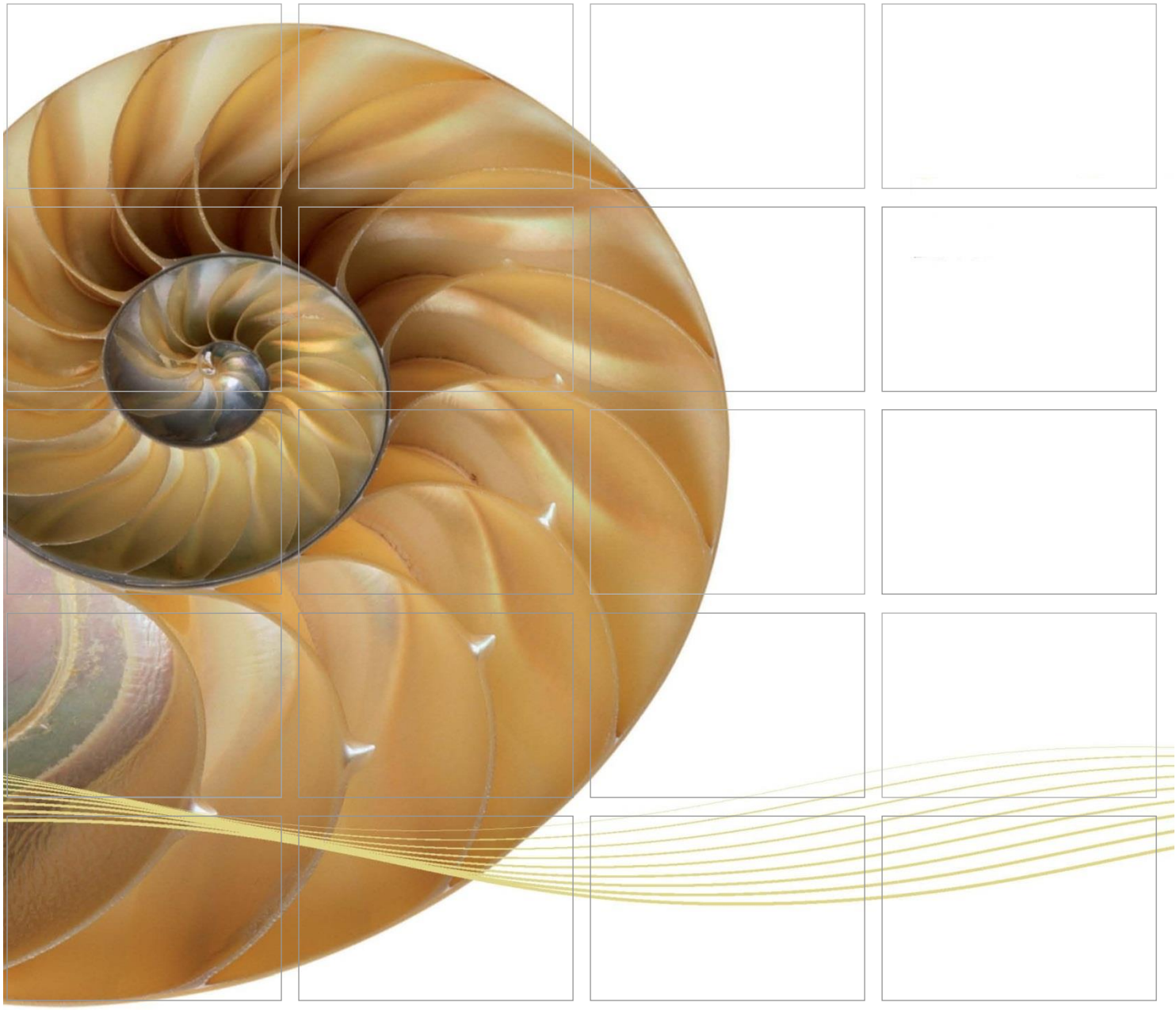
Report



Contract No. HY/2012/08
Tuen Mun – Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section

Fifty-first Monthly Environmental Monitoring & Audit (EM&A) Report

13 February 2018

Environmental Resources Management
16/F, Berkshire House
25 Westlands Road
Quarry Bay, Hong Kong
Telephone 2271 3000
Facsimile 2723 5660

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The business of sustainability

RAMBOLL

Ref.: HYDHZMBEEM00_0_6244L.18 14 February 2018

AECOM By Fax (2293 6300) and By Post
Supervising Officer Representative's Office
No.8 Mong Fat Street, Tuen Mun,
New Territories, Hong Kong

Attention: Messrs. Andy Westmoreland / Roger Man

Dear Sirs,

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/2012/08 TM-CLKL Northern Connection Sub-sea Tunnel Section
51st Monthly EM&A Report for January 2018 (EP-354/2009/D)

Reference is made to the Monthly Environmental Monitoring and Audit (EM&A) Report (Jan. 2018) (ET's ref.: "0212330_51st Monthly EM&A_20180212.doc" dated 13 Feb. 2018) certified by the ET Leader and provided to us via e-mail on 14 Feb. 2018.

Please be informed that we have no adverse comments on the captioned Report. We write to verify the captioned submission in accordance with Condition 4.4 of EP-354/2009/D.

Thank you for your attention. Please do not hesitate to contact the undersigned or the ENPO Leader Mr. Y. H. Hui should you have any queries.

Yours sincerely,

F. C. Tsang
Independent Environmental Checker
Tuen Mun – Chek Lap Kok Link

c.c. HyD – Mr. Stephen Chan (By Fax: 3188 6614)
HyD – Mr. Vico Cheung (By Fax: 3188 6614)
AECOM – Mr. Conrad Ng (By Fax: 3922 9797)
ERM – Mr. Jovy Tam (By Fax: 2723 5660)
Dragages – Bouygues JV - Mr. C. F. Kwong (By Fax: 2293 7499)

Internal: DY, YH, TMC, ENPO Site

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Ramboll Hong Kong Limited 英環香港有限公司
21/F, BEA Harbour View Centre, 56 Gloucester Road, Wan Chai, Hong Kong Tel: 852.3465 2888 Fax: 852.3465 2899
www.ramboll.com

Contract No. HY/2012/08
Tuen Mun – Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section

Fifty-first Monthly Environmental Monitoring & Audit (EM&A) Report

Document Code: 0212330_51st Monthly EM&A_20180212.doc

Environmental Resources Management

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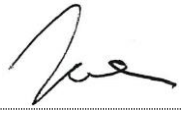
Client: DBJV	Project No: 0212330
Summary: This document presents the Fifty-first Monthly EM&A Report for Tuen Mun – Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section.	Date: 13 February 2018 Approved by:  *Mr Craig Reid* *Partner* Certified by:  *Mr Jovy Tam* *ET Leader*

Revision	Description	By	Checked	Approved	Date
	51st Monthly EM&A Report	VAR	JT	CAR	13/02/18

Distribution

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

Under *Contract No. HY/2012/08*, Dragages – Bouygues Joint Venture (DBJV) is commissioned by the Highways Department (HyD) to undertake the design and construction of the Northern Connection Sub-sea Tunnel Section of the Tuen Mun – Chek Lap Kok Link Project (TM-CLK Link Project) while AECOM Asia Company Limited was appointed by HyD as the Supervising Officer. 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 Project commenced on 1 November 2013 and will tentatively be completed by the end of 2018. The impact monitoring of the EM&A programme, including air quality, water quality, marine ecological monitoring and environmental site inspections, were commenced on 1 November 2013.

This is the Fifty-first Monthly EM&A report presenting the EM&A works carried out during the period from 1 to 31 January 2018 for the *Contract No. HY/2012/08 Northern Connection Sub-sea Tunnel Section* (the "Project") 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:

Land-based Works

- Box Culvert Extension at Works Area – Portion N-A;
- Construction of North Ventilation Building – Portion N-C;
- Construction of Cross Passage Tympanum – TBM tunnel;
- Cross Passage Lining Installation – TBM Tunnel;
- Cross Passage Construction by Pipe Jackin – TBM Tunnel;
- Corbel & OVHD Construction – TBM Tunnel;
- Parapet wall Installation – TBM Tunnel;
- Excavation of Sub-sea Tunnel – TBM tunnel;
- Bulk Excavation – Portion S-A;
- CSM treatment, Jet Grouting works and D-wall Construction; and
- Ground Freezing Works – Portion S-A

There was no dredging, reclamation or marine sheet piling works in open waters during this reporting period.

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

24-hour TSP Monitoring	11 sessions
1-hour TSP Monitoring	11 sessions
Impact Dolphin Monitoring	2 sessions
Joint Environmental Site Inspection	5 sessions

Implementation of Marine Mammal Exclusion Zone

There was no dredging, reclamation or marine sheet piling works in open waters during this reporting period. Thus, Passive Acoustic Monitoring (PAM) and the day-time monitoring of Dolphin Exclusion Zone (DEZ) by dolphin observers were not in effect during the reporting period.

Summary of Breaches of Action/Limit Levels

Breaches of Action and Limit Levels for Air Quality

One (1) Action Level of 1-hour TSP was recorded on 13 January 2017. Three (3) Action Level exceedances of 1-hour TSP were recorded on 16 January 2018. Two (2) Action Level exceedance of 1-hour TSP was recorded on 22 January 2018. Investigation reports are provided in Appendix K.

Breaches of Action and Limit Levels for Dolphin Monitoring

Due to monthly variation in dolphin occurrence within the survey area, it would be more appropriate to draw conclusion on whether any unacceptable impacts on dolphins have been detected in relation to the construction activities of this Project in the quarterly EM&A reports, where comparison on distribution, group size and encounter rates of dolphins between the quarterly impact monitoring period and baseline monitoring period will be made.

Summary of Marine Travel Route record

No non-compliance with EIA recommendations, EP conditions and other requirements associated with the marine travel route record of this Contract was recorded in January 2018.

Environmental Complaints, Non-compliance & Summons

No non-compliance with EIA recommendations, EP conditions and other requirements associated with the construction of this Contract was recorded in this reporting period.

One (1) environmental complaint case regarding air, noise and light pollution at River Trade Terminal was referred by IEC on 30 January 2018. The complaint investigation report is provided in Appendix K.

No environmental summons was received in this reporting period.

Reporting Change

There was no reporting change required in the reporting period.

Upcoming Works for the Next Reporting Month

Works to be undertaken in the next monitoring period of February 2018 include the following:

Land-based Works

- Box Culvert Extension at Works Area – Portion N-A;
- Construction of North Ventilation Building – Portion N-C;
- Construction of Cross Passage Tympanum – TBM tunnel;
- Cross Passage Lining Installation – TBM Tunnel;
- Excavation of Sub-sea Tunnel – TBM tunnel;
- Corbel Construction – TBM Tunnel;
- Bulk Excavation – Portion S-A;
- TBM Excavation – Portion S-A;
- CSM treatment, Jet Grouting works and D-wall Construction; and
- Ground Freezing Works – Portion S-A

Marine-based Works

- Seawall Modificaton Works – Portion S-A

Future Key Issues

Potential environmental impacts arising from the above upcoming construction activities in the next reporting month of February 2018 are mainly associated with dust, marine water quality, marine ecology and waste management issues.

1 INTRODUCTION

1.1 BACKGROUND

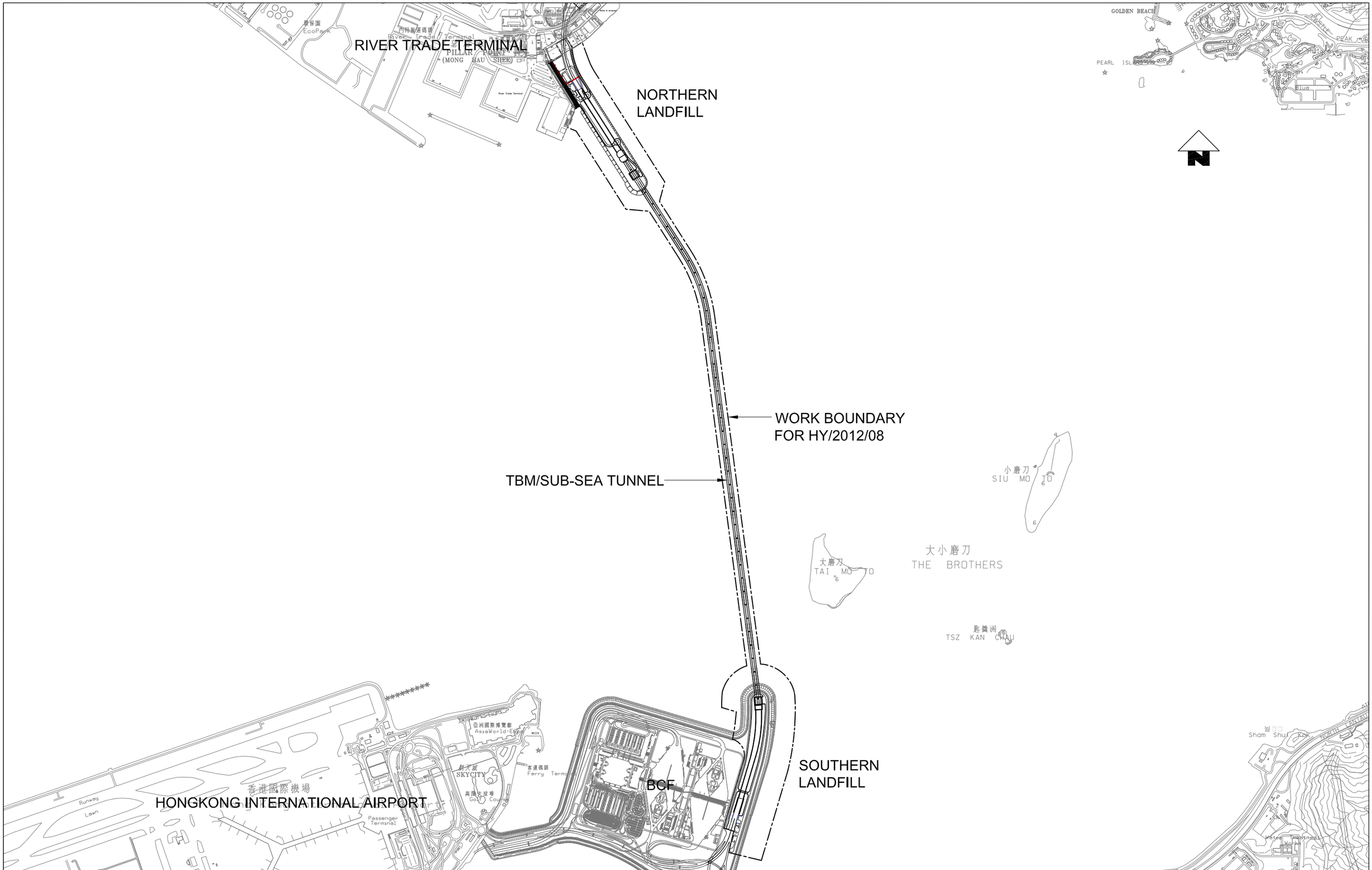
According to the findings of the Northwest New Territories (NWNT) Traffic and Infrastructure Review conducted by the Transport Department, Tuen Mun Road, Ting Kau Bridge, Lantau Link and North Lantau Highway would be operating beyond capacity after 2016. This forecast has been based on the estimated 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/2012/08*, Dragages – Bouygues Joint Venture (DBJV) is commissioned by the Highways Department (HyD) to undertake the design and construction of the Northern Connection Sub-sea Tunnel Section of TM-CLKL while AECOM Asia Company Limited was appointed by HyD as the Supervising Officer. 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).

Layout of the Contract components is presented in *Figure 1.1*.

The construction phase of the Contract commenced on 1 November 2013 and will tentatively be completed by 2018. The impact monitoring phase of the EM&A programme, including air quality, water quality, marine ecological monitoring and environmental site inspections, were commenced on 1 November 2013.



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				Drawn By	DAI
				Approved By	SPo PP
A	FIRST ISSUE	11SEP13	PKV	Date	11SEP2013
Rev.	Description	Date	Checked		

Main Contractor

香寶嘉 Dragages HongKong

A member of the Bouygues Construction group

BOUYGUES TRAVAUX PUBLICS

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Client

路政署 HIGHWAYS DEPARTMENT

Contractor's Designer

ARUP Ove Arup & Partners Hong Kong Limited

Project

Contract No. HY/2012/08
Tuen Mun - Chek Lap Kok Link -
Northern Connection Sub-Sea Tunnel Section

Drawing Title

Figure 1.1

Drawing no.	TMCLKL8-DBJ-GEN-DWG-00174
Scale	1:25000 @ A3
CADD Ref.	TMCLKL8-DBJ-GEN-DWG-00174-DFT-A
Issue Status	DFT (DRAFT)
Revision	A

1.2 SCOPE OF REPORT

This is the Fifty-first Monthly EM&A Report under the *Contract No. HY/2012/08 Tuen Mun – Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section*. This report presents a summary of the environmental monitoring and audit works in January 2018.

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
Highways Department	Engr 22/HZMB	Chow Man Lung, Andrew	2762 4110	2762 4110
SOR (AECOM Asia Company Limited)	Chief Resident Engineer	Roger Man	2293 6388	2293 6300
		Andrew Westmoreland	2293 6360	2293 6300
ENPO / IEC (Ramboll Hong Kong Ltd.)	ENPO Leader	Y.H. Hui	3465 2850	3465 2899
	IEC	Dr. F.C. Tsang	3465 2851	3465 2899
Contractor (Dragages – Bouygues Joint Venture)	Environmental Officer	Bryan Lee	2293 7323	2293 7499
	24-hour complaint hotline	Rachel Lam	2293 7330	
ET (ERM-HK)	ET Leader	Jovy Tam	2271 3113	2723 5660

1.4 SUMMARY OF CONSTRUCTION WORKS

The construction phase of this Contract was commenced on 1 November 2013. The construction programme is shown in *Appendix B*.

As per DBJV's information, details of major construction works carried out in this reporting period are summarized in *Table 1.2*.

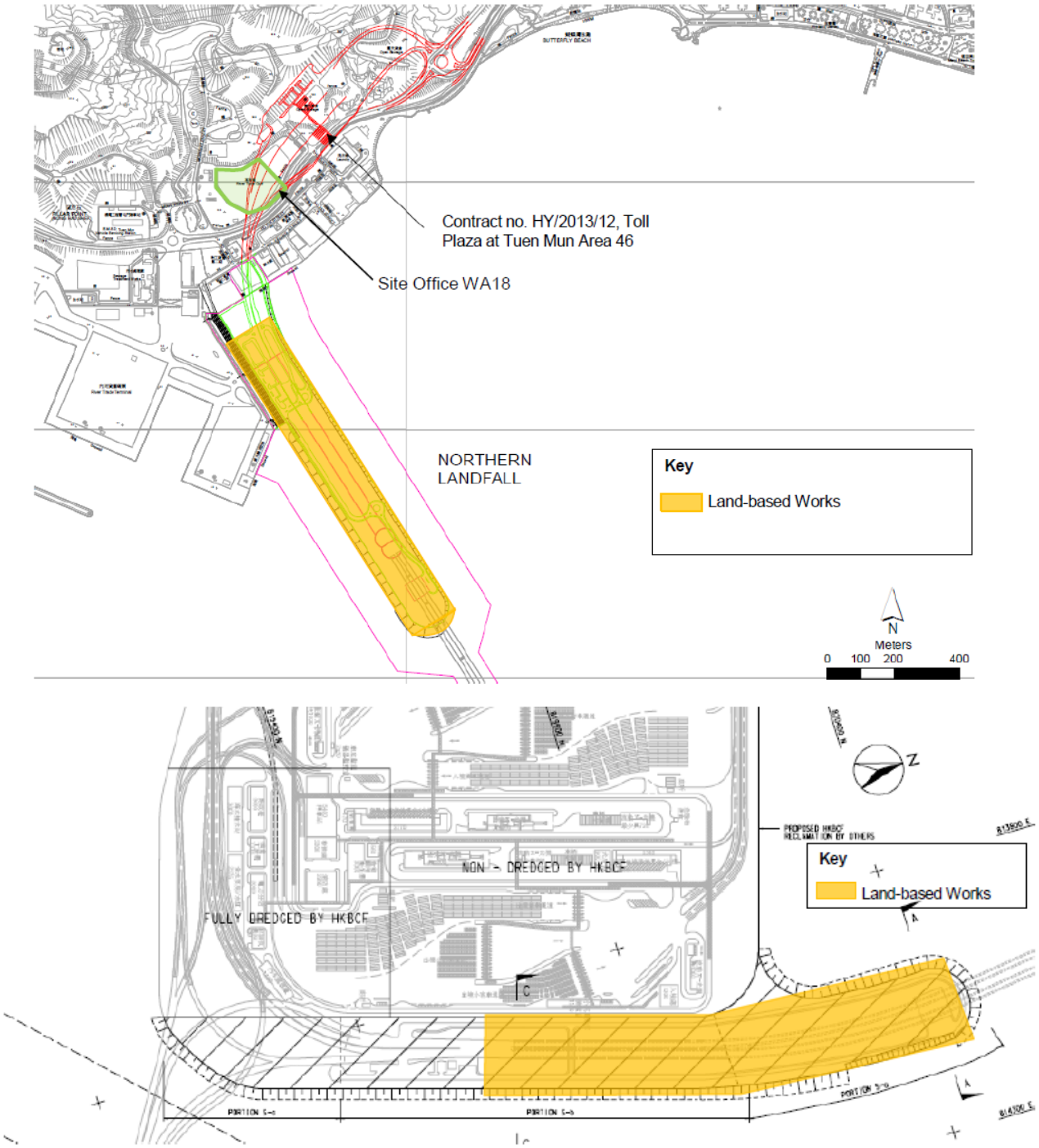
The general layout plan of the site showing the detailed works areas is shown in *Figure 1.2*. The Environmental Sensitive Receivers in the vicinity of the Project are shown in *Figure 1.3*.

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

Table 1.2 Summary of Construction Activities Undertaken during the Reporting Period

Construction Activities Undertaken
Land-based Works
• Box Culvert Extension at Works Area – Portion N-A; • Construction of North Ventilation Building – Portion N-C; • Construction of Cross Passage Tympanum – TBM tunnel; • Cross Passage Lining Installation – TBM Tunnel; • Cross Passage Construction by Pipe Jackin – TBM Tunnel; • Corbel & OVHD Construction – TBM Tunnel; • Parapet wall Installation – TBM Tunnel; • Excavation of Sub-sea Tunnel – TBM tunnel; • Bulk Excavation – Portion S-A; • CSM treatment, Jet Grouting works and D-wall Construction; and • Ground Freezing Works – Portion S-A

Figure 1.2 Locations of Construction Activities – January 2018



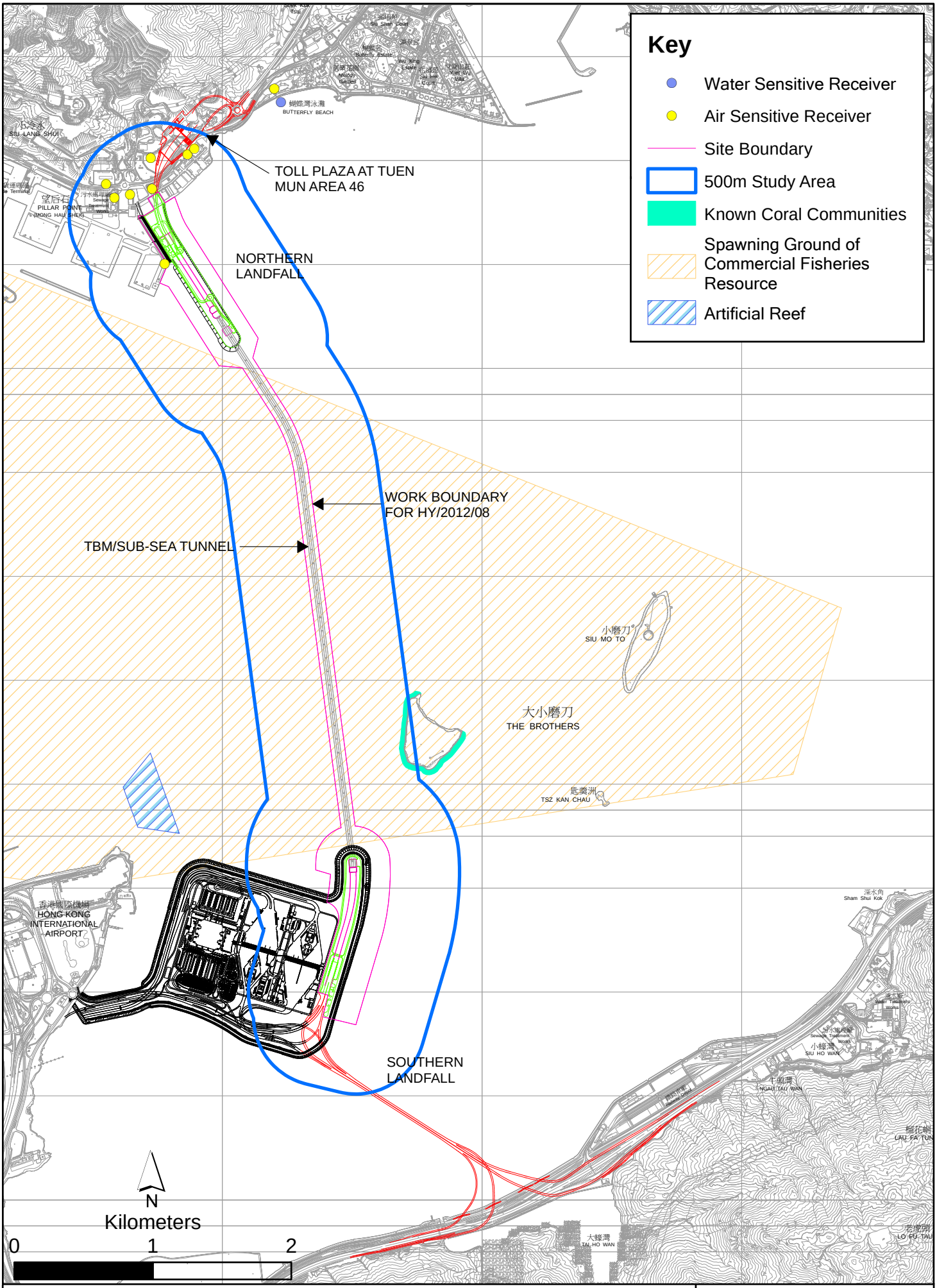


Figure 1.3 Environmental Sensitive Receivers in the vicinity of Contract No. HY/2012/08 Tuen Mun - Chek Lap Kok Link - Northern Connection Sub-Sea Tunnel Section

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Date: 15/4/2014

Environmental Resources Management

2 EM&A RESULTS

The EM&A programme required environmental monitoring for air quality, water quality and marine ecology as well as environmental site inspections for air quality, noise, water quality, waste management, marine ecology and landscape and visual impacts. 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 commenced on 24 October 2014.

High volume samplers (HVSs) were used to carry out the 1-hour and 24-hour TSP monitoring on 1, 4, 7, 10, 13, 16, 19, 22, 25, 28 and 31 January 2018 at the five (5) air quality monitoring stations in accordance with the requirements stipulated in the Updated EM&A Manual (*Figure 2.1*; *Table 2.1*). Wind meter was installed at the rooftop of ASR5 for logging wind speed and wind direction. Details of the equipment deployed are provided in *Table 2.2*. Copies of the calibration certificates for the equipment are presented in *Appendix E*.

Table 2.1 Locations of Impact Air Quality Monitoring Stations and Monitoring Dates in this Reporting Period

Monitoring Station	Monitoring Dates	Location	Description	Parameters & Frequency
ASR1	1, 4, 7, 10, 13, 16, 19, 22, 25, 28 and 31 January 2018	Tuen Mun Fireboat Station	Office	TSP monitoring • 1-hour Total Suspended Particulates (1-hour TSP, µg/m³), 3 times in every 6 days • 24-hour Total Suspended Particulates (24-hour TSP, µg/m³), daily for 24-hour in every 6 days Enhanced TSP monitoring (commenced on 24 October 2014) • 1-hour Total Suspended Particulates (1-hour TSP, µg/m³), 3 times in every 3 days • 24-hour Total Suspended Particulates (24-hour TSP, µg/m³), daily for 24-hour in every 3 days
ASR5		Pillar Point Fire Station	Office	
AQMS1		Previous River Trade Golf	Bare ground	
ASR6		Butterfly Beach Laundry	Office	
ASR10		Butterfly Beach Park	Recreational uses	

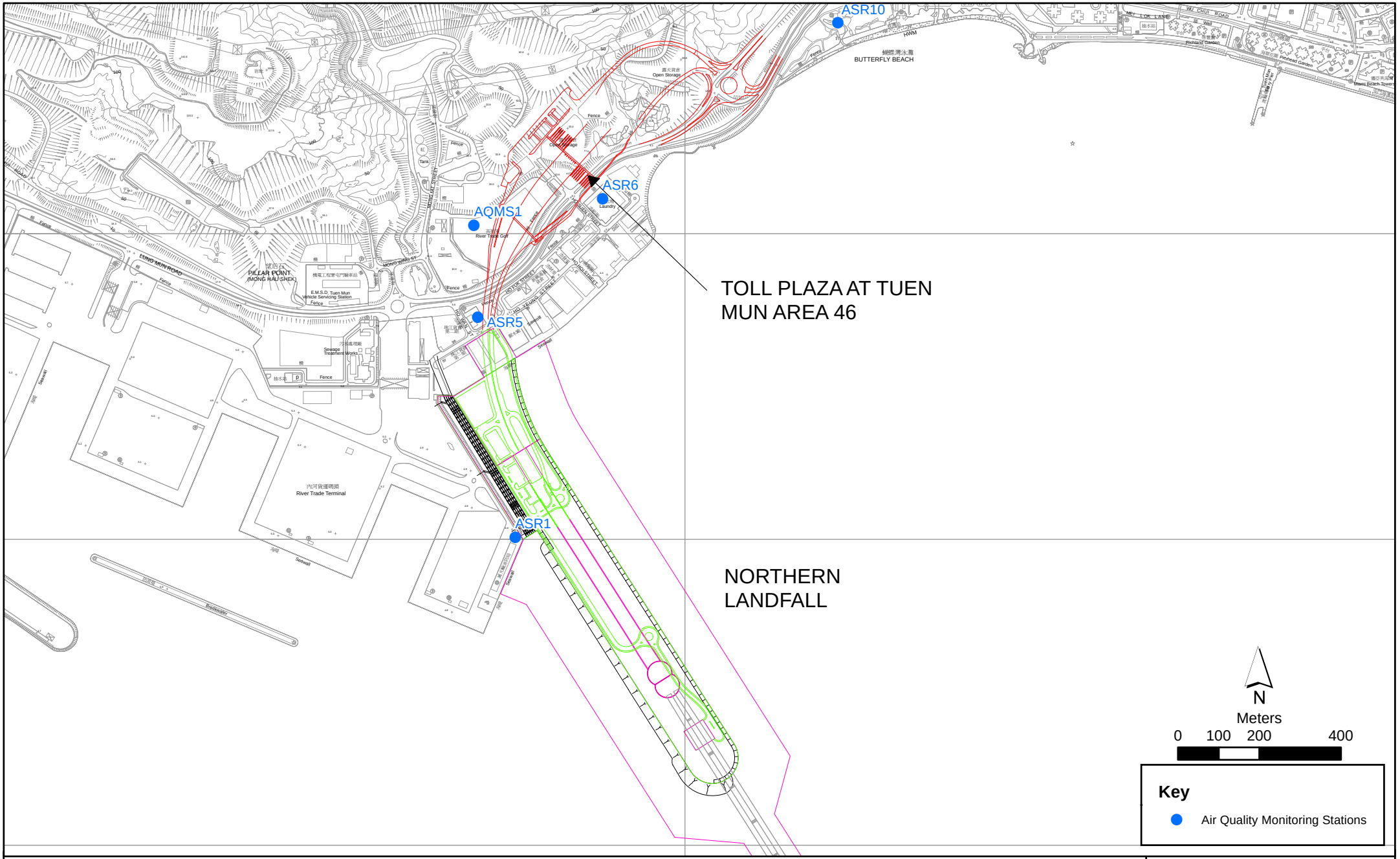

Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring

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Date: 21/2/2014

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Table 2.2 *Air Quality Monitoring Equipment*

Equipment	Brand and Model
High Volume Sampler (1-hour TSP and 24-hour TSP)	Tisch Environmental Mass Flow Controlled Total Suspended Particulate (TSP) High Volume Sampler (Model No. TE-5170)
Wind Meter	Davis (Model: Vantage Pro 2 (S/N: AS160104014)
Wind Anemometer for calibration	Lutron (Model No. AM-4201)

2.1.2 Action & Limit Levels

The Action and Limit Levels of the air quality monitoring is provided in *Appendix D*. The Event and Action plan is presented in *Appendix J.*

2.1.3 Monitoring Schedule for the Reporting Month

The schedule for air quality monitoring in January 2018 is provided in *Appendix F.*

2.1.4 Results and Observations

The monitoring results for 1-hour TSP and 24-hour TSP are summarized in *Tables 2.3* and *2.4,* respectively. Detailed impact air quality monitoring results and graphical presentations are presented in *Appendix G.*

Table 2.3 *Summary of 1-hour TSP Monitoring Results in this Reporting Period*

Station	Average (µg/m³)	Range (µg/m³)	Action Level (µg/m³)	Limit Level (µg/m³)
ASR1	120	13 - 262	331	500
ASR5	183	13 - 396	340	500
AQMS1	120	14 - 324	335	500
ASR6	124	13 - 322	338	500
ASR10	107	13 - 307	337	500

Table 2.4 *Summary of 24-hour TSP Monitoring Results in this Reporting Period*

Station	Average (µg/m³)	Range (µg/m³)	Action Level (µg/m³)	Limit Level (µg/m³)
ASR1	83	21 - 147	213	260
ASR5	108	23 - 197	238	260
AQMS1	72	16 – 154	213	260
ASR6	86	21 - 178	238	260
ASR10	65	22 - 135	214	260

The weather condition during the monitoring period varied from sunny to cloudy. The major dust sources in the reporting period included construction activities under the Contract as well as nearby traffic emissions.

A total of 11 1-hour TSP and 24-hour TSP monitoring were undertaken in which six (6) Action Level of 1-hour TSP were recorded in this reporting month.

Meteorological information collected at the ASR5, including wind speed and wind direction, is provided in *Appendix H*.

2.2 WATER QUALITY MONITORING

Seawall Enhancement Works at Northern Landfall has been completed completed on 31 December 2017. Notification of suspension of water quality monitoring has been issued to EPD on 1 February 2018 and is in process.

2.3 DOLPHIN MONITORING

2.3.1 Monitoring Requirements

Impact dolphin monitoring is required to be conducted by a qualified dolphin specialist team to evaluate whether there have been any effects on the dolphins. In order to fulfil the EM&A requirements and make good use of available resources, the on-going impact line transect dolphin monitoring data collected by HyD's *Contract No. HY/2011/03 Hong Kong-Zhuhai-Macao Bridge. Hong Kong Link Road - Section between Scenic Hill and Hong Kong Boundary Crossing Facilities* on the monthly basis is adopted to avoid duplicates of survey effort.

2.3.2 Monitoring Equipment

Table 2.5 summarises the equipment used for the impact dolphin monitoring.

Table 2.5 Dolphin Monitoring Equipment

Equipment	Model
Global Positioning System (GPS)	Garmin 18X-PC Geo One Phottix
Camera	Nikon D90 300m 2.8D fixed focus Nikon D90 20-300m zoom lens
Laser Binocular	Infinitor LRF 1000
Marine Binocular	Bushell 7 x 50 marine binocular with compass and reticules
Vessel for Monitoring	65 foot single engine motor vessel with viewing platform 4.5m above water level

2.3.3 Monitoring Parameter, Frequencies & Duration

Dolphin monitoring should cover all transect lines in Northeast Lantau (NEL) and the Northwest Lantau (NWL) survey areas twice per month throughout the entire construction period. The monitoring data should be compatible

with, and should be made available for, long-term studies of small cetacean ecology in Hong Kong. In order to provide a suitable long-term dataset for comparison, identical methodology and line transects employed in baseline dolphin monitoring was followed in the impact dolphin monitoring.

2.3.4 Monitoring Location

The impact dolphin monitoring was carried out in the NEL and NWL along the line transect as depicted in *Figure 2.2*. The co-ordinates of all transect lines are shown in *Table 2.6* below.

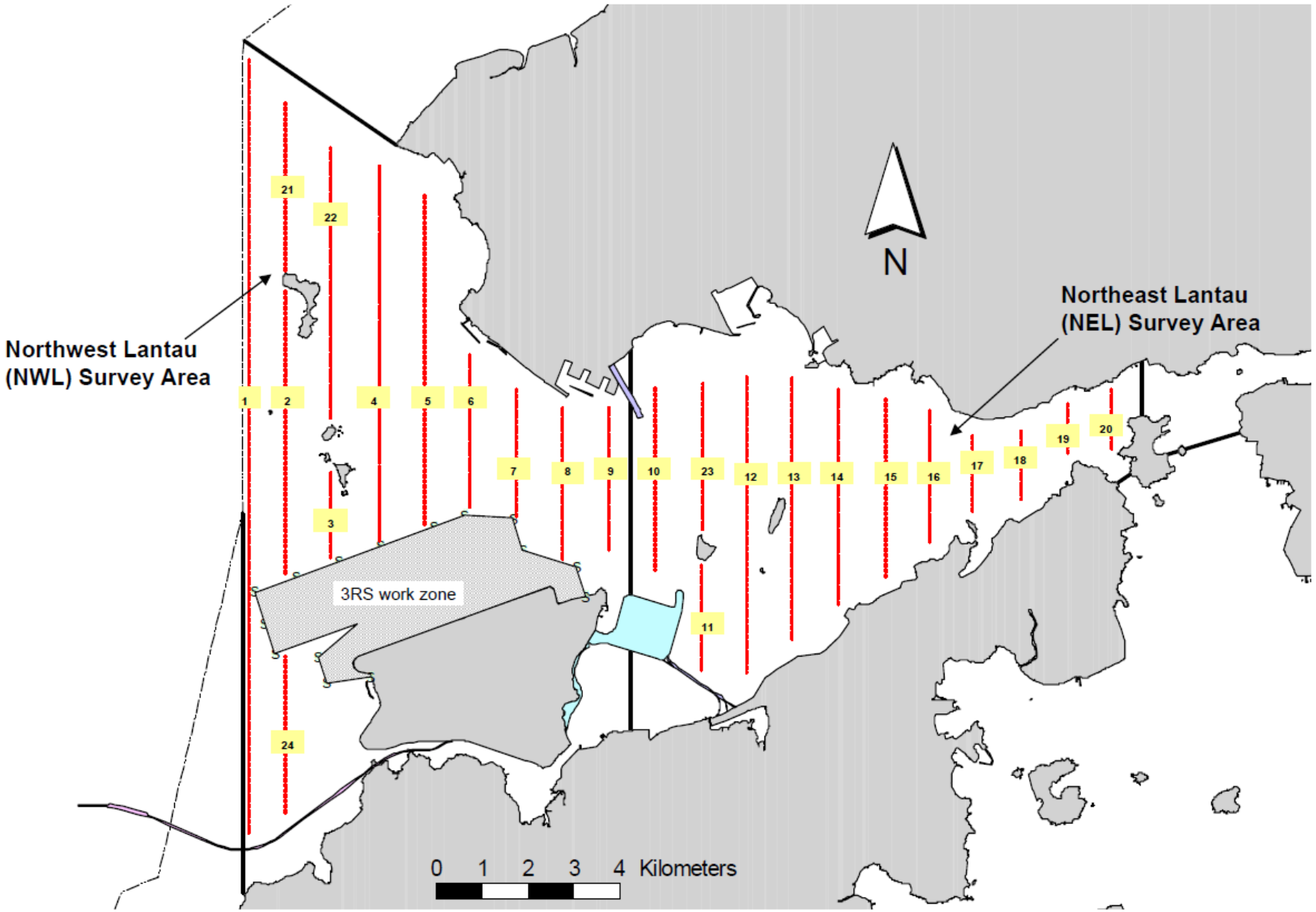

Figure 2.2

Layout of Transect Lines of Dolphin Monitoring in Northwest and Northeast Lantau Areas

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Date: 29/11/2013

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Table 2.6 Impact Dolphin Monitoring Line Transect Co-ordinates

Line No.		Easting	Northing	Line No.		Easting	Northing
1	Start Point	804671	815456	13	Start Point	816506	819480
1	End Point	804671	831404	13	End Point	816506	824859
2	Start Point	805476	820800*	14	Start Point	817537	820220
2	End Point	805476	826654	14	End Point	817537	824613
3	Start Point	806464	821150*	15	Start Point	818568	820735
3	End Point	806464	822911	15	End Point	818568	824433
4	Start Point	807518	821500*	16	Start Point	819532	821420
4	End Point	807518	829230	16	End Point	819532	824209
5	Start Point	808504	821850*	17	Start Point	820451	822125
5	End Point	808504	828602	17	End Point	820451	823671
6	Start Point	809490	822150*	18	Start Point	821504	822371
6	End Point	809490	825352	18	End Point	821504	823761
7	Start Point	810499	822000*	19	Start Point	822513	823268
7	End Point	810499	824613	19	End Point	822513	824321
8	Start Point	811508	821123	20	Start Point	823477	823402
8	End Point	811508	824254	20	End Point	823477	824613
9	Start Point	812516	821303	21	Start Point	805476	827081
9	End Point	812516	824254	21	End Point	805476	830562
10	Start Point	813525	821176	22	Start Point	806464	824033
10	End Point	813525	824657	22	End Point	806464	829598
11	Start Point	814556	818853	23	Start Point	814559	821739
11	End Point	814556	820992	23	End Point	814559	824768
12	Start Point	815542	818807	24*	Start Point	805476*	815900*
12	End Point	815542	824882	24*	End Point	805476*	819100*

Remarks: The coordinates of several starting and ending points have been revised due to the presence of a work zone to the north of the airport platform with intense construction activities in association with the construction of the third runway expansion for the Hong Kong International Airport. Co-ordinates in red and marked with asterisk are revised co-ordinates of transect line.

2.3.5 *Action & Limit Levels*

The Action and Limit levels of impact dolphin monitoring are shown in *Appendix D*. The Event and Action plan is presented in *Appendix J*.

2.3.6 Monitoring Schedule for the Reporting Month

Dolphin monitoring was carried out on 2, 8, 16 and 25 of January 2018. The dolphin monitoring schedule for the reporting month is shown in *Appendix F*.

2.3.7 Results & Observations

A total of 265.94 km of survey effort was collected, with 84.2% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility) in January 2018. Among the two areas, 100.20 km and 165.74 km of survey effort were collected from NEL and NWL survey areas, respectively. The total survey effort conducted on primary and secondary lines were 195.15 km and 70.79 km respectively. The survey efforts are summarized in *Appendix I.*

Five groups of 20 Chinese White Dolphins sightings were recorded during the two sets of surveys in January 2018. All dolphin sightings were made in NWL, while none was sighted in NEL. All dolphin sightings were made during on-effort search and were made on primary lines. One of the dolphin groups were associated with an operating purse-seiner.

No dolphin sighting was made in the proximity of the TM-CLKL alignment. The distribution of dolphin sightings during the reporting month is shown in *Figure 2.3*.

Encounter rates of Chinese White Dolphins are deduced from the survey effort and on-effort sighting data made under favourable conditions (Beaufort 3 or below) in January 2018 with the results present in *Tables 2.7* and *2.8*.

Table 2.7 Individual Survey Event Encounter Rates

		Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)	**Encounter rate (ANI)** (no. of dolphins from all on-effort sightings per 100 km of survey effort)
		Primary Lines Only	**Primary Lines Only**
NEL	Set 1: January 2nd / 8th	0.0	0.0
	Set 2: January 16th / 25th	0.0	0.0
NWL	Set 1: January 2nd / 8th	5.7	45.4
	Set 2: January 16th / 25th	3.4	3.4

Note: Dolphin Encounter Rates are deduced from the Two Sets of Surveys (Two Surveys in Each Set) in January 2018 in Northeast (NEL) and Northwest Lantau (NWL)

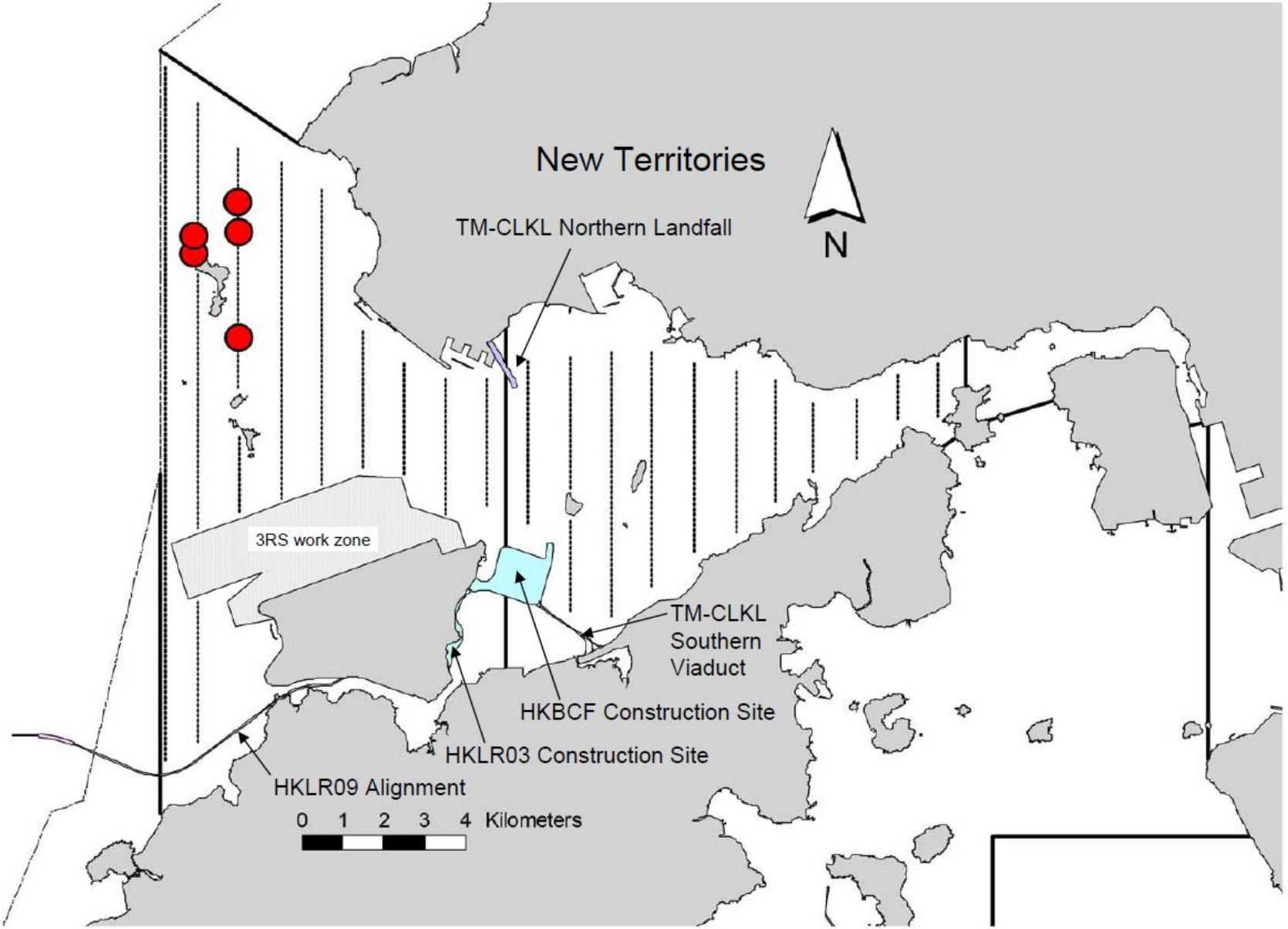

Figure 2.3

HY/2012/08 TM-CLKL Northern Connection Sub-sea Tunnel Section
The distribution of dolphin sightings during the reporting period
(Source: Adopted from HKLR03 Monitoring Survey in January 2018)

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Table 2.8 Monthly Average Encounter Rates

	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)		Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort)	
	Primary Lines Only	**Both Primary and Secondary Lines**	**Primary Lines Only**	**Both Primary and Secondary Lines**
Northeast Lantau	0.0	0.0	0.0	0.0
Northwest Lantau	4.3	3.2	19.2	14.3

Note: Overall dolphin encounter rates (sightings per 100 km of survey effort) from all four surveys are conducted in January 2018 on primary lines only as well as both primary lines and secondary lines in Northeast and Northwest Lantau.

Due to monthly variation in dolphin occurrence within the survey area, it would be more appropriate to draw conclusion on whether any unacceptable impacts on dolphins have been detected in relation to the construction activities of this Project in the quarterly EM&A reports, where comparison on distribution, group size and encounter rates of dolphins between the quarterly impact monitoring period and baseline monitoring period will be made.

2.3.8 Implementation of Marine Mammal Exclusion Zone

There was no dredging, reclamation or marine sheet piling works in open waters during this reporting period. Thus, Passive Acoustic Monitoring (PAM) and the day-time monitoring of Dolphin Exclusion Zone (DEZ) by dolphin observers were not in effect during the reporting period.

2.4 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. In the reporting month, five (5) site inspections were carried out on 3, 10, 17, 24 and 31 January 2018.

Key observations and recommendations during the site inspections in this reporting period are summarized in *Table 2.9*.

Table 2.9 Specific Observations and Recommendations during the Weekly Site Inspection in this Reporting Month

Inspection Date	Observations	Recommendations/ Remarks
3 January 2018	Works Area – Portion S-A • Accumulated waste in the skip should be removed.	Works Area – Portion S-A • The Contractor was reminded to remove the accumulated waste in the skip.
10 January 2018	Works Area –Portion S-A • Drip tray and proper chemical label should be provided for the chemical container. • Trapped water in the drip tray should be removed. Works Area –Portion N-A • Trapped water should be pumped off to wastewater treatment facilities. • The slope of the surcharge should be covered entirely by tarpaulin sheets.	Works Area –Portion S-A • The Contractor was reminded to provide drip tray and proper chemical label for the chemical container. • The Contractor was reminded to remove trapped water in the drip tray. Works Area –Portion N-A • The Contractor was reminded to pump off the trapped water to wastewater treatment facilities. • The Contractor was reminded to cover the slope of the surcharge by tarpaulin sheets entirely.
17 January 2018	Works Area – TBM tunnel • Drip tray and proper chemical label should be provided for the chemical container. Works Area - Portion S-C • Trapped water in the drip tray should be removed. • Trapped water in the drip tray should be removed.	Works Area – TBM tunnel • The Contractor was reminded to provide drip tray and proper chemical label for the chemical container. Works Area - Portion S-C • The Contractor was reminded to remove trapped water in the drip tray. • The Contractor was reminded to remove trapped water in the drip tray.
24 January 2018	Works Area – Portion N-C • Chemical container should be placed in proper storage area. • Drip tray and proper chemical label should be provided for the chemical container. Works Area - Portion S-B • Drip tray should be provided for the chemical container.	Works Area – Portion N-C • The Contractor was reminded to place the chemical container in proper storage area. • The Contractor was reminded to provide drip tray and proper chemical label for the chemical container. Works Area - Portion S-B • The Contractor was reminded to provide drip tray for the chemical container.

Inspection Date	Observations	Recommendations/ Remarks
31 January 2018	Works Area – Portion N-C • Accumulated general refuse in the skip should be removed. Works Area - Portion N-A • Surcharge stockpiles should be entirely covered with tarpaulin sheets. Works Area - Portion S-B • Cement bags should be entirely covered with tarpaulin sheets.	Works Area – Portion N-C • The Contractor was reminded to remove the accumulated general refuse in the skip. Works Area - Portion N-A • The Contractor was reminded to cover the surcharge stockpiles entirely with tarpaulin sheets. Works Area - Portion S-B • The Contractor was reminded to cover the cement bags entirely with tarpaulin sheets.

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

2.5 *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) and marine sediment. Reference has been made to the waste flow table prepared by the Contractor (*Appendix L*). The quantities of different types of wastes are summarized in *Table 2.10*.

Table 2.10 Quantities of Different Waste Generated in the Reporting Month

Month/Year	Inert Construction Waste [a] (tonnes)	Inert Construction Waste Re-used (tonnes)	Non-inert Construction Waste [b] (tonnes)	Recyclable Materials [c] (kg)	Chemical Wastes (kg)	Marine Sediment (m^3)	
						Category L	Category M (M_p & M_f)
January 2018	7,165	0	272	200	2800	0	11,357

Notes:
(a) Inert construction wastes include hard rock and large broken concrete, and materials 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.

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 properly and store 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.

2.6 *ENVIRONMENTAL LICENSES AND PERMITS*

The status of environmental licensing and permit is summarized in *Table 2.11* below.

Table 2.11 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	Throughout the Contract	HyD	Application for VEP on 3 March 2015 to supersede EP-354/2009/C
Construction Dust Notification	363510	19 August 2013	Throughout the Contract	DBJV	Northern Landfall
Construction Dust Notification	403620	10 June 2016	Throughout the Contract	DBJV	Southern Landfall
Chemical Waste Registration	5213-422-D2516-02	18 January 2017	Throughout the Contract	DBJV	Northern Landfall
Chemical Waste Registration	5213-951-D2591-01	25 May 2016	Throughout the Contract	DBJV	Southern Landfall
Construction Waste Disposal Account	7018108	28 August 2013	Throughout the Contract	DBJV	Waste disposal in Contract No. HY/2012/08
Waste Water Discharge License	WT00017707-2013	18 November 2013	30 November 2018	DBJV	For site WA18
Waste Water Discharge License	WT00019248-2014	5 June 2014	30 June 2019	DBJV	For site Portion N6 and Reclamation Area E
Waste Water Discharge License	WT00025944-2016	15 December 2016	31 December 2021	DBJV	Southern Landfall
Marine Dumping Permit	EP/MD/18-118	21 January 2018	20 February 2018	DBJV	Type 1 (Dedicated site) and Type 2 (Confined Marine Disposal)
Construction Noise Permit	GW-RW0538-17	16 October 2017	15 April 2018	DBJV	For Urmston Road in front of Pillar Point
Construction Noise Permit	GW-RW0641-17	16 December 2017	6 December 2018	DBJV	WA23 @ Tsing Yi
Construction Noise Permit	PP-RS0026-17	1 December 2017	29 March 2018	DBJV	Southern Landfall (Percussive Piling)
Construction Noise Permit	GW-RS0878-17	11 October 2017	2 April 2018	DBJV	Southern Landfall

Notes:
HyD = Highways Department
DBJV = Dragages – Bouygues Joint Venture
VEP = Variation of Environmental Permit

2.7 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.

2.8 SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT

One (1) Action Level exceedance of 1-hour TSP was recorded on 13 January 2017. Three (3) Action Level exceedances of 1-hour TSP were recorded on 16 January 2018. Two (2) Action Level exceedance of 1-hour TSP was recorded on 22 January 2018.

Cumulative statistics are provided in *Appendix K*.

2.9 SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

The Environmental Complaint Handling Procedure is provided in *Figure 2.4*.

One (1) environmental complaint case regarding air, noise and light pollution at River Trade Terminal was referred by IEC on 30 January 2018. The complaint investigation report is provided in Appendix K.

No environmental summons was received in this reporting period.

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

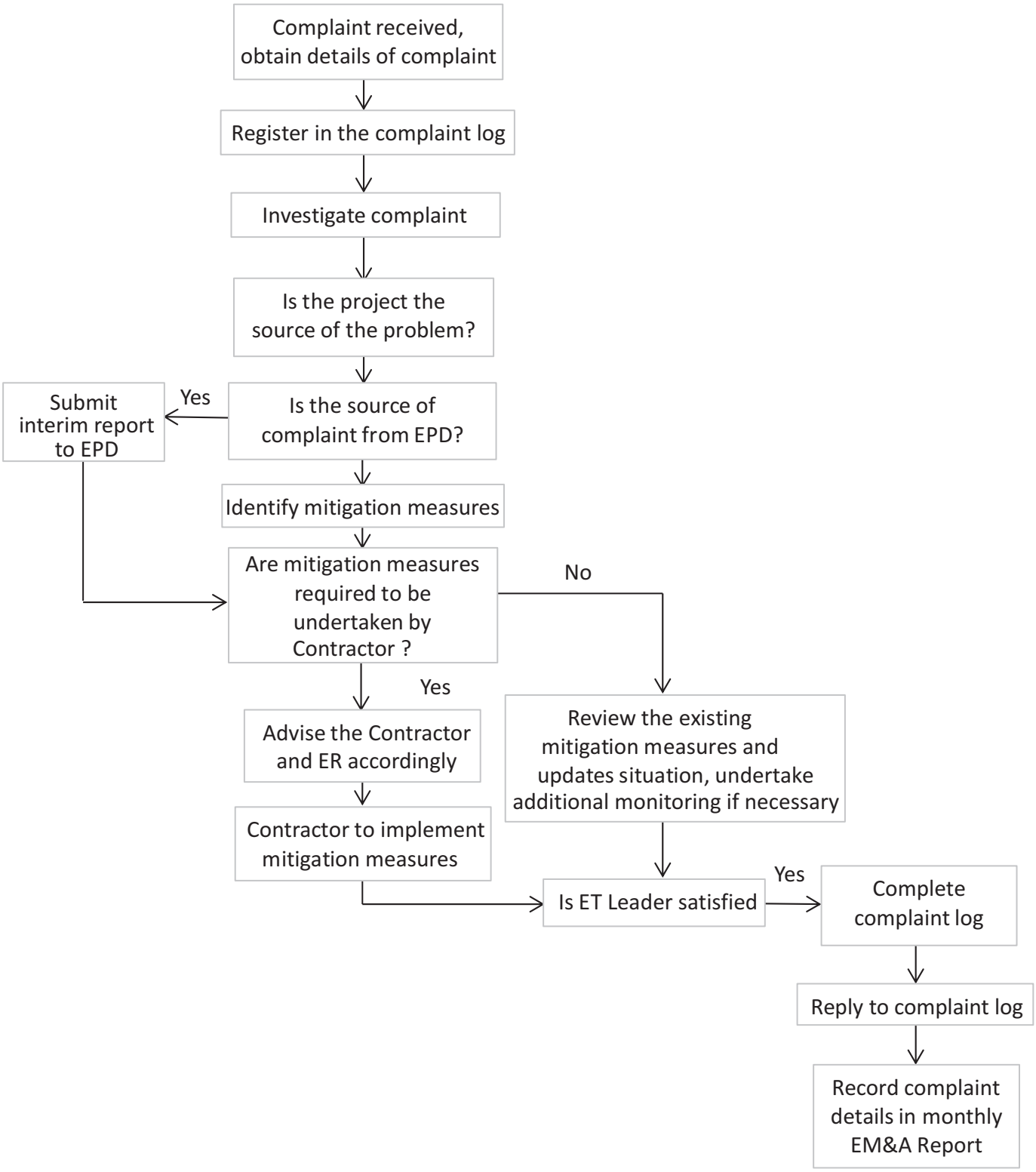

Figure 2.4 Environmental Complaint Handling Procedure

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DATE: 06/12/2013

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3 FUTURE KEY ISSUES

3.1 CONSTRUCTION ACTIVITIES FOR THE COMING MONTH

As informed by the Contractor, the major works for the Project in February 2018 are summarized in *Table 3.1*.

Table 3.1 Construction Works to Be Undertaken in the Coming Month

Works to be undertaken
Land-based Works • Box Culvert Extension at Works Area – Portion N-A; • Construction of North Ventilation Building – Portion N-C; • Construction of Cross Passage Tympanum – TBM tunnel; • Cross Passage Lining Installation – TBM Tunnel; • Excavation of Sub-sea Tunnel – TBM tunnel; • Corbel Construction – TBM Tunnel; • Bulk Excavation – Portion S-A; • TBM Excavation – Portion S-A; • CSM treatment, Jet Grouting works and D-wall Construction; and • Ground Freezing Works – Portion S-A *Marine-based Works* • Seawall Modificaton Works – Portion S-A

3.2 KEY ISSUES FOR THE COMING MONTH

Potential environmental impacts arising from the above upcoming construction activities in the next reporting month of February 2018 are mainly associated with dust, marine ecology, water quality and waste management issues.

3.3 MONITORING SCHEDULE FOR THE COMING MONTH

The tentative schedule for environmental monitoring in February 2018 is provided in *Appendix F*.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

This Fifty-first Monthly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 to 31 January 2018, in accordance with the Updated EM&A Manual and the requirements of EP-354/2009/D.

Air quality (including 1-hour TSP and 24-hour TSP), water quality and dolphin monitoring were carried out in this reporting month.

One (1) Action Level of 1-hour TSP was recorded on 13 January 2017. Three (3) Action Level exceedances of 1-hour TSP were recorded on 16 January 2018. Two (2) Action Level exceedance of 1-hour TSP was recorded on 22 January 2018.

Five groups of 20 Chinese White Dolphins sightings were recorded during the two sets of surveys in January 2018. All dolphin sightings were made in NWL, while none was sighted in NEL. All dolphin sightings were made during on-effort search and were made on primary lines. One of the dolphin groups were associated with an operating purse-seiner.

Environmental site inspection was carried out five (5) times in January 2018. Remedial actions recommended for the deficiencies identified during the site audits were properly implemented by the Contractor.

No non-compliance event was recorded during the reporting period.

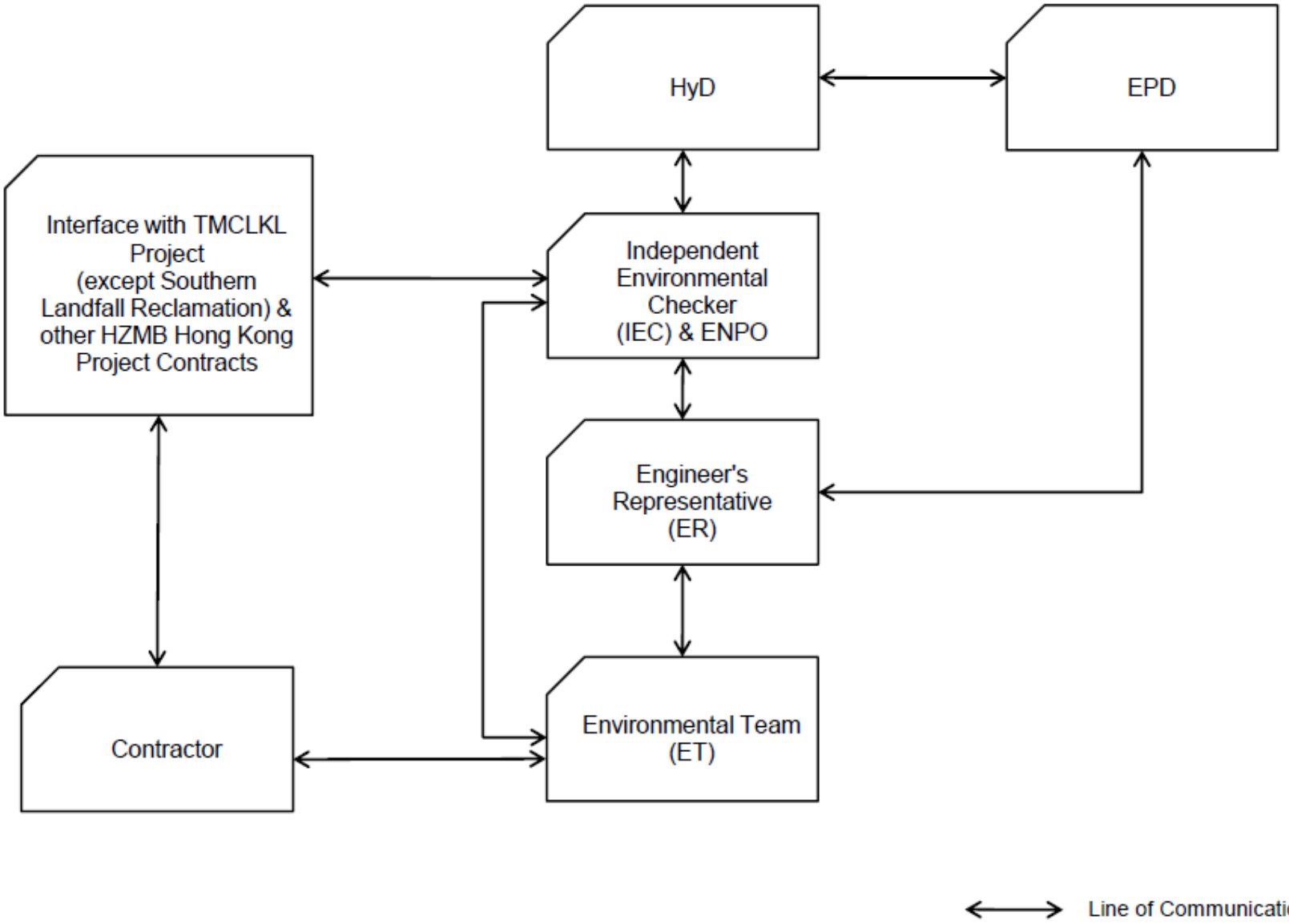
One (1) environmental complaint case regarding air, noise and light pollution at River Trade Terminal was referred by IEC on 30 January 2018. The complaint investigation report is provided in Appendix K.

No environmental summons was received in this 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



Appendix A1

Contract No. HY/2012/08 Northern Connection Sub-sea Tunnel Section
Project Organization

DATE: 06/03/2013

Environmental Resources Management

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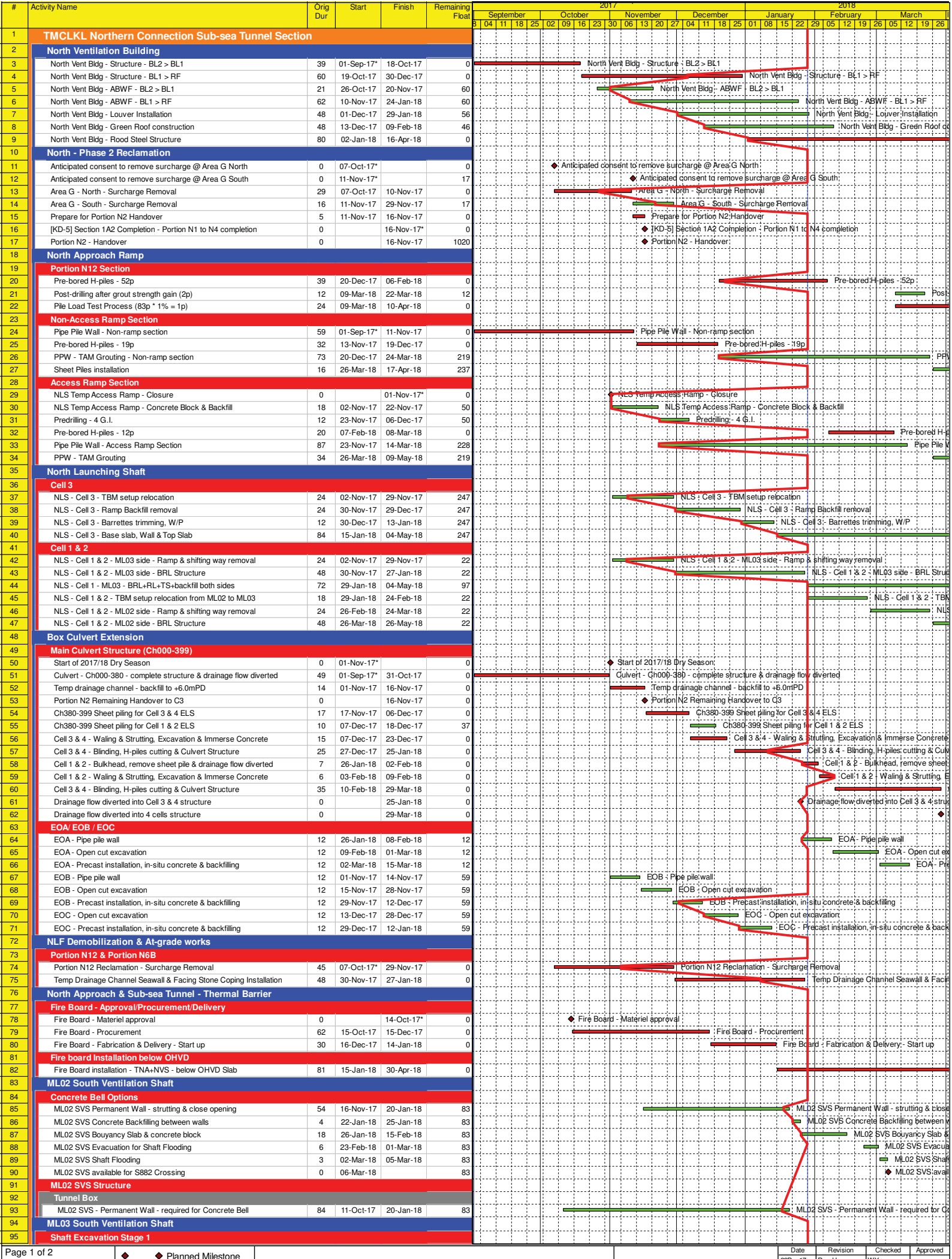
Appendix B

Construction Programme



#	Activity Name	Orig Dur	Start	Finish	Remaining Float
1	**TMCLKL Northern Connection Sub-sea Tunnel Section**				
2	**North Ventilation Building**				
3	North Vent Bldg - Structure - BL2 > BL1	39	01-Sep-17*	18-Oct-17	0
4	North Vent Bldg - Structure - BL1 > RF	60	19-Oct-17	30-Dec-17	0
5	North Vent Bldg - ABWF - BL2 > BL1	21	26-Oct-17	20-Nov-17	60
6	North Vent Bldg - ABWF - BL1 > RF	62	10-Nov-17	24-Jan-18	60
7	North Vent Bldg - Louver Installation	48	01-Dec-17	29-Jan-18	56
8	North Vent Bldg - Green Roof construction	48	13-Dec-17	09-Feb-18	46
9	North Vent Bldg - Rood Steel Structure	80	02-Jan-18	16-Apr-18	0
10	**North - Phase 2 Reclamation**				
11	Anticipated consent to remove surcharge @ Area G North	0	07-Oct-17*		0
12	Anticipated consent to remove surcharge @ Area G South	0	11-Nov-17*		17
13	Area G - North - Surcharge Removal	29	07-Oct-17	10-Nov-17	0
14	Area G - South - Surcharge Removal	16	11-Nov-17	29-Nov-17	17
15	Prepare for Portion N2 Handover	5	11-Nov-17	16-Nov-17	0
16	[KD-5] Section 1A2 Completion - Portion N1 to N4 completion	0		16-Nov-17*	0
17	Portion N2 - Handover	0		16-Nov-17	1020
18	**North Approach Ramp**				
19	**Portion N12 Section**				
20	Pre-bored H-piles - 52p	39	20-Dec-17	06-Feb-18	0
21	Post-drilling after grout strength gain (2p)	12	09-Mar-18	22-Mar-18	12
22	Pile Load Test Process (83p * 1% = 1p)	24	09-Mar-18	10-Apr-18	0
23	**Non-Access Ramp Section**				
24	Pipe Pile Wall - Non-ramp section	59	01-Sep-17*	11-Nov-17	0
25	Pre-bored H-piles - 19p	32	13-Nov-17	19-Dec-17	0
26	PPW - TAM Grouting - Non-ramp section	73	20-Dec-17	24-Mar-18	219
27	Sheet Piles installation	16	26-Mar-18	17-Apr-18	237
28	**Access Ramp Section**				
29	NLS Temp Access Ramp - Closure	0		01-Nov-17*	0
30	NLS Temp Access Ramp - Concrete Block & Backfill	18	02-Nov-17	22-Nov-17	50
31	Predrilling - 4 G.I.	12	23-Nov-17	06-Dec-17	50
32	Pre-bored H-piles - 12p	20	07-Feb-18	08-Mar-18	0
33	Pipe Pile Wall - Access Ramp Section	87	23-Nov-17	14-Mar-18	228
34	PPW - TAM Grouting	34	26-Mar-18	09-May-18	219
35	**North Launching Shaft**				
36	**Cell 3**				
37	NLS - Cell 3 - TBM setup relocation	24	02-Nov-17	29-Nov-17	247
38	NLS - Cell 3 - Ramp Backfill removal	24	30-Nov-17	29-Dec-17	247
39	NLS - Cell 3 - Barrettes trimming, W/P	12	30-Dec-17	13-Jan-18	247
40	NLS - Cell 3 - Base slab, Wall & Top Slab	84	15-Jan-18	04-May-18	247
41	**Cell 1 & 2**				
42	NLS - Cell 1 & 2 - ML03 side - Ramp & shifting way removal	24	02-Nov-17	29-Nov-17	22
43	NLS - Cell 1 & 2 - ML03 side - BRL Structure	48	30-Nov-17	27-Jan-18	22
44	NLS - Cell 1 - ML03 - BRL+RL+TS+backfill both sides	72	29-Jan-18	04-May-18	97
45	NLS - Cell 1 & 2 - TBM setup relocation from ML02 to ML03	18	29-Jan-18	24-Feb-18	22
46	NLS - Cell 1 & 2 - ML02 side - Ramp & shifting way removal	24	26-Feb-18	24-Mar-18	22
47	NLS - Cell 1 & 2 - ML02 side - BRL Structure	48	26-Mar-18	26-May-18	22
48	**Box Culvert Extension**				
49	**Main Culvert Structure (Ch000-399)**				
50	Start of 2017/18 Dry Season	0	01-Nov-17*		0
51	Culvert - Ch000-380 - complete structure & drainage flow diverted	49	01-Sep-17*	31-Oct-17	0
52	Temp drainage channel - backfill to +6.0mPD	14	01-Nov-17	16-Nov-17	0
53	Portion N2 Remaining Handover to C3	0		16-Nov-17	0
54	Ch380-399 Sheet piling for Cell 3 & 4 ELS	17	17-Nov-17	06-Dec-17	0
55	Ch380-399 Sheet piling for Cell 1 & 2 ELS	10	07-Dec-17	18-Dec-17	37
56	Cell 3 & 4 - Waling & Strutting, Excavation & Immerse Concrete	15	07-Dec-17	23-Dec-17	0
57	Cell 3 & 4 - Blinding, H-piles cutting & Culvert Structure	25	27-Dec-17	25-Jan-18	0
58	Cell 1 & 2 - Bulkhead, remove sheet pile & drainage flow diverted	7	26-Jan-18	02-Feb-18	0
59	Cell 1 & 2 - Waling & Strutting, Excavation & Immerse Concrete	6	03-Feb-18	09-Feb-18	0
60	Cell 3 & 4 - Blinding, H-piles cutting & Culvert Structure	35	10-Feb-18	29-Mar-18	0
61	Drainage flow diverted into Cell 3 & 4 structure	0		25-Jan-18	0
62	Drainage flow diverted into 4 cells structure	0		29-Mar-18	0
63	**EOA/ EOB / EOC**				
64	EOA - Pipe pile wall	12	26-Jan-18	08-Feb-18	12
65	EOA - Open cut excavation	12	09-Feb-18	01-Mar-18	12
66	EOA - Precast installation, in-situ concrete & backfilling	12	02-Mar-18	15-Mar-18	12
67	EOB - Pipe pile wall	12	01-Nov-17	14-Nov-17	59
68	EOB - Open cut excavation	12	15-Nov-17	28-Nov-17	59
69	EOB - Precast installation, in-situ concrete & backfilling	12	29-Nov-17	12-Dec-17	59
70	EOC - Open cut excavation	12	13-Dec-17	28-Dec-17	59
71	EOC - Precast installation, in-situ concrete & backfilling	12	29-Dec-17	12-Jan-18	59
72	**NLF Demobilization & At-grade works**				
73	**Portion N12 & Portion N6B**				
74	Portion N12 Reclamation - Surcharge Removal	45	07-Oct-17*	29-Nov-17	0
75	Temp Drainage Channel Seawall & Facing Stone Coping Installation	48	30-Nov-17	27-Jan-18	0
76	**North Approach & Sub-sea Tunnel - Thermal Barrier**				
77	**Fire Board - Approval/Procurement/Delivery**				
78	Fire Board - Materiel approval	0		14-Oct-17*	0
79	Fire Board - Procurement	62	15-Oct-17	15-Dec-17	0
80	Fire Board - Fabrication & Delivery - Start up	30	16-Dec-17	14-Jan-18	0
81	**Fire board Installation below OHVD**				
82	Fire Board installation - TNA+NVS - below OHVD Slab	81	15-Jan-18	30-Apr-18	0
83	**ML02 South Ventilation Shaft**				
84	**Concrete Bell Options**				
85	ML02 SVS Permanent Wall - strutting & close opening	54	16-Nov-17	20-Jan-18	83
86	ML02 SVS Concrete Backfilling between walls	4	22-Jan-18	25-Jan-18	83
87	ML02 SVS Bouyancy Slab & concrete block	18	26-Jan-18	15-Feb-18	83
88	ML02 SVS Evacuation for Shaft Flooding	6	23-Feb-18	01-Mar-18	83
89	ML02 SVS Shaft Flooding	3	02-Mar-18	05-Mar-18	83
90	ML02 SVS available for S882 Crossing	0	06-Mar-18		83
91	**ML02 SVS Structure**				
92	**Tunnel Box**				
93	ML02 SVS - Permanent Wall - required for Concrete Bell	84	11-Oct-17	20-Jan-18	83
94	**ML03 South Ventilation Shaft**				
95	**Shaft Excavation Stage 1**				

Data Date: 01-Sep-17

Project ID: DWPH0010

Planned Milestone

Planned Bar

Concrete

TMCLK Northern Connection Sub-sea Tunnel Section

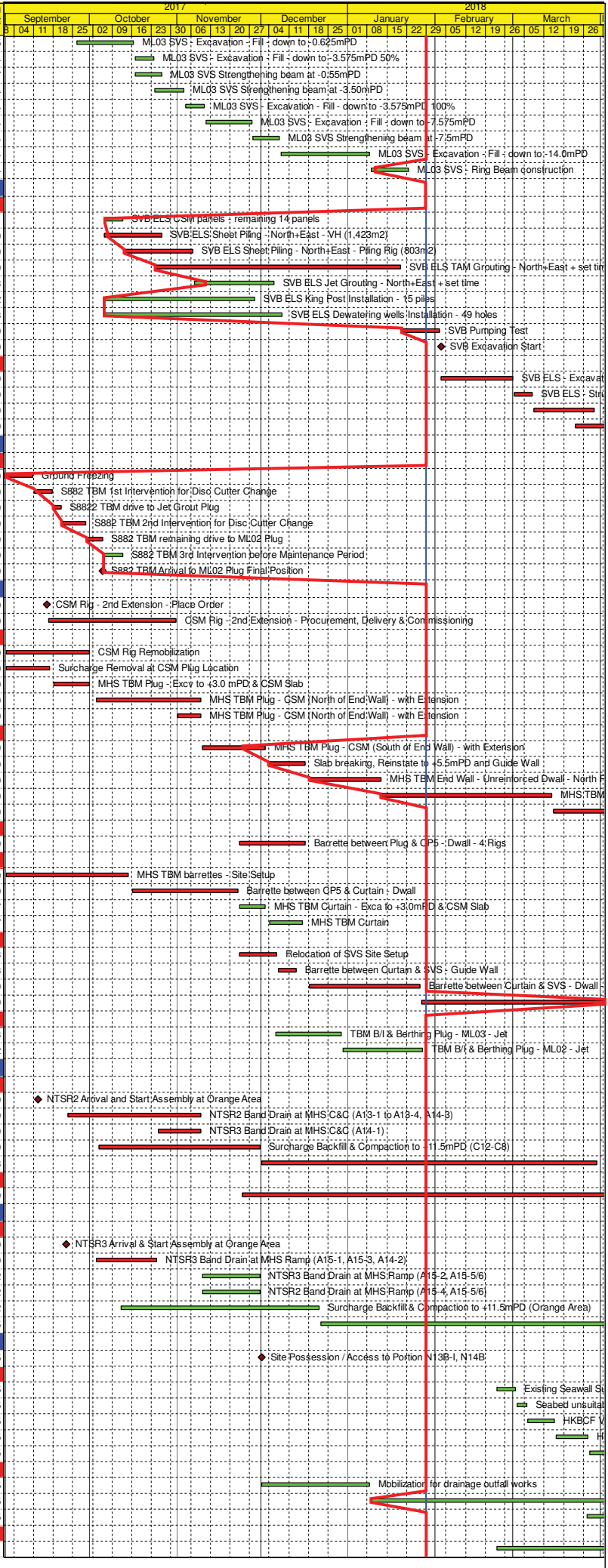
Detailed Works Programme Rev. H

Three Months Rolling Programme Progress as of 28 Jan 18

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved
22Dec17	Rev. H	WYu	

#	Activity Name	Orig Dur	Start	Finish	Remaining Float
96	ML03 SVS - Excavation - Fill - down to -0.625mPD	16	26-Sep-17*	16-Oct-17	75
97	ML03 SVS - Excavation - Fill - down to -3.575mPD 50%	6	17-Oct-17	23-Oct-17	74
98	ML03 SVS Strengthening beam at -0.55mPD	9	17-Oct-17	26-Oct-17	1037
99	ML03 SVS Strengthening beam at -3.50mPD	9	24-Oct-17	03-Nov-17	74
100	ML03 SVS - Excavation - Fill - down to -3.575mPD 100%	6	04-Nov-17	10-Nov-17	74
101	ML03 SVS - Excavation - Fill - down to -7.575mPD	14	11-Nov-17	27-Nov-17	74
102	ML03 SVS Strengthening beam at -7.5mPD	9	28-Nov-17	07-Dec-17	74
103	ML03 SVS - Excavation - Fill - down to -14.0mPD	24	08-Dec-17	08-Jan-18	74
104	ML03 SVS - Ring Beam construction	12	09-Jan-18	22-Jan-18	74
105	**South Ventilation Building**				
106	**SVB Remaining ELS Scope after S882 Rescue**				
107	SVB ELS CSM panels - remaining 14 panels	6	06-Oct-17	12-Oct-17	81
108	SVB ELS Sheet Piling - North+East - VH (1,423m2)	18	06-Oct-17	26-Oct-17	0
109	SVB ELS Sheet Piling - North+East - Piling Rig (803m2)	20	13-Oct-17	06-Nov-17	0
110	SVB ELS TAM Grouting - North+East + set time	72	24-Oct-17	19-Jan-18	0
111	SVB ELS Jet Grouting - North+East + set time	25	07-Nov-17	05-Dec-17	53
112	SVB ELS King Post Installation - 15 piles	45	06-Oct-17	28-Nov-17	42
113	SVB ELS Dewatering wells Installation - 49 holes	54	06-Oct-17	08-Dec-17	33
114	SVB Pumping Test	12	20-Jan-18	02-Feb-18	0
115	SVB Excavation Start	0	03-Feb-18		0
116	**ELS**				
117	SVB ELS - Excavation - down to +2.5mPD	16	03-Feb-18*	28-Feb-18	0
118	SVB ELS - Strut layer S1 & Strengthening beam	6	01-Mar-18	07-Mar-18	0
119	SVB ELS - Excavation - down to -1.0mPD	19	08-Mar-18	29-Mar-18	0
120	SVB ELS - Strut layer S2 & Strengthening beam	21	23-Mar-18	20-Apr-18	0
121	**S882 TBM Rescue**				
122	**S882 TBM Rescue by Ground Freezing**				
123	Ground Freezing	10	01-Sep-17*	10-Sep-17	0
124	S882 TBM 1st Intervention for Disc Cutter Change	7	11-Sep-17	17-Sep-17	0
125	S8822 TBM drive to Jet Grout Plug	3	18-Sep-17	20-Sep-17	0
126	S882 TBM 2nd Intervention for Disc Cutter Change	9	21-Sep-17	29-Sep-17	0
127	S882 TBM remaining drive to ML02 Plug	6	30-Sep-17	05-Oct-17	0
128	S882 TBM 3rd Intervention before Maintenance Period	7	06-Oct-17	12-Oct-17	249
129	S882 TBM Arrival to ML02 Plug Final Position	0		05-Oct-17	0
130	**MHS TBM Treatment & Plug**				
131	CSM Rig - 2nd Extension - Place Order	0		15-Sep-17*	0
132	CSM Rig - 2nd Extension - Procurement, Delivery & Commissioning	36	16-Sep-17	31-Oct-17	0
133	**MHS TBM plug**				
134	CSM Rig Remobilization	26	01-Sep-17	30-Sep-17	0
135	Surcharge Removal at CSM Plug Location	14	01-Sep-17	16-Sep-17	0
136	MHS TBM Plug - Excv to +3.0 mPD & CSM Slab	12	18-Sep-17*	30-Sep-17	0
137	MHS TBM Plug - CSM (North of End Wall) - with Extension	31	03-Oct-17	09-Nov-17	0
138	MHS TBM Plug - CSM (North of End Wall) - with Extension	8	01-Nov-17	09-Nov-17	0
139	**MHS C&C End Wall**				
140	MHS TBM Plug - CSM (South of End Wall) - with Extension	20	10-Nov-17	02-Dec-17	0
141	Slab breaking, Reinstate to +5.5mPD and Guide Wall	12	04-Dec-17	16-Dec-17	0
142	MHS TBM End Wall - Unreinforced Dwall - North Row	20	18-Dec-17	12-Jan-18	0
143	MHS TBM End Wall - Reinforced Dwall - South Row	46	13-Jan-18	14-Mar-18	0
144	MHS TBM End Wall - Unreinforced Dwall - Middle Row	20	15-Mar-18	11-Apr-18	0
145	**Barrette between Plug & CP5**				
146	Barrette between Plug & CP5 - Dwall - 4 Rigs	21	23-Nov-17	16-Dec-17	0
147	**Barrette beween CP5 & TBM Curtain**				
148	MHS TBM barrettes - Site Setup	36	01-Sep-17*	14-Oct-17	0
149	Barrette between CP5 & Curtain - Dwall	32	16-Oct-17*	22-Nov-17	0
150	MHS TBM Curtain - Exca to +3.0mPD & CSM Slab	9	23-Nov-17	02-Dec-17	87
151	MHS TBM Curtain	11	04-Dec-17	15-Dec-17	87
152	**Barrette between Curtain & SVS**				
153	Relocation of SVS Site Setup	12	23-Nov-17	06-Dec-17	3
154	Barrette between Curtain & SVS - Guide Wall	6	07-Dec-17	13-Dec-17	3
155	Barrette between Curtain & SVS - Dwall - ML03	32	18-Dec-17	26-Jan-18	0
156	Barrette between Curtain & SVS - Dwall - ML02	48	27-Jan-18	03-Apr-18	0
157	**Jet Columns for TBM B/I & Berthing at SVS**				
158	TBM B/I & Berthing Plug - ML03 - Jet	19	06-Dec-17*	29-Dec-17	53
159	TBM B/I & Berthing Plug - ML02 - Jet	24	30-Dec-17	27-Jan-18	92
160	**MHS Cut-and-cover Tunnel**				
161	**MHS C&C Band Drain, Surcharge & Dwall**				
162	NTSR2 Arrival and Start Assembly at Orange Area	0		12-Sep-17*	0
163	NTSR2 Band Drain at MHS C&C (A13-1 to A13-4, A14-3)	38	23-Sep-17	09-Nov-17	0
164	NTSR3 Band Drain at MHS C&C (A14-1)	13	25-Oct-17	09-Nov-17	0
165	Surcharge Backfill & Compaction to +11.5mPD (C12-C8)	48	04-Oct-17	30-Nov-17	0
166	4 months Consolidation Period (C12-C8)	120	01-Dec-17	30-Mar-18	3
167	**MHS C&C Dwall**				
168	MHS C&C Dwall (Cell 08 to Cell 01)	305	24-Nov-17	07-Dec-18	0
169	**MHS Approach Ramp**				
170	**Band Drain & Surcharge**				
171	NTSR3 Arrival & Start Assembly at Orange Area	0		22-Sep-17*	0
172	NTSR3 Band Drain at MHS Ramp (A15-1, A15-3, A14-2)	18	03-Oct-17	24-Oct-17	0
173	NTSR3 Band Drain at MHS Ramp (A15-2, A15-5/6)	18	10-Nov-17	30-Nov-17	142
174	NTSR2 Band Drain at MHS Ramp (A15-4, A15-5/6)	18	10-Nov-17	30-Nov-17	142
175	Surcharge Backfill & Compaction to +11.5mPD (Orange Area)	60	12-Oct-17	21-Dec-17	142
176	4 months Consolidation Period (Orange Area)	120	22-Dec-17	20-Apr-18	185
177	**Southern Landfall - Surface**				
178	Site Possession / Access to Portion N13B-I, N14B	0	01-Dec-17*		25
179	**HKBCF Seawall Modification**				
180	Existing Seawall Survey at Vertical Seawall	6	23-Feb-18*	01-Mar-18	25
181	Seabed unsuitable material removal	3	02-Mar-18	05-Mar-18	25
182	HKBCF Vertical Seawall - place Rock underlayer bottom	9	06-Mar-18	15-Mar-18	25
183	HKBCF Vertical Seawall - place Rock Grade 400	10	16-Mar-18	27-Mar-18	25
184	HKBCF Vertical Seawall - place Rock underlayer upper	9	28-Mar-18	11-Apr-18	25
185	**Drainage Outfall**				
186	Mobilization for drainage outfall works	30	01-Dec-17	08-Jan-18	25
187	SLF Drainage Outfall - No. 1,3-5, 8 & 9	72	09-Jan-18	13-Apr-18	25
188	SLF Drainage Outfall - No. 7	24	27-Mar-18	27-Apr-18	25
189	**Retaining Wall Interface with C1**				
190	Retaining Wall - Excv, Footing & Reinstate to +5.5mPD	48	23-Feb-18*	24-Apr-18	31



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Data Date: 01-Sep-17

Project ID: DWPH0010

Planned Milestone

Planned Bar

Concrete

TMCLK Northern Connection Sub-sea Tunnel Section

Detailed Works Programme Rev. H

Three Months Rolling Programme Progress as of 28 Jan 18

Dragages HongKong

Dragages - Bouygues Joint Venture

Date	Revision	Checked	Approved
22Dec17	Rev. H	WYu	

Appendix C

Environmental Mitigation and Enhancement Measure Implementation Schedules

Contract No. HY/2012/08
Tuen Mun – Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
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	An effective watering programme of twice daily watering with complete coverage, is estimated to reduce by 50%. This is recommended for all areas in order to reduce dust levels to a minimum;	All areas / throughout construction period	Contractor	TMEIA Avoid smoke impacts and disturbance		Y		✓
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		✓

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						D	C	O	
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		✓
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		✓
WATER QUALITY									
Marine Works (Sequence A)									
6.1 Figure 6.2a Appendix D6a	Annex A	Construction of seawalls to be advanced by at least 200m before the main reclamation dredging and filling can commence. The protection by advanced seawall is a dynamic process depending on the progress of the construction activities and the stage when such protection could be realised is illustrated in Figure 6.2a and detailed in Appendix D6a. The part of the works where such measures can be undertaken for the majority of the time includes the following locations: - TM-CLKL northern reclamation;	All areas/ prior to dredging and backfilling works	Contractor	TM-EIAO		Y		✓
6.1	-	a maximum of 50% public fill to be used for all seawall filling below +2.5mPD for TM-CLKL southern and northern landfalls.	TM-CLKL seawall filling	Contractor	TM-EIAO		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	
6.1	-	a maximum of 30% public fill to be used for reclamation filling below +2.5mPD for TM-CLKL southern landfall	TM-CLKL southern landfall reclamation filling	Contractor	TM-EIAO		Y		N/A
6.1	-	a maximum of 100% public fill to be used for reclamation filling below +2.5mPD for TM-CLKL northern landfall	TM-CLKL northern landfall reclamation filling	Contractor	TM-EIAO		Y		✓
6.1	-	Use of cage type silt curtains round allgrab dredgers during the HKBCF, HKLR and TM-CLKL southern reclamation works.	All areas dredging works	Contractor	TM-EIAO		Y		✓
	Figure 1.1 of Annex C	A layer of floating type silt curtain will be applied when dredging and reclamation works are being undertaken at Portion N-a as shown in Figure 1.1 of Annex C of the EM&A Manual.	All areas/ through out marine works	Contractor	TM-EIAO		Y		✓
6.1	-	Trailer suction hopper dredgers shall not allow mud to overflow.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.1	-	The use of Lean Material Overboard (LMOB) systems shall be prohibited.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.1 Figure 6.2b Appendix D6b	Annex A	For other parts of the reclamation works construction of seawalls to be advanced by at least 200m before the main reclamation dredging and filling can commence. It should be noted that the protection by advanced seawall is a dynamic process depending on the progress of the construction activities and the stage when such protection could be realised is illustrated in Figure 6.2b and detailed in Appendices D6b. The part of the works where such measures can be undertaken for the majority of the time includes the following locations: - TM-CLKL northern reclamation; - Reclamation filling for Portion D of HKBCF; Reclamation filling for FSD berth of HKBCF; and	TM-CLKL northern landfall, Portion D of HKBCF and HKLR	Contractor	TM-EIAO		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	
		- Reclamation dredging and filling for Portion 1 of HKLR;							
6.1	-	The filling material for the other parts of the works are the same as Sequence A;	All other areas/backfilling works	Contractor	TM-EIAO		Y		N/A
6.1	5.7	Cage type silt curtain (with steel enclosure) shall be used for grab dredgers working in the site of HKBCF and TM- CLKL southern reclamation. Cage type silt curtains will be applied round all grab dredgers at other works area.	HKBCF, HKLR and TM-CLKL grab dredging	Contractor	TM-EIAO		Y		✓
6.1	Annex A	A layer of floating type silt curtain will be applied around all works as defined in Appendix D6b.	All areas/ through out marine works	Contractor	TM-EIAO		Y		✓
6.1	-	TM-CLKL northern landfall: - Reclamation filling shall not proceed until at least 200m section of leading seawall at both the east and west sides of the reclamation are formed above +2.5 mPD, except for 100m gaps for marine access;	All areas/ through out marine works	Contractor	TM-EIAO		Y		✓
General Marine Works									
6.1	-	Use of TBM for the construction of the submarine tunnel.	Tunnel works / Construction phase	Contractor	TM-EIAO		Y		N/A
6.1	-	Export dredged spoils from NWWCZ.	All areas as much as possible / dredging activities	Contractor	DASO Permit conditions		Y		✓
6.1	-	Where public fill is proposed for filling below +2.5mPD, the fine content in the public fill will be controlled to 25%	All areas/ backfilling works	Contractor	TM-EIAO		Y		N/A
6.1	-	Where sand fill is proposed for filling below +2.5mPD, the fine content in the sand fill will be controlled to 5%.	All areas/ backfilling works	Contractor	TM-EIAO		Y		N/A
6.1	-	Mechanical grabs shall be designed and maintained to avoid spillage and should seal tightly while being lifted.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.1	-	Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material.	All areas/ throughout construction period	Contractor	Marine Fill Committee		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	
					Guidelines. DASO permit conditions.				
6.1	-	Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.1	-	Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.1	-	Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.1	-	Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action;	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		N/A
6.1	-	All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		N/A
6.1	-	The works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit		Y		✓

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						D	C	O	
					conditions.				
6.1	5.2	Silt curtain shall have proved effectiveness from the producer and shall be fully maintained throughout the works by the contractor.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.1	-	The daily maximum production rates shall not exceed those assumed in the water quality assessment.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.1	-	The dredging and filling works shall be scheduled to spread the works evenly over a working day.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
Land Works									
6.1	-	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		✓
6.1	-	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		✓
6.1	-	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		<>
6.1	-	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		✓
6.1	-	Temporary access roads should be surfaced with crushed stone or gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.1	-	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		✓

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Contract No. HY/2012/08
Tuen Mun – Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
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	
6.1	-	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		✓
6.1	-	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		✓
6.1	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		✓
6.1	-	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		✓
6.1	-	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		✓
6.1	-	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		✓
6.1	-	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		✓
6.1	-	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		✓
6.1	-	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
6.1	-	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		✓

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						D	C	O	
6.1	-	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		✓
6.1	-	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		✓
6.1	-	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		✓
6.1	-	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	✓
6.1	Section 5	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		✓
Water Quality Monitoring									
6.1	Section 5	Water quality monitoring shall be undertaken for suspended solids, turbidity, and dissolved oxygen. Nutrients and metal parameters shall also be measured for Mf sediment operations (only HKBCF and HKLR required handling of Mf sediment) during baseline, backfilling and post construction period. One year operation phase water quality monitoring at designated stations.	Designated monitoring stations as defined in EM&A Manual, Section 5/ Before, through-out marine construction period, post construction and monthly operational phase water quality monitoring for a year.	Contractor	EM&A Manual		Y	Y	✓
ECOLOGY									
8.14	6.3	Specification for and implement pre, during and post construction dolphin abundance monitoring.	All Areas/Detailed Design/ during construction works/post construction	Design Consultant/ Contractor	TMEIA	Y	Y	Y	✓
8.14	6.3,6.5	Specification and implementation of 250m dolphin exclusion zone.	All dredging and reclamation areas/Detailed Design/during all reclamation and dredging works	Design Consultant/ Contractor	TMEIA	Y	Y		✓

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						D	C	O	
8.15	6.3, 6.5	Specification and deployment of an artificial reef of an area of 3,600m2 in an area where fishing activities are prohibited.	Area of prohibited fishing activities/Detailed Design/towards end of construction period	TM-CLKL/ HKBCF Design Consultant/TM-CLKL/ HKBCF Contractor	TMEIA	Y		Y	N/A. To be implemented by AFCD.
8.14	6.3, 6.5	Specification and implementation of marine vessel control specifications	All areas/Detailed Design/during construction works	Design Consultant/ Contractor	TMEIA	Y	Y		✓
8.14	6.3, 6.5	Design and implementation of acoustic decoupling methods for dredging and reclamation works	All areas/ Detailed Design/during dredging and reclamation works	Design Consultant/ Contractor	TMEIA	Y	Y		✓
8.15	6.3, 6.4	Pre-construction phase survey and coral translocation	Detailed Design/Prior to construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
8.15	6.5	Audit coral translocation success	Post translocation	Contractor	TMEIA		Y		✓
7.13	6.5	The loss of habitat shall be supplemented by enhancement planting in accordance with the landscape mitigation schedule.	All areas / As soon as accessible	Contractor	TMEIA		Y		N/A
7.13	6.5	Spoil heaps shall be covered at all times.	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Avoid damage and disturbance to the remaining and surrounding natural habitat	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Placement of equipment in designated areas within the existing disturbed land	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Disturbed areas to be reinstated immediately after completion of the works.	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Construction activities should be restricted to the proposed works boundary.	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
LANDSCAPE AND VISUAL									
10.9	7.6	The colour and shape of the toll control buildings, ventilation building and administration building shall adopt a design which could blend it into the vicinity elements, and the details will be developed in detailed design stage (DM2)	All areas/detailed design	Design Consultant	TMEIA	Y			N/A

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						D	C	O	
10.9	7.6	Aesthetic design of the viaduct, retaining wall and other structures will be developed under ACABAS submission (DM5)	All areas/detailed design	Design Consultant	TMEIA	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/post construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
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		✓
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		✓
10.9	7.6	Aesthetically pleasing design (visually unobtrusive and non-reflective) as regard to the form, material and finishes shall be incorporated to all buildings, engineering structures and associated infrastructure facilities (OM5)	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	N/A
10.9	7.6	Avoidance of excessive height and bulk of buildings and structures (OM6)	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	N/A
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		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

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
					Provisions) Ordinance (Cap 28); Waste Disposal Ordinance (Cap 354); Dumping at Sea Ordinance (Cap 466); Water Pollution Control Ordinance.				
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		✓
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 surplus surcharge should be transferred to a fill bank	Reclamation areas / after surcharge works	Contractor	TMEIA		Y		N/A
12.6	8.1	Rock armour from the existing seawall should be reused on the new sloping seawall as far as possible	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	Provisions to be made in contract documents to allow and promote the use of recycled aggregates where appropriate.	Detailed Design	Design Consultant	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		✓

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

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	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	Dredged marine mud shall be disposed of in a gazetted marine disposal ground under the requirements of the Dumping at Seas Ordinance.	Reclamation areas / throughout dredging works	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		✓
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,	All areas / throughout construction period	Contractor	TMEIA		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

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
		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.						
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		✓
12.6	8.1	Night soil should be regularly collected by licensed collectors.	All areas / throughout construction period	Contractor	TMEIA		Y		N/A

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

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	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 hardstanding;	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling.	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		✓
CULTURAL HERITAGE									
11.8	Section 9	EM&A in the form of audit of the mitigation measures	All areas / throughout construction period	Highways Department	EIAO-TM		Y		N/A

*** 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

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

Appendix D

Summary of Action and Limit Levels

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 μg/m³	ASR1 = 213 ASR5 = 238 AQMS1 = 213 ASR6 = 238 ASR10 = 214	260
1 Hour TSP Level in μg /m³	ASR1 = 331 ASR5 = 340 AQMS1 = 335 ASR6 = 338 ASR10 = 337	500

Table D2 Action and Limit Levels for Impact Dolphin Monitoring

	North Lantau Social Cluster	
	NEL	**NWL**
Action Level	STG < 70% of baseline & ANI < 70% of baseline	STG < 70% of baseline & ANI < 70% of baseline
Limit Level	[STG < 40% of baseline & ANI < 40% of baseline] and STG < 40% of baseline & ANI < 40% of baseline	

Notes:

1. STG means quarterly encounter rate of number of dolphin sightings, which is **6.00 in NEL** and **9.85 in NWL** during the baseline monitoring period
2. ANI means quarterly encounter rate of total number of dolphins, which is **22.19 in NEL** and **44.66 in NWL** during the baseline monitoring period
3. For North Lantau Social Cluster, AL will be trigger if NEL or NWL fall below the criteria; LL will be triggered if both NEL and NWL fall below the criteria.

Table D3 Derived Value of Action Level (AL) and Limit Level (LL)

	North Lantau Social Cluster	
	NEL	**NWL**
Action Level	STG < 4.2 & ANI< 15.5	STG < 6.9 & ANI < 31.3
Limit Level	NEL = [STG < 2.4 & ANI <8.9] and NWL = [STG < 3.9 & ANI <17.9]	

Appendix E

Copies of Calibration Certificates for Air Quality Monitoring

Appendix E

Copies of Calibration Certificates for Air Quality Monitoring

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR 5
Calibrated by	:	P.F.Yeung
Date	:	09/12/2017

Sampler

Model	:	TE-5170
Serial Number	:	S/N 0816

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	20 March 2017
Slope (m)	:	2.08464
Intercept (b)	:	-0.036840
Correlation Coefficient(r)	:	0.99994

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1018
Ta(K)	:	292

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.4	3.419	1.658	54	54.69
2	13 holes	8.8	3.004	1.459	50	50.64
3	10 holes	7.0	2.679	1.302	45	45.57
4	7 holes	4.6	2.172	1.060	38	38.48
5	5 holes	2.5	1.601	0.786	30	30.38

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

Sampler Calibration Relationship (Linear Regression)

Slope(m):28.420 Intercept(b):8.341 Correlation Coefficient(r): 0.9981

Checked by: Magnum Fan Date: 12/12/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR10
Calibrated by	:	P.F.Yeung
Date	:	09/12/2017

Sampler

Model	:	TE-5170
Serial Number	:	S/N 8162

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	20 March 2017
Slope (m)	:	2.08464
Intercept (b)	:	-0.036840
Correlation Coefficient(r)	:	0.99994

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1018
Ta(K)	:	292

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	10.8	3.328	1.614	53	53.67
2	13 holes	8.7	2.987	1.451	48	48.61
3	10 holes	6.2	2.522	1.227	42	42.53
4	7 holes	4.3	2.100	1.025	34	34.43
5	5 holes	3.0	1.754	0.859	26	26.331

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

Sampler Calibration Relationship (Linear Regression)

Slope(m):34.475 Intercept(b): -2.704 Correlation Coefficient(r): 0.9933

Checked by: Magnum Fan Date: 12/12/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AQMS1
Calibrated by	:	P.F.Yeung
Date	:	09/12/2017

Sampler

Model	:	TE-5170
Serial Number	:	S/N 1253

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	20 March 2017
Slope (m)	:	2.08464
Intercept (b)	:	-0.036840
Correlation Coefficient(r)	:	0.99994

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1018
Ta(K)	:	292

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	13.0	3.651	1.769	50	50.64
2	13 holes	9.5	3.121	1.515	45	45.57
3	10 holes	7.6	2.792	1.357	40	40.51
4	7 holes	5.0	2.264	1.104	33	33.42
5	5 holes	3.0	1.754	0.859	25	25.32

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

Sampler Calibration Relationship (Linear Regression)

Slope(m):28.134 Intercept(b):1.930 Correlation Coefficient(r): 0.9960

Checked by: Magnum Fan Date: 12/12/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR 1
Calibrated by	:	P.F.Yeung
Date	:	09/12/2017

Sampler

Model	:	TE-5170
Serial Number	:	S/N 0146

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	20 March 2017
Slope (m)	:	2.08464
Intercept (b)	:	-0.036840
Correlation Coefficient(r)	:	0.99994

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1018
Ta(K)	:	292

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.4	3.419	1.658	54	54.69
2	13 holes	8.8	3.004	1.459	50	50.64
3	10 holes	7.0	2.680	1.303	45	45.57
4	7 holes	4.6	2.172	1.060	38	38.48
5	5 holes	2.6	1.633	0.801	30	30.38

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

Sampler Calibration Relationship (Linear Regression)

Slope(m):28.847 Intercept(b):7.718 Correlation Coefficient(r): 0.9977

Checked by: Magnum Fan Date: 12/12/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR 6
Calibrated by	:	P.F.Yeung
Date	:	09/12/2017

Sampler

Model	:	TE-5170
Serial Number	:	S/N 3957

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	20 March 2017
Slope (m)	:	2.08464
Intercept (b)	:	-0.036840
Correlation Coefficient(r)	:	0.99994

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1018
Ta(K)	:	292

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.8	3.623	1.756	54	54.69
2	13 holes	9.4	3.105	1.507	50	50.64
3	10 holes	7.1	2.698	1.312	43	43.55
4	7 holes	4.4	2.124	1.037	34	34.43
5	5 holes	2.6	1.633	0.801	28	28.36

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

Sampler Calibration Relationship (Linear Regression)

Slope(m):28.930 Intercept(b): 5.227 Correlation Coefficient(r): 0.9939

Checked by: Magnum Fan Date: 12/12/2017

ENVIROTECH SERVICES CO.

Calibration Report of Wind Meter

Date of Calibration : 18 October 2017

Brand of Test Meter: Davis

Model: Vantage Pro 2 (s/n: AS160104014)

Location : Roof of Tuen Mun Firestation

Procedures :

1. Wind Still Test : The wind speed sensor was hold by hand until it keep still

2.Wind Speed Test : The wind meter was on-site calibrated against the Anemometer

3.Wind Direction Test : The wind meter was on-site calibrated against the marine compass at four directions

Results:

Wind Still Test

Wind Speed (m/s)
0.00

Wind Speed Test

Davis (m/s)	Anemometer (m/s)
0.7	0.8
1.2	1.4
2.5	2.8

Wind Direction Test

Davis (o)	Marine Compass (o)
272	270
1	0
91	90
181	180

Calibrated by: Yeung Ping Fai (Technical Officer)

Checked by : Ho Kam Fat (Senior Technical Officer)

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C175727
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC17-2277) Date of Receipt / 收件日期 : 3 October 2017

Description / 儀器名稱	:	Anemometer
Manufacturer / 製造商	:	Lutron
Model No. / 型號	:	AM-4201
Serial No. / 編號	:	AF.27513
Supplied By / 委託者	:	Envirotech Services Co. Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun, New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 13 October 2017

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :
- Testo Industrial Services GmbH, Germany

Tested By 測試 : H C Chan, Engineer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 16 October 2017

Sun Creation Engineering Limited - Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 - 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel 電話: 2927 2606 Fax 傳真: 2744 8986 E-mail 電郵: callab@suncreation.com Website 網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C175727
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 10 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL386	Multi-function Measuring Instrument	S16493

4. Test procedure : MA130N.

5. Results :

Air Velocity

Applied Value (m/s)	UUT Reading (m/s)	Measured Correction		
		Value (m/s)	Measurement Uncertainty	
			Expanded Uncertainty (m/s)	Coverage Factor
1.9	1.7	+0.2	0.2	2.0
4.0	3.8	+0.2	0.2	2.0
6.0	5.9	+0.1	0.3	2.0
8.0	8.0	0.0	0.3	2.0
10.0	10.1	-0.1	0.4	2.0

Remarks : - The Measured Corrections are defined as :
Value = Applied Value - UUT Reading

- The expanded uncertainties are for a level of confidence of 95 %.

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

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

Sun Creation Engineering Limited Calibration & Testing Laboratory
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輝創工程有限公司 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel 電話: 2927 2606 Fax 傳真: 2744 8986 E-mail 電郵: callab@suncreation.com Website 網址: www.suncreation.com

Appendix F

EM&A Monitoring Schedules

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Air Quality Impact Monitoring Schedule - January 2018

Air quality monitoring stations: ASR1, ASR5, ASR6, ASR10, AQMS1

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

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Tentative Air Quality Impact Monitoring Schedule - February 2018

Air quality monitoring stations: ASR1, ASR5, ASR6, ASR10, AQMS1

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Feb	2-Feb	3-Feb
						1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM
4-Feb	5-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb
		1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM			1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM	
11-Feb	12-Feb	13-Feb	14-Feb	15-Feb	Public Holiday 16-Feb	Public Holiday 17-Feb
	1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM			1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM		
18-Feb	Public Holiday 19-Feb	20-Feb	21-Feb	22-Feb	23-Feb	24-Feb
			1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM			1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM
25-Feb	26-Feb	27-Feb	28-Feb			
		1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM				

The schedule is subject to agreement from the EPD on the monitoring times. The schedule will be revised after reviewing the progress of the construction works or due to adverse (safety,weather etc) conditions.

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Impact Dolphin Monitoring Survey Monitoring Schedule - January 2018

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Public Holiday 1-Jan	2-Jan	3-Jan	4-Jan	5-Jan	6-Jan
		Impact Dolphin Monitoring				
7-Jan	8-Jan	9-Jan	10-Jan	11-Jan	12-Jan	13-Jan
	Impact Dolphin Monitoring					
14-Jan	15-Jan	16-Jan	17-Jan	18-Jan	19-Jan	20-Jan
		Impact Dolphin Monitoring				
21-Jan	22-Jan	23-Jan	24-Jan	25-Jan	26-Jan	27-Jan
				Impact Dolphin Monitoring		
28-Jan	29-Jan	30-Jan	31-Jan			

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Tentative Impact Dolphin Monitoring Survey Monitoring Schedule - February 2018

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Feb	2-Feb	3-Feb
					Impact Dolphin Monitoring	
4-Feb	5-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb
					Impact Dolphin Monitoring	
11-Feb	12-Feb	13-Feb	14-Feb	15-Feb	**Public Holiday** 16-Feb	**Public Holiday** 17-Feb
			Impact Dolphin Monitoring			
18-Feb	**Public Holiday** 19-Feb	20-Feb	21-Feb	22-Feb	23-Feb	24-Feb
				Impact Dolphin Monitoring		
25-Feb	26-Feb	27-Feb	28-Feb			

The schedule is subject to agreement from the EPD on the monitoring times. The schedule will be revised after reviewing the progress of the construction works or due to adverse (safety,weather etc) conditions.

Appendix G

Impact Air Quality Monitoring Results

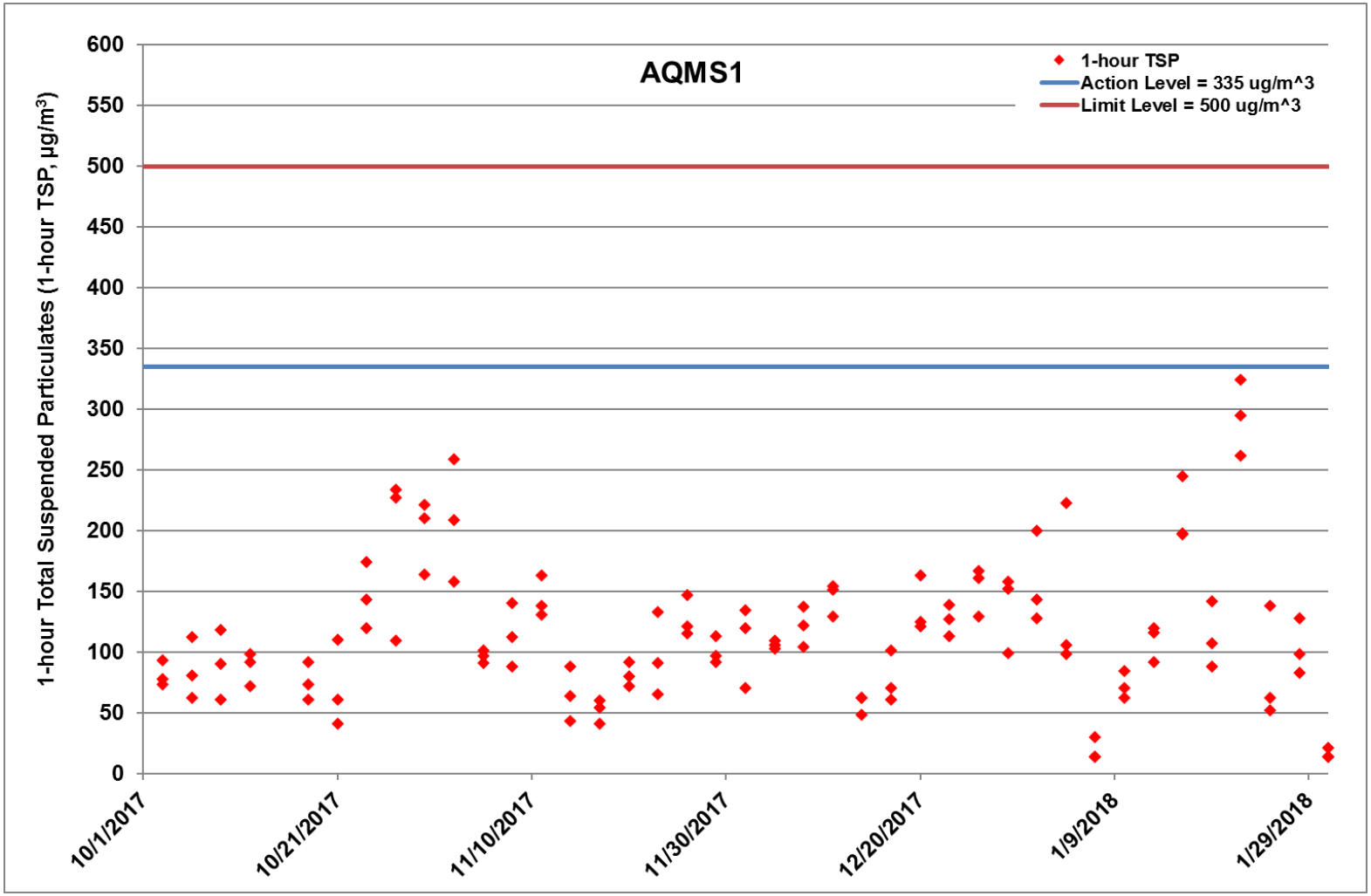

Figure G.1 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at AQMS1 between 1 October 2017 and 31 January 2018 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Box Culvert Extension, Construction of North Ventilation Building (1/10/2017 – 31/1/2018)

Ref: 0212330_Impact AQM graphs_January 2018_REV a.xlsx

ERM

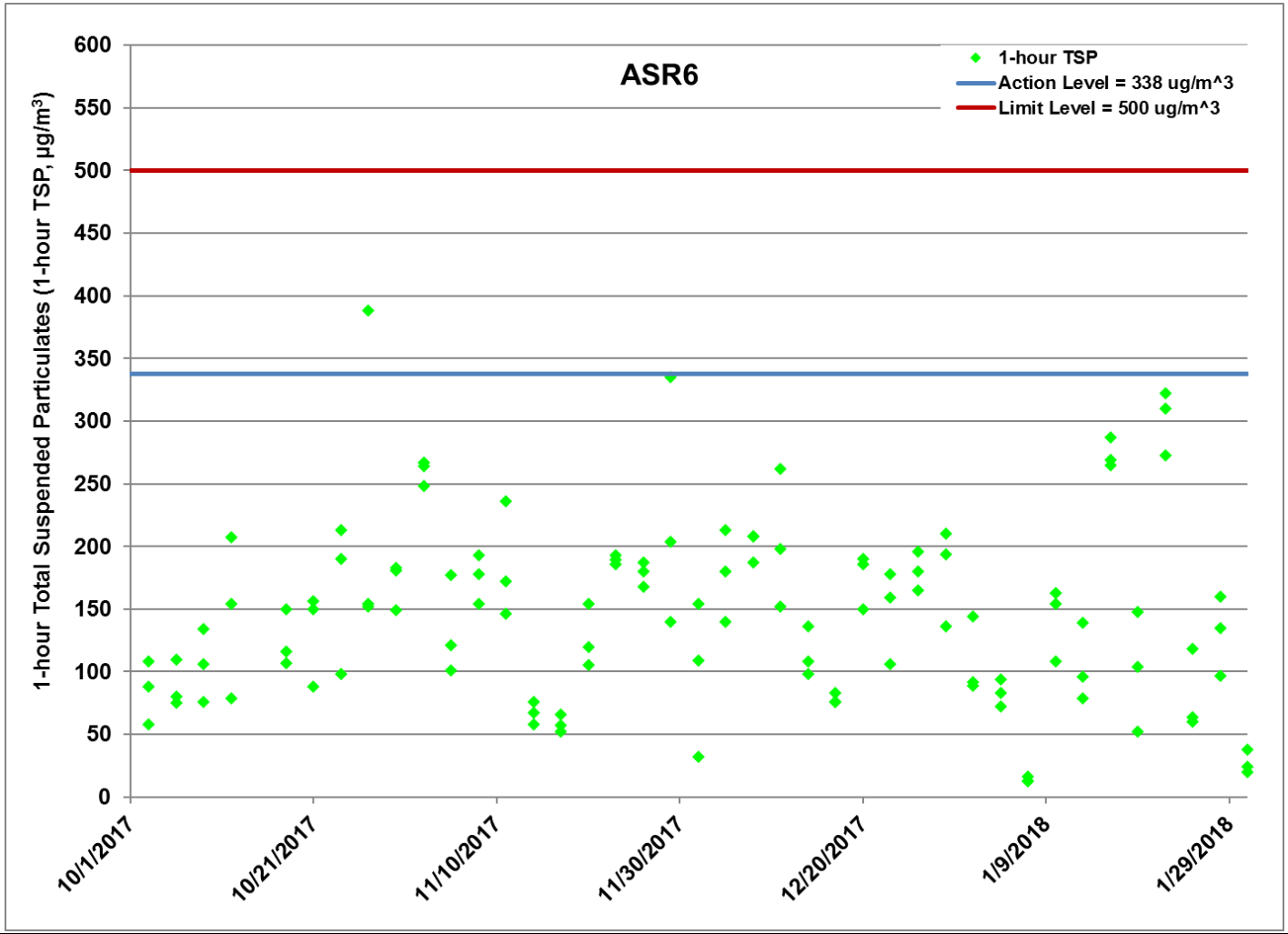

Figure G.2 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR6 between 1 October 2017 and 31 January 2018 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Box Culvert Extension, Construction of North Ventilation Building (1/10/2017 – 31/1/2018)

Ref: 0212330_Impact AQM graphs_January 2018_REV a.xlsx

ERM

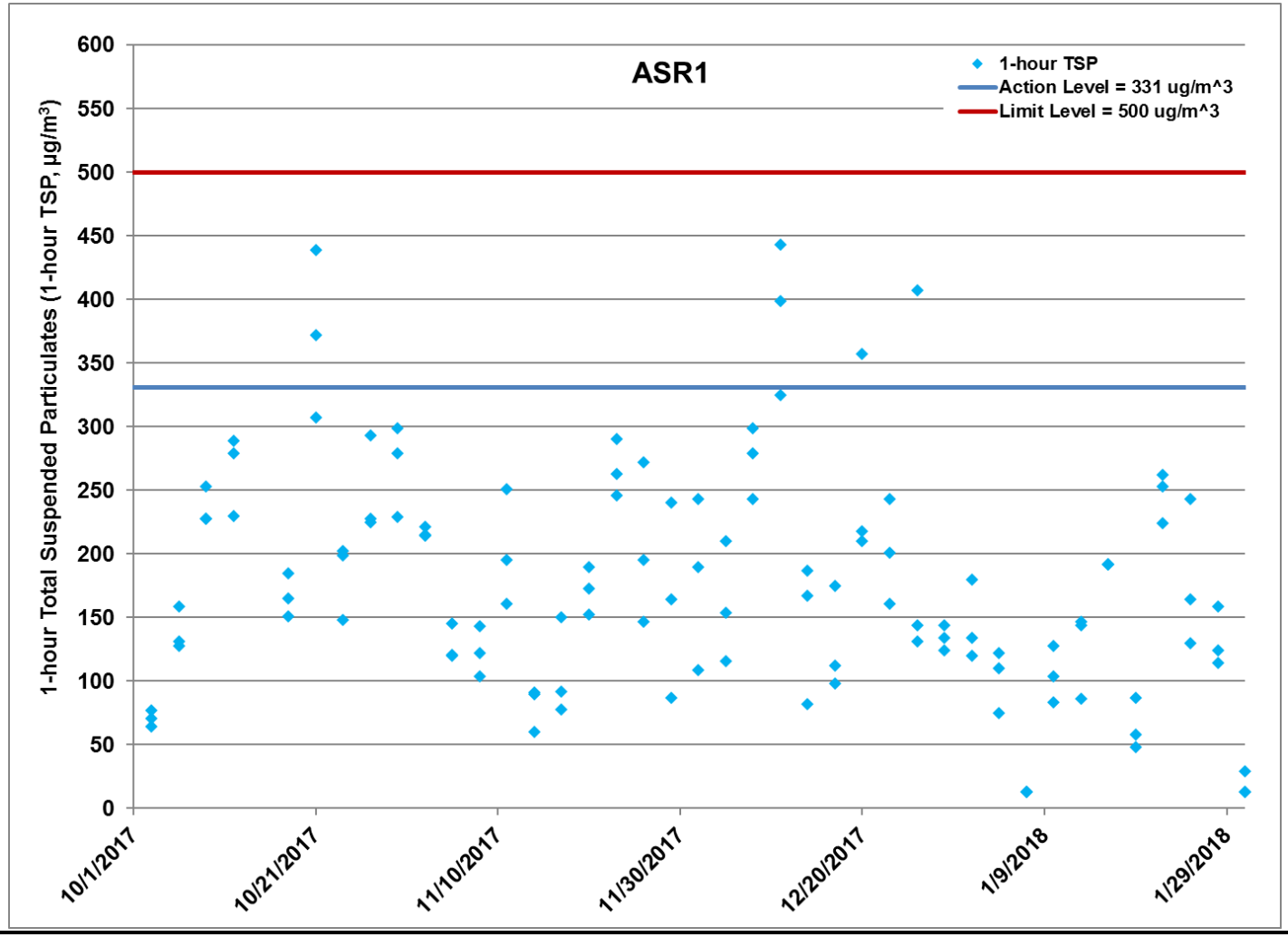

Figure G.3 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR1 between 1 October 2017 and 31 January 2018 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Box Culvert Extension, Construction of North Ventilation Building (1/10/2017 – 31/1/2018)

Ref: 0212330_Impact AQM graphs_January 2018_REV a.xlsx

ERM

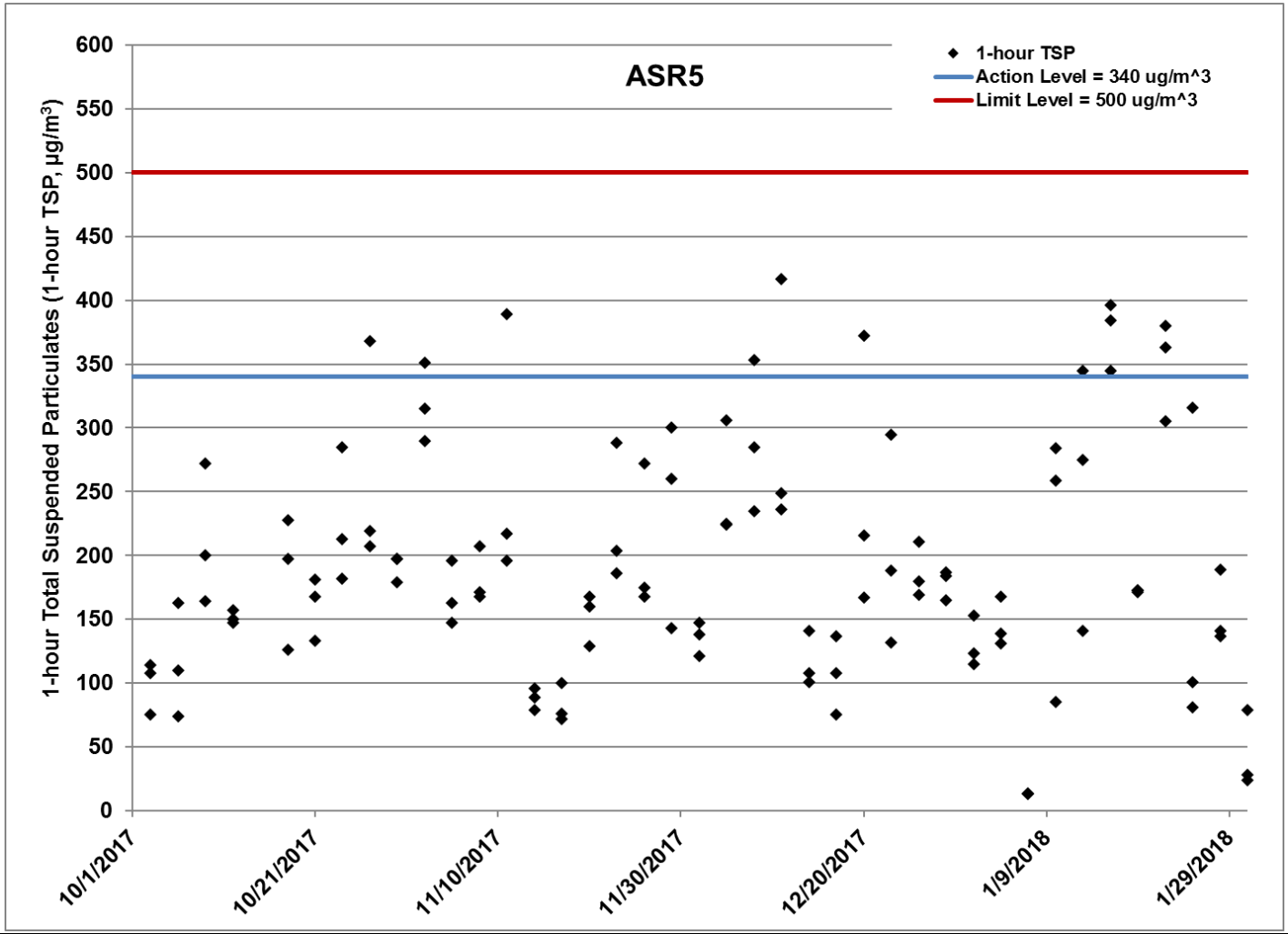

Figure G.4 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR5 between 1 October 2017 and 31 January 2018 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Box Culvert Extension, Construction of North Ventilation Building (1/10/2017 – 31/1/2018)

Ref: 0212330_Impact AQM graphs_January 2018_REV a.xlsx

ERM

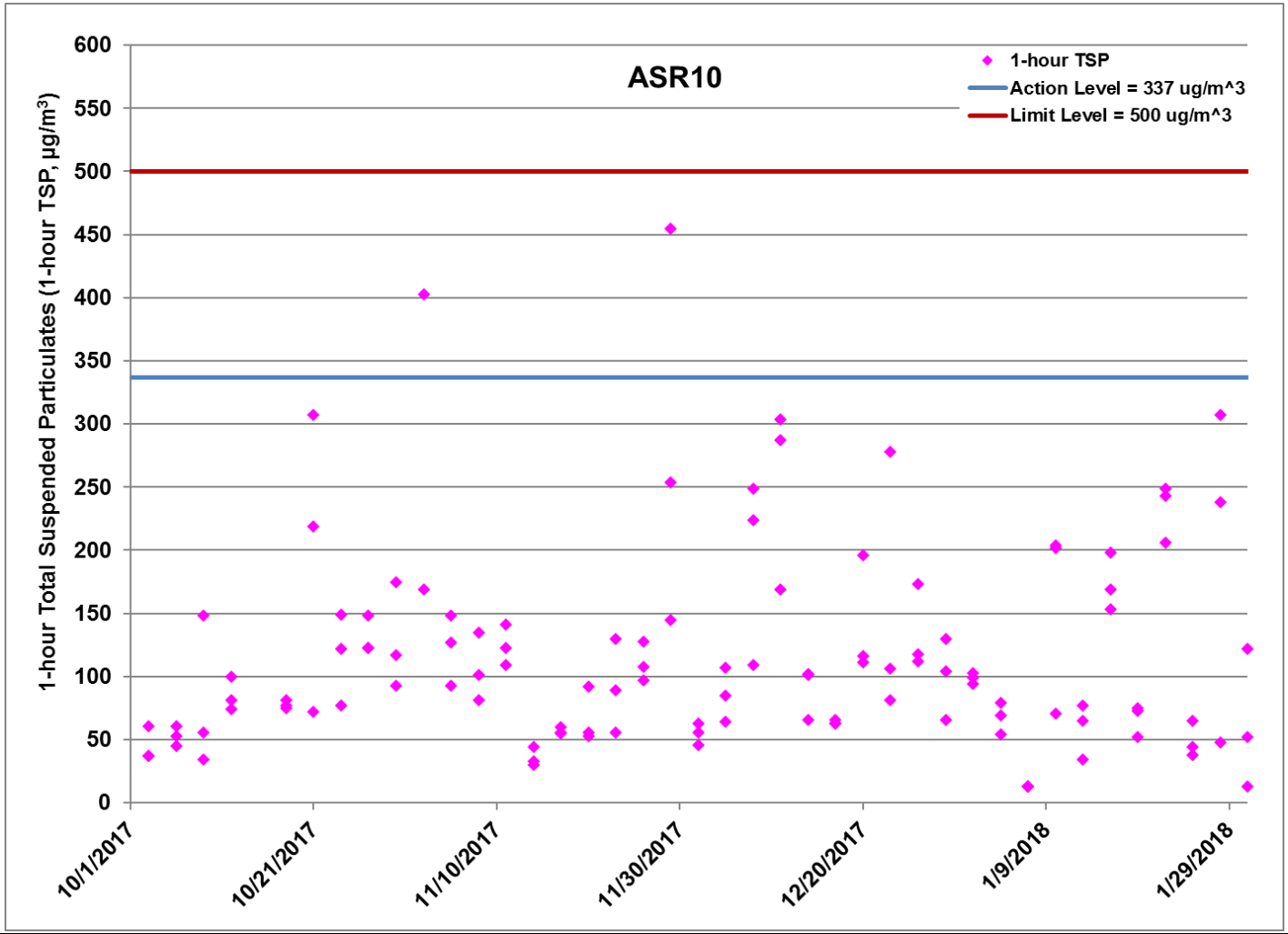

Figure G.5 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR10 between 1 October 2017 and 31 January 2018 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Box Culvert Extension, Construction of North Ventilation Building (1/10/2017 – 31/1/2018)

Ref: 0212330_Impact AQM graphs_January 2018_REV a.xlsx

ERM

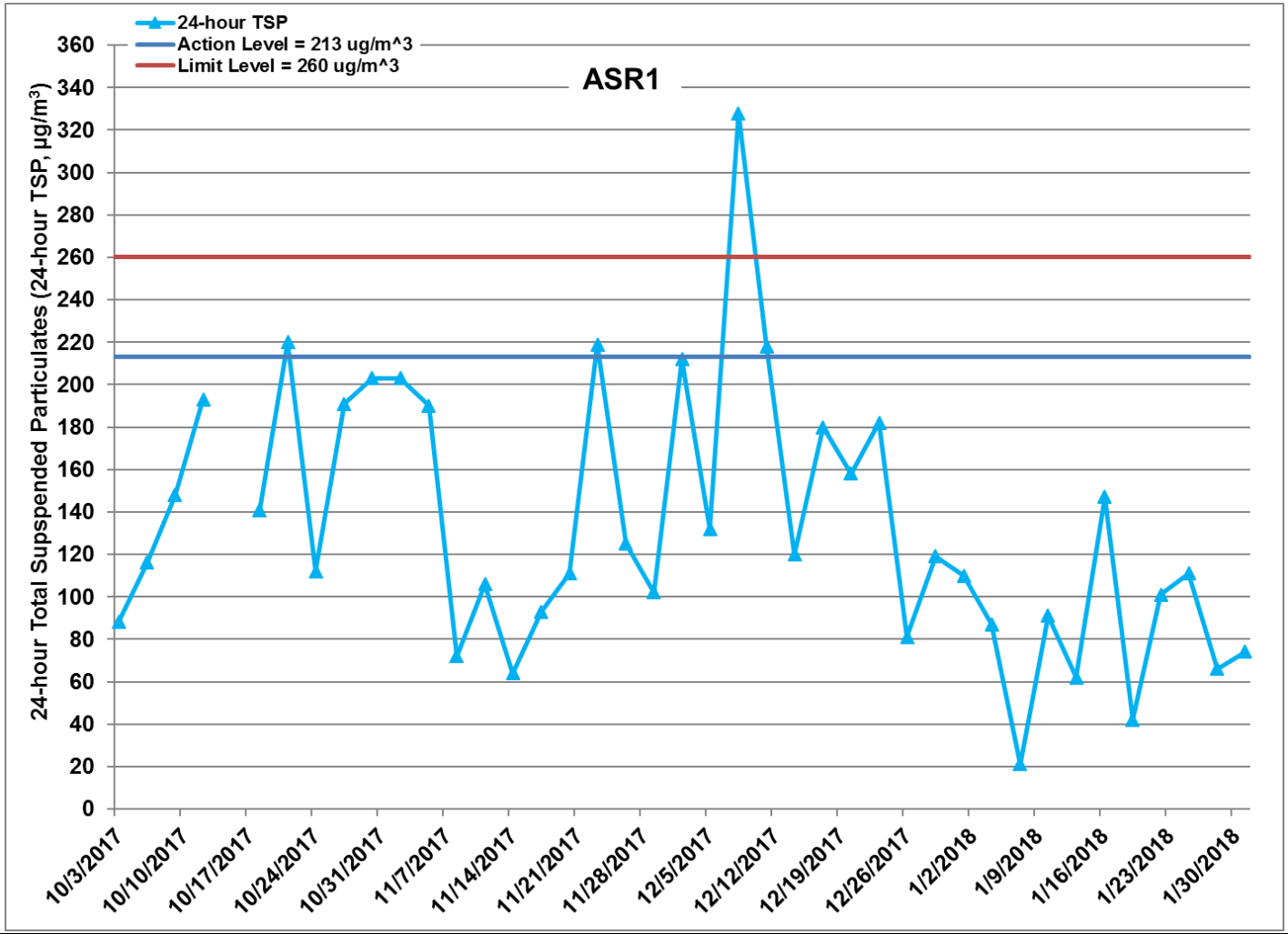

Figure G.6 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR1 between 1 October 2017 and 31 January 2018 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Box Culvert Extension, Construction of North Ventilation Building (1/10/2017 – 31/1/2018)

Ref: 0212330_Impact AQM graphs_January 2018_REV a.xlsx

ERM

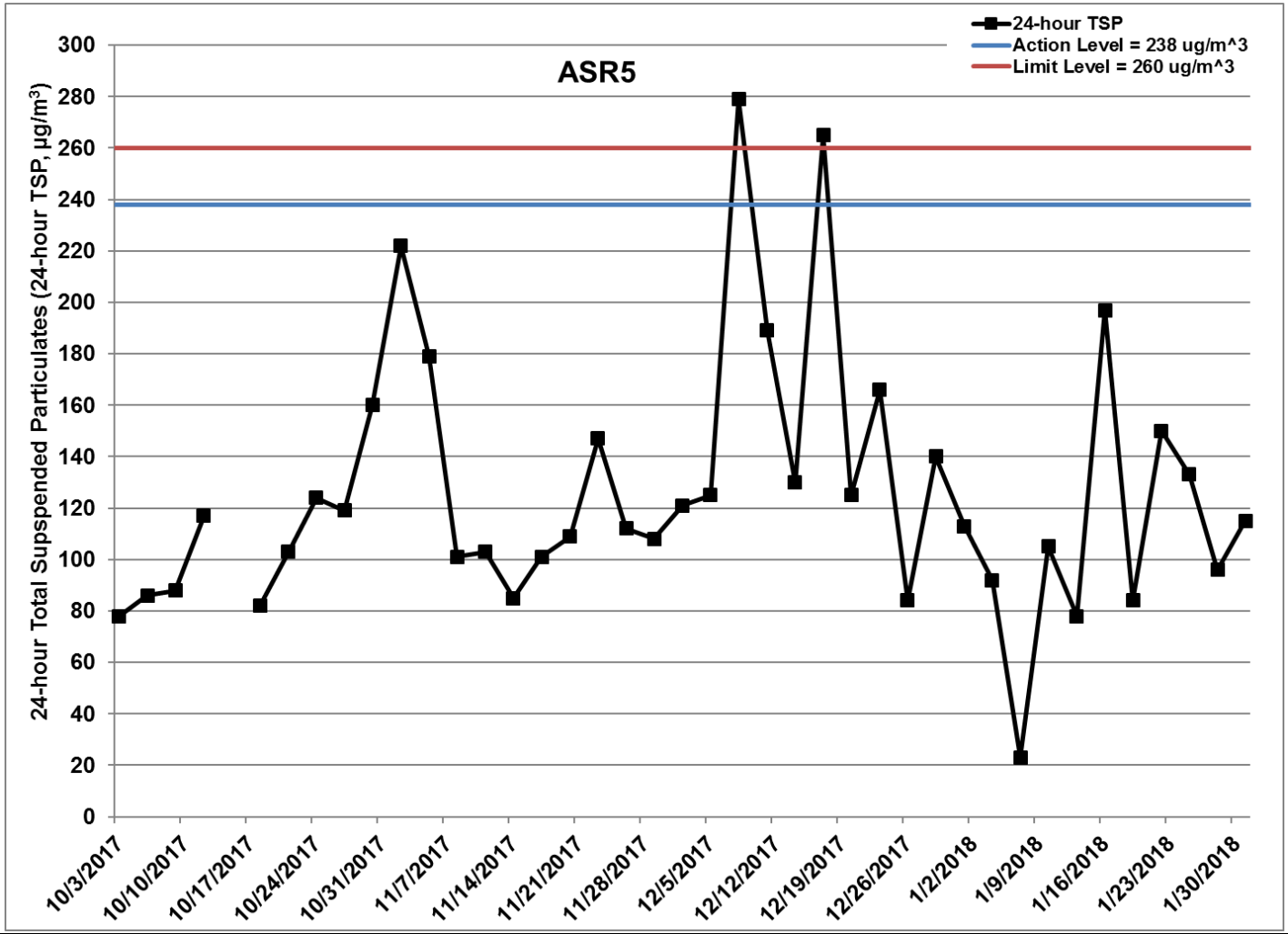

Figure G.7 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR5 between 1 October 2017 and 31 January 2018 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Box Culvert Extension, Construction of North Ventilation Building (1/10/2017 – 31/1/2018)

Ref: 0212330_Impact AQM graphs_January 2018_REV a.xlsx

ERM

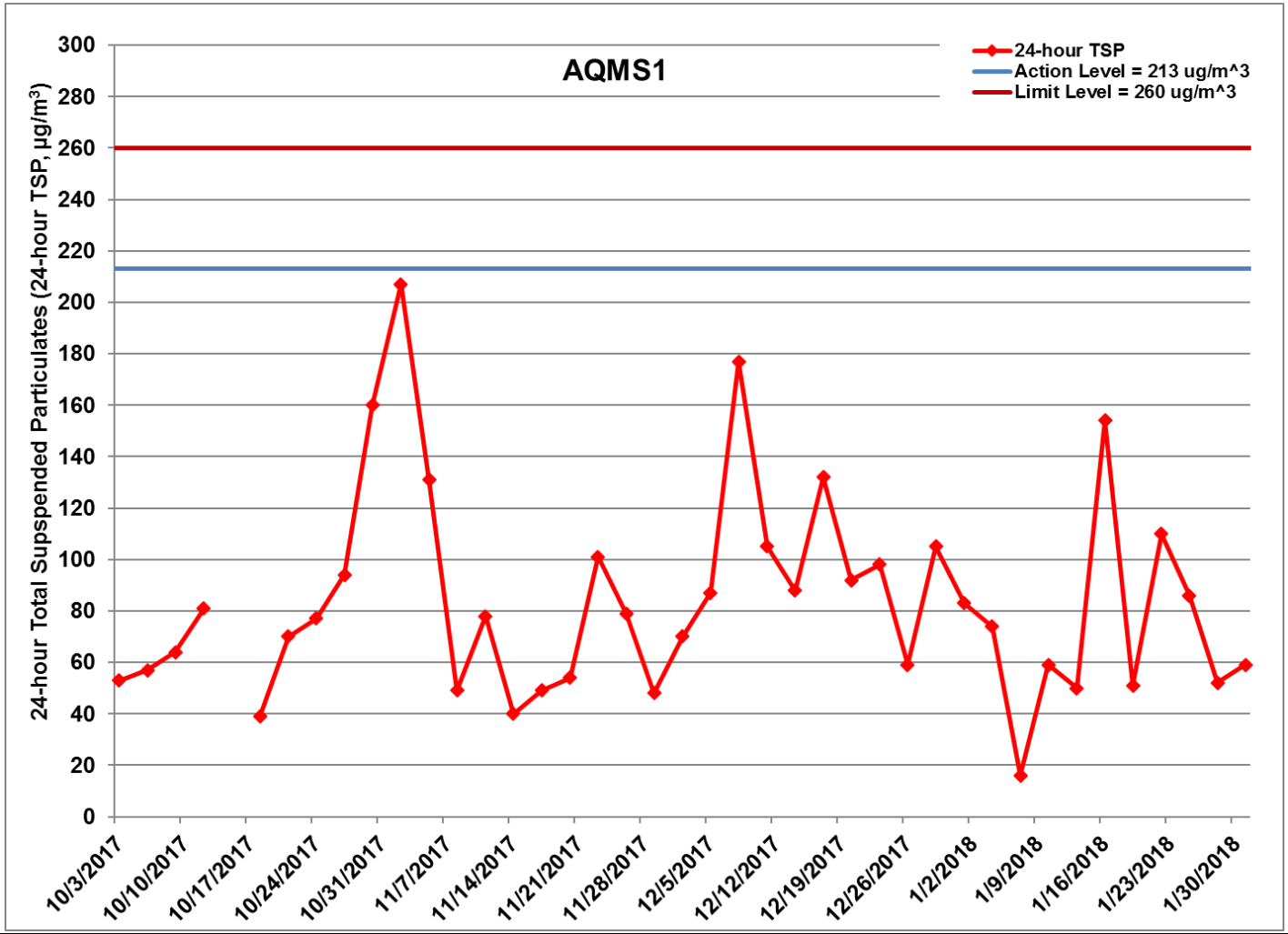

Figure G.8 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at AQMS1 between 1 October 2017 and 31 January 2018 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Box Culvert Extension, Construction of North Ventilation Building (1/10/2017 – 31/1/2018)

Ref: 0212330_Impact AQM graphs_January 2018_REV a.xlsx

ERM

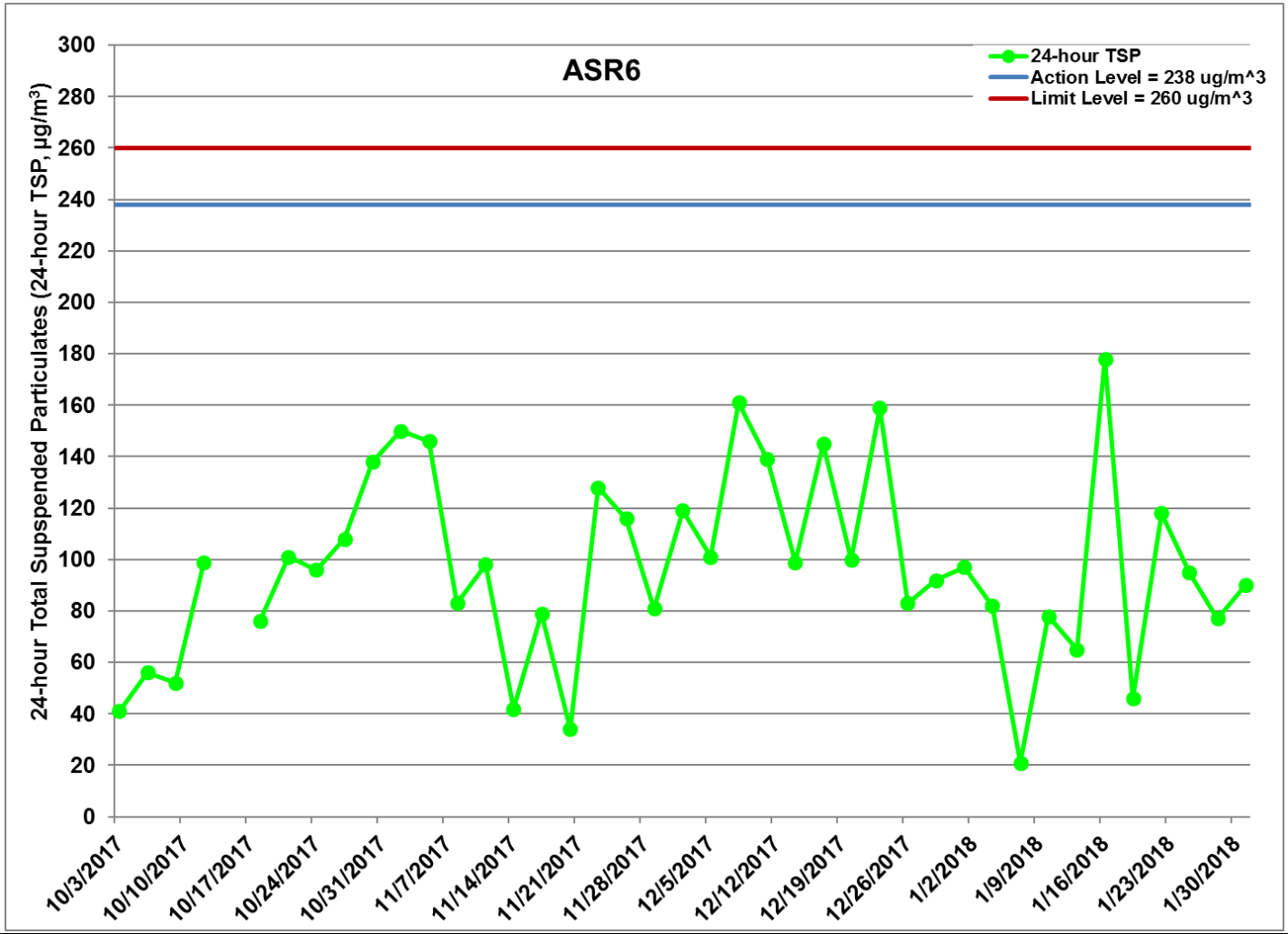

Figure G.9 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR6 between 1 October 2017 and 31 January 2018 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Box Culvert Extension, Construction of North Ventilation Building (1/10/2017 – 31/1/2018)

Ref: 0212330_Impact AQM graphs_January 2018_REV a.xlsx

ERM

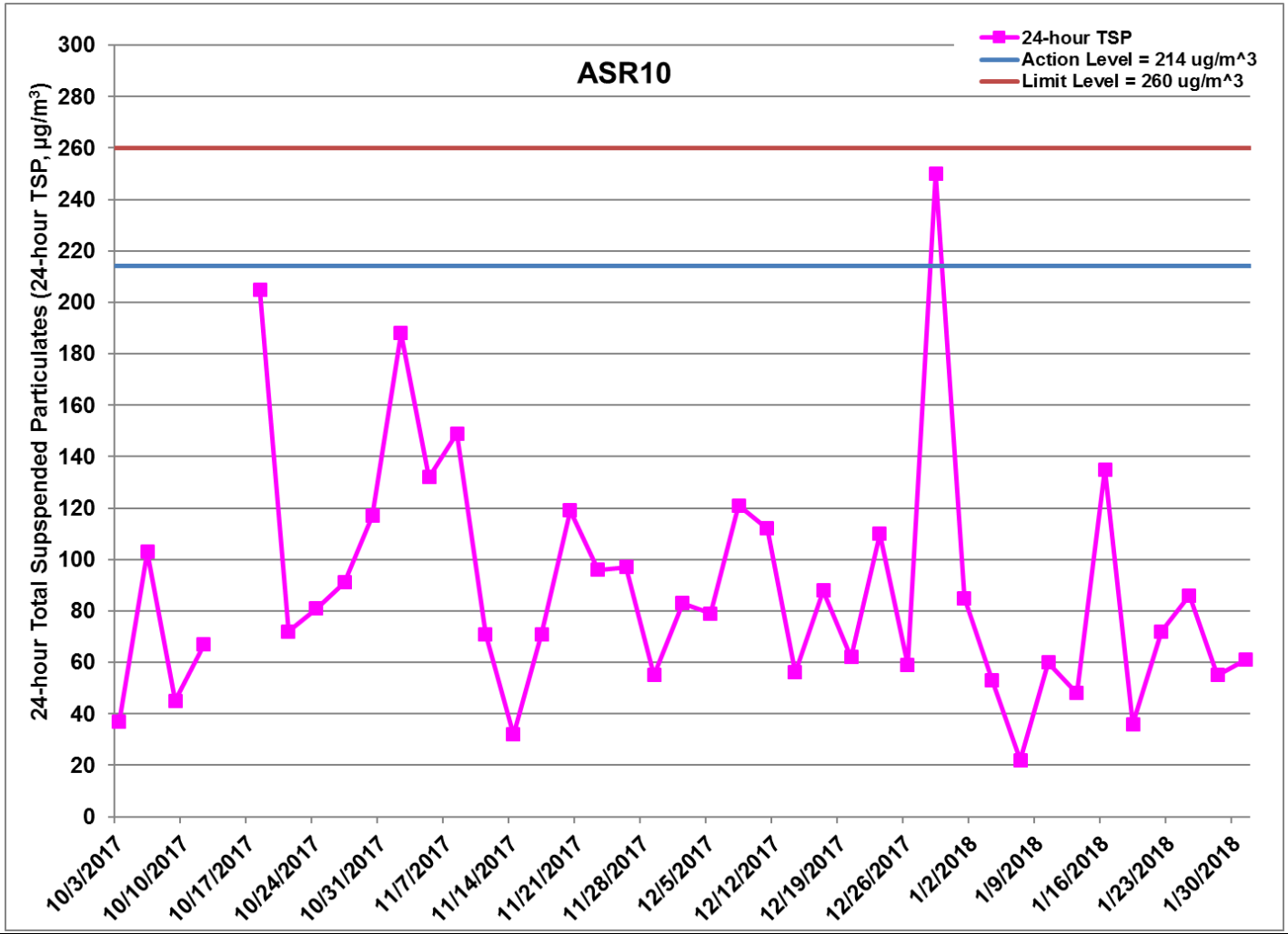

Figure G.10 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR10 between 1 October 2017 and 31 January 2018 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Box Culvert Extension, Construction of North Ventilation Building (1/10/2017 – 31/1/2018)

Ref: 0212330_Impact AQM graphs_January 2018_REV a.xlsx

ERM

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2018-01-01	AQMS1	Cloudy	13:47	1-hour TSP	200	ug/m3
TMCLKL	HY/2012/08	2018-01-01	AQMS1	Cloudy	14:49	1-hour TSP	143	ug/m3
TMCLKL	HY/2012/08	2018-01-01	AQMS1	Cloudy	15:51	1-hour TSP	128	ug/m3
TMCLKL	HY/2012/08	2018-01-01	ASR1	Cloudy	13:37	1-hour TSP	120	ug/m3
TMCLKL	HY/2012/08	2018-01-01	ASR1	Cloudy	14:39	1-hour TSP	180	ug/m3
TMCLKL	HY/2012/08	2018-01-01	ASR1	Cloudy	15:41	1-hour TSP	134	ug/m3
TMCLKL	HY/2012/08	2018-01-01	ASR10	Cloudy	13:04	1-hour TSP	94	ug/m3
TMCLKL	HY/2012/08	2018-01-01	ASR10	Cloudy	14:06	1-hour TSP	103	ug/m3
TMCLKL	HY/2012/08	2018-01-01	ASR10	Cloudy	15:08	1-hour TSP	99	ug/m3
TMCLKL	HY/2012/08	2018-01-01	ASR5	Cloudy	13:25	1-hour TSP	115	ug/m3
TMCLKL	HY/2012/08	2018-01-01	ASR5	Cloudy	14:27	1-hour TSP	153	ug/m3
TMCLKL	HY/2012/08	2018-01-01	ASR5	Cloudy	15:29	1-hour TSP	123	ug/m3
TMCLKL	HY/2012/08	2018-01-01	ASR6	Cloudy	13:15	1-hour TSP	89	ug/m3
TMCLKL	HY/2012/08	2018-01-01	ASR6	Cloudy	14:17	1-hour TSP	144	ug/m3
TMCLKL	HY/2012/08	2018-01-01	ASR6	Cloudy	15:19	1-hour TSP	92	ug/m3
TMCLKL	HY/2012/08	2018-01-04	AQMS1	Sunny	13:55	1-hour TSP	223	ug/m3
TMCLKL	HY/2012/08	2018-01-04	AQMS1	Sunny	14:57	1-hour TSP	106	ug/m3
TMCLKL	HY/2012/08	2018-01-04	AQMS1	Sunny	15:59	1-hour TSP	98	ug/m3
TMCLKL	HY/2012/08	2018-01-04	ASR1	Sunny	13:44	1-hour TSP	122	ug/m3
TMCLKL	HY/2012/08	2018-01-04	ASR1	Sunny	14:46	1-hour TSP	110	ug/m3
TMCLKL	HY/2012/08	2018-01-04	ASR1	Sunny	15:48	1-hour TSP	75	ug/m3
TMCLKL	HY/2012/08	2018-01-04	ASR10	Sunny	13:11	1-hour TSP	54	ug/m3
TMCLKL	HY/2012/08	2018-01-04	ASR10	Sunny	14:13	1-hour TSP	69	ug/m3
TMCLKL	HY/2012/08	2018-01-04	ASR10	Sunny	15:15	1-hour TSP	79	ug/m3
TMCLKL	HY/2012/08	2018-01-04	ASR5	Sunny	13:32	1-hour TSP	168	ug/m3
TMCLKL	HY/2012/08	2018-01-04	ASR5	Sunny	14:34	1-hour TSP	139	ug/m3
TMCLKL	HY/2012/08	2018-01-04	ASR5	Sunny	15:36	1-hour TSP	131	ug/m3
TMCLKL	HY/2012/08	2018-01-04	ASR6	Sunny	13:21	1-hour TSP	94	ug/m3
TMCLKL	HY/2012/08	2018-01-04	ASR6	Sunny	14:23	1-hour TSP	72	ug/m3
TMCLKL	HY/2012/08	2018-01-04	ASR6	Sunny	15:25	1-hour TSP	83	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2018-01-07	AQMS1	Rainy	09:04	1-hour TSP	30	ug/m3
TMCLKL	HY/2012/08	2018-01-07	AQMS1	Rainy	10:06	1-hour TSP	14	ug/m3
TMCLKL	HY/2012/08	2018-01-07	AQMS1	Rainy	11:08	1-hour TSP	14	ug/m3
TMCLKL	HY/2012/08	2018-01-07	ASR1	Rainy	08:53	1-hour TSP	13	ug/m3
TMCLKL	HY/2012/08	2018-01-07	ASR1	Rainy	09:55	1-hour TSP	13	ug/m3
TMCLKL	HY/2012/08	2018-01-07	ASR1	Rainy	10:57	1-hour TSP	13	ug/m3
TMCLKL	HY/2012/08	2018-01-07	ASR10	Rainy	08:20	1-hour TSP	13	ug/m3
TMCLKL	HY/2012/08	2018-01-07	ASR10	Rainy	09:22	1-hour TSP	13	ug/m3
TMCLKL	HY/2012/08	2018-01-07	ASR10	Rainy	10:24	1-hour TSP	13	ug/m3
TMCLKL	HY/2012/08	2018-01-07	ASR5	Rainy	08:41	1-hour TSP	13	ug/m3
TMCLKL	HY/2012/08	2018-01-07	ASR5	Rainy	09:43	1-hour TSP	13	ug/m3
TMCLKL	HY/2012/08	2018-01-07	ASR5	Rainy	10:45	1-hour TSP	13	ug/m3
TMCLKL	HY/2012/08	2018-01-07	ASR6	Rainy	08:30	1-hour TSP	16	ug/m3
TMCLKL	HY/2012/08	2018-01-07	ASR6	Rainy	09:32	1-hour TSP	13	ug/m3
TMCLKL	HY/2012/08	2018-01-07	ASR6	Rainy	10:34	1-hour TSP	13	ug/m3
TMCLKL	HY/2012/08	2018-01-10	AQMS1	Sunny	13:38	1-hour TSP	84	ug/m3
TMCLKL	HY/2012/08	2018-01-10	AQMS1	Sunny	14:40	1-hour TSP	70	ug/m3
TMCLKL	HY/2012/08	2018-01-10	AQMS1	Sunny	15:42	1-hour TSP	62	ug/m3
TMCLKL	HY/2012/08	2018-01-10	ASR1	Sunny	13:27	1-hour TSP	83	ug/m3
TMCLKL	HY/2012/08	2018-01-10	ASR1	Sunny	14:29	1-hour TSP	128	ug/m3
TMCLKL	HY/2012/08	2018-01-10	ASR1	Sunny	15:31	1-hour TSP	104	ug/m3
TMCLKL	HY/2012/08	2018-01-10	ASR10	Sunny	12:55	1-hour TSP	71	ug/m3
TMCLKL	HY/2012/08	2018-01-10	ASR10	Sunny	13:57	1-hour TSP	204	ug/m3
TMCLKL	HY/2012/08	2018-01-10	ASR10	Sunny	14:59	1-hour TSP	202	ug/m3
TMCLKL	HY/2012/08	2018-01-10	ASR5	Sunny	13:16	1-hour TSP	85	ug/m3
TMCLKL	HY/2012/08	2018-01-10	ASR5	Sunny	14:18	1-hour TSP	284	ug/m3
TMCLKL	HY/2012/08	2018-01-10	ASR5	Sunny	15:20	1-hour TSP	259	ug/m3
TMCLKL	HY/2012/08	2018-01-10	ASR6	Sunny	13:05	1-hour TSP	108	ug/m3
TMCLKL	HY/2012/08	2018-01-10	ASR6	Sunny	14:07	1-hour TSP	163	ug/m3
TMCLKL	HY/2012/08	2018-01-10	ASR6	Sunny	15:09	1-hour TSP	154	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
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TMCLKL	HY/2012/08	2018-01-13	AQMS1	Sunny	10:06	1-hour TSP	92	ug/m3
TMCLKL	HY/2012/08	2018-01-13	AQMS1	Sunny	11:08	1-hour TSP	120	ug/m3
TMCLKL	HY/2012/08	2018-01-13	ASR1	Sunny	08:53	1-hour TSP	147	ug/m3
TMCLKL	HY/2012/08	2018-01-13	ASR1	Sunny	09:55	1-hour TSP	144	ug/m3
TMCLKL	HY/2012/08	2018-01-13	ASR1	Sunny	10:57	1-hour TSP	86	ug/m3
TMCLKL	HY/2012/08	2018-01-13	ASR10	Sunny	08:20	1-hour TSP	77	ug/m3
TMCLKL	HY/2012/08	2018-01-13	ASR10	Sunny	09:22	1-hour TSP	65	ug/m3
TMCLKL	HY/2012/08	2018-01-13	ASR10	Sunny	10:24	1-hour TSP	34	ug/m3
TMCLKL	HY/2012/08	2018-01-13	ASR5	Sunny	08:41	1-hour TSP	345	ug/m3
TMCLKL	HY/2012/08	2018-01-13	ASR5	Sunny	09:43	1-hour TSP	275	ug/m3
TMCLKL	HY/2012/08	2018-01-13	ASR5	Sunny	10:45	1-hour TSP	141	ug/m3
TMCLKL	HY/2012/08	2018-01-13	ASR6	Sunny	08:30	1-hour TSP	139	ug/m3
TMCLKL	HY/2012/08	2018-01-13	ASR6	Sunny	09:32	1-hour TSP	96	ug/m3
TMCLKL	HY/2012/08	2018-01-13	ASR6	Sunny	10:34	1-hour TSP	79	ug/m3
TMCLKL	HY/2012/08	2018-01-16	AQMS1	Sunny	13:45	1-hour TSP	198	ug/m3
TMCLKL	HY/2012/08	2018-01-16	AQMS1	Sunny	14:47	1-hour TSP	245	ug/m3
TMCLKL	HY/2012/08	2018-01-16	AQMS1	Sunny	15:49	1-hour TSP	197	ug/m3
TMCLKL	HY/2012/08	2018-01-16	ASR1	Sunny	13:34	1-hour TSP	192	ug/m3
TMCLKL	HY/2012/08	2018-01-16	ASR1	Sunny	14:36	1-hour TSP	192	ug/m3
TMCLKL	HY/2012/08	2018-01-16	ASR1	Sunny	15:38	1-hour TSP	192	ug/m3
TMCLKL	HY/2012/08	2018-01-16	ASR10	Sunny	13:00	1-hour TSP	153	ug/m3
TMCLKL	HY/2012/08	2018-01-16	ASR10	Sunny	14:02	1-hour TSP	198	ug/m3
TMCLKL	HY/2012/08	2018-01-16	ASR10	Sunny	15:04	1-hour TSP	169	ug/m3
TMCLKL	HY/2012/08	2018-01-16	ASR5	Sunny	13:22	1-hour TSP	396	ug/m3
TMCLKL	HY/2012/08	2018-01-16	ASR5	Sunny	14:24	1-hour TSP	384	ug/m3
TMCLKL	HY/2012/08	2018-01-16	ASR5	Sunny	15:26	1-hour TSP	345	ug/m3
TMCLKL	HY/2012/08	2018-01-16	ASR6	Sunny	13:11	1-hour TSP	269	ug/m3
TMCLKL	HY/2012/08	2018-01-16	ASR6	Sunny	14:13	1-hour TSP	287	ug/m3
TMCLKL	HY/2012/08	2018-01-16	ASR6	Sunny	15:15	1-hour TSP	265	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
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TMCLKL	HY/2012/08	2018-01-19	AQMS1	Cloudy	10:02	1-hour TSP	107	ug/m3
TMCLKL	HY/2012/08	2018-01-19	AQMS1	Cloudy	11:04	1-hour TSP	88	ug/m3
TMCLKL	HY/2012/08	2018-01-19	ASR1	Cloudy	08:49	1-hour TSP	87	ug/m3
TMCLKL	HY/2012/08	2018-01-19	ASR1	Cloudy	09:51	1-hour TSP	58	ug/m3
TMCLKL	HY/2012/08	2018-01-19	ASR1	Cloudy	10:53	1-hour TSP	48	ug/m3
TMCLKL	HY/2012/08	2018-01-19	ASR10	Cloudy	08:15	1-hour TSP	75	ug/m3
TMCLKL	HY/2012/08	2018-01-19	ASR10	Cloudy	09:17	1-hour TSP	73	ug/m3
TMCLKL	HY/2012/08	2018-01-19	ASR10	Cloudy	10:19	1-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2018-01-19	ASR5	Cloudy	08:37	1-hour TSP	173	ug/m3
TMCLKL	HY/2012/08	2018-01-19	ASR5	Cloudy	09:39	1-hour TSP	171	ug/m3
TMCLKL	HY/2012/08	2018-01-19	ASR5	Cloudy	10:41	1-hour TSP	173	ug/m3
TMCLKL	HY/2012/08	2018-01-19	ASR6	Cloudy	08:25	1-hour TSP	148	ug/m3
TMCLKL	HY/2012/08	2018-01-19	ASR6	Cloudy	09:27	1-hour TSP	104	ug/m3
TMCLKL	HY/2012/08	2018-01-19	ASR6	Cloudy	10:29	1-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2018-01-22	AQMS1	Sunny	14:03	1-hour TSP	295	ug/m3
TMCLKL	HY/2012/08	2018-01-22	AQMS1	Sunny	15:05	1-hour TSP	324	ug/m3
TMCLKL	HY/2012/08	2018-01-22	AQMS1	Sunny	16:07	1-hour TSP	262	ug/m3
TMCLKL	HY/2012/08	2018-01-22	ASR1	Sunny	13:52	1-hour TSP	262	ug/m3
TMCLKL	HY/2012/08	2018-01-22	ASR1	Sunny	14:54	1-hour TSP	253	ug/m3
TMCLKL	HY/2012/08	2018-01-22	ASR1	Sunny	15:56	1-hour TSP	224	ug/m3
TMCLKL	HY/2012/08	2018-01-22	ASR10	Sunny	13:18	1-hour TSP	243	ug/m3
TMCLKL	HY/2012/08	2018-01-22	ASR10	Sunny	14:20	1-hour TSP	249	ug/m3
TMCLKL	HY/2012/08	2018-01-22	ASR10	Sunny	15:22	1-hour TSP	206	ug/m3
TMCLKL	HY/2012/08	2018-01-22	ASR5	Sunny	13:40	1-hour TSP	363	ug/m3
TMCLKL	HY/2012/08	2018-01-22	ASR5	Sunny	14:42	1-hour TSP	380	ug/m3
TMCLKL	HY/2012/08	2018-01-22	ASR5	Sunny	15:44	1-hour TSP	305	ug/m3
TMCLKL	HY/2012/08	2018-01-22	ASR6	Sunny	13:29	1-hour TSP	322	ug/m3
TMCLKL	HY/2012/08	2018-01-22	ASR6	Sunny	14:31	1-hour TSP	310	ug/m3
TMCLKL	HY/2012/08	2018-01-22	ASR6	Sunny	15:33	1-hour TSP	273	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2018-01-25	AQMS1	Sunny	13:54	1-hour TSP	138	ug/m3
TMCLKL	HY/2012/08	2018-01-25	AQMS1	Sunny	14:56	1-hour TSP	62	ug/m3
TMCLKL	HY/2012/08	2018-01-25	AQMS1	Sunny	15:58	1-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2018-01-25	ASR1	Sunny	13:42	1-hour TSP	243	ug/m3
TMCLKL	HY/2012/08	2018-01-25	ASR1	Sunny	14:44	1-hour TSP	164	ug/m3
TMCLKL	HY/2012/08	2018-01-25	ASR1	Sunny	15:46	1-hour TSP	130	ug/m3
TMCLKL	HY/2012/08	2018-01-25	ASR10	Sunny	13:08	1-hour TSP	65	ug/m3
TMCLKL	HY/2012/08	2018-01-25	ASR10	Sunny	14:10	1-hour TSP	44	ug/m3
TMCLKL	HY/2012/08	2018-01-25	ASR10	Sunny	15:12	1-hour TSP	38	ug/m3
TMCLKL	HY/2012/08	2018-01-25	ASR5	Sunny	13:30	1-hour TSP	316	ug/m3
TMCLKL	HY/2012/08	2018-01-25	ASR5	Sunny	14:32	1-hour TSP	101	ug/m3
TMCLKL	HY/2012/08	2018-01-25	ASR5	Sunny	15:34	1-hour TSP	81	ug/m3
TMCLKL	HY/2012/08	2018-01-25	ASR6	Sunny	13:20	1-hour TSP	118	ug/m3
TMCLKL	HY/2012/08	2018-01-25	ASR6	Sunny	14:22	1-hour TSP	64	ug/m3
TMCLKL	HY/2012/08	2018-01-25	ASR6	Sunny	15:24	1-hour TSP	60	ug/m3
TMCLKL	HY/2012/08	2018-01-28	AQMS1	Sunny	09:10	1-hour TSP	128	ug/m3
TMCLKL	HY/2012/08	2018-01-28	AQMS1	Sunny	10:12	1-hour TSP	83	ug/m3
TMCLKL	HY/2012/08	2018-01-28	AQMS1	Sunny	11:14	1-hour TSP	98	ug/m3
TMCLKL	HY/2012/08	2018-01-28	ASR1	Sunny	08:58	1-hour TSP	124	ug/m3
TMCLKL	HY/2012/08	2018-01-28	ASR1	Sunny	10:00	1-hour TSP	159	ug/m3
TMCLKL	HY/2012/08	2018-01-28	ASR1	Sunny	11:02	1-hour TSP	114	ug/m3
TMCLKL	HY/2012/08	2018-01-28	ASR10	Sunny	08:26	1-hour TSP	48	ug/m3
TMCLKL	HY/2012/08	2018-01-28	ASR10	Sunny	09:28	1-hour TSP	307	ug/m3
TMCLKL	HY/2012/08	2018-01-28	ASR10	Sunny	10:30	1-hour TSP	238	ug/m3
TMCLKL	HY/2012/08	2018-01-28	ASR5	Sunny	08:47	1-hour TSP	189	ug/m3
TMCLKL	HY/2012/08	2018-01-28	ASR5	Sunny	09:49	1-hour TSP	137	ug/m3
TMCLKL	HY/2012/08	2018-01-28	ASR5	Sunny	10:51	1-hour TSP	141	ug/m3
TMCLKL	HY/2012/08	2018-01-28	ASR6	Sunny	08:37	1-hour TSP	97	ug/m3
TMCLKL	HY/2012/08	2018-01-28	ASR6	Sunny	09:39	1-hour TSP	160	ug/m3
TMCLKL	HY/2012/08	2018-01-28	ASR6	Sunny	10:41	1-hour TSP	135	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2018-01-31	AQMS1	Rainy	13:49	1-hour TSP	21	ug/m3
TMCLKL	HY/2012/08	2018-01-31	AQMS1	Rainy	14:51	1-hour TSP	14	ug/m3
TMCLKL	HY/2012/08	2018-01-31	AQMS1	Rainy	15:53	1-hour TSP	14	ug/m3
TMCLKL	HY/2012/08	2018-01-31	ASR1	Rainy	13:37	1-hour TSP	29	ug/m3
TMCLKL	HY/2012/08	2018-01-31	ASR1	Rainy	14:39	1-hour TSP	13	ug/m3
TMCLKL	HY/2012/08	2018-01-31	ASR1	Rainy	15:41	1-hour TSP	13	ug/m3
TMCLKL	HY/2012/08	2018-01-31	ASR10	Rainy	13:04	1-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2018-01-31	ASR10	Rainy	14:06	1-hour TSP	122	ug/m3
TMCLKL	HY/2012/08	2018-01-31	ASR10	Rainy	15:08	1-hour TSP	13	ug/m3
TMCLKL	HY/2012/08	2018-01-31	ASR5	Rainy	13:26	1-hour TSP	79	ug/m3
TMCLKL	HY/2012/08	2018-01-31	ASR5	Rainy	14:28	1-hour TSP	28	ug/m3
TMCLKL	HY/2012/08	2018-01-31	ASR5	Rainy	15:30	1-hour TSP	24	ug/m3
TMCLKL	HY/2012/08	2018-01-31	ASR6	Rainy	13:15	1-hour TSP	38	ug/m3
TMCLKL	HY/2012/08	2018-01-31	ASR6	Rainy	14:17	1-hour TSP	20	ug/m3
TMCLKL	HY/2012/08	2018-01-31	ASR6	Rainy	15:19	1-hour TSP	24	ug/m3
TMCLKL	HY/2012/08	2018-01-01	AQMS1	Cloudy	16:53	24-hour TSP	83	ug/m3
TMCLKL	HY/2012/08	2018-01-01	ASR1	Cloudy	16:43	24-hour TSP	110	ug/m3
TMCLKL	HY/2012/08	2018-01-01	ASR10	Cloudy	16:10	24-hour TSP	85	ug/m3
TMCLKL	HY/2012/08	2018-01-01	ASR5	Cloudy	16:31	24-hour TSP	113	ug/m3
TMCLKL	HY/2012/08	2018-01-01	ASR6	Cloudy	16:21	24-hour TSP	97	ug/m3
TMCLKL	HY/2012/08	2018-01-04	AQMS1	Sunny	17:01	24-hour TSP	74	ug/m3
TMCLKL	HY/2012/08	2018-01-04	ASR1	Sunny	16:50	24-hour TSP	87	ug/m3
TMCLKL	HY/2012/08	2018-01-04	ASR10	Sunny	16:17	24-hour TSP	53	ug/m3
TMCLKL	HY/2012/08	2018-01-04	ASR5	Sunny	16:38	24-hour TSP	92	ug/m3
TMCLKL	HY/2012/08	2018-01-04	ASR6	Sunny	16:27	24-hour TSP	82	ug/m3
TMCLKL	HY/2012/08	2018-01-07	AQMS1	Rainy	12:10	24-hour TSP	16	ug/m3
TMCLKL	HY/2012/08	2018-01-07	ASR1	Rainy	11:59	24-hour TSP	21	ug/m3
TMCLKL	HY/2012/08	2018-01-07	ASR10	Rainy	11:26	24-hour TSP	22	ug/m3
TMCLKL	HY/2012/08	2018-01-07	ASR5	Rainy	11:47	24-hour TSP	23	ug/m3
TMCLKL	HY/2012/08	2018-01-07	ASR6	Rainy	11:36	24-hour TSP	21	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2018-01-10	AQMS1	Sunny	16:44	24-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	2018-01-10	ASR1	Sunny	16:33	24-hour TSP	91	ug/m3
TMCLKL	HY/2012/08	2018-01-10	ASR10	Sunny	16:01	24-hour TSP	60	ug/m3
TMCLKL	HY/2012/08	2018-01-10	ASR5	Sunny	16:22	24-hour TSP	105	ug/m3
TMCLKL	HY/2012/08	2018-01-10	ASR6	Sunny	16:11	24-hour TSP	78	ug/m3
TMCLKL	HY/2012/08	2018-01-13	AQMS1	Sunny	12:10	24-hour TSP	50	ug/m3
TMCLKL	HY/2012/08	2018-01-13	ASR1	Sunny	11:59	24-hour TSP	62	ug/m3
TMCLKL	HY/2012/08	2018-01-13	ASR10	Sunny	11:26	24-hour TSP	48	ug/m3
TMCLKL	HY/2012/08	2018-01-13	ASR5	Sunny	11:47	24-hour TSP	78	ug/m3
TMCLKL	HY/2012/08	2018-01-13	ASR6	Sunny	11:36	24-hour TSP	65	ug/m3
TMCLKL	HY/2012/08	2018-01-16	AQMS1	Sunny	16:51	24-hour TSP	154	ug/m3
TMCLKL	HY/2012/08	2018-01-16	ASR1	Sunny	16:40	24-hour TSP	147	ug/m3
TMCLKL	HY/2012/08	2018-01-16	ASR10	Sunny	16:06	24-hour TSP	135	ug/m3
TMCLKL	HY/2012/08	2018-01-16	ASR5	Sunny	16:28	24-hour TSP	197	ug/m3
TMCLKL	HY/2012/08	2018-01-16	ASR6	Sunny	16:17	24-hour TSP	178	ug/m3
TMCLKL	HY/2012/08	2018-01-19	AQMS1	Cloudy	12:06	24-hour TSP	51	ug/m3
TMCLKL	HY/2012/08	2018-01-19	ASR1	Cloudy	11:55	24-hour TSP	42	ug/m3
TMCLKL	HY/2012/08	2018-01-19	ASR10	Cloudy	11:21	24-hour TSP	36	ug/m3
TMCLKL	HY/2012/08	2018-01-19	ASR5	Cloudy	11:43	24-hour TSP	84	ug/m3
TMCLKL	HY/2012/08	2018-01-19	ASR6	Cloudy	11:31	24-hour TSP	46	ug/m3
TMCLKL	HY/2012/08	2018-01-22	AQMS1	Sunny	17:09	24-hour TSP	110	ug/m3
TMCLKL	HY/2012/08	2018-01-22	ASR1	Sunny	16:58	24-hour TSP	101	ug/m3
TMCLKL	HY/2012/08	2018-01-22	ASR10	Sunny	16:24	24-hour TSP	72	ug/m3
TMCLKL	HY/2012/08	2018-01-22	ASR5	Sunny	16:46	24-hour TSP	150	ug/m3
TMCLKL	HY/2012/08	2018-01-22	ASR6	Sunny	16:35	24-hour TSP	118	ug/m3
TMCLKL	HY/2012/08	2018-01-25	AQMS1	Sunny	17:00	24-hour TSP	86	ug/m3
TMCLKL	HY/2012/08	2018-01-25	ASR1	Sunny	16:48	24-hour TSP	111	ug/m3
TMCLKL	HY/2012/08	2018-01-25	ASR10	Sunny	16:14	24-hour TSP	86	ug/m3
TMCLKL	HY/2012/08	2018-01-25	ASR5	Sunny	16:36	24-hour TSP	133	ug/m3
TMCLKL	HY/2012/08	2018-01-25	ASR6	Sunny	16:26	24-hour TSP	95	ug/m3

Project	Works	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2018-01-28	AQMS1	Sunny	12:16	24-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2018-01-28	ASR1	Sunny	12:04	24-hour TSP	66	ug/m3
TMCLKL	HY/2012/08	2018-01-28	ASR10	Sunny	11:32	24-hour TSP	55	ug/m3
TMCLKL	HY/2012/08	2018-01-28	ASR5	Sunny	11:53	24-hour TSP	96	ug/m3
TMCLKL	HY/2012/08	2018-01-28	ASR6	Sunny	11:43	24-hour TSP	77	ug/m3
TMCLKL	HY/2012/08	2018-01-31	AQMS1	Sunny	16:55	24-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	2018-01-31	ASR1	Sunny	16:43	24-hour TSP	74	ug/m3
TMCLKL	HY/2012/08	2018-01-31	ASR10	Sunny	16:10	24-hour TSP	61	ug/m3
TMCLKL	HY/2012/08	2018-01-31	ASR5	Sunny	16:32	24-hour TSP	115	ug/m3
TMCLKL	HY/2012/08	2018-01-31	ASR6	Sunny	16:21	24-hour TSP	90	ug/m3

Appendix H

Meteorological Data

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)**
18/01/01	1:00	0.9	70
18/01/01	2:00	0.9	12
18/01/01	3:00	1.3	46
18/01/01	4:00	1.3	48
18/01/01	5:00	1.3	50
18/01/01	6:00	0.9	63
18/01/01	7:00	0.9	42
18/01/01	8:00	0.9	38
18/01/01	9:00	0.9	91
18/01/01	10:00	0.9	105
18/01/01	11:00	1.3	132
18/01/01	12:00	1.3	128
18/01/01	13:00	1.3	131
18/01/01	14:00	0.9	129
18/01/01	15:00	1.3	284
18/01/01	16:00	1.3	279
18/01/01	17:00	0.9	286
18/01/01	18:00	0.9	310
18/01/01	19:00	0.9	5
18/01/01	20:00	1.8	96
18/01/01	21:00	1.8	87
18/01/01	22:00	0.9	85
18/01/01	23:00	0.4	74
18/01/02	0:00	0.9	44
18/01/02	1:00	0.9	1
18/01/02	2:00	0.9	46
18/01/02	3:00	0.9	10
18/01/02	4:00	1.8	52
18/01/02	5:00	1.3	50
18/01/02	6:00	0.9	71
18/01/02	7:00	1.3	11
18/01/02	8:00	1.3	93
18/01/02	9:00	2.2	80
18/01/02	10:00	3.1	110
18/01/02	11:00	2.2	88
18/01/02	12:00	1.8	123
18/01/02	13:00	1.3	135
18/01/02	14:00	1.3	137
18/01/02	15:00	1.3	89
18/01/02	16:00	0.9	95
18/01/02	17:00	0.4	113
18/01/02	18:00	1.8	87
18/01/02	19:00	2.7	96
18/01/02	20:00	1.8	88
18/01/02	21:00	1.3	70
18/01/02	22:00	1.3	43
18/01/02	23:00	0.9	19
18/01/04	0:00	1.3	50
18/01/04	1:00	1.3	51
18/01/04	2:00	1.8	96
18/01/04	3:00	1.3	82
18/01/04	4:00	0.9	68
18/01/04	5:00	1.3	66
18/01/04	6:00	1.3	44

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)**
18/01/04	7:00	0.9	73
18/01/04	8:00	3.1	94
18/01/04	9:00	3.1	91
18/01/04	10:00	3.6	88
18/01/04	11:00	4	93
18/01/04	12:00	4	87
18/01/04	13:00	3.6	90
18/01/04	14:00	2.7	93
18/01/04	15:00	2.2	84
18/01/04	16:00	4	81
18/01/04	17:00	3.6	93
18/01/04	18:00	3.1	98
18/01/04	19:00	2.2	92
18/01/04	20:00	3.1	85
18/01/04	21:00	1.3	90
18/01/04	22:00	1.3	100
18/01/04	23:00	1.8	84
18/01/05	0:00	0.9	86
18/01/05	1:00	0.4	85
18/01/05	2:00	0.9	94
18/01/05	3:00	1.8	99
18/01/05	4:00	0.9	92
18/01/05	5:00	0.1	90
18/01/05	6:00	0.4	121
18/01/05	7:00	0.4	119
18/01/05	8:00	0.9	123
18/01/05	9:00	0.4	171
18/01/05	10:00	1.3	222
18/01/05	11:00	1.3	226
18/01/05	12:00	1.3	231
18/01/05	13:00	0.9	219
18/01/05	14:00	0.9	274
18/01/05	15:00	0.9	259
18/01/05	16:00	0.9	230
18/01/05	17:00	0.9	265
18/01/05	18:00	0.9	168
18/01/05	19:00	1.3	119
18/01/05	20:00	0.9	89
18/01/05	21:00	1.3	85
18/01/05	22:00	1.8	94
18/01/05	23:00	1.8	93
18/01/07	0:00	1.3	10
18/01/07	1:00	1.3	5
18/01/07	2:00	1.8	46
18/01/07	3:00	0.9	352
18/01/07	4:00	0.9	96
18/01/07	5:00	0.9	74
18/01/07	6:00	1.3	3
18/01/07	7:00	0.9	51
18/01/07	8:00	1.8	70
18/01/07	9:00	1.3	68
18/01/07	10:00	3.1	74
18/01/07	11:00	4.9	92
18/01/07	12:00	4.5	81

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)**
18/01/07	13:00	4.9	93
18/01/07	14:00	4.5	88
18/01/07	15:00	4.9	94
18/01/07	16:00	4.9	85
18/01/07	17:00	4.5	93
18/01/07	18:00	4.5	100
18/01/07	19:00	4	84
18/01/07	20:00	4.9	101
18/01/07	21:00	3.6	84
18/01/07	22:00	3.1	79
18/01/07	23:00	3.1	85
18/01/08	0:00	3.6	83
18/01/08	1:00	2.7	86
18/01/08	2:00	1.8	91
18/01/08	3:00	1.3	40
18/01/08	4:00	1.3	70
18/01/08	5:00	1.3	65
18/01/08	6:00	0.9	92
18/01/08	7:00	0.4	223
18/01/08	8:00	0	274
18/01/08	9:00	0.4	20
18/01/08	10:00	4	309
18/01/08	11:00	4.9	305
18/01/08	12:00	3.1	312
18/01/08	13:00	3.6	311
18/01/08	14:00	4	318
18/01/08	15:00	1.8	284
18/01/08	16:00	1.8	225
18/01/08	17:00	2.2	13
18/01/08	18:00	1.8	264
18/01/08	19:00	2.2	285
18/01/08	20:00	1.3	291
18/01/08	21:00	0.9	353
18/01/08	22:00	1.3	12
18/01/08	23:00	1.3	347
18/01/10	0:00	3.1	50
18/01/10	1:00	3.1	16
18/01/10	2:00	3.1	52
18/01/10	3:00	4.5	51
18/01/10	4:00	3.6	49
18/01/10	5:00	2.2	38
18/01/10	6:00	3.1	10
18/01/10	7:00	3.1	4
18/01/10	8:00	3.1	55
18/01/10	9:00	3.1	40
18/01/10	10:00	3.6	13
18/01/10	11:00	3.6	11
18/01/10	12:00	3.1	8
18/01/10	13:00	2.2	9
18/01/10	14:00	1.8	14
18/01/10	15:00	1.8	303
18/01/10	16:00	1.3	346
18/01/10	17:00	0.9	285
18/01/10	18:00	0.9	2

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)**
18/01/10	19:00	0.9	349
18/01/10	20:00	1.8	46
18/01/10	21:00	1.3	10
18/01/10	22:00	0.9	2
18/01/10	23:00	1.3	48
18/01/11	0:00	2.2	4
18/01/11	1:00	3.6	3
18/01/11	2:00	3.6	10
18/01/11	3:00	4	13
18/01/11	4:00	3.6	8
18/01/11	5:00	4	17
18/01/11	6:00	4.5	12
18/01/11	7:00	4	9
18/01/11	8:00	4.5	8
18/01/11	9:00	4.9	17
18/01/11	10:00	4.5	11
18/01/11	11:00	3.1	44
18/01/11	12:00	2.7	12
18/01/11	13:00	2.7	15
18/01/11	14:00	2.2	13
18/01/11	15:00	2.7	10
18/01/11	16:00	1.8	9
18/01/11	17:00	1.3	352
18/01/11	18:00	0.9	311
18/01/11	19:00	0.9	348
18/01/11	20:00	0.4	273
18/01/11	21:00	0.4	315
18/01/11	22:00	0.9	40
18/01/11	23:00	1.3	39
18/01/13	0:00	0.9	95
18/01/13	1:00	0.9	12
18/01/13	2:00	0.9	10
18/01/13	3:00	1.3	16
18/01/13	4:00	0.9	350
18/01/13	5:00	0.9	2
18/01/13	6:00	0.9	46
18/01/13	7:00	1.3	12
18/01/13	8:00	1.8	48
18/01/13	9:00	1.3	51
18/01/13	10:00	1.3	56
18/01/13	11:00	1.8	50
18/01/13	12:00	3.1	130
18/01/13	13:00	3.1	116
18/01/13	14:00	3.6	128
18/01/13	15:00	2.7	135
18/01/13	16:00	2.2	134
18/01/13	17:00	2.7	95
18/01/13	18:00	2.7	66
18/01/13	19:00	1.3	51
18/01/13	20:00	0.9	47
18/01/13	21:00	1.3	5
18/01/13	22:00	2.2	93
18/01/13	23:00	3.1	71
18/01/14	0:00	2.2	66

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)**
18/01/14	1:00	1.3	41
18/01/14	2:00	0.9	21
18/01/14	3:00	1.3	53
18/01/14	4:00	1.3	40
18/01/14	5:00	1.3	68
18/01/14	6:00	0.9	93
18/01/14	7:00	0.9	10
18/01/14	8:00	1.3	65
18/01/14	9:00	1.8	100
18/01/14	10:00	1.3	43
18/01/14	11:00	1.3	14
18/01/14	12:00	1.3	179
18/01/14	13:00	1.3	226
18/01/14	14:00	1.3	123
18/01/14	15:00	0.9	95
18/01/14	16:00	0.9	92
18/01/14	17:00	1.3	235
18/01/14	18:00	0.9	318
18/01/14	19:00	0.4	359
18/01/14	20:00	0.9	99
18/01/14	21:00	0.9	12
18/01/14	22:00	0.9	1
18/01/14	23:00	0.4	44
18/01/16	0:00	0.4	22
18/01/16	1:00	0.4	312
18/01/16	2:00	0.4	72
18/01/16	3:00	0.4	70
18/01/16	4:00	0.4	43
18/01/16	5:00	0.4	356
18/01/16	6:00	0.4	351
18/01/16	7:00	0.4	350
18/01/16	8:00	0.4	84
18/01/16	9:00	0.9	191
18/01/16	10:00	1.8	235
18/01/16	11:00	2.2	224
18/01/16	12:00	3.1	182
18/01/16	13:00	1.8	259
18/01/16	14:00	1.8	268
18/01/16	15:00	1.3	230
18/01/16	16:00	1.3	226
18/01/16	17:00	0.9	94
18/01/16	18:00	0.9	349
18/01/16	19:00	0.9	352
18/01/16	20:00	0	339
18/01/16	21:00	0.4	306
18/01/16	22:00	0.4	298
18/01/16	23:00	0	288
18/01/17	0:00	0.9	351
18/01/17	1:00	0.4	349
18/01/17	2:00	0.4	355
18/01/17	3:00	0.4	348
18/01/17	4:00	0	339
18/01/17	5:00	0.4	349
18/01/17	6:00	0.9	288
18/01/17	7:00	0.4	271
18/01/17	8:00	0.4	225

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)**
18/01/17	9:00	0.9	187
18/01/17	10:00	2.2	193
18/01/17	11:00	1.8	225
18/01/17	12:00	2.2	231
18/01/17	13:00	1.3	280
18/01/17	14:00	1.3	232
18/01/17	15:00	2.2	190
18/01/17	16:00	1.3	227
18/01/17	17:00	0.9	95
18/01/17	18:00	0.4	84
18/01/17	19:00	0.4	96
18/01/17	20:00	0.4	83
18/01/17	21:00	0.9	91
18/01/17	22:00	0.9	99
18/01/17	23:00	0.9	81
18/01/19	0:00	0.9	48
18/01/19	1:00	0.4	350
18/01/19	2:00	0	70
18/01/19	3:00	0.4	93
18/01/19	4:00	0.4	66
18/01/19	5:00	0.4	72
18/01/19	6:00	0	95
18/01/19	7:00	0.4	84
18/01/19	8:00	0.4	88
18/01/19	9:00	0.9	93
18/01/19	10:00	1.3	97
18/01/19	11:00	1.8	70
18/01/19	12:00	1.3	92
18/01/19	13:00	0.9	80
18/01/19	14:00	0.4	44
18/01/19	15:00	0.9	51
18/01/19	16:00	0.9	63
18/01/19	17:00	0.4	58
18/01/19	18:00	0.9	67
18/01/19	19:00	1.3	71
18/01/19	20:00	1.8	70
18/01/19	21:00	1.3	77
18/01/19	22:00	0.9	72
18/01/19	23:00	1.3	96
18/01/20	0:00	0.9	74
18/01/20	1:00	0.4	50
18/01/20	2:00	0	42
18/01/20	3:00	0	40
18/01/20	4:00	0.4	63
18/01/20	5:00	0.9	72
18/01/20	6:00	0.9	70
18/01/20	7:00	1.8	93
18/01/20	8:00	1.3	98
18/01/20	9:00	2.2	84
18/01/20	10:00	2.2	88
18/01/20	11:00	3.1	85
18/01/20	12:00	2.7	124
18/01/20	13:00	2.2	72
18/01/20	14:00	1.8	81
18/01/20	15:00	1.3	96
18/01/20	16:00	1.3	70
18/01/20	17:00	1.8	73

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)**
18/01/20	18:00	1.3	68
18/01/20	19:00	0.9	62
18/01/20	20:00	0.9	41
18/01/20	21:00	1.3	77
18/01/20	22:00	1.3	92
18/01/20	23:00	0.4	88
18/01/22	0:00	0.4	300
18/01/22	1:00	0	305
18/01/22	2:00	0	306
18/01/22	3:00	0.4	312
18/01/22	4:00	0	331
18/01/22	5:00	0	306
18/01/22	6:00	0	315
18/01/22	7:00	0	310
18/01/22	8:00	0.4	119
18/01/22	9:00	0.4	169
18/01/22	10:00	1.3	228
18/01/22	11:00	1.3	231
18/01/22	12:00	1.8	229
18/01/22	13:00	1.3	256
18/01/22	14:00	0.9	251
18/01/22	15:00	1.3	62
18/01/22	16:00	0.9	65
18/01/22	17:00	0.9	70
18/01/22	18:00	1.8	61
18/01/22	19:00	1.8	66
18/01/22	20:00	1.8	59
18/01/22	21:00	0.9	72
18/01/22	22:00	0.9	71
18/01/22	23:00	0.9	93
18/01/23	0:00	0.4	73
18/01/23	1:00	0.4	41
18/01/23	2:00	0.9	70
18/01/23	3:00	2.2	61
18/01/23	4:00	2.2	59
18/01/23	5:00	2.2	55
18/01/23	6:00	2.7	59
18/01/23	7:00	3.6	64
18/01/23	8:00	3.6	92
18/01/23	9:00	2.7	91
18/01/23	10:00	2.2	130
18/01/23	11:00	1.8	135
18/01/23	12:00	1.3	128
18/01/23	13:00	1.8	227
18/01/23	14:00	1.3	273
18/01/23	15:00	0.9	267
18/01/23	16:00	1.8	199
18/01/23	17:00	1.3	187
18/01/23	18:00	0.9	90
18/01/23	19:00	1.8	94
18/01/23	20:00	1.8	55
18/01/23	21:00	1.3	63
18/01/23	22:00	0.9	67
18/01/23	23:00	1.3	54
18/01/25	0:00	3.1	58
18/01/25	1:00	3.6	60
18/01/25	2:00	3.6	99

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)**
18/01/25	3:00	3.1	100
18/01/25	4:00	3.6	72
18/01/25	5:00	3.1	81
18/01/25	6:00	4	74
18/01/25	7:00	4.5	73
18/01/25	8:00	3.6	91
18/01/25	9:00	3.6	88
18/01/25	10:00	3.1	93
18/01/25	11:00	3.1	94
18/01/25	12:00	4	88
18/01/25	13:00	3.1	85
18/01/25	14:00	2.2	90
18/01/25	15:00	2.2	93
18/01/25	16:00	1.8	97
18/01/25	17:00	2.2	84
18/01/25	18:00	2.7	74
18/01/25	19:00	2.2	93
18/01/25	20:00	2.2	98
18/01/25	21:00	2.2	94
18/01/25	22:00	1.8	96
18/01/25	23:00	2.2	100
18/01/26	0:00	1.8	89
18/01/26	1:00	1.3	84
18/01/26	2:00	1.3	85
18/01/26	3:00	1.3	74
18/01/26	4:00	1.3	93
18/01/26	5:00	0.9	97
18/01/26	6:00	0.4	64
18/01/26	7:00	1.3	65
18/01/26	8:00	1.3	68
18/01/26	9:00	1.3	221
18/01/26	10:00	2.2	206
18/01/26	11:00	1.3	94
18/01/26	12:00	1.8	100
18/01/26	13:00	1.3	87
18/01/26	14:00	0.9	288
18/01/26	15:00	2.2	316
18/01/26	16:00	1.8	279
18/01/26	17:00	1.3	275
18/01/26	18:00	0.9	173
18/01/26	19:00	0.9	181
18/01/26	20:00	0.9	123
18/01/26	21:00	1.3	70
18/01/26	22:00	1.3	68
18/01/26	23:00	2.2	71
18/01/28	0:00	0	72
18/01/28	1:00	0.9	77
18/01/28	2:00	0.4	120
18/01/28	3:00	0.4	10
18/01/28	4:00	0.4	282
18/01/28	5:00	0.9	353
18/01/28	6:00	0.9	38
18/01/28	7:00	0.9	40
18/01/28	8:00	0.9	39
18/01/28	9:00	0.9	36
18/01/28	10:00	1.3	41
18/01/28	11:00	1.3	42

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)**
18/01/28	12:00	0.9	47
18/01/28	13:00	2.2	284
18/01/28	14:00	3.1	279
18/01/28	15:00	2.2	300
18/01/28	16:00	3.1	357
18/01/28	17:00	1.3	288
18/01/28	18:00	1.8	351
18/01/28	19:00	1.3	294
18/01/28	20:00	1.3	312
18/01/28	21:00	1.8	317
18/01/28	22:00	1.3	292
18/01/28	23:00	1.8	358
18/01/29	0:00	1.3	304
18/01/29	1:00	1.8	283
18/01/29	2:00	1.3	228
18/01/29	3:00	1.3	190
18/01/29	4:00	1.3	183
18/01/29	5:00	1.8	227
18/01/29	6:00	1.3	348
18/01/29	7:00	1.3	284
18/01/29	8:00	1.3	352
18/01/29	9:00	1.8	311
18/01/29	10:00	1.8	351
18/01/29	11:00	1.8	306
18/01/29	12:00	1.8	350
18/01/29	13:00	1.8	283
18/01/29	14:00	1.3	47
18/01/29	15:00	0.9	314
18/01/29	16:00	1.3	316
18/01/29	17:00	1.8	14
18/01/29	18:00	2.2	42
18/01/29	19:00	1.8	48
18/01/29	20:00	2.2	39
18/01/29	21:00	2.2	44
18/01/29	22:00	1.8	47
18/01/29	23:00	1.8	46
18/01/31	0:00	1.3	46
18/01/31	1:00	0.9	50
18/01/31	2:00	1.8	354
18/01/31	3:00	1.3	344
18/01/31	4:00	0.9	310
18/01/31	5:00	1.3	306
18/01/31	6:00	1.3	355
18/01/31	7:00	0.9	294
18/01/31	8:00	1.3	299
18/01/31	9:00	1.3	315
18/01/31	10:00	1.3	226
18/01/31	11:00	1.8	234
18/01/31	12:00	1.8	274
18/01/31	13:00	1.8	285
18/01/31	14:00	1.3	266
18/01/31	15:00	1.8	285
18/01/31	16:00	1.8	349
18/01/31	17:00	1.3	316
18/01/31	18:00	1.3	350
18/01/31	19:00	1.3	344
18/01/31	20:00	1.8	352

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)**
18/01/31	21:00	1.8	304
18/01/31	22:00	1.8	352
18/01/31	23:00	1.3	349

Appendix I

Impact Dolphin Monitoring Survey

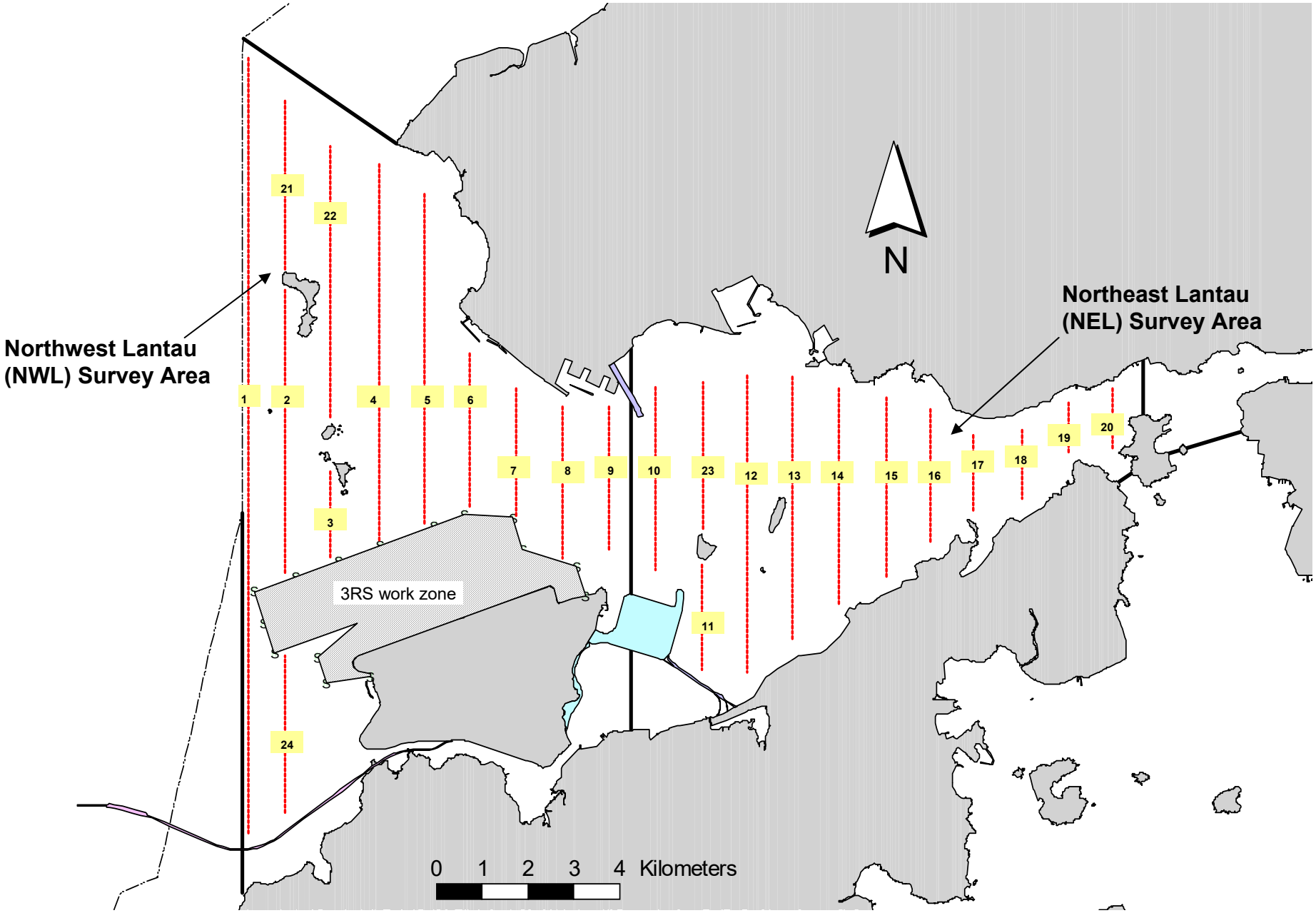


Figure 1. Transect Line Layout in Northwest and Northeast Lantau Survey Areas

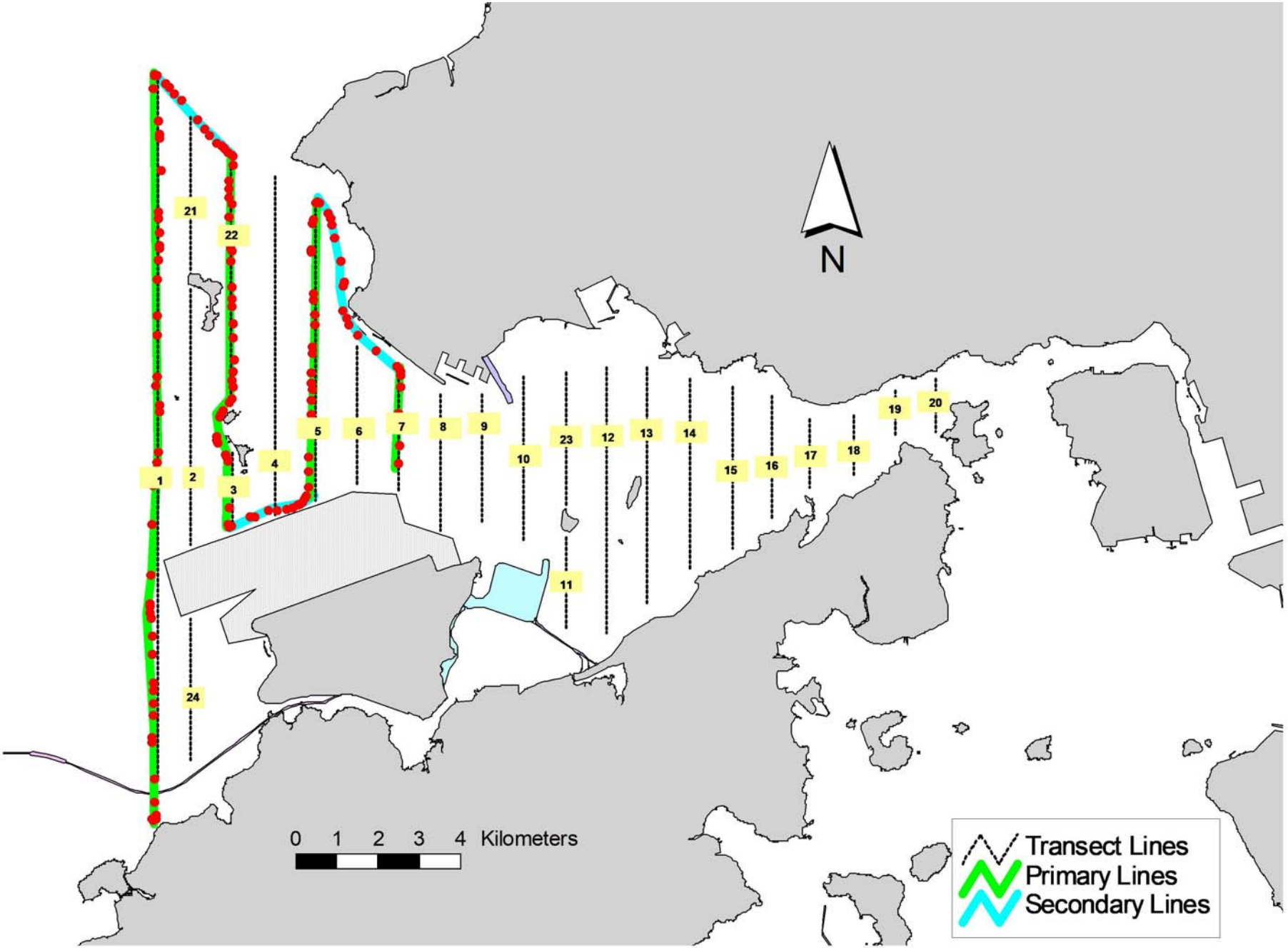


Figure 2. Survey Route on January 2nd, 2018 (from HKLR03 project)

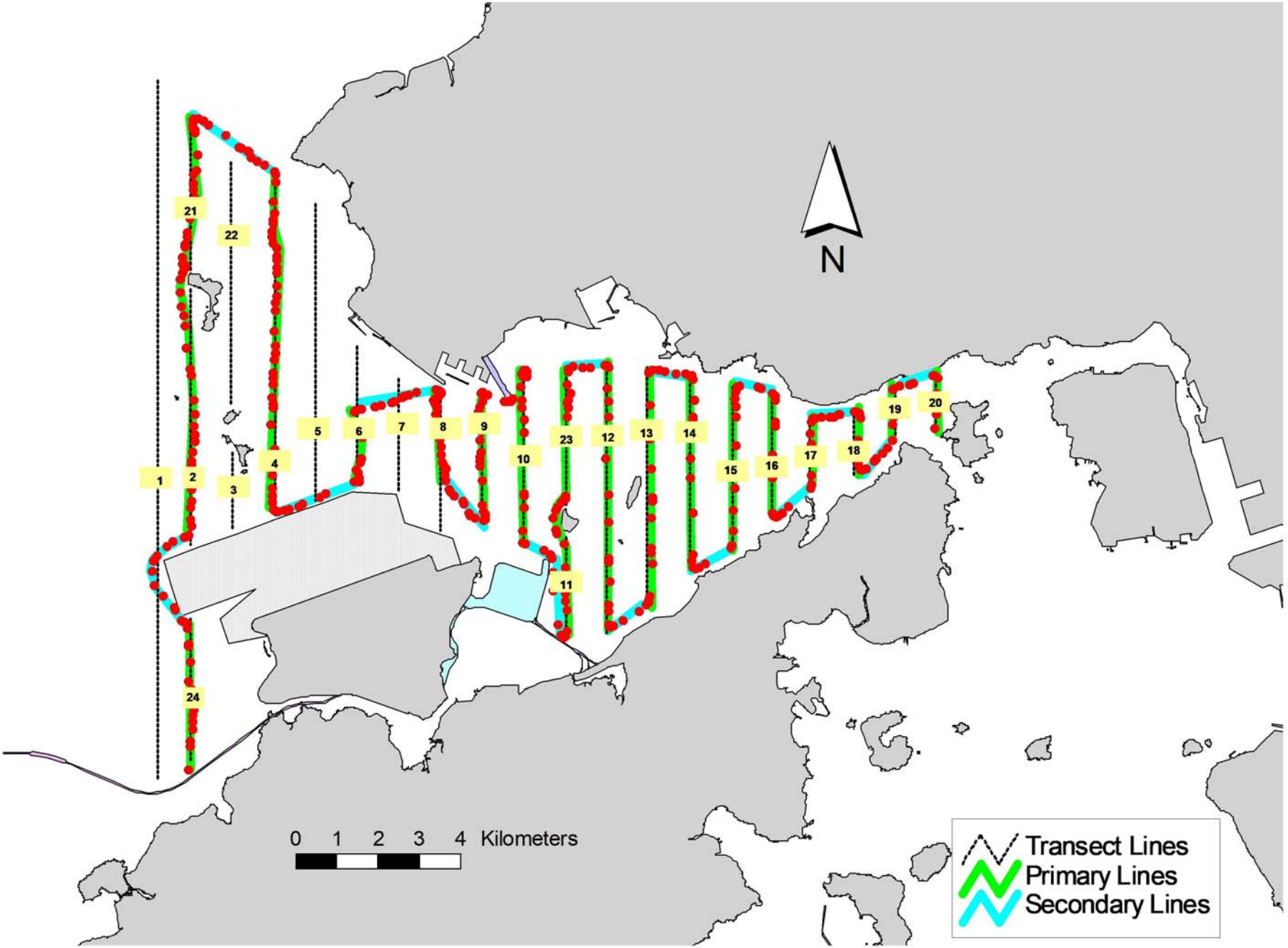


Figure 3. Survey Route on January 8th, 2018 (from HKLR03 project)

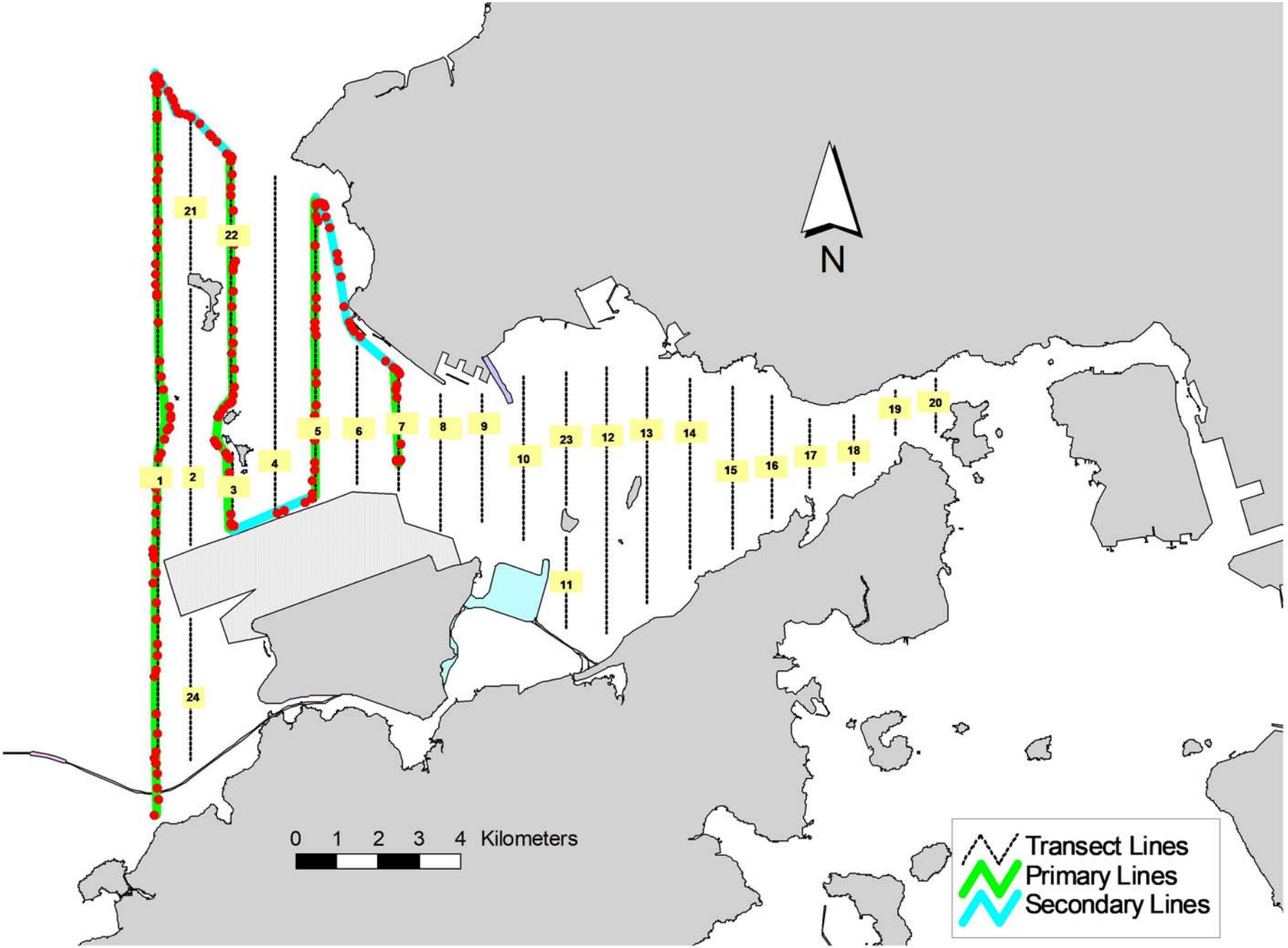


Figure 4. Survey Route on January 16th, 2018 (from HKLR03 project)

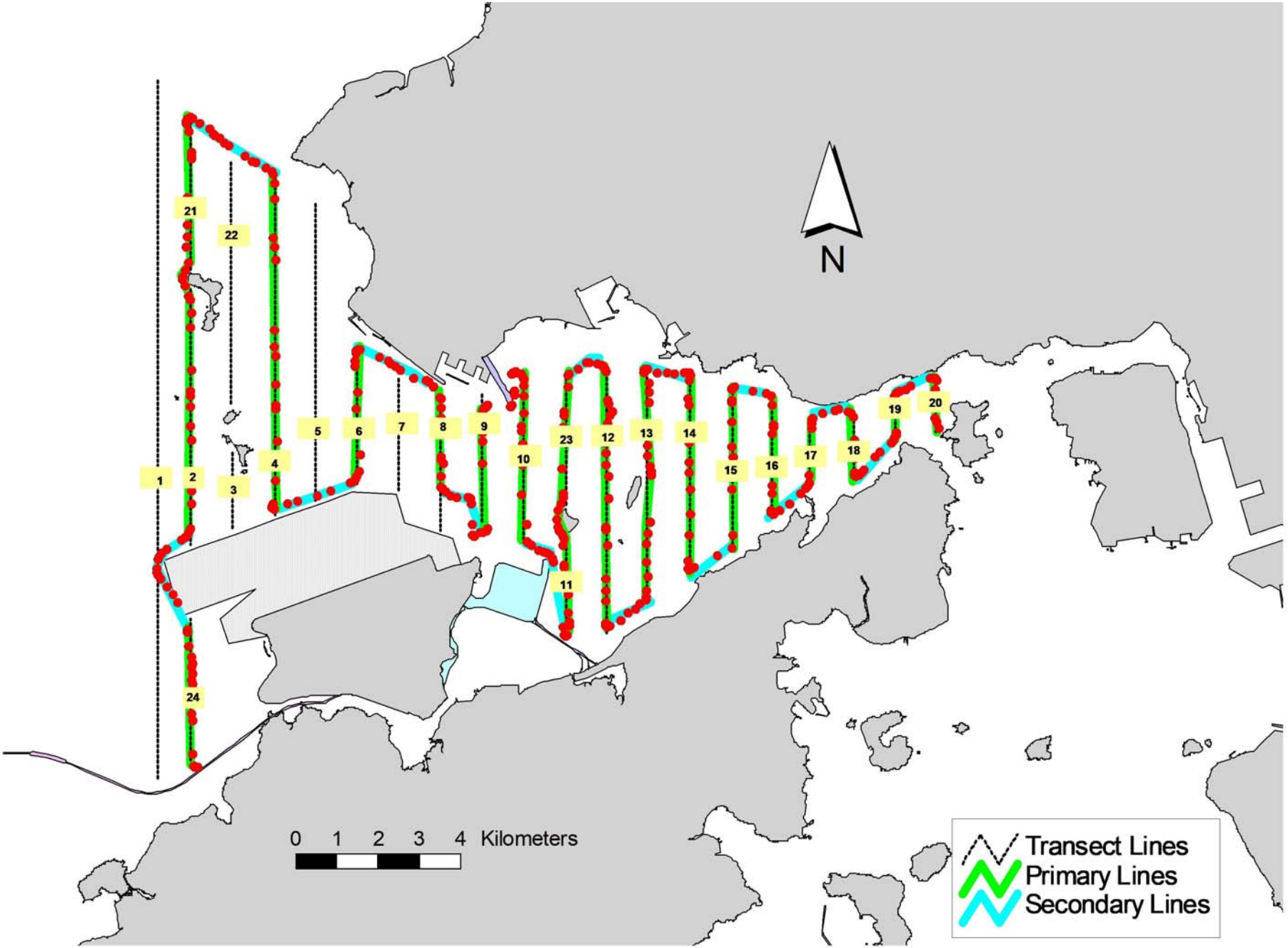


Figure 5. Survey Route on January 25th, 2018 (from HKLR03 project)

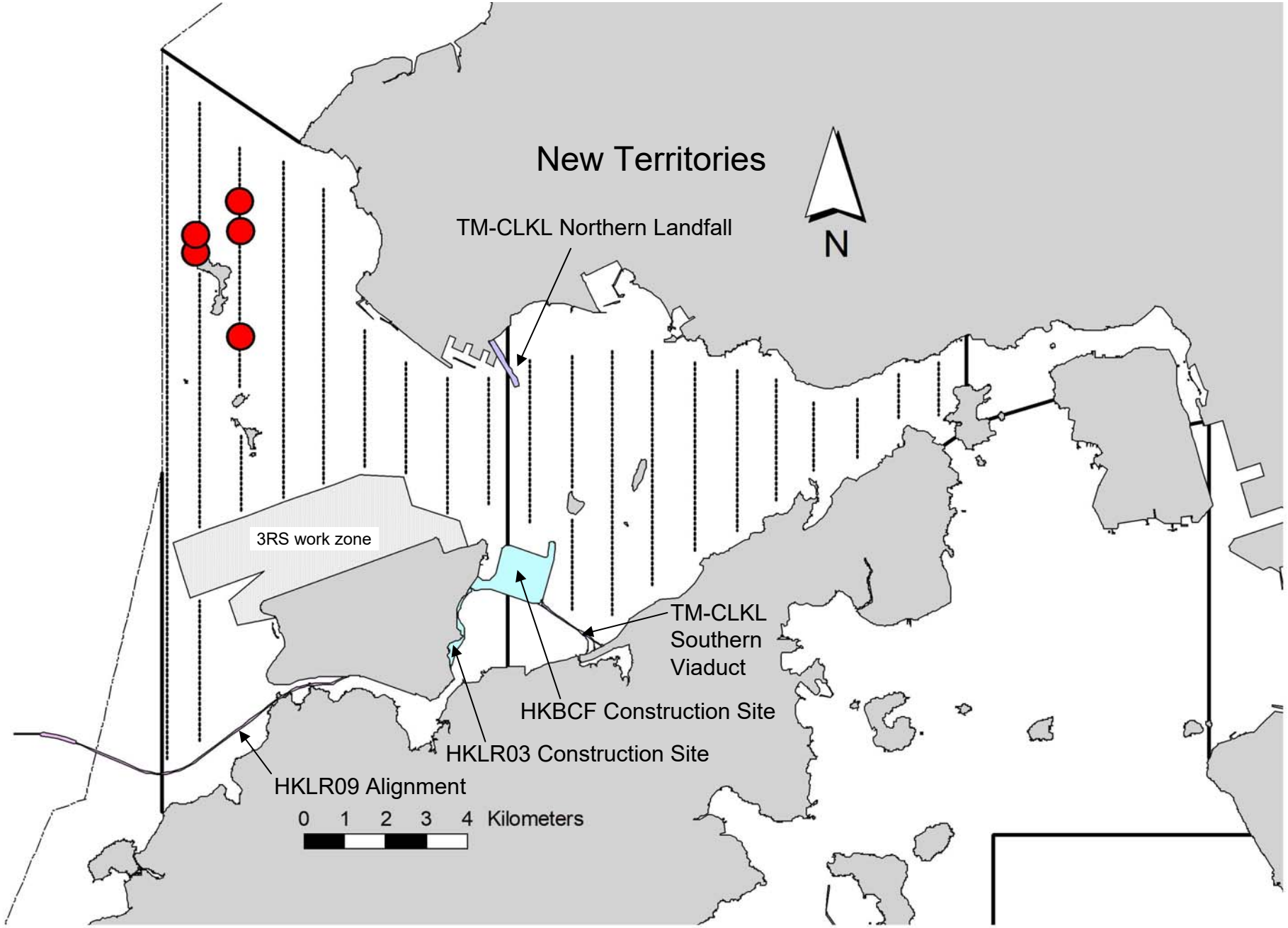


Figure 6. Distribution of Chinese White Dolphin Sightings during January 2018 HKLR03 Monitoring Surveys

Appendix I. HKLR03 Survey Effort Database (January 2018)

(Abbreviations: BEAU = Beaufort Sea State; P = Primary Line Effort; S = Secondary Line Effort)

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
2-Jan-18	NW LANTAU	2	27.79	WINTER	STANDARD36826	HKLR	P
2-Jan-18	NW LANTAU	3	3.97	WINTER	STANDARD36826	HKLR	P
2-Jan-18	NW LANTAU	2	10.12	WINTER	STANDARD36826	HKLR	S
2-Jan-18	NW LANTAU	3	0.60	WINTER	STANDARD36826	HKLR	S
8-Jan-18	NW LANTAU	3	3.47	WINTER	STANDARD36826	HKLR	P
8-Jan-18	NW LANTAU	4	9.99	WINTER	STANDARD36826	HKLR	P
8-Jan-18	NW LANTAU	5	14.91	WINTER	STANDARD36826	HKLR	P
8-Jan-18	NW LANTAU	4	6.80	WINTER	STANDARD36826	HKLR	S
8-Jan-18	NW LANTAU	5	3.73	WINTER	STANDARD36826	HKLR	S
8-Jan-18	NE LANTAU	2	6.71	WINTER	STANDARD36826	HKLR	P
8-Jan-18	NE LANTAU	3	29.79	WINTER	STANDARD36826	HKLR	P
8-Jan-18	NE LANTAU	4	0.64	WINTER	STANDARD36826	HKLR	P
8-Jan-18	NE LANTAU	2	5.70	WINTER	STANDARD36826	HKLR	S
8-Jan-18	NE LANTAU	3	7.36	WINTER	STANDARD36826	HKLR	S
16-Jan-18	NW LANTAU	2	27.70	WINTER	STANDARD36826	HKLR	P
16-Jan-18	NW LANTAU	3	5.45	WINTER	STANDARD36826	HKLR	P
16-Jan-18	NW LANTAU	2	8.15	WINTER	STANDARD36826	HKLR	S
16-Jan-18	NW LANTAU	3	2.70	WINTER	STANDARD36826	HKLR	S
25-Jan-18	NE LANTAU	2	17.96	WINTER	STANDARD36826	HKLR	P
25-Jan-18	NE LANTAU	3	18.90	WINTER	STANDARD36826	HKLR	P
25-Jan-18	NE LANTAU	2	7.54	WINTER	STANDARD36826	HKLR	S
25-Jan-18	NE LANTAU	3	4.20	WINTER	STANDARD36826	HKLR	S
25-Jan-18	NE LANTAU	4	1.40	WINTER	STANDARD36826	HKLR	S
25-Jan-18	NW LANTAU	2	7.23	WINTER	STANDARD36826	HKLR	P
25-Jan-18	NW LANTAU	3	17.92	WINTER	STANDARD36826	HKLR	P
25-Jan-18	NW LANTAU	4	2.72	WINTER	STANDARD36826	HKLR	P
25-Jan-18	NW LANTAU	2	4.02	WINTER	STANDARD36826	HKLR	S
25-Jan-18	NW LANTAU	3	6.52	WINTER	STANDARD36826	HKLR	S
25-Jan-18	NW LANTAU	4	1.95	WINTER	STANDARD36826	HKLR	S

Appendix II. HKLR03 Chinese White Dolphin Sighting Database (January 2018)

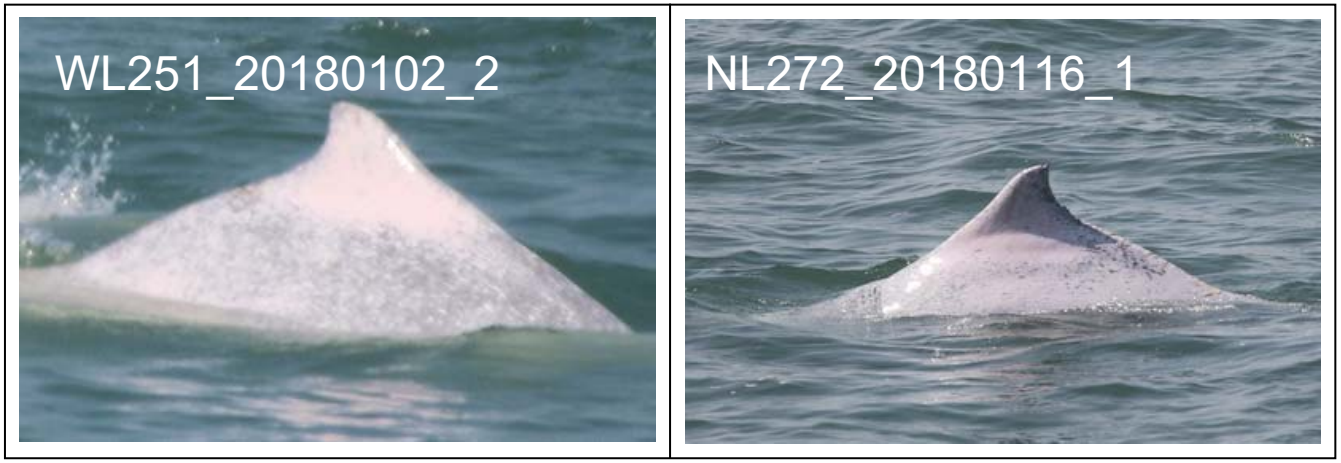
(Abberviations: STG# = Sighting Number; HRD SZ = Dolphin Herd Size; BEAU = Beaufort Sea State; PSD = Perpendicular Distance; BOAT ASSOC. = Fishing Boat Association; P/S: Sighting Made on Primary/Secondary Lines)

DATE	STG #	TIME	HRD SZ	AREA	BEAU	PSD	EFFORT	TYPE	NORTHING	EASTING	SEASON	BOAT ASSOC.	P/S
2-Jan-18	1	1141	8	NW LANTAU	2	93	ON	HKLR	827614	806458	WINTER	PURSE-SEINE	P
2-Jan-18	2	1204	8	NW LANTAU	2	285	ON	HKLR	828301	806418	WINTER	NONE	P
8-Jan-18	1	1105	2	NW LANTAU	5	42	ON	HKLR	827107	805345	WINTER	NONE	P
16-Jan-18	1	1137	1	NW LANTAU	2	309	ON	HKLR	825178	806453	WINTER	NONE	P
25-Jan-18	1	1440	1	NW LANTAU	3	237	ON	HKLR	827516	805356	WINTER	NONE	P

Appendix III. Individual dolphins identified during HKLR03 monitoring surveys in January 2018

ID#	DATE	STG#	AREA
NL33	02/01/18	2	NW LANTAU
NL98	02/01/18	1	NW LANTAU
NL136	02/01/18	1	NW LANTAU
NL182	02/01/18	1	NW LANTAU
NL226	02/01/18	1	NW LANTAU
NL269	02/01/18	1	NW LANTAU
NL272	16/01/18	1	NW LANTAU
NL286	02/01/18	2	NW LANTAU
NL311	02/01/18	1	NW LANTAU
NL322	02/01/18	2	NW LANTAU
WL251	02/01/18	2	NW LANTAU

Appendix IV. Photographs of Identified Individual Dolphins in January 2018 (HKLR03)



Appendix IV. (cont'd)

Appendix J

Event and Action Plan

Event and Action Plan for Impact Air Monitoring

	Action			
	ET [(a)]	**IEC [(a)]**	**SOR [(a)]**	**Contractor(s)**
Action Level Exceedance				
	1. Identify the source. 2. Repeat measurement to confirm finding. If two consecutive measurements exceed Action Level, the exceedance is then confirmed. 3. Inform the IEC and the SOR. 4. Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented. 5. If the exceedance is confirmed to be Project related after investigation, increase monitoring frequency to daily. 6. Discuss with the IEC and the Contractor on remedial actions required. 7. If exceedance continues, arrange meeting with the IEC and the SOR. 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET. 2. Check the Contractor's working method. 3. If the exceedance is confirmed to be Project related after investigation, discuss with the ET and the Contractor on possible remedial measures. 4. Advise the SOR on the effectiveness of the proposed remedial measures. 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Ensure remedial measures properly implemented.	1. Rectify any unacceptable practice 2. Amend working methods if appropriate 3. If the exceedance is confirmed to be Project related, submit proposals for remedial actions to IEC within 3 working days of notification 4. Implement the agreed proposals 5. Amend proposal if appropriate

	Action			
	ET [(a)]	**IEC [(a)]**	**SOR [(a)]**	**Contractor(s)**
Limit Level Exceedance				
	1. Identify the source. 2. Repeat measurement to confirm finding. If two consecutive measurements exceed Limit Level, the exceedance is then confirmed. 3. Inform the IEC, the SOR, the DEP and the Contractor. 4. Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented. 5. If the exceedance is confirmed to be Project related after investigation, increase monitoring frequency to daily. 6. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented. 7. Arrange meeting with the IEC and the SOR to discuss the remedial actions to be taken. 8. Assess effectiveness of the Contractor's remedial actions and keep the IEC, the DEP and the SOR informed of the results. 9. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET. 2. Check Contractor's working method. 3. If the exceedance is confirmed to be Project related after investigation, discuss with the ET and the Contractor on possible remedial measures. 4. Advise the SOR on the effectiveness of the proposed remedial measures. 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. If the exceedance is confirmed to be Project related after investigation, 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.	1. Take immediate action to avoid further exceedance. 2. If the exceedance is confirmed to be Project related after investigation, submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Amend proposal if appropriate. 5. Stop the relevant activity of works as determined by the SOR until the exceedance is abated.

Note: (a) ET – Environmental Team; IEC – Independent Environmental Checker; SOR – Supervising Officer's Representative

Event / Action Plan for Impact Dolphin Monitoring

EVENT	ACTION			
	ET	**IEC**	**SOR**	**Contractor**
Action Level	1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, SOR and Contractor; 5. Check monitoring data. 6. Review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary.	1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring results and finding with the ET and the Contractor.	1. Discuss monitoring with the IEC and any other measures proposed by the ET; 2. If SOR is satisfied with the proposal of any other measures, SOR to signify the agreement in writing on the measures to be implemented.	1. Inform the SOR and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the SOR; 3. Implement the agreed measures.
Limit Level	1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences;	1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring results and findings with the ET and the Contractor; 3. Attend the meeting to discuss with ET, SOR and	1. Attend the meeting to discuss with ET, IEC and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures. 2. If SOR is satisfied with the	1. Inform the SOR and confirm notification of the non-compliance in writing; 2. Attend the meeting to discuss with ET, IEC and SOR the necessity of additional dolphin monitoring and any other

EVENT	ACTION			
	ET	**IEC**	**SOR**	**Contractor**
	3. Identify source(s) of impact; 4. Inform the IEC, SOR and Contractor of findings; 5. Check monitoring data; 6. Repeat review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary. 7. If ET proves that the source of impact is caused by any of the construction activity by the works contract, ET to arrange a meeting to discuss with IEC, SOR and Contractor the necessity of additional dolphin monitoring and/or any other potential mitigation measures (e.g., consider to modify the perimeter silt curtain or consider to control/temporarily stop relevant construction activity etc.) and submit to IEC a proposal of additional dolphin monitoring and/or mitigation measures where necessary.	Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures. 4. Review proposals for additional monitoring and any other mitigation measures submitted by ET and Contractor and advise SOR of the results and findings accordingly. 5. Supervise / Audit the implementation of additional monitoring and/or any other mitigation measures and advise SOR the results and findings accordingly.	proposals for additional dolphin monitoring and/or any other mitigation measures submitted by ET and Contractor and verified by IEC, SOR to signify the agreement in writing on such proposals and any other mitigation measures. 3. Supervise the implementation of additional monitoring and/or any other mitigation measures.	potential mitigation measures. 3. Jointly submit with ET to IEC a proposal of additional dolphin monitoring and/or any other mitigation measures when necessary. 4. Implement the agreed additional dolphin monitoring and/or any other mitigation measures.

Note: ET – Environmental Team, IEC – Independent Environmental Checker, SOR – Supervising Officer's Representative

Appendix K

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

Table K1 *Cumulative Statistics on Exceedances*

Parameters	Level of Exceedance	Total No. recorded in this reporting month	Total No. recorded since project commencement
1-hr TSP	Action	6	62
	Limit	0	4
24-hr TSP	Action	0	7
	Limit	0	4
Water Quality	Action	0	20
	Limit	0	1
Impact Dolphin Monitoring	Action	0	9
	Limit	0	11

Table K2 *Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions*

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This Reporting Month (January 2018)	1	0	0
Total No. received since project commencement	16	1	0

Email message

Environmental Resources Management

16/F Berkshire House,
25 Westlands Road
Quarry Bay, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jovy.tam@erm.com

To	Ramboll Environ - Hong Kong, Limited (ENPO)
From	ERM- Hong Kong, Limited
Ref/Project number	Contract No. HY/2012/08 Tuen Mun–Chek Lap Kok Link–Northern Connection Sub-sea Tunnel Section
Subject	Notification of Exceedance for Air Quality Impact Monitoring
Date	10 January 2018

ERM

Dear Sir or Madam,

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

0212330_29December2017_24hrTSP_Station ASR10

One Action Level Exceedance was recorded on 29 December 2017.

Regards,

Mr Jovy Tam
Environmental Team Leader

ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK – NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Air Quality Impact Monitoring
Notification of Exceedance

Log No.	**0212330_29December2017_24hrTSP_Station ASR10** **[Total No. of Exceedances = 1]**	
Date	29 December 2017 (Measured) 5 January 2018 (Laboratory results received by ERM)	
Monitoring Station	ASR1, ASR5, ASR6, ASR10 and AQMS1	
Parameter(s) with Exceedance(s)	24-hr TSP	
Action Levels	24-hr TSP (µg/m³)	ASR1 = 213 ASR5 = 238 AQMS1 = 213 ASR6 = 238 ASR10 = 214
	1-hr TSP (µg/m³)	ASR1 = 331 ASR5 = 340 AQMS1 = 335 ASR6 = 338 ASR10 = 337
Limit Levels	1-hr TSP (µg/m³)	500
	24-hr TSP (µg/m³)	260
Measured Levels	Action Level Exceedance for 24-hr TSP is observed at ASR10 (250 µg/m3) during 1606 – 1606 hrs.	
Works Undertaken (at the time of monitoring event)	On 29 December 2017, box culvert extension was carried out at Works Area Portion N-A and Construction of Ventilation Building at Portion N-C.	
Possible Reason for Action or Limit Level Exceedance(s)	The exceedance is unlikely to be due to the Project, in view of the following: • According to the construction information provided by the Contractor, the majority of ground construction works on 29 and 30 December 2017 were box culvert extension at Works Area Portion N-A and Construction of Ventilation Building at Portions N-C. During the period of the land-based construction works, the Contractor has implemented the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual (e.g. water spraying on exposed soil within the Project site and associated works areas; exposed soil covered by tarpaulin sheets). • As reported in previous investigation report, the toilet near ASR10 is now under renovation. Dusty environment was observed during previous AQM inspection. The tentative completion date of the works will be on 12 February 2018. The exceedance is likely to be due to the renovation works at the toilet nearby. Based on the above, the exceedances are unlikely to be due to the project.	

Actions Taken / To Be Taken	Site inspection was carried out on 10 January 2018. Box culvert extension was carried out at Works Area Portion N-A and Construction of Ventilation Building was carried out at Portion N-C. Water spraying was applied frequently. Exposed soil at Portion N-A was covered by tarpaulin sheets and water spraying was also applied to prevent dust. Photo record is provided in Annex A. As dust suppression measures were properly implemented during the site inspections. Based on the above, no additional action is required. The Contractor has been reminded to implement the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual including watering to maintain all exposed road surfaces and dust sources wet, use of sprinklers for water spraying, covering the materials having the potential to create dust by clean tarpaulin, use of water truck and watering on all exposed soil within the Project site) throughout the construction period. The Contractor was also reminded to ensure all dust mitigating measures are provided at Portion N-A and Portion N-C, where the construction works are carried out.
Remarks	The monitoring results and the locations of air quality monitoring stations are attached.

ERM

Annex A Photos taken during site inspection

*Note: Photos taken on 10/1/2018

Water spraying was applied frequently during dry conditions.(Works Area Portion N-C)

Exposed soil at Portion N-A was covered by tarpaulin sheets. (Works Area Portion N-A)

ERM

Annex A Photos taken during site inspection

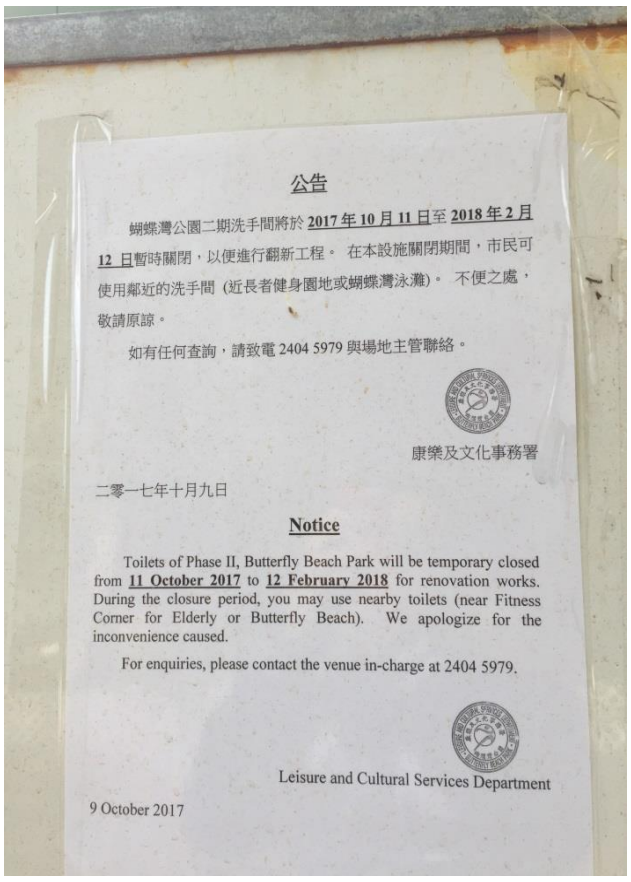
*Note: Photos taken on 10/1/2018

Water spraying was applied frequently during dry conditions.(Works Area Portion N-C)

Water spraying was applied frequently during dry conditions.(Works Area Portion N-B)

ERM

Annex A Photos taken during AQM inspection


公告

蝴蝶灣公園二期洗手間將於 2017 年 10 月 11 日至 2018 年 2 月 12 日暫時關閉，以便進行翻新工程。 在本設施關閉期間，市民可使用鄰近的洗手間 (近長者健身園地或蝴蝶灣泳灘)。 不便之處，敬請原諒。

如有任何查詢，請致電 2404 5979 與場地主管聯絡。

康樂及文化事務署

二零一七年十月九日

Notice

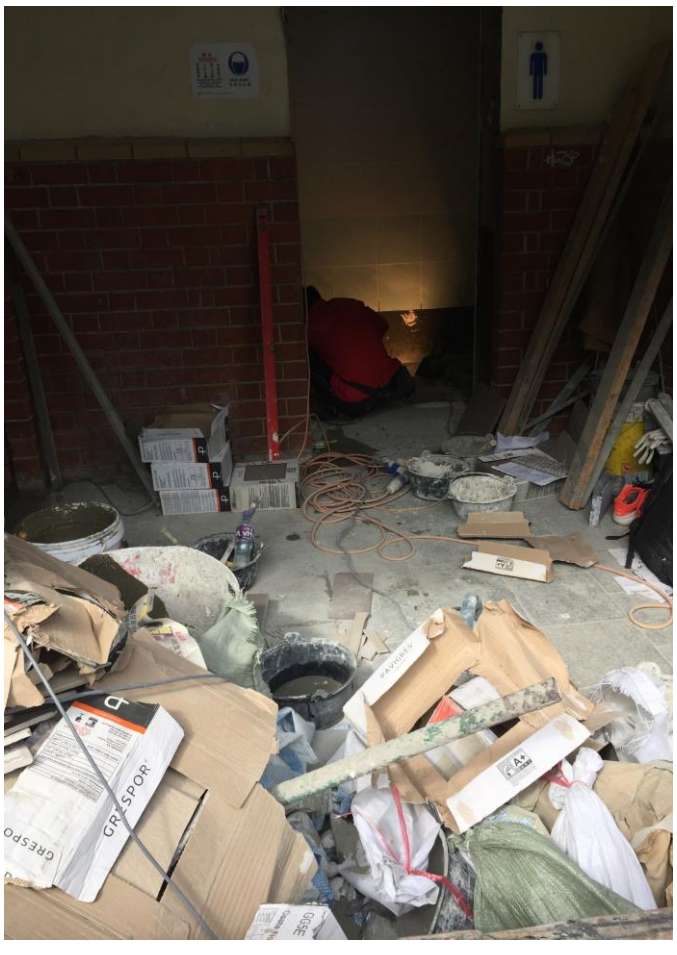
Toilets of Phase II, Butterfly Beach Park will be temporary closed from 11 October 2017 to 12 February 2018 for renovation works. During the closure period, you may use nearby toilets (near Fitness Corner for Elderly or Butterfly Beach). We apologize for the inconvenience caused.

For enquiries, please contact the venue in-charge at 2404 5979.

Leisure and Cultural Services Department

9 October 2017

Renovation works at the toilet near ASR10



Dusty environment was observed at ASR10. (Photos on 25/1/2018)

TMCLKL	HY/2012/08	29/12/2017	AQMS1	Sunny	13:43	1-hour TSP	158	ug/m3
TMCLKL	HY/2012/08	29/12/2017	AQMS1	Sunny	14:45	1-hour TSP	152	ug/m3
TMCLKL	HY/2012/08	29/12/2017	AQMS1	Sunny	15:47	1-hour TSP	99	ug/m3
TMCLKL	HY/2012/08	29/12/2017	ASR1	Sunny	13:32	1-hour TSP	124	ug/m3
TMCLKL	HY/2012/08	29/12/2017	ASR1	Sunny	14:34	1-hour TSP	144	ug/m3
TMCLKL	HY/2012/08	29/12/2017	ASR1	Sunny	15:36	1-hour TSP	134	ug/m3
TMCLKL	HY/2012/08	29/12/2017	ASR10	Sunny	13:00	1-hour TSP	66	ug/m3
TMCLKL	HY/2012/08	29/12/2017	ASR10	Sunny	14:02	1-hour TSP	104	ug/m3
TMCLKL	HY/2012/08	29/12/2017	ASR10	Sunny	15:04	1-hour TSP	130	ug/m3
TMCLKL	HY/2012/08	29/12/2017	ASR5	Sunny	13:21	1-hour TSP	165	ug/m3
TMCLKL	HY/2012/08	29/12/2017	ASR5	Sunny	14:23	1-hour TSP	184	ug/m3
TMCLKL	HY/2012/08	29/12/2017	ASR5	Sunny	15:25	1-hour TSP	187	ug/m3
TMCLKL	HY/2012/08	29/12/2017	ASR6	Sunny	13:10	1-hour TSP	136	ug/m3
TMCLKL	HY/2012/08	29/12/2017	ASR6	Sunny	14:12	1-hour TSP	210	ug/m3
TMCLKL	HY/2012/08	29/12/2017	ASR6	Sunny	15:14	1-hour TSP	194	ug/m3
TMCLKL	HY/2012/08	29/12/2017	AQMS1	Sunny	16:49	24-hour TSP	105	ug/m3
TMCLKL	HY/2012/08	29/12/2017	ASR1	Sunny	16:38	24-hour TSP	119	ug/m3
TMCLKL	HY/2012/08	29/12/2017	ASR10	Sunny	16:06	24-hour TSP	250	ug/m3
TMCLKL	HY/2012/08	29/12/2017	ASR5	Sunny	16:27	24-hour TSP	140	ug/m3
TMCLKL	HY/2012/08	29/12/2017	ASR6	Sunny	16:16	24-hour TSP	92	ug/m3

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)**
17/12/29	16:00	1.8	51
17/12/29	17:00	2.7	46
17/12/29	18:00	4	43
17/12/29	19:00	4	52
17/12/29	20:00	3.6	48
17/12/29	21:00	3.1	44
17/12/29	22:00	2.7	47
17/12/29	23:00	3.1	46
17/12/30	0:00	3.6	53
17/12/30	1:00	2.7	41
17/12/30	2:00	0.9	50
17/12/30	3:00	0.9	12
17/12/30	4:00	1.3	43
17/12/30	5:00	1.8	44
17/12/30	6:00	1.3	50
17/12/30	7:00	0.9	52
17/12/30	8:00	1.3	72
17/12/30	9:00	1.3	171
17/12/30	10:00	1.8	42
17/12/30	11:00	2.7	192
17/12/30	12:00	1.8	228
17/12/30	13:00	1.3	274
17/12/30	14:00	2.2	195
17/12/30	15:00	2.2	190
17/12/30	16:00	1.3	188
17/12/30	17:00	1.3	226

Email message

Environmental Resources Management

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Quarry Bay, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jovy.tam@erm.com

To	Ramboll Environ - Hong Kong, Limited (ENPO)
From	ERM- Hong Kong, Limited
Ref/Project number	Contract No. HY/2012/08 Tuen Mun–Chek Lap Kok Link–Northern Connection Sub-sea Tunnel Section
Subject	Notification of Exceedance for Air Quality Impact Monitoring
Date	13 January 2018

ERM

Dear Sir or Madam,

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

0212330_13January2017_1hrTSP_Station ASR5

One Action Level Exceedance was recorded on 13 January 2018.

Regards,

Mr Jovy Tam
Environmental Team Leader

ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK – NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Air Quality Impact Monitoring
Notification of Exceedance

Log No.	**0212330_13January2018_1hrTSP_Station ASR5** **[Total No. of Exceedances = 1]**	
Date	13 January 2018 (Measured) 29 January 2018 (Laboratory results received by ERM)	
Monitoring Station	ASR1, ASR5, ASR6, ASR10 and AQMS1	
Parameter(s) with Exceedance(s)	1-hr TSP	
Action Levels	24-hr TSP (µg/m³)	ASR1 = 213 ASR5 = 238 AQMS1 = 213 ASR6 = 238 ASR10 = 214
	1-hr TSP (µg/m³)	ASR1 = 331 ASR5 = 340 AQMS1 = 335 ASR6 = 338 ASR10 = 337
Limit Levels	1-hr TSP (µg/m³)	500
	24-hr TSP (µg/m³)	260
Measured Levels	Action Level Exceedance for 1-hr TSP is observed at ASR5 (345 µg/m3) during 0841 – 0941 hrs.	
Works Undertaken (at the time of monitoring event)	On 13 January 2018, box culvert extension was carried out at Works Area Portion N-A and Construction of Ventilation Building at Portion N-C.	
Possible Reason for Action or Limit Level Exceedance(s)	The exceedance is unlikely to be due to the Project, in view of the following: • According to the construction information provided by the Contractor, the majority of ground construction works on 13 January 2018 were box culvert extension at Works Area Portion N-A and Construction of Ventilation Building at Portions N-C. During the period of the land-based construction works, the Contractor has implemented the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual (e.g. water spraying on exposed soil within the Project site and associated works areas; exposed soil covered by tarpaulin sheets). • The exceedances are unlikely to be due to the project as dust suppression measures were implemented properly on site. Water spraying was applied. Exposed soil at Portion N-A was also covered by tarpaulin sheets. Photo record on 31 January 2018 is provided in Annex A. Based on the above, the exceedances are unlikely to be due to the project.	

Actions Taken / To Be Taken	Joint site inspection by SOR, Contractor, ENPO and ET was carried out on 31 January 2018. Box culvert extension was carried out at Works Area Portion N-A and Construction of Ventilation Building was carried out at Portion N-C. Exposed soil at Portion N-A was covered by tarpaulin sheets and water spraying was also applied to prevent dust. Photo record is provided in Annex A. Dust suppression measures were properly implemented during the site inspections. Based on the above, no additional action is required. The Contractor has been reminded to implement the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual including watering to maintain all exposed road surfaces and dust sources wet, use of sprinklers for water spraying, covering the materials having the potential to create dust by clean tarpaulin, use of water truck and watering on all exposed soil within the Project site) throughout the construction period. The Contractor was also reminded to ensure all dust mitigating measures are provided at Portion N-A and Portion N-C, where the construction works are carried out.
Remarks	The monitoring results and the locations of air quality monitoring stations are attached.

ERM

Annex A Photos taken during site inspection

*Note: Photos taken on 31/1/2018

Water spraying was applied on inert C&D waste to avoid dust impact during transportation. (Works Area Portion N-A)

Exposed soil at Portion N-A was covered by tarpaulin sheets. (Works Area Portion N-A)

Annex A Photos provided by the Contractor

*Note: Photos taken on 13/1/2018

Water spraying was applied frequently during dry condition. (Works Area Portion N-B)

Water spraying was applied frequently during dry condition. (Works Area Portion N-B)

TMCLKL	HY/2012/08	13/1/2018	AQMS1	Sunny	9:04	1-hour TSP	116	ug/m3
TMCLKL	HY/2012/08	13/1/2018	AQMS1	Sunny	10:06	1-hour TSP	92	ug/m3
TMCLKL	HY/2012/08	13/1/2018	AQMS1	Sunny	11:08	1-hour TSP	120	ug/m3
TMCLKL	HY/2012/08	13/1/2018	ASR1	Sunny	8:53	1-hour TSP	147	ug/m3
TMCLKL	HY/2012/08	13/1/2018	ASR1	Sunny	9:55	1-hour TSP	144	ug/m3
TMCLKL	HY/2012/08	13/1/2018	ASR1	Sunny	10:57	1-hour TSP	86	ug/m3
TMCLKL	HY/2012/08	13/1/2018	ASR10	Sunny	8:20	1-hour TSP	77	ug/m3
TMCLKL	HY/2012/08	13/1/2018	ASR10	Sunny	9:22	1-hour TSP	65	ug/m3
TMCLKL	HY/2012/08	13/1/2018	ASR10	Sunny	10:24	1-hour TSP	34	ug/m3
TMCLKL	HY/2012/08	13/1/2018	ASR5	Sunny	8:41	1-hour TSP	345	ug/m3
TMCLKL	HY/2012/08	13/1/2018	ASR5	Sunny	9:43	1-hour TSP	275	ug/m3
TMCLKL	HY/2012/08	13/1/2018	ASR5	Sunny	10:45	1-hour TSP	141	ug/m3
TMCLKL	HY/2012/08	13/1/2018	ASR6	Sunny	8:30	1-hour TSP	139	ug/m3
TMCLKL	HY/2012/08	13/1/2018	ASR6	Sunny	9:32	1-hour TSP	96	ug/m3
TMCLKL	HY/2012/08	13/1/2018	ASR6	Sunny	10:34	1-hour TSP	79	ug/m3
TMCLKL	HY/2012/08	13/1/2018	AQMS1	Sunny	12:10	24-hour TSP	50	ug/m3
TMCLKL	HY/2012/08	13/1/2018	ASR1	Sunny	11:59	24-hour TSP	62	ug/m3
TMCLKL	HY/2012/08	13/1/2018	ASR10	Sunny	11:26	24-hour TSP	48	ug/m3
TMCLKL	HY/2012/08	13/1/2018	ASR5	Sunny	11:47	24-hour TSP	78	ug/m3
TMCLKL	HY/2012/08	13/1/2018	ASR6	Sunny	11:36	24-hour TSP	65	ug/m3

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)**
18/01/13	0:00	0.9	95
18/01/13	1:00	0.9	12
18/01/13	2:00	0.9	10
18/01/13	3:00	1.3	16
18/01/13	4:00	0.9	350
18/01/13	5:00	0.9	2
18/01/13	6:00	0.9	46
18/01/13	7:00	1.3	12
18/01/13	8:00	1.8	48
18/01/13	9:00	1.3	51
18/01/13	10:00	1.3	56
18/01/13	11:00	1.8	50
18/01/13	12:00	3.1	130
18/01/13	13:00	3.1	116
18/01/13	14:00	3.6	128
18/01/13	15:00	2.7	135
18/01/13	16:00	2.2	134
18/01/13	17:00	2.7	95
18/01/13	18:00	2.7	66
18/01/13	19:00	1.3	51
18/01/13	20:00	0.9	47
18/01/13	21:00	1.3	5
18/01/13	22:00	2.2	93
18/01/13	23:00	3.1	71

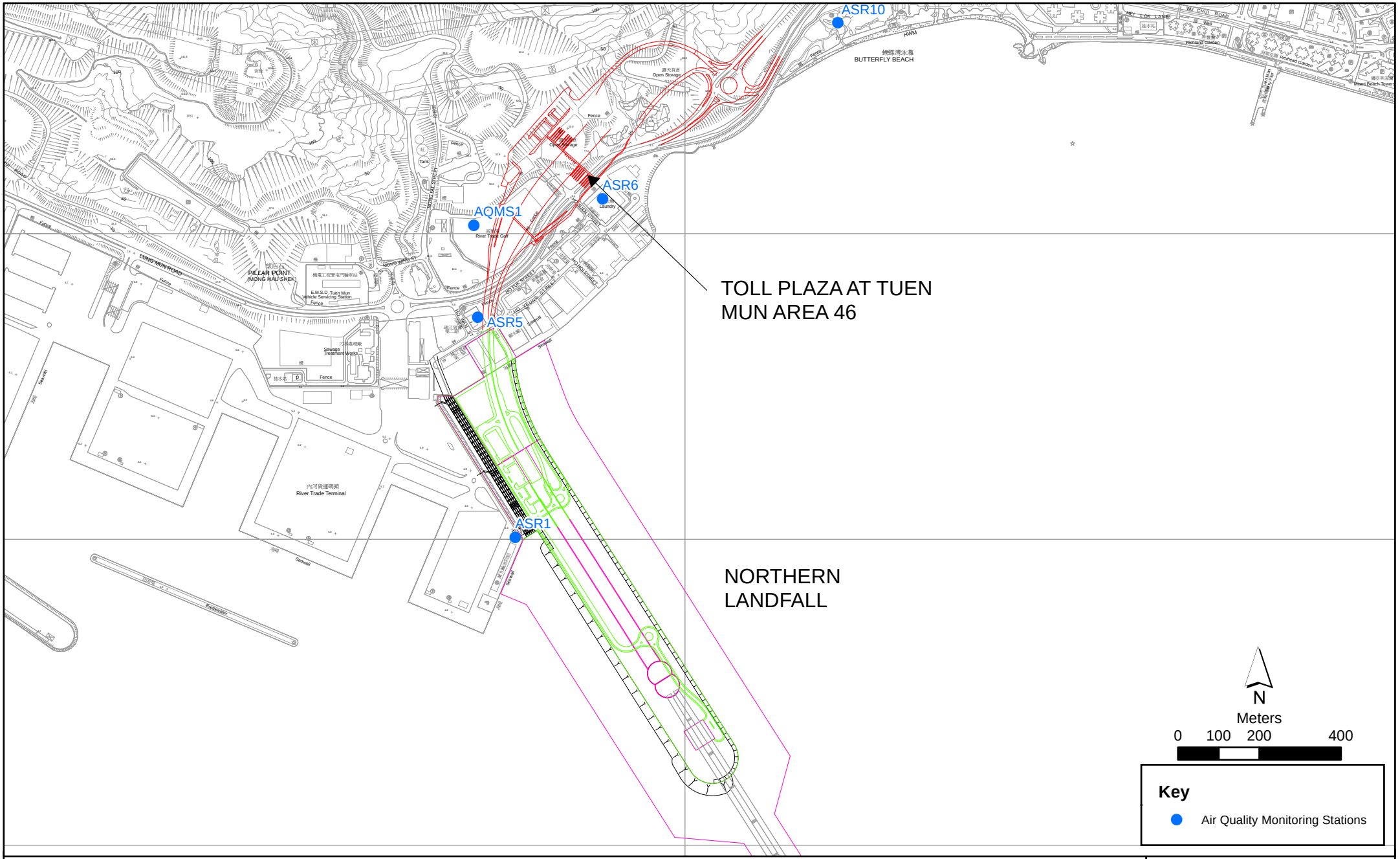


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring

File: T:\GIS\CONTRACT\0212330\Mxd\0212330_ASR_for_Enhanced_TSP_monitoring.mxd
Date: 21/2/2014

Environmental Resources Management

ERM

香港寶嘉 Dragages HongKong / Bouygues — Dragages - Bouygues Joint Venture	Contract No. HY/2012/08 Tuen Mun – Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section	**Weekly Water Spraying Record** **每週灑水檢查記錄**

Site Location 地盤位置: Northern Landfall

Date 日期: 08 Jan 2018 to 至 14 Jan 2018.

	Time 時間	Monday 星期一	Tuesday 星期二	Wednesday 星期三	Thursday 星期四	Friday 星期五	Saturday 星期六	Sunday 星期日
1	8:00 – 9:00	√	√	√	√	√	√	√
2	9:00 – 10:00	√	√	√	√	√	√	√
3	10:00 – 11:00	√	√	√	√	√	√	√
4	11:00 – 12:00	√	√	√	√	√	√	√
5	12:00 – 13:00	√	√	√	√	√	√	√
6	13:00 – 14:00	√	√	√	√	√	√	√
7	14:00 – 15:00	√	√	√	√	√	√	√
8	15:00 – 16:00	√	√	√	√	√	√	√
9	16:00 – 17:00	√	√	√	√	√	√	√
	Verified by Site Foreman 地盤科文簽署確認	[signature]	[signature]	[signature]	[signature]	[signature]	[signature]	[signature]

Night shift 夜間工作 (if necessary 如需要)								
	17:30 – 19:00							
	19:00 – 20:30							
	20:30 – 22:00							
	22:00 – 23:00							

*Please - tick (√) in the box if complete the spraying of water.
circle (O) in the box if it is raining.

*如果 - 已經完成灑水, 請於方格內加上剔號(√)。
是下雨天, 請於方格內加上圓圈(O)。

Remarks:

(1) Pursuant to EP Clause 3.16, the Permit Holder shall undertake watering at least 8 times per day on all exposed soil within the Project site and associated work areas in North Lantau area throughout the construction phase.
(2) Spraying position includes the main haul road, open area, slopes, stockpiles and any other dusty materials.
(3) If it is raining, no water spraying is needed.
(4) The no of spraying will be increased due to site condition.

備註:

(1) 根據環境許可證 3.16 條例，在整個施工階段內，許可證持有人須每天至少 8 次在北大嶼山區項目工地和相關的工作區域內的所有暴露土壤灑水。
(2) 灑水位置包括主要運輸道路，空曠地帶，斜坡，存料堆，以及任何其他產生塵埃物料。
(3) 當下雨時，地盤將不需要灑水。
(4) 如果地盤情況更改或有需要時，灑水次數會相應增加。

Email message

Environmental Resources Management

16/F Berkshire House,
25 Westlands Road
Quarry Bay, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jovy.tam@erm.com

To	Ramboll Environ - Hong Kong, Limited (ENPO)
From	ERM- Hong Kong, Limited
Ref/Project number	Contract No. HY/2012/08 Tuen Mun–Chek Lap Kok Link–Northern Connection Sub-sea Tunnel Section
Subject	Notification of Exceedance for Air Quality Impact Monitoring
Date	16 January 2018

ERM

Dear Sir or Madam,

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

0212330_16January2018_1hrTSP_Station ASR5
0212330_16January2018_1hrTSP_Station ASR5
0212330_16January2018_1hrTSP_Station ASR5

Three Action Level Exceedances were recorded on 16 January 2018.

Regards,

Mr Jovy Tam
Environmental Team Leader

ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK –
NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Air Quality Impact Monitoring
Notification of Exceedance

Log No.	**0212330_16January2018_1hrTSP_Station ASR5** **[Total No. of Exceedances = 3]**	
Date	16 January 2018 (Measured) 26 January 2018 (Laboratory results received by ERM)	
Monitoring Station	ASR1, ASR5, ASR6, ASR10 and AQMS1	
Parameter(s) with Exceedance(s)	1-hr TSP	
Action Levels	24-hr TSP (µg/m^3)	ASR1 = 213 ASR5 = 238 AQMS1 = 213 ASR6 = 238 ASR10 = 214
	1-hr TSP (µg/m^3)	ASR1 = 331 ASR5 = 340 AQMS1 = 335 ASR6 = 338 ASR10 = 337
Limit Levels	1-hr TSP (µg/m^3)	500
	24-hr TSP (µg/m^3)	260
Measured Levels	Action Level Exceedance for 1-hr TSP is observed at ASR5 (396 µg/m3) during 1322 – 1422 hrs. Action Level Exceedance for 1-hr TSP is observed at ASR5 (384 µg/m3) during 1424 – 1524 hrs. Action Level Exceedance for 1-hr TSP is observed at ASR5 (345 µg/m3) during 1526 – 1626 hrs.	
Works Undertaken (at the time of monitoring event)	On 16 January 2018, box culvert extension was carried out at Works Area Portion N-A and Construction of Ventilation Building at Portion N-C.	

Possible Reason for Action or Limit Level Exceedance(s)	The exceedance is unlikely to be due to the Project, in view of the following: • According to the construction information provided by the Contractor, the majority of ground construction works on 16 January 2018 were box culvert extension at Works Area Portion N-A and Construction of Ventilation Building at Portions N-C. During the period of the land-based construction works, the Contractor has implemented the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual (e.g. water spraying on exposed soil within the Project site and associated works areas; exposed soil covered by tarpaulin sheets). • The exceedances are unlikely to be due to the project as dust suppression measures were implemented properly on site. Water spraying was applied. Exposed soil at Portion N-A was also covered by tarpaulin sheets. Photo record on 31 January 2018 is provided in Annex A. • Whilst exceedances of Action Level was observed at ASR5, the 24-hr TSP level at the monitoring station (ASR5 = 197 μg/m3) on 16 January 2018 was in compliance with the Action and Limit Levels. • A meeting among SOR, ENPO, Contractor and ET regarding the continuously exceedances recorded (on 13 January and 16 January 2018) at ASR5 as per the Event and Action Plan under the EM&A Manual was held on 31 January 2018. It was noted that mitigation measures have been implemented to reduce the possible dust impact by the construction works. The Contractor was recommended to increase the frequency of water spraying and was reminded to cover all the stockpiles with tarpaulin sheets to prevent dust impact. Based on the above, the exceedances are unlikely to be due to the project.
Actions Taken / To Be Taken	Joint site inspection by SOR, Contractor, ET and ENPO was carried out on 31 January 2018. Box culvert extension was carried out at Works Area Portion N-A and Construction of Ventilation Building was carried out at Portion N-C. Exposed soil at Portion N-A was covered by tarpaulin sheets and water spraying was also applied to prevent dust. Photo record is provided in Annex A. Dust suppression measures were properly implemented during the site inspections. Based on the above, no additional action is required. The Contractor has been reminded to implement the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual including watering to maintain all exposed road surfaces and dust sources wet, use of sprinklers for water spraying, covering the materials having the potential to create dust by clean tarpaulin, use of water truck and watering on all exposed soil within the Project site) throughout the construction period. The Contractor was also reminded to ensure all dust mitigating measures are provided at Portion N-A and Portion N-C, where the construction works are carried out.
Remarks	The monitoring results and the locations of air quality monitoring stations are attached.

ERM

Annex A Photos taken during site inspection

*Note: Photos taken on 31/1/2018

Water spraying was applied on inert C&D waste to avoid dust impact during transportation. (Works Area Portion N-A)

Exposed soil at Portion N-A was covered by tarpaulin sheets. (Works Area Portion N-A)

ERM

Annex A Photos taken during site inspection

*Note: Photos taken on 31/1/2018

Water spraying was applied to prevent dust impact. (Works Area Portion N-A)

Water spraying was applied to prevent dust impact. (Works Area Portion N-A)

ERM

Annex A Photos provided by the Contractor

*Note: Photos taken on 16/1/2018

Water spraying was applied to prevent dust impact. (Works Area Portion N-A)

Water spraying was applied to prevent dust impact. (Works Area Portion N-B)

TMCLKL	HY/2012/08	16/1/2018	AQMS1	Sunny	13:45	1-hour TSP	198	ug/m3
TMCLKL	HY/2012/08	16/1/2018	AQMS1	Sunny	14:47	1-hour TSP	245	ug/m3
TMCLKL	HY/2012/08	16/1/2018	AQMS1	Sunny	15:49	1-hour TSP	197	ug/m3
TMCLKL	HY/2012/08	16/1/2018	ASR1	Sunny	13:34	1-hour TSP	192	ug/m3
TMCLKL	HY/2012/08	16/1/2018	ASR1	Sunny	14:36	1-hour TSP	192	ug/m3
TMCLKL	HY/2012/08	16/1/2018	ASR1	Sunny	15:38	1-hour TSP	192	ug/m3
TMCLKL	HY/2012/08	16/1/2018	ASR10	Sunny	13:00	1-hour TSP	153	ug/m3
TMCLKL	HY/2012/08	16/1/2018	ASR10	Sunny	14:02	1-hour TSP	198	ug/m3
TMCLKL	HY/2012/08	16/1/2018	ASR10	Sunny	15:04	1-hour TSP	169	ug/m3
TMCLKL	HY/2012/08	16/1/2018	ASR5	Sunny	13:22	1-hour TSP	396	ug/m3
TMCLKL	HY/2012/08	16/1/2018	ASR5	Sunny	14:24	1-hour TSP	384	ug/m3
TMCLKL	HY/2012/08	16/1/2018	ASR5	Sunny	15:26	1-hour TSP	345	ug/m3
TMCLKL	HY/2012/08	16/1/2018	ASR6	Sunny	13:11	1-hour TSP	269	ug/m3
TMCLKL	HY/2012/08	16/1/2018	ASR6	Sunny	14:13	1-hour TSP	287	ug/m3
TMCLKL	HY/2012/08	16/1/2018	ASR6	Sunny	15:15	1-hour TSP	265	ug/m3
TMCLKL	HY/2012/08	16/1/2018	AQMS1	Sunny	16:51	24-hour TSP	154	ug/m3
TMCLKL	HY/2012/08	16/1/2018	ASR1	Sunny	16:40	24-hour TSP	147	ug/m3
TMCLKL	HY/2012/08	16/1/2018	ASR10	Sunny	16:06	24-hour TSP	135	ug/m3
TMCLKL	HY/2012/08	16/1/2018	ASR5	Sunny	16:28	24-hour TSP	197	ug/m3
TMCLKL	HY/2012/08	16/1/2018	ASR6	Sunny	16:17	24-hour TSP	178	ug/m3

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)**
18/01/16	0:00	0.4	22
18/01/16	1:00	0.4	312
18/01/16	2:00	0.4	72
18/01/16	3:00	0.4	70
18/01/16	4:00	0.4	43
18/01/16	5:00	0.4	356
18/01/16	6:00	0.4	351
18/01/16	7:00	0.4	350
18/01/16	8:00	0.4	84
18/01/16	9:00	0.9	191
18/01/16	10:00	1.8	235
18/01/16	11:00	2.2	224
18/01/16	12:00	3.1	182
18/01/16	13:00	1.8	259
18/01/16	14:00	1.8	268
18/01/16	15:00	1.3	230
18/01/16	16:00	1.3	226
18/01/16	17:00	0.9	94
18/01/16	18:00	0.9	349
18/01/16	19:00	0.9	352
18/01/16	20:00	0	339
18/01/16	21:00	0.4	306
18/01/16	22:00	0.4	298
18/01/16	23:00	0	288

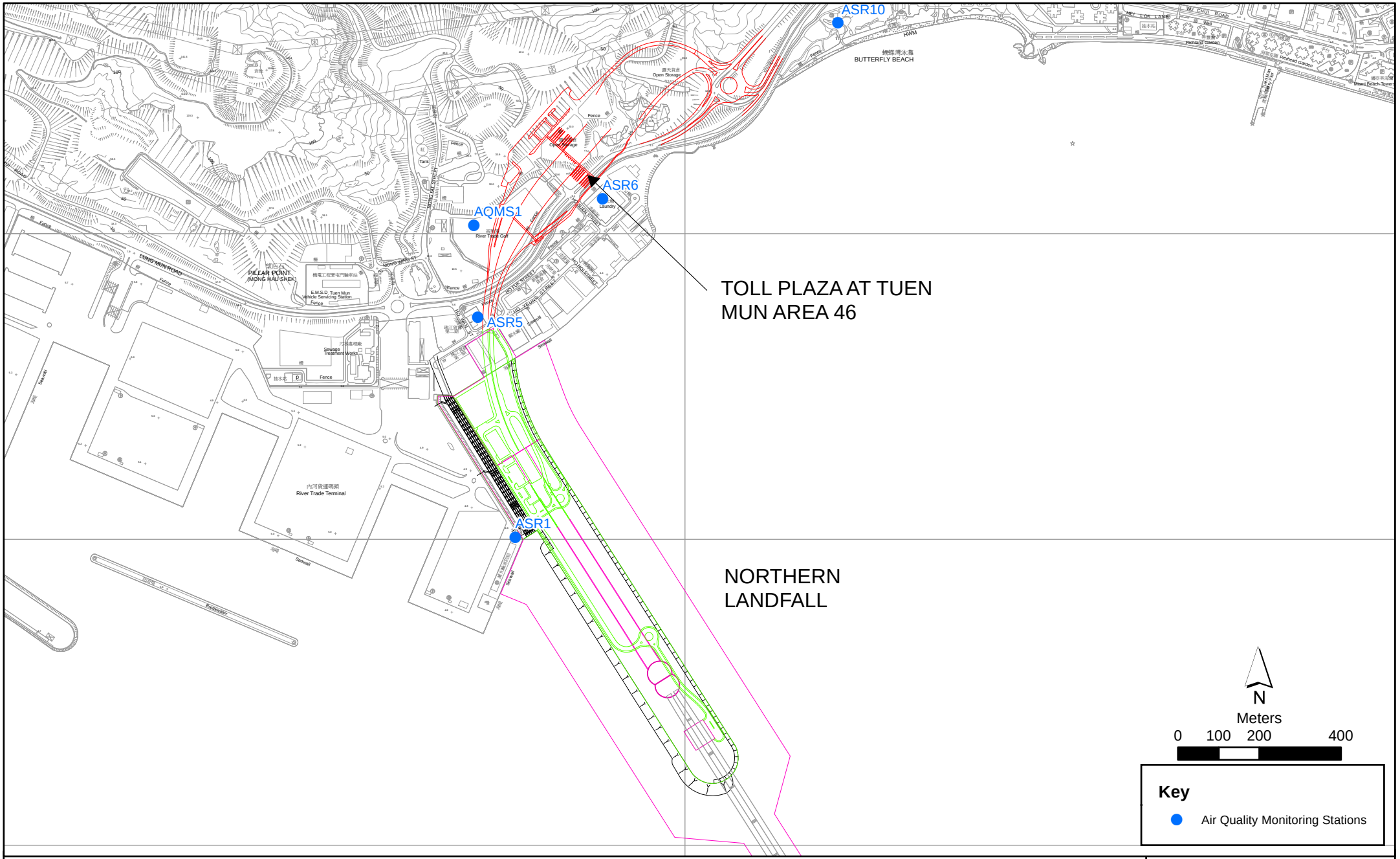


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring

File: T:\GIS\CONTRACT\0212330\Mxd\0212330_ASR_for_Enhanced_TSP_monitoring.mxd
Date: 21/2/2014

Environmental Resources Management

ERM

Dragages - Bouygues Joint Venture	Contract No. HY/2012/08 Tuen Mun – Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section	**Weekly Water Spraying Record** **每週灑水檢查記錄**

Site Location 地盤位置: Northern Landfall

Date 日期: 15 Jan 2018 to 至 21 Jan 2018

	Time 時間	Monday 星期一	Tuesday 星期二	Wednesday 星期三	Thursday 星期四	Friday 星期五	Saturday 星期六	Sunday 星期日
1	8:00 – 9:00	✓	✓	✓	✓	✓	✓	✓
2	9:00 – 10:00	✓	✓	✓	✓	✓	✓	✓
3	10:00 – 11:00	✓	✓	✓	✓	✓	✓	✓
4	11:00 – 12:00	✓	✓	✓	✓	✓	✓	✓
5	12:00 – 13:00	✓	✓	✓	✓	✓	✓	✓
6	13:00 – 14:00	✓	✓	✓	✓	✓	✓	✓
7	14:00 – 15:00	✓	✓	✓	✓	✓	✓	✓
8	15:00 – 16:00	✓	✓	✓	✓	✓	✓	✓
9	16:00 – 17:00	✓	✓	✓	✓	✓	✓	✓
	Verified by Site Foreman 地盤科文簽署確認							

Night shift 夜間工作 (if necessary 如需要)								
	17:30 – 19:00							
	19:00 – 20:30							
	20:30 – 22:00							
	22:00 – 23:00							

*Please - tick (√) in the box if complete the spraying of water.
circle (O) in the box if it is raining.

*如果 - 已經完成灑水, 請於方格內加上剔號(√)。
是下雨天, 請於方格內加上圓圈(O)。

Remarks:

(1) Pursuant to EP Clause 3.16, the Permit Holder shall undertake watering at least 8 times per day on all exposed soil within the Project site and associated work areas in North Lantau area throughout the construction phase.
(2) Spraying position includes the main haul road, open area, slopes, stockpiles and any other dusty materials.
(3) If it is raining, no water spraying is needed.
(4) The no of spraying will be increased due to site condition.

備註:

(1) 根據環境許可證 3. 16 條例，在整個施工階段內，許可證持有人須每天至少 8 次在北大嶼山區項目工地和相關的工作區域內的所有暴露土壤灑水。
(2) 灑水位置包括主要運輸道路，空曠地帶，斜坡，存料堆，以及任何其他產生塵埃物料。
(3) 當下雨時，地盤將不需要灑水。
(4) 如果地盤情況更改或有需要時，灑水次數會相應增加。

Email message

Environmental Resources Management

16/F Berkshire House,
25 Westlands Road
Quarry Bay, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jovy.tam@erm.com

To	Ramboll Hong Kong, Limited (ENPO)
From	ERM- Hong Kong, Limited
Ref/Project number	Contract No. HY/2012/08 Tuen Mun–Chek Lap Kok Link–Northern Connection Sub-sea Tunnel Section
Subject	Notification of Exceedance for Air Quality Impact Monitoring
Date	31 January 2018

ERM

Dear Sir or Madam,

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

0212330_22January2017_1hrTSP_Station ASR5
0212330_22January2017_1hrTSP_Station ASR5

Two Action Level Exceedances were recorded on 22 January 2018.

Regards,

Mr Jovy Tam
Environmental Team Leader

ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK – NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Air Quality Impact Monitoring
Notification of Exceedance

Log No.	**0212330_22January2018_1hrTSP_Station ASR5** **0212330_22January2018_1hrTSP_Station ASR5** **[Total No. of Exceedances = 2]**	
Date	22 January 2018 (Measured) 30 January 2018 (Laboratory results received by ERM)	
Monitoring Station	ASR1, ASR5, ASR6, ASR10 and AQMS1	
Parameter(s) with Exceedance(s)	1-hr TSP	
Action Levels	24-hr TSP (µg/m^3)	ASR1 = 213 ASR5 = 238 AQMS1 = 213 ASR6 = 238 ASR10 = 214
	1-hr TSP (µg/m^3)	ASR1 = 331 ASR5 = 340 AQMS1 = 335 ASR6 = 338 ASR10 = 337
Limit Levels	1-hr TSP (µg/m^3)	500
	24-hr TSP (µg/m^3)	260
Measured Levels	Action Level Exceedance for 1-hr TSP is observed at ASR5 (363 µg/m3) during 1340 – 1440 hrs. Action Level Exceedance for 1-hr TSP is observed at ASR5 (380 µg/m3) during 1442 – 1542 hrs.	
Works Undertaken (at the time of monitoring event)	On 22 January 2018, box culvert extension was carried out at Works Area Portion N-A and Construction of Ventilation Building at Portion N-C.	

Possible Reason for Action or Limit Level Exceedance(s)	The exceedance is unlikely to be due to the Project, in view of the following: • According to the construction information provided by the Contractor, the majority of ground construction works on 22 January 2018 were box culvert extension at Works Area Portion N-A and Construction of Ventilation Building at Portions N-C. During the period of the land-based construction works, the Contractor has implemented the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual (e.g. water spraying on exposed soil within the Project site and associated works areas; exposed soil covered by tarpaulin sheets). • The exceedances are unlikely to be due to the project as dust suppression measures were implemented properly on site. Water spraying was applied. Exposed soil at Portion N-A was also covered by tarpaulin sheets. Photo record on 31 January 2018 is provided in Annex A. • Whilst exceedances of Action Level was observed at ASR5, the 24-hr TSP level at the monitoring station (ASR5 = 150 μg/m3) on 22 January 2018 was in compliance with the Action and Limit Levels. • After the three consecutive 1-hour TSP action level exceedances on 16 January 2018 and two consecutive 1-hour TSP action level exceedances on 22 January 2018 at ASR5 were recorded, a meeting among SOR, ENPO, Contractor and ET regarding the continuously exceedances recorded (on 13 January and 16 January 2018) at ASR5 as per the Event and Action Plan under the EM&A Manual was held on 31 January 2018. It was noted that mitigation measures have been implemented to reduce the possible dust impact by the construction works. The Contractor was recommended to increase the frequency of water spraying and was reminded to cover all the stockpiles with tarpaulin sheets to prevent dust impact. Based on the above, the exceedances are unlikely to be due to the project.
Actions Taken / To Be Taken	Joint site inspection by SOR, Contractor, ET and ENPO were carried out on 31 January 2018. Box culvert extension was carried out at Works Area Portion N-A and Construction of Ventilation Building was carried out at Portion N-C. Exposed soil at Portion N-A was covered by tarpaulin sheets and water spraying was also applied to prevent dust. Photo record is provided in Annex A. Dust suppression measures were properly implemented during the site inspections. Based on the above, no additional action is required. The Contractor has been reminded to implement the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual including watering to maintain all exposed road surfaces and dust sources wet, use of sprinklers for water spraying, covering the materials having the potential to create dust by clean tarpaulin, use of water truck and watering on all exposed soil within the Project site) throughout the construction period. The Contractor was also reminded to ensure all dust mitigating measures are provided at Portion N-A and Portion N-C, where the construction works are carried out.
Remarks	The monitoring results and the locations of air quality monitoring stations are attached.

ERM

Annex A Photos taken during site inspection

*Note: Photos taken on 31/1/2018

Water spraying was applied on inert C&D waste to avoid dust impact during transportation. (Works Area Portion N-A)

Exposed soil at Portion N-A was covered by tarpaulin sheets. (Works Area Portion N-A)

ERM

Annex A Photos taken during site inspection

*Note: Photos taken on 31/1/2018

Water spraying was applied to prevent dust impact. (Works Area Portion N-A)

Water spraying was applied to prevent dust impact. (Works Area Portion N-A)

ERM

Annex A Photos provided by the Contractor

*Note: Photos taken on 22/1/2018

Water spraying was applied to prevent dust impact. (Works Area Portion N-B)

Exposed soil at Portion N-A was covered by tarpaulin sheets. (Works Area Portion N-A)

TMCLKL	HY/2012/08	22/1/2018	AQMS1	Sunny	14:03	1-hour TSP	295	ug/m3
TMCLKL	HY/2012/08	22/1/2018	AQMS1	Sunny	15:05	1-hour TSP	324	ug/m3
TMCLKL	HY/2012/08	22/1/2018	AQMS1	Sunny	16:07	1-hour TSP	262	ug/m3
TMCLKL	HY/2012/08	22/1/2018	ASR1	Sunny	13:52	1-hour TSP	262	ug/m3
TMCLKL	HY/2012/08	22/1/2018	ASR1	Sunny	14:54	1-hour TSP	253	ug/m3
TMCLKL	HY/2012/08	22/1/2018	ASR1	Sunny	15:56	1-hour TSP	224	ug/m3
TMCLKL	HY/2012/08	22/1/2018	ASR10	Sunny	13:18	1-hour TSP	243	ug/m3
TMCLKL	HY/2012/08	22/1/2018	ASR10	Sunny	14:20	1-hour TSP	249	ug/m3
TMCLKL	HY/2012/08	22/1/2018	ASR10	Sunny	15:22	1-hour TSP	206	ug/m3
TMCLKL	HY/2012/08	22/1/2018	ASR5	Sunny	13:40	1-hour TSP	363	ug/m3
TMCLKL	HY/2012/08	22/1/2018	ASR5	Sunny	14:42	1-hour TSP	380	ug/m3
TMCLKL	HY/2012/08	22/1/2018	ASR5	Sunny	15:44	1-hour TSP	305	ug/m3
TMCLKL	HY/2012/08	22/1/2018	ASR6	Sunny	13:29	1-hour TSP	322	ug/m3
TMCLKL	HY/2012/08	22/1/2018	ASR6	Sunny	14:31	1-hour TSP	310	ug/m3
TMCLKL	HY/2012/08	22/1/2018	ASR6	Sunny	15:33	1-hour TSP	273	ug/m3
TMCLKL	HY/2012/08	22/1/2018	AQMS1	Sunny	17:09	24-hour TSP	110	ug/m3
TMCLKL	HY/2012/08	22/1/2018	ASR1	Sunny	16:58	24-hour TSP	101	ug/m3
TMCLKL	HY/2012/08	22/1/2018	ASR10	Sunny	16:24	24-hour TSP	72	ug/m3
TMCLKL	HY/2012/08	22/1/2018	ASR5	Sunny	16:46	24-hour TSP	150	ug/m3
TMCLKL	HY/2012/08	22/1/2018	ASR6	Sunny	16:35	24-hour TSP	118	ug/m3

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)**
18/01/22	0:00	0.4	300
18/01/22	1:00	0	305
18/01/22	2:00	0	306
18/01/22	3:00	0.4	312
18/01/22	4:00	0	331
18/01/22	5:00	0	306
18/01/22	6:00	0	315
18/01/22	7:00	0	310
18/01/22	8:00	0.4	119
18/01/22	9:00	0.4	169
18/01/22	10:00	1.3	228
18/01/22	11:00	1.3	231
18/01/22	12:00	1.8	229
18/01/22	13:00	1.3	256
18/01/22	14:00	0.9	251
18/01/22	15:00	1.3	62
18/01/22	16:00	0.9	65
18/01/22	17:00	0.9	70
18/01/22	18:00	1.8	61
18/01/22	19:00	1.8	66
18/01/22	20:00	1.8	59
18/01/22	21:00	0.9	72
18/01/22	22:00	0.9	71
18/01/22	23:00	0.9	93

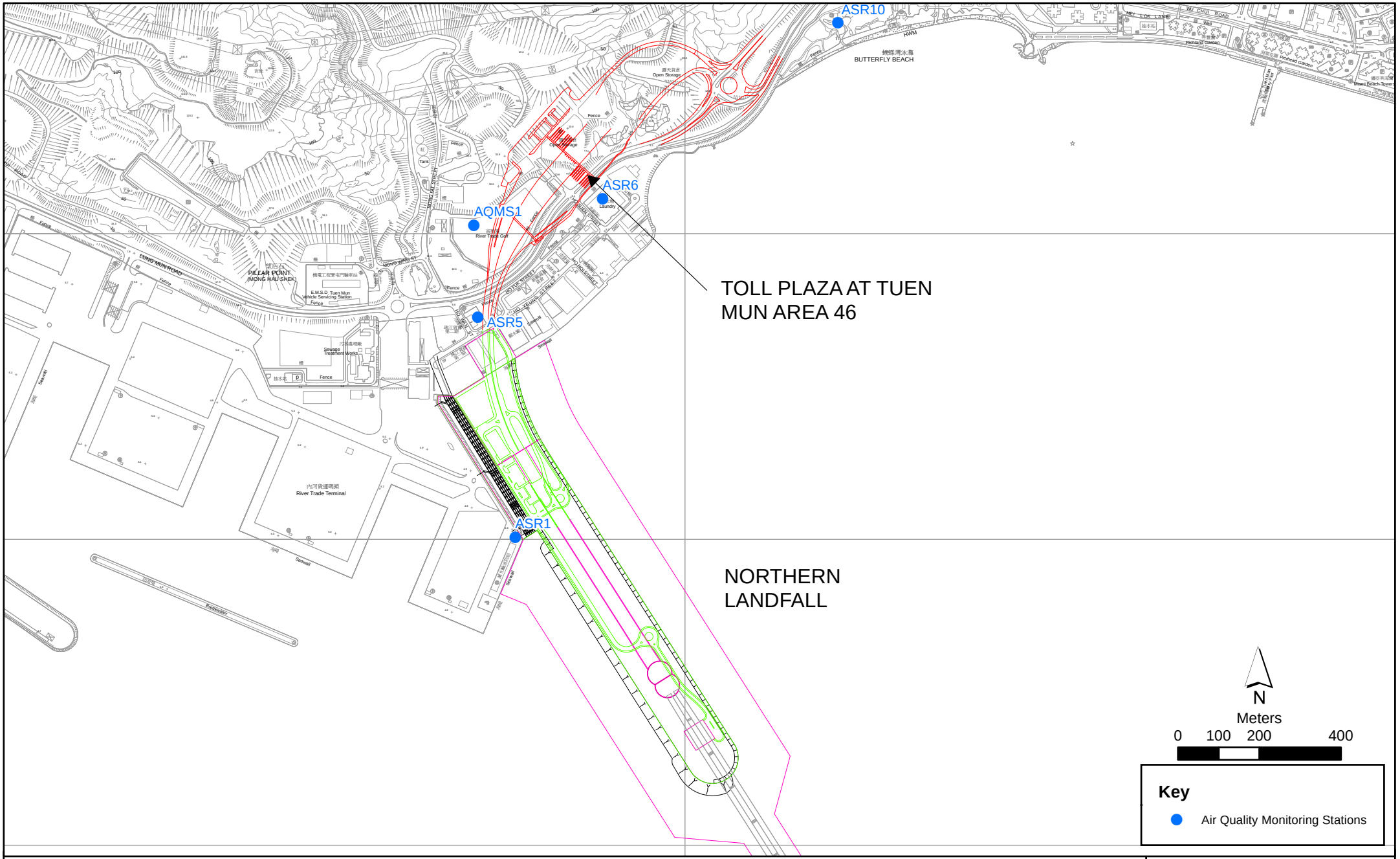


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring

File: T:\GIS\CONTRACT\0212330\Mxd\0212330_ASR_for_Enhanced_TSP_monitoring.mxd
Date: 21/2/2014

Environmental Resources Management

ERM

Dragages · Bouygues Joint Venture 寶嘉 · 布依格聯營	Contract No. HY/2012/08 Tuen Mun – Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section	**Weekly Water Spraying Record** **每週灑水檢查記錄**

Site Location 地盤位置: Northern Landfall

Date 日期: 22 Jan 2018 to 至 28 Jan 2018

	Time 時間	Monday 星期一	Tuesday 星期二	Wednesday 星期三	Thursday 星期四	Friday 星期五	Saturday 星期六	Sunday 星期日
1	8:00 – 9:00	√						
2	9:00 – 10:00							
3	10:00 – 11:00							
4	11:00 – 12:00							
5	12:00 – 13:00							
6	13:00 – 14:00							
7	14:00 – 15:00							
8	15:00 – 16:00							
9	16:00 – 17:00							
	Verified by Site Foreman 地盤科文簽署確認							

Night shift 夜間工作 (if necessary 如需要)								
	17:30 – 19:00							
	19:00 – 20:30							
	20:30 – 22:00							
	22:00 – 23:00							

*Please - tick (√) in the box if complete the spraying of water.
circle (O) in the box if it is raining.

*如果 - 已經完成灑水, 請於方格內加上剔號(√)。
是下雨天, 請於方格內加上圓圈(O)。

Remarks:

(1) Pursuant to EP Clause 3.16, the Permit Holder shall undertake watering at least 8 times per day on all exposed soil within the Project site and associated work areas in North Lantau area throughout the construction phase.
(2) Spraying position includes the main haul road, open area, slopes, stockpiles and any other dusty materials.
(3) If it is raining, no water spraying is needed.
(4) The no of spraying will be increased due to site condition.

備註:

(1) 根據環境許可證 3. 16 條例，在整個施工階段內，許可證持有人須每天至少 8 次在北大嶼山區項目工地和相關的工作區域內的所有暴露土壤灑水。
(2) 灑水位置包括主要運輸道路，空曠地帶，斜坡，存料堆，以及任何其他產生塵埃物料。
(3) 當下雨時，地盤將不需要灑水。
(4) 如果地盤情況更改或有需要時，灑水次數會相應增加。

Contract No. HY/2012/08
Tuen Mun – Chek Lap Kok Link –
Northern Connection Sub-sea Tunnel Section

ENVIRONMENTAL COMPLAINT/ENQUIRY INVESTIGATION REPORT

Our Reference: 0212330_Complaint LOG_20180130_15

Basic Information of Complaint/Enquiry

Reference Number:	Not disclosed
Date of Complaint/Enquiry Received	30/1/2018
Location of Complaint/Enquiry	Tuen Mun Pier
Nature of Complaint/Enquiry	Air, noise and light pollution
Complaint/Enquiry Received by	EPD
Via	Email
Complainant/Enquirer	Not disclosed

Details of Complaint/Enquiry

On 30 January 2018, a complaint case regarding noise and light pollution at midnight and air pollution in daylight hours from the River Trade Terminal and Northern Landfall of Tuen Mun - Chek Lap Kok Link (TMCLKL) opposite Tuen Mun Pier was received by EPD.

The complainant enquiries:

1. Why there was construction works at 12:00am and from 3:00am to 5:00am?
2. The noise before 11:00pm.
3. The extensive lighting at early morning.
4. No water spraying was applied and dust was dispersed to Tuen Mun Pier
5. Barges causing dust impact at Tuen Mun Pier.

The SOR, the Environmental Team (ET) and the Contractor (DBJV) received the complaint notification from IEC on 30 January 2018.

Investigation Report

Upon receiving the case notification from IEC on 30 January 2018, the Contractor had promptly checked the construction schedule at Northern Landfall of January 2018.

During daylight hours, the major ground construction works carried out were Box Culvert Extension at Portion N-A and Construction of Ventilation Building at Portion N-C. During night-time and mid-night hours, there were no ground construction works.

Joint site investigation was conducted with IEC and SOR at 9: 30 am on 31 January 2018. No dust impact was observed. The Contractor has implemented the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual (e.g. water spraying on exposed soil within the Project site and associated works areas; exposed soil covered by tarpaulin sheets). Night-time inspection on 1 February 2018 was carried out by ET at the site and Tuen Mun Pier to investigate the noise impact and light pollution problem. No significant noise impact was observed. Consider the distance between the site and Tuen Mun Pier (Around 2km), the residents near Tuen Mun Pier are not likely to be affected by the noise, if any, generated by the construction activities on site. The construction activities were also complied with the conditions specified in the Construction Noise Permit. Night-time lighting was observed. Photo record of the inspection is provided in Annex A.

According to the Contractor, night-time lighting is essential to illuminate the main access road in order to provide a safe and efficient working environment for the site staff. Traffic routes within the site were also illuminated for the transportation of construction materials. As there was no ground construction works at night-time, noise impact was not expected and was not observed during the inspection. The Contractor also reported that they have only one barge working at daylight hours near the site which is responsible for the transportation of C&D wastes. Most barges near the site are not working under this Contract. Photo record is provided in Annex A.

Based on the above, the complaint is not valid.

Mitigation Measures and Follow-Up Actions Recommended to/ Undertaken by Contractor

The Contractor has been reminded to implement all relevant mitigation measures of light impact to avoid causing visual impact.

The following mitigation measures have been implemented by the Contractor to minimize the light pollution and visual impact during night-time:

1. All lights shall not project skyward. For those lighting that may spill out into the sky, they should be capped at the top to avoid causing glare.

2. Avoid over-illumination. Trim down any unnecessary lighting on site.

3. All lighting should be directed to the site only.

4. Brief the frontline staff to switch off unnecessary lighting on site.

The Contractor are also recommended to fit caps at the lightings at STP to restrict the direction of beam and area of illumination and adopt soft roadside light.

The Contractor has been reminded to adhere strictly to implement all relevant mitigation measures of air quality impact recommended or specified in the EP (EP-354/2009/D), the approved EIA and Updated EM&A Manual to avoid causing dust impact:

1. Watering to maintain all exposed road surfaces and dust sources wet.

2. Use of wheel washing facilities.

3. Use of sprinklers for water spraying.

4. Materials having the potential to create dust covered by a clean tarpaulin.

5. use of water truck and watering on all exposed soil within the Project site

The Contractor has also been reminded to comply with the conditions specified in the Construction Noise Permit.

Date of File Closed : 14 February 2018

Approved and Filed by:

(Jovy Tam, ET Leader)
Date: 14 February 2018

ERM

Annex A Photo taken during the site inspection on 31 January 2018

Direction of the lighting at STP is adjusted towards the ground.

Direction of the lighting at STP is adjusted towards the ground.

ERM

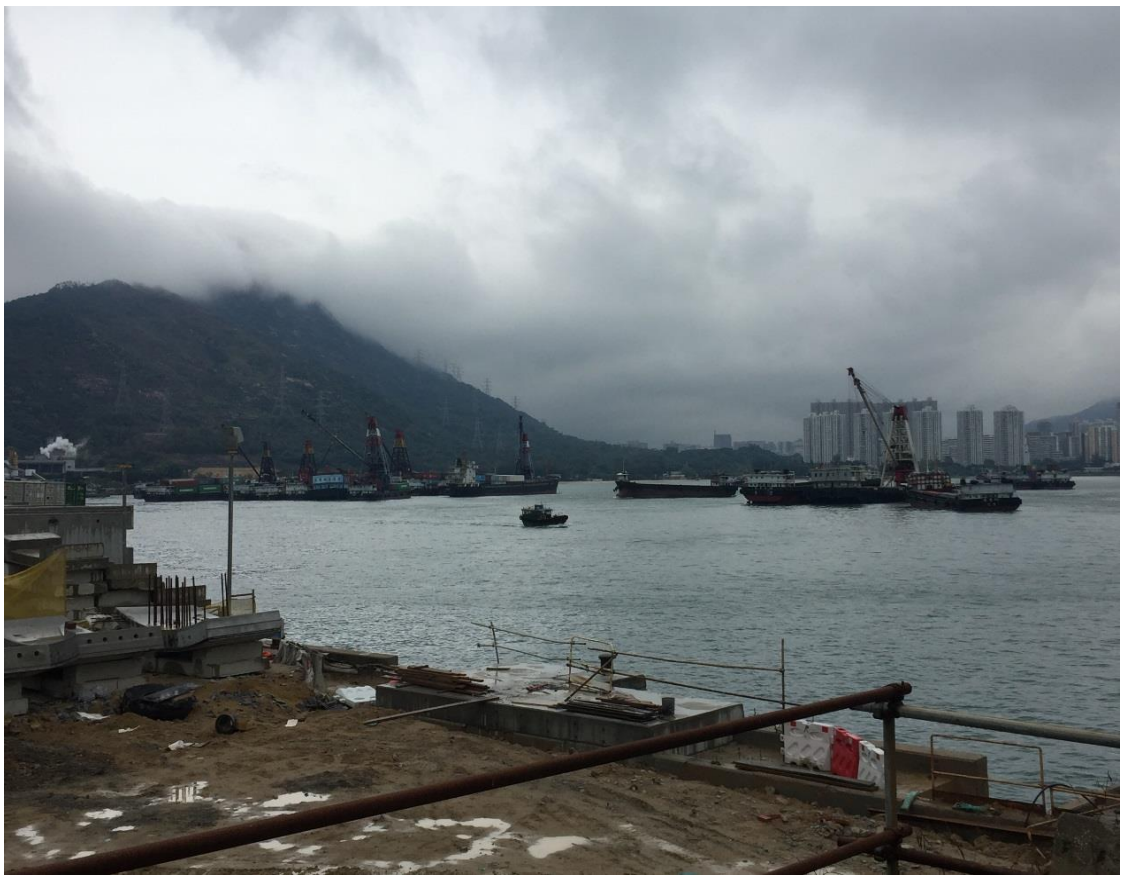
Annex A Photo taken during the site inspection on 31 January 2018

Water spraying is applied.

Exposed soil is covered by tarpaulin sheets

ERM

Annex A Photo taken during the site inspection on 31 January 2018



Barges not under this Contract are observed near the site

Barges not under this Contract are observed near the site

ERM

Annex A Photo taken during the site inspection on 31 January 2018

Barge for transportation of C&D material

ERM

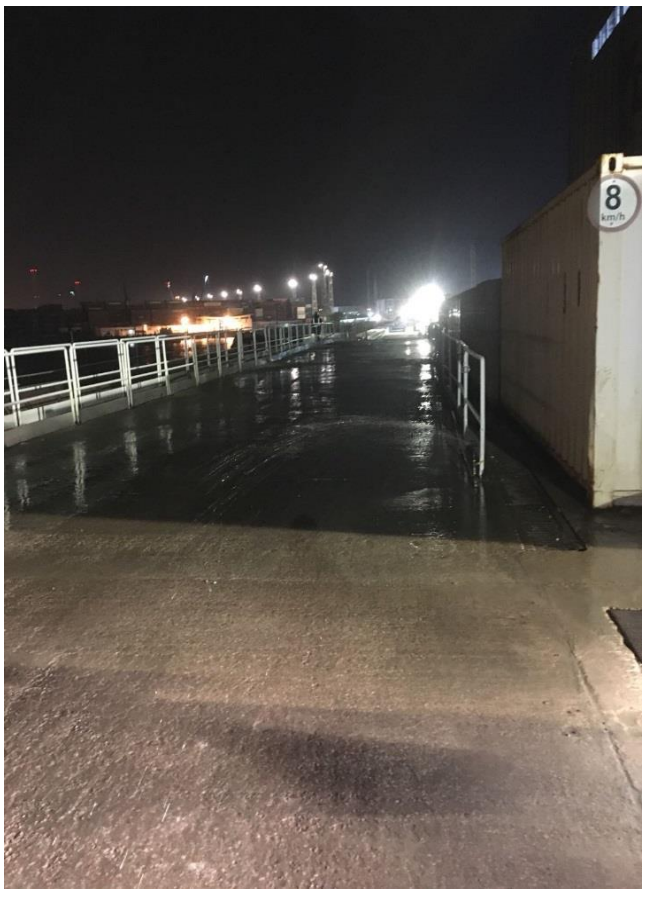
Annex A Photo taken during the site inspection on 1 February 2018

View of the site from Tuen Mun Pier

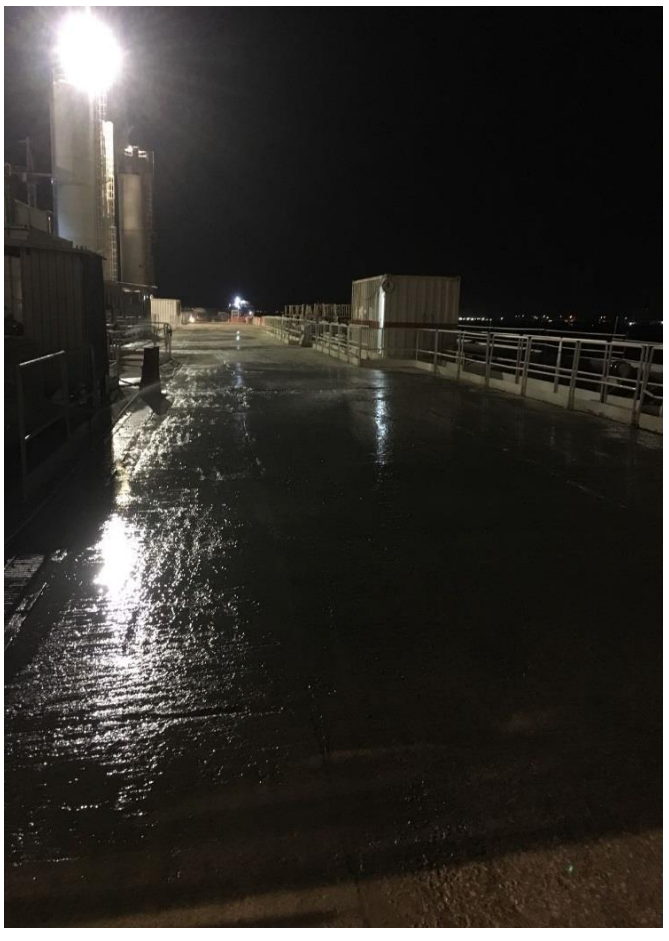
View of the site from Tuen Mun Pier

ERM

Annex A Photo taken during the site inspection on 1 February 2018



Site conditions at night-time



Site conditions at night-time

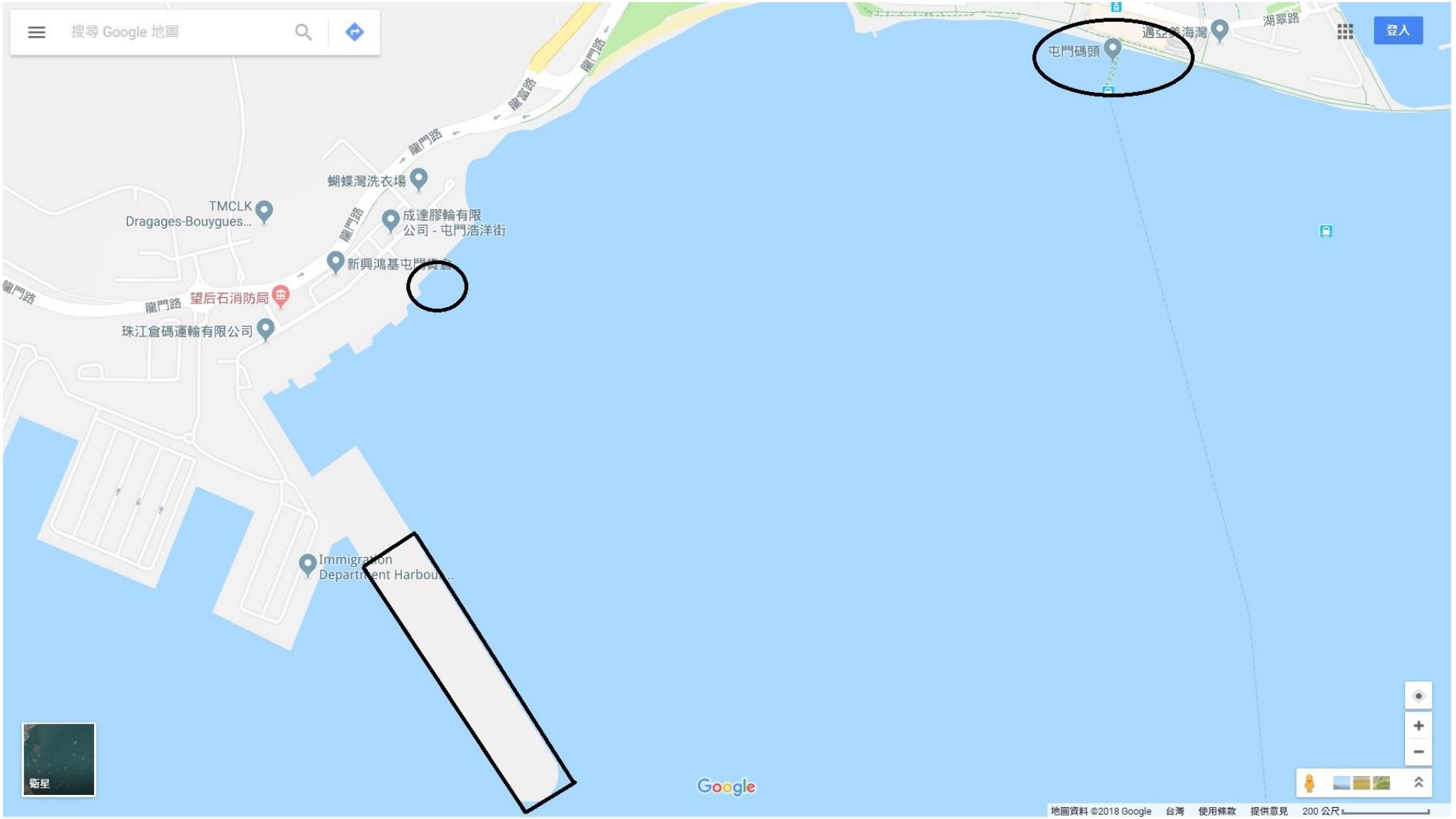
ERM

Annex A Photo taken during the site inspection on 14 February 2018

Lighting at the main site access

Lighting at the main site access

Lighting at the main site access



Location of night-time inspection

Environmental
Resources
Management

ERM

Distance between the site and Tuen Mun Pier

Environmental Resources Management

ERM

Dragages Hong Kong / Bouygues Travaux Publics — Dragages - Bouygues Joint Venture	Contract No. HY/2012/08 Tuen Mun – Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section	**Weekly Water Spraying Record** **每週灑水檢查記錄**

Site Location 地盤位置: Northern Landfall

Date 日期: 29 Jan 2018 to 至 04 Feb 2018

	Time 時間	Monday 星期一	Tuesday 星期二	Wednesday 星期三	Thursday 星期四	Friday 星期五	Saturday 星期六	Sunday 星期日
1	8:00 – 8:45	√	√	√	√	√	√	√
2	8:45 – 9:30	√	√	√	√	√	√	√
3	9:30 – 10:15	√	√	√	√	√	√	√
4	10:15 – 11:00	√	√	√	√	√	√	√
5	11:00 – 11:45	√	√	√	√	√	√	√
6	11:45 – 12:30	√	√	√	√	√	√	√
7	12:30 – 13:15	√	√	√	√	√	√	√
8	13:15 – 14:00	√	√	√	√	√	√	√
9	14:00 – 14:45	√	√	√	√	√	√	√
10	14:45 – 15:30	√	√	√	√	√	√	√
11	15:30 – 16:45	√	√	√	√	√	√	√
12	16:45 – 17:30	√	√	√	√	√	√	√
	Verified by Site Foreman 地盤科文簽署確認							

Night shift 夜間工作 (if necessary 如需要)								
	17:30 – 19:00							
	19:00 – 20:30							
	20:30 – 22:00							
	22:00 – 23:00							

*Please - tick (√) in the box if complete the spraying of water.
circle (O) in the box if it is raining.

*如果 - 已經完成灑水, 請於方格內加上剔號(√)。
是下雨天, 請於方格內加上圓圈(O)。

Remarks:

(1) Pursuant to EP Clause 3.15, the Permit Holder shall undertake watering at least 12 times per day on all exposed soil within the Project site and associated work areas in Tuen Mun area throughout the construction phase.
(2) Spraying position includes the main haul road, open area, slopes, stockpiles and any other dusty materials.
(3) If it is raining, no water spraying is needed.
(4) The no of spraying will be increased due to site condition.

備註:

(1) 根據環境許可證 3.15 條例，在整個施工階段內，許可證持有人須每天至少 12 次在屯門區項目工地和相關的工作區域內的所有暴露土壤灑水。
(2) 灑水位置包括主要運輸道路，空曠地帶，斜坡，存料堆，以及任何其他產生塵埃物料。
(3) 當下雨時，地盤將不需要灑水。
(4) 如果地盤情況更改或有需要時，灑水次數會相應增加。

Appendix L

Waste Flow Table

Monthly Summary Waste Flow Table

Name of Department: HyD **Contract No. / Works Order No.: HY/2012/08**

Monthly Summary Waste Flow Table for January 2018 [to be submitted not later than the 15th day of each month following reporting month] (All quantities shall be rounded off to 3 decimal places.)

Month	Monthly Break-down of Inert Construction & Demolition Materials (i.e. Public Fill Materials)				
	(a)=(b)+(c)+(d)+(e) Total Quantity Generated	(b) Hard Rock and Large Broken Concrete	(c) Reused in the Contract	(d) Reused in other Projects	(e) Disposed of as Public Fill
	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)
Sub-total	1221.977	0.000	0.000	0.000	1221.977
Jan-2018	7.165	0.000	0.000	0.000	7.165
Feb-2018					
Mar-2018					
Apr-2018					
May-2018					
Jun-2018					
Half Year Sub-total					
Jul-2018					
Aug-2018					
Sep-2018					
Oct-2018					
Nov-2018					
Dec-2018					
Project Total Quantities	1229.142	0.000	0.000	0.000	1229.142

Month	**Actual Quantities of <u>Non-inert</u> Construction Waste Generated Monthly**								
	Metals		Paper/ cardboard packaging		Plastics (see Note 3)		Chemical Waste		Others, e.g. General Refuse disposed at Landfill
	(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000ton)
	generated	recycled	generated	recycled	generated	recycled	generated	Disposed	generated
Sub-total	619.380	619.380	4.150	4.150	6.870	6.870	33.150	33.150	8.259
Jan-2017	0.000	0.000	0.200	0.200	0.000	0.000	2.800	2.800	0.272
Feb-2017									
Mar-2017									
Apr-2017									
May-2017									
Jun-2017									
Half Year Sub-total									
Jul-2017									
Aug-2017									
Sep-2017									
Oct-2017									
Nov-2017									
Dec-2017									
Project Total Quantities	619.380	619.380	4.350	4.350	6.870	6.870	35.950	35.950	8.531

Forecast of Total Quantities of Construction and Demolition Materials to be Generated from the Contract*				
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed of as Public Fill
(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)	(in '000 ton)
2.000	0.000	0.000	0.000	2.000

Forecast of Total Quantities of Construction and Demolition Materials to be Generated from the Contract*				
Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	General Refuse disposed of at Landfill
(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 ton)
50.000	0.000	0.000	0.000	0.200

Notes:
(1) The performance targets are given in the **ER Appendix 8J Clause 14** and the EM & A Manual(s).
(2) The waste flow table shall also include C&D materials to be imported for use at the Site.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
(4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m^3. (**ER Part 8 Clause 8.8.5 (d) (ii)** refers).