a temporary nursery. A detailed Tree Transplanting Specification shall be provided in the Contract Specification. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme (CM2)	All areas/ detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Hillside and roadside screen planting to proposed roads, associated structures and slope works (CM3)	All areas/ detailed design/ during construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone) (CM4)	All areas/ detailed design/ during construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Screening of construction works by hoardings around works area in visually unobtrusive colours, to screen works (CM5)	All areas/ detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Control night-time lighting and glare by hooding all lights (CM6)	All areas/ detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Ensure no run-off into water body adjacent to the Project Area (CM7)	All areas/ detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Avoidance of excessive height and bulk of buildings and structures (CM8)	All areas/ detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓

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Northern Connection Tunnel Buildings, Electrical and Mechanical Works
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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
10.9	7.6	Recycle/ Reuse all felled trees and vegetation, e.g. mulching (CM9)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Compensatory tree planting shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Felling Application process under ETWBTC 3/2006 (CM10)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Re-vegetation of affected woodland/shrubland with native species (OM1)	All areas/detailed design/ during construction/ during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by AFCD/HyD/L CSD
10.9	7.6	Tall buffer screen tree / shrub / climber planting should be incorporated to soften hard engineering structures and facilities (OM2)	All areas/detailed design/ during construction/ during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by AFCD/HyD/L CSD
10.9	7.6	Streetscape elements (e.g. paving, signage, street furniture, lighting etc.) shall be sensitively designed in a manner that responds to the local context, and minimises potential negative landscape and visual impacts. Lighting units should be directional and minimise unnecessary light spill (OM3)	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by HyD/LCSD
10.9	7.6	Structure, ornamental tree / shrub / climber planting should be provided along roadside amenity strips, central dividers and newly formed slopes to enhance the townscape quality and further greenery enhancement (OM4)	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by HyD/LCSD
10.9	7.6	Aesthetically pleasing design (visually unobtrusive and non-reflective) as regard to the form, material and finishes	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	n/a. To be implemented by HyD

*** Remarks:**

- ✓ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by Contractor
- Δ Deficiency of Mitigation Measures but rectified by Contractor
- N/A Not Applicable in Reporting Period

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Appendix D

Summary of Action and Limit Levels

Table D1 *Action and Limit Levels for 1-hour and 24-hour TSP*

Parameters	Action	Limit
24 Hour TSP Level in $\mu\text{g}/\text{m}^3$	ASR1 = 213 ASR5 = 238 AQMS1 = 213 ASR6 = 238 ASR10 = 214	260
1 Hour TSP Level in $\mu\text{g}/\text{m}^3$	ASR1 = 331 ASR5 = 340 AQMS1 = 335 ASR6 = 338 ASR10 = 337	500

Table D2 *Actions in the Event of Landfill Gas being Detected in Excavation/ Confined Area*

Parameter	Measurement	Action
Oxygen	< 19%	- Ventilate to restore oxygen to > 19%
	< 18%	- Stop work - Evacuate personnel / prohibit entry - Increase ventilation to restore to > 19%
Methane	> 10% LEL (> 0.5% v/v)	- Prohibit hot work - Ventilate to restore methane to < 10% LEL
	> 20% LEL (>1% v/v)	- Stop work - Evacuate personnel / prohibit entry - Increase ventilation to restore to < 10%
Carbon Dioxide	> 0.5%	- Ventilate to restore oxygen to < 0.5%
	> 1.5%	- Stop work - Evacuate personnel / prohibit entry - Increase ventilation to restore to < 0.5%

Appendix E

Event Action Plan

Appendix L1 Event/ Action Plan for Air Quality

EVENT	ET ⁽¹⁾	IEC ⁽¹⁾	ACTION	
			ER ⁽¹⁾	Contractor
Action Level				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify the source. 2. Inform the IEC and the ER. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET. 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice 2. Amend working methods if appropriate
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify the source. 2. Inform the IEC and the ER. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Discuss with the IEC and the Contractor on remedial actions required. 6. If exceedance continues, arrange meeting with the IEC and the ER. 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET. 2. Check the Contractor's working method. 3. Discuss with the ET and the Contractor on possible remedial measures. 4. Advise the ER on the effectiveness of the proposed remedial measures. 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Submit proposals for remedial actions to IEC within 3 working days of notification 2. Implement the agreed proposals 3. Amend proposal if appropriate

EVENT	ACTION			
	ET ⁽¹⁾	IEC ⁽¹⁾	ER ⁽¹⁾	Contractor
Limit Level				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify the source. 2. Inform the ER and the DEP. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily. 5. Assess effectiveness of Contractor's remedial actions and keep the IEC, the DEP and the ER informed of the results. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET. 2. Check Contractor's working method. 3. Discuss with the ET and the Contractor on possible remedial measures. 4. Advise the ER on the effectiveness of the proposed remedial measures. 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IEC within 3 working days of notification 3. Implement the agreed proposals 4. Amend proposal if appropriate
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Notify the IEC, the ER, the DEP and the Contractor. 2. Identify the source. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented. 6. Arrange meeting with the IEC and the ER to discuss the remedial actions to be taken. 7. Assess effectiveness of the Contractor's remedial actions 	<ol style="list-style-type: none"> 1. Discuss amongst the ER, ET and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by the ER until the exceedance is abated.

and keep the IEC, the DEP and
the ER informed of the results.

8. If the exceedance stops, cease
additional monitoring.

Abbreviations: ET - Environmental Team, IEC - Independent Environmental Checker, SO - Supervising Office, DEP - Director of Environmental Protection

Appendix F

EM&A Monitoring Schedule

**HY/2017/10 Tuen Mun - Chek Lap Kok Link - Northern Tunnel Connection Buildings, E&M Works
Landfill Gas Monitoring Schedule (1 to 30 September 2020)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		01-Sep	02-Sep	03-Sep	04-Sep	05-Sep
		LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
06-Sep	07-Sep	08-Sep	09-Sep	10-Sep	11-Sep	12-Sep
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
13-Sep	14-Sep	15-Sep	16-Sep	17-Sep	18-Sep	19-Sep
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
20-Sep	21-Sep	22-Sep	23-Sep	24-Sep	25-Sep	26-Sep
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
27-Sep	28-Sep	29-Sep	30-Sep			
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)			

**HY/2017/10 Tuen Mun - Chek Lap Kok Link - Northern Tunnel Connection Buildings, E&M Works
Landfill Gas Monitoring Schedule (1 to 31 October 2020)**

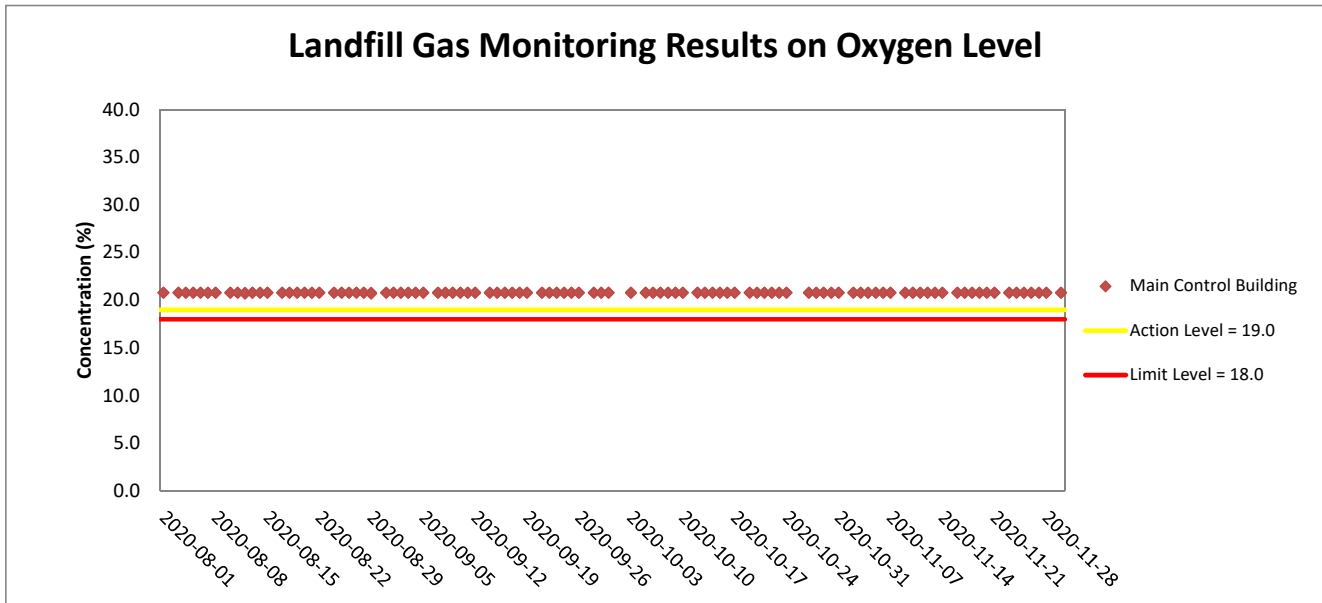
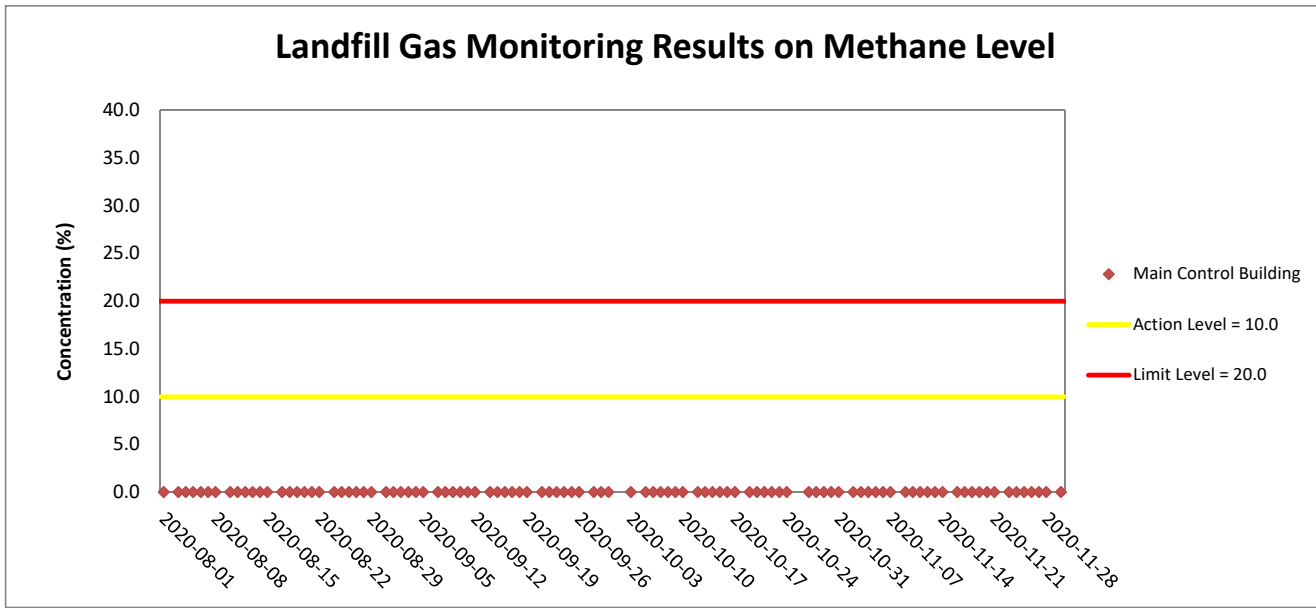
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				01-Oct	02-Oct	03-Oct
						LFG Monitoring (a.m. & p.m.)
04-Oct	05-Oct	06-Oct	07-Oct	08-Oct	09-Oct	10-Oct
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
11-Oct	12-Oct	13-Oct	14-Oct	15-Oct	16-Oct	17-Oct
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
18-Oct	19-Oct	20-Oct	21-Oct	22-Oct	23-Oct	24-Oct
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
25-Oct	26-Oct	27-Oct	28-Oct	29-Oct	30-Oct	31-Oct
		LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)

**HY/2017/10 Tuen Mun - Chek Lap Kok Link - Northern Tunnel Connection Buildings, E&M Works
Landfill Gas Monitoring Schedule (1 to 30 November 2020)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
01-Nov	02-Nov	03-Nov	04-Nov	05-Nov	06-Nov	07-Nov
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
08-Nov	09-Nov	10-Nov	11-Nov	12-Nov	13-Nov	14-Nov
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
15-Nov	16-Nov	17-Nov	18-Nov	19-Nov	20-Nov	21-Nov
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
22-Nov	23-Nov	24-Nov	25-Nov	26-Nov	27-Nov	28-Nov
	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)	LFG Monitoring (a.m. & p.m.)
29-Nov	30-Nov					
	LFG Monitoring (a.m. & p.m.)					

Appendix G

Landfill Gas Monitoring
Results and Graphical
Presentation

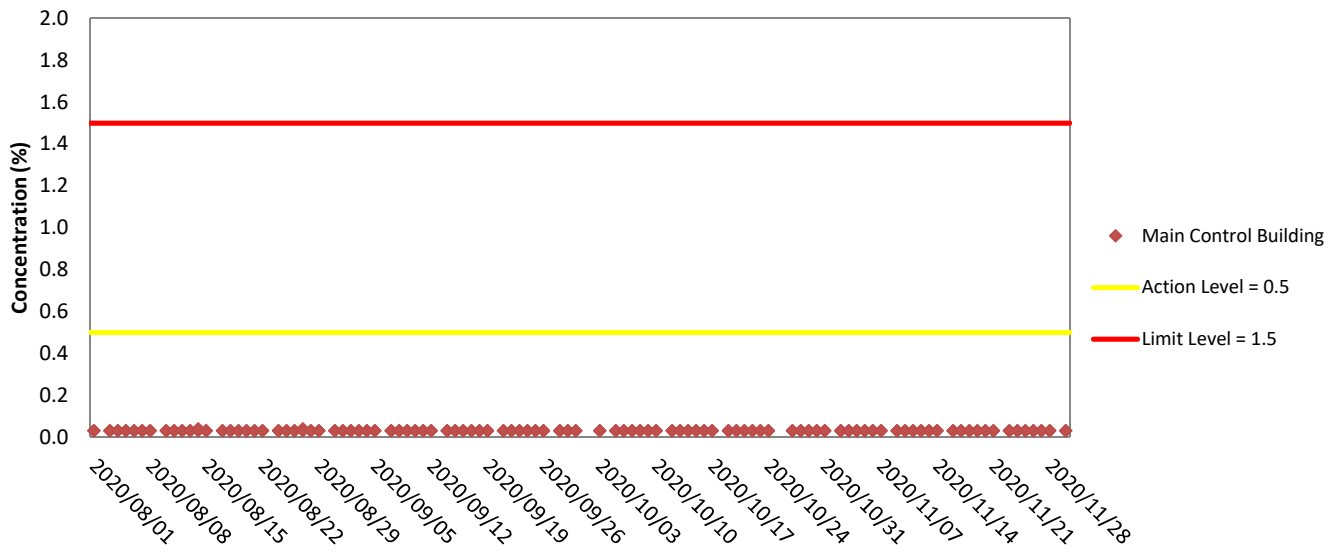


Weather condition within the reporting period was sunny to rainy

Major construction works undertaken within the reporting period include

- Handover Inspection at Main Control Building;
- Electrical and Mechanical Works and Handover Inspection at Ventilation Plant Room;
- Handover Inspection at North Ventilation Building;
- Handover Inspection at Administration Building;
- Handover Inspection at Maintenance Depot;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes and Handover Inspection at Fire Services Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes and Handover Inspection at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes and Handover Inspection at N1;
- Electrical and Mechanical Works and Handover Inspection at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes, T&C and FSI at the Tunnel;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes and Handover Inspection at underpass at C3 area;
- Handover Inspection at Satellite Control Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes and Handover Inspection at Kiosk S2;
- Handover Inspection at South Ventilation Building; and
- Soil Mix and Landscape Works at Northern Landfall and Southern Landfall.

Landfill Gas Monitoring Results on Carbon Dioxide Level



Weather condition within the reporting period was sunny to rainy

Major construction works undertaken within the reporting period include

- Handover Inspection at Main Control Building;
- Electrical and Mechanical Works and Handover Inspection at Ventilation Plant Room;
- Handover Inspection at North Ventilation Building;
- Handover Inspection at Administration Building;
- Handover Inspection at Maintenance Depot;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes and Handover Inspection at Fire Services Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes and Handover Inspection at Customs and Excise Department Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes and Handover Inspection at N1;
- Electrical and Mechanical Works and Handover Inspection at Kiosk N2;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes, T&C and FSI at the Tunnel;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes and Handover Inspection at underpass at C3 area;
- Handover Inspection at Satellite Control Building;
- Electrical and Mechanical Works and Architectural Builder's Work and Finishes and Handover Inspection at Kiosk S2;
- Handover Inspection at South Ventilation Building; and
- Soil Mix and Landscape Works at Northern Landfall and Southern Landfall.

Appendix H

Quarterly Summary of Waste Flow Table

Contract No. : HY/2017/10

Tuen Mun Chek Lap Kok Link – Northern Connection Tunnel Buildings, Electrical and Mechanical Works

Monthly Summary Waste Flow Table for 2020 (Year)

Month\Material	Actual Quantities of Inert C&D Materials Generation						Actual Quantities of C&D wastes Generation		Actual Quantities of Recyclables Generation			
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fills	Imported Fill	Chemical Waste	General Refuse	Metals	Felled trees	Paper/ cardboard packaging	Plastics
Unit	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)
Jan	0.025	0.000	-	-	0.025	-	-	187.500	-	-	0.070	-
Feb	0.074	0.026	-	-	0.074	-	-	176.100	-	-	0.084	-
Mar	0.650	0.117	-	-	0.366	0.284	-	237.850	-	-	0.042	-
Apr	0.139	0.000	-	-	0.139	-	-	167.820	-	-	-	-
May	6.429	0.000	-	1.975	0.023	4.431	-	252.730	-	-	0.056	-
Jun	17.715	0.053	-	0.421	0.034	17.260	-	255.300	-	-	-	-
SUB-TOTAL	25.032	0.196	0.000	2.396	0.661	21.975	0.000	1277.300	0.000	0.000	0.252	0.000
Jul	41.044	0.008	-	6.284	0.035	34.725	-	134.530	-	-	0.056	-
Aug	10.705	0.007	-	-	0.163	10.541	-	132.420	-	-	0.035	-
Sep	0.033	0.005	-	-	0.033	-	-	89.120	-	-	0.028	-
Oct	0.210	0.011	-	-	0.210	-	-	184.460	-	-	0.028	-
Nov	0.114	-	-	-	0.114	-	-	150.600	-	-	0.014	-
Dec	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	77.137	0.227	0.000	8.680	1.216	67.241	0.000	1,968.430	0.000	0.000	0.413	0.000

Notes :

- 1 - The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- 2 - Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
- 3 - Broken concrete for recycling into aggregates.
- 4 - Assumed 5 kg per damaged water-filled barrier.
- 5 - Disposed as Public Fills includes Hard Rock and Large Broken Concrete.

Appendix I

Cumulative Statistics on
Exceedances, Complaints,
Notifications of Summons
and Successful Prosecutions

Appendix I1 Cumulative Statistics on Exceedances

		Total No. recorded in this reporting quarter	Total No. recorded since contract commencement
1-Hr TSP	Action	8	53
	Limit	2	11
24-Hr TSP	Action	2	4
	Limit	0	0
Landfill gas hazard monitoring			
• Methane	Action	0	0
	Limit	0	0
• Oxygen	Action	0	0
	Limit	0	0
• Carbon Dioxide	Action	0	0
	Limit	0	0

Appendix I2 Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This reporting quarter	0	0	0
Total No. received since contract commencement	1	0	0

Email
message

**Environmental
Resources
Management**

To Ramboll Hong Kong Limited (ENPO)

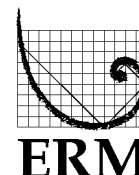
From ERM- Hong Kong, Limited

Ref/Project number Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link – Northern
Connection Tunnel Buildings, Electrical and
Mechanical Works

Subject Notification of Exceedance for Air Quality
Impact Monitoring

Date 5 October 2020

2507,
25/F One Harbourfront,
18 Tak Fung Street,
Hung Hom, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jasmine.ng@erm.com



Dear Sir/ Madam,

Please find attached the Notification of Exceedance (NOE) of the following
Log no.:

Action Level Exceedance

0463091_11September2020_1hrTSP_Station ASR6

Limit Level Exceedance

0463091_11September2020_1hrTSP_Station ASR6

Two (2) exceedances were recorded on 11 September 2020.

Regards,

Dr Jasmine Ng
Environmental Team Leader

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This facsimile transmission is intended only for the use of the addressee and is confidential. If you are not the addressee it may be unlawful for you to read, copy, distribute, disclose or otherwise use the information in this facsimile. If you are not the intended recipient, please telephone or fax us immediately.



ERM-Hong Kong, Limited

**CONTRACT NO. HY/2017/10
TUEN MUN – CHEK LAP KOK LINK –
NORTHERN CONNECTION TUNNEL BUILDINGS,
ELECTRICAL AND MECHANICAL WORKS**

Air Quality Impact Monitoring

Notification of Exceedance

Log No.	<p align="center"><u>Action Level Exceedance</u> 0463091_11September2020_1hrTSP_Station ASR6</p> <p align="center"><u>Limit Level Exceedance</u> 0463091_11September2020_1hrTSP_Station ASR6</p> <p align="center">[Total No. of Exceedances = 2]</p>	
Date	<p align="center">11 September 2020 (Measured) 5 October 2020 (Results obtained from ENPO Website)</p>	
Monitoring Station	ASR6	
Parameter(s) with Exceedance(s)	1- hr TSP	
Action Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 331 ASR5 = 340 ASR6 = 338 ASR10 = 335 AQMS1 = 337
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 213 ASR5 = 238 ASR6 = 238 ASR10 = 214 AQMS1 = 213
Limit Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	500
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	260
Measured Levels	Refer to <i>Appendix A</i> (Data are source from Contract No. HY/2012/08).	
Works Undertaken (at the time of monitoring event)	<p>Works undertaken under this Contract on 11 September 2020 included</p> <ul style="list-style-type: none"> Defect rectification at Fire Services Department Building; Defect rectification at Customs and Excise Department Building 	
Possible Reason for Action or Limit Level Exceedance(s)	<p>The exceedances are unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> With reference to the recorded wind direction (ranged between 222° and 264°), blowing from a south-westerly/ westerly direction) and wind speed (ranged between 0.9 and 1.3 m/s) when exceedances recorded, ASR6 is located downstream to Fire Services Department Building and Customs and Excise Department Building. However, only minor defect rectification works were conducted which are considered not major dust generating works. In addition, Environmental Team of Contract No. HY/2012/08 supplemented photos taken on 11 September 2020 during sampling period. It was observed that renovation works were conducted nearby ASR6. After confirmation with the Contractor, the works were not under this Contract. The construction area under this Contract were mainly paved. The remaining unpaved area are seated by machines such as crane machines and generators or used as material storage area with proper cover of tarpaulin sheet or designated for landscaping works. The exposed area are covered with tarpaulin sheet/vegetation. Dust are not anticipated (refer to <i>Appendix B</i>). <p>Based on the above, the exceedance is unlikely to be due to the Contract.</p>	
Actions Taken/ To Be Taken	No immediate action is considered necessary. The ET will monitor for future trends in exceedances.	

Remarks	The monitoring results on 11 September 2020, locations of air quality monitoring stations and wind data are attached (refer to <i>Appendix A</i>).
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Appendix A

Results of Air Quality
Monitoring, Meteorological
Data and Locations of Air
Quality Monitoring Stations

Air quality monitoring results on 11/9/2020								
Project	Contract	Date	Station	Weather	Start time	Parameters	Results	Unit
TMCLKL	HY/2012/08	2020-09-11	ASR10	Sunny	8:14:00	1-hour TSP	28	ug/m3
TMCLKL	HY/2012/08	2020-09-11	ASR10	Sunny	9:16:00	1-hour TSP	19	ug/m3
TMCLKL	HY/2012/08	2020-09-11	ASR10	Sunny	10:18:00	1-hour TSP	23	ug/m3
TMCLKL	HY/2012/08	2020-09-11	ASR6	Sunny	8:26:00	1-hour TSP	143	ug/m3
TMCLKL	HY/2012/08	2020-09-11	ASR6	Sunny	9:28:00	1-hour TSP	499	ug/m3
TMCLKL	HY/2012/08	2020-09-11	ASR6	Sunny	10:30:00	1-hour TSP	1454	ug/m3
TMCLKL	HY/2012/08	2020-09-11	ASR5	Sunny	8:37:00	1-hour TSP	86	ug/m3
TMCLKL	HY/2012/08	2020-09-11	ASR5	Sunny	9:39:00	1-hour TSP	73	ug/m3
TMCLKL	HY/2012/08	2020-09-11	ASR5	Sunny	10:41:00	1-hour TSP	74	ug/m3
TMCLKL	HY/2012/08	2020-09-11	ASR1	Sunny	8:49:00	1-hour TSP	37	ug/m3
TMCLKL	HY/2012/08	2020-09-11	ASR1	Sunny	9:51:00	1-hour TSP	74	ug/m3
TMCLKL	HY/2012/08	2020-09-11	ASR1	Sunny	10:53:00	1-hour TSP	57	ug/m3
TMCLKL	HY/2012/08	2020-09-11	AQMS1	Sunny	9:00:00	1-hour TSP	50	ug/m3
TMCLKL	HY/2012/08	2020-09-11	AQMS1	Sunny	10:02:00	1-hour TSP	48	ug/m3
TMCLKL	HY/2012/08	2020-09-11	AQMS1	Sunny	11:04:00	1-hour TSP	41	ug/m3
TMCLKL	HY/2012/08	2020-09-11	ASR10	Sunny	11:20:00	24-hour TSP	21	ug/m3
TMCLKL	HY/2012/08	2020-09-11	ASR6	Sunny	11:32:00	24-hour TSP	70	ug/m3
TMCLKL	HY/2012/08	2020-09-11	ASR5	Sunny	11:43:00	24-hour TSP	49	ug/m3
TMCLKL	HY/2012/08	2020-09-11	ASR1	Sunny	11:55:00	24-hour TSP	43	ug/m3
TMCLKL	HY/2012/08	2020-09-11	AQMS1	Sunny	12:06:00	24-hour TSP	39	ug/m3

Action level exceedance

Limit level exceedance

Meteorological Data for Impact Monitoring in the reporting period

Date (yy-mm-dd)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Direction(degree)
20/09/11	0:00	0.4	109
20/09/11	1:00	0	102
20/09/11	2:00	0.4	205
20/09/11	3:00	0	64
20/09/11	4:00	0	73
20/09/11	5:00	0.4	15
20/09/11	6:00	0.4	334
20/09/11	7:00	0.4	335
20/09/11	8:00	0.9	98
20/09/11	9:00	0.9	233
20/09/11	10:00	0.9	264
20/09/11	11:00	1.3	222
20/09/11	12:00	2.2	138
20/09/11	13:00	1.3	100
20/09/11	14:00	1.8	249
20/09/11	15:00	1.8	141
20/09/11	16:00	1.8	84
20/09/11	17:00	1.3	84
20/09/11	18:00	1.3	100
20/09/11	19:00	1.3	86
20/09/11	20:00	0.9	96
20/09/11	21:00	0.4	78
20/09/11	22:00	0.4	34
20/09/11	23:00	0.4	83

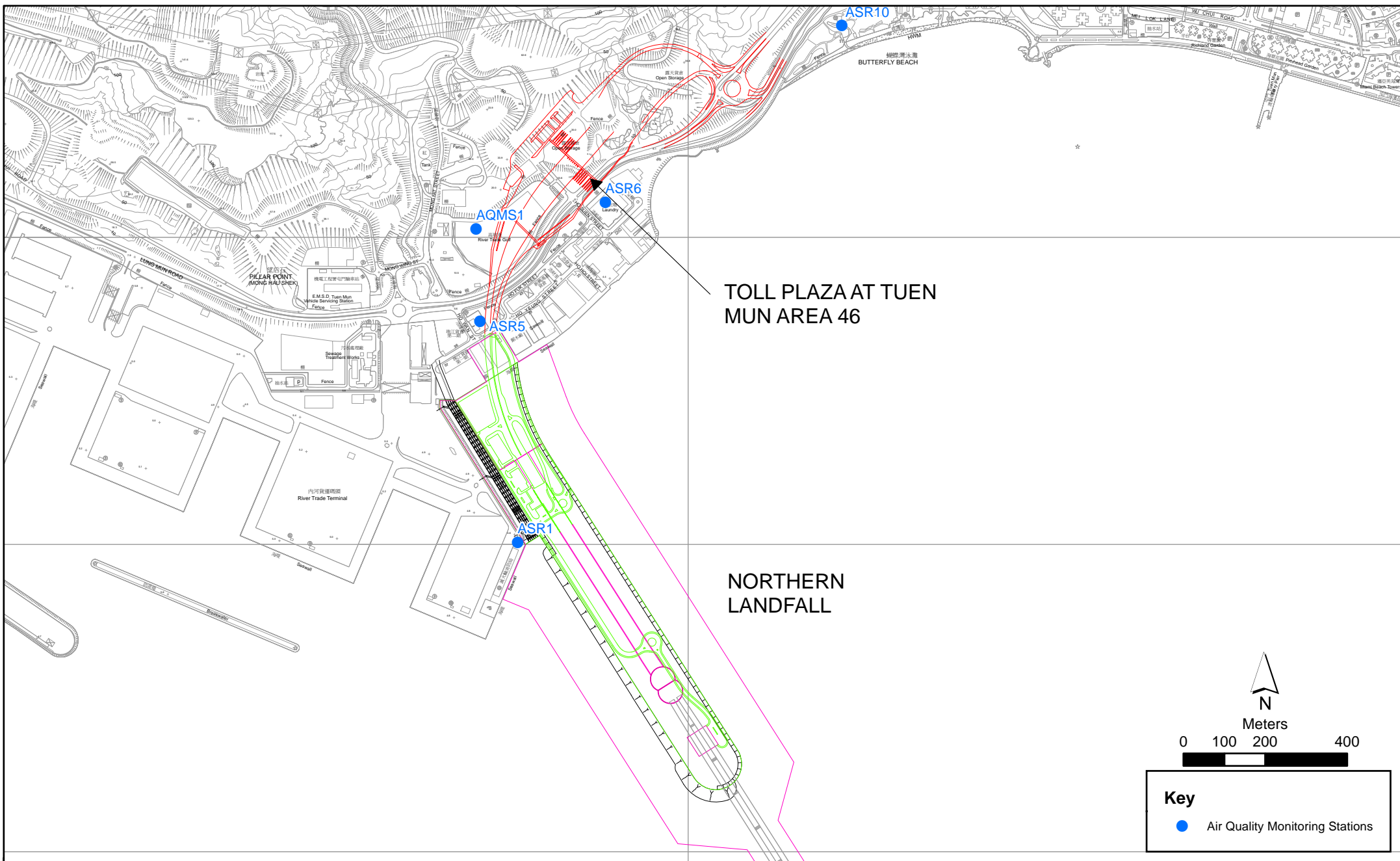


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring
 (Source: Adopted from Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link -
 Northern Connection Sub-sea Tunnel Section)

Appendix B

Site Photo



Photo 1 - Northern Landfall

Email
message

Environmental
Resources
Management

To Ramboll Hong Kong Limited (ENPO)

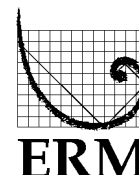
From ERM- Hong Kong, Limited

Ref/Project number Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link – Northern
Connection Tunnel Buildings, Electrical and
Mechanical Works

Subject Notification of Exceedance for Air Quality
Impact Monitoring

Date 22 October 2020

2507,
25/F One Harbourfront,
18 Tak Fung Street,
Hung Hom, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jasmine.ng@erm.com




Dear Sir/ Madam,

Please find attached the Notification of Exceedance (NOE) of the following
Log no.:

Action Level Exceedance
0463091_9October2020_1hrTSP_Station ASR5

One (1) exceedance was recorded on 9 October 2020.

Regards,



Dr Jasmine Ng
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2017/10
 TUEN MUN – CHEK LAP KOK LINK –
 NORTHERN CONNECTION TUNNEL BUILDINGS,
 ELECTRICAL AND MECHANICAL WORKS

Air Quality Impact Monitoring

Notification of Exceedance

Log No.	<u>Action Level Exceedance</u> 0463091_9October2020_1hrTSP_Station ASR5	
	[Total No. of Exceedances = 1]	
Date	9 October 2020 (Measured) 22 October 2020 (Results obtained from ENPO Website)	
Monitoring Station	ASR5	
Parameter(s) with Exceedance(s)	1- hr TSP	
Action Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 331 ASR5 = 340 ASR6 = 338 ASR10 = 335 AQMS1 = 337
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 213 ASR5 = 238 ASR6 = 238 ASR10 = 214 AQMS1 = 213
Limit Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	500
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	260
Measured Levels	Refer to <i>Appendix A</i> (Data are source from Contract No. HY/2012/08).	
Works Undertaken (at the time of monitoring event)	Works undertaken under this Contract on 9 October 2020 included <ul style="list-style-type: none"> Indoor defect rectification at Fire Services Department Building; Indoor defect rectification at Main Control Building 	
Possible Reason for Action or Limit Level Exceedance(s)	<p>The exceedance is unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> With reference to the recorded wind direction (ranged between 3° and 34°), blowing from a northerly/north-easterly direction) and wind speed (1.8 m/s) when exceedance recorded, ASR5 is located upstream to the work area. However, only minor defect rectification works were conducted which are considered not major dust generating works. The construction area under this Contract were mainly paved. The remaining unpaved area are seated by machines such as crane machines and generators or used as material storage area with proper cover of tarpaulin sheet or designated for landscaping works. The exposed area are covered with tarpaulin sheet/vegetation. Dust are not anticipated (<i>Appendix B</i>). <p>Based on the above, the exceedance is unlikely to be due to the Contract.</p>	
Actions Taken / To Be Taken	No immediate action is considered necessary. The ET will monitor for future trends in exceedances.	
Remarks	The monitoring results on 9 October 2020, locations of air quality monitoring stations and wind data are attached (refer to <i>Appendix A</i>).	

Appendix A

Results of Air Quality
Monitoring, Meteorological
Data and Locations of Air
Quality Monitoring Stations

Air quality monitoring results on 9/10/2020								
Project	Contract	Date	Station	Weather	Start time	Parameters	Results	Unit
TMCLKL	HY/2012/08	2020-10-09	ASR10	Sunny	8:10:00	1-hour TSP	94	ug/m3
TMCLKL	HY/2012/08	2020-10-09	ASR10	Sunny	9:12:00	1-hour TSP	64	ug/m3
TMCLKL	HY/2012/08	2020-10-09	ASR10	Sunny	10:14:00	1-hour TSP	85	ug/m3
TMCLKL	HY/2012/08	2020-10-09	ASR6	Sunny	8:20:00	1-hour TSP	178	ug/m3
TMCLKL	HY/2012/08	2020-10-09	ASR6	Sunny	9:22:00	1-hour TSP	91	ug/m3
TMCLKL	HY/2012/08	2020-10-09	ASR6	Sunny	10:24:00	1-hour TSP	109	ug/m3
TMCLKL	HY/2012/08	2020-10-09	ASR5	Sunny	8:32:00	1-hour TSP	373	ug/m3
TMCLKL	HY/2012/08	2020-10-09	ASR5	Sunny	9:34:00	1-hour TSP	178	ug/m3
TMCLKL	HY/2012/08	2020-10-09	ASR5	Sunny	10:36:00	1-hour TSP	167	ug/m3
TMCLKL	HY/2012/08	2020-10-09	ASR1	Sunny	8:44:00	1-hour TSP	181	ug/m3
TMCLKL	HY/2012/08	2020-10-09	ASR1	Sunny	9:46:00	1-hour TSP	145	ug/m3
TMCLKL	HY/2012/08	2020-10-09	ASR1	Sunny	10:48:00	1-hour TSP	114	ug/m3
TMCLKL	HY/2012/08	2020-10-09	AQMS1	Sunny	8:55:00	1-hour TSP	80	ug/m3
TMCLKL	HY/2012/08	2020-10-09	AQMS1	Sunny	9:57:00	1-hour TSP	106	ug/m3
TMCLKL	HY/2012/08	2020-10-09	AQMS1	Sunny	10:59:00	1-hour TSP	94	ug/m3
TMCLKL	HY/2012/08	2020-10-09	ASR10	Sunny	11:16:00	24-hour TSP	73	ug/m3
TMCLKL	HY/2012/08	2020-10-09	ASR6	Sunny	11:26:00	24-hour TSP	105	ug/m3
TMCLKL	HY/2012/08	2020-10-09	ASR5	Sunny	11:38:00	24-hour TSP	125	ug/m3
TMCLKL	HY/2012/08	2020-10-09	ASR1	Sunny	11:50:00	24-hour TSP	153	ug/m3
TMCLKL	HY/2012/08	2020-10-09	AQMS1	Sunny	12:01:00	24-hour TSP	82	ug/m3

Action level exceedance

Limit level exceedance

Meteorological Data for Impact Monitoring in the reporting period

Date (yy-mm-dd)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Direction(degree)
20/10/09	0:00	2.2	29
20/10/09	1:00	2.2	30
20/10/09	2:00	2.2	28
20/10/09	3:00	2.2	20
20/10/09	4:00	2.2	16
20/10/09	5:00	2.7	27
20/10/09	6:00	1.8	15
20/10/09	7:00	0.9	347
20/10/09	8:00	1.8	3
20/10/09	9:00	1.8	34
20/10/09	10:00	1.8	11
20/10/09	11:00	1.8	34
20/10/09	12:00	1.8	31
20/10/09	13:00	1.8	23
20/10/09	14:00	1.3	266
20/10/09	15:00	1.3	332
20/10/09	16:00	1.3	338
20/10/09	17:00	1.8	25
20/10/09	18:00	2.2	332
20/10/09	19:00	1.8	312
20/10/09	20:00	2.7	318
20/10/09	21:00	2.7	331
20/10/09	22:00	1.8	345
20/10/09	23:00	0.9	335

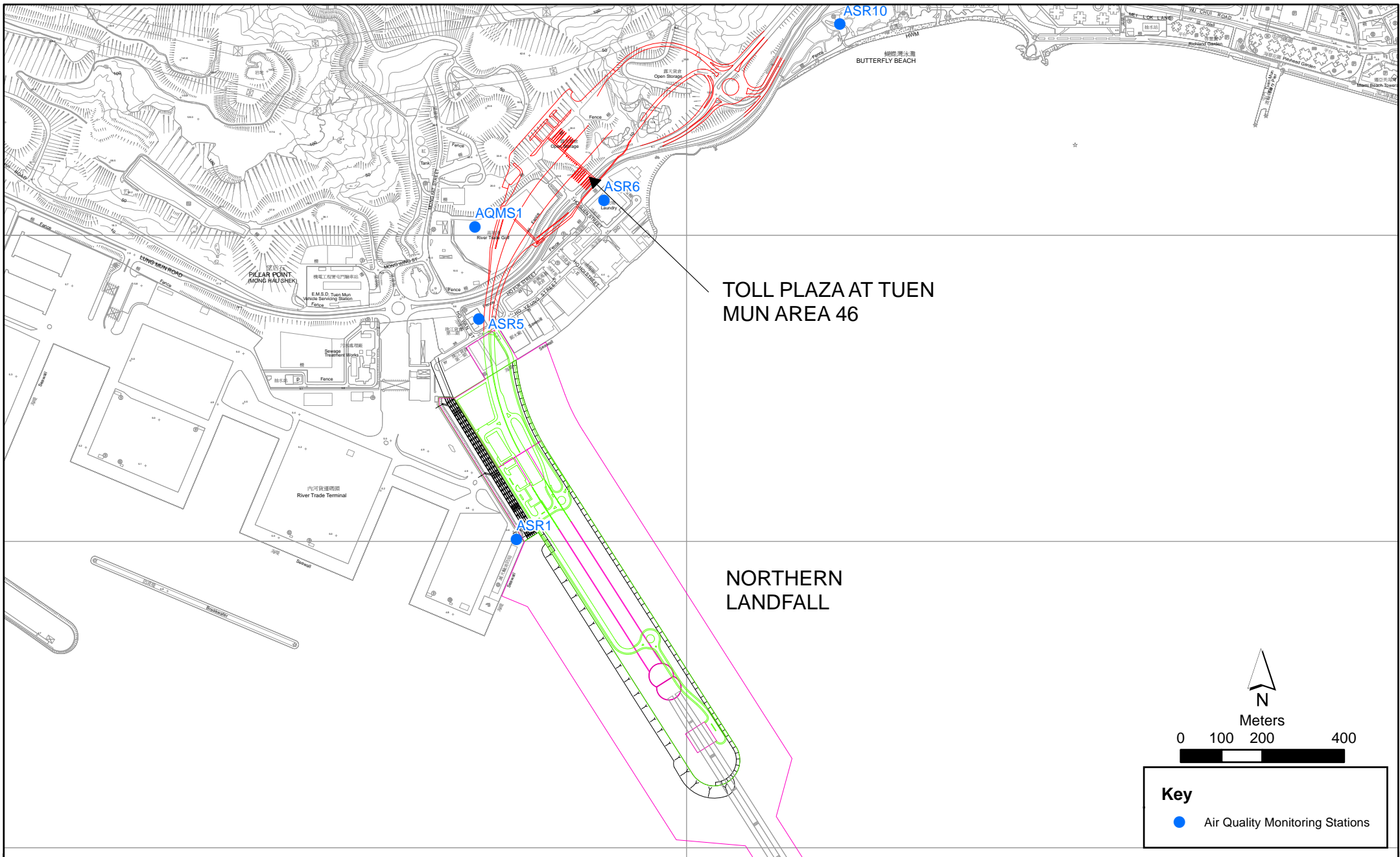


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring
 (Source: Adopted from Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link -
 Northern Connection Sub-sea Tunnel Section)

Appendix B

Site Photo



Photo 1 - Fire Services Department Building



Photo 2 - Main Control Building

Email
message

Environmental
Resources
Management

To Ramboll Hong Kong Limited (ENPO)

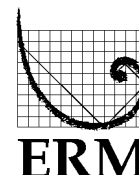
From ERM- Hong Kong, Limited

Ref/Project number Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link – Northern
Connection Tunnel Buildings, Electrical and
Mechanical Works

Subject Notification of Exceedance for Air Quality
Impact Monitoring

Date 10 November 2020

2507,
25/F One Harbourfront,
18 Tak Fung Street,
Hung Hom, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jasmine.ng@erm.com



Dear Sir/ Madam,

Please find attached the Notification of Exceedance (NOE) of the following
Log no.:

Action Level Exceedance

0463091_21October2020_1hrTSP_Station ASR6

0463091_21October2020_1hrTSP_Station ASR5

0463091_21October2020_1hrTSP_Station ASR1

Three (3) exceedances were recorded on 21 October 2020.

Regards,

Dr Jasmine Ng
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2017/10
 TUEN MUN – CHEK LAP KOK LINK –
 NORTHERN CONNECTION TUNNEL BUILDINGS,
 ELECTRICAL AND MECHANICAL WORKS

Air Quality Impact Monitoring

Notification of Exceedance

Log No.	<p style="text-align: center;"><u>Action Level Exceedance</u></p> <p style="text-align: center;">0463091_21October2020_1hrTSP_Station ASR6 0463091_21October2020_1hrTSP_Station ASR5 0463091_21October2020_1hrTSP_Station ASR1</p> <p style="text-align: center;">[Total No. of Exceedances = 3]</p>	
Date	<p style="text-align: center;">21 October 2020 (Measured) 10 November 2020 (Results obtained from ENPO Website)</p>	
Monitoring Station	<p style="text-align: center;">ASR6, ASR5, ASR1</p>	
Parameter(s) with Exceedance(s)	<p style="text-align: center;">1- hr TSP</p>	
Action Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 331 ASR5 = 340 ASR6 = 338 ASR10 = 335 AQMS1 = 337
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 213 ASR5 = 238 ASR6 = 238 ASR10 = 214 AQMS1 = 213
Limit Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	500
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	260
Measured Levels	Refer to <i>Appendix A</i> (Data are source from Contract No. HY/2012/08).	
Works Undertaken (at the time of monitoring event)	Works undertaken under this Contract on 21 October 2020 included <ul style="list-style-type: none"> • Indoor defect rectification at Northern Landfall; • Indoor defect rectification at Main Control Building 	
Possible Reason for Action or Limit Level Exceedance(s)	The exceedance is unlikely to be due to the Contract, in view of the following: <ul style="list-style-type: none"> • With reference to the recorded wind direction (ranged between 322° and 345°), blowing from a north-westerly direction) and wind speed (2.2 m/s) when exceedances recorded, ASR5 and ASR6 are located upstream to the work area. • Only minor defect rectification works were conducted which are considered not major dust generating works, thus result of 1-hour TSP at ASR1 was unlikely impacted by the works under this project. • The construction area under this Contract were mainly paved. The remaining unpaved area are seated by machines such as crane machines and generators or used as material storage area with proper cover of tarpaulin sheet or designated for landscaping works. The exposed area are covered with tarpaulin sheet/vegetation. Dust are not anticipated (<i>Appendix B</i>). Based on the above, the exceedances are unlikely to be due to the Contract.	
Actions Taken / To Be Taken	No immediate action is considered necessary. The ET will monitor for future trends in exceedances.	
Remarks	The monitoring results on 21 October 2020, locations of air quality monitoring stations and wind data are attached (refer to <i>Appendix A</i>).	

Appendix A

Results of Air Quality
Monitoring, Meteorological
Data and Locations of Air
Quality Monitoring Stations

Air quality monitoring results on 21/10/2020								
Project	Contract	Date	Station	Weather	Start time	Parameters	Results	Unit
TMCLKL	HY/2012/08	2020-10-21	ASR10	Sunny	8:00:00	1-hour TSP	108	ug/m3
TMCLKL	HY/2012/08	2020-10-21	ASR10	Sunny	9:02:00	1-hour TSP	94	ug/m3
TMCLKL	HY/2012/08	2020-10-21	ASR10	Sunny	10:04:00	1-hour TSP	107	ug/m3
TMCLKL	HY/2012/08	2020-10-21	ASR6	Sunny	8:12:00	1-hour TSP	254	ug/m3
TMCLKL	HY/2012/08	2020-10-21	ASR6	Sunny	9:14:00	1-hour TSP	149	ug/m3
TMCLKL	HY/2012/08	2020-10-21	ASR6	Sunny	10:16:00	1-hour TSP	352	ug/m3
TMCLKL	HY/2012/08	2020-10-21	ASR5	Sunny	8:23:00	1-hour TSP	474	ug/m3
TMCLKL	HY/2012/08	2020-10-21	ASR5	Sunny	9:25:00	1-hour TSP	213	ug/m3
TMCLKL	HY/2012/08	2020-10-21	ASR5	Sunny	10:27:00	1-hour TSP	265	ug/m3
TMCLKL	HY/2012/08	2020-10-21	ASR1	Sunny	8:35:00	1-hour TSP	494	ug/m3
TMCLKL	HY/2012/08	2020-10-21	ASR1	Sunny	9:37:00	1-hour TSP	231	ug/m3
TMCLKL	HY/2012/08	2020-10-21	ASR1	Sunny	10:39:00	1-hour TSP	224	ug/m3
TMCLKL	HY/2012/08	2020-10-21	AQMS1	Sunny	8:47:00	1-hour TSP	92	ug/m3
TMCLKL	HY/2012/08	2020-10-21	AQMS1	Sunny	9:49:00	1-hour TSP	114	ug/m3
TMCLKL	HY/2012/08	2020-10-21	AQMS1	Sunny	10:51:00	1-hour TSP	123	ug/m3
TMCLKL	HY/2012/08	2020-10-21	ASR10	Sunny	11:06:00	24-hour TSP	88	ug/m3
TMCLKL	HY/2012/08	2020-10-21	ASR6	Sunny	11:18:00	24-hour TSP	165	ug/m3
TMCLKL	HY/2012/08	2020-10-21	ASR5	Sunny	11:29:00	24-hour TSP	138	ug/m3
TMCLKL	HY/2012/08	2020-10-21	ASR1	Sunny	11:41:00	24-hour TSP	170	ug/m3
TMCLKL	HY/2012/08	2020-10-21	AQMS1	Sunny	11:53:00	24-hour TSP	101	ug/m3

Action level exceedance

Limit level exceedance

Meteorological Data for Impact Monitoring in the reporting period

Date (yy-mm-dd)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Direction(degree)
20/10/21	0:00	3.1	345
20/10/21	1:00	2.2	337
20/10/21	2:00	2.7	348
20/10/21	3:00	4.9	341
20/10/21	4:00	1.3	207
20/10/21	5:00	2.7	320
20/10/21	6:00	3.6	328
20/10/21	7:00	2.2	308
20/10/21	8:00	2.2	339
20/10/21	9:00	2.2	345
20/10/21	10:00	2.2	322
20/10/21	11:00	3.1	303
20/10/21	12:00	2.7	337
20/10/21	13:00	2.7	341
20/10/21	14:00	2.7	320
20/10/21	15:00	2.2	321
20/10/21	16:00	2.2	320
20/10/21	17:00	1.3	323
20/10/21	18:00	2.2	309
20/10/21	19:00	3.6	341
20/10/21	20:00	4	339
20/10/21	21:00	1.8	315
20/10/21	22:00	2.7	348
20-10-21	23:00	1.8	346

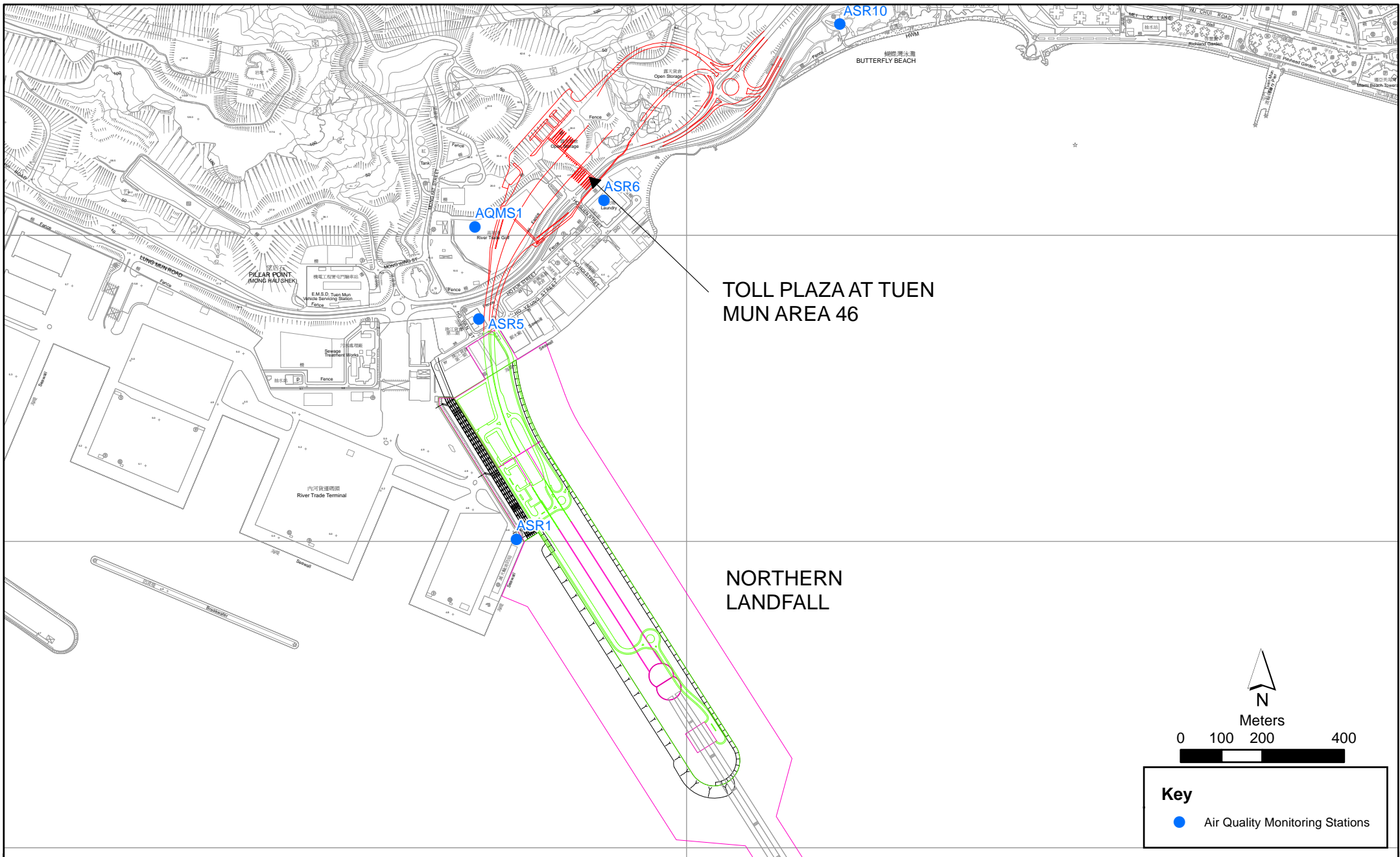


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring
 (Source: Adopted from Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link -
 Northern Connection Sub-sea Tunnel Section)

Key
 ● Air Quality Monitoring Stations

**Environmental
 Resources
 Management**



Appendix B

Site Photo



Photo 1 - Northern Landfall



Photo 2 - Main Control Building

Email
message

Environmental
Resources
Management

To Ramboll Hong Kong Limited (ENPO)

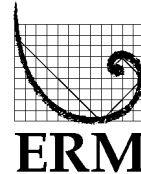
From ERM- Hong Kong, Limited

Ref/Project number Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link – Northern
Connection Tunnel Buildings, Electrical and
Mechanical Works

Subject Notification of Exceedance for Air Quality
Impact Monitoring

Date 27 November 2020

2507,
25/F One Harbourfront,
18 Tak Fung Street,
Hung Hom, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jasmine.ng@erm.com



Dear Sir/ Madam,

Please find attached the Notification of Exceedance (NOE) of the following
Log no.:

Action Level Exceedance
0463091_2November2020_24hrTSP_Station ASR1

One (1) exceedance was recorded on 2 November 2020.

Regards,

Dr Jasmine Ng
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2017/10
 TUEN MUN – CHEK LAP KOK LINK –
 NORTHERN CONNECTION TUNNEL BUILDINGS,
 ELECTRICAL AND MECHANICAL WORKS

Air Quality Impact Monitoring

Notification of Exceedance

Log No.	<u>Action Level Exceedance</u> 0463091_2November2020_24hrTSP_Station ASR1 [Total No. of Exceedances = 1]	
Date	2 November 2020 (Measured) 27 November 2020 (Results obtained from ENPO Website)	
Monitoring Station	ASR1	
Parameter(s) with Exceedance(s)	24 - hr TSP	
Action Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 331 ASR5 = 340 ASR6 = 338 ASR10 = 335 AQMS1 = 337
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 213 ASR5 = 238 ASR6 = 238 ASR10 = 214 AQMS1 = 213
Limit Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	500
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	260
Measured Levels	Refer to <i>Appendix A</i> (Data are source from Contract No. HY/2012/08).	
Works Undertaken (at the time of monitoring event)	Works undertaken under this Contract on 2 November 2020 included <ul style="list-style-type: none"> Indoor defect works at Customs and Excise Department Building, including wall painting, vinyl sheet floor laying, wall plastering and floor sealer painting. 	
Possible Reason for Action or Limit Level Exceedance(s)	<p>The exceedance is unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> With reference to the recorded wind direction (vary between 2° and 358° and) and wind speed (ranged between 1.3 and 4.0 m/s), the wind was mainly from north-easterly and north-westerly direction. Haze was observed during the sampling time. Only minor indoor defect works were conducted which are considered not major dust generating works, thus result of 24-hour TSP at ASR1 was unlikely impacted by the works under this project. The construction area under this Contract were paved/covered with vegetation. Dust are not anticipated. <p>Based on the above, the exceedance is unlikely to be due to the Contract.</p>	
Actions Taken / To Be Taken	No immediate action is considered necessary. The ET will monitor for future trends in exceedances.	
Remarks	The monitoring results on 2 November 2020, locations of air quality monitoring stations and wind data are attached (refer to <i>Appendix A</i>).	

Appendix A

Results of Air Quality
Monitoring, Meteorological
Data and Locations of Air
Quality Monitoring Stations

Air quality monitoring results on 2/11/2020								
Project	Contract	Date	Station	Weather	Start time	Parameters	Results	Unit
TMCLKL	HY/2012/08	2020-11-02	ASR10	Hazy	8:02:00	1-hour TSP	85	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR10	Hazy	9:04:00	1-hour TSP	102	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR10	Hazy	10:06:00	1-hour TSP	123	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR6	Hazy	8:13:00	1-hour TSP	184	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR6	Hazy	9:15:00	1-hour TSP	174	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR6	Hazy	10:17:00	1-hour TSP	152	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR5	Hazy	8:24:00	1-hour TSP	283	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR5	Hazy	9:26:00	1-hour TSP	262	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR5	Hazy	10:28:00	1-hour TSP	214	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR1	Hazy	8:37:00	1-hour TSP	249	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR1	Hazy	9:39:00	1-hour TSP	196	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR1	Hazy	10:41:00	1-hour TSP	222	ug/m3
TMCLKL	HY/2012/08	2020-11-02	AQMS1	Hazy	8:48:00	1-hour TSP	109	ug/m3
TMCLKL	HY/2012/08	2020-11-02	AQMS1	Hazy	9:50:00	1-hour TSP	139	ug/m3
TMCLKL	HY/2012/08	2020-11-02	AQMS1	Hazy	10:52:00	1-hour TSP	140	ug/m3
TMCLKL	HY/2012/08	2020-11-02	AQMS1	Hazy	11:54:00	24-hour TSP	95	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR1	Hazy	11:43:00	24-hour TSP	244	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR10	Hazy	11:08:00	24-hour TSP	108	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR5	Hazy	11:30:00	24-hour TSP	154	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR6	Hazy	11:19:00	24-hour TSP	121	ug/m3

Action level exceedance

Limit level exceedance

Meteorological Data for Impact Monitoring in the reporting period

Date (yy-mm-dd)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Direction(degree)
20/11/02	0:00	0.4	19
20/11/02	1:00	0.4	336
20/11/02	2:00	0.4	11
20/11/02	3:00	0.9	349
20/11/02	4:00	0.4	322
20/11/02	5:00	0.4	66
20/11/02	6:00	0.4	34
20/11/02	7:00	0.9	57
20/11/02	8:00	1.8	11
20/11/02	9:00	2.2	25
20/11/02	10:00	2.2	17
20/11/02	11:00	2.2	34
20/11/02	12:00	2.2	30
20/11/02	13:00	2.2	11
20/11/02	14:00	1.8	11
20/11/02	15:00	2.7	324
20/11/02	16:00	2.7	310
20/11/02	17:00	2.2	327
20/11/02	18:00	2.2	343
20/11/02	19:00	2.7	342
20/11/02	20:00	4.5	344
20/11/02	21:00	4.5	328
20/11/02	22:00	4	333
20/11/02	23:00	2.7	337
20/11/03	0:00	1.8	19
20/11/03	1:00	1.3	2
20/11/03	2:00	2.2	332
20/11/03	3:00	2.2	346
20/11/03	4:00	1.8	346
20/11/03	5:00	1.8	339
20/11/03	6:00	2.7	326
20/11/03	7:00	2.2	358
20/11/03	8:00	2.2	27
20/11/03	9:00	2.7	24
20/11/03	10:00	2.7	34
20/11/03	11:00	2.2	22
20/11/03	12:00	1.8	357
20/11/03	13:00	1.8	16
20/11/03	14:00	1.8	1
20/11/03	15:00	1.3	22
20/11/03	16:00	0.9	332
20/11/03	17:00	0.4	89
20/11/03	18:00	1.8	2
20/11/03	19:00	1.3	34
20/11/03	20:00	1.3	33
20/11/03	21:00	1.3	76
20/11/03	22:00	0.9	20
20/11/03	23:00	1.3	12

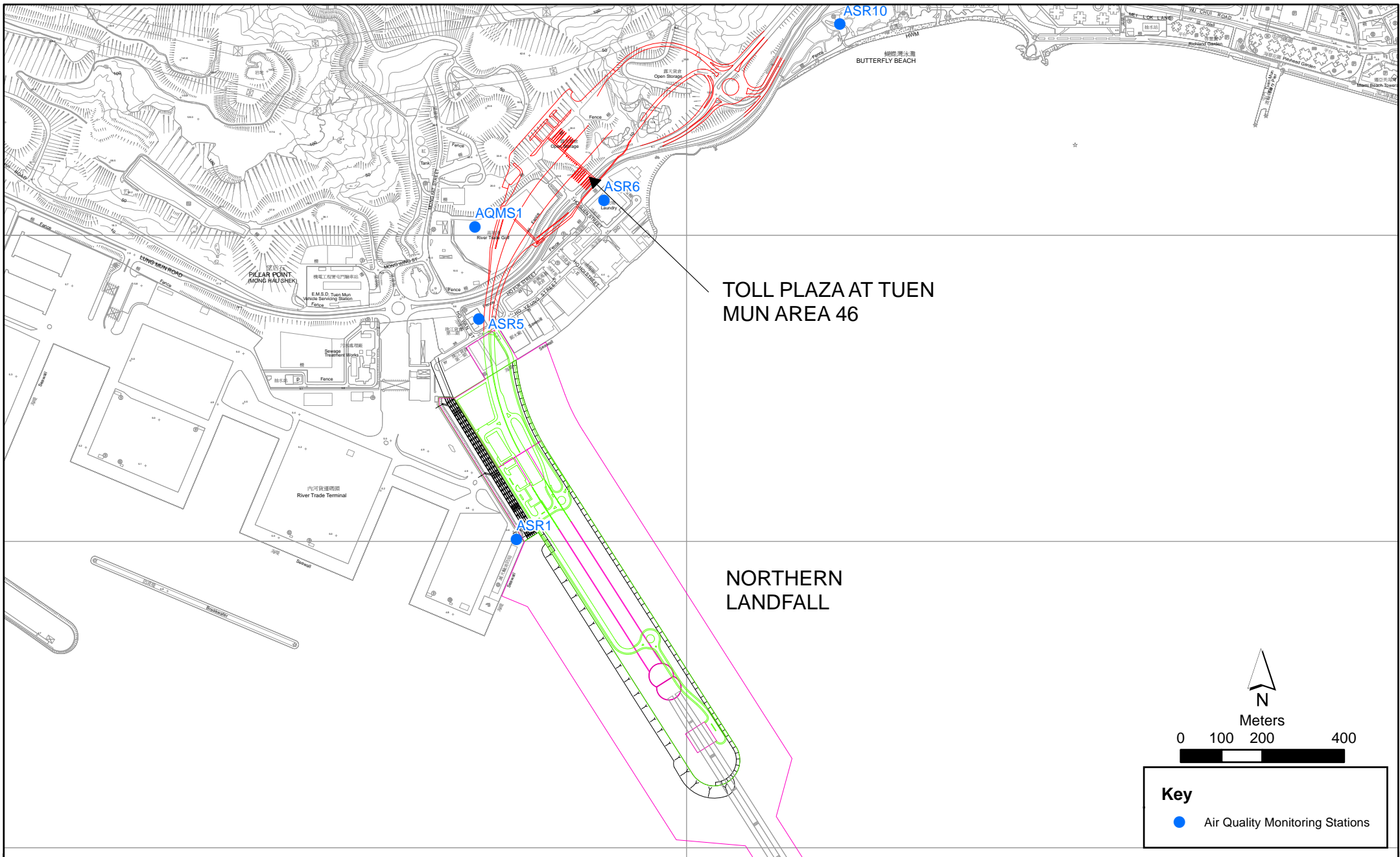


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring
 (Source: Adopted from Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link -
 Northern Connection Sub-sea Tunnel Section)

Key
 ● Air Quality Monitoring Stations

Email
message

**Environmental
Resources
Management**

To Ramboll Hong Kong Limited (ENPO)

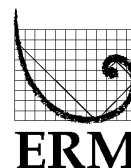
From ERM- Hong Kong, Limited

Ref/Project number Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link – Northern
Connection Tunnel Buildings, Electrical and
Mechanical Works

Subject Notification of Exceedance for Air Quality
Impact Monitoring

Date 27 November 2020

2507,
25/F One Harbourfront,
18 Tak Fung Street,
Hung Hom, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jasmine.ng@erm.com



Dear Sir/ Madam,

Please find attached the Notification of Exceedance (NOE) of the following
Log no.:

Action Level Exceedance
0463091_6November 2020_24hrTSP_Station ASR1

Limit Level Exceedance
0463091_6November2020_1hrTSP_Station ASR1

Two (2) exceedances were recorded on 6 November 2020.

Regards,

Dr Jasmine Ng
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2017/10
 TUEN MUN – CHEK LAP KOK LINK –
 NORTHERN CONNECTION TUNNEL BUILDINGS,
 ELECTRICAL AND MECHANICAL WORKS

Air Quality Impact Monitoring

Notification of Exceedance

Log No.	<p style="text-align: center;"><u>Action Level Exceedance</u> 0463091_6November 2020_24hrTSP_Station ASR1</p> <p style="text-align: center;"><u>Limit Level Exceedance</u> 0463091_6November2020_1hrTSP_Station ASR1</p> <p style="text-align: center;">[Total No. of Exceedances = 2]</p>	
Date	<p style="text-align: center;">6 November 2020 (Measured) 27 November 2020 (Results obtained from ENPO Website)</p>	
Monitoring Station	<p style="text-align: center;">ASR1</p>	
Parameter(s) with Exceedance(s)	<p style="text-align: center;">1 - hr TSP and 24 - hr TSP</p>	
Action Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 331 ASR5 = 340 ASR6 = 338 ASR10 = 335 AQMS1 = 337
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 213 ASR5 = 238 ASR6 = 238 ASR10 = 214 AQMS1 = 213
Limit Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	500
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	260
Measured Levels	Refer to <i>Appendix A</i> (Data are source from Contract No. HY/2012/08).	
Works Undertaken (at the time of monitoring event)	Works undertaken under this Contract on 6 November 2020 included <ul style="list-style-type: none"> Indoor defect works at Customs and Excise Department Building, including wall painting, vinyl sheet floor laying, wall plastering and floor sealer painting. 	
Possible Reason for Action or Limit Level Exceedance(s)	The exceedances are unlikely to be due to the Contract, in view of the following: <ul style="list-style-type: none"> With reference to the recorded wind direction (vary between 13° and 325° and) and wind speed (ranged between 0.4 and 2.7 m/s), the wind was mainly from north-westerly direction and occasionally north-easterly direction. Haze was observed during the sampling time. Only minor defect works were conducted which are considered not major dust generating works, thus results of 1-hour TSP and 24-hour TSP at ASR1 were unlikely impacted by the works under this project. The construction area under this Contract were paved/covered with vegetation. Dust are not anticipated. Based on the above, the exceedances are unlikely to be due to the Contract.	
Actions Taken / To Be Taken	No immediate action is considered necessary. The ET will monitor for future trends in exceedances.	
Remarks	The monitoring results on 6 November 2020, locations of air quality monitoring stations and wind data are attached (refer to <i>Appendix A</i>).	

Appendix A

Results of Air Quality
Monitoring, Meteorological
Data and Locations of Air
Quality Monitoring Stations

Air quality monitoring results on 6/11/2020								
Project	Contract	Date	Station	Weather	Start time	Parameters	Results	Unit
TMCLKL	HY/2012/08	2020-11-06	ASR10	Hazy	8:00:00	1-hour TSP	89	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR10	Hazy	9:02:00	1-hour TSP	165	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR10	Hazy	10:04:00	1-hour TSP	135	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR6	Hazy	8:13:00	1-hour TSP	126	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR6	Hazy	9:15:00	1-hour TSP	175	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR6	Hazy	10:17:00	1-hour TSP	180	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR5	Hazy	8:25:00	1-hour TSP	247	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR5	Hazy	9:27:00	1-hour TSP	163	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR5	Hazy	10:29:00	1-hour TSP	229	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR1	Hazy	8:36:00	1-hour TSP	887	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR1	Hazy	9:38:00	1-hour TSP	311	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR1	Hazy	10:40:00	1-hour TSP	237	ug/m3
TMCLKL	HY/2012/08	2020-11-06	AQMS1	Hazy	8:47:00	1-hour TSP	182	ug/m3
TMCLKL	HY/2012/08	2020-11-06	AQMS1	Hazy	9:49:00	1-hour TSP	150	ug/m3
TMCLKL	HY/2012/08	2020-11-06	AQMS1	Hazy	10:51:00	1-hour TSP	222	ug/m3
TMCLKL	HY/2012/08	2020-11-06	AQMS1	Hazy	11:53:00	24-hour TSP	141	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR1	Hazy	11:42:00	24-hour TSP	214	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR10	Hazy	11:06:00	24-hour TSP	120	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR5	Hazy	11:31:00	24-hour TSP	176	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR6	Hazy	11:19:00	24-hour TSP	185	ug/m3

Action level exceedance

Limit level exceedance

Meteorological Data for Impact Monitoring in the reporting period

Date (yy-mm-dd)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Direction(degree)
20/11/06	0:00	0.9	45
20/11/06	1:00	0.9	50
20/11/06	2:00	0.9	15
20/11/06	3:00	0.9	70
20/11/06	4:00	0.4	21
20/11/06	5:00	0.4	56
20/11/06	6:00	0.4	54
20/11/06	7:00	0	350
20/11/06	8:00	0.4	54
20/11/06	9:00	2.7	304
20/11/06	10:00	1.3	79
20/11/06	11:00	1.3	111
20/11/06	12:00	1.8	260
20/11/06	13:00	2.7	275
20/11/06	14:00	2.7	273
20/11/06	15:00	2.2	263
20/11/06	16:00	1.3	266
20/11/06	17:00	1.3	286
20/11/06	18:00	0.9	301
20/11/06	19:00	1.8	320
20/11/06	20:00	0.9	310
20/11/06	21:00	0.4	323
20/11/06	22:00	0.9	312
20/11/06	23:00	0.4	321
20/11/07	0:00	0.4	325
20/11/07	1:00	1.8	307
20/11/07	2:00	0.4	105
20/11/07	3:00	0.4	315
20/11/07	4:00	0.9	306
20/11/07	5:00	1.3	315
20/11/07	6:00	1.3	315
20/11/07	7:00	2.2	27
20/11/07	8:00	2.7	30
20/11/07	9:00	2.2	18
20/11/07	10:00	1.8	13
20/11/07	11:00	1.3	307
20/11/07	12:00	1.3	318
20/11/07	13:00	1.3	313
20/11/07	14:00	1.8	262
20/11/07	15:00	1.8	277
20/11/07	16:00	2.7	325
20/11/07	17:00	1.8	307
20/11/07	18:00	0.9	303
20/11/07	19:00	1.8	306
20/11/07	20:00	0.4	130
20/11/07	21:00	0.9	326
20/11/07	22:00	1.3	19
20/11/07	23:00	0.9	20

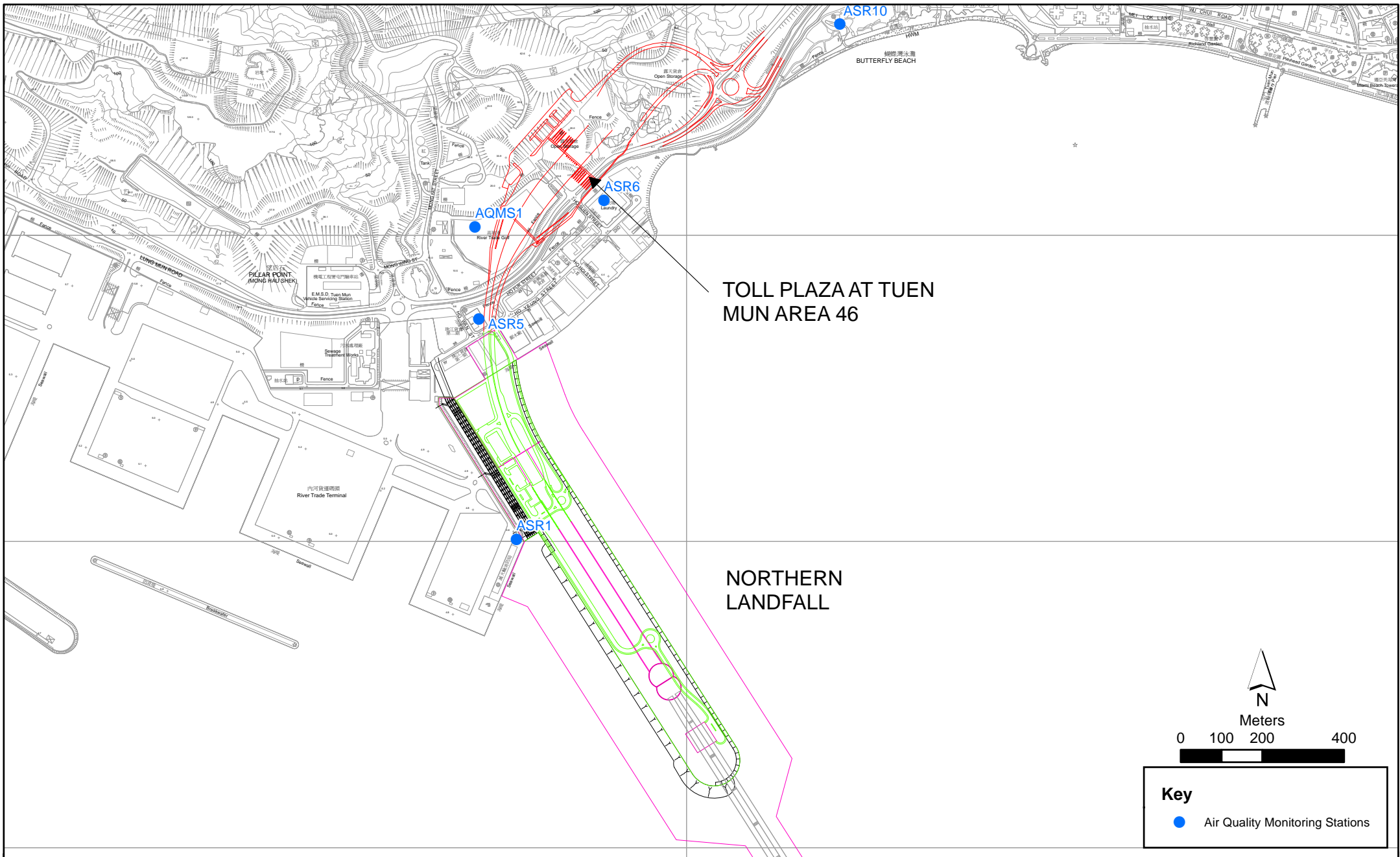


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring
 (Source: Adopted from Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link -
 Northern Connection Sub-sea Tunnel Section)

Email
message

Environmental
Resources
Management

To Ramboll Hong Kong Limited (ENPO)

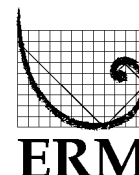
From ERM- Hong Kong, Limited

Ref/Project number Contract No. HY/2017/10
Tuen Mun – Chek Lap Kok Link – Northern
Connection Tunnel Buildings, Electrical and
Mechanical Works

Subject Notification of Exceedance for Air Quality
Impact Monitoring

Date 27 November 2020

2507,
25/F One Harbourfront,
18 Tak Fung Street,
Hung Hom, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jasmine.ng@erm.com



Dear Sir/ Madam,

Please find attached the Notification of Exceedance (NOE) of the following
Log no.:

Action Level Exceedance

0463091_12November2020_1hrTSP_Station ASR6

0463091_12November2020_1hrTSP_Station ASR5

0463091_12November2020_1hrTSP_Station ASR1

Two (2) exceedances were recorded on 12 November 2020.

Regards,

Dr Jasmine Ng
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2017/10

**TUEN MUN – CHEK LAP KOK LINK –
NORTHERN CONNECTION TUNNEL BUILDINGS,
ELECTRICAL AND MECHANICAL WORKS**

Air Quality Impact Monitoring

Notification of Exceedance

Log No.	<u>Action Level Exceedance</u> 0463091_12November 2020_1hrTSP_Station ASR6 0463091_12November 2020_1hrTSP_Station ASR5 0463091_12November 2020_1hrTSP_Station ASR1 [Total No. of Exceedances = 3]	
Date	12 November 2020 (Measured) 27 November 2020 (Results obtained from ENPO Website)	
Monitoring Station	ASR6, ASR5 and ASR1	
Parameter(s) with Exceedance(s)	1 - hr TSP	
Action Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 331 ASR5 = 340 ASR6 = 338 ASR10 = 335 AQMS1 = 337
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	ASR1 = 213 ASR5 = 238 ASR6 = 238 ASR10 = 214 AQMS1 = 213
Limit Levels	1-hr TSP ($\mu\text{g}/\text{m}^3$)	500
	24-hr TSP ($\mu\text{g}/\text{m}^3$)	260
Measured Levels	Refer to <i>Appendix A</i> (Data are source from Contract No. HY/2012/08).	
Works Undertaken (at the time of monitoring event)	Works undertaken under this Contract on 12 November 2020 included <ul style="list-style-type: none"> Indoor defect works at Customs and Excise Department Building, including wall painting, vinyl sheet floor laying, wall plastering and floor sealer painting. 	
Possible Reason for Action or Limit Level Exceedance(s)	The exceedances are unlikely to be due to the Contract, in view of the following: <ul style="list-style-type: none"> With reference to the recorded wind direction (vary between 192° and 228° and) and wind speed (ranged between 1.8 and 2.2 m/s), the wind was mainly from south-westerly direction. Haze was observed during the sampling time. Only minor defect works were conducted which are considered not major dust generating works, thus results of 1-hour TSP at ASR6, ASR5 and ASR1 were unlikely impacted by the works under this project. The construction area under this Contract were paved/covered with vegetation. Dust are not anticipated. Based on the above, the exceedances are unlikely to be due to the Contract.	
Actions Taken / To Be Taken	No immediate action is considered necessary. The ET will monitor for future trends in exceedances.	
Remarks	The monitoring results on 12 November 2020, locations of air quality monitoring stations and wind data are attached (refer to <i>Appendix A</i>).	

Appendix A

Results of Air Quality
Monitoring, Meteorological
Data and Locations of Air
Quality Monitoring Stations

Air quality monitoring results on 12/11/2020								
Project	Contract	Date	Station	Weather	Start time	Parameters	Results	Unit
TMCLKL	HY/2012/08	2020-11-12	ASR10	Hazy	13:07:00	1-hour TSP	230	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR10	Hazy	14:09:00	1-hour TSP	171	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR10	Hazy	15:11:00	1-hour TSP	148	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR6	Hazy	13:18:00	1-hour TSP	358	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR6	Hazy	14:20:00	1-hour TSP	126	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR6	Hazy	15:22:00	1-hour TSP	182	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR5	Hazy	13:29:00	1-hour TSP	433	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR5	Hazy	14:31:00	1-hour TSP	195	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR5	Hazy	15:33:00	1-hour TSP	249	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR1	Hazy	13:41:00	1-hour TSP	474	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR1	Hazy	14:43:00	1-hour TSP	186	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR1	Hazy	15:45:00	1-hour TSP	213	ug/m3
TMCLKL	HY/2012/08	2020-11-12	AQMS1	Hazy	13:52:00	1-hour TSP	175	ug/m3
TMCLKL	HY/2012/08	2020-11-12	AQMS1	Hazy	14:54:00	1-hour TSP	145	ug/m3
TMCLKL	HY/2012/08	2020-11-12	AQMS1	Hazy	15:56:00	1-hour TSP	231	ug/m3
TMCLKL	HY/2012/08	2020-11-12	AQMS1	Hazy	16:58:00	24-hour TSP	91	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR1	Hazy	16:47:00	24-hour TSP	126	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR10	Hazy	16:13:00	24-hour TSP	86	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR5	Hazy	16:35:00	24-hour TSP	168	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR6	Hazy	16:24:00	24-hour TSP	108	ug/m3

Action level exceedance

Limit level exceedance

Meteorological Data for Impact Monitoring in the reporting period

Date (yy-mm-dd)	Time (24hrs)	Average of Wind Speed (m/s)	Average of Wind Direction(degree)
20/11/12	0:00	0.9	20
20/11/12	1:00	0.9	43
20/11/12	2:00	0.4	311
20/11/12	3:00	0.4	327
20/11/12	4:00	0.4	338
20/11/12	5:00	0.4	322
20/11/12	6:00	0.4	317
20/11/12	7:00	1.3	12
20/11/12	8:00	2.2	28
20/11/12	9:00	1.8	30
20/11/12	10:00	1.8	21
20/11/12	11:00	1.3	15
20/11/12	12:00	1.8	126
20/11/12	13:00	1.8	228
20/11/12	14:00	2.2	192
20/11/12	15:00	1.8	203
20/11/12	16:00	1.8	188
20/11/12	17:00	1.3	80
20/11/12	18:00	1.8	86
20/11/12	19:00	1.8	87
20/11/12	20:00	0.9	42
20/11/12	21:00	0.4	113
20/11/12	22:00	0.4	103
20/11/12	23:00	0.4	115

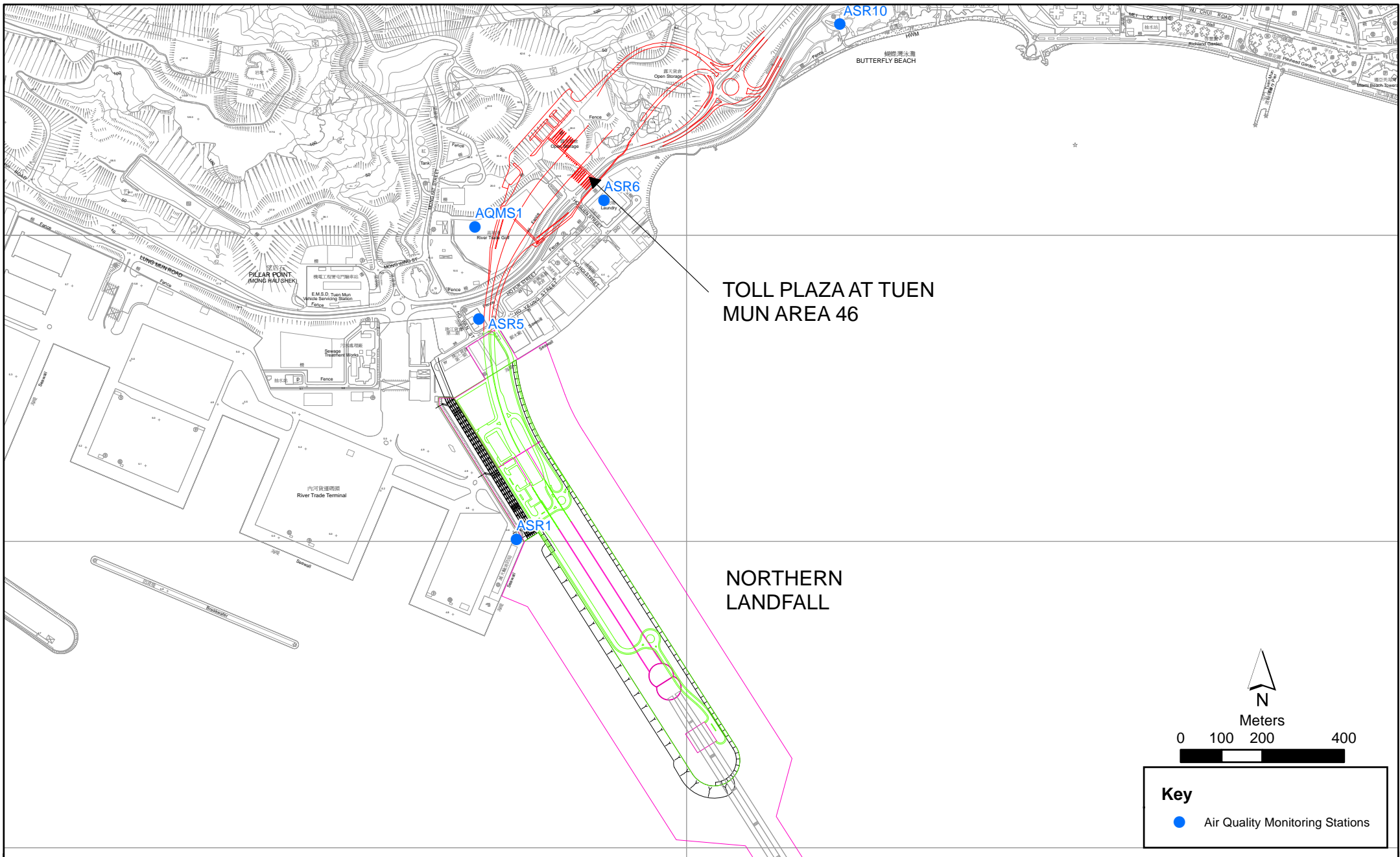


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring
 (Source: Adopted from Contract No. HY/2012/08 Tuen Mun-Chek Lap Kok Link -
 Northern Connection Sub-sea Tunnel Section)