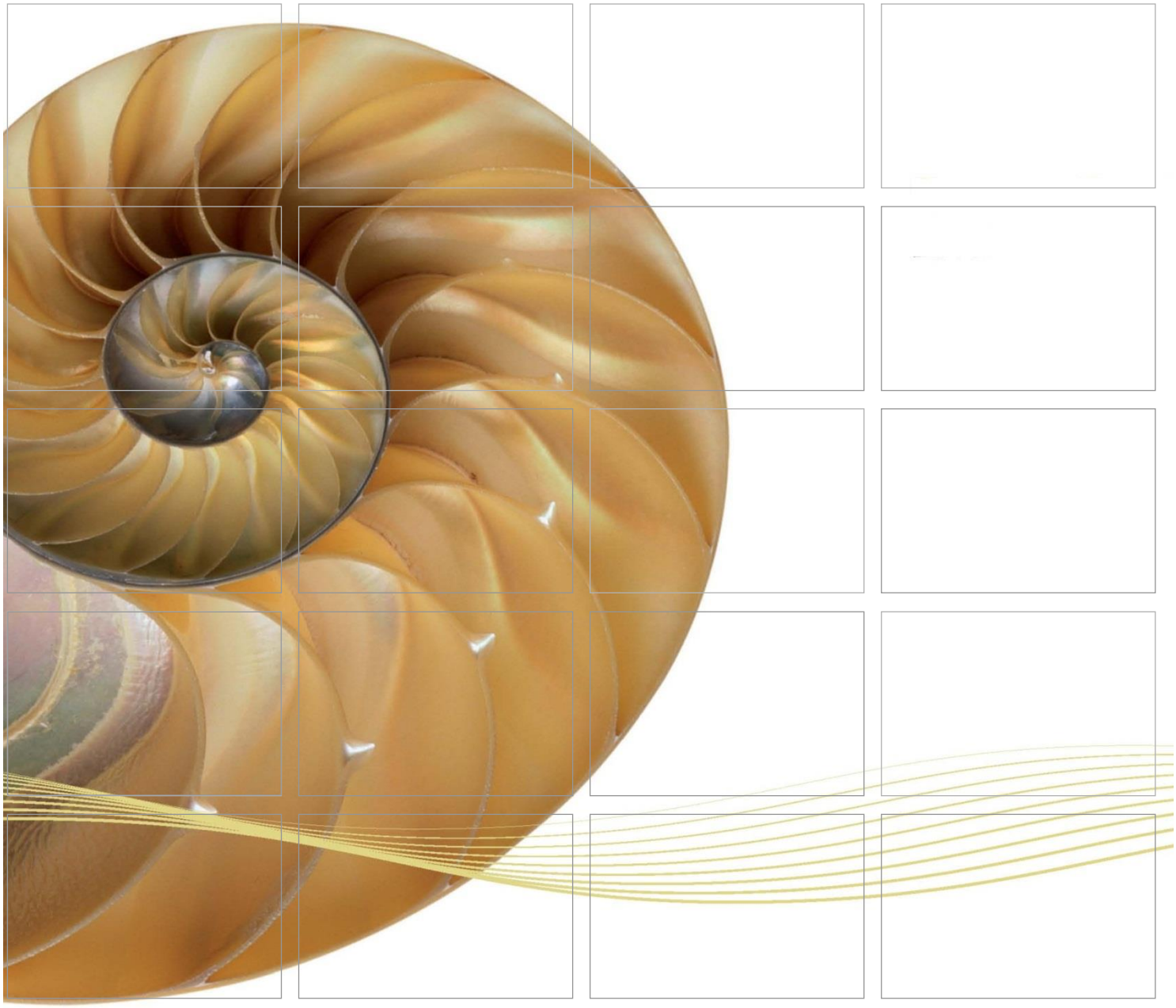
Report



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

Eightieth Monthly Environmental Monitoring & Audit (EM&A) Report

13 July 2020

Environmental Resources Management
2507, 25/F One Harbourfront
18 Tak Fung Street
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Contract No. HY/2012/08
Tuen Mun – Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section

Eightieth Monthly Environmental Monitoring & Audit (EM&A) Report

Document Code: 0212330_80th Monthly EM&A_20200713.doc

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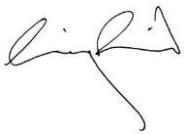
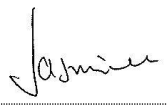
Client: DBJV	Project No: 0212330
Summary: This document presents the Eighteenth Monthly EM&A Report for Tuen Mun – Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section.	Date: 13 July 2020 Approved by:  *Mr Craig Reid* *Partner* Certified by:  *Dr Jasmine Ng* *ET Leader*

Revision	Description	By	Checked	Approved	Date
	80th Monthly EM&A Report	VAR	JN	CAR	13/07/20

Distribution

☐ Internal

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☐ Confidential

RAMBOLL

Ref.: HYDHZMBEEM00_0_8104L.20

14 July 2020

By Fax (2293 6300) and By Post

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

Attention: Mr. Roger Man

Dear Mr. Man,

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
80th Monthly EM&A Report for June 2020 (EP-354/2009/D)

Reference is made to the Monthly EM&A Report for June 2020 (ET's ref.: "0212330_80th Monthly EM&A_20200713.doc") certified by the ET Leader and provided to us via e-mail on 14 July 2020.

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,

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

c.c.

HyD	Mr. Patrick Ng	(By Fax: 3188 6614)
HyD	Mr. Andy Ho	(By Fax: 3188 6614)
AECOM	Mr. Conrad Ng	(By Fax: 3922 9797)
ERM	Dr. Jasmine Ng	(By Fax: 2723 5660)
DBJV	Mr. Bryan Lee	(By Fax: 2293 7499)

Internal: DY, YH, ENPO Site

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Ramboll Hong Kong Limited 英環香港有限公司
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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 Contract commenced on 1 November 2013 and will tentatively be completed in 2020. 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 Eightieth Monthly EM&A report presenting the EM&A works carried out during the period from 1 to 30 June 2020 for the *Contract No. HY/2012/08 Northern Connection Sub-sea Tunnel Section* (the "Contract") in accordance with the Updated EM&A Manual of the TM-CLK Link Contract. As informed by the Contractor, major activities in the reporting period included:

Land-based Works

- Road & Drainage works – Portion S-A, S-B & S-C and Northern Landfall;
- UU installation - Portion S-A, S-B & S-C and Northern Landfall.

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

24-hour TSP Monitoring	10 sessions
1-hour TSP Monitoring	10 sessions
Operational Phase Water Quality Monitoring	1 session
Operational Phase Dolphin Monitoring	2 sessions
Joint Environmental Site Inspection	4 sessions

Implementation of Marine Mammal Exclusion Zone

No marine works were undertaken during the reporting period, therefore, daily 250 m marine mammal exclusion zone monitoring was not undertaken during the reporting period.

Summary of Breaches of Action/Limit Levels

Breaches of Action and Limit Levels for Air Quality

One action level exceedance was recorded in the air quality monitoring during this reporting month.

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.

No environmental complaint was received in this reporting period.

No environmental summons was received in this reporting period.

Reporting Change

Proposal for operational phase dolphin monitoring and operational phase water quality monitoring was approved by EPD on 19 May 2020. Operational phase dolphin monitoring and operational phase water quality monitoring commenced in June 2020.

Upcoming Works for the Next Reporting Month

Works to be undertaken in the next monitoring period of July 2020 include the following:

Land-based Works

- Road & Drainage works – Portion S-A, S-B & S-C and Northern Landfall;
- UU installation - Portion S-A, S-B & S-C and Northern Landfall.

Future Key Issue

Potential environmental impacts arising from the above upcoming construction activities in the next reporting month of July 2020 are mainly associated with dust and waste management issues.

1 INTRODUCTION

1.1 BACKGROUND

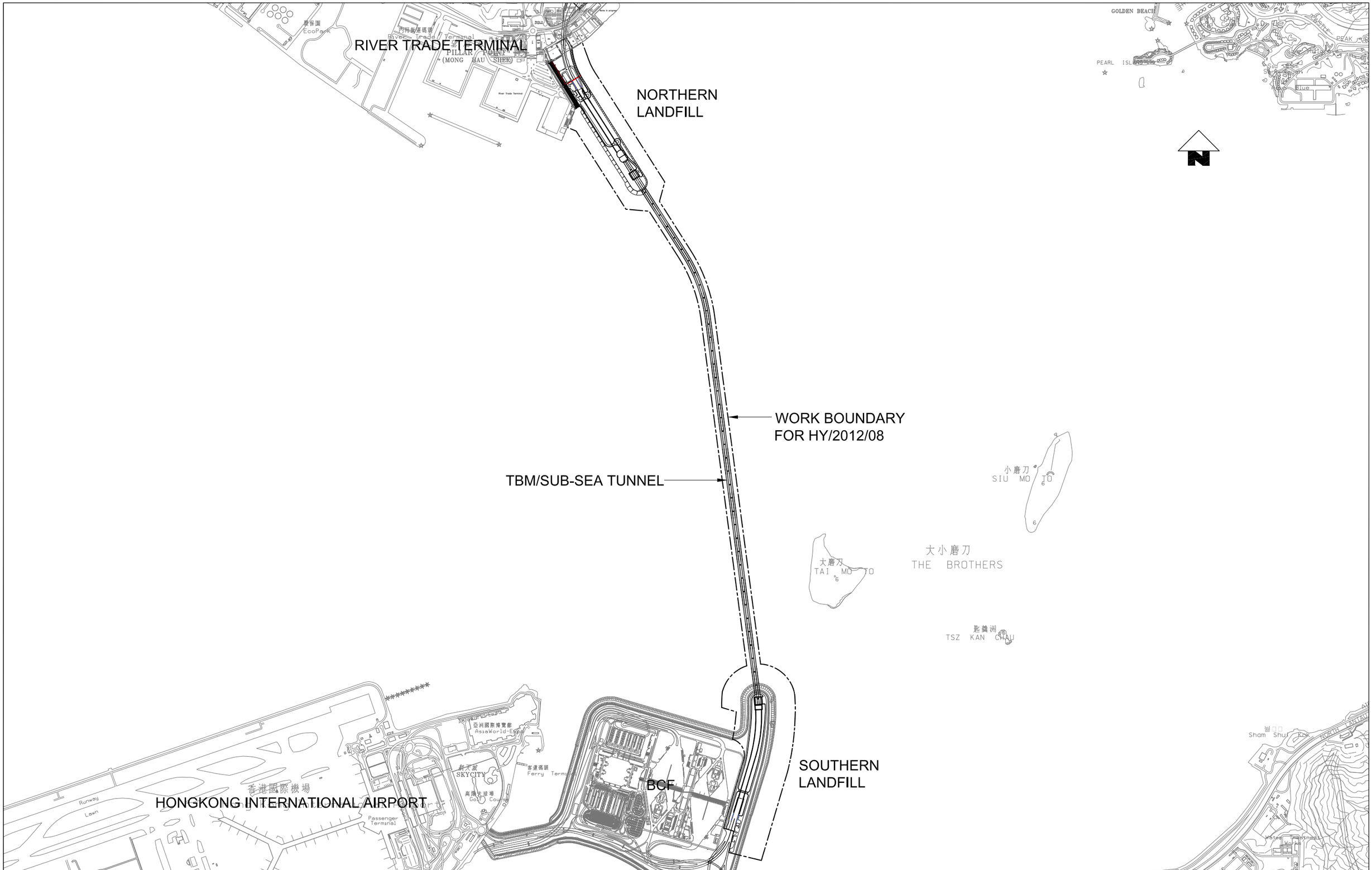
According to the findings of the Northwest New Territories (NWNT) Traffic and Infrastructure Review conducted by the Transport Department, Tuen Mun Road, Ting Kau Bridge, Lantau Link and North Lantau Highway would be operating beyond capacity after 2016. This forecast has been based on the estimated 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 in 2020. 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.



Rev.	Description	Date	Checked
A	FIRST ISSUE	11SEP13	PKV

Designed By: PKV
Drawn By: DAI
Approved By: SPo PP
Date: 11SEP2013

Main Contractor: Dragages - Bouygues Joint Venture 實嘉 - 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 Eigthieth 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 June 2020.

1.3 ORGANIZATION STRUCTURE

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

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
Highways Department	Engr 24/SD	Ken T.M. Cheng	2762 4062	3188 6614
SOR (AECOM Asia Company Limited)	Chief Resident Engineer	Roger Man	2293 6388	2293 6300
ENPO / IEC (Ramboll Hong Kong Ltd.)	ENPO Leader	Y.H. Hui	3465 2850	3465 2899
	IEC	Manson Yeung	9700 6767	3465 2899
Contractor (Dragages – Bouygues Joint Venture)	Deputy Environmental Manager	Bryan Lee	2293 7323	2293 7499
	24-hour hotline		2293 7330	
ET (ERM-HK)	ET Leader	Jasmine Ng	2271 3311	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*.

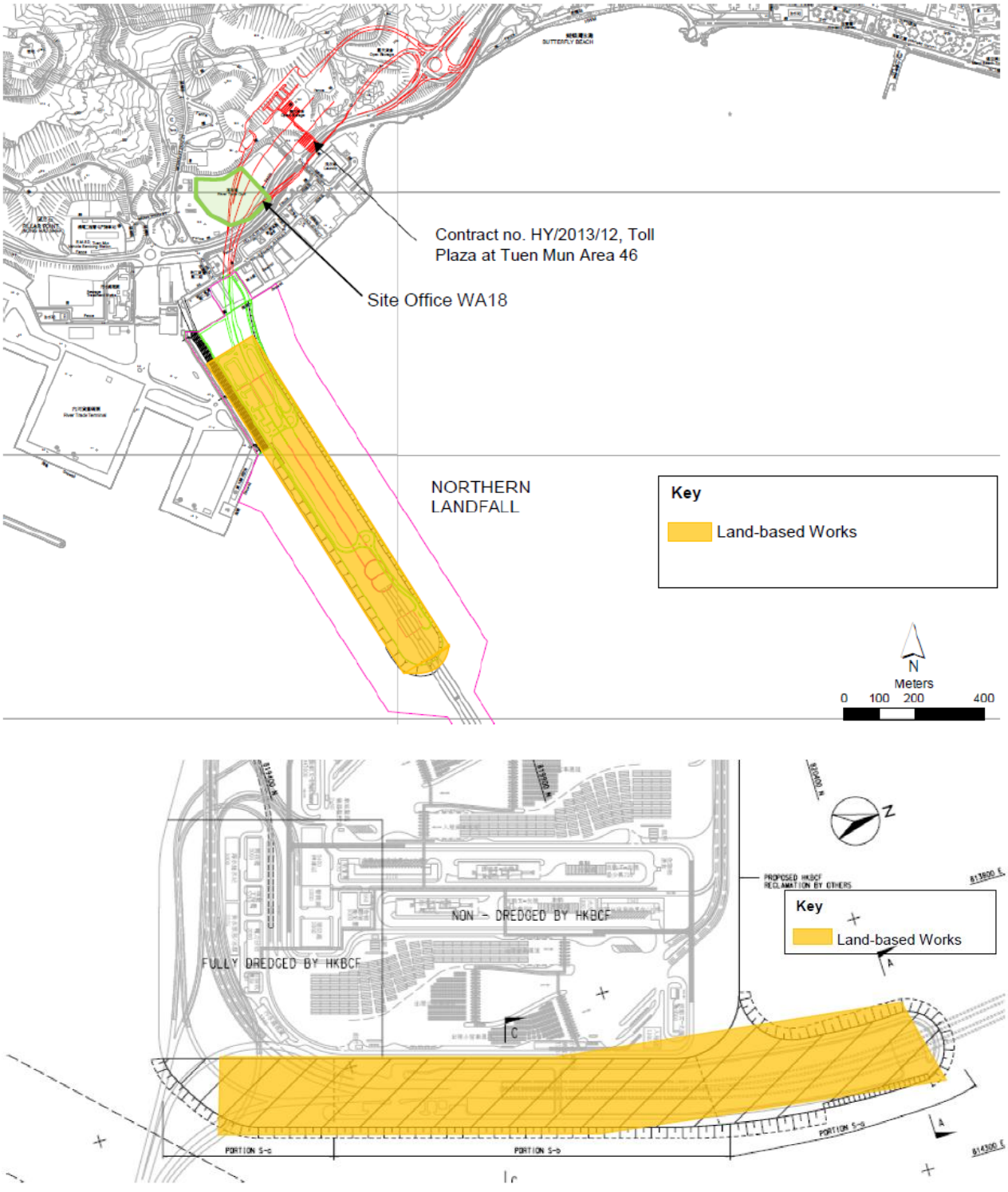
The general layout plan of the site showing the detailed works areas is shown in *Figure 1.2*. The Environmental Sensitive Receivers in the vicinity of the Contract are shown in *Figure 1.3*.

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
• Road & Drainage works – Portion S-A, S-B & S-C and Northern Landfall; • UU installation - Portion S-A, S-B & S-C and Northern Landfall.

Figure 1.2 Locations of Construction Activities – June 2020



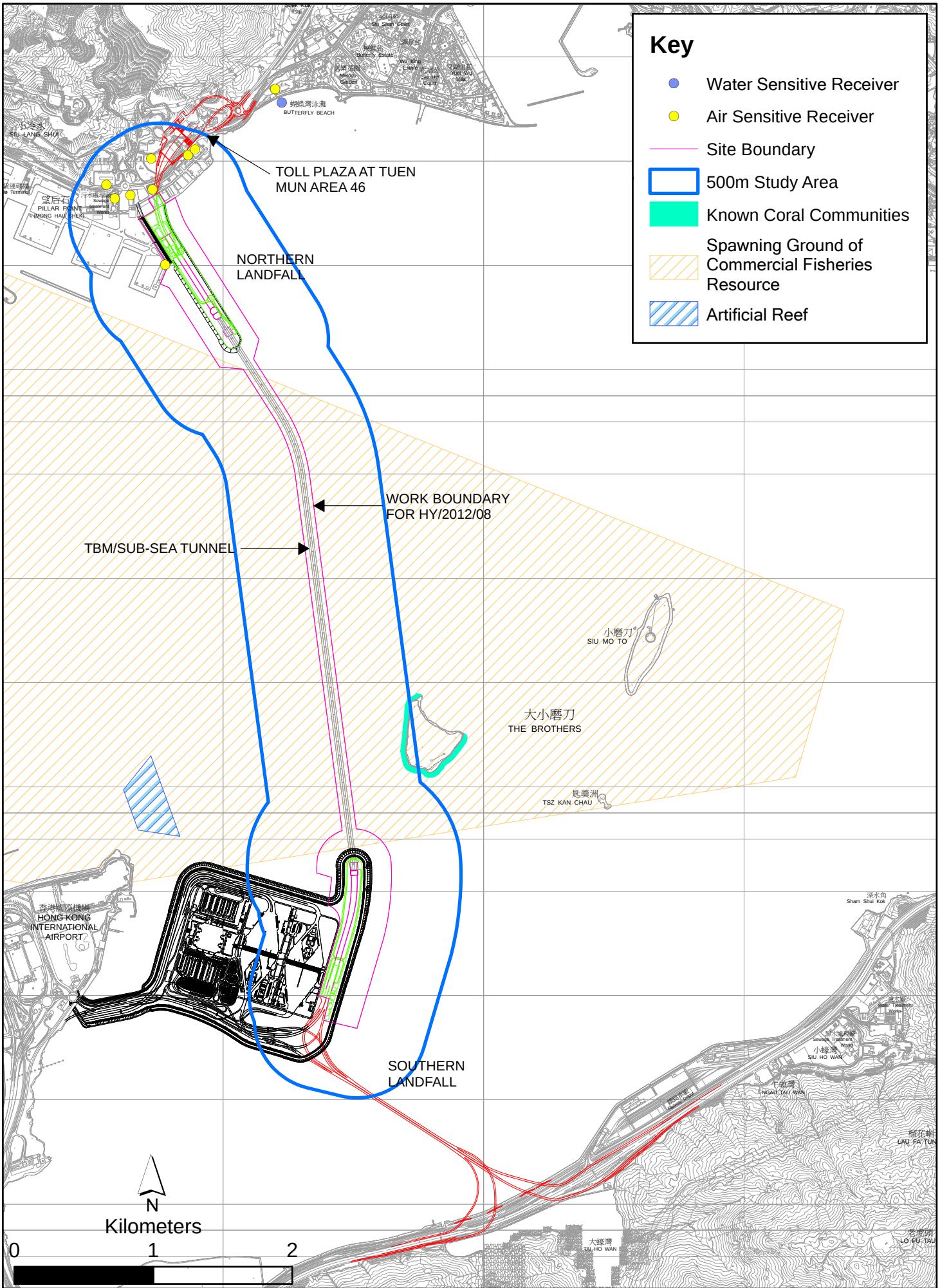


Figure 1.3 Environmental Sensitive Receivers in the vicinity of Contract No. HY/2012/08 Tuen Mun - Chek Lap Kok Link - Northern Connection Sub-Sea Tunnel Section

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Date: 15/4/2014

Environmental Resources Management

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 and 28 June 2020 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 and 28 June 2020	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	

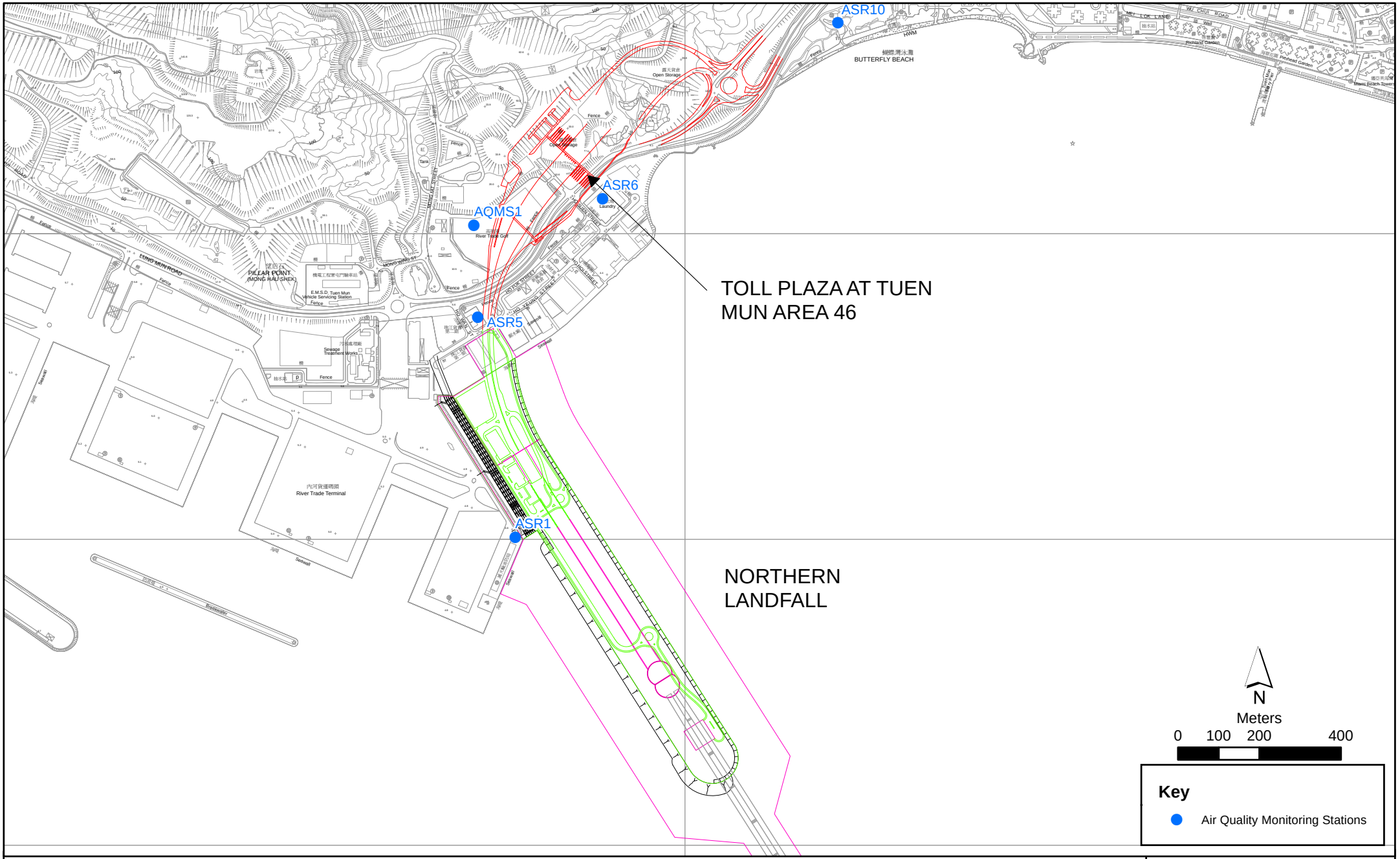

Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring

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Date: 21/2/2014

Environmental Resources Management

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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 K.*

2.1.3 Monitoring Schedule for the Reporting Month

The schedule for air quality monitoring in June 2020 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	61	14 - 117	331	500
ASR5	115	20 - 230	340	500
AQMS1	63	32 - 138	335	500
ASR6	99	47 - 357	338	500
ASR10	46	22 - 110	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	40	26 - 60	213	260
ASR5	66	36 - 91	238	260
AQMS1	41	27 - 51	213	260
ASR6	51	25 - 92	238	260
ASR10	32	19 - 55	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 10 1-hour TSP and 24-hour TSP monitoring were undertaken in this reporting month. One Action Level exceedance of 1-hour TSP Monitoring was recorded in the air quality monitoring during 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

2.2.1 Monitoring Requirements & Equipment

According to the Updated EM&A Manual, a operational phase water quality monitoring shall be performed monthly during the first year of Project operation at all designated monitoring stations including control stations. The operation phase water quality monitoring shall be ceased after the first year of operation of the Project subject to the first year review. Operational phase water quality monitoring commenced in June 2020. Locations of water quality monitoring stations presented in *Figure 2.2* and in *Table 2.5*.

Table 2.5 Locations of Operational Phase Water Quality Monitoring Stations and the Corresponding Monitoring Requirements

Station ID	Type	Coordinates		*Parameters, unit	Depth	Frequency
		Easting	Northing			
IS(Mf)11	Impact Station (Close to HKBCF construction site)	813562	820716	• Temperature(°C) • pH(pH unit) • Turbidity (NTU) • Water depth (m) • Salinity (ppt)	3 water depths: 1m below sea surface, mid-depth and 1m above sea bed. If the water depth is less than 3m, mid-depth sampling only. If water depth less than 6m, mid-depth may be omitted.	Monthly at each station, at mid-flood and mid-ebb tides during the construction period of the Contract.
SR4(N2)	Sensitive receiver (Tai Ho Inlet)	814688	817996	• DO (mg/L and % of saturation)		
CS2(A)	Control Station	805232	818606	• SS (mg/L)		
CS(Mf)5	Control Station	817990	821129			

Station ID	Type	Coordinates	*Parameters, unit	Depth	Frequency

*Notes:
In addition to the parameters presented monitoring location/position, time, water depth, sampling depth, tidal stages, weather conditions and any special phenomena or works underway nearby were also recorded.

With reference to the EM&A Report under Contract No. HY/2011/03, water quality monitoring station SR3 was relocated to SR3(N) since 1 September 2017.
With reference to the EM&A Report under Contract No. HY/2011/03, water quality monitoring station SR4 was relocated to SR4(N) since 1 January 2018.
With reference to the EM&A Report under Contract No. HY/2011/03, water quality monitoring station SR4(N) was relocated to SR4(N2) since 21 August 2019.
With reference to the EM&A Report under Contract No. HY/2011/03, water quality monitoring station CS2 was relocated to CS2(A) since 23 August 2017.

Table 2.6 summarizes the equipment used in the operational phase water quality monitoring programme. Copies of the calibration certificates are attached in *Appendix E*.

Table 2.6 Water Quality Monitoring Equipment

Equipment	Model
Multi-Parameters	YSI ProDss 16H104234
Positioning Equipment	Furuno GP-170
Water Depth Detector	Lowrance Mark 5x / Garmin Striker 4

2.2.2 Monitoring Schedule for the Reporting Month

The schedule for operational phase water quality monitoring in June 2020 is provided in *Appendix F*.

2.2.3 Results and Observations

One monitoring event for operational phase water quality monitoring was conducted at all designated monitoring stations in the reporting month. Operational phase water quality monitoring results are provided in *Appendix J*.

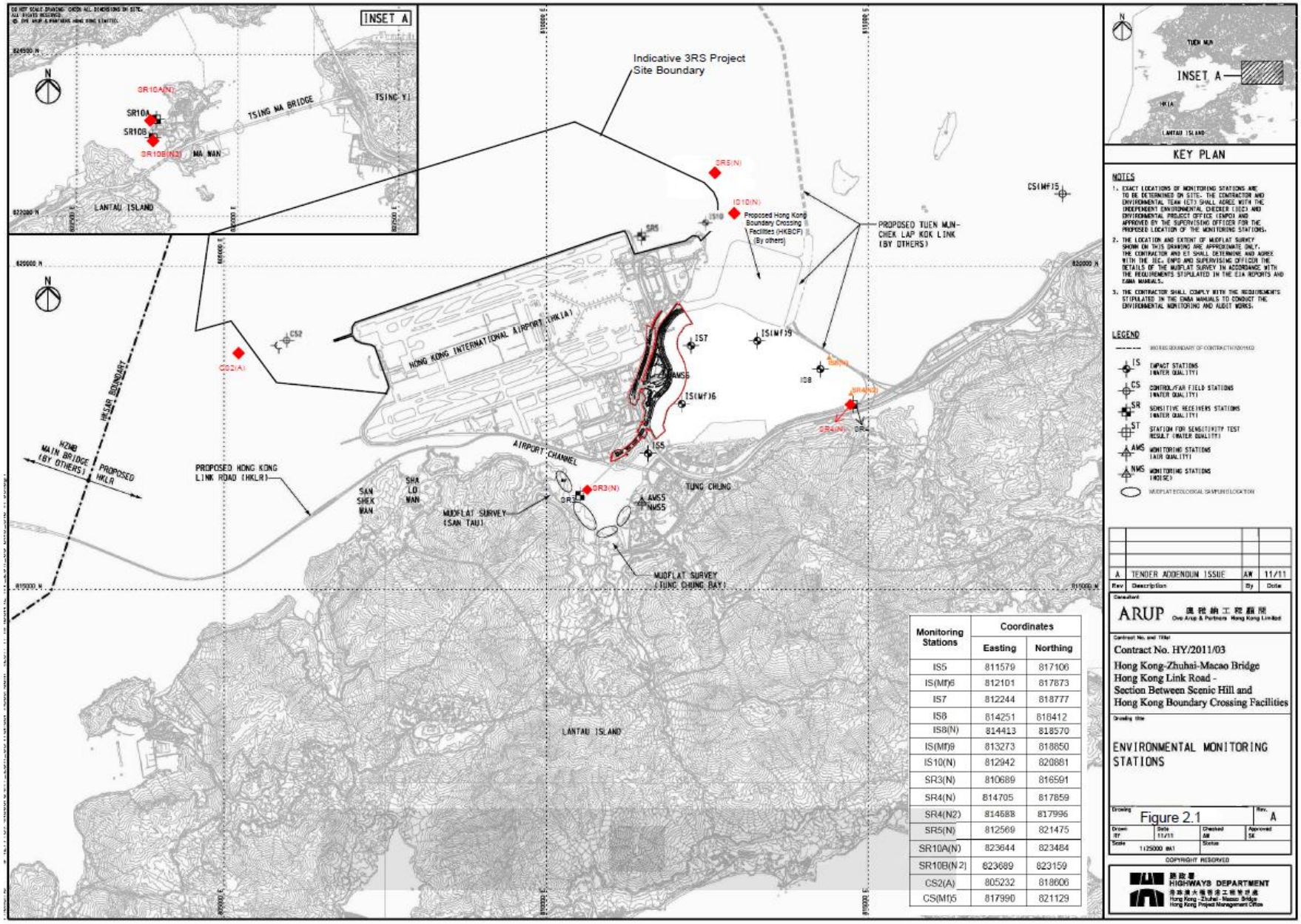
2.3 DOLPHIN MONITORING

2.3.1 Monitoring Requirements

Operational Phase 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, Contract No. HY/2012/08 has taken over the responsibility for implementation of dolphin monitoring from HZMB HKLR Contract No. HY/2011/03 since October 2019.

2.3.2 Monitoring Equipment

Table 2.7 summarises the equipment used for the operational phase dolphin monitoring.



Monitoring Stations	Coordinates	
	Easting	Northing
IS5	811579	817106
IS(Mf)6	812101	817873
IS7	812244	818777
IS8	814251	818412
IS8(N)	814413	818570
IS(Mf)9	813273	818850
IS10(N)	812942	820881
SR3(N)	810689	816591
SR4(N)	814705	817859
SR4(N2)	814588	817996
SR5(N)	812569	821475
SR10A(N)	823644	823484
SR10B(N2)	823689	823159
CS2(A)	805232	818606
CS(Mf)5	817990	821129

Figure 2.2

Operational Phase Water Quality Monitoring Stations SR3(N), CS2(A), SR4(N2) & CS(Mf)5

(Source from Contract No. HY/2011/03 EM&A Report)

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Table 2.7 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 and operational phase. 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 and operational phase dolphin monitoring.

2.3.4 Monitoring Location

The operational phase dolphin monitoring was carried out in the NEL and NWL along the line transect as depicted in *Figure 2.3*. The co-ordinates of all transect lines are shown in *Table 2.8* below.

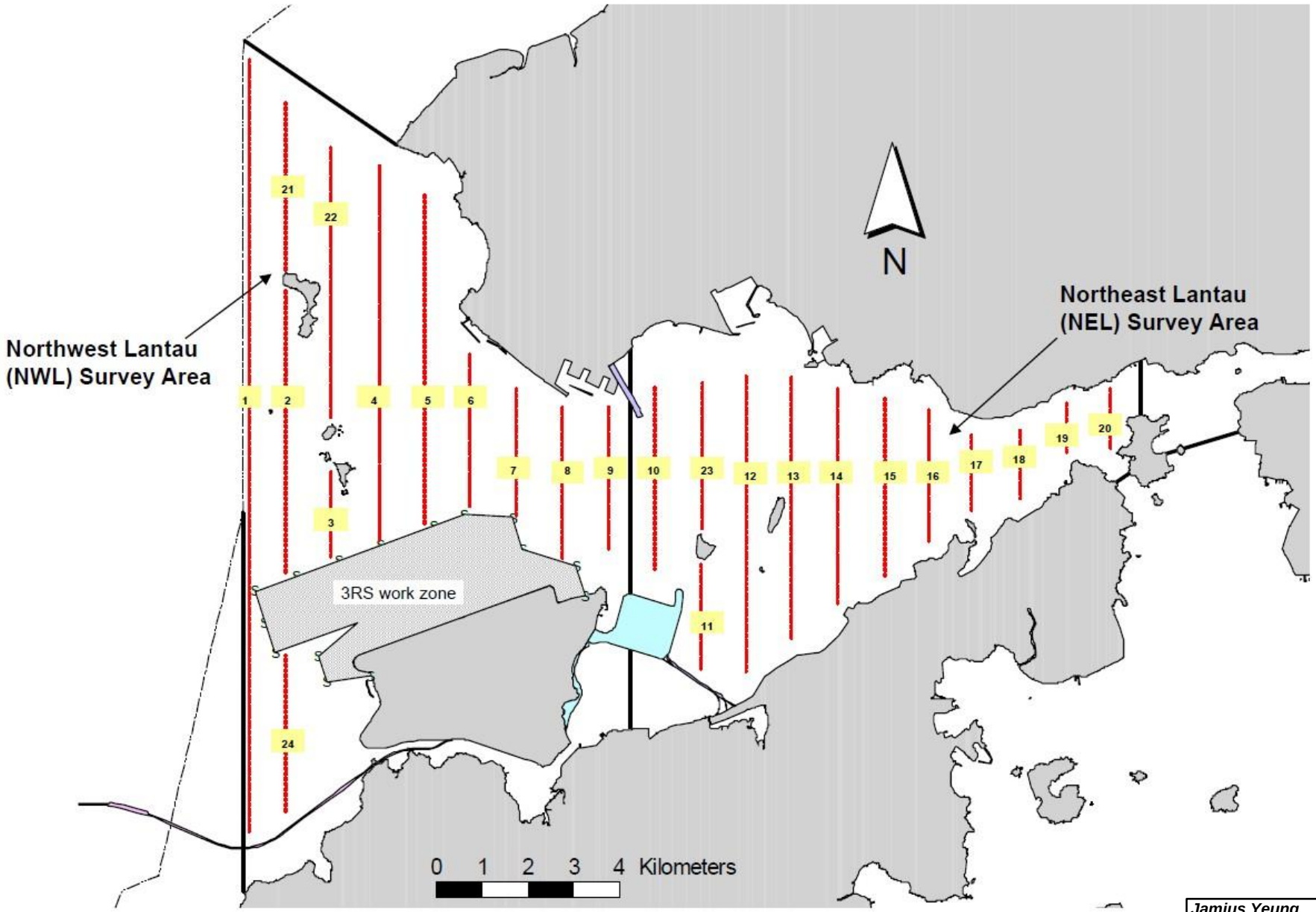

Figure 2.3

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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Figure 2.2

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Table 2.8 Operational Phase 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 *Monitoring Schedule for the Reporting Month*

Dolphin monitoring was carried out on 4, 9, 11 and 16 June 2020. The dolphin monitoring schedule for the reporting month is shown in *Appendix F*.

2.3.6 *Results & Observations*

A total of 258.90 km of survey effort was collected, with 100% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility) in June 2020. Among the two areas, 92.90 km and 166.00 km of survey effort were collected from NEL and NWL survey areas, respectively. The total survey effort conducted on primary and secondary lines were 190.66 km and 68.24 km respectively. The survey efforts are summarized in *Appendix I.*

No Chinese White Dolphin sighting was recorded during the two sets of surveys in June 2020.

No dolphin sighting was made in the proximity of the TM-CLKL alignment.

The southern end of transect line no. 8 was not travelled on 4 and 11 June 2020 during the dolphin monitoring due to the presence of construction boats along the transect line. Part of the transect line was not travelled due to safety concerns.

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 June 2020 with the results present in *Tables 2.9* and *2.10.*

Table 2.9 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: June 4th / 9th	0.0	0.0
	Set 2: June 11th / 16th	0.0	0.0
NWL	Set 1: June 4th / 9th	0.0	0.0
	Set 2: June 11th / 16th	0.0	0.0

Note: Dolphin Encounter Rates are deduced from the Two Sets of Surveys (Two Surveys in Each Set) in June 2020 in Northeast (NEL) and Northwest Lantau (NWL)

Table 2.10 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	0.0	0.0	0.0	0.0

Note: Overall dolphin encounter rates (sightings per 100 km of survey effort) from all four surveys are conducted in June 2020 on primary lines only as well as both primary lines and secondary lines in Northeast and Northwest Lantau.

According to the EM&A Manual, Operational Phase Monitoring on dolphin monitoring shall be undertaken based upon the frequency of forty-eight, one-day survey events at a frequency of 2 per month over a period of 24 months following cessation of the construction. The schedule for operational phase monitoring on dolphin monitoring in June 2020 is provided in *Appendix F*.

2.3.7 Implementation of Marine Mammal Exclusion Zone

No marine works were undertaken during the reporting period, therefore, daily 250 m marine mammal exclusion zone monitoring was not undertaken 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, four (4) site inspections were carried out on 3, 10, 17 and 24 June 2020.

Key observations and recommendations during the site inspections in this reporting period are summarized in *Table 2.11*.

Table 2.11 Specific Observations and Recommendations during the Weekly Site Inspection in this Reporting Month

Inspection Date	Observations	Recommendations/ Remarks
3 June 2020	Near South Ventilation Building • Chemicals were observed not placed in drip tray.	Near South Ventilation Building • The Contractor was reminded to place the chemicals in drip tray.
10 June 2020	Northern Landfall • Stagnant water in the drip tray should be cleared.	Northern Landfall • The Contractor was reminded to clean the stagnant water.
17 June 2020	Southern Landfall • A clear NRMM label should be displayed. • Chemicals should be placed in drip tray. • Accumulated general refuse should be placed in skip and disposed of regularly.	Southern Landfall • The Contractor was reminded to display a clear NRMM label. • The Contractor was reminded to place the chemicals in drip tray. • The Contractor was reminded to clear accumulated general refuse.
24 June 2020	Box Culvert • The colour of a NRMM label faded. • The NRMM label of a machine was missing.	Box Culvert • The Contractor was reminded to replace the NRMM label. • The Contractor was reminded to replenish the NRMM label.

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). Reference has been made to the waste flow table prepared by the Contractor (*Appendix M*). The quantities of different types of wastes are summarized in *Table 2.12*.

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)	Mixed (L+M)
June 2020	2,670	0	294	0	1,000	0	0	0

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 2.13* below.

Table 2.13 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	435068	27 June 2018	Throughout the Contract	DBJV	Northern Landfall
Construction Dust Notification	435505	12 July 2018	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	WT00031435-2018	2 August 2018	31 August 2023	DBJV	Southern Landfall
Waste Water Discharge License	WT00034060-2019	25 July 2019	30 June 2024	DBJV	Northern Landfall (4 Discharge Point)
Construction Noise Permit	GW-RW0181-20	29 April 2020	14 October 2020	DBJV	Urmston Road in front of Pillar Point
Construction Noise Permit	GW-RS1137-19	26 December 2019	5 June 2020	DBJV	Southern Landfall
Construction Noise Permit	GW-RS0418-20	22 June 2020	21 December 2020	DBJV	Southern Landfall
Construction Noise Permit	GW-RW0144-20	14 April 2020	31 August 2020	DBJV	WA23 Tsing Yi Storage Area

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 Monitoring was recorded in the air quality monitoring of this reporting month. No exceedance of 24-hour TSP Monitoring was recorded.

Cumulative statistics are provided in *Appendix L*.

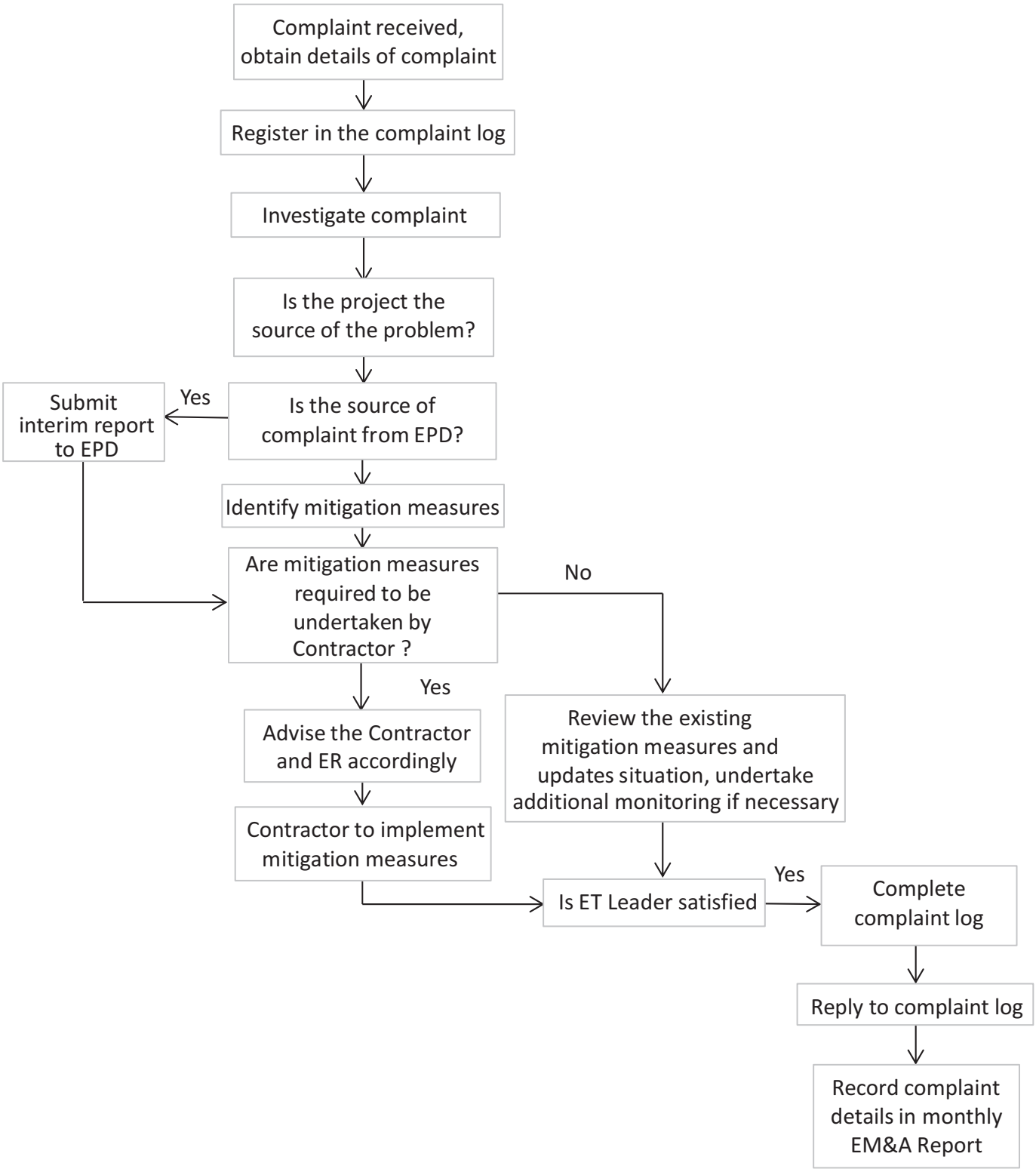
2.9 SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

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

No environmental complaint was received in this reporting period.

No environmental summons was received in this reporting period.

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



Environmental Complaint Handling Procedure

Figure 2.4

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DATE: 06/12/2013

Environmental Resources Management

ERM

3 FUTURE KEY ISSUES

3.1 CONSTRUCTION ACTIVITIES FOR THE COMING MONTH

As informed by the Contractor, the major works for the Contract in June 2020 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
• Road & Drainage works – Portion S-A, S-B & S-C and Northern Landfall; • UU installation - Portion S-A, S-B & S-C and Northern Landfall.

3.2 KEY ISSUES FOR THE COMING MONTH

Potential environmental impacts arising from the above upcoming construction activities in the next reporting month of July 2020 are mainly associated with dust and waste management issues.

3.3 MONITORING SCHEDULE FOR THE COMING MONTH

The tentative schedule for environmental monitoring in July 2020 is provided in *Appendix F*.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

This Eightieth Monthly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 to 30 June 2020, 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), operational phase water quality monitoring and operational phase dolphin monitoring were carried out in this reporting month.

One (1) Action Level exceedance of 1-hour TSP Monitoring was recorded in the air quality monitoring of this reporting month.

No Chinese White Dolphin sighting was recorded during the two sets of surveys in June 2020.

Environmental site inspection was carried out four (4) times in June 2020. 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.

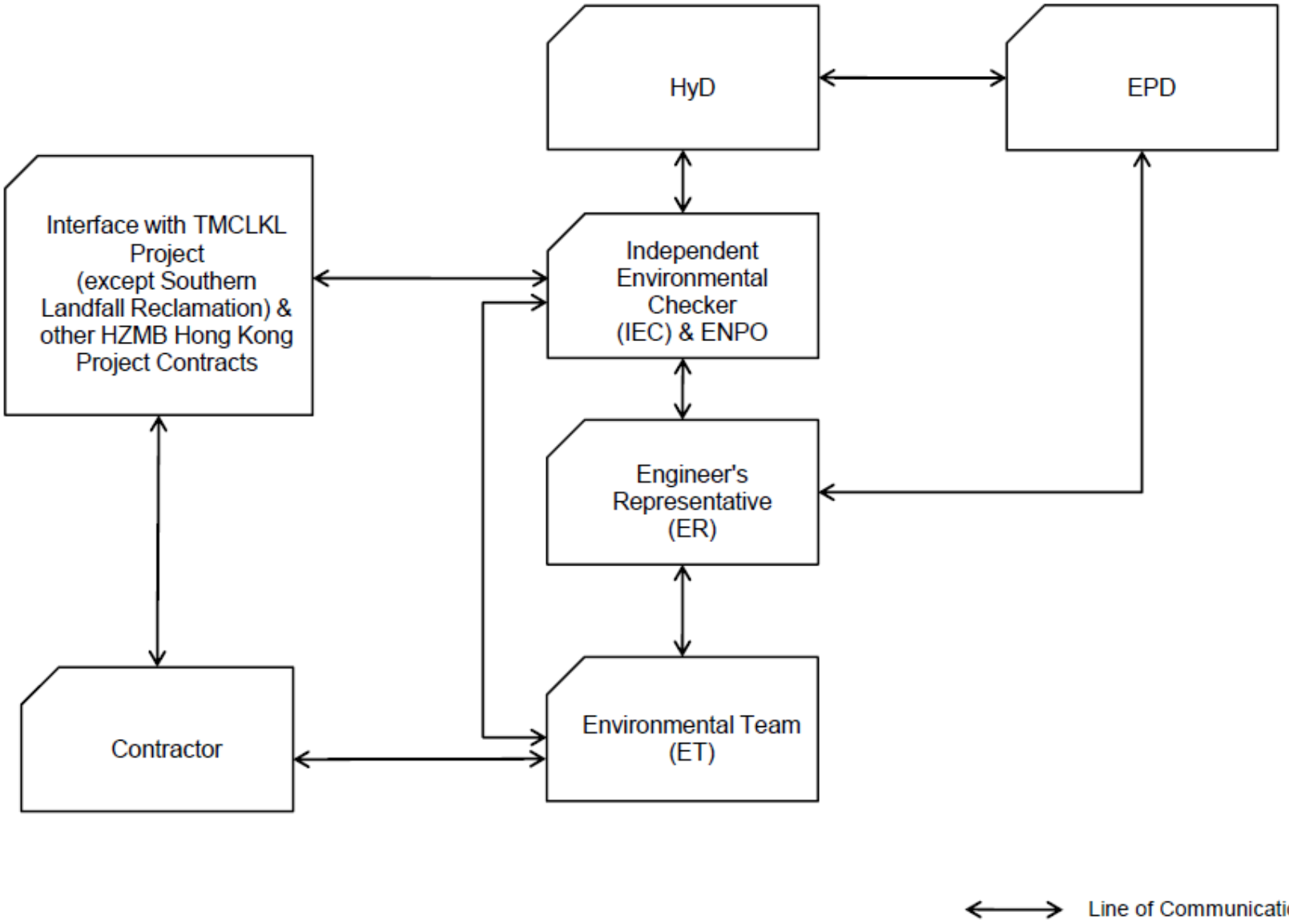
No environmental complaint was received in this reporting period.

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

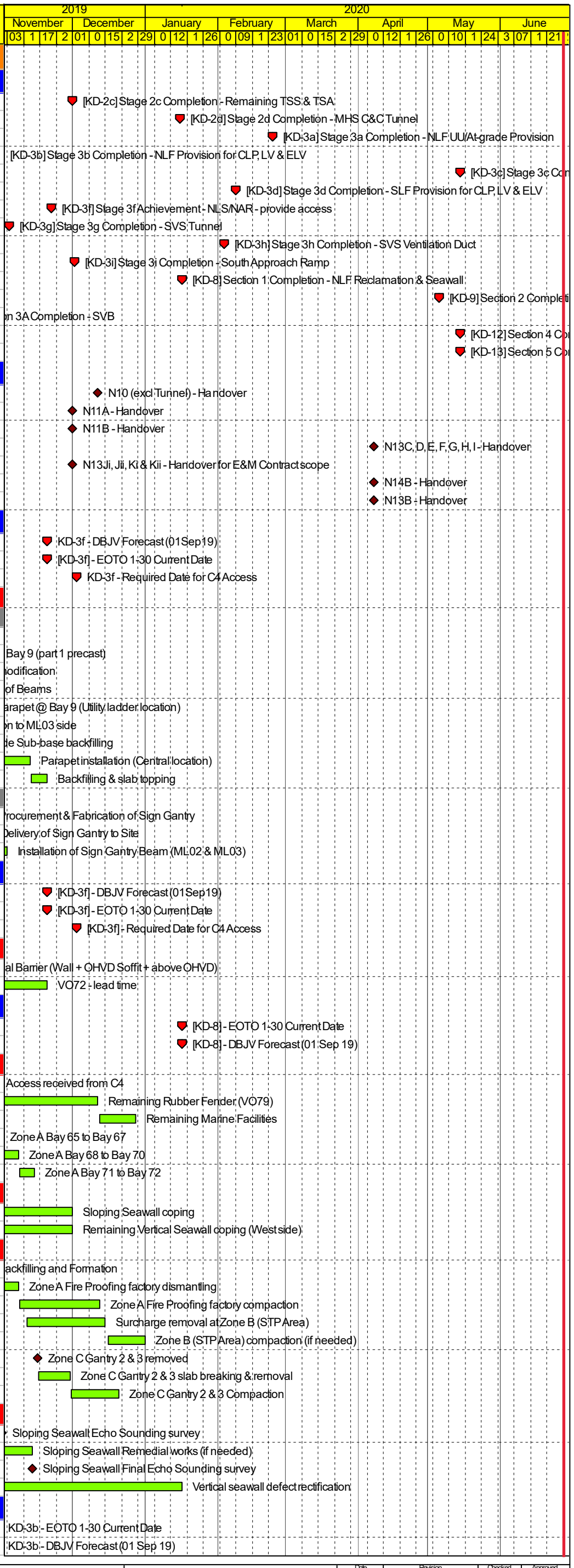
Environmental Resources Management

ERM

Appendix B

Construction Programme

#	Activity Name	Orig Dur	Start	Finish
1	**TMCLKL Northern Connection Sub-sea Tunnel Section**			
2	**Contract Key Dates**			
3	[KD-2c] Stage 2c Completion - Remaining TSS & TSA	0		30-Nov-19*
4	[KD-2d] Stage 2d Completion - MHS C&C Tunnel	0		15-Jan-20*
5	[KD-3a] Stage 3a Completion - NLF UU/At-grade Provision	0		24-Feb-20*
6	[KD-3b] Stage 3b Completion - NLF Provision for CLP, LV & ELV	0		30-Oct-19*
7	[KD-3c] Stage 3c Completion - SLF UU & At-grade works provision	0		14-May-20*
8	[KD-3d] Stage 3d Completion - SLF Provision for CLP, LV & ELV	0		08-Feb-20*
9	[KD-3f] Stage 3f Achievement - NLS/NAR - provide access	0		21-Nov-19*
10	[KD-3g] Stage 3g Completion - SVS Tunnel	0		03-Nov-19*
11	[KD-3h] Stage 3h Completion - SVS Ventilation Duct	0		03-Feb-20*
12	[KD-3i] Stage 3i Completion - South Approach Ramp	0		01-Dec-19*
13	[KD-8] Section 1 Completion - NLF Reclamation & Seawall	0		16-Jan-20*
14	[KD-9] Section 2 Completion - Tunnels and Approach Ramp	0		05-May-20*
15	[KD-10] Section 3A Completion - SVB	0		30-Sep-19*
16	[KD-12] Section 4 Completion - SLF At-grade Road	0		14-May-20*
17	[KD-13] Section 5 Completion - Preservation and Protection of Trees	0		14-May-20*
18	**Portion Handover Dates**			
19	N10 (excl Tunnel) - Handover	0		11-Dec-19*
20	N11A - Handover	0		30-Nov-19*
21	N11B - Handover	0		30-Nov-19*
22	N13C, D, E, F, G, H, I - Handover	0		07-Apr-20*
23	N13Ji, Jii, Ki & Kii - Handover for E&M Contract scope	0		30-Nov-19*
24	N14B - Handover	0		07-Apr-20*
25	N13B - Handover	0		07-Apr-20
26	**North Approach Ramp KD-3f**			
27	KD-3f - DBJV Forecast (01Sep19)	0		19-Nov-19
28	[KD-3f] - EOTO 1-30 Current Date	0		19-Nov-19*
29	KD-3f - Required Date for C4 Access	0		02-Dec-19*
30	**North Approach Ramp**			
31	*Internal Structure*			
32	Parapet grouting works	12	27-Aug-19A	09-Sep-19
33	Parapet installation @ Bay 9 (part 1 precast)	4	10-Sep-19	13-Sep-19
34	Utility Ladder modification	12	16-Sep-19	28-Sep-19
35	Breaking of Beams	6	30-Sep-19	08-Oct-19
36	In-situ Parapet @ Bay 9 (Utility ladder location)	3	09-Oct-19	11-Oct-19
37	Road divertion to ML03 side	0		02-Oct-19*
38	ML02 side Sub-base backfilling	6	03-Oct-19	10-Oct-19
39	Parapet installation (Central location)	28	11-Oct-19	12-Nov-19
40	Backfilling & slab topping	6	13-Nov-19	19-Nov-19
41	*Sign Gantry*			
42	Procurement & Fabrication of Sign Gantry	41	05-Sep-19*	25-Oct-19
43	Delivery of Sign Gantry to Site	1	26-Oct-19	26-Oct-19
44	Installation of Sign Gantry Beam (ML02 & ML03)	6	28-Oct-19	02-Nov-19
45	**North Launching Shaft KD-3f**			
46	[KD-3f] - DBJV Forecast (01Sep19)	0		19-Nov-19
47	[KD-3f] - EOTO 1-30 Current Date	0		19-Nov-19*
48	[KD-3f] - Required Date for C4 Access	0		02-Dec-19*
49	**North Launching Shaft**			
50	Thermal Barrier (Wall + OHVD Soffit + above OHVD)	70	22-Jul-19A	14-Oct-19
51	VO72 - lead time	31	15-Oct-19	19-Nov-19
52	**Remaining North Reclamation KD-8**			
53	[KD-8] - EOTO 1-30 Current Date	0		16-Jan-20*
54	[KD-8] - DBJV Forecast (01 Sep 19)	0		16-Jan-20
55	**Vertical Seawall**			
56	Access received from C4	0		28-Oct-19*
57	Remaining Rubber Fender (VO79)	38	29-Oct-19	11-Dec-19
58	Remaining Marine Facilities	12	12-Dec-19	27-Dec-19
59	Zone A Bay 65 to Bay 67	7	23-Oct-19	30-Oct-19
60	Zone A Bay 68 to Bay 70	7	31-Oct-19	07-Nov-19
61	Zone A Bay 71 to Bay 72	6	08-Nov-19	14-Nov-19
62	**Sloping Seawall**			
63	Sloping Seawall coping	75	02-Sep-19	30-Nov-19
64	Remaining Vertical Seawall coping (West side)	34	23-Oct-19	30-Nov-19
65	**Removal, Backfilling & Compaction**			
66	NAR & NLS Backfilling and Formation	51	01-Aug-19A	30-Sep-19
67	Zone A Fire Proofing factory dismantling	21	15-Oct-19*	07-Nov-19
68	Zone A Fire Proofing factory compaction	30	08-Nov-19	12-Dec-19
69	Surcharge removal at Zone B (STP Area)	30	11-Nov-19*	14-Dec-19
70	Zone B (STP Area) compaction (if needed)	12	16-Dec-19	31-Dec-19
71	Zone C Gantry 2 & 3 removed	0		15-Nov-19*
72	Zone C Gantry 2 & 3 slab breaking & removal	12	16-Nov-19	29-Nov-19
73	Zone C Gantry 2 & 3 Compaction	18	30-Nov-19	20-Dec-19
74	**Overall**			
75	Sloping Seawall Echo Sounding survey	0		31-Oct-19*
76	Sloping Seawall Remedial works (if needed)	12	31-Oct-19	13-Nov-19
77	Sloping Seawall Final Echo Sounding survey	0		13-Nov-19
78	Vertical seawall defect rectification	88	02-Oct-19	16-Jan-20
79	**NLF Demobilization & At-grade works**			
80	KD-3b - EOTO 1-30 Current Date	0		29-Oct-19*
81	KD-3b - DBJV Forecast (01 Sep 19)	0		29-Oct-19*



Planned Bar
Planned Milestone
Key Date
Progress Milestone
Progress Bar

TMCLKL Northern Connection Sub-sea Tunnel Section

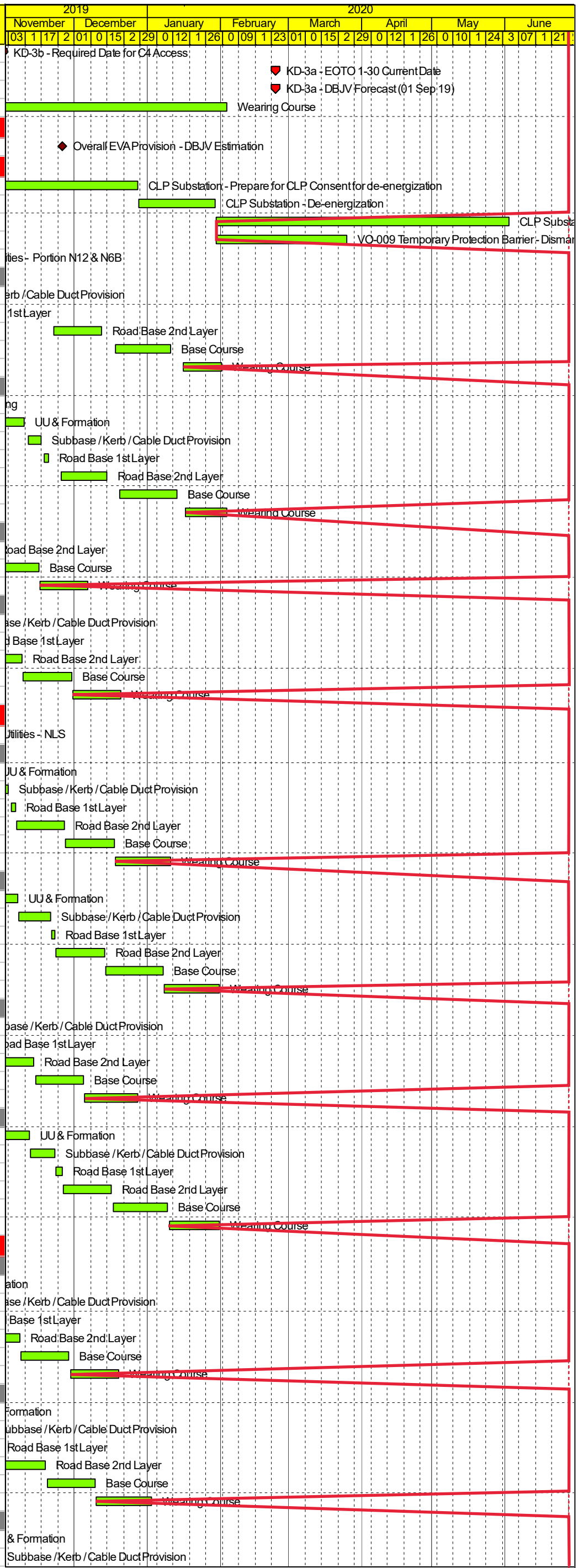
Detailed Works Programme Rev. K

Three Months Rolling Programme

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved
22-Dec-17	Rev.H	WYu	
05-Feb-18	Rev.IAC	WYu	
07-Mar-18	Rev.I	WYu	
04-Jun-18	Rev.J	WYu	
11-Nov-19	Rev.K	SPa	WYu
22-Jan-20	Rev.K1	SPa	WYu

#	Activity Name	Orig Dur	Start	Finish
82	KD-3b - Required Date for C4 Access	0		31-Oct-19*
83	KD-3a - EOTO 1-30 Current Date	0		24-Feb-20*
84	KD-3a - DBJV Forecast (01 Sep 19)	0		24-Feb-20
85	Wearing Course	115	12-Sep-19*	03-Feb-20
86	**Requirement**			
87	Overall EVA Provision - DBJV Estimation	0		25-Nov-19*
88	**Portion N12 & Portion N6B**			
89	CLP Substation - Prepare for CLP Consent for de-energization	96	02-Sep-19	27-Dec-19
90	CLP Substation - De-energization	24	28-Dec-19	29-Jan-20
91	CLP Substation - Dismantling & Removal	85	30-Jan-20	02-Jun-20
92	VO-009 Temporary Protection Barrier - Dismantling & Removal	32	30-Jan-20	25-Mar-20
93	Provision for Utilities - Portion N12 & N6B	133	15-Apr-19A	25-Sep-19
94	**NPO5 (ML03)**			
95	Subbase / Kerb / Cable Duct Provision	25	02-Sep-19	02-Oct-19
96	Road Base 1st Layer	2	03-Oct-19	04-Oct-19
97	Road Base 2nd Layer	18	22-Nov-19	12-Dec-19
98	Base Course	18	18-Dec-19	10-Jan-20
99	Wearing Course	12	16-Jan-20	01-Feb-20
100	**NPO5 (ML02) + NP05 (MD)**			
101	Concrete Road breaking	6	07-Sep-19	13-Sep-19
102	UU & Formation	30	05-Oct-19	09-Nov-19
103	Subbase / Kerb / Cable Duct Provision	6	11-Nov-19	16-Nov-19
104	Road Base 1st Layer	2	18-Nov-19	19-Nov-19
105	Road Base 2nd Layer	18	25-Nov-19	14-Dec-19
106	Base Course	18	20-Dec-19	13-Jan-20
107	Wearing Course	12	17-Jan-20	03-Feb-20
108	**Portion N6**			
109	Road Base 2nd Layer	16	08-Oct-19*	25-Oct-19
110	Base Course	18	26-Oct-19	15-Nov-19
111	Wearing Course	18	16-Nov-19	06-Dec-19
112	**Retaining Wall A**			
113	Subbase / Kerb / Cable Duct Provision	11	02-Oct-19*	15-Oct-19
114	Road Base 1st Layer	3	16-Oct-19	18-Oct-19
115	Road Base 2nd Layer	18	19-Oct-19	08-Nov-19
116	Base Course	18	09-Nov-19	29-Nov-19
117	Wearing Course	18	30-Nov-19	20-Dec-19
118	**North Launching Shaft**			
119	Provision for Utilities - NLS	48	05-Aug-19A	30-Sep-19
120	**Roundabout at NLS**			
121	UU & Formation	18	05-Oct-19	26-Oct-19
122	Subbase / Kerb / Cable Duct Provision	6	28-Oct-19	02-Nov-19
123	Road Base 1st Layer	2	04-Nov-19	05-Nov-19
124	Road Base 2nd Layer	18	06-Nov-19	26-Nov-19
125	Base Course	18	27-Nov-19	17-Dec-19
126	Wearing Course	18	18-Dec-19	10-Jan-20
127	**Carpark**			
128	UU & Formation	15	21-Oct-19	06-Nov-19
129	Subbase / Kerb / Cable Duct Provision	12	07-Nov-19	20-Nov-19
130	Road Base 1st Layer	2	21-Nov-19	22-Nov-19
131	Road Base 2nd Layer	18	23-Nov-19	13-Dec-19
132	Base Course	18	14-Dec-19	07-Jan-20
133	Wearing Course	18	08-Jan-20	31-Jan-20
134	**Retaining Wall A to B**			
135	Subbase / Kerb / Cable Duct Provision	32	09-Sep-19	18-Oct-19
136	Road Base 1st Layer	4	19-Oct-19	23-Oct-19
137	Road Base 2nd Layer	18	24-Oct-19	13-Nov-19
138	Base Course	18	14-Nov-19	04-Dec-19
139	Wearing Course	18	05-Dec-19	27-Dec-19
140	**NPO3**			
141	UU & Formation	20	19-Oct-19	11-Nov-19
142	Subbase / Kerb / Cable Duct Provision	10	12-Nov-19	22-Nov-19
143	Road Base 1st Layer	2	23-Nov-19	25-Nov-19
144	Road Base 2nd Layer	18	26-Nov-19	16-Dec-19
145	Base Course	18	17-Dec-19	09-Jan-20
146	Wearing Course	16	10-Jan-20	31-Jan-20
147	**Sloping Seawall**			
148	**Workshop 14-9**			
149	UU & Formation	127	06-May-19A	05-Oct-19
150	Subbase / Kerb / Cable Duct Provision	7	08-Oct-19	15-Oct-19
151	Road Base 1st Layer	2	16-Oct-19	17-Oct-19
152	Road Base 2nd Layer	18	18-Oct-19	07-Nov-19
153	Base Course	18	08-Nov-19	28-Nov-19
154	Wearing Course	18	29-Nov-19	19-Dec-19
155	**Workshop 9-1**			
156	UU & Formation	107	07-Jun-19A	15-Oct-19
157	Subbase / Kerb / Cable Duct Provision	8	16-Oct-19	24-Oct-19
158	Road Base 1st Layer	3	25-Oct-19	28-Oct-19
159	Road Base 2nd Layer	18	29-Oct-19	18-Nov-19
160	Base Course	18	19-Nov-19	09-Dec-19
161	Wearing Course	18	10-Dec-19	02-Jan-20
162	**Outfall C 1/2**			
163	UU & Formation	86	10-Jul-19A	21-Oct-19
164	Subbase / Kerb / Cable Duct Provision	6	22-Oct-19	28-Oct-19



Data Date: 01-Sep-19

Planned Bar
Planned Milestone
Key Date
Progress Milestone
Progress Bar

TMCLKL Northern Connection Sub-sea Tunnel Section

Detailed Works Programme Rev. K

Three Months Rolling Programme

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved
22-Dec-17	Rev.H	WYu	
05-Feb-18	Rev.IAC	WYu	
07-Mar-18	Rev.I	WYu	
04-Jun-18	Rev.J	WYu	
11-Nov-19	Rev.K	SPa	WYu
22-Jan-20	Rev.K1	SPa	WYu

#	Activity Name	Orig Dur	Start	Finish
165	Road Base 1st Layer	2	29-Oct-19	30-Oct-19
166	Road Base 2nd Layer	14	26-Nov-19	11-Dec-19
167	Base Course	14	16-Dec-19	03-Jan-20
168	Wearing Course	12	07-Jan-20	20-Jan-20
169	**Outfall C 2/2**			
170	UU & Formation	12	02-Nov-19	15-Nov-19
171	Subbase / Kerb / Cable Duct Provision	6	16-Nov-19	22-Nov-19
172	Road Base 1st Layer	2	23-Nov-19	25-Nov-19
173	Road Base 2nd Layer	14	28-Nov-19	13-Dec-19
174	Base Course	14	17-Dec-19	04-Jan-20
175	Wearing Course	12	08-Jan-20	21-Jan-20
176	**Precast Segment Yard**			
177	**Roundabout/G4**			
178	Subbase / Kerb / Cable Duct Provision	24	02-Sep-19	30-Sep-19
179	Road Base 1st Layer	2	02-Oct-19	03-Oct-19
180	Road Base 2nd Layer	18	04-Oct-19	25-Oct-19
181	Base Course	18	26-Oct-19	15-Nov-19
182	Wearing Course	18	16-Nov-19	06-Dec-19
183	**NVS & STP (Portion N7 Interface)**			
184	**North Ventilation Building**			
185	Subbase / Kerb / Cable Duct Provision	9	02-Sep-19	11-Sep-19
186	Road Base 1st Layer	2	12-Sep-19	13-Sep-19
187	Road Base 2nd Layer	18	23-Oct-19	12-Nov-19
188	Base Course	18	13-Nov-19	03-Dec-19
189	Wearing Course	18	04-Dec-19	24-Dec-19
190	**FSD/CEDD**			
191	Subbase / Kerb / Cable Duct Provision	18	02-Sep-19	23-Sep-19
192	Road Base 1st Layer	2	24-Sep-19	25-Sep-19
193	Road Base 2nd Layer	18	26-Sep-19	18-Oct-19
194	Base Course	18	19-Oct-19	08-Nov-19
195	Wearing Course	18	09-Nov-19	29-Nov-19
196	**Northern Landfall - Overall**			
197	Street Furniture & Road Marking	2	04-Feb-20	24-Feb-20
198	**Remaining Internal Structure KD-2c**			
199	[KD-2c] - EOTO 1-30 Current Date	0		30-Nov-19*
200	[KD-2c] - ML02 DBJV Forecast (01Sep19)	0		31-Oct-19
201	[KD-2c] - ML02 Required Date for C4 Access	0		31-Oct-19*
202	[KD-2c] - Required Date for C4 Access	0		30-Nov-19*
203	[KD-2c] - ML03 DBJV Forecast (01Sep19)	0		30-Nov-19
204	**ML02 TSS**			
205	ML02 TSS CP13-SVS - Thermal Barrier Wall	47	22-Jul-19A	13-Sep-19
206	VO72 - lead time	12	16-Sep-19	28-Sep-19
207	**ML02 SVS**			
208	ML02 SVS - Water Leakage 1month (TBC)	26	27-Aug-19A	26-Sep-19
209	ML02 SVS - Thermal Barrier above OHVD	6	25-Oct-19	31-Oct-19
210	ML02 SVS - Parapet	12	18-Sep-19*	02-Oct-19
211	ML02 SVS - Walkway corbel	6	03-Oct-19	10-Oct-19
212	ML02 SVS - Thermal Barrier OHVD Soffit	6	11-Oct-19	17-Oct-19
213	ML02 SVS - Thermal Barrier Wall	6	18-Oct-19	24-Oct-19
214	VO72 - lead time	6	25-Oct-19	31-Oct-19
215	**ML02 TSA**			
216	ML02 TSA - Thermal Barrier Wall	18	02-Sep-19	23-Sep-19
217	ML02 TSA - Thermal Barrier above OHVD	18	24-Sep-19	16-Oct-19
218	ML02 TSA - Thermal Barrier OHVD Soffit	24	24-Sep-19	23-Oct-19
219	VO72 - lead time	10	24-Oct-19	04-Nov-19
220	**ML03 TSS**			
221	ML03 TSS Entrance - Remaining OHVD	17	20-Aug-19A	07-Sep-19
222	ML03 TSS CP11-SVS - Thermal Barrier OHVD Soffit	19	17-Sep-19	10-Oct-19
223	VO72 - lead time	12	11-Oct-19	24-Oct-19
224	ML03 TSS CP11-SVS - Thermal Barrier Wall	30	19-Aug-19A	23-Sep-19
225	ML03 TSS CP13-SVS - Thermal Barrier above OHVD	18	11-Oct-19	31-Oct-19
226	**ML03 SVS**			
227	ML03 SVS - ISSG Crossing	9	09-Sep-19	19-Sep-19
228	Removal of props after ISSG Crossing	6	20-Sep-19	26-Sep-19
229	ML03 SVS - Weathertight	0		27-Sep-19*
230	ML03 SVS - Parapet	6	23-Oct-19	29-Oct-19
231	ML03 SVS - Walkway corbel	6	30-Oct-19	05-Nov-19
232	ML03 SVS - Thermal Barrier above OHVD	9	20-Nov-19	29-Nov-19
233	ML03 SVS - Thermal Barrier OHVD Soffit	6	06-Nov-19	12-Nov-19
234	ML03 SVS - Thermal Barrier Wall	6	13-Nov-19	19-Nov-19
235	VO72 - lead time	10	20-Nov-19	30-Nov-19
236	ML03 SVS - Water Leakage 1month (TBC)	26	28-Sep-19	30-Oct-19
237	**ML03 TSA**			
238	ML03 TSA - Corbel installation	93	21-May-19A	07-Sep-19
239	ML03 TSA - Parapet installation	29	27-Aug-19A	30-Sep-19
240	ML03 TSA - Walkway installation	30	02-Sep-19	09-Oct-19
241	ML03 TSA - OHVD slab	11	20-Sep-19	03-Oct-19
242	ML03 TSA - OHVD slab stitching	6	04-Oct-19	11-Oct-19
243	ML03 TSA - Thermal Barrier Wall	24	02-Oct-19	30-Oct-19
244	ML03 TSA - Thermal Barrier - OHVD Soffit	24	21-Oct-19	16-Nov-19
245	VO72 - lead time	12	18-Nov-19	30-Nov-19
246	ML03 TSA - Thermal Barrier above OHVD	12	18-Nov-19	30-Nov-19

Data Date: 01-Sep-19

Planned Bar
Planned Milestone
Key Date
Progress Milestone
Progress Bar

TMCLKL Northern Connection Sub-sea Tunnel Section

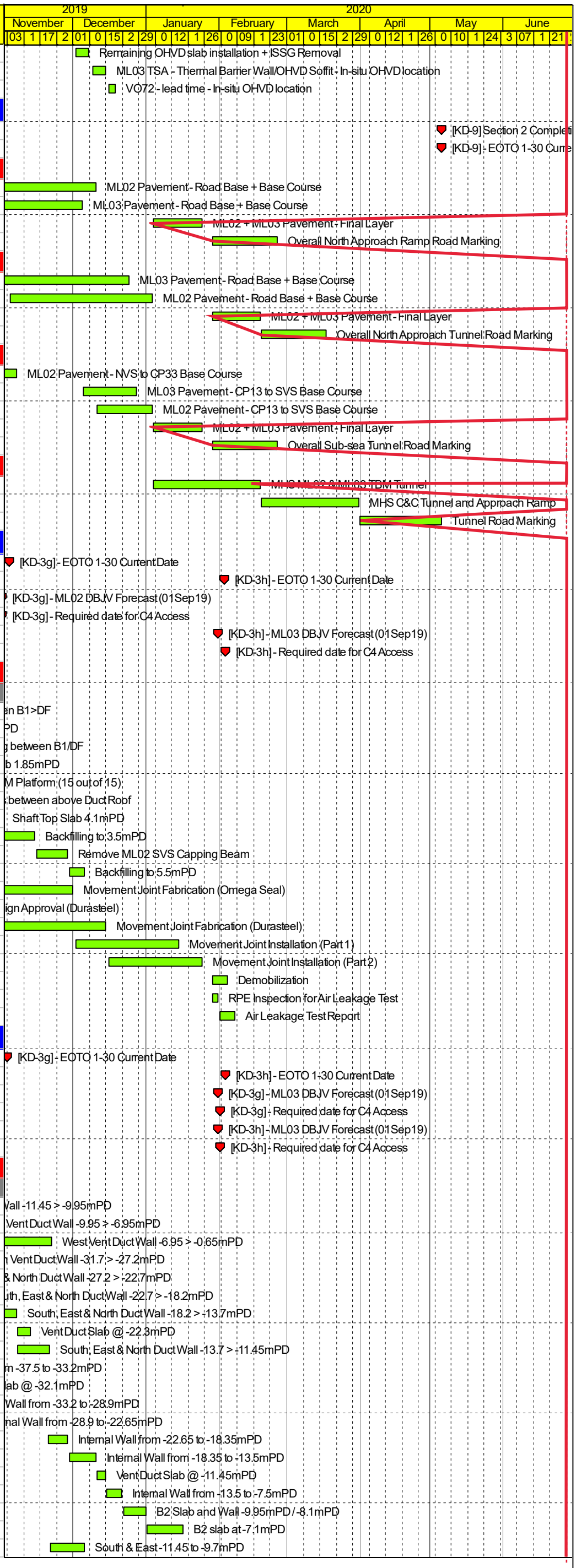
Detailed Works Programme Rev. K

Three Months Rolling Programme

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved
22-Dec-17	Rev H	WYu	
05-Feb-18	Rev IAC	WYu	
07-Mar-18	Rev I	WYu	
04-Jun-18	Rev J	WYu	
11-Nov-19	Rev K	SPa	WYu
22-Jan-20	Rev K1	SPa	WYu

#	Activity Name	Orig Dur	Start	Finish
247	Remaining OHVD slab installation + ISSG Removal	6	02-Dec-19	07-Dec-19
248	ML03 TSA - Thermal Barrier Wall/OHVD Soffit - In-situ OHVD locati	6	09-Dec-19	14-Dec-19
249	VO72 - lead time - In-situ OHVD location	3	16-Dec-19	18-Dec-19
250	**Tunnel Roadworks**			
251	[KD-9] Section 2 Completion - Tunnels and Approach Ramp	0		05-May-20
252	[KD-9] - EOTO 1-30 Current Date	0		05-May-20*
253	**North Approach Ramp & North Launching Shaft**			
254	ML02 Pavement - Road Base + Base Course	38	28-Oct-19*	10-Dec-19
255	ML03 Pavement - Road Base + Base Course	83	27-Aug-19 A	04-Dec-19
256	ML02 + ML03 Pavement - Final Layer	18	04-Jan-20	24-Jan-20
257	Overall North Approach Ramp Road Marking	8	29-Jan-20	25-Feb-20
258	**North Approach Tunnel to North Ventilation Shaft**			
259	ML03 Pavement - Road Base + Base Course	72	30-Sep-19*	24-Dec-19
260	ML02 Pavement - Road Base + Base Course	50	04-Nov-19*	03-Jan-20
261	ML02 + ML03 Pavement - Final Layer	7	29-Jan-20	18-Feb-20
262	Overall North Approach Tunnel Road Marking	19	19-Feb-20	17-Mar-20
263	**Sub-sea Tunnel**			
264	ML02 Pavement - NVS to CP33 Base Course	21	14-Oct-19*	06-Nov-19
265	ML03 Pavement - CP13 to SVS Base Course	18	05-Dec-19	27-Dec-19
266	ML02 Pavement - CP13 to SVS Base Course	18	11-Dec-19	03-Jan-20
267	ML02 + ML03 Pavement - Final Layer	18	04-Jan-20	24-Jan-20
268	Overall Sub-sea Tunnel Road Marking	8	29-Jan-20	25-Feb-20
269	**MHS TBM Tunnel, Cut & Cover & South Approach Ramp**			
270	MHS ML02 & ML03 TBM Tunnel	25	04-Jan-20	18-Feb-20
271	MHS C&C Tunnel and Approach Ramp	31	19-Feb-20	31-Mar-20
272	Tunnel Road Marking	24	01-Apr-20	05-May-20
273	**ML02 South Ventilation Shaft**			
274	[KD-3g] - EOTO 1-30 Current Date	0		03-Nov-19*
275	[KD-3h] - EOTO 1-30 Current Date	0		03-Feb-20*
276	[KD-3g] - ML02 DBJV Forecast (01Sep19)	0		31-Oct-19
277	[KD-3g] - Required date for C4 Access	0		31-Oct-19*
278	[KD-3h] - ML03 DBJV Forecast (01Sep19)	0		31-Jan-20
279	[KD-3h] - Required date for C4 Access	0		03-Feb-20*
280	**ML02 SVS Structure**			
281	**Above Tunnel Vent Duct**			
282	Walls between B1>DF	30	27-Aug-19 A	02-Oct-19
283	Backfilling to -0.65mPD	12	02-Sep-19	16-Sep-19
284	Dwall opening between B1/DF	12	17-Sep-19	30-Sep-19
285	DF Slab 1.85mPD	9	03-Oct-19	14-Oct-19
286	E&M Platform (15 out of 15)	6	15-Oct-19	21-Oct-19
287	Walls between above Duct Roof	3	15-Oct-19	17-Oct-19
288	Shaft Top Slab 4.1mPD	12	18-Oct-19	31-Oct-19
289	Backfilling to 3.5mPD	12	01-Nov-19	14-Nov-19
290	Remove ML02 SVS Capping Beam	12	15-Nov-19	28-Nov-19
291	Backfilling to 5.5mPD	6	29-Nov-19	05-Dec-19
292	Movement Joint Fabrication (Omega Seal)	136	21-Jun-19 A	30-Nov-19
293	Movement Joint Design Approval (Durasteel)	0		16-Sep-19*
294	Movement Joint Fabrication (Durasteel)	75	17-Sep-19	14-Dec-19
295	Movement Joint Installation (Part 1)	35	02-Dec-19	14-Jan-20
296	Movement Joint Installation (Part 2)	32	16-Dec-19	24-Jan-20
297	Demobilization	6	29-Jan-20	04-Feb-20
298	RPE Inspection for Air Leakage Test	3	29-Jan-20	31-Jan-20
299	Air Leakage Test Report	4	01-Feb-20	07-Feb-20
300	**ML03 South Ventilation Shaft**			
301	[KD-3g] - EOTO 1-30 Current Date	0		02-Nov-19*
302	[KD-3h] - EOTO 1-30 Current Date	0		03-Feb-20*
303	[KD-3g] - ML03 DBJV Forecast (01Sep19)	0		31-Jan-20
304	[KD-3g] - Required date for C4 Access	0		01-Feb-20*
305	[KD-3h] - ML03 DBJV Forecast (01Sep19)	0		31-Jan-20
306	[KD-3h] - Required date for C4 Access	0		01-Feb-20*
307	**ML03 SVS Structure**			
308	**Above Tunnel Vent Duct**			
309	West Vent Duct Wall -11.45 > -9.95mPD	23	28-Aug-19 A	24-Sep-19
310	West Vent Duct Wall -9.95 > -6.95mPD	18	25-Sep-19	17-Oct-19
311	West Vent Duct Wall -6.95 > -0.65mPD	30	18-Oct-19	21-Nov-19
312	South, East & North Vent Duct Wall -31.7 > -27.2mPD	21	27-Aug-19 A	20-Sep-19
313	South, East & North Duct Wall -27.2 > -22.7mPD	10	21-Sep-19	03-Oct-19
314	South, East & North Duct Wall -22.7 > -18.2mPD	14	04-Oct-19	21-Oct-19
315	South, East & North Duct Wall -18.2 > -13.7mPD	14	22-Oct-19	06-Nov-19
316	Vent Duct Slab @ -22.3mPD	5	07-Nov-19	12-Nov-19
317	South, East & North Duct Wall -13.7 > -11.45mPD	12	07-Nov-19	20-Nov-19
318	Internal Wall from -37.5 to -33.2mPD	6	20-Sep-19*	26-Sep-19
319	Vent Duct Slab @ -32.1mPD	6	27-Sep-19	04-Oct-19
320	Internal Wall from -33.2 to -28.9mPD	6	05-Oct-19	12-Oct-19
321	Internal Wall from -28.9 to -22.65mPD	6	14-Oct-19	19-Oct-19
322	Internal Wall from -22.65 to -18.35mPD	8	20-Nov-19	28-Nov-19
323	Internal Wall from -18.35 to -13.5mPD	12	29-Nov-19	10-Dec-19
324	Vent Duct Slab @ -11.45mPD	4	11-Dec-19	14-Dec-19
325	Internal Wall from -13.5 to -7.5mPD	7	15-Dec-19	21-Dec-19
326	B2 Slab and Wall -9.95mPD / -8.1mPD	10	22-Dec-19	31-Dec-19
327	B2 slab at -7.1mPD	16	01-Jan-20	16-Jan-20
328	South & East -11.45 to -9.7mPD	15	21-Nov-19	05-Dec-19



Data Date: 01-Sep-19

Planned Bar
Planned Milestone
Key Date
Progress Milestone
Progress Bar

TMCLKL Northern Connection Sub-sea Tunnel Section

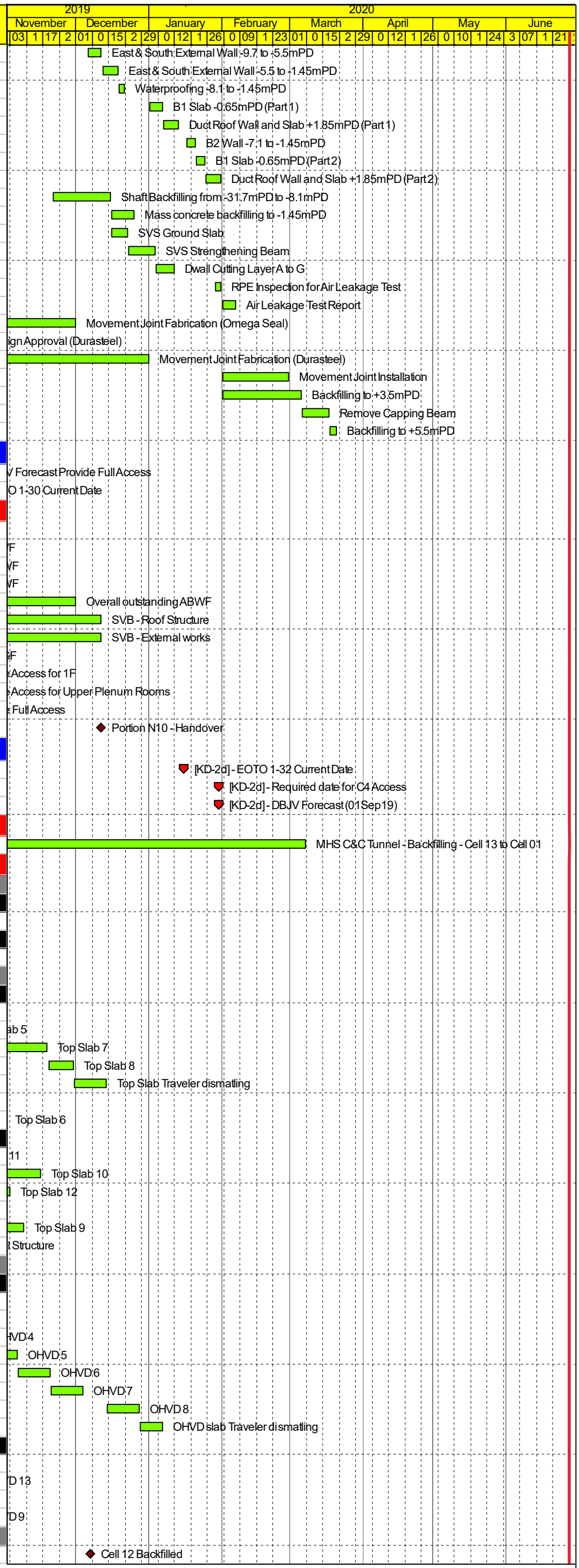
Detailed Works Programme Rev. K

Three Months Rolling Programme

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved
22-Dec-17	Rev.H	WYu	
05-Feb-18	Rev.IAC	WYu	
07-Mar-18	Rev.I	WYu	
04-Jun-18	Rev.J	WYu	
11-Nov-19	Rev.K	SPa	WYu
22-Jan-20	Rev.K1	SPa	WYu

#	Activity Name	Orig Dur	Start	Finish
329	East & South External Wall -9.7 to -5.5mPD	6	06-Dec-19	11-Dec-19
330	East & South External Wall -5.5 to -1.45mPD	7	12-Dec-19	18-Dec-19
331	Waterproofing -8.1 to -1.45mPD	3	19-Dec-19	21-Dec-19
332	B1 Slab -0.65mPD (Part 1)	6	01-Jan-20	06-Jan-20
333	Duct Roof Wall and Slab +1.85mPD (Part 1)	7	07-Jan-20	13-Jan-20
334	B2 Wall -7.1 to -1.45mPD	4	17-Jan-20	20-Jan-20
335	B1 Slab -0.65mPD (Part 2)	4	21-Jan-20	24-Jan-20
336	Duct Roof Wall and Slab +1.85mPD (Part 2)	7	25-Jan-20	31-Jan-20
337	Shaft Backfilling from -31.7mPD to -8.1mPD	25	21-Nov-19	15-Dec-19
338	Mass concrete backfilling to -1.45mPD	10	16-Dec-19	25-Dec-19
339	SVS Ground Slab	7	16-Dec-19	22-Dec-19
340	SVS Strengthening Beam	12	23-Dec-19	03-Jan-20
341	Dwall Cutting Layer A to G	8	04-Jan-20	11-Jan-20
342	RPE Inspection for Air Leakage Test	3	29-Jan-20	31-Jan-20
343	Air Leakage Test Report	6	01-Feb-20	06-Feb-20
344	Movement Joint Fabrication (Omega Seal)	136	21-Jun-19 A	30-Nov-19
345	Movement Joint Design Approval (Durasteel)	0		16-Sep-19*
346	Movement Joint Fabrication (Durasteel)	87	17-Sep-19	31-Dec-19
347	Movement Joint Installation	29	01-Feb-20	29-Feb-20
348	Backfilling to +3.5mPD	34	01-Feb-20	05-Mar-20
349	Remove Capping Beam	12	06-Mar-20	17-Mar-20
350	Backfilling to +5.5mPD	3	18-Mar-20	20-Mar-20
351	**South Ventilation Building KD-10**			
352	[KD-10] - DBJV Forecast Provide Full Access	0		30-Sep-19
353	[KD-10] - EOTO 1-30 Current Date	0		30-Sep-19*
354	**ABWF**			
355	SVB - BL1 ABWF	79	20-Jun-19 A	21-Sep-19
356	SVB - GF ABWF	85	20-Jun-19 A	28-Sep-19
357	SVB - 1F ABWF	42	12-Aug-19 A	30-Sep-19
358	SVB - 2F ABWF	27	29-Aug-19 A	30-Sep-19
359	Overall outstanding ABWF	51	02-Oct-19	30-Nov-19
360	SVB - Roof Structure	60	02-Oct-19	11-Dec-19
361	SVB - External works	60	02-Oct-19	11-Dec-19
362	SVB - Provide Access for GF	0		04-Sep-19*
363	SVB - Provide Access for 1F	0		30-Sep-19*
364	SVB - Provide Access for Upper Plenum Rooms	0		30-Sep-19*
365	SVB - Provide Full Access	0		30-Sep-19
366	Portion N10 - Handover	0		11-Dec-19*
367	**MHS Cut-and-cover Tunnel KD-2d**			
368	[KD-2d] - EOTO 1-32 Current Date	0		15-Jan-20*
369	[KD-2d] - Required date for C4 Access	0		30-Jan-20*
370	[KD-2d] - DBJV Forecast (01Sep19)	0		30-Jan-20
371	**MHS C&C Tunnel Backfilling**			
372	MHS C&C Tunnel - Backfilling - Cell 13 to Cell 01	183	10-Jul-19 A	07-Mar-20
373	**South MHS Cut-and-cover KD-2d**			
374	**Wall**			
375	**Traveller Formworks**			
376	Wall 9 - Cell 6	22	09-Aug-19 A	03-Sep-19
377	**Traditional Formworks**			
378	Wall 12 - Cell 8	40	31-Jul-19 A	16-Sep-19
379	**Top Slab**			
380	**Traveller Formworks**			
381	Top Slab 3	22	12-Aug-19 A	05-Sep-19
382	Top Slab 5	15	25-Sep-19	14-Oct-19
383	Top Slab 7	15	01-Nov-19	18-Nov-19
384	Top Slab 8	10	19-Nov-19	29-Nov-19
385	Top Slab Traveler dismatling	12	30-Nov-19	13-Dec-19
386	Top Slab 4	15	06-Sep-19	24-Sep-19
387	Top Slab 6	15	15-Oct-19	31-Oct-19
388	**Traditional Formworks**			
389	Top Slab 11	21	12-Sep-19	09-Oct-19
390	Top Slab 10	26	17-Oct-19	15-Nov-19
391	Top Slab 12	30	27-Sep-19	02-Nov-19
392	Top Slab 14	31	12-Aug-19 A	17-Sep-19
393	Top Slab 9	18	19-Oct-19	08-Nov-19
394	Portal Structure	24	18-Sep-19	17-Oct-19
395	**OHVD**			
396	**Traveller Formworks**			
397	OHVD 2	20	29-Aug-19 A	21-Sep-19
398	OHVD 3	12	23-Sep-19	08-Oct-19
399	OHVD 4	12	09-Oct-19	22-Oct-19
400	OHVD 5	12	23-Oct-19	05-Nov-19
401	OHVD 6	12	06-Nov-19	19-Nov-19
402	OHVD 7	12	20-Nov-19	03-Dec-19
403	OHVD 8	10	14-Dec-19	27-Dec-19
404	OHVD slab Traveler dismatling	7	28-Dec-19	06-Jan-20
405	**Traditional Formworks**			
406	OHVD 12	25	28-Aug-19 A	26-Sep-19
407	OHVD 13	21	23-Sep-19	18-Oct-19
408	OHVD 10	21	24-Aug-19 A	18-Sep-19
409	OHVD 9	18	26-Sep-19	18-Oct-19
410	**Backfilling**			
411	Cell 12 Backfilled	0		07-Dec-19*



Data Date: 01-Sep-19

Planned Bar
Planned Milestone
Key Date
Progress Milestone
Progress Bar

TMCLKL Northern Connection Sub-sea Tunnel Section

Detailed Works Programme Rev. K

Three Months Rolling Programme

Dragages Hong Kong 香港寶嘉 — A member of the Bouygues Construction group

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Date	Revision	Checked	Approved
22-Dec-17	Rev.H	WYu	
05-Feb-18	Rev.IAC	WYu	
07-Mar-18	Rev.I	WYu	
04-Jun-18	Rev.J	WYu	
11-Nov-19	Rev.K	SPa	WYu
22-Jan-20	Rev.K1	SPa	WYu

#	Activity Name	Orig Dur	Start	Finish
412	Cell 11 Backfilled	0		07-Dec-19*
413	Cell 10 Backfilled	0		11-Jan-20*
414	Cell 9 Backfilled	0		11-Jan-20*
415	Cell 8 Backfilled	0		18-Jan-20*
416	Cell 7 Backfilled	0		18-Jan-20*
417	Cell 6 Backfilled	0		08-Feb-20*
418	Cell 5 Backfilled	0		22-Feb-20*
419	Cell 4 Backfilled	0		22-Feb-20*
420	Cell 3 Backfilled	0		29-Feb-20*
421	Cell 2 Backfilled	0		07-Mar-20*
422	Cell 1 Backfilled	0		07-Mar-20*
423	**Parapet Installation**			
424	Parapet ML03 - Cell 2	18	04-Oct-19	25-Oct-19
425	Parapet ML03 - Cell 3	18	16-Oct-19	05-Nov-19
426	Parapet ML03 - Cell 4	18	30-Oct-19	19-Nov-19
427	Parapet ML03 - Cell 5	18	13-Nov-19	03-Dec-19
428	Parapet ML03 - Cell 6	7	04-Dec-19	11-Dec-19
429	Parapet ML03 - Cell 7	7	12-Dec-19	19-Dec-19
430	Parapet ML03 - Cell 8	7	07-Jan-20	14-Jan-20
431	Parapet ML02 - Cell 2	18	22-Oct-19	11-Nov-19
432	Parapet ML02 - Cell 3	18	26-Oct-19	15-Nov-19
433	Parapet ML02 - Cell 4	18	30-Oct-19	19-Nov-19
434	Parapet ML02 - Cell 5	18	13-Nov-19	03-Dec-19
435	Parapet ML02 - Cell 6	7	04-Dec-19	11-Dec-19
436	Parapet ML02 - Cell 7	7	12-Dec-19	19-Dec-19
437	Parapet ML02 - Cell 8	7	07-Jan-20	14-Jan-20
438	Parapet ML02 & ML03 - Cell 13	18	25-Oct-19	14-Nov-19
439	Parapet ML02 & ML03 - Cell 12	18	11-Nov-19	30-Nov-19
440	Parapet ML02 & ML03 - Cell 11	18	25-Nov-19	14-Dec-19
441	Parapet ML02 & ML03 - Cell 10	18	09-Dec-19	31-Dec-19
442	Parapet ML02 & ML03 - Cell 9	18	23-Dec-19	15-Jan-20
443	**Thermal Barrier (Wall + OHVD Soffit)**			
444	FP ML03 - Cell 2 (by scaffolding)	8	07-Nov-19	14-Nov-19
445	FP ML03 - Cell 3 (by scaffolding)	8	15-Nov-19	22-Nov-19
446	FP ML03 - Cell 4 (by scaffolding)	8	23-Nov-19	30-Nov-19
447	FP ML03 - Cell 5 (by scaffolding)	8	04-Dec-19	11-Dec-19
448	FP ML03 - Cell 6 (by scaffolding)	8	12-Dec-19	19-Dec-19
449	FP ML03 - Cell 7 (by scaffolding)	8	20-Dec-19	27-Dec-19
450	FP ML03 - Cell 8 (by scaffolding)	8	15-Jan-20	22-Jan-20
451	ML03 - VO72 Lead time	6	23-Jan-20	28-Jan-20*
452	FP ML02 - Cell 2 (by platform + scaffolding)	8	12-Nov-19	19-Nov-19
453	FP ML02 - Cell 3 (by platform + scaffolding)	8	20-Nov-19	27-Nov-19
454	FP ML02 - Cell 4 (by platform + scaffolding)	8	28-Nov-19	05-Dec-19
455	FP ML02 - Cell 5 (by platform + scaffolding)	8	06-Dec-19	13-Dec-19
456	FP ML02 - Cell 6 (by platform + scaffolding)	8	14-Dec-19	21-Dec-19
457	FP ML02 - Cell 7 (by platform + scaffolding)	8	22-Dec-19	29-Dec-19
458	FP ML02 - Cell 8 (by platform + scaffolding)	8	15-Jan-20	22-Jan-20
459	ML02 - VO72 Lead time	7	23-Jan-20	29-Jan-20*
460	FP ML02 & ML03 - Cell 13 no OHVD	12	15-Nov-19	26-Nov-19
461	FP ML02 & ML03 - Cell 12	8	01-Dec-19	08-Dec-19
462	FP ML02 & ML03 - Cell 11	8	15-Dec-19	22-Dec-19
463	FP ML02 & ML03 - Cell 10	8	01-Jan-20	08-Jan-20
464	FP ML02 & ML03 - Cell 9	8	16-Jan-20	23-Jan-20
465	ML02 & ML03 - VO72 Lead time	7	24-Jan-20	30-Jan-20*
466	**Thermal Barrier (above OHVD)**			
467	FP ML02 & ML03 - Cell 2	6	07-Nov-19	12-Nov-19
468	FP ML02 & ML03 - Cell 3	6	13-Nov-19	18-Nov-19
469	FP ML02 & ML03 - Cell 4	6	19-Nov-19	24-Nov-19
470	FP ML02 & ML03 - Cell 5	6	25-Nov-19	30-Nov-19
471	FP ML02 & ML03 - Cell 6	6	01-Dec-19	06-Dec-19
472	FP ML02 & ML03 - Cell 7	6	07-Dec-19	12-Dec-19
473	FP ML02 & ML03 - Cell 8	6	28-Dec-19	02-Jan-20
474	FP ML02 & ML03 - Cell 12	6	27-Nov-19	02-Dec-19
475	FP ML02 & ML03 - Cell 11	6	03-Dec-19	08-Dec-19
476	FP ML02 & ML03 - Cell 10	6	09-Dec-19	14-Dec-19
477	FP ML02 & ML03 - Cell 9	6	15-Dec-19	20-Dec-19
478	**Cell 1 Interface**			
479	**SCC Section + Headwall**			
480	Base slab connection Cell 1 / 2 + backfilling	26	26-Aug-19 A	20-Sep-19
481	Base slab at Headwall	7	31-Oct-19	06-Nov-19
482	Wall Kicker	3	07-Nov-19	09-Nov-19
483	Tympanum waterproofing spray + Membrane	15	26-Sep-19	10-Oct-19
484	ML03 Wall	21	21-Sep-19	11-Oct-19
485	ML02 Wall	17	27-Sep-19	13-Oct-19
486	ML03 OHVD slab	25	12-Oct-19	05-Nov-19
487	ML02 OHVD slab	24	14-Oct-19	06-Nov-19
488	Wall at Headwall location	8	16-Nov-19	23-Nov-19
489	OHVD slab at Headwall location	8	24-Nov-19	01-Dec-19
490	ML02 & ML03 Top slab	54	06-Nov-19	29-Dec-19
491	ML02 & ML03 Falsework dismantling	8	30-Dec-19	06-Jan-20
492	**Transition Structure**			
493	Preparation works	36	19-Aug-19 A	30-Sep-19
494	Tympanum waterproofing	20	01-Oct-19	20-Oct-19
495	Base slab	10	21-Oct-19	30-Oct-19

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TMCLKL Northern Connection Sub-sea Tunnel Section

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Dragages HongKong 香港寶嘉
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BOUYGUES TRAVAUX PUBLICS

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22-Dec-17	Rev.H	WYu	
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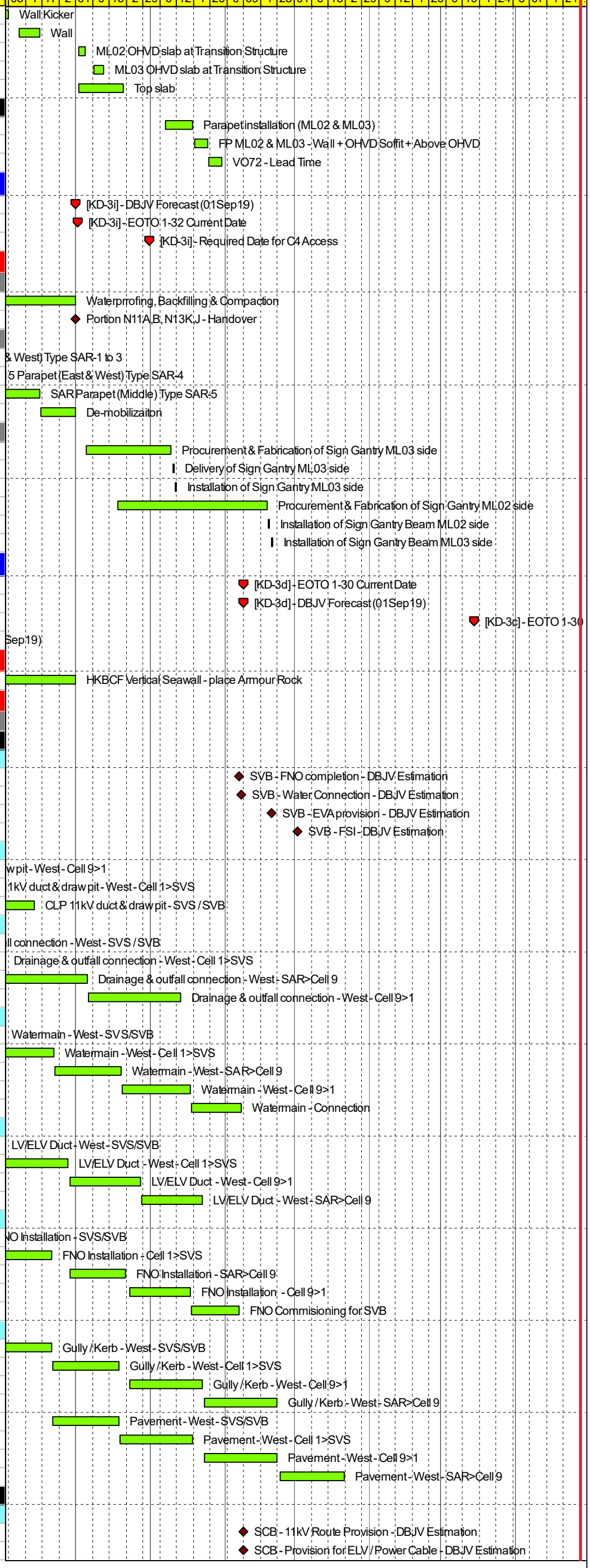
04-Jun-18	Rev.J	WYu	
11-Nov-19	Rev.K	SPa	WYu
22-Jan-20	Rev.K1	SPa	WYu

#	Activity Name	Orig Dur	Start	Finish
496	Wall Kicker	3	31-Oct-19	02-Nov-19
497	Wall	9	07-Nov-19	15-Nov-19
498	ML02 OHVD slab at Transition Structure	3	02-Dec-19	04-Dec-19
499	ML03 OHVD slab at Transition Structure	5	08-Dec-19	12-Dec-19
500	Top slab	19	02-Dec-19	20-Dec-19
501	**Internal Structure**			
502	Parapet installation (ML02 & ML03)	12	07-Jan-20	18-Jan-20
503	FP ML02 & ML03 - Wall + OHVD Soffit + Above OHVD	6	19-Jan-20	24-Jan-20
504	VO72 - Lead Time	6	25-Jan-20	30-Jan-20*
505	**MHS Approach Ramp KD-3i**			
506	[KD-3i] - DBJV Forecast (01Sep19)	0		30-Nov-19
507	[KD-3i] - EOTO 1-32 Current Date	0		01-Dec-19*
508	[KD-3i] - Required Date for C4 Access	0		31-Dec-19*
509	**South Approach Ramp**			
510	**RC Structure**			
511	Waterprrofing, Backfilling & Compaction	217	11-Mar-19A	30-Nov-19
512	Portion N11A,B, N13K,J - Handover	0		30-Nov-19
513	**Internal Structure**			
514	SAR Parapet (East & West) Type SAR-1 to 3	40	02-Aug-19A	18-Sep-19
515	Cell 14/15 Parapet (East & West) Type SAR-4	18	19-Sep-19	11-Oct-19
516	SAR Parapet (Middle) Type SAR-5	30	12-Oct-19	15-Nov-19
517	De-mobilizaiton	13	16-Nov-19	30-Nov-19
518	**Sign Gantry**			
519	Procurement & Fabrication of Sign Gantry ML03 side	28	05-Dec-19*	09-Jan-20
520	Delivery of Sign Gantry ML03 side	1	10-Jan-20	10-Jan-20
521	Installation of Sign Gantry ML03 side	1	11-Jan-20	11-Jan-20
522	Procurement & Fabrication of Sign Gantry ML02 side	37	18-Dec-19*	18-Feb-20
523	Installation of Sign Gantry Beam ML02 side	0	19-Feb-20	19-Feb-20
524	Installation of Sign Gantry Beam ML03 side	0	20-Feb-20	20-Feb-20
525	**Southern Landfall - Surface**			
526	[KD-3d] - EOTO 1-30 Current Date	0		08-Feb-20*
527	[KD-3d] - DBJV Forecast (01Sep19)	0		08-Feb-20
528	[KD-3c] - EOTO 1-30 Current Date	0		14-May-20*
529	[KD-3c] - DBJV Forecast (01Sep19)	0		01-Sep-19
530	**HKBCF Seawall Modification (schedule TBC)**			
531	HKBCF Vertical Seawall - place Armour Rock	81	26-Aug-19A	30-Nov-19
532	**UU / At-grade works**			
533	**South Road & Drain**			
534	**South Ventilation Building - Provision for FSI**			
535	**Requirement**			
536	SVB - FNO completion - DBJV Estimation	0		06-Feb-20
537	SVB - Water Connection - DBJV Estimation	0		07-Feb-20
538	SVB - EVA provision - DBJV Estimation	0		20-Feb-20
539	SVB - FSI - DBJV Estimation	0		02-Mar-20
540	**CLP 11kV**			
541	CLP 11kV duct & draw pit - West - Cell 9>1	51	18-Jul-19A	16-Sep-19
542	CLP 11kV duct & draw pit - West - Cell 1>SVS	24	17-Sep-19	16-Oct-19
543	CLP 11kV duct & draw pit - SVS / SVB	24	17-Oct-19	13-Nov-19
544	**Drainage**			
545	Drainage & outfall connection - West - SVS / SVB	30	20-Aug-19A	24-Sep-19
546	Drainage & outfall connection - West - Cell 1>SVS	30	25-Sep-19	31-Oct-19
547	Drainage & outfall connection - West - SAR>Cell 9	30	01-Nov-19	05-Dec-19
548	Drainage & outfall connection - West - Cell 9>1	30	06-Dec-19	13-Jan-20
549	**Watermain**			
550	Watermain - West - SVS/SVB	24	02-Oct-19*	30-Oct-19
551	Watermain - West - Cell 1>SVS	18	01-Nov-19	21-Nov-19
552	Watermain - West - SAR>Cell 9	24	22-Nov-19	19-Dec-19
553	Watermain - West - Cell 9>1	22	20-Dec-19	17-Jan-20
554	Watermain - Connection	13	18-Jan-20	07-Feb-20
555	**LV/ELV**			
556	LV/ELV Duct - West - SVS/SVB	24	02-Oct-19*	30-Oct-19
557	LV/ELV Duct - West - Cell 1>SVS	24	31-Oct-19	27-Nov-19
558	LV/ELV Duct - West - Cell 9>1	24	28-Nov-19	27-Dec-19
559	LV/ELV Duct - West - SAR>Cell 9	21	28-Dec-19	22-Jan-20
560	**Provision for FNO**			
561	FNO Installation - SVS/SVB	18	02-Oct-19	23-Oct-19
562	FNO Installation - Cell 1>SVS	18	31-Oct-19	20-Nov-19
563	FNO Installation - SAR>Cell 9	21	28-Nov-19	21-Dec-19
564	FNO Installation - Cell 9>1	20	23-Dec-19	17-Jan-20
565	FNO Commisioning for SVB	13	18-Jan-20	06-Feb-20
566	**Gully / Kerb / Pavement**			
567	Gully / Kerb - West - SVS/SVB	24	24-Oct-19*	20-Nov-19
568	Gully / Kerb - West - Cell 1>SVS	24	21-Nov-19	18-Dec-19
569	Gully / Kerb - West - Cell 9>1	24	23-Dec-19	22-Jan-20
570	Gully / Kerb - West - SAR>Cell 9	9	23-Jan-20	22-Feb-20
571	Pavement - West - SVS/SVB	24	21-Nov-19	18-Dec-19
572	Pavement - West - Cell 1>SVS	24	19-Dec-19	18-Jan-20
573	Pavement - West - Cell 9>1	9	23-Jan-20	22-Feb-20
574	Pavement - West - SAR>Cell 9	23	24-Feb-20	21-Mar-20
575	**Satellite Control Building and Kiosk - Provision for FSI**			
576	**Requirement**			
577	SCB - 11kV Route Provision - DBJV Estimation	0		08-Feb-20
578	SCB - Provision for ELV / Power Cable - DBJV Estimation	0		08-Feb-20



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TMCLKL Northern Connection Sub-sea Tunnel Section

Detailed Works Programme Rev. K

Three Months Rolling Programme

Dragages Hong Kong 香港寶嘉

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Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

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22-Dec-17	Rev.H	WYu	
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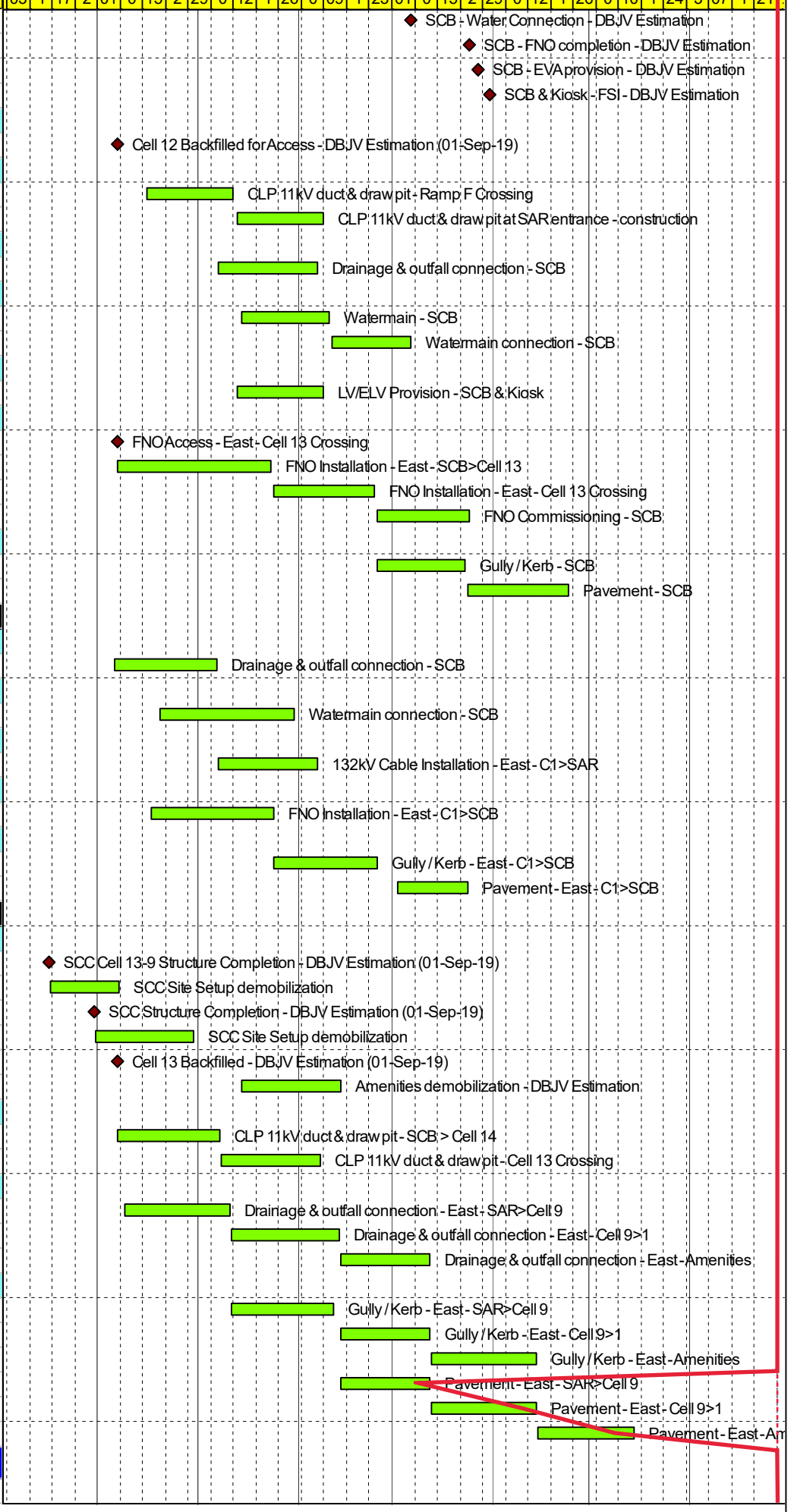
11-Nov-19	Rev.K	SPa	WYu
22-Jan-20	Rev.K1	SPa	WYu

#	Activity Name	Orig Dur	Start	Finish
579	SCB - Water Connection - DBJV Estimation	0		06-Mar-20
580	SCB - FNO completion - DBJV Estimation	0		24-Mar-20
581	SCB - EVA provision - DBJV Estimation	0		27-Mar-20
582	SCB & Kiosk - FSI - DBJV Estimation	0		31-Mar-20
583	**Interface Activities**			
584	Cell 12 Backfilled for Access - DBJV Estimation (01-Sep-19)	0		07-Dec-19*
585	**CLP 11kV**			
586	CLP 11kV duct & draw pit - Ramp F Crossing	21	16-Dec-19*	11-Jan-20
587	CLP 11kV duct & draw pit at SAR entrance - construction	18	13-Jan-20	08-Feb-20
588	**Drainage**			
589	Drainage & outfall connection - SCB	23	07-Jan-20	06-Feb-20
590	**Watermain**			
591	Watermain - SCB	17	14-Jan-20	10-Feb-20
592	Watermain connection - SCB	10	11-Feb-20	06-Mar-20
593	**LV/ELV**			
594	LV/ELV Provision - SCB & Kiosk	18	13-Jan-20	08-Feb-20
595	**Provision for FNO**			
596	FNO Access - East - Cell 13 Crossing	0	07-Dec-19	
597	FNO Installation - East - SCB>Cell 13	38	07-Dec-19	23-Jan-20
598	FNO Installation - East - Cell 13 Crossing	8	24-Jan-20	24-Feb-20
599	FNO Commissioning - SCB	25	25-Feb-20	24-Mar-20
600	**Gully / Kerb / Pavement**			
601	Gully / Kerb - SCB	24	25-Feb-20	23-Mar-20
602	Pavement - SCB	24	24-Mar-20	24-Apr-20
603	**Remaining - East - SCB to C1**			
604	**Drainage**			
605	Drainage & outfall connection - SCB	24	06-Dec-19	06-Jan-20
606	**Watermain**			
607	Watermain connection - SCB	30	20-Dec-19	30-Jan-20
608	**CLP 132kV**			
609	132kV Cable Installation - East - C1>SAR	23	07-Jan-20	06-Feb-20
610	**Provision for FNO**			
611	FNO Installation - East - C1>SCB	30	17-Dec-19	24-Jan-20
612	**Gully / Kerb / Pavement**			
613	Gully / Kerb - East - C1>SCB	8	24-Jan-20	25-Feb-20
614	Pavement - East - C1>SCB	18	02-Mar-20	24-Mar-20
615	**Remaining - East - Cell 13 to SVB**			
616	**Interface Activities**			
617	SCC Cell 13-9 Structure Completion - DBJV Estimation (01-Sep-	0		15-Nov-19
618	SCC Site Setup demobilization	19	16-Nov-19	07-Dec-19
619	SCC Structure Completion - DBJV Estimation (01-Sep-19)	0		29-Nov-19
620	SCC Site Setup demobilization	24	30-Nov-19	30-Dec-19
621	Cell 13 Backfilled - DBJV Estimation (01-Sep-19)	0		07-Dec-19*
622	Amenities demobilization - DBJV Estimation	17	14-Jan-20	14-Feb-20
623	**CLP 11kV**			
624	CLP 11kV duct & draw pit - SCB > Cell 14	24	07-Dec-19	07-Jan-20
625	CLP 11kV duct & draw pit - Cell 13 Crossing	22	08-Jan-20	07-Feb-20
626	**Drainage**			
627	Drainage & outfall connection - East - SAR>Cell 9	26	09-Dec-19	10-Jan-20
628	Drainage & outfall connection - East - Cell 9>1	19	11-Jan-20	13-Feb-20
629	Drainage & outfall connection - East - Amenities	15	14-Feb-20	12-Mar-20
630	**Gully / Kerb / Pavement**			
631	Gully / Kerb - East - SAR>Cell 9	19	11-Jan-20	11-Feb-20
632	Gully / Kerb - East - Cell 9>1	15	14-Feb-20	12-Mar-20
633	Gully / Kerb - East - Amenities	24	13-Mar-20	14-Apr-20
634	Pavement - East - SAR>Cell 9	15	14-Feb-20	12-Mar-20
635	Pavement - East - Cell 9>1	24	13-Mar-20	14-Apr-20
636	Pavement - East - Amenities	24	15-Apr-20	14-May-20
637	**As-built**			
638	NewActivity	1	02-Sep-19	02-Sep-19



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TMCLKL Northern Connection Sub-sea Tunnel Section

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Dragages · Bouygues Joint Venture 寶嘉 · 布依格聯營

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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		✓
4.8.1	3.8	Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300mm over the edges of the side and tail boards.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	No earth, mud, debris, dust and the like shall be deposited on public roads. Wheel washing facility shall be usable prior to any earthworks excavation activity on the site.	All site exits / throughout construction period	Contractor	TMEIA Avoid dust		Y		✓

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

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

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
4.8.1	3.8	Areas of exposed soil shall be minimised to areas in which works have been completed shall be restored as soon as is practicable.	All exposed surfaces / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	All stockpiles of aggregate or spoil shall be enclosed or covered and water applied in dry or windy condition.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.11	Section 3	EM&A in the form of 1 hour and 24 hour dust monitoring and site audit.	All representative existing ASRs / throughout construction period	Contractor	EM&A Manual		Y		✓
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		N/A
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		N/A

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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		N/A
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		N/A
	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		N/A
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		N/A
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		N/A

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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 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 - Reclamation dredging and filling for Portion 1 of HKLR;	TM-CLKL northern landfall, Portion D of HKBCF and HKLR	Contractor	TM-EIAO		Y		N/A
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		N/A
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		N/A
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		N/A
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		N/A
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

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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	-	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		N/A
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 Guidelines. DASO permit conditions.		Y		N/A
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		N/A
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		N/A
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		N/A
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

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	
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 conditions.		Y		N/A
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		N/A
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		N/A
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		N/A
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		✓
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		✓

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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	-	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		✓

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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	-	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		✓
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.	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	Contractor	EM&A Manual		Y	Y	Operational phase water quality monitoring commenced in June 2020.

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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	
		One year operation phase water quality monitoring at designated stations.	operational phase water quality monitoring for a year.						
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		✓
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		✓

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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	
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
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		✓

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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
12.6		The Contractor shall prepare and implement a Waste Management Plan which specifies procedures such as a ticketing system, to facilitate tracking of loads and to ensure that illegal disposal of wastes does not occur, and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed. A recording system for the amount of waste generated, recycled and disposed (locations) should be established.	Contract mobilisation	Contractor	TMEIA, Works Branch Technical Circular No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material		Y		✓
12.6		The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges.	Contract mobilisation	Contractor	TMEIA, Land (Miscellaneous Provisions) Ordinance (Cap 28); Waste Disposal Ordinance (Cap 354); Dumping at Sea Ordinance (Cap 466); Water Pollution Control Ordinance.		Y		✓
12.6	8.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures including waste reduction, reuse and recycling.	Contract Mobilisation	Contractor	TMEIA		Y		✓
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	Detailed Design	Design	TMEIA	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	
		the use of recycled aggregates where appropriate.		Consultant					
12.6	8.1	The Contractor shall be prohibited from disposing of C&D materials at any sensitive locations. The Contractor should propose the final disposal sites in the EMP and WMP for approval before implementation.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Stockpiled material shall be covered by tarpaulin and /or watered as appropriate to prevent windblown dust/ surface run off.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Excavated material in trucks shall be covered by tarpaulins to reduce the potential for spillage and dust generation.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Wheel washing facilities shall be used by all trucks leaving the site to prevent transfer of mud onto public roads.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	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		✓

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

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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
12.6	8.1	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

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Appendix D

Summary of Action and Limit Levels

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

Parameters	Action	Limit
24 Hour TSP Level in 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

Appendix E

Copies of Calibration Certificates for Air Quality Monitoring and Water Quality Monitoring

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR 5
Calibrated by	:	P.F.Yeung
Date	:	08/04/2020

Sampler

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

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	18 February 2020
Slope (m)	:	2.07134
Intercept (b)	:	-0.04091
Correlation Coefficient(r)	:	0.99999

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1016
Ta(K)	:	298

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.0	3.469	1.695	55	55.08
2	13 holes	9.5	3.087	1.510	50	50.07
3	10 holes	6.8	2.612	1.281	44	44.07
4	7 holes	4.6	2.148	1.057	37	37.05
5	5 holes	2.5	1.583	0.784	28	28.04

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):29.595 Intercept(b):5.420 Correlation Coefficient(r): 0.9986

Checked by: Magnum Fan Date: 14/04/2020

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR10
Calibrated by	:	P.F.Yeung
Date	:	08/04/2020

Sampler

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

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	18 February 2020
Slope (m)	:	2.07134
Intercept (b)	:	-0.04091
Correlation Coefficient(r)	:	0.99999

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1016
Ta(K)	:	298

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.4	3.381	1.652	54	54.08
2	13 holes	9.2	3.038	1.486	50	50.07
3	10 holes	6.5	2.553	1.252	45	45.07
4	7 holes	4.4	2.101	1.034	37	37.05
5	5 holes	2.2	1.485	0.737	27	27.04

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):29.613 Intercept(b): 6.169 Correlation Coefficient(r): 0.9943

Checked by: Magnum Fan Date: 14/04/2020

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AQMS1
Calibrated by	:	P.F.Yeung
Date	:	08/04/2020

Sampler

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

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	18 February 2020
Slope (m)	:	2.07134
Intercept (b)	:	-0.04091
Correlation Coefficient(r)	:	0.99999

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1016
Ta(K)	:	298

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.0	3.469	1.695	54	54.08
2	13 holes	9.2	3.038	1.486	50	50.07
3	10 holes	6.6	2.573	1.262	44	44.07
4	7 holes	4.4	2.101	1.034	36	36.05
5	5 holes	2.4	1.551	0.769	28	28.04

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):28.778 Intercept(b):6.516 Correlation Coefficient(r): 0.9955

Checked by: Magnum Fan Date: 14/04/2020

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR 1
Calibrated by	:	P.F.Yeung
Date	:	08/04/2020

Sampler

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

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	18 February 2020
Slope (m)	:	2.07134
Intercept (b)	:	-0.04091
Correlation Coefficient(r)	:	0.99999

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1016
Ta(K)	:	298

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.6	3.411	1.666	52	52.08
2	13 holes	9.0	3.004	1.470	48	48.07
3	10 holes	6.7	2.592	1.271	43	43.06
4	7 holes	4.4	2.101	1.034	35	35.05
5	5 holes	2.2	1.485	0.737	27	27.04

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):27.603 Intercept(b):6.950 Correlation Coefficient(r): 0.9971

Checked by: Magnum Fan Date: 14/04/2020

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR 6
Calibrated by	:	P.F.Yeung
Date	:	08/04/2020

Sampler

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

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	18 February 2020
Slope (m)	:	2.07134
Intercept (b)	:	-0.04091
Correlation Coefficient(r)	:	0.99999

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1016
Ta(K)	:	298

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.8	3.440	1.681	54	54.08
2	13 holes	9.2	3.038	1.486	49	49.07
3	10 holes	6.4	2.534	1.243	45	45.07
4	7 holes	4.5	2.124	1.045	38	38.06
5	5 holes	2.4	1.551	0.769	30	30.04

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):26.126 Intercept(b): 10.743 Correlation Coefficient(r): 0.9935

Checked by: Magnum Fan Date: 14/04/2020

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR5
Calibrated by	:	P.F.Yeung
Date	:	07/06/2020

Sampler

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

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	18 February 2020
Slope (m)	:	2.07134
Intercept (b)	:	-0.04091
Correlation Coefficient(r)	:	0.99999

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1006
Ta(K)	:	302

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.2	3.458	1.689	55	54.45
2	13 holes	9.5	3.051	1.493	50	49.50
3	10 holes	7.0	2.619	1.284	46	45.54
4	7 holes	4.8	2.169	1.067	38	37.62
5	5 holes	2.6	1.596	0.790	30	29.70

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):27.714 Intercept(b):8.311 Correlation Coefficient(r): 0.9954

Checked by: Magnum Fan Date: 10/06/2020

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR10
Calibrated by	:	P.F.Yeung
Date	:	07/06/2020

Sampler

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

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	18 February 2020
Slope (m)	:	2.07134
Intercept (b)	:	-0.04091
Correlation Coefficient(r)	:	0.99999

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1006
Ta(K)	:	302

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.2	3.313	1.619	54	53.46
2	13 holes	9.0	2.970	1.453	50	49.50
3	10 holes	6.5	2.524	1.238	45	44.55
4	7 holes	4.2	2.029	0.999	37	36.63
5	5 holes	2.4	1.534	0.760	28	27.72

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):29.805 Intercept(b): 6.184 Correlation Coefficient(r): 0.9943

Checked by: Magnum Fan Date: 10/06/2020

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AQMS1
Calibrated by	:	P.F.Yeung
Date	:	07/06/2020

Sampler

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

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	18 February 2020
Slope (m)	:	2.07134
Intercept (b)	:	-0.04091
Correlation Coefficient(r)	:	0.99999

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1006
Ta(K)	:	302

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.0	3.429	1.675	54	53.46
2	13 holes	9.2	3.003	1.469	48	47.52
3	10 holes	6.8	2.581	1.266	43	42.57
4	7 holes	4.6	2.123	1.045	37	36.63
5	5 holes	2.2	1.468	0.729	28	27.72

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):26.943 Intercept(b):8.253 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan Date: 10/06/2020

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR1
Calibrated by	:	P.F.Yeung
Date	:	07/06/2020

Sampler

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

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	18 February 2020
Slope (m)	:	2.07134
Intercept (b)	:	-0.04091
Correlation Coefficient(r)	:	0.99999

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1006
Ta(K)	:	302

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	11.8	3.400	1.661	54	53.46
2	13 holes	9.2	3.003	1.469	49	48.51
3	10 holes	6.6	2.543	1.248	44	43.56
4	7 holes	4.2	2.029	0.999	37	36.63
5	5 holes	2.3	1.501	0.745	29	28.71

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):26.712 Intercept(b):9.464 Correlation Coefficient(r): 0.9982

Checked by: Magnum Fan Date: 10/06/2020

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR6
Calibrated by	:	P.F.Yeung
Date	:	07/06/2020

Sampler

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

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	18 February 2020
Slope (m)	:	2.07134
Intercept (b)	:	-0.04091
Correlation Coefficient(r)	:	0.99999

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1006
Ta(K)	:	302

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.2	3.458	1.689	55	54.45
2	13 holes	9.4	3.035	1.485	50	49.50
3	10 holes	6.8	2.581	1.266	45	44.55
4	7 holes	4.6	2.123	1.045	38	37.62
5	5 holes	2.4	1.534	0.760	30	29.70

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):26.773 Intercept(b): 9.721 Correlation Coefficient(r): 0.9984

Checked by: Magnum Fan Date: 10/06/2020

TISCH Environmental

RECALIBRATION DUE DATE:
February 18, 2021

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	February 18, 2020	**Rootsmeter S/N:** 438320	**Ta:** 294	°K
Operator:	Jim Tisch		**Pa:** 753.1	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **2454**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4190	3.2	2.00
2	3	4	1	1.0100	6.4	4.00
3	5	6	1	0.9020	7.9	5.00
4	7	8	1	0.8600	8.8	5.50
5	9	10	1	0.7110	12.7	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0001	0.7048	1.4173	0.9958	0.7017	0.8836
0.9959	0.9860	2.0044	0.9915	0.9817	1.2496
0.9939	1.1019	2.2410	0.9895	1.0970	1.3971
0.9927	1.1543	2.3504	0.9883	1.1492	1.4653
0.9875	1.3889	2.8347	0.9831	1.3828	1.7672
QSTD	**m=**	**2.07134**	**QA**	**m=**	**1.29704**
	b=	**-0.04091**		**b=**	**-0.02551**
	r=	**0.99999**		**r=**	**0.99999**

Calculations

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

For subsequent flow rate calculations:

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

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

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

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

RECALIBRATION

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

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

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

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

Certificate of Calibration
校正證書

Certificate No. : C193443
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC19-1283) Date of Receipt / 收件日期 : 21 June 2019

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 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 2 July 2019

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 : T F Lee
Assistant Engineer

Certified By 核證 : H C Chan
Engineer

Date of Issue 簽發日期 : 5 July 2019

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

Certificate of Calibration
校正證書

Certificate No. : C193443
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
2.0	1.8	+0.2	0.2	2.0
4.0	3.8	+0.2	0.3	2.0
6.0	5.8	+0.2	0.3	2.0
8.1	7.9	+0.2	0.3	2.0
10.1	10.0	+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
c/o 4/F, 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 1號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

ENVIROTECH SERVICES CO.

Calibration Report of Wind Meter

Date of Calibration : 30 December 2019

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)
3.1	3.3
2.6	2.8
1.4	1.2

Wind Direction Test

Davis (o)	Marine Compass (o)
271	270
0	0
89	90
179	180

Calibrated by: Ho

Yeung Ping Fai
(Technical Officer)

Checked by : Fat

Ho Kam Fat
(Senior Technical Officer)

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong
Email: info@qualityprotest.com; Website: www.qualityprotest.com
Tel: (852) 3956 8717; Fax: (852) 3956 3928

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AJ060054
Date of Issue : 10 June 2020

PART A – CUSTOMER INFORMATION

Enovative Environmental Service Ltd.
Flat 2207, Yu Fun House,
Yu Chui Court, Shatin
New Territories, Hong Kong
Attn: Mr. Thomas WONG

PART B – DESCRIPTION

Name of Equipment	:	YSI ProDSS (Multi-Parameters)
Manufacturer	:	YSI (a xylem brand)
Serial Number	:	16H104234
Date of Received	:	Jun 10, 2020
Date of Calibration	:	Jun 10, 2020
Date of Next Calibration[a]	:	Sep 09, 2020

PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H^+ B
Dissolved Oxygen	APHA 21e 4500-O G
Conductivity at 25°C	APHA 21e 2510 B
Salinity	APHA 21e 2520 B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

PART D – CALIBRATION RESULTS[b,c]

(1) pH at 25°C

Target (pH unit)	Displayed Reading[d] (pH Unit)	Tolerance[e](pH Unit)	Results
4.00	3.98	-0.02	Satisfactory
7.42	7.46	0.04	Satisfactory
10.01	9.96	-0.05	Satisfactory

Tolerance of pH should be less than ±0.20 (pH unit)

(2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
10.0	10.1	0.1	Satisfactory
35.0	35.5	0.5	Satisfactory
50.0	50.2	0.2	Satisfactory

Tolerance limit of temperature should be less than ±2.0 (°C)

~ CONTINUED ON NEXT PAGE ~

Remark(s): -

[a] *The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.*
[b] *The results relate only to the calibrated equipment as received*
[c] *The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.*
[d] *"Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.*
[e] *The "Tolerance Limit" mentioned is referenced to YSI product specifications.*

LEE Chun-ning, Desmond
Senior Chemist

專業化驗有限公司
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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AJ060054
Date of Issue : 10 June 2020

PART D – CALIBRATION RESULTS (Cont'd)

(3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.40	0.40	0.00	Satisfactory
2.66	2.78	0.12	Satisfactory
5.80	5.80	0.00	Satisfactory
7.78	7.91	0.13	Satisfactory

Tolerance limit of dissolved oxygen should be less than ±0.50 (mg/L)

(4) Conductivity at 25°C

Conc. of KCl (M)	Expected Reading (µS/cm)	Displayed Reading (µS/cm)	Tolerance (%)	Results
0.001	146.9	148.2	0.88	Satisfactory
0.01	1412	1409	-0.21	Satisfactory
0.1	12890	13068	1.38	Satisfactory
0.5	58670	57992	-1.16	Satisfactory
1.0	111900	112936	0.93	Satisfactory

Tolerance limit of conductivity should be less than ±10.0 (%)

(5) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.94	-0.60	Satisfactory
20	19.92	-0.40	Satisfactory
30	30.21	0.70	Satisfactory

Tolerance limit of salinity should be less than ±10.0 (%)

(6) Turbidity

Expected Reading (NTU)	Displayed Reading[f] (NTU)	Tolerance[g] (%)	Results
0	0	--	Satisfactory
10	9.90	-1.00	Satisfactory
20	19.92	-0.40	Satisfactory
100	106.12	6.12	Satisfactory
800	796.40	-0.45	Satisfactory

Tolerance limit of turbidity should be less than ±10.0 (%)

~ END OF REPORT ~

Remark(s): -

(f) "Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.

(g) The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.

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 - June 2020

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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Jun	02-Jun	03-Jun	04-Jun	05-Jun	06-Jun
	1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM			1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM		
07-Jun	08-Jun	09-Jun	10-Jun	11-Jun	12-Jun	13-Jun
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-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
		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-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun
	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-Jun	29-Jun	30-Jun				
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 - July 2020

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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			01-Jul	02-Jul	03-Jul	04-Jul
			1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM			1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM
05-Jul	06-Jul	07-Jul	08-Jul	09-Jul	10-Jul	11-Jul
		1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM			1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM	
12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
	1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM			1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM		
19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
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
26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	
		1-hour TSP - 3 times 24-hour TSP - 1 time Impact AQM			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.

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HY/2012/08 - Tuen Mun - Chek Lap Kok Link - Northern Landfall

Operational Phase Marine Water Quality Monitoring (WQM) Schedule (June 2020)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Jun	2-Jun	3-Jun	4-Jun	5-Jun	6-Jun
7-Jun	8-Jun	9-Jun	10-Jun	11-Jun	12-Jun	13-Jun
14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
21-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun
			ebb tide 13:26 - 16:56 flood tide 20:59 - 0:29			
28-Jun	29-Jun	30-Jun				

HY/2012/08 - Tuen Mun - Chek Lap Kok Link - Northern Landfall
Operational Phase Marine Water Quality Monitoring (WQM) Schedule (July 2020)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Jul	2-Jul	3-Jul	4-Jul
5-Jul	6-Jul	7-Jul	8-Jul	9-Jul	10-Jul	11-Jul
12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
					ebb tide 13:58 - 17:28 flood tide 7:02 - 10:32	
26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	

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
Operational Phase Dolphin Monitoring Survey Monitoring Schedule - June 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Jun	02-Jun	03-Jun	04-Jun	05-Jun	06-Jun
				Operational Phase Dolphin Monitoring		
07-Jun	08-Jun	09-Jun	10-Jun	11-Jun	12-Jun	13-Jun
		Operational Phase Dolphin Monitoring		**Operational Phase Dolphin Monitoring**		
14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
		Operational Phase Dolphin Monitoring				
21-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun
28-Jun	29-Jun	30-Jun				

HY/2012/08 - Tuen Mun - Chek Lap Kok Link
Northern Connection Sub-sea Tunnel Section
Tentative Operational Phase Dolphin Monitoring Survey Monitoring Schedule - July 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			01-Jul	02-Jul	03-Jul	04-Jul
				Operational Phase Dolphin Monitoring		
05-Jul	06-Jul	07-Jul	08-Jul	09-Jul	10-Jul	11-Jul
				Operational Phase Dolphin Monitoring		
12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
		Operational Phase Dolphin Monitoring		**Operational Phase Dolphin Monitoring**		
26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	

The schedule is subject to agreement from the EPD on the monitoring times. The schedule will be revised in view of adverse(safety,weather etc) conditions.

Appendix G

Impact Air Quality Monitoring Results

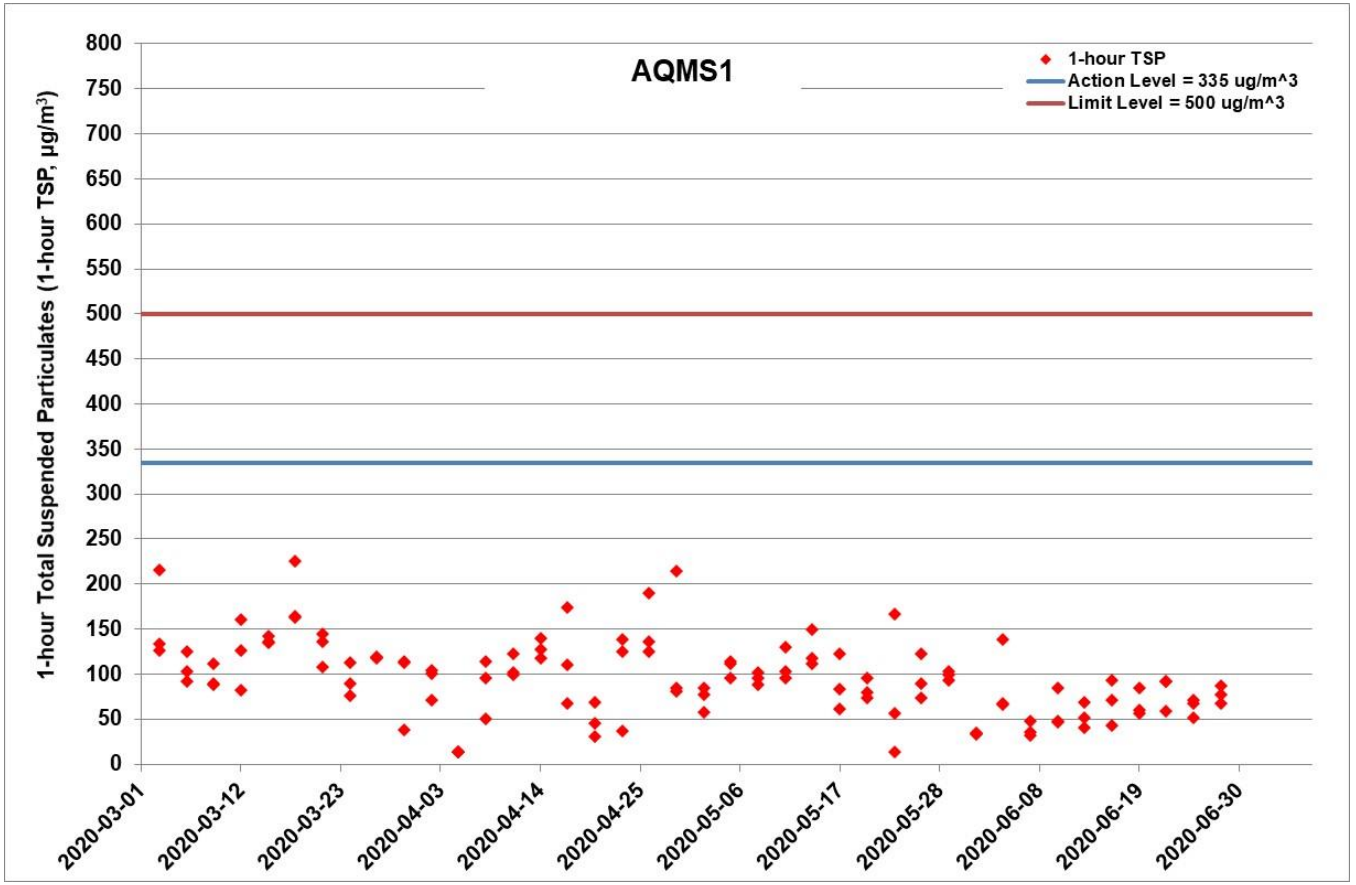

Figure G.1 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at AQMS1 between 1 March 2020 and 30 June 2020 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Road and Drainage Works at Northern Landfall and Southern Landfall, UU installation at Northern Landfall and Southern Landfall and Fireboard installation in Tunnel (1/3/2020 – 30/6/2020)

Ref: 0212330_Impact AQM graphs_June 2020.xlsx

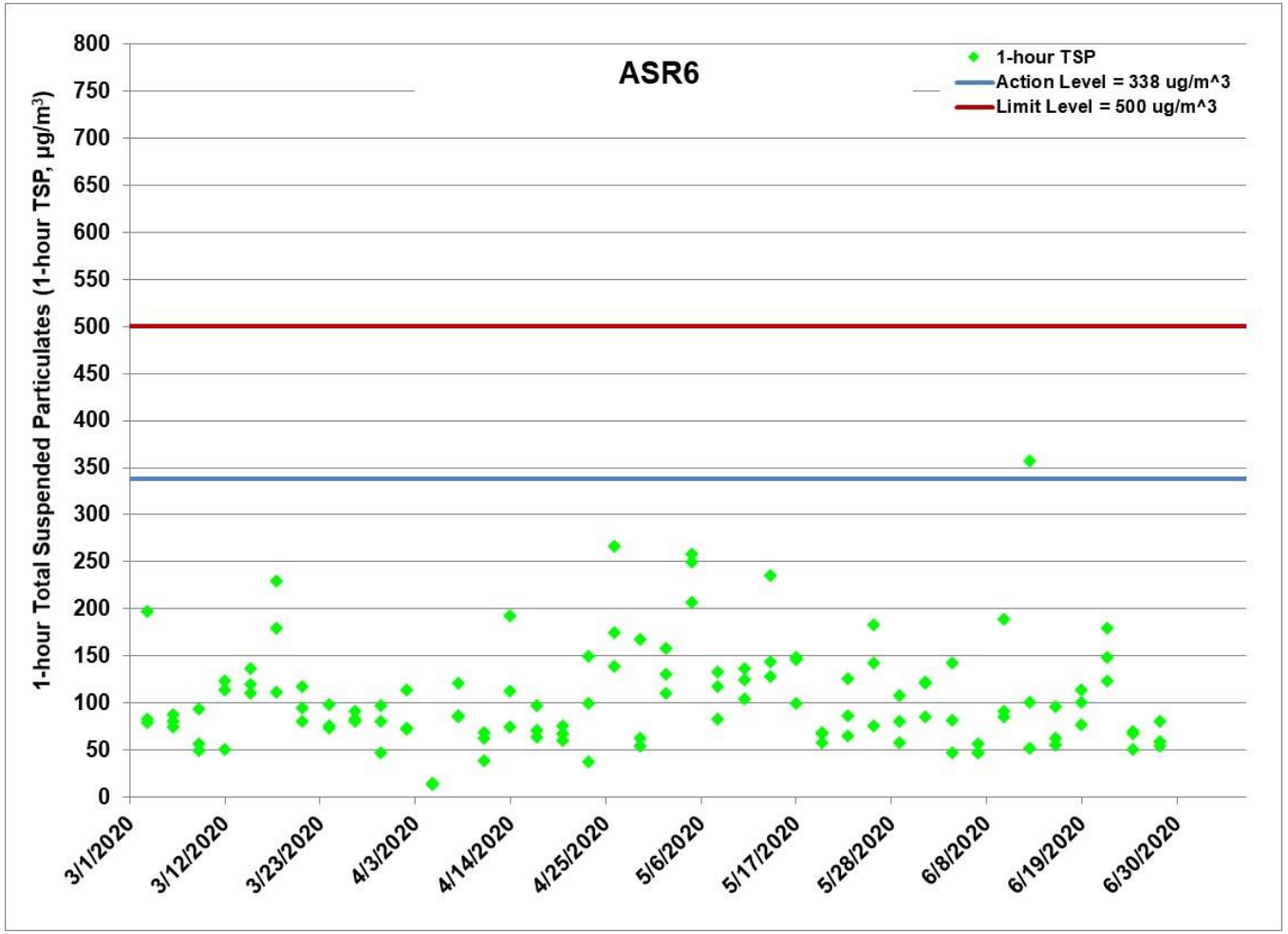

Figure G.2 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR6 between 1 March 2020 and 30 June 2020 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Road and Drainage Works at Northern Landfall and Southern Landfall, UU installation at Northern Landfall and Southern Landfall and Fireboard installation in Tunnel (1/3/2020 – 30/6/2020)

Ref: 0212330_Impact AQM graphs_June 2020.xlsx

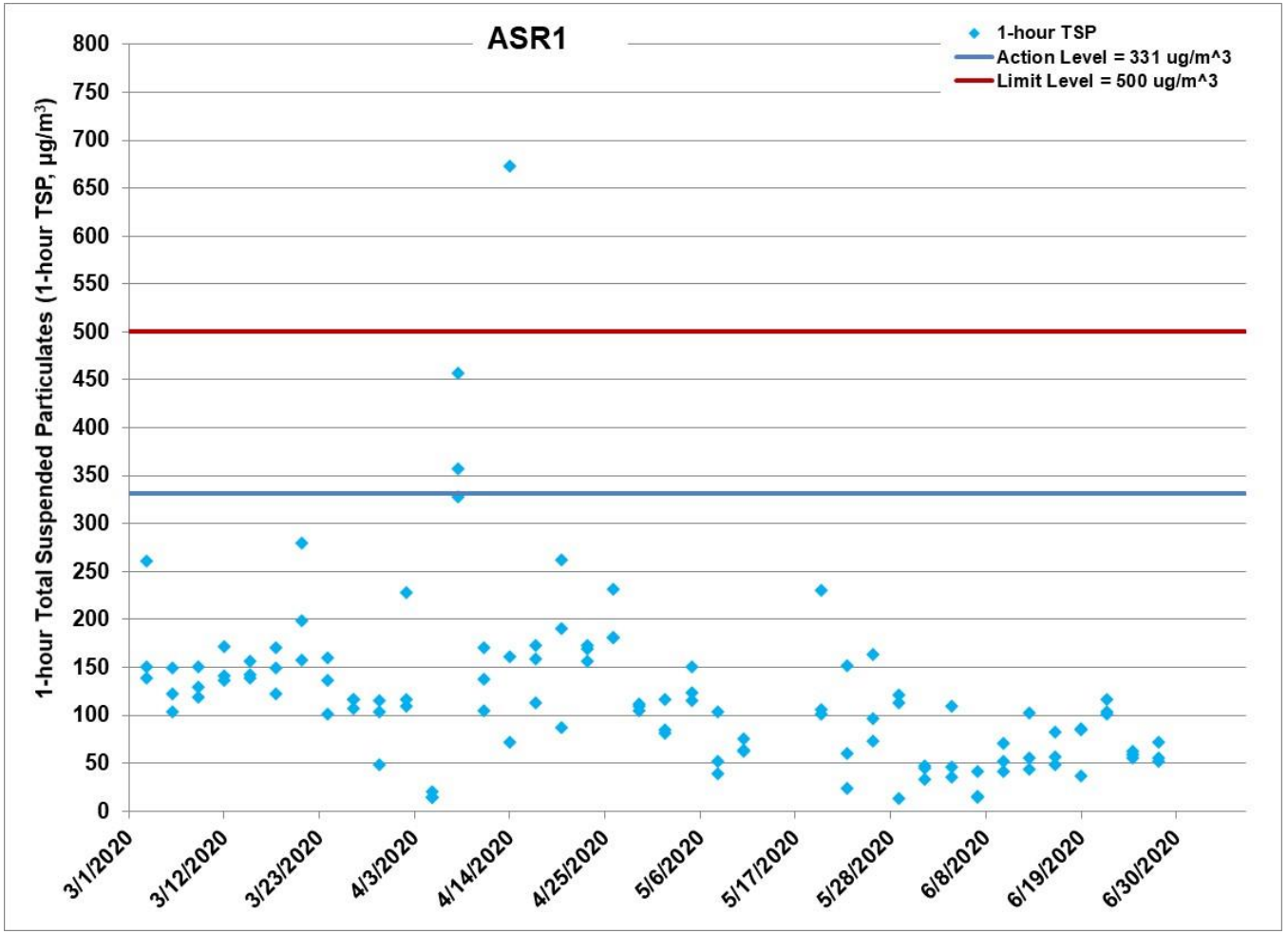

Figure G.3 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR1 between 1 March 2020 and 30 June 2020 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Road and Drainage Works at Northern Landfall and Southern Landfall, UU installation at Northern Landfall and Southern Landfall and Fireboard installation in Tunnel (1/3/2020 – 30/6/2020)

Ref: 0212330_Impact AQM graphs_June 2020.xlsx

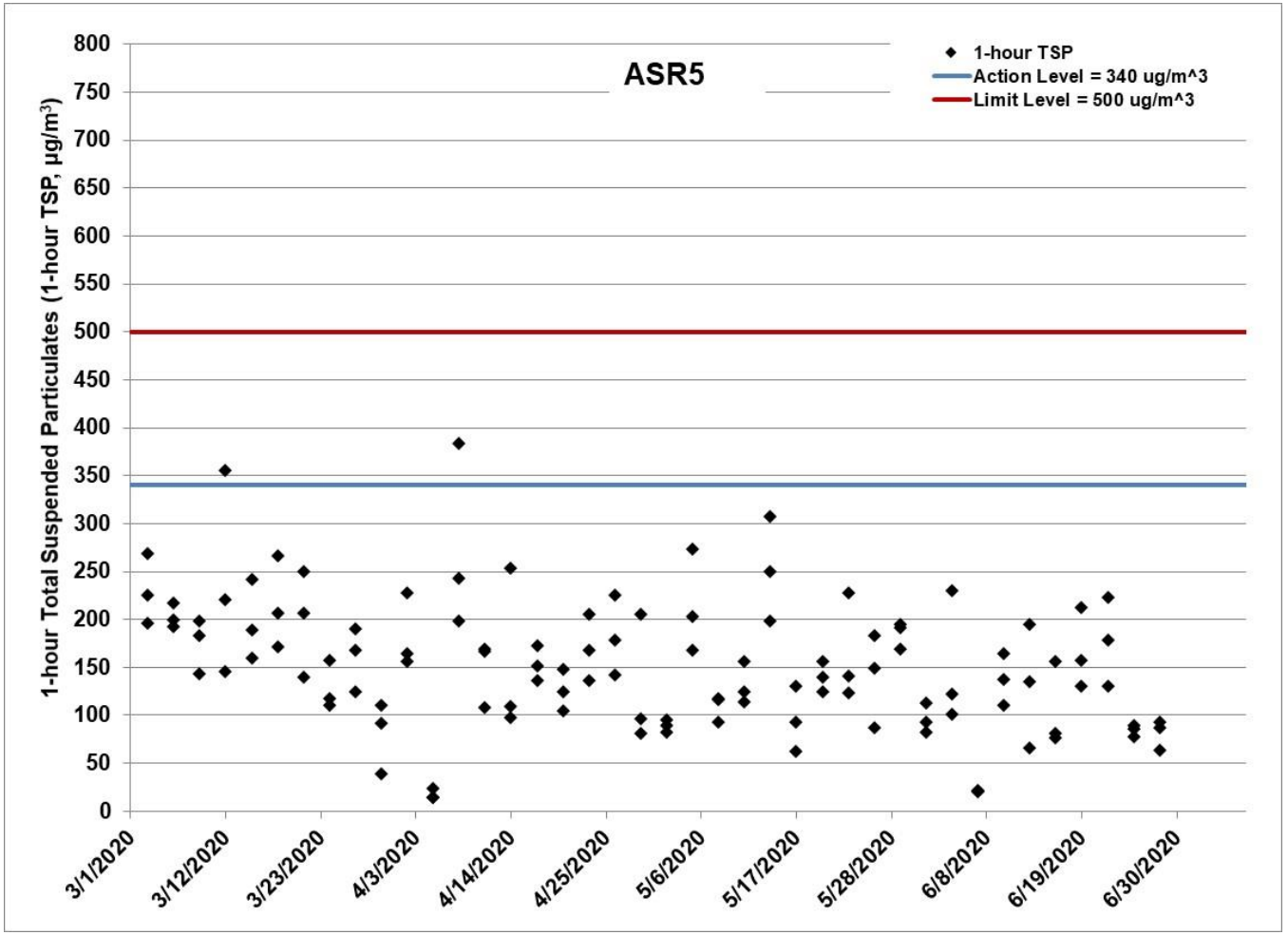

Figure G.4 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR5 between 1 March 2020 and 30 June 2020 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Road and Drainage Works at Northern Landfall and Southern Landfall, UU installation at Northern Landfall and Southern Landfall and Fireboard installation in Tunnel (1/3/2020 – 30/6/2020)

Ref: 0212330_Impact AQM graphs_June 2020.xlsx

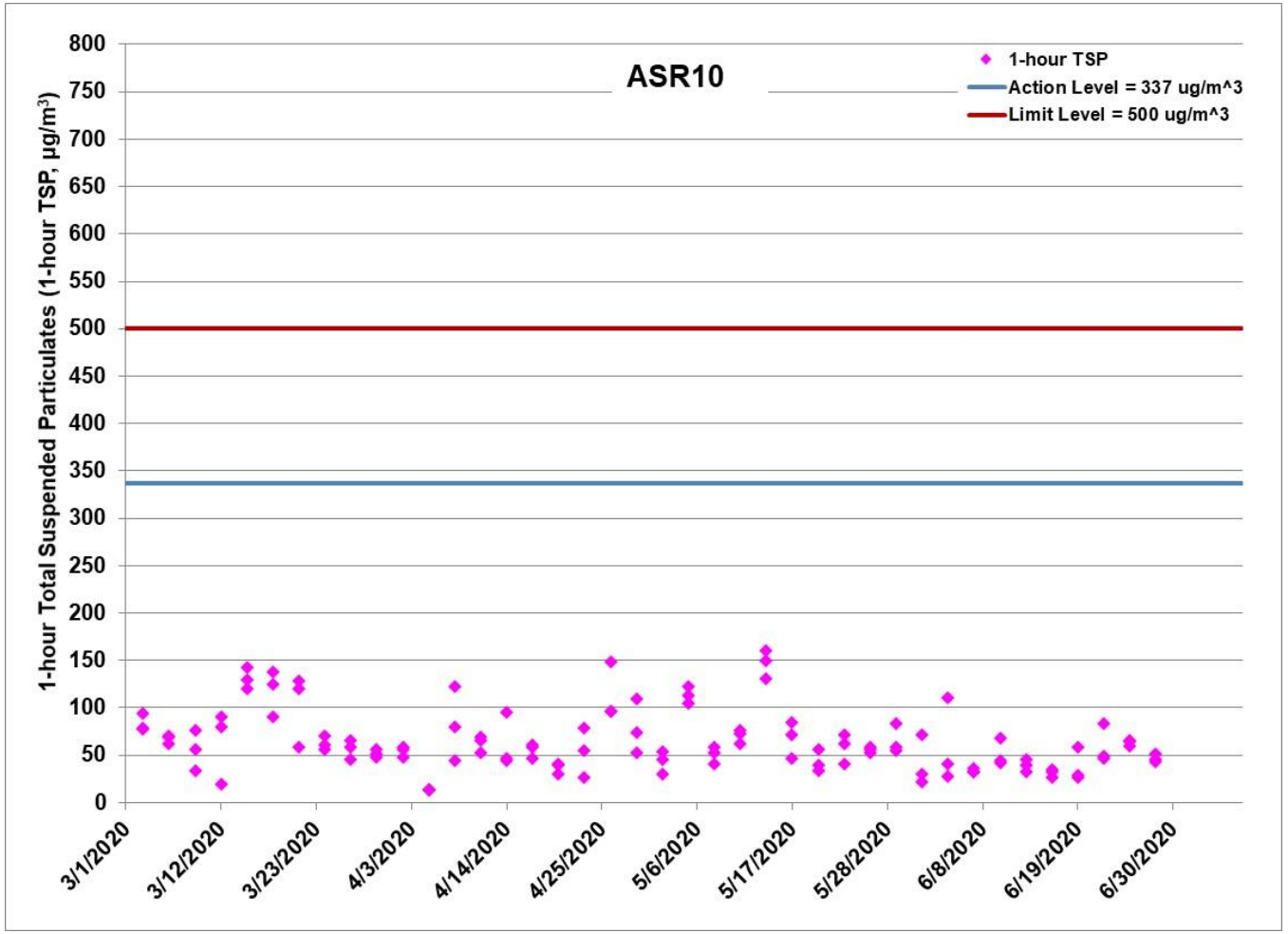

Figure G.5 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR10 between 1 March 2020 and 30 June 2020 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Road and Drainage Works at Northern Landfall and Southern Landfall, UU installation at Northern Landfall and Southern Landfall and Fireboard installation in Tunnel (1/3/2020 – 30/6/2020)

Ref: 0212330_Impact AQM graphs_June 2020.xlsx

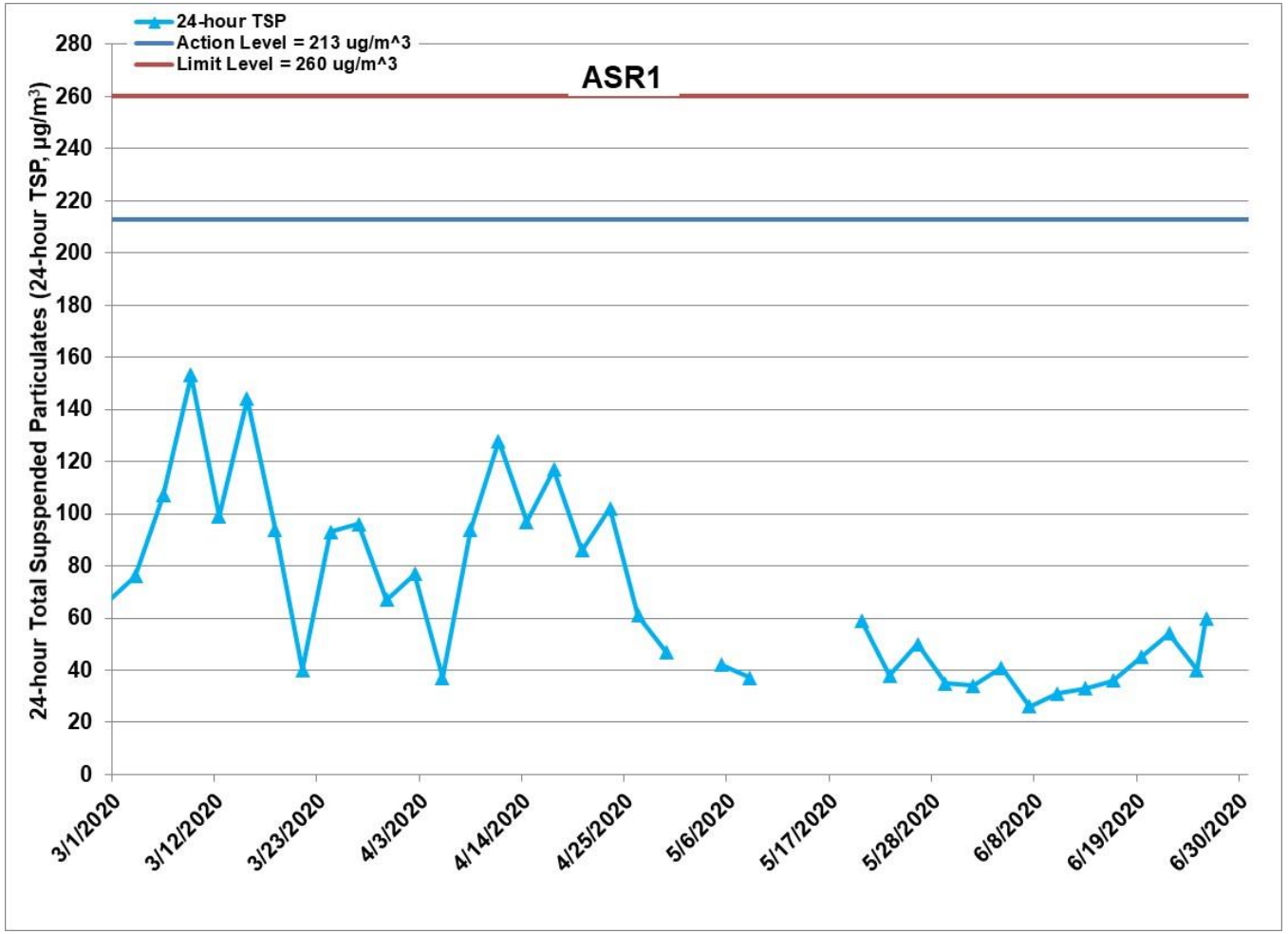

Figure G.6 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR1 between 1 March 2020 and 30 June 2020 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Road and Drainage Works at Northern Landfall and Southern Landfall, UU installation at Northern Landfall and Southern Landfall and Fireboard installation in Tunnel (1/3/2020 – 30/6/2020)

Ref: 0212330_Impact AQM graphs_June 2020.xlsx

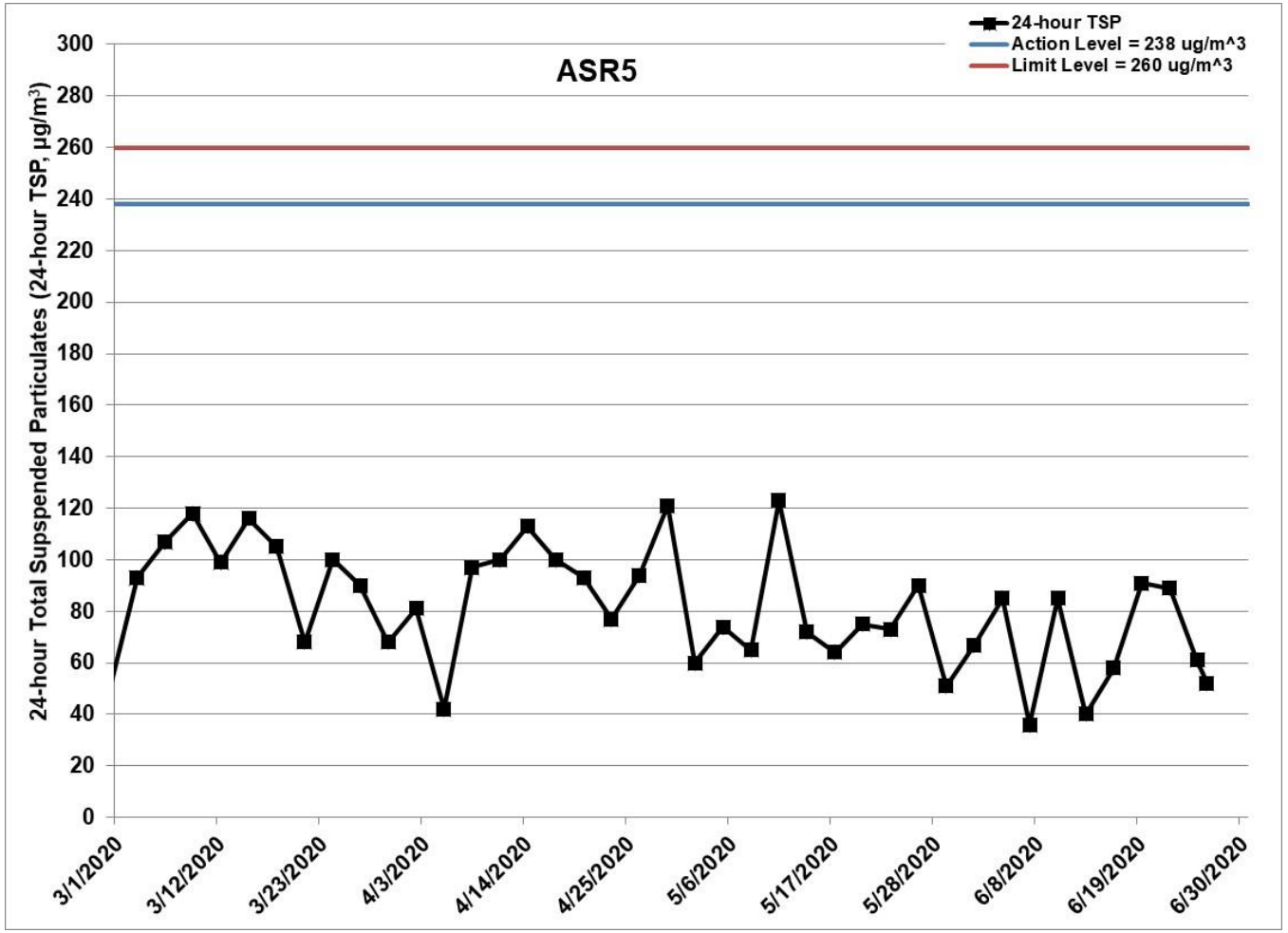

Figure G.7 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR5 between 1 March 2020 and 30 June 2020 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Road and Drainage Works at Northern Landfall and Southern Landfall, UU installation at Northern Landfall and Southern Landfall and Fireboard installation in Tunnel (1/3/2020 – 30/6/2020)

Ref: 0212330_Impact AQM graphs_June 2020.xlsx

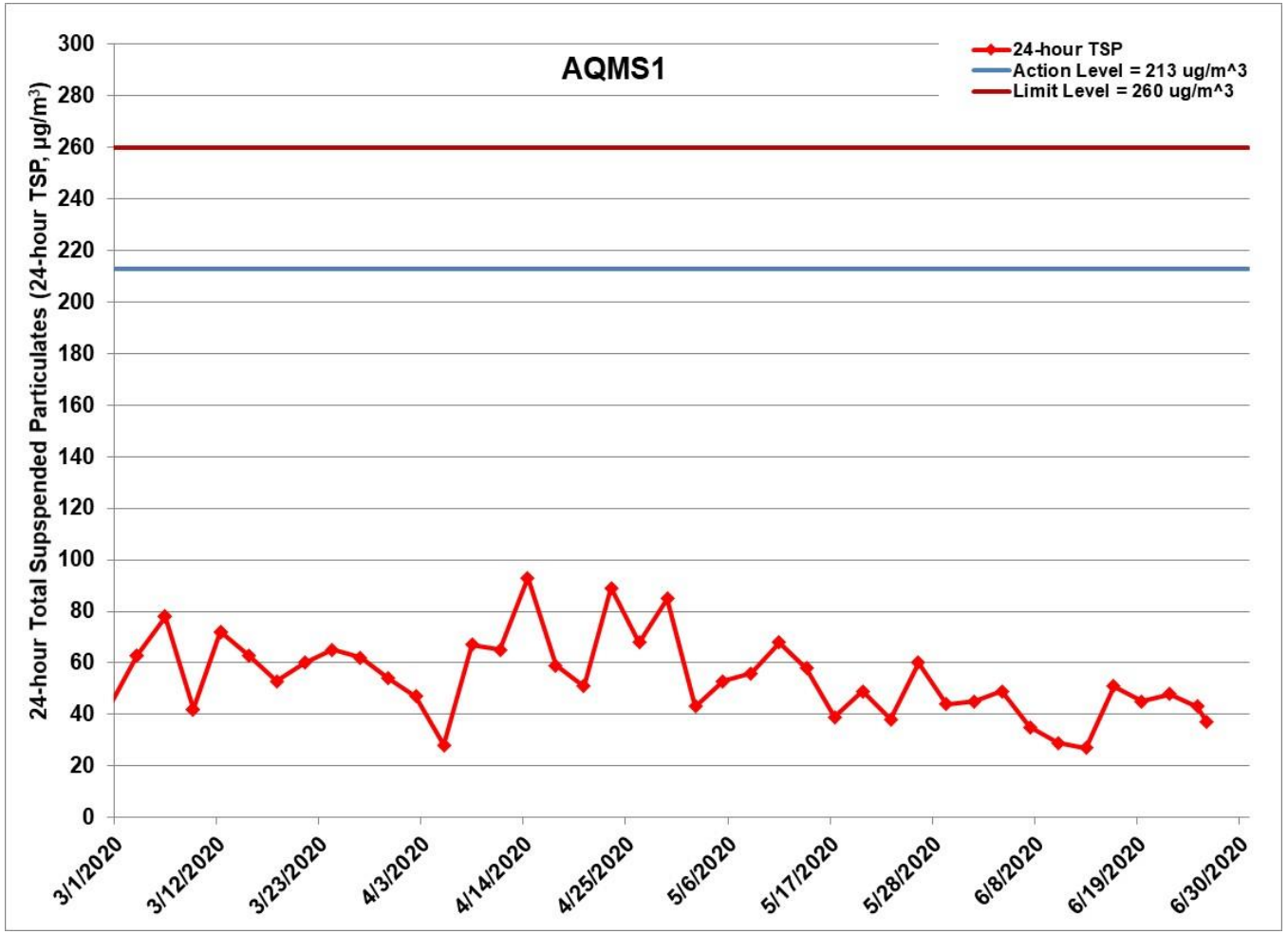

Figure G.8 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at AQMS1 between 1 March 2020 and 30 June 2020 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Road and Drainage Works at Northern Landfall and Southern Landfall, UU installation at Northern Landfall and Southern Landfall and Fireboard installation in Tunnel (1/3/2020 – 30/6/2020)

Ref: 0212330_Impact AQM graphs_June 2020.xlsx

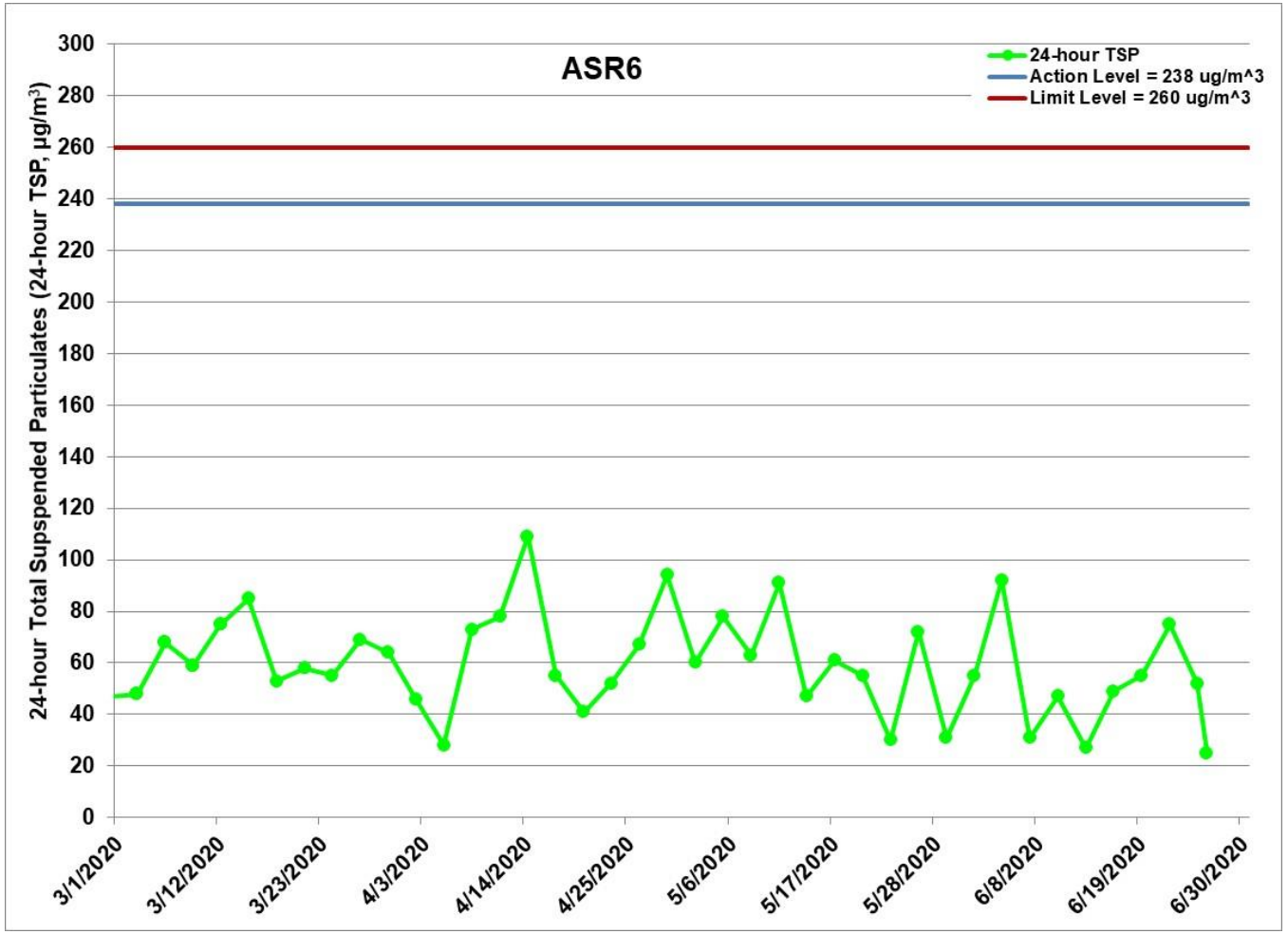

Figure G.9 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR6 between 1 March 2020 and 30 June 2020 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Road and Drainage Works at Northern Landfall and Southern Landfall, UU installation at Northern Landfall and Southern Landfall and Fireboard installation in Tunnel (1/3/2020 – 30/6/2020)

Ref: 0212330_Impact AQM graphs_June 2020.xlsx

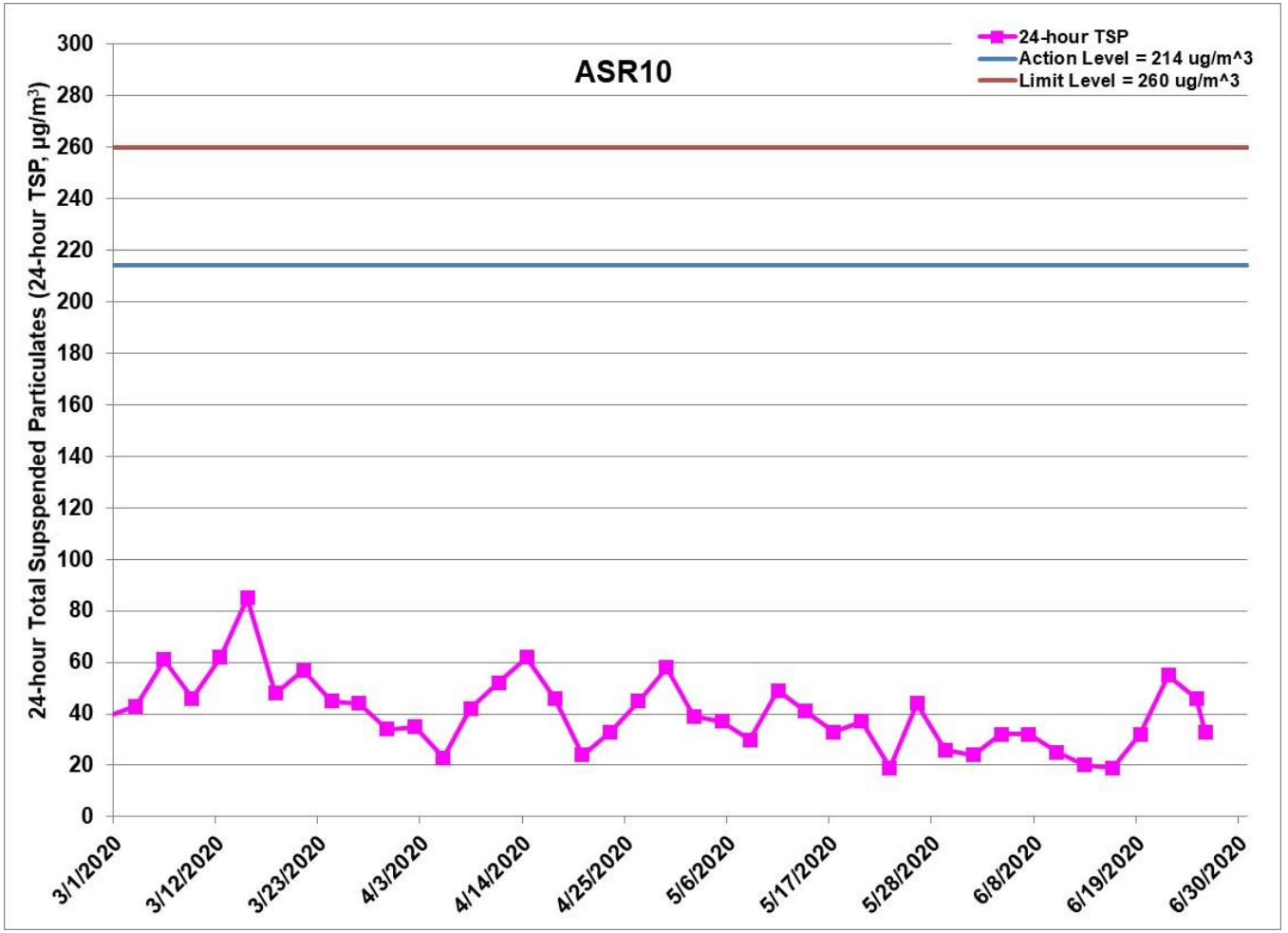

Figure G.10 Impact Monitoring – 24-hour Total Suspended Particulates (µg/m³) at ASR10 between 1 March 2020 and 30 June 2020 during impact monitoring period. The weather conditions during the monitoring period varied from sunny to cloudy. Major land-based construction activities included: Road and Drainage Works at Northern Landfall and Southern Landfall, UU installation at Northern Landfall and Southern Landfall and Fireboard installation in Tunnel (1/3/2020 – 30/6/2020)

Ref: 0212330_Impact AQM graphs_June 2020.xlsx

Project	Contract	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2020-06-01	ASR10	Sunny	13:00	1-hour TSP	30	ug/m3
TMCLKL	HY/2012/08	2020-06-01	ASR10	Sunny	14:02	1-hour TSP	72	ug/m3
TMCLKL	HY/2012/08	2020-06-01	ASR10	Sunny	15:04	1-hour TSP	22	ug/m3
TMCLKL	HY/2012/08	2020-06-01	ASR6	Sunny	13:12	1-hour TSP	122	ug/m3
TMCLKL	HY/2012/08	2020-06-01	ASR6	Sunny	14:14	1-hour TSP	121	ug/m3
TMCLKL	HY/2012/08	2020-06-01	ASR6	Sunny	15:16	1-hour TSP	85	ug/m3
TMCLKL	HY/2012/08	2020-06-01	ASR5	Sunny	13:32	1-hour TSP	93	ug/m3
TMCLKL	HY/2012/08	2020-06-01	ASR5	Sunny	14:25	1-hour TSP	113	ug/m3
TMCLKL	HY/2012/08	2020-06-01	ASR5	Sunny	15:27	1-hour TSP	82	ug/m3
TMCLKL	HY/2012/08	2020-06-01	ASR1	Sunny	13:35	1-hour TSP	45	ug/m3
TMCLKL	HY/2012/08	2020-06-01	ASR1	Sunny	14:37	1-hour TSP	33	ug/m3
TMCLKL	HY/2012/08	2020-06-01	ASR1	Sunny	15:39	1-hour TSP	47	ug/m3
TMCLKL	HY/2012/08	2020-06-01	AQMS1	Sunny	13:46	1-hour TSP	34	ug/m3
TMCLKL	HY/2012/08	2020-06-01	AQMS1	Sunny	14:48	1-hour TSP	34	ug/m3
TMCLKL	HY/2012/08	2020-06-01	AQMS1	Sunny	15:50	1-hour TSP	33	ug/m3
TMCLKL	HY/2012/08	2020-06-04	ASR10	Sunny	8:20	1-hour TSP	41	ug/m3
TMCLKL	HY/2012/08	2020-06-04	ASR10	Sunny	9:22	1-hour TSP	28	ug/m3
TMCLKL	HY/2012/08	2020-06-04	ASR10	Sunny	10:24	1-hour TSP	110	ug/m3
TMCLKL	HY/2012/08	2020-06-04	ASR6	Sunny	8:30	1-hour TSP	143	ug/m3
TMCLKL	HY/2012/08	2020-06-04	ASR6	Sunny	9:32	1-hour TSP	47	ug/m3
TMCLKL	HY/2012/08	2020-06-04	ASR6	Sunny	10:34	1-hour TSP	82	ug/m3
TMCLKL	HY/2012/08	2020-06-04	ASR5	Sunny	8:42	1-hour TSP	230	ug/m3
TMCLKL	HY/2012/08	2020-06-04	ASR5	Sunny	9:44	1-hour TSP	101	ug/m3
TMCLKL	HY/2012/08	2020-06-04	ASR5	Sunny	10:46	1-hour TSP	122	ug/m3
TMCLKL	HY/2012/08	2020-06-04	ASR1	Sunny	8:54	1-hour TSP	35	ug/m3
TMCLKL	HY/2012/08	2020-06-04	ASR1	Sunny	9:56	1-hour TSP	46	ug/m3
TMCLKL	HY/2012/08	2020-06-04	ASR1	Sunny	10:58	1-hour TSP	109	ug/m3
TMCLKL	HY/2012/08	2020-06-04	AQMS1	Sunny	9:05	1-hour TSP	68	ug/m3
TMCLKL	HY/2012/08	2020-06-04	AQMS1	Sunny	10:07	1-hour TSP	66	ug/m3
TMCLKL	HY/2012/08	2020-06-04	AQMS1	Sunny	11:09	1-hour TSP	138	ug/m3
TMCLKL	HY/2012/08	2020-06-07	ASR10	Rainy	13:01	1-hour TSP	32	ug/m3

Project	Contract	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2020-06-07	ASR10	Rainy	14:03	1-hour TSP	33	ug/m3
TMCLKL	HY/2012/08	2020-06-07	ASR10	Rainy	15:05	1-hour TSP	36	ug/m3
TMCLKL	HY/2012/08	2020-06-07	ASR6	Rainy	13:13	1-hour TSP	47	ug/m3
TMCLKL	HY/2012/08	2020-06-07	ASR6	Rainy	14:15	1-hour TSP	47	ug/m3
TMCLKL	HY/2012/08	2020-06-07	ASR6	Rainy	15:17	1-hour TSP	56	ug/m3
TMCLKL	HY/2012/08	2020-06-07	ASR5	Rainy	13:25	1-hour TSP	20	ug/m3
TMCLKL	HY/2012/08	2020-06-07	ASR5	Rainy	14:27	1-hour TSP	22	ug/m3
TMCLKL	HY/2012/08	2020-06-07	ASR5	Rainy	15:29	1-hour TSP	22	ug/m3
TMCLKL	HY/2012/08	2020-06-07	ASR1	Rainy	13:36	1-hour TSP	14	ug/m3
TMCLKL	HY/2012/08	2020-06-07	ASR1	Rainy	14:38	1-hour TSP	16	ug/m3
TMCLKL	HY/2012/08	2020-06-07	ASR1	Rainy	15:40	1-hour TSP	41	ug/m3
TMCLKL	HY/2012/08	2020-06-07	AQMS1	Rainy	13:47	1-hour TSP	36	ug/m3
TMCLKL	HY/2012/08	2020-06-07	AQMS1	Rainy	14:49	1-hour TSP	32	ug/m3
TMCLKL	HY/2012/08	2020-06-07	AQMS1	Rainy	15:51	1-hour TSP	48	ug/m3
TMCLKL	HY/2012/08	2020-06-10	ASR10	Sunny	13:18	1-hour TSP	68	ug/m3
TMCLKL	HY/2012/08	2020-06-10	ASR10	Sunny	14:20	1-hour TSP	42	ug/m3
TMCLKL	HY/2012/08	2020-06-10	ASR10	Sunny	15:22	1-hour TSP	44	ug/m3
TMCLKL	HY/2012/08	2020-06-10	ASR6	Sunny	13:29	1-hour TSP	189	ug/m3
TMCLKL	HY/2012/08	2020-06-10	ASR6	Sunny	14:31	1-hour TSP	91	ug/m3
TMCLKL	HY/2012/08	2020-06-10	ASR6	Sunny	15:33	1-hour TSP	85	ug/m3
TMCLKL	HY/2012/08	2020-06-10	ASR5	Sunny	13:40	1-hour TSP	165	ug/m3
TMCLKL	HY/2012/08	2020-06-10	ASR5	Sunny	14:42	1-hour TSP	137	ug/m3
TMCLKL	HY/2012/08	2020-06-10	ASR5	Sunny	15:44	1-hour TSP	111	ug/m3
TMCLKL	HY/2012/08	2020-06-10	ASR1	Sunny	13:52	1-hour TSP	71	ug/m3
TMCLKL	HY/2012/08	2020-06-10	ASR1	Sunny	14:54	1-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2020-06-10	ASR1	Sunny	15:56	1-hour TSP	41	ug/m3
TMCLKL	HY/2012/08	2020-06-10	AQMS1	Sunny	14:03	1-hour TSP	84	ug/m3
TMCLKL	HY/2012/08	2020-06-10	AQMS1	Sunny	15:05	1-hour TSP	47	ug/m3
TMCLKL	HY/2012/08	2020-06-10	AQMS1	Sunny	16:07	1-hour TSP	48	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR10	Sunny	8:15	1-hour TSP	46	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR10	Sunny	9:17	1-hour TSP	33	ug/m3

Project	Contract	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2020-06-13	ASR10	Sunny	10:19	1-hour TSP	40	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR6	Sunny	8:26	1-hour TSP	101	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR6	Sunny	9:28	1-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR6	Sunny	10:30	1-hour TSP	357	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR5	Sunny	8:38	1-hour TSP	195	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR5	Sunny	9:40	1-hour TSP	66	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR5	Sunny	10:42	1-hour TSP	135	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR1	Sunny	8:50	1-hour TSP	102	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR1	Sunny	9:52	1-hour TSP	56	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR1	Sunny	10:54	1-hour TSP	44	ug/m3
TMCLKL	HY/2012/08	2020-06-13	AQMS1	Sunny	9:01	1-hour TSP	69	ug/m3
TMCLKL	HY/2012/08	2020-06-13	AQMS1	Sunny	10:03	1-hour TSP	40	ug/m3
TMCLKL	HY/2012/08	2020-06-13	AQMS1	Sunny	11:05	1-hour TSP	51	ug/m3
TMCLKL	HY/2012/08	2020-06-16	ASR10	Sunny	8:08	1-hour TSP	32	ug/m3
TMCLKL	HY/2012/08	2020-06-16	ASR10	Sunny	9:10	1-hour TSP	26	ug/m3
TMCLKL	HY/2012/08	2020-06-16	ASR10	Sunny	10:12	1-hour TSP	35	ug/m3
TMCLKL	HY/2012/08	2020-06-16	ASR6	Sunny	8:20	1-hour TSP	63	ug/m3
TMCLKL	HY/2012/08	2020-06-16	ASR6	Sunny	9:22	1-hour TSP	55	ug/m3
TMCLKL	HY/2012/08	2020-06-16	ASR6	Sunny	10:24	1-hour TSP	96	ug/m3
TMCLKL	HY/2012/08	2020-06-16	ASR5	Sunny	8:30	1-hour TSP	156	ug/m3
TMCLKL	HY/2012/08	2020-06-16	ASR5	Sunny	9:32	1-hour TSP	77	ug/m3
TMCLKL	HY/2012/08	2020-06-16	ASR5	Sunny	10:34	1-hour TSP	81	ug/m3
TMCLKL	HY/2012/08	2020-06-16	ASR1	Sunny	8:43	1-hour TSP	82	ug/m3
TMCLKL	HY/2012/08	2020-06-16	ASR1	Sunny	9:45	1-hour TSP	57	ug/m3
TMCLKL	HY/2012/08	2020-06-16	ASR1	Sunny	10:47	1-hour TSP	49	ug/m3
TMCLKL	HY/2012/08	2020-06-16	AQMS1	Sunny	8:55	1-hour TSP	93	ug/m3
TMCLKL	HY/2012/08	2020-06-16	AQMS1	Sunny	9:57	1-hour TSP	71	ug/m3
TMCLKL	HY/2012/08	2020-06-16	AQMS1	Sunny	10:59	1-hour TSP	43	ug/m3
TMCLKL	HY/2012/08	2020-06-19	ASR10	Sunny	8:13	1-hour TSP	26	ug/m3
TMCLKL	HY/2012/08	2020-06-19	ASR10	Sunny	9:15	1-hour TSP	29	ug/m3
TMCLKL	HY/2012/08	2020-06-19	ASR10	Sunny	10:17	1-hour TSP	58	ug/m3

Project	Contract	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2020-06-19	ASR6	Sunny	8:26	1-hour TSP	101	ug/m3
TMCLKL	HY/2012/08	2020-06-19	ASR6	Sunny	9:28	1-hour TSP	114	ug/m3
TMCLKL	HY/2012/08	2020-06-19	ASR6	Sunny	10:30	1-hour TSP	77	ug/m3
TMCLKL	HY/2012/08	2020-06-19	ASR5	Sunny	8:38	1-hour TSP	131	ug/m3
TMCLKL	HY/2012/08	2020-06-19	ASR5	Sunny	9:40	1-hour TSP	212	ug/m3
TMCLKL	HY/2012/08	2020-06-19	ASR5	Sunny	10:42	1-hour TSP	157	ug/m3
TMCLKL	HY/2012/08	2020-06-19	ASR1	Sunny	8:49	1-hour TSP	37	ug/m3
TMCLKL	HY/2012/08	2020-06-19	ASR1	Sunny	9:51	1-hour TSP	85	ug/m3
TMCLKL	HY/2012/08	2020-06-19	ASR1	Sunny	10:53	1-hour TSP	86	ug/m3
TMCLKL	HY/2012/08	2020-06-19	AQMS1	Sunny	9:00	1-hour TSP	56	ug/m3
TMCLKL	HY/2012/08	2020-06-19	AQMS1	Sunny	10:02	1-hour TSP	60	ug/m3
TMCLKL	HY/2012/08	2020-06-19	AQMS1	Sunny	11:04	1-hour TSP	84	ug/m3
TMCLKL	HY/2012/08	2020-06-22	ASR10	Sunny	8:07	1-hour TSP	47	ug/m3
TMCLKL	HY/2012/08	2020-06-22	ASR10	Sunny	9:09	1-hour TSP	49	ug/m3
TMCLKL	HY/2012/08	2020-06-22	ASR10	Sunny	10:11	1-hour TSP	83	ug/m3
TMCLKL	HY/2012/08	2020-06-22	ASR6	Sunny	8:18	1-hour TSP	149	ug/m3
TMCLKL	HY/2012/08	2020-06-22	ASR6	Sunny	9:20	1-hour TSP	123	ug/m3
TMCLKL	HY/2012/08	2020-06-22	ASR6	Sunny	10:22	1-hour TSP	179	ug/m3
TMCLKL	HY/2012/08	2020-06-22	ASR5	Sunny	8:29	1-hour TSP	178	ug/m3
TMCLKL	HY/2012/08	2020-06-22	ASR5	Sunny	9:31	1-hour TSP	130	ug/m3
TMCLKL	HY/2012/08	2020-06-22	ASR5	Sunny	10:33	1-hour TSP	223	ug/m3
TMCLKL	HY/2012/08	2020-06-22	ASR1	Sunny	8:41	1-hour TSP	104	ug/m3
TMCLKL	HY/2012/08	2020-06-22	ASR1	Sunny	9:43	1-hour TSP	101	ug/m3
TMCLKL	HY/2012/08	2020-06-22	ASR1	Sunny	10:45	1-hour TSP	117	ug/m3
TMCLKL	HY/2012/08	2020-06-22	AQMS1	Sunny	8:53	1-hour TSP	92	ug/m3
TMCLKL	HY/2012/08	2020-06-22	AQMS1	Sunny	9:55	1-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	2020-06-22	AQMS1	Sunny	10:57	1-hour TSP	92	ug/m3
TMCLKL	HY/2012/08	2020-06-25	ASR10	Sunny	8:10	1-hour TSP	64	ug/m3
TMCLKL	HY/2012/08	2020-06-25	ASR10	Sunny	9:12	1-hour TSP	65	ug/m3
TMCLKL	HY/2012/08	2020-06-25	ASR10	Sunny	10:14	1-hour TSP	60	ug/m3
TMCLKL	HY/2012/08	2020-06-25	ASR6	Sunny	08:20	1-hour TSP	67	ug/m3

Project	Contract	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2020-06-25	ASR6	Sunny	09:22	1-hour TSP	51	ug/m3
TMCLKL	HY/2012/08	2020-06-25	ASR6	Sunny	10:24	1-hour TSP	70	ug/m3
TMCLKL	HY/2012/08	2020-06-25	ASR5	Sunny	8:32	1-hour TSP	78	ug/m3
TMCLKL	HY/2012/08	2020-06-25	ASR5	Sunny	9:34	1-hour TSP	86	ug/m3
TMCLKL	HY/2012/08	2020-06-25	ASR5	Sunny	10:36	1-hour TSP	89	ug/m3
TMCLKL	HY/2012/08	2020-06-25	ASR1	Sunny	8:44	1-hour TSP	63	ug/m3
TMCLKL	HY/2012/08	2020-06-25	ASR1	Sunny	9:46	1-hour TSP	56	ug/m3
TMCLKL	HY/2012/08	2020-06-25	ASR1	Sunny	10:48	1-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	2020-06-25	AQMS1	Sunny	8:55	1-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2020-06-25	AQMS1	Sunny	9:57	1-hour TSP	68	ug/m3
TMCLKL	HY/2012/08	2020-06-25	AQMS1	Sunny	10:59	1-hour TSP	71	ug/m3
TMCLKL	HY/2012/08	2020-06-28	ASR10	Sunny	8:18	1-hour TSP	43	ug/m3
TMCLKL	HY/2012/08	2020-06-28	ASR10	Sunny	9:20	1-hour TSP	51	ug/m3
TMCLKL	HY/2012/08	2020-06-28	ASR10	Sunny	10:22	1-hour TSP	46	ug/m3
TMCLKL	HY/2012/08	2020-06-28	ASR6	Sunny	8:30	1-hour TSP	80	ug/m3
TMCLKL	HY/2012/08	2020-06-28	ASR6	Sunny	9:32	1-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	2020-06-28	ASR6	Sunny	10:34	1-hour TSP	54	ug/m3
TMCLKL	HY/2012/08	2020-06-28	ASR5	Sunny	8:40	1-hour TSP	93	ug/m3
TMCLKL	HY/2012/08	2020-06-28	ASR5	Sunny	9:42	1-hour TSP	87	ug/m3
TMCLKL	HY/2012/08	2020-06-28	ASR5	Sunny	10:44	1-hour TSP	64	ug/m3
TMCLKL	HY/2012/08	2020-06-28	ASR1	Sunny	8:53	1-hour TSP	55	ug/m3
TMCLKL	HY/2012/08	2020-06-28	ASR1	Sunny	9:55	1-hour TSP	72	ug/m3
TMCLKL	HY/2012/08	2020-06-28	ASR1	Sunny	10:37	1-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2020-06-28	AQMS1	Sunny	9:04	1-hour TSP	68	ug/m3
TMCLKL	HY/2012/08	2020-06-28	AQMS1	Sunny	10:06	1-hour TSP	77	ug/m3
TMCLKL	HY/2012/08	2020-06-28	AQMS1	Sunny	11:08	1-hour TSP	87	ug/m3
TMCLKL	HY/2012/08	2020-06-01	ASR10	Sunny	16:06	24-hour TSP	24	ug/m3
TMCLKL	HY/2012/08	2020-06-01	ASR6	Sunny	16:18	24-hour TSP	55	ug/m3
TMCLKL	HY/2012/08	2020-06-01	ASR5	Sunny	16:29	24-hour TSP	67	ug/m3
TMCLKL	HY/2012/08	2020-06-01	ASR1	Sunny	16:41	24-hour TSP	34	ug/m3
TMCLKL	HY/2012/08	2020-06-01	AQMS1	Sunny	16:52	24-hour TSP	45	ug/m3

Project	Contract	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2020-06-04	ASR10	Sunny	11:26	24-hour TSP	32	ug/m3
TMCLKL	HY/2012/08	2020-06-04	ASR6	Sunny	11:36	24-hour TSP	92	ug/m3
TMCLKL	HY/2012/08	2020-06-04	ASR5	Sunny	11:48	24-hour TSP	85	ug/m3
TMCLKL	HY/2012/08	2020-06-04	ASR1	Sunny	12:00	24-hour TSP	41	ug/m3
TMCLKL	HY/2012/08	2020-06-04	AQMS1	Sunny	12:11	24-hour TSP	49	ug/m3
TMCLKL	HY/2012/08	2020-06-07	ASR10	Rainy	16:07	24-hour TSP	32	ug/m3
TMCLKL	HY/2012/08	2020-06-07	ASR6	Rainy	16:19	24-hour TSP	31	ug/m3
TMCLKL	HY/2012/08	2020-06-07	ASR5	Rainy	16:31	24-hour TSP	36	ug/m3
TMCLKL	HY/2012/08	2020-06-07	ASR1	Rainy	16:42	24-hour TSP	26	ug/m3
TMCLKL	HY/2012/08	2020-06-07	AQMS1	Rainy	16:53	24-hour TSP	35	ug/m3
TMCLKL	HY/2012/08	2020-06-10	ASR10	Sunny	16:24	24-hour TSP	25	ug/m3
TMCLKL	HY/2012/08	2020-06-10	ASR6	Sunny	16:35	24-hour TSP	47	ug/m3
TMCLKL	HY/2012/08	2020-06-10	ASR5	Sunny	16:46	24-hour TSP	85	ug/m3
TMCLKL	HY/2012/08	2020-06-10	ASR1	Sunny	16:58	24-hour TSP	31	ug/m3
TMCLKL	HY/2012/08	2020-06-10	AQMS1	Sunny	17:09	24-hour TSP	29	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR10	Sunny	11:21	24-hour TSP	20	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR6	Sunny	11:32	24-hour TSP	27	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR5	Sunny	11:44	24-hour TSP	40	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR1	Sunny	11:56	24-hour TSP	33	ug/m3
TMCLKL	HY/2012/08	2020-06-13	AQMS1	Sunny	12:07	24-hour TSP	27	ug/m3
TMCLKL	HY/2012/08	2020-06-16	ASR10	Sunny	11:14	24-hour TSP	19	ug/m3
TMCLKL	HY/2012/08	2020-06-16	ASR6	Sunny	11:26	24-hour TSP	49	ug/m3
TMCLKL	HY/2012/08	2020-06-16	ASR5	Sunny	11:36	24-hour TSP	58	ug/m3
TMCLKL	HY/2012/08	2020-06-16	ASR1	Sunny	11:49	24-hour TSP	36	ug/m3
TMCLKL	HY/2012/08	2020-06-16	AQMS1	Sunny	11:01	24-hour TSP	51	ug/m3
TMCLKL	HY/2012/08	2020-06-19	ASR10	Sunny	11:19	24-hour TSP	32	ug/m3
TMCLKL	HY/2012/08	2020-06-19	ASR6	Sunny	11:32	24-hour TSP	55	ug/m3
TMCLKL	HY/2012/08	2020-06-19	ASR5	Sunny	11:44	24-hour TSP	91	ug/m3
TMCLKL	HY/2012/08	2020-06-19	ASR1	Sunny	11:55	24-hour TSP	45	ug/m3
TMCLKL	HY/2012/08	2020-06-19	AQMS1	Sunny	12:06	24-hour TSP	45	ug/m3
TMCLKL	HY/2012/08	2020-06-22	ASR10	Sunny	11:14	24-hour TSP	55	ug/m3

Project	Contract	Date	Station	Weather	Start time	Parameters	Results	units
TMCLKL	HY/2012/08	2020-06-22	ASR6	Sunny	11:24	24-hour TSP	75	ug/m3
TMCLKL	HY/2012/08	2020-06-22	ASR5	Sunny	11:35	24-hour TSP	89	ug/m3
TMCLKL	HY/2012/08	2020-06-22	ASR1	Sunny	11:47	24-hour TSP	54	ug/m3
TMCLKL	HY/2012/08	2020-06-22	AQMS1	Sunny	11:59	24-hour TSP	48	ug/m3
TMCLKL	HY/2012/08	2020-06-25	ASR10	Sunny	11:16	24-hour TSP	46	ug/m3
TMCLKL	HY/2012/08	2020-06-25	ASR6	Sunny	11:26	24-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2020-06-25	ASR5	Sunny	11:38	24-hour TSP	61	ug/m3
TMCLKL	HY/2012/08	2020-06-25	ASR1	Sunny	11:50	24-hour TSP	40	ug/m3
TMCLKL	HY/2012/08	2020-06-25	AQMS1	Sunny	12:01	24-hour TSP	43	ug/m3
TMCLKL	HY/2012/08	2020-06-28	ASR10	Sunny	11:24	24-hour TSP	33	ug/m3
TMCLKL	HY/2012/08	2020-06-28	ASR6	Sunny	11:36	24-hour TSP	25	ug/m3
TMCLKL	HY/2012/08	2020-06-28	ASR5	Sunny	11:46	24-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2020-06-28	ASR1	Sunny	11:59	24-hour TSP	60	ug/m3
TMCLKL	HY/2012/08	2020-06-28	AQMS1	Sunny	12:10	24-hour TSP	37	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)**
20/06/01	1:00	0	174
20/06/01	2:00	0	277
20/06/01	3:00	0	191
20/06/01	4:00	0	170
20/06/01	5:00	0.4	212
20/06/01	6:00	0	142
20/06/01	7:00	0	5
20/06/01	8:00	0.4	154
20/06/01	9:00	1.3	197
20/06/01	10:00	1.3	223
20/06/01	11:00	2.7	199
20/06/01	12:00	2.7	213
20/06/01	13:00	2.7	225
20/06/01	14:00	1.8	212
20/06/01	15:00	2.2	210
20/06/01	16:00	2.2	198
20/06/01	17:00	1.8	192
20/06/01	18:00	1.3	223
20/06/01	19:00	1.3	195
20/06/01	20:00	0.9	128
20/06/01	21:00	0.4	172
20/06/01	22:00	0	168
20/06/01	23:00	0	152
20/06/02	0:00	0	154
20/06/02	1:00	0.4	154
20/06/02	2:00	0.4	316
20/06/02	3:00	0	324
20/06/02	4:00	0.4	305
20/06/02	5:00	0.4	23
20/06/02	6:00	0.4	141
20/06/02	7:00	0.4	252
20/06/02	8:00	0	303
20/06/02	9:00	0.9	192
20/06/02	10:00	0.9	138
20/06/02	11:00	0.4	183
20/06/02	12:00	1.8	209
20/06/02	13:00	1.8	210
20/06/02	14:00	1.8	228
20/06/02	15:00	0.4	290
20/06/02	16:00	0.9	191
20/06/02	17:00	1.8	281
20/06/02	18:00	0.4	281
20/06/02	19:00	0	23
20/06/02	20:00	0	295
20/06/02	21:00	0	293
20/06/02	22:00	0	300
20/06/02	23:00	0	210
20/06/04	0:00	0	194
20/06/04	1:00	0.9	192
20/06/04	2:00	1.8	194
20/06/04	3:00	0.9	204
20/06/04	4:00	0	168
20/06/04	5:00	0.9	202
20/06/04	6:00	0.9	210
20/06/04	7:00	0.4	240
20/06/04	8:00	1.8	214

20/06/04	9:00	1.8	230
20/06/04	10:00	2.7	197
20/06/04	11:00	2.7	195
20/06/04	12:00	1.8	214
20/06/04	13:00	1.3	268
20/06/04	14:00	2.7	197
20/06/04	15:00	3.1	194
20/06/04	16:00	3.1	193
20/06/04	17:00	1.8	220
20/06/04	18:00	2.2	224
20/06/04	19:00	1.8	236
20/06/04	20:00	0.9	183
20/06/04	21:00	0.9	221
20/06/04	22:00	0.9	166
20/06/04	23:00	0.9	208
20/06/05	0:00	1.3	197
20/06/05	1:00	0.9	201
20/06/05	2:00	0.9	197
20/06/05	3:00	0.9	214
20/06/05	4:00	0.4	201
20/06/05	5:00	1.3	193
20/06/05	6:00	0.4	215
20/06/05	7:00	0.9	229
20/06/05	8:00	2.2	199
20/06/05	9:00	2.7	196
20/06/05	10:00	1.8	151
20/06/05	11:00	2.2	230
20/06/05	12:00	2.7	220
20/06/05	13:00	2.7	223
20/06/05	14:00	3.1	196
20/06/05	15:00	3.1	200
20/06/05	16:00	3.6	212
20/06/05	17:00	3.6	195
20/06/05	18:00	3.6	202
20/06/05	19:00	2.7	196
20/06/05	20:00	2.2	214
20/06/05	21:00	1.3	210
20/06/05	22:00	1.8	208
20/06/05	23:00	1.3	197
20/06/07	0:00	0	54
20/06/07	1:00	0	13
20/06/07	2:00	0.4	340
20/06/07	3:00	0.9	340
20/06/07	4:00	3.6	212
20/06/07	5:00	1.3	214
20/06/07	6:00	0.4	277
20/06/07	7:00	1.3	280
20/06/07	8:00	0.9	354
20/06/07	9:00	1.8	358
20/06/07	10:00	2.2	277
20/06/07	11:00	0	288
20/06/07	12:00	0	13
20/06/07	13:00	0	30
20/06/07	14:00	0	15
20/06/07	15:00	0	21
20/06/07	16:00	0	32
20/06/07	17:00	0	22
20/06/07	18:00	0	196

20/06/07	19:00	0	157
20/06/07	20:00	0.4	358
20/06/07	21:00	0	167
20/06/07	22:00	0	194
20/06/07	23:00	0	202
20/06/08	0:00	0	209
20/06/08	1:00	0.4	206
20/06/08	2:00	0.4	212
20/06/08	3:00	1.3	211
20/06/08	4:00	0.9	213
20/06/08	5:00	2.2	194
20/06/08	6:00	0.4	273
20/06/08	7:00	2.2	194
20/06/08	8:00	0.4	255
20/06/08	9:00	0.4	34
20/06/08	10:00	0.9	135
20/06/08	11:00	0.4	4
20/06/08	12:00	3.1	198
20/06/08	13:00	1.3	268
20/06/08	14:00	0.4	284
20/06/08	15:00	0.4	297
20/06/08	16:00	0.9	234
20/06/08	17:00	0.4	84
20/06/08	18:00	0.4	49
20/06/08	19:00	0	12
20/06/08	20:00	0	302
20/06/08	21:00	0.4	134
20/06/08	22:00	0.9	135
20/06/08	23:00	0.9	130
20/06/10	0:00	0	40
20/06/10	1:00	0.4	328
20/06/10	2:00	0	340
20/06/10	3:00	0	306
20/06/10	4:00	0	311
20/06/10	5:00	0	215
20/06/10	6:00	0	266
20/06/10	7:00	0	231
20/06/10	8:00	0.9	216
20/06/10	9:00	1.8	194
20/06/10	10:00	1.3	213
20/06/10	11:00	1.3	204
20/06/10	12:00	1.8	218
20/06/10	13:00	1.3	281
20/06/10	14:00	1.8	204
20/06/10	15:00	2.2	225
20/06/10	16:00	2.2	224
20/06/10	17:00	2.2	195
20/06/10	18:00	1.8	196
20/06/10	19:00	1.3	210
20/06/10	20:00	1.8	205
20/06/10	21:00	0.4	165
20/06/10	22:00	0.4	144
20/06/10	23:00	0.9	142
20/06/11	0:00	0	127
20/06/11	1:00	0.4	135
20/06/11	2:00	0.4	132
20/06/11	3:00	0	91
20/06/11	4:00	0	47

20/06/11	5:00	0	331
20/06/11	6:00	0	348
20/06/11	7:00	0	190
20/06/11	8:00	1.3	209
20/06/11	9:00	1.3	213
20/06/11	10:00	0.9	259
20/06/11	11:00	1.3	264
20/06/11	12:00	1.8	206
20/06/11	13:00	2.7	225
20/06/11	14:00	2.2	203
20/06/11	15:00	1.3	208
20/06/11	16:00	1.3	162
20/06/11	17:00	1.8	203
20/06/11	18:00	1.8	210
20/06/11	19:00	0.9	188
20/06/11	20:00	1.8	123
20/06/11	21:00	1.3	143
20/06/11	22:00	0	90
20/06/11	23:00	0.4	46
20/06/13	0:00	0.9	57
20/06/13	1:00	0	64
20/06/13	2:00	0	79
20/06/13	3:00	0	311
20/06/13	4:00	0.9	355
20/06/13	5:00	0	271
20/06/13	6:00	0	303
20/06/13	7:00	0	145
20/06/13	8:00	0.9	132
20/06/13	9:00	0.9	138
20/06/13	10:00	1.8	32
20/06/13	11:00	0.9	95
20/06/13	12:00	0.4	3
20/06/13	13:00	0.9	159
20/06/13	14:00	0.9	125
20/06/13	15:00	1.3	118
20/06/13	16:00	2.2	101
20/06/13	17:00	2.7	63
20/06/13	18:00	2.2	45
20/06/13	19:00	2.2	19
20/06/13	20:00	2.2	12
20/06/13	21:00	1.8	50
20/06/13	22:00	1.8	41
20/06/13	23:00	2.2	54
20/06/14	0:00	3.1	66
20/06/14	1:00	3.6	79
20/06/14	2:00	3.6	85
20/06/14	3:00	3.6	101
20/06/14	4:00	4	101
20/06/14	5:00	3.6	81
20/06/14	6:00	4	104
20/06/14	7:00	5.4	126
20/06/14	8:00	3.6	131
20/06/14	9:00	4	145
20/06/14	10:00	2.7	127
20/06/14	11:00	3.6	135
20/06/14	12:00	3.6	128
20/06/14	13:00	3.6	141
20/06/14	14:00	3.6	135

20/06/14	15:00	3.6	131
20/06/14	16:00	2.2	113
20/06/14	17:00	2.7	101
20/06/14	18:00	2.2	129
20/06/14	19:00	1.3	97
20/06/14	20:00	0.4	51
20/06/14	21:00	0.4	45
20/06/14	22:00	0.4	79
20/06/14	23:00	0.9	62
20/06/16	0:00	3.1	137
20/06/16	1:00	1.8	124
20/06/16	2:00	0.4	145
20/06/16	3:00	1.8	129
20/06/16	4:00	1.3	123
20/06/16	5:00	2.2	124
20/06/16	6:00	0.4	135
20/06/16	7:00	0.4	155
20/06/16	8:00	1.3	141
20/06/16	9:00	0.9	83
20/06/16	10:00	1.8	142
20/06/16	11:00	1.8	140
20/06/16	12:00	1.8	191
20/06/16	13:00	0.9	93
20/06/16	14:00	1.3	97
20/06/16	15:00	1.3	172
20/06/16	16:00	1.8	166
20/06/16	17:00	1.8	153
20/06/16	18:00	1.8	179
20/06/16	19:00	0.9	282
20/06/16	20:00	0.4	281
20/06/16	21:00	0.4	267
20/06/16	22:00	0.4	293
20/06/16	23:00	0	298
20/06/17	0:00	0.4	87
20/06/17	1:00	0	71
20/06/17	2:00	0	347
20/06/17	3:00	0	185
20/06/17	4:00	0	179
20/06/17	5:00	0	207
20/06/17	6:00	0	298
20/06/17	7:00	0	317
20/06/17	8:00	0.9	132
20/06/17	9:00	1.3	138
20/06/17	10:00	1.8	136
20/06/17	11:00	2.2	160
20/06/17	12:00	2.2	151
20/06/17	13:00	2.2	160
20/06/17	14:00	2.7	156
20/06/17	15:00	2.2	167
20/06/17	16:00	2.2	147
20/06/17	17:00	2.2	190
20/06/17	18:00	2.2	220
20/06/17	19:00	0.4	230
20/06/17	20:00	0.9	207
20/06/17	21:00	0.4	200
20/06/17	22:00	0.9	93
20/06/17	23:00	0.4	97
20/06/19	0:00	0.4	144

20/06/19	1:00	0	208
20/06/19	2:00	0	123
20/06/19	3:00	0	101
20/06/19	4:00	0	281
20/06/19	5:00	0	294
20/06/19	6:00	0	285
20/06/19	7:00	0	118
20/06/19	8:00	0.9	127
20/06/19	9:00	1.8	132
20/06/19	10:00	1.3	229
20/06/19	11:00	1.8	213
20/06/19	12:00	1.8	224
20/06/19	13:00	1.8	234
20/06/19	14:00	1.8	234
20/06/19	15:00	1.3	219
20/06/19	16:00	1.3	265
20/06/19	17:00	1.8	224
20/06/19	18:00	1.8	250
20/06/19	19:00	0.9	279
20/06/19	20:00	0.9	234
20/06/19	21:00	0	266
20/06/19	22:00	0	288
20/06/19	23:00	0.4	307
20/06/20	0:00	0.4	323
20/06/20	1:00	0.4	299
20/06/20	2:00	0	155
20/06/20	3:00	0	238
20/06/20	4:00	0	258
20/06/20	5:00	0.4	306
20/06/20	6:00	0	307
20/06/20	7:00	0	277
20/06/20	8:00	0.9	90
20/06/20	9:00	0.9	112
20/06/20	10:00	0.9	276
20/06/20	11:00	1.3	271
20/06/20	12:00	1.8	256
20/06/20	13:00	1.8	259
20/06/20	14:00	1.8	236
20/06/20	15:00	1.8	225
20/06/20	16:00	1.8	229
20/06/20	17:00	2.2	212
20/06/20	18:00	1.8	196
20/06/20	19:00	1.3	233
20/06/20	20:00	1.3	174
20/06/20	21:00	0.9	141
20/06/20	22:00	0.9	137
20/06/20	23:00	0.9	164
20/06/22	0:00	1.3	185
20/06/22	1:00	0.9	172
20/06/22	2:00	1.8	209
20/06/22	3:00	1.8	206
20/06/22	4:00	1.8	194
20/06/22	5:00	0.9	227
20/06/22	6:00	0.9	227
20/06/22	7:00	1.8	192
20/06/22	8:00	1.8	191
20/06/22	9:00	1.8	227
20/06/22	10:00	1.8	197

20/06/22	11:00	2.2	236
20/06/22	12:00	2.2	230
20/06/22	13:00	2.7	234
20/06/22	14:00	2.7	220
20/06/22	15:00	2.2	191
20/06/22	16:00	2.2	219
20/06/22	17:00	1.8	226
20/06/22	18:00	2.2	206
20/06/22	19:00	1.8	205
20/06/22	20:00	1.3	223
20/06/22	21:00	0.9	151
20/06/22	22:00	0.4	128
20/06/22	23:00	0	65
20/06/23	0:00	0.4	180
20/06/23	1:00	1.3	214
20/06/23	2:00	0.9	203
20/06/23	3:00	0.4	240
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20/06/23	5:00	1.3	209
20/06/23	6:00	0.9	191
20/06/23	7:00	0.9	198
20/06/23	8:00	1.8	210
20/06/23	9:00	2.2	214
20/06/23	10:00	3.1	197
20/06/23	11:00	2.2	227
20/06/23	12:00	1.8	227
20/06/23	13:00	2.2	227
20/06/23	14:00	2.7	214
20/06/23	15:00	2.7	227
20/06/23	16:00	4	214
20/06/23	17:00	2.7	227
20/06/23	18:00	2.2	227
20/06/23	19:00	3.1	202
20/06/23	20:00	2.2	192
20/06/23	21:00	1.8	195
20/06/23	22:00	2.2	204
20/06/23	23:00	1.3	199
20/06/25	0:00	0.9	227
20/06/25	1:00	1.3	191
20/06/25	2:00	0.9	185
20/06/25	3:00	1.8	227
20/06/25	4:00	2.7	192
20/06/25	5:00	2.2	197
20/06/25	6:00	1.8	194
20/06/25	7:00	2.2	209
20/06/25	8:00	0.9	227
20/06/25	9:00	2.2	206
20/06/25	10:00	1.3	227
20/06/25	11:00	2.2	227
20/06/25	12:00	2.7	194
20/06/25	13:00	2.7	203
20/06/25	14:00	2.7	227
20/06/25	15:00	2.2	227
20/06/25	16:00	1.8	227
20/06/25	17:00	2.2	199
20/06/25	18:00	1.8	227
20/06/25	19:00	1.3	227
20/06/25	20:00	0.9	149

20/06/25	21:00	1.8	128
20/06/25	22:00	1.8	145
20/06/25	23:00	1.8	135
20/06/26	0:00	1.8	156
20/06/26	1:00	1.3	147
20/06/26	2:00	1.8	128
20/06/26	3:00	1.8	127
20/06/26	4:00	1.3	145
20/06/26	5:00	1.3	147
20/06/26	6:00	1.3	179
20/06/26	7:00	2.2	227
20/06/26	8:00	2.7	211
20/06/26	9:00	2.2	202
20/06/26	10:00	2.2	191
20/06/26	11:00	3.6	202
20/06/26	12:00	2.7	210
20/06/26	13:00	2.7	227
20/06/26	14:00	2.7	191
20/06/26	15:00	2.2	198
20/06/26	16:00	3.6	197
20/06/26	17:00	2.7	204
20/06/26	18:00	1.3	227
20/06/26	19:00	1.3	227
20/06/26	20:00	1.3	187
20/06/26	21:00	1.3	154
20/06/26	22:00	1.8	130
20/06/26	23:00	2.7	124
20/06/28	0:00	0.9	150
20/06/28	1:00	0.4	148
20/06/28	2:00	0.4	117
20/06/28	3:00	0.4	289
20/06/28	4:00	0.4	319
20/06/28	5:00	0.4	300
20/06/28	6:00	0.9	281
20/06/28	7:00	0.9	279
20/06/28	8:00	0.4	62
20/06/28	9:00	0.9	87
20/06/28	10:00	1.8	92
20/06/28	11:00	2.2	131
20/06/28	12:00	1.8	141
20/06/28	13:00	1.8	209
20/06/28	14:00	1.8	227
20/06/28	15:00	1.8	227
20/06/28	16:00	1.3	277
20/06/28	17:00	1.3	227
20/06/28	18:00	1.3	182
20/06/28	19:00	2.2	123
20/06/28	20:00	1.8	127
20/06/28	21:00	2.2	136
20/06/28	22:00	2.2	130
20/06/28	23:00	1.3	141
20/06/29	0:00	1.3	164
20/06/29	1:00	1.8	145
20/06/29	2:00	1.8	130
20/06/29	3:00	0.4	106
20/06/29	4:00	0.4	309
20/06/29	5:00	0.4	320
20/06/29	6:00	0.4	339

20/06/29	7:00	0	68
20/06/29	8:00	1.3	68
20/06/29	9:00	1.3	88
20/06/29	10:00	1.3	91
20/06/29	11:00	1.3	93
20/06/29	12:00	1.3	85
20/06/29	13:00	1.8	133
20/06/29	14:00	1.8	206
20/06/29	15:00	1.3	94
20/06/29	16:00	1.8	92
20/06/29	17:00	1.3	81
20/06/29	18:00	1.3	82
20/06/29	19:00	1.8	88
20/06/29	20:00	2.2	90
20/06/29	21:00	2.2	84
20/06/29	22:00	1.8	98
20/06/29	23:00	1.3	90

Appendix I

Operational Phase Dolphin Monitoring Survey

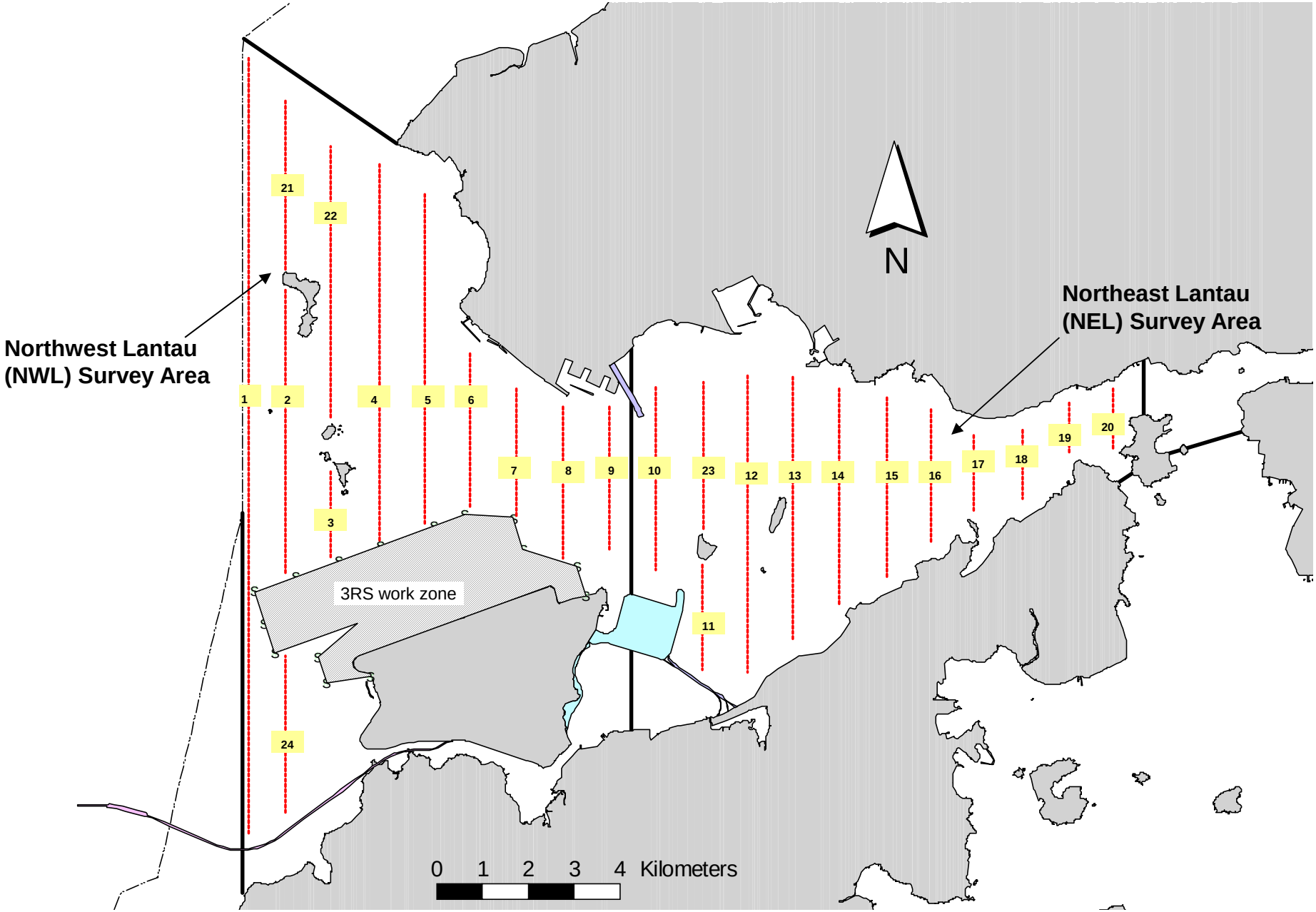


Figure 1. Transect Line Layout in Northwest and Northeast Lantau Survey Areas

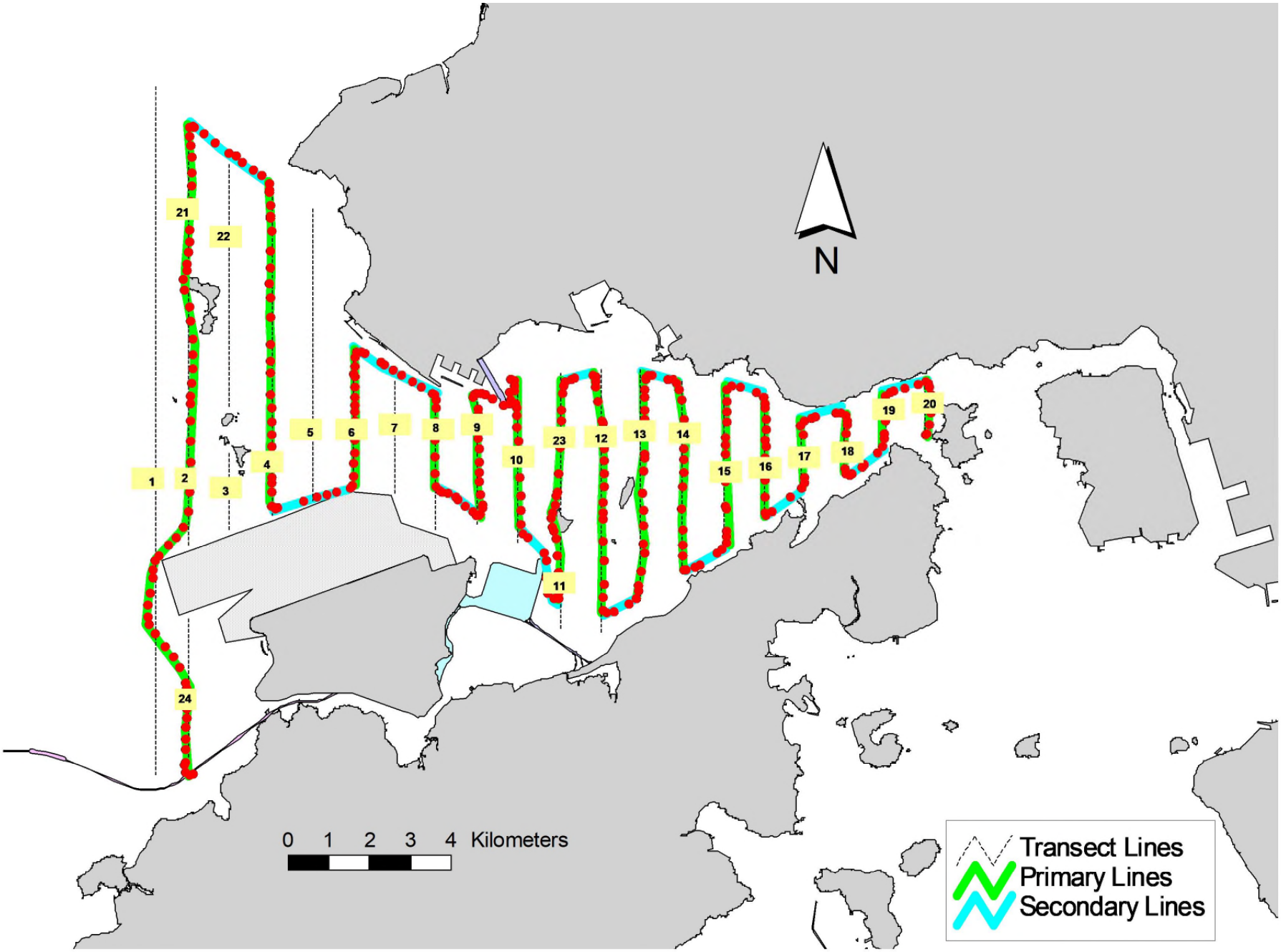


Figure 2. Survey Route on June 4th, 2020

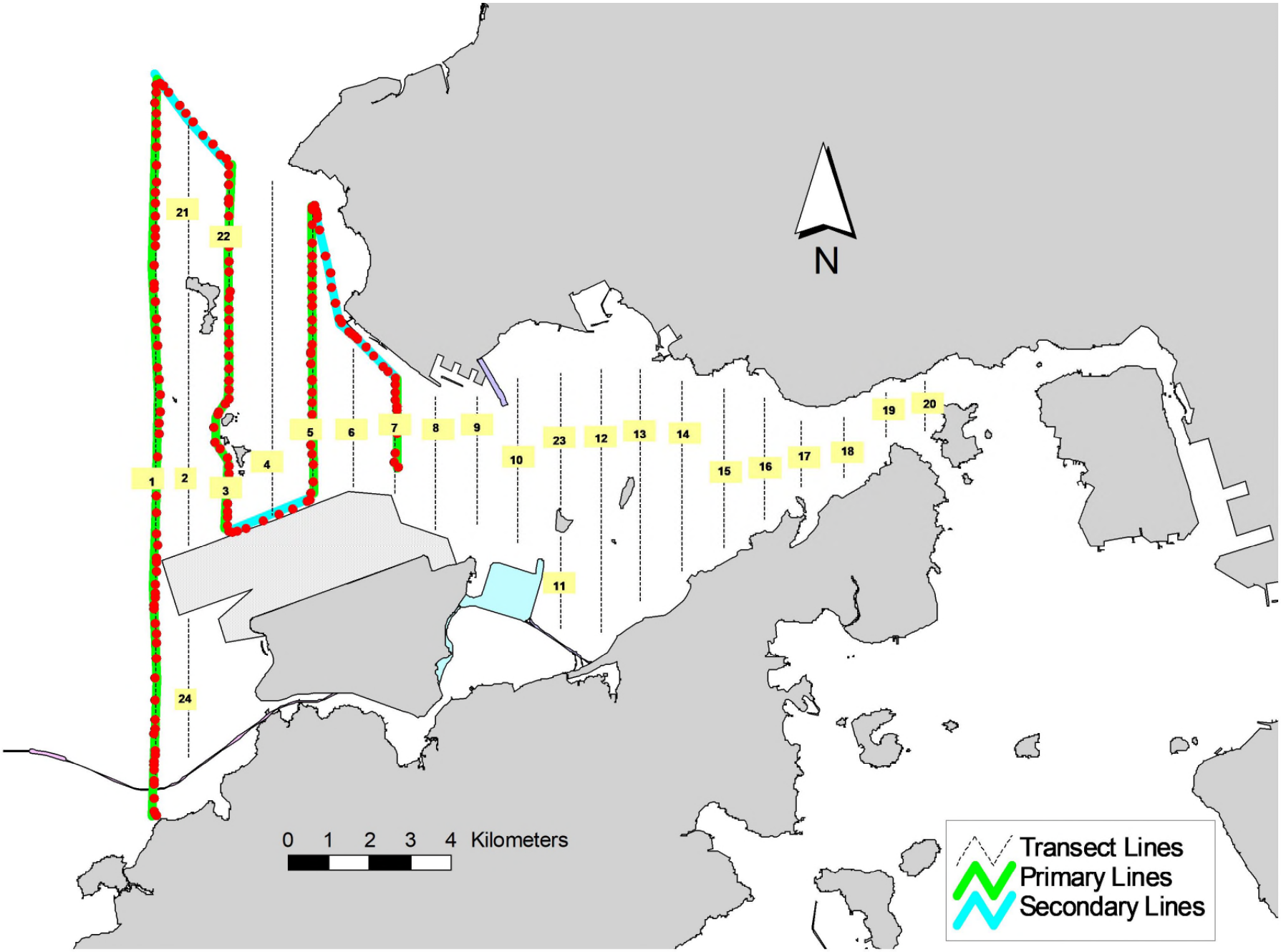


Figure 3. Survey Route on June 9th, 2020

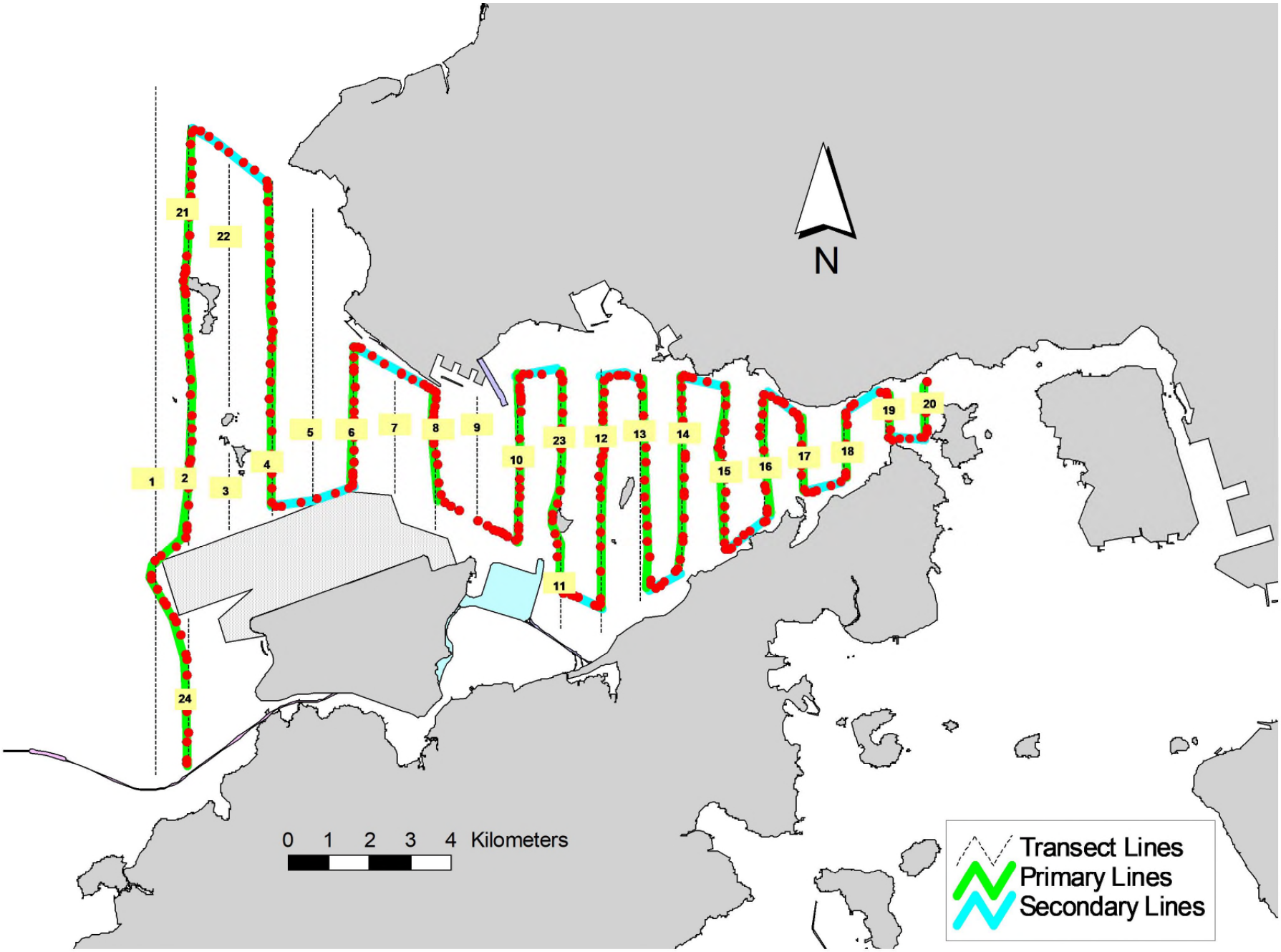


Figure 4. Survey Route on June 11th, 2020

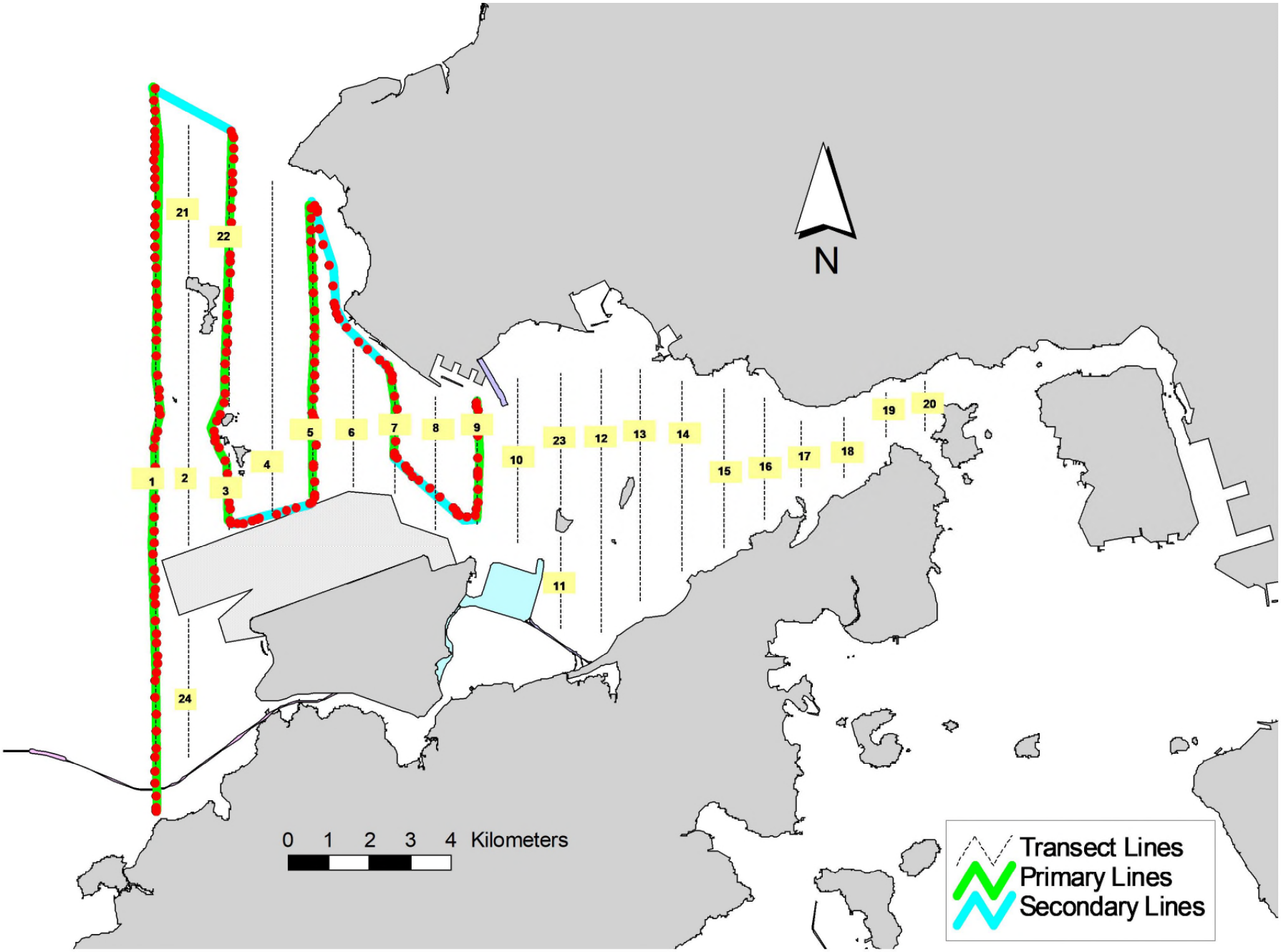


Figure 5. Survey Route on June 16th, 2020

Appendix I. TMCLKL Survey Effort Database (June 2020)

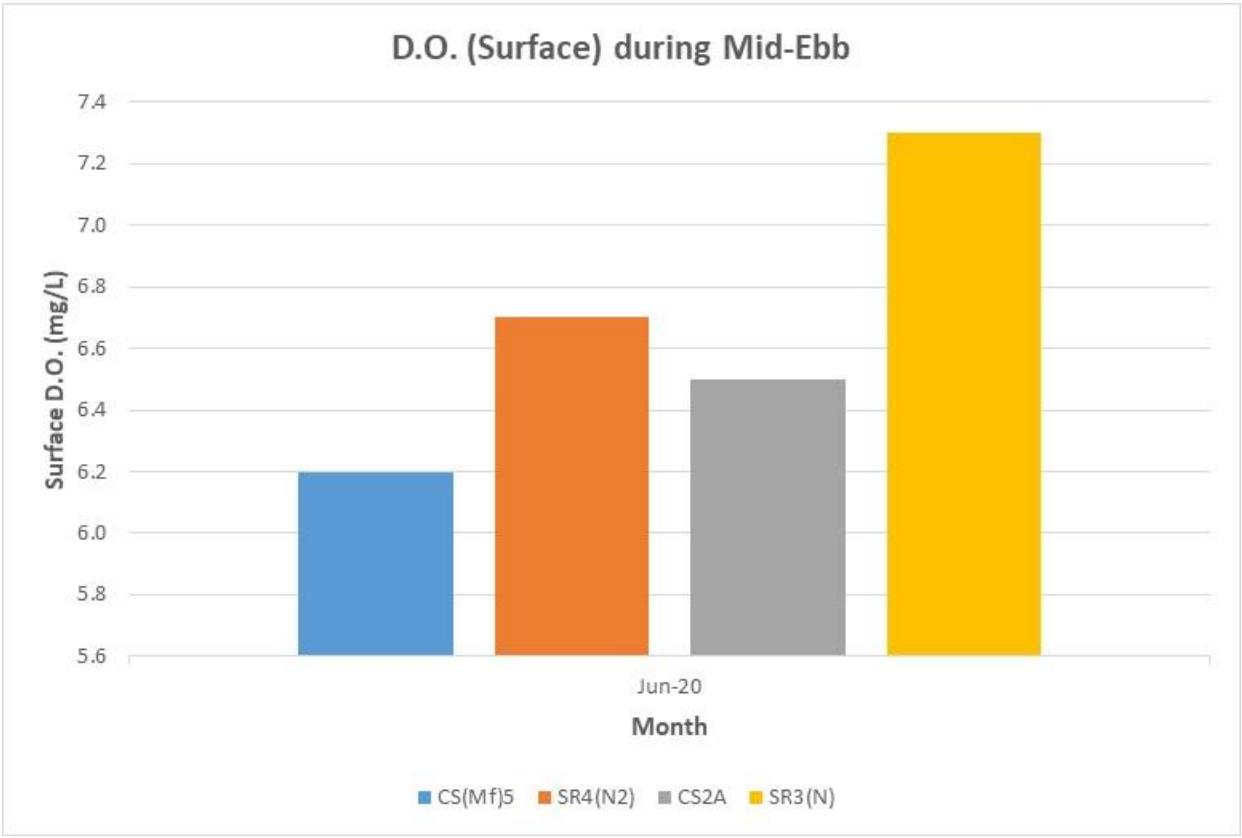
(Abbreviations: BEAU = Beaufort Sea State; P = Primary Line Effort; S = Secondary Line Effort)

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
4-Jun-20	NW LANTAU	2	8.70	SUMMER	STANDARD36826	TMCLKL	P
4-Jun-20	NW LANTAU	3	17.62	SUMMER	STANDARD36826	TMCLKL	P
4-Jun-20	NW LANTAU	2	3.50	SUMMER	STANDARD36826	TMCLKL	S
4-Jun-20	NW LANTAU	3	9.58	SUMMER	STANDARD36826	TMCLKL	S
4-Jun-20	NE LANTAU	2	25.33	SUMMER	STANDARD36826	TMCLKL	P
4-Jun-20	NE LANTAU	3	8.60	SUMMER	STANDARD36826	TMCLKL	P
4-Jun-20	NE LANTAU	2	11.57	SUMMER	STANDARD36826	TMCLKL	S
4-Jun-20	NE LANTAU	3	1.10	SUMMER	STANDARD36826	TMCLKL	S
9-Jun-20	NW LANTAU	2	27.60	SUMMER	STANDARD36826	TMCLKL	P
9-Jun-20	NW LANTAU	3	5.50	SUMMER	STANDARD36826	TMCLKL	P
9-Jun-20	NW LANTAU	2	9.10	SUMMER	STANDARD36826	TMCLKL	S
9-Jun-20	NW LANTAU	3	2.10	SUMMER	STANDARD36826	TMCLKL	S
11-Jun-20	NW LANTAU	2	20.23	SUMMER	STANDARD36826	TMCLKL	P
11-Jun-20	NW LANTAU	3	5.70	SUMMER	STANDARD36826	TMCLKL	P
11-Jun-20	NW LANTAU	2	9.87	SUMMER	STANDARD36826	TMCLKL	S
11-Jun-20	NE LANTAU	2	27.09	SUMMER	STANDARD36826	TMCLKL	P
11-Jun-20	NE LANTAU	3	8.40	SUMMER	STANDARD36826	TMCLKL	P
11-Jun-20	NE LANTAU	2	8.71	SUMMER	STANDARD36826	TMCLKL	S
11-Jun-20	NE LANTAU	3	2.10	SUMMER	STANDARD36826	TMCLKL	S
16-Jun-20	NW LANTAU	2	23.10	SUMMER	STANDARD36826	TMCLKL	P
16-Jun-20	NW LANTAU	3	12.79	SUMMER	STANDARD36826	TMCLKL	P
16-Jun-20	NW LANTAU	2	10.11	SUMMER	STANDARD36826	TMCLKL	S
16-Jun-20	NW LANTAU	3	0.50	SUMMER	STANDARD36826	TMCLKL	S

Appendix J

Operational Phase Water Quality Monitoring Results

Date	Tide	Station	Weather Condition	Sea Condition	Sampling Time	Water Depth (m)	Water Level	Sampling depth (m)	Replicate	Water Temperature (°C)	pH	Salinity (ppt)	Dissolved Oxygen (DO) (mg/L)	DO Saturation (%)	Turbidity (NTU)	Suspended Solids (SS) (mg/L)	Depth-averaged		
																	DO (mg/L)	Turbidity (NTU)	SS (mg/L)
24-06-20	Mid-Ebb	CS(Mf)5	Fine	Moderate	15:55	10.4	Surface	1.0	1	28.6	7.8	17.4	6.2	88.1	3.3	3.8	5.8	5.5	5.5
									2	28.6	7.8	17.3	6.2	88.3	3.2	3.4			
							Middle	5.2	1	27.5	7.8	20.4	5.3	75.3	5.1	5.4			
									2	27.6	7.8	20.0	5.4	76.1	5.1	5.1			
							Bottom	9.4	1	26.1	7.7	26.0	4.2	60.3	8.1	8.0	4.3		
									2	26.1	7.7	26.0	4.3	60.9	8.0	7.5			
		SR4(N2)	Fine	Calm	14:38	4.3	Surface	1.0	1	28.6	7.9	17.8	6.7	94.8	10.7	10.5	6.7	13.9	13.3
									2	28.5	7.9	17.9	6.6	94.0	10.8	10.9			
							Bottom	3.3	1	28.0	7.8	19.5	5.6	79.6	17.2	15.8	5.6		
									2	28.2	7.8	19.2	5.6	79.5	16.9	16.0			
		CS2A	Fine	Rough	13:50	6.4	Surface	1.0	1	28.8	7.9	16.3	6.4	90.7	3.3	3.2	5.5	6.3	4.4
									2	28.9	7.9	16.2	6.5	91.5	3.0	3.3			
							Middle	3.2	1	27.1	7.7	22.3	4.5	63.8	7.6	3.8			
									2	27.2	7.7	21.3	4.7	66.3	7.4	4.1			
							Bottom	5.4	1	25.8	7.6	26.4	3.3	47.2	8.4	6.3	3.4		
									2	25.8	7.6	26.5	3.4	48.3	8.1	5.9			
		SR3(N)	Fine	Calm	15:15	3.2	Surface	1.0	1	29.0	8.0	17.1	7.3	104.2	5.0	5.4	7.3	6.4	6.3
									2	29.0	8.0	17.1	7.3	104.4	4.6	5.9			
							Bottom	2.2	1	28.3	7.8	17.8	6.2	87.4	8.2	6.7	6.3		
									2	28.3	7.8	17.9	6.3	89.7	7.9	7.1			
24-06-20	Mid-Flood	CS(Mf)5	Cloudy	Moderate	21:00	12.9	Surface	1.0	1	28.4	7.8	15.3	6.2	87.1	2.6	2.7	5.0	6.8	3.2
									2	28.4	7.9	15.3	6.2	86.1	2.8	2.9			
							Middle	6.5	1	25.5	7.7	28.2	3.8	54.5	3.2	3.1			
									2	25.4	7.7	28.4	3.7	53.4	3.3	2.8			
							Bottom	11.9	1	24.6	7.7	31.0	3.2	45.2	14.1	3.7	3.3		
									2	24.7	7.7	31.0	3.3	47.3	14.9	3.8			
		SR4(N2)	Cloudy	Moderate	22:13	5.2	Surface	1.0	1	28.5	7.9	17.3	6.3	89.4	7.7	8.3	6.4	8.4	7.4
									2	28.5	7.9	17.1	6.4	90.0	6.4	8.0			
							Bottom	4.2	1	28.3	7.9	18.1	6.0	84.7	10.0	6.4	6.1		
									2	28.4	7.9	17.8	6.1	87.2	9.4	6.8			
		CS2A	Cloudy	Moderate	23:01	7.4	Surface	1.0	1	27.9	7.7	16.7	5.4	75.4	5.2	4.9	4.8	9.7	4.5
									2	28.1	7.7	16.1	5.6	78.0	5.0	4.8			
							Middle	3.7	1	26.8	7.7	22.6	4.2	59.1	9.5	4.4			
									2	26.5	7.7	22.8	4.1	58.7	9.8	4.5			
							Bottom	6.4	1	26.4	7.7	24.2	3.7	53.2	14.5	4.2	3.8		
									2	26.4	7.7	24.2	3.8	54.0	14.3	3.9			
		SR3(N)	Cloudy	Calm	22:29	5.2	Surface	1.0	1	28.0	7.8	15.9	5.9	82.7	7.3	4.6	6.0	7.2	4.5
									2	28.0	7.8	15.9	6.0	83.4	7.5	4.4			
							Bottom	4.2	1	27.9	7.8	17.1	5.7	79.9	7.2	4.7	5.7		
									2	27.9	7.8	17.5	5.7	80.5	6.6	4.4			



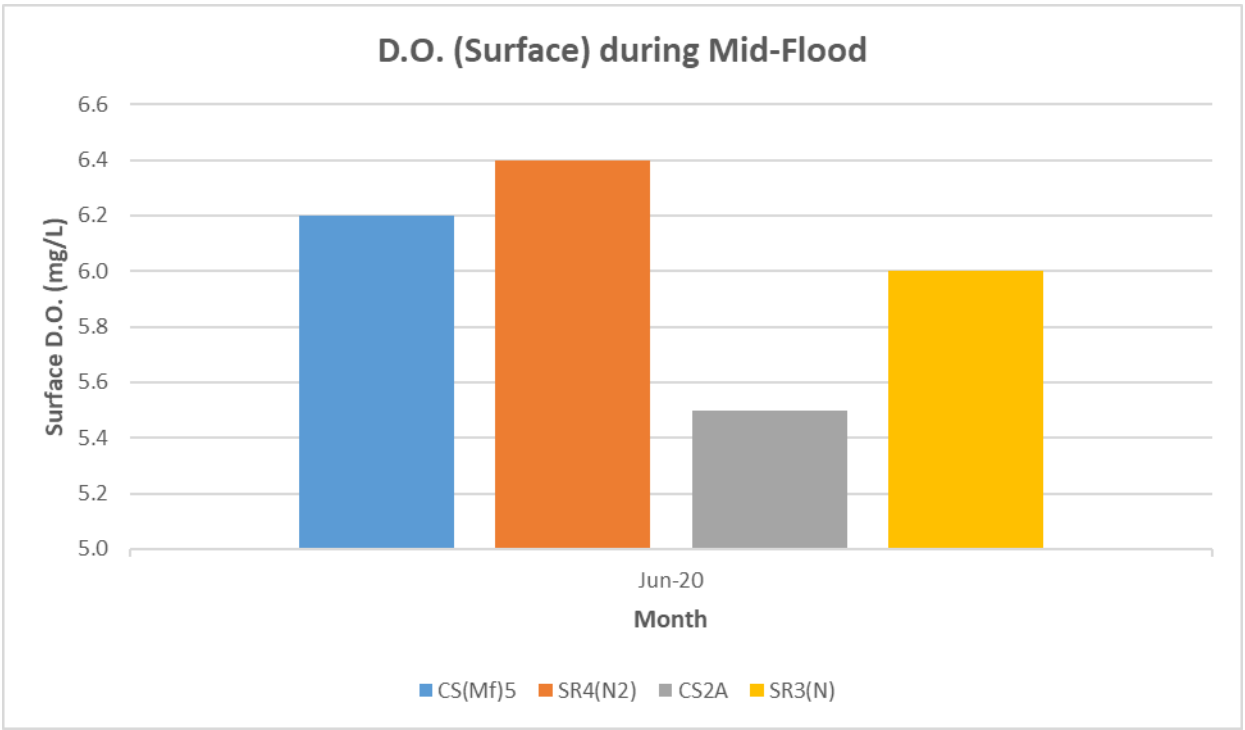
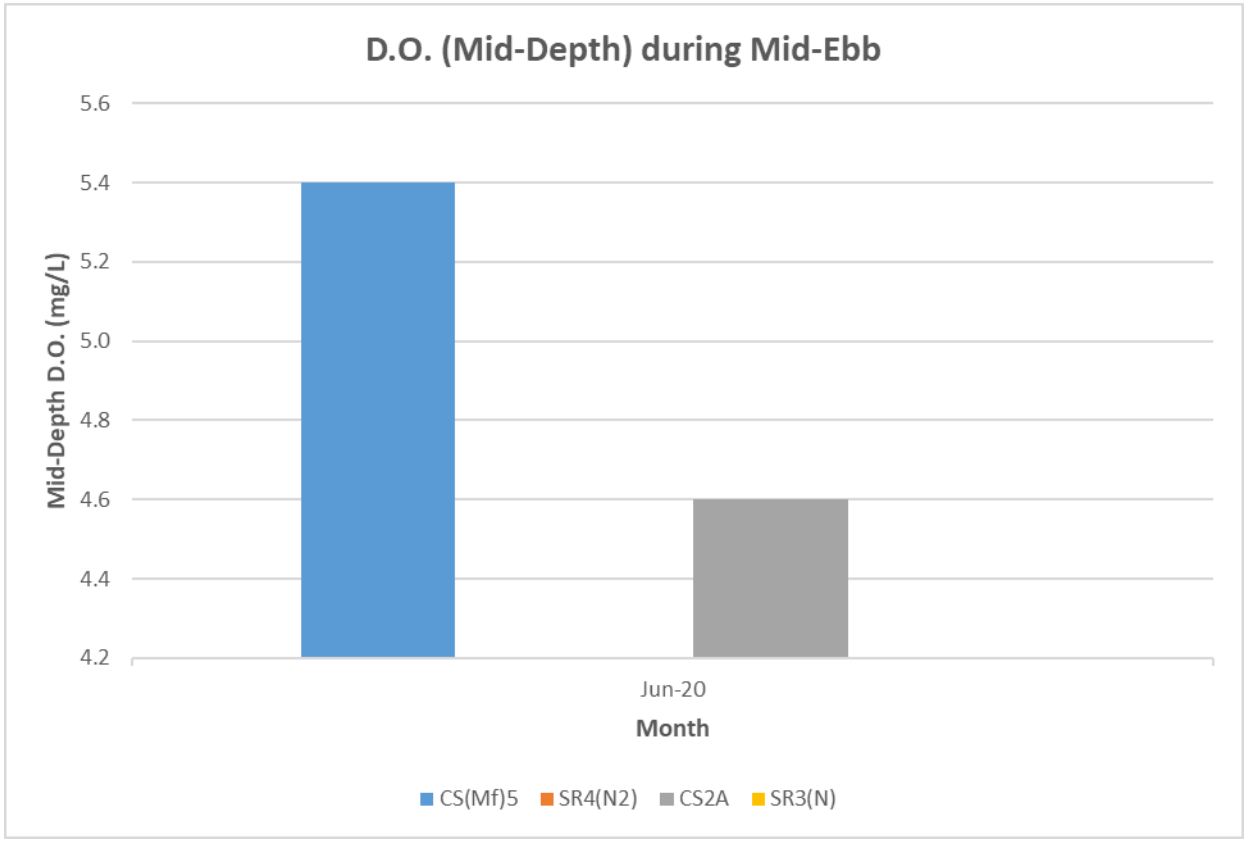


Figure J1 Operational Phase Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters between 1 June 2020 and 30 June 2020. The weather conditions during the monitoring period varied mostly from sunny to cloudy.

Ref: 0212330_Impact-WQM_June2020_graphs_Rev a.xls

ERM



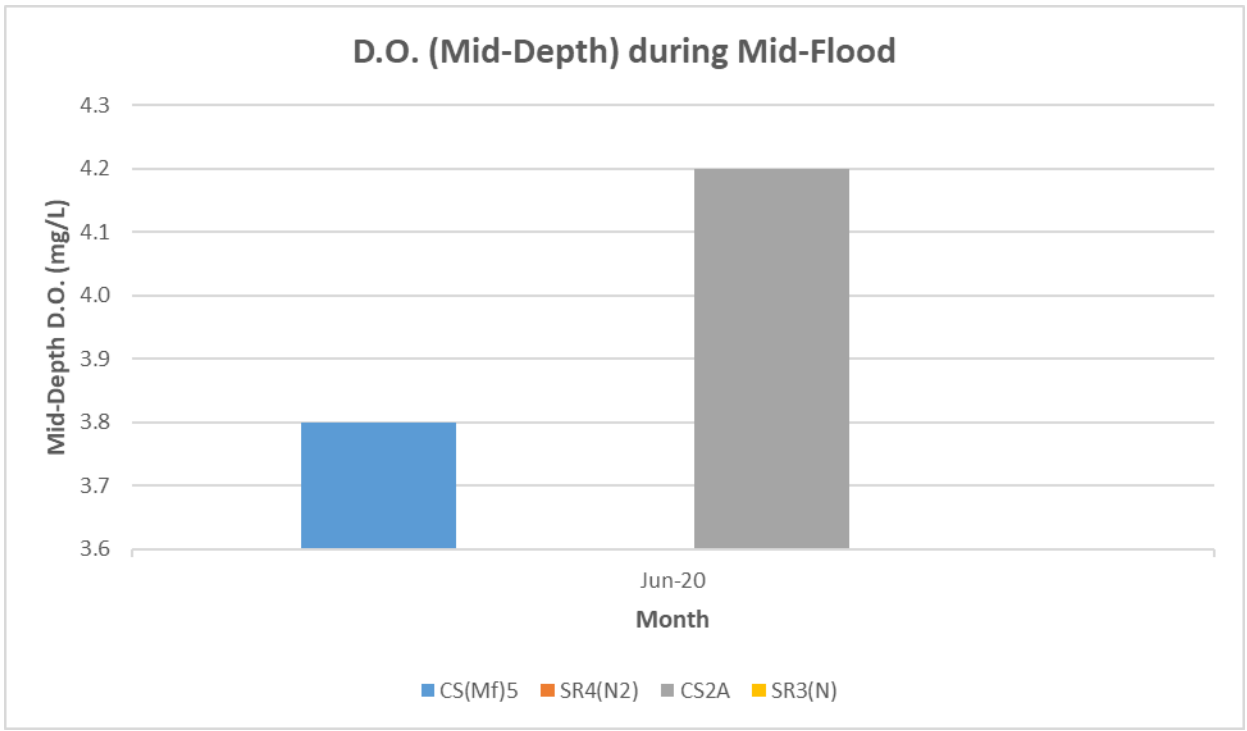
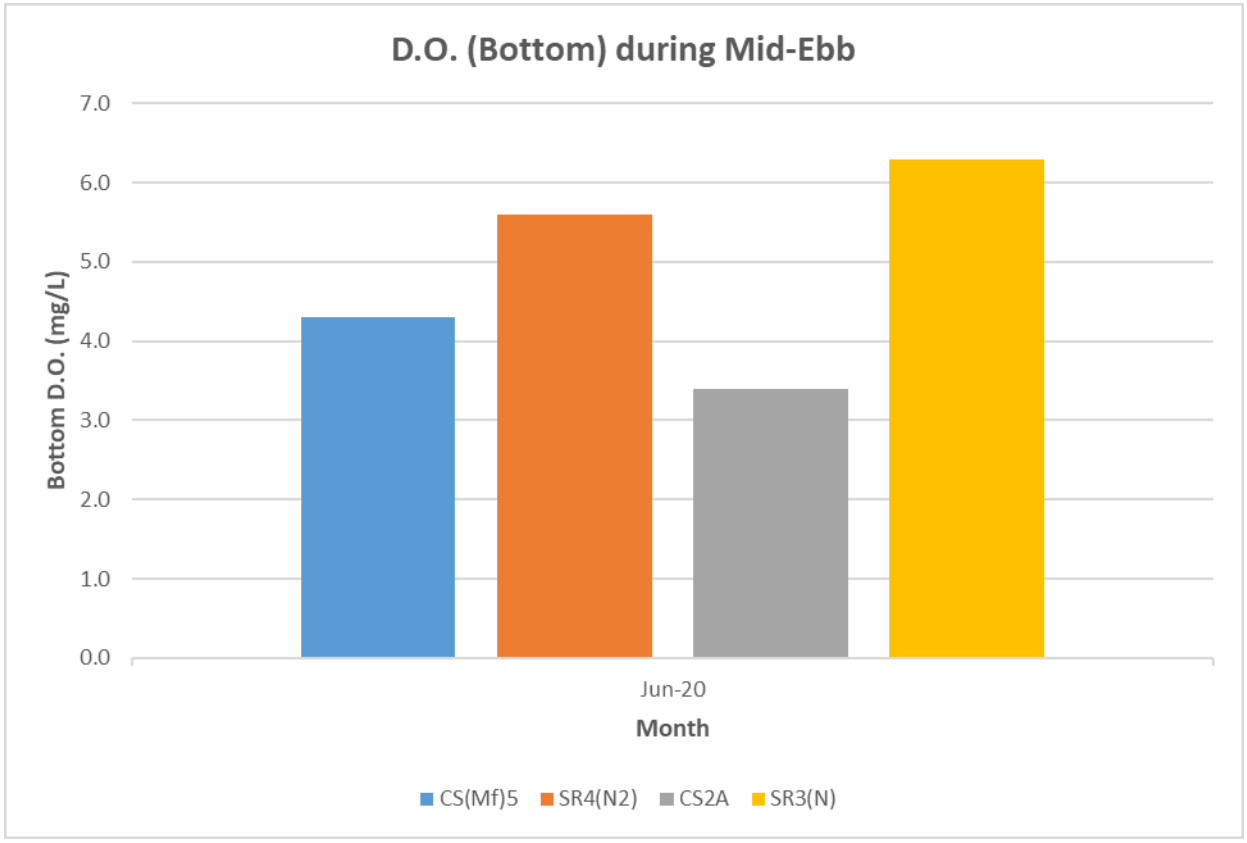


Figure J2 Operational Phase Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters between 1 June 2020 and 30 June 2020. The weather conditions during the monitoring period varied mostly from sunny to cloudy.

Ref: 0212330_Impact-WQM_June2020_graphs_Rev a.xls



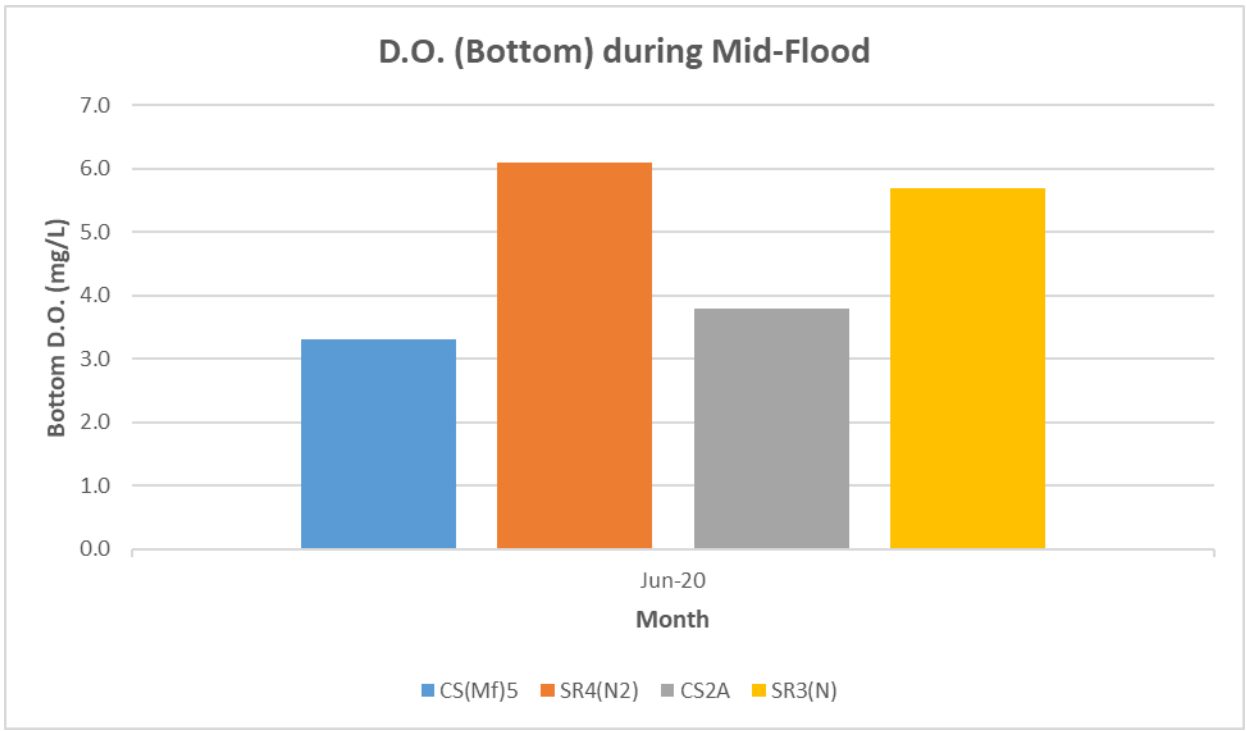
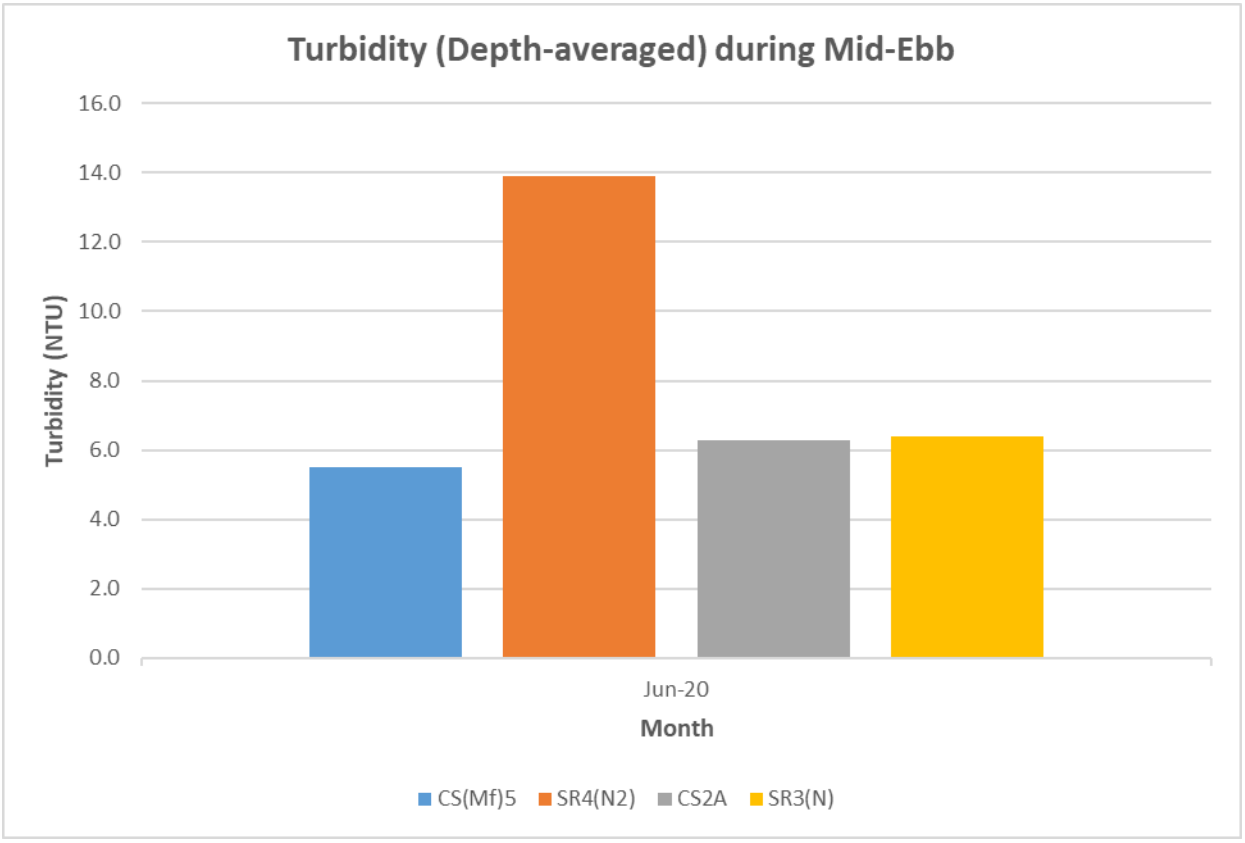


Figure J3 Operational Phase Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters between 1 June 2020 and 30 June 2020 at CS2A. The weather conditions during the monitoring period varied mostly from sunny to cloudy.

Ref: 0212330_Impact-WQM_June2020_graphs_Rev a.xls



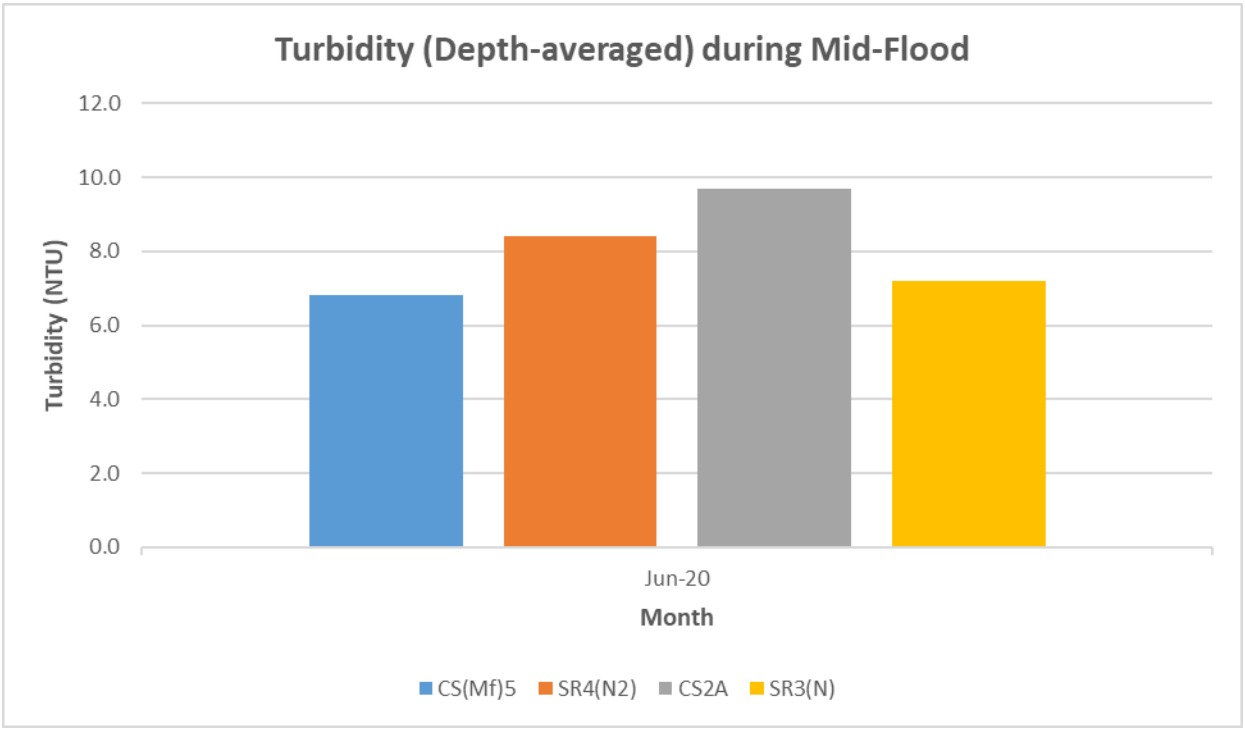
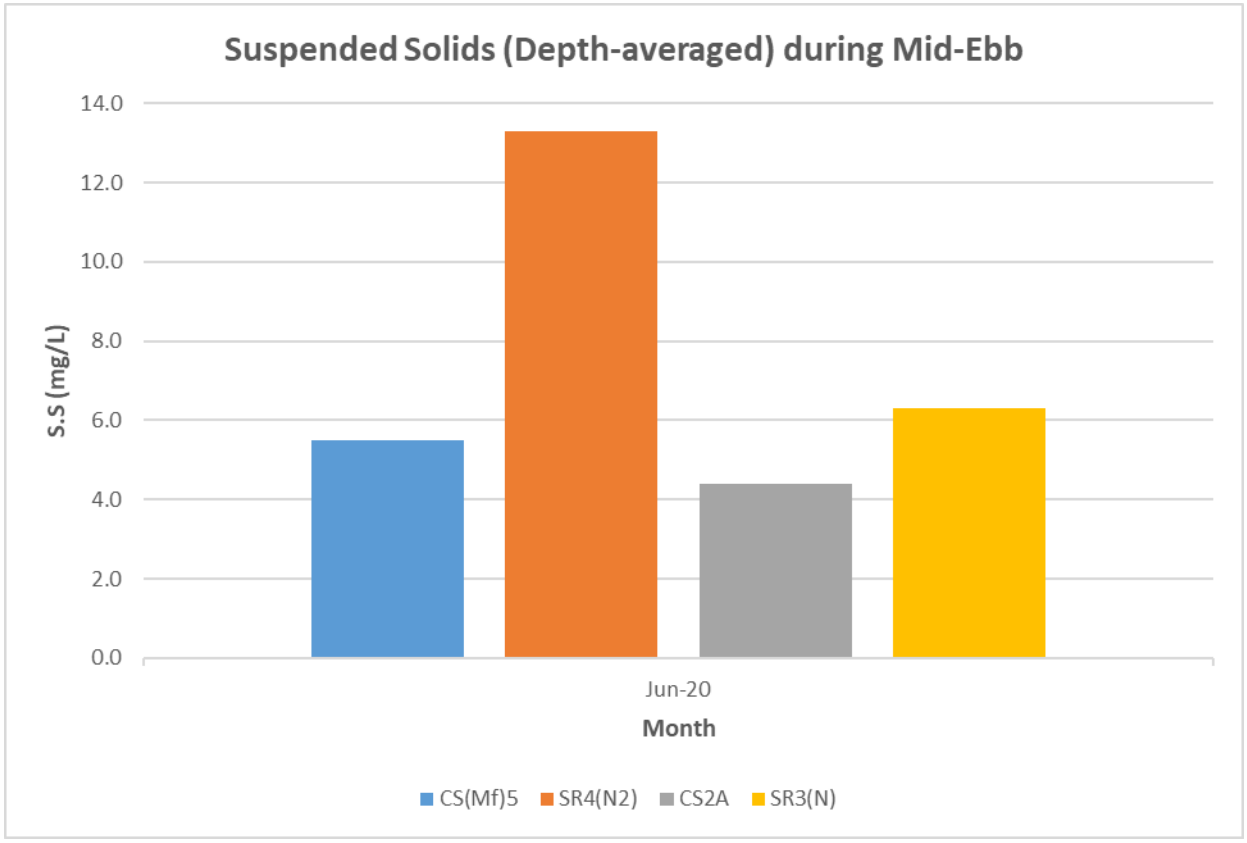


Figure J4 Operational Phase Monitoring – Mean Depth-averaged Level of Turbidity (NTU) between 1 June 2020 and 30 June 2020. The weather conditions during the monitoring period varied mostly from sunny to cloudy.

Ref: 0212330_Impact-WQM_June2020_graphs_Rev a.xls

ERM



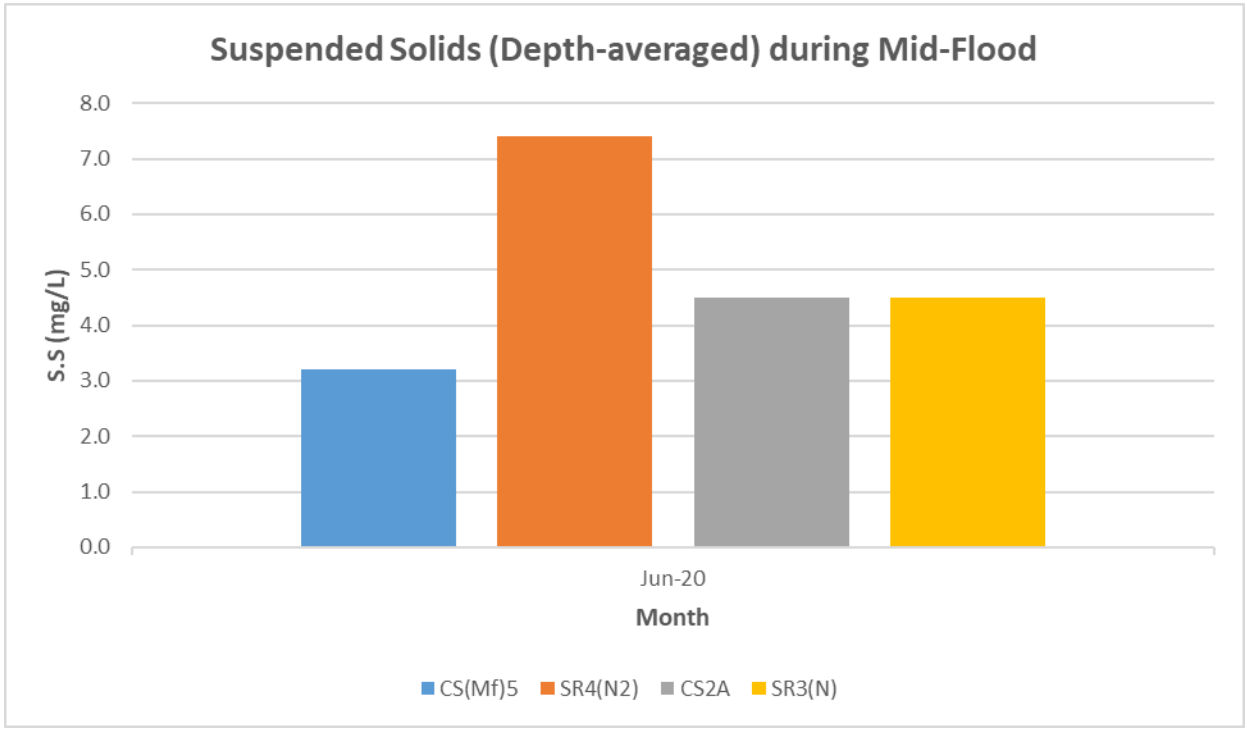


Figure J5 Operational Phase Monitoring – Mean Depth-averaged Level of Suspended Solids (mg/L) between 1 June 2020 and 30 June 2020. The weather conditions during the monitoring period varied mostly from sunny to cloudy.

Ref: 0212330_Impact-WQM_June2020_graphs_Rev a.xls

Appendix K

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

Appendix L

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

Table L1 *Cumulative Statistics on Exceedances*

Parameters	Level of Exceedance	Total No. recorded in this reporting month	Total No. recorded since Contract commencement
1-hr TSP	Action	1	110
	Limit	0	13
24-hr TSP	Action	0	10
	Limit	0	4
Water Quality	Action	0	167
	Limit	0	19
Impact Dolphin Monitoring	Action	0	11
	Limit	0	19

Table L2 *Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions*

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This Reporting Month (June 2020)	0	0	0
Total No. received since Contract commencement	17	1	0

Email message

Environmental Resources Management

2507, 25/F One Harbourfront
18 Tak Fung Street
Hunghom, Kowloon
Hong Kong
Telephone: (852) 2271 3000
Facsimile: (852) 2723 5660

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	26 June 2020

ERM

Dear Sir or Madam,

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

0212330_13June2020_1hrTSP_Station ASR6

One Action Level Exceedance was recorded on 13 June 2020.

Regards,

Dr Jasmine Ng
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.	**<u>Action Level Exceedance</u> 0212330_13June2020_1hrTSP_Station ASR6 [Total No. of Exceedances = 1]**	
Date	13 June 2020 (Measured) 22 June 2020 (Laboratory results received by ERM)	
Monitoring Station	ASR6	
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 ASR6 (357 µg/m³) during 1030 – 1130.	
Works Undertaken (at the time of monitoring event)	On 13 June 2020, Carpark Formation works were carried out on site (refer to *Figure 2*).	
Possible Reason for Action or Limit Level Exceedance(s)	The exceedance is unlikely to be due to this Contract, in view of the following: • According to the construction information provided by the Contractor, only Carpark formation works were carried out on site on 13 June 2020. • With reference to the recorded wind direction (ranged between 32° and 95°), blowing from a north-easterly/easterly direction) and wind speed (ranged between 0.9 and 1.8 m/s) during the works period. Station ASR6 is located upstream to the construction works. Carpark Formation works were carried out with the implementation of dust mitigation measures. • Dust suppression measures were implemented properly on site. Water spraying was applied on site to prevent dust. Water spraying was also applied on exposed soil within the Contract site and associated works areas (refer to *Watering Record*). Based on the above, the exceedance is unlikely to be due to this Contract.	

Actions Taken / To Be Taken	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 Contract site throughout the construction period.
Remarks	The monitoring results, wind data and the locations of air quality monitoring stations are attached.

Air quality monitoring results on 13/6/2020								
Project	Contract	Date	Station	Weather	Start time	Parameters	Results	Unit
TMCLKL	HY/2012/08	2020-06-13	ASR10	Sunny	8:15:00	1-hour TSP	46	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR10	Sunny	9:17:00	1-hour TSP	33	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR10	Sunny	10:19:00	1-hour TSP	40	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR6	Sunny	8:26:00	1-hour TSP	101	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR6	Sunny	9:28:00	1-hour TSP	52	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR6	Sunny	10:30:00	1-hour TSP	357	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR5	Sunny	8:38:00	1-hour TSP	195	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR5	Sunny	9:40:00	1-hour TSP	66	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR5	Sunny	10:42:00	1-hour TSP	135	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR1	Sunny	8:50:00	1-hour TSP	102	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR1	Sunny	9:52:00	1-hour TSP	56	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR1	Sunny	10:54:00	1-hour TSP	44	ug/m3
TMCLKL	HY/2012/08	2020-06-13	AQMS1	Sunny	9:01:00	1-hour TSP	69	ug/m3
TMCLKL	HY/2012/08	2020-06-13	AQMS1	Sunny	10:03:00	1-hour TSP	40	ug/m3
TMCLKL	HY/2012/08	2020-06-13	AQMS1	Sunny	11:05:00	1-hour TSP	51	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR10	Sunny	11:21:00	24-hour TSP	20	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR6	Sunny	11:32:00	24-hour TSP	27	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR5	Sunny	11:44:00	24-hour TSP	40	ug/m3
TMCLKL	HY/2012/08	2020-06-13	ASR1	Sunny	11:56:00	24-hour TSP	33	ug/m3
TMCLKL	HY/2012/08	2020-06-13	AQMS1	Sunny	12:07:00	24-hour TSP	27	ug/m3

Action level exceedance
Limit level exceedance

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	**Time (24hrs)**	**Average of Wind Speed (m/s)**	**Average of Wind Direction(degree)**
20/06/13	0:00	0.9	57
20/06/13	1:00	0	64
20/06/13	2:00	0	79
20/06/13	3:00	0	311
20/06/13	4:00	0.9	355
20/06/13	5:00	0	271
20/06/13	6:00	0	303
20/06/13	7:00	0	145
20/06/13	8:00	0.9	132
20/06/13	9:00	0.9	138
20/06/13	10:00	1.8	32
20/06/13	11:00	0.9	95
20/06/13	12:00	0.4	3
20/06/13	13:00	0.9	159
20/06/13	14:00	0.9	125
20/06/13	15:00	1.3	118
20/06/13	16:00	2.2	101
20/06/13	17:00	2.7	63
20/06/13	18:00	2.2	45
20/06/13	19:00	2.2	19
20/06/13	20:00	2.2	12
20/06/13	21:00	1.8	50
20/06/13	22:00	1.8	41
20/06/13	23:00	2.2	54

Figure 1

Locations of air quality monitoring stations

DATE: 06/03/2013

Environmental Resources Management

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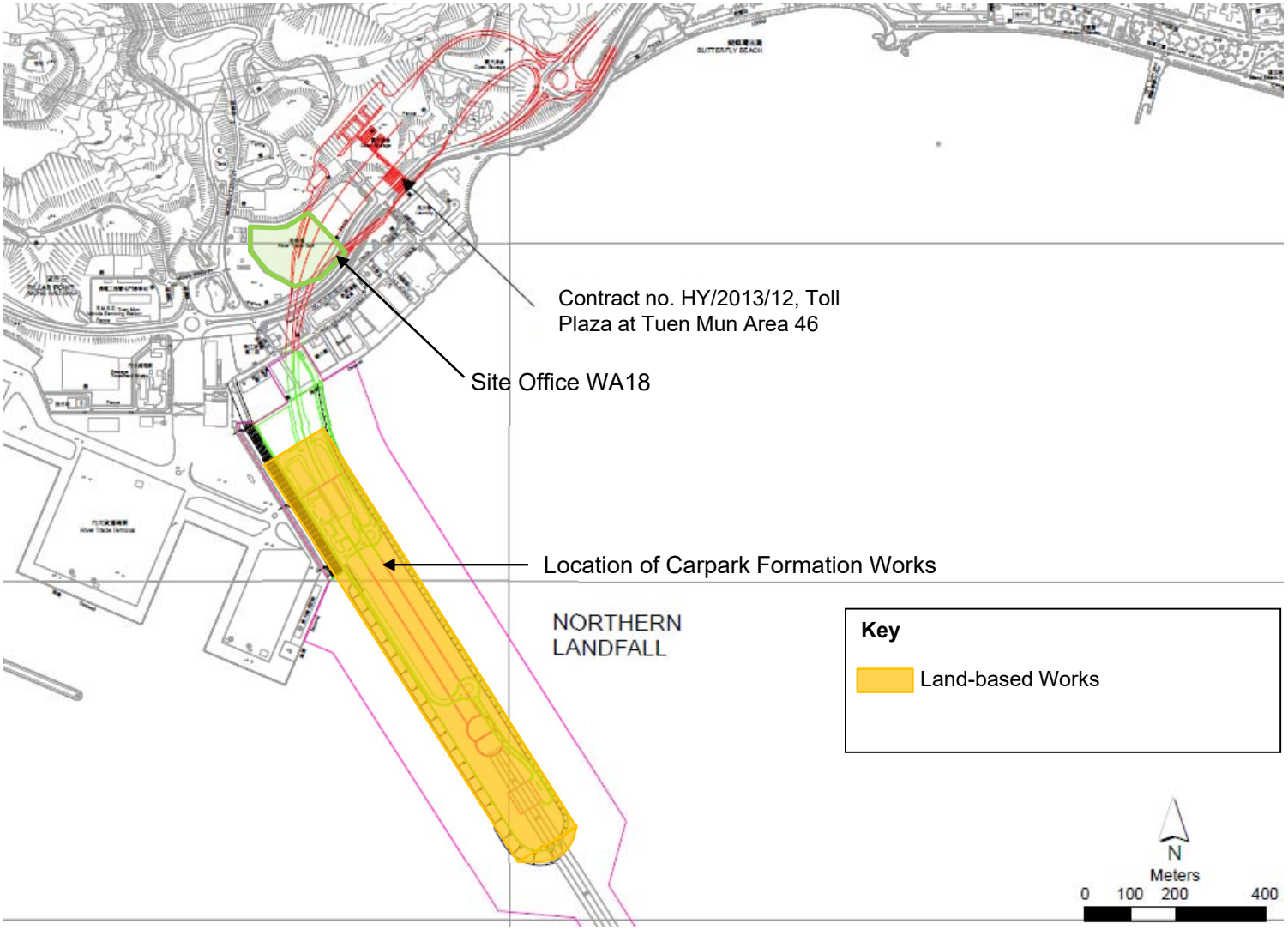

Figure 2

HY/2012/08 TM-CLKL Northern Connection Sub-sea Tunnel Section
Work Location

Environmental Resources Management

ERM

Dragages Hong Kong 港寶嘉	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: 8 Jun 2020 to 至 14 Jun 2020

	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	O	√	√	√	√	√	√
2	8:45 – 9:30	O	√	√	√	√	√	√
3	9:30 – 10:15	O	√	√	√	√	√	√
4	10:15 – 11:00	O	√	√	√	√	√	√
5	11:00 – 11:45	O	√	√	√	√	√	√
6	11:45 – 12:30	O	√	√	√	√	√	√
7	12:30 – 13:15	O	√	√	√	√	√	√
8	13:15 – 14:00	O	√	√	√	√	√	√
9	14:00 – 14:45	O	√	√	√	√	√	√
10	14:45 – 15:30	O	√	√	√	√	√	√
11	15:30 – 16:45	O	√	√	√	√	√	√
12	16:45 – 17:30	O	√	√	√	√	√	√
	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 M

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 June 2020 [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	3008.812	0.000	336.902	889.467	1782.443
Jan-2020	174.69	0.000	0.000	0.000	174.69
Feb-2020	1.455	0.000	0.000	0.000	1.455
Mar-2020	3.252	0.000	0.000	0.000	3.252
Apr-2020	4.200	0.000	0.000	0.000	4.200
May-2020	7.015	0.000	0.000	0.000	7.015
Jun-2020	2.670	0.000	0.000	0.000	2.670
Half Year Sub-total	193.282	0.000	0.000	0.000	193.282
Jul-2020					
Aug-2020					
Sep-2020					
Oct-2020					
Nov-2020					
Dec-2020					
Project Total Quantities	3202.094	0.000	336.902	889.467	1975.725

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	9890.77	9890.77	14.64	14.64	16.84	16.84	85.807	85.807	21.943
Jan-2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.54
Feb-2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.349
Mar-2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.226
Apr-2020	22.14	22.14	1.30	1.30	0.00	0.00	6.40	6.40	0.521
May-2020	6.2	6.2	0.54	0.54	0.00	0.00	0.60	0.60	0.536
Jun-2020	0.00	0.00	0.74	0.74	0.00	0.00	1.00	1.00	0.294
Half Year Sub-total	28.34	28.34	2.58	2.58	0.00	0.00	8.00	8.00	5.466
Jul-2020									
Aug-2020									
Sep-2020									
Oct-2020									
Nov-2020									
Dec-2020									
Project Total Quantities	9919.11	9919.11	17.22	17.22	16.84	16.84	93.807	93.807	27.409

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)
3200.000	0.000	350.000	1000.000	2000.000

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)
10000.00	20.00	18.00	120.00	30.000

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).