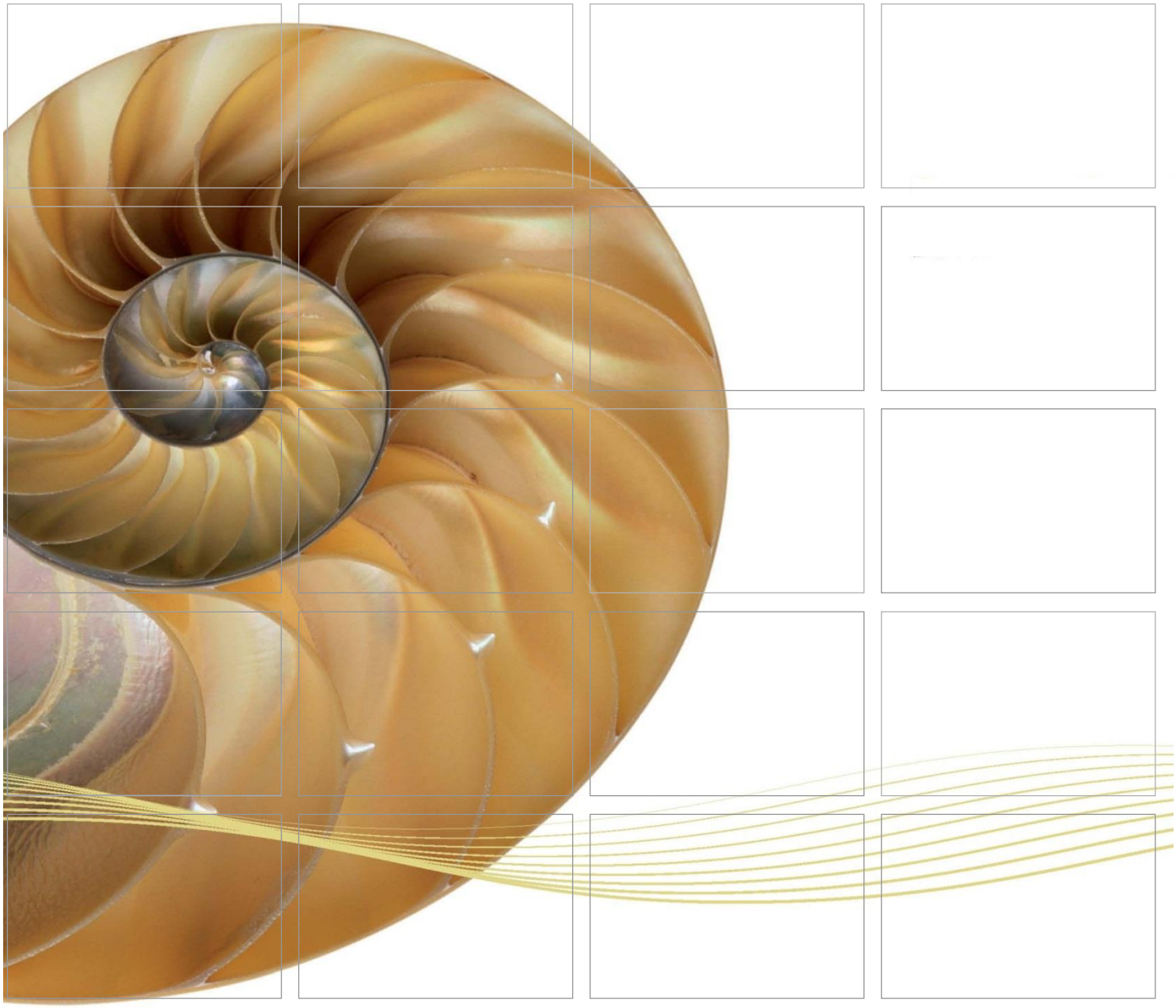
Report



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

*Eighty-Seventh Monthly Environmental Monitoring & Audit (EM&A) Report*

09 February 2021

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

*Eighty-Seventh Monthly Environmental Monitoring & Audit (EM&A) Report*

***Document Code: 0212330_87th Monthly EM&A_20210209.doc***


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http://www.erm.com

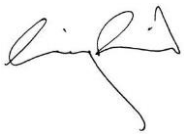

| Client: | Project No: |
|---|---|
| DBJV | 0212330 |

Summary:

This document presents the Eighty-Seventh Monthly EM&A Report for Tuen Mun – Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section.

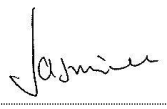
Date:
09 February 2021

Approved by:



*Mr Craig Reid*
*Partner*

Certified by:



*Dr Jasmine Ng*
*ET Leader*

| Revision | Description | By | Checked | Approved | Date |
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| | 87th Monthly EM&A Report | VAR | JN | CAR | 09/02/21 |



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9 February 2021

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**
**87th Monthly EM&A Report for January 2021 (EP-354/2009/D)**

Reference is made to the Monthly EM&A Report for January 2021 (ET's ref.: "0212330_87th Monthly EM&A_20210209.doc") certified by the ET Leader and provided to us via e-mail on 9 February 2021.

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. Alan Ip | (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



Ramboll Hong Kong Limited 英環香港有限公司
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**www.Ramboll.com**

*Table of Contents*

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 2021. 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 Eighty-seventh Monthly EM&A report presenting the EM&A works carried out during the period from 1 to 31 January 2021 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*

- Demolition works and backfilling works of CLP substation

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

| | |
|---|---|
| 24-hour TSP Monitoring | 5 sessions |
| 1-hour TSP Monitoring | 5 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*

No exceedance was recorded in the air quality monitoring of 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

There was no reporting change in the reporting period.

Upcoming Works for the Next Reporting Month

Works to be undertaken in the next monitoring period of February 2021 include the following:

*Land-based Works*

- Demolition works and backfilling works - CLP substation
- Laying of granular material for paving works – CLP substation; and
- U-channel works – CLP substation.

Future Key Issue

Potential environmental impacts arising from the above upcoming construction activities in the next reporting month of February 2021 are mainly associated with dust and waste management issues.

# 1 INTRODUCTION

## 1.1 BACKGROUND

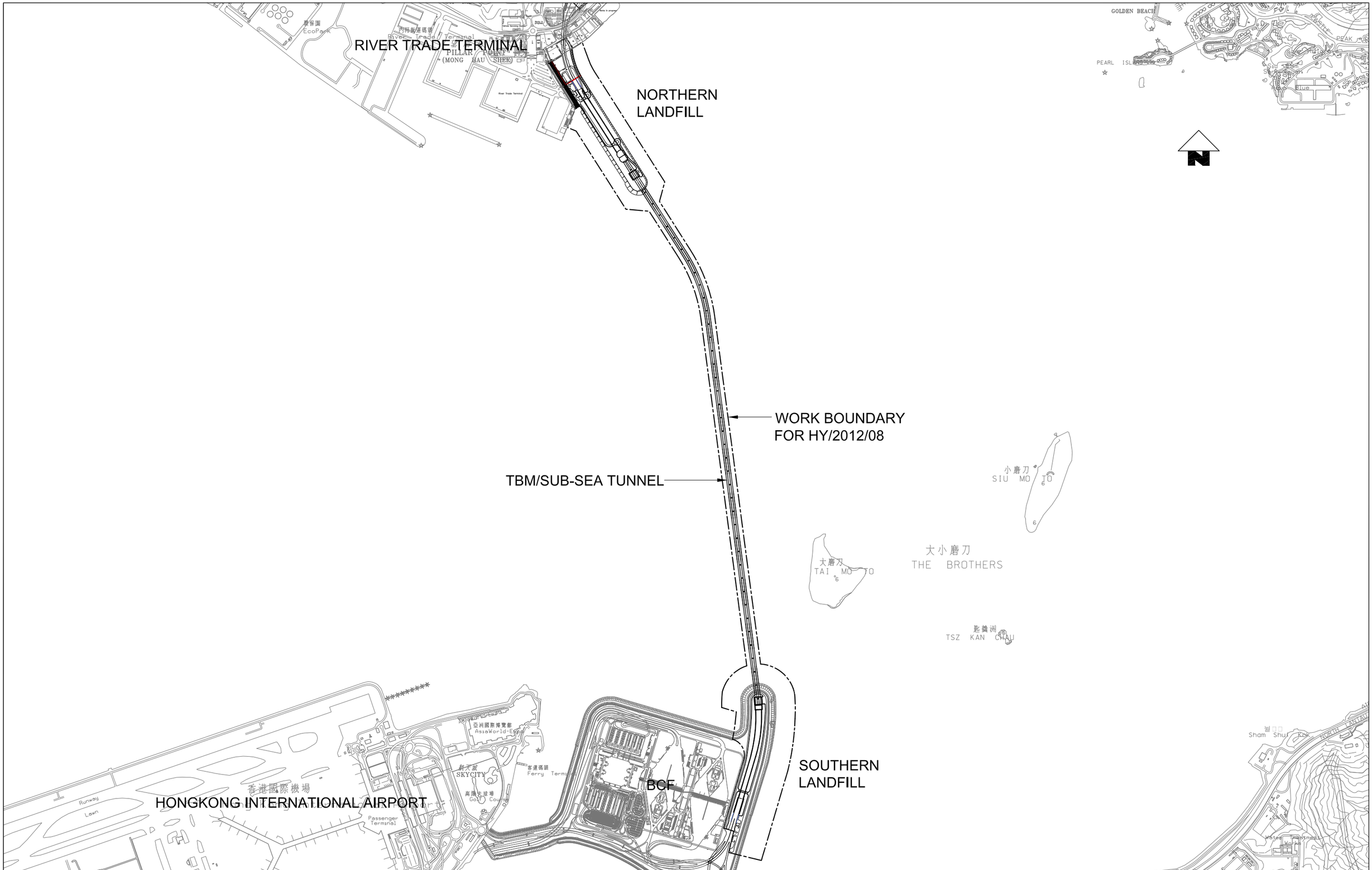
According to the findings of the Northwest New Territories (NWNT) Traffic and Infrastructure Review conducted by the Transport Department, Tuen Mun Road, Ting Kau Bridge, Lantau Link and North Lantau Highway would be operating beyond capacity after 2016. This forecast has been based on the estimated 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 2021. The impact monitoring phase of the EM&A programme, including air quality, water quality, marine ecological monitoring and environmental site inspections, were commenced on 1 November 2013.

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| Rev. | Description | Date | Checked | | |

Main Contractor

香寶嘉 Dragages HongKong

A member of the Bouygues Construction group

BOUYGUES TRAVAUX PUBLICS

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

Client

路政署 HIGHWAYS DEPARTMENT

Contractor's Designer

ARUP Ove Arup & Partners Hong Kong Limited

Project

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

Drawing Title

**Figure 1.1**

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

## 1.2 SCOPE OF REPORT

This is the Eighty-seveth Monthly EM&A Report under the *Contract No. HY/2012/08 Tuen Mun – Chek Lap Kok Link – Northern Connection Sub-sea Tunnel Section*. This report presents a summary of the environmental monitoring and audit works in January 2021.

## 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*.

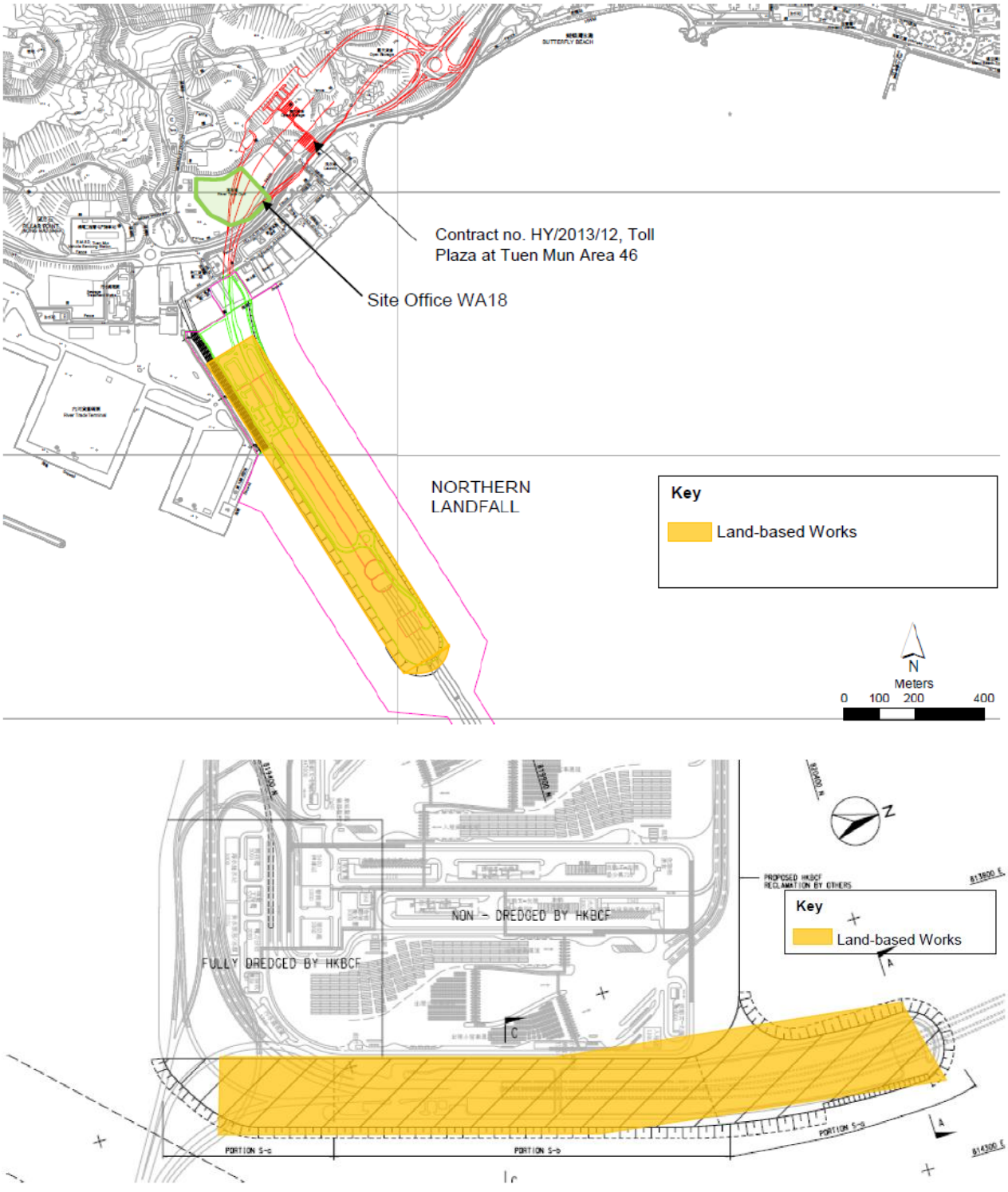
The general layout plan of the site showing the detailed works areas is shown in *Figure 1.2*. The Environmental Sensitive Receivers in the vicinity of the Contract are shown in *Figure 1.3*.

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* |
| • Demolition works and backfilling works - CLP substation |

*Figure 1.2 Locations of Construction Activities – January 2021*



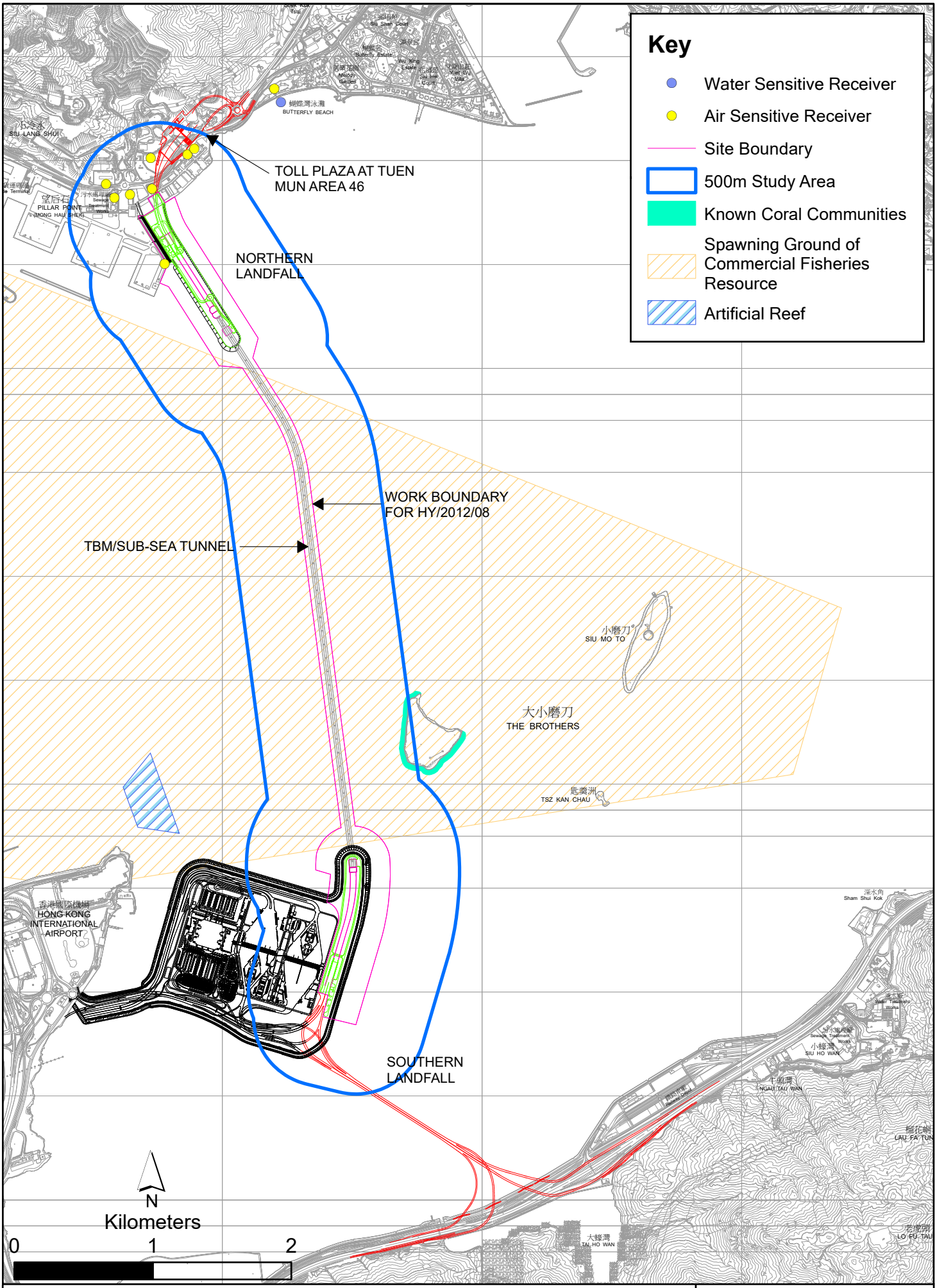



Figure 1.3 Environmental Sensitive Receivers in the vicinity of Contract No. HY/2012/08 Tuen Mun - Chek Lap Kok Link - Northern Connection Sub-Sea Tunnel Section

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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.

Excavation works for lauching shaft were completed and notification of change on air quality monitoring frequency was submitted to EPD on 14 September 2020. 1-hr and 24-hr TSP monitoring frequency was changed to three times per day every six days and daily every six days, respectively, since 14 September 2020.

High volume samplers (HVSs) were used to carry out the 1-hour and 24-hour TSP monitoring on 2, 8, 14, 20 and 26 January 2021 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 | 2, 8, 14, 20 and 26 January 2021 | Tuen Mun Fireboat Station | Office | TSP monitoring<br>• 1-hour Total Suspended Particulates (1-hour TSP, µg/m³), 3 times in every 6 days<br>• 24-hour Total Suspended Particulates (24-hour TSP, µg/m³), daily for 24-hour in every 6 days<br>Enhanced TSP monitoring (commenced on 24 October 2014)<br>• 1-hour Total Suspended Particulates (1-hour TSP, |
| ASR5 | | Pillar Point Fire Station | Office | |
| AQMS1 | | Previous River Trade Golf | Bare ground | |
| ASR6 | | Butterfly Beach Laundry | Office | |

| Monitoring Station | Monitoring Dates | Location | Description | Parameters & Frequency |
|---|---|---|---|---|
| ASR10 | | Butterfly Beach Park | Recreational uses | µg/m³), 3 times in every 3 days<br>• 24-hour Total Suspended Particulates (24-hour TSP, µg/m³), daily for 24-hour in every 3 days |

*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 January 2021 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 | 118 | 89 - 189 | 331 | 500 |
| ASR5 | 120 | 85 - 192 | 340 | 500 |
| AQMS1 | 115 | 58 - 160 | 335 | 500 |
| ASR6 | 168 | 98 - 248 | 338 | 500 |
| ASR10 | 101 | 42 - 246 | 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 | 114 | 84 - 145 | 213 | 260 |
| ASR5 | 96 | 47 - 148 | 238 | 260 |
| AQMS1 | 83 | 51 - 130 | 213 | 260 |
| ASR6 | 125 | 79 - 167 | 238 | 260 |
| ASR10 | 79 | 62 - 121 | 214 | 260 |

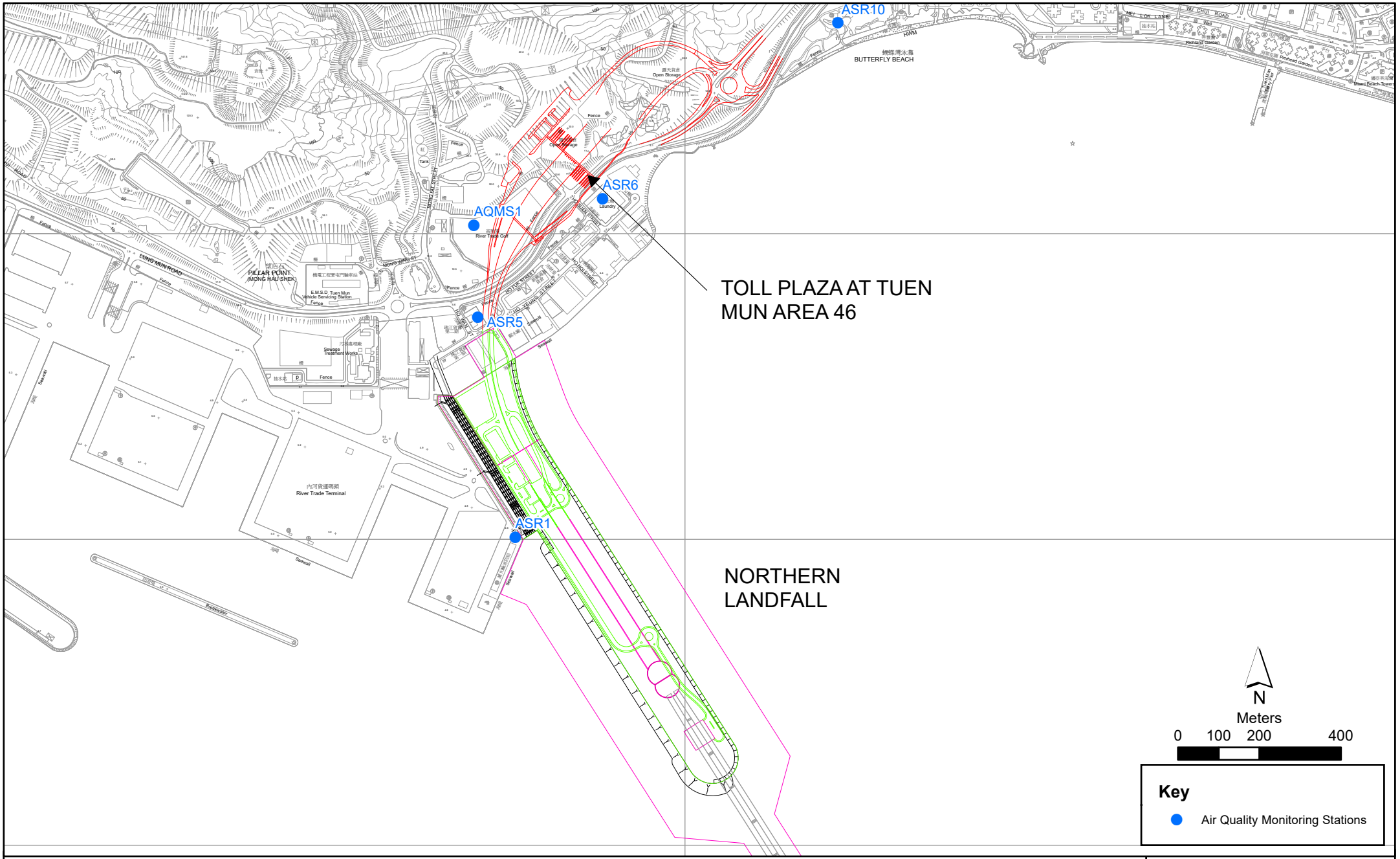


Figure 2.1

Air Quality Monitoring Stations for the Enhanced TSP Monitoring

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Date: 21/2/2014

Environmental Resources Management

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

A total of 5 1-hour TSP and 24-hour TSP monitoring were undertaken in this reporting month. No exceedance 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)<br>• pH(pH unit)<br>• Turbidity (NTU)<br>• Water depth (m)<br>• Salinity (ppt) | 3 water depths: 1m below sea surface, mid-depth and 1m above sea bed. | 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) | | |

| Station ID | Type | Coordinates | | *Parameters, unit | Depth | Frequency |
|---|---|---|---|---|---|---|
| CS(Mf)5 | Control Station | 817990 | 821129 | | If the water depth is less than 3m, mid-depth sampling only. If water depth less than 6m, mid-depth may be omitted. | |

*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***

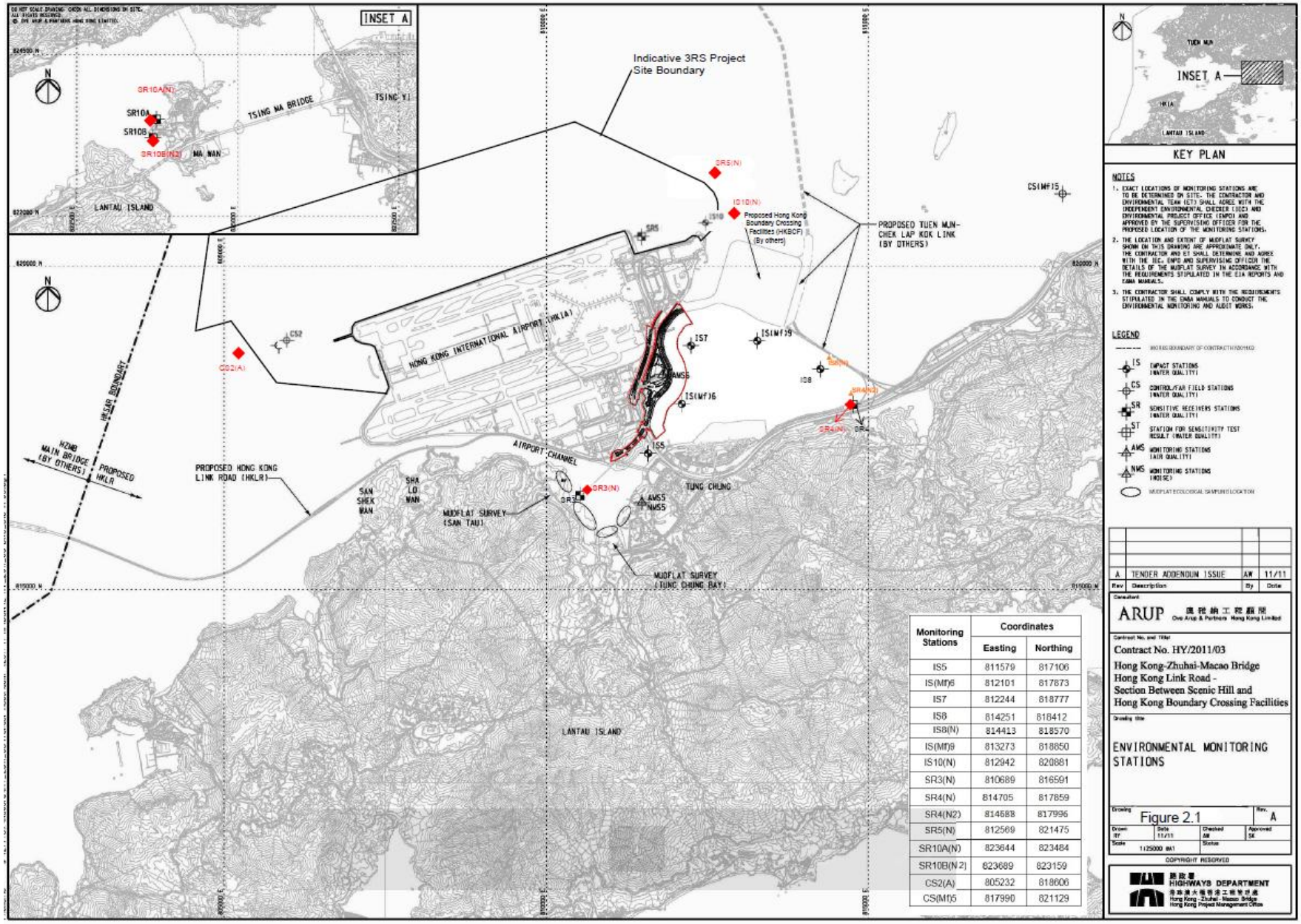
| Equipment | Model |
|---|---|
| Multi-Parameters | YSI ProDss 15M100005; 16H104234 |
| Positioning Equipment | Furuno GP-170 |
| Water Depth Detector | Lowrance Mark 5x / Garmin Striker 4 |

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

The schedule for operational phase water quality monitoring in Janaury 2021 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*.




| 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)

## 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.

***Table 2.7 Dolphin Monitoring Equipment***

| Equipment | Model |
|---|---|
| Global Positioning System (GPS) | Garmin 18X-PC<br>Geo One Phottix |
| Camera | Nikon D90 300m 2.8D fixed focus<br>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.

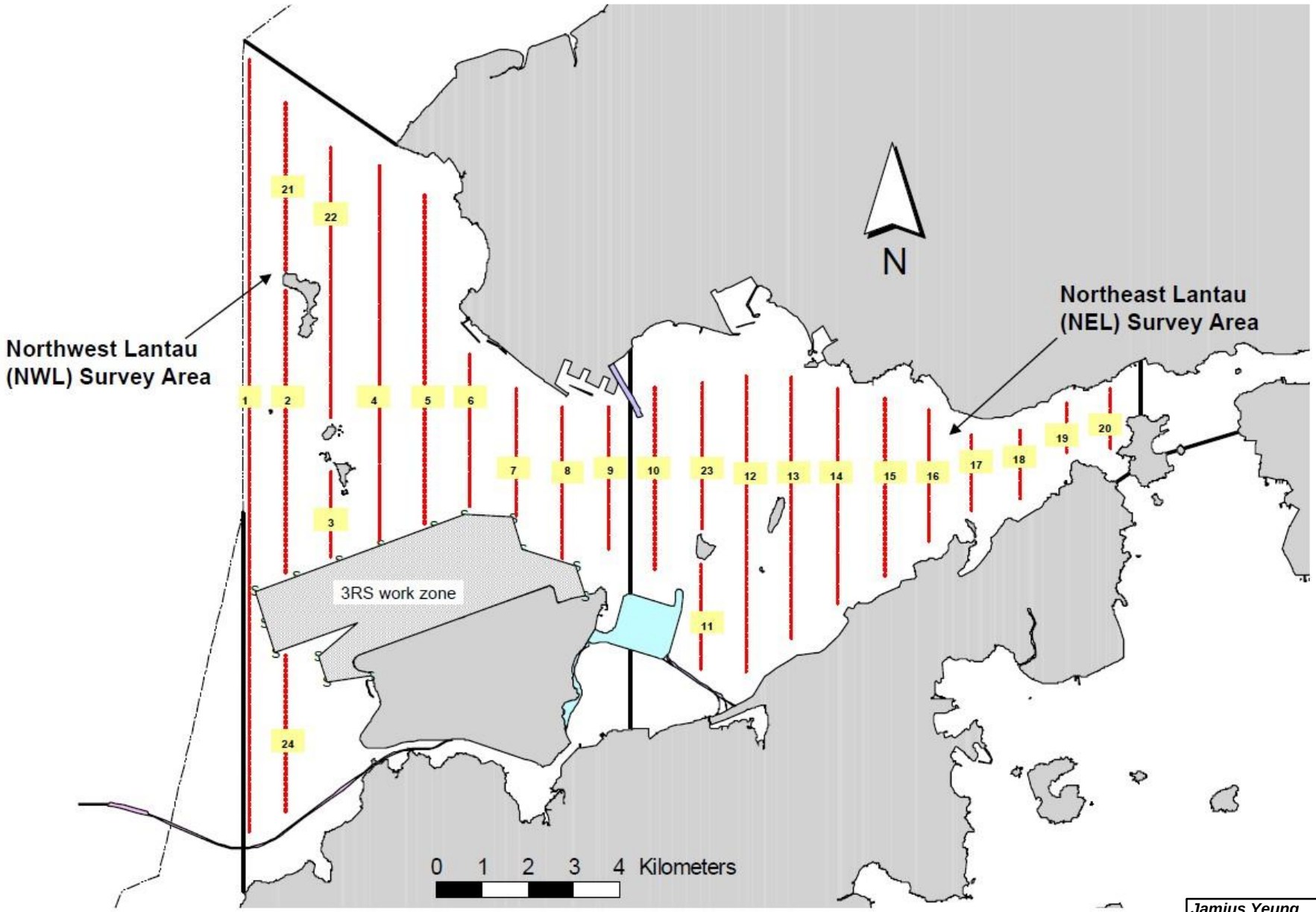



Figure 2.3

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

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Date: 29/11/2013

*Jamius.Yeung*
*2020-02-11 07:34:10*

Figure 2.3

Environmental Resources Management

ERM

*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 25, 26, 27 and 28 January 2021. The dolphin monitoring schedule for the reporting month is shown in *Appendix F*.

### 2.3.6 *Results & Observations*

A total of 258.45 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 January 2021. Among the two areas, 96.70 km and 161.75 km of survey effort were collected from NEL and NWL survey areas, respectively. The total survey effort conducted on primary and secondary lines were 192.56 km and 65.89 km respectively. The survey efforts are summarized in *Appendix I.*

Eight groups of 25 Chinese White Dolphins was sighted in the two sets of surveys in January 2021. The dolphin sighting was made in NWL, while none was sighted in NEL. The dolphin sighting was made during on-effort search and was made on primary lines. The dolphin was not associated with any operating fishing vessel.

No dolphin sighting was made in the proximity of the TM-CLKL alignment. The distribution of dolphin sightings during the reporting month is shown in *Figure 2.4*.

The southern end of transect line no. 8 was not travelled on 26 and 28 January 2021 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 January 2021 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: January 25th / 26th | 0.0 | 0.0 |
| | Set 2: January 27th / 28th | 0.0 | 0.0 |
| **NWL** | Set 1: January 25th / 26th | 6.5 | 19.5 |
| | Set 2: January 27th / 28th | 5.1 | 11.9 |

Note: Dolphin Encounter Rates are deduced from the Two Sets of Surveys (Two Surveys in Each Set ) in January 2021 in Northeast (NEL) and Northwest Lantau (NWL)

***Table 2.10 Monthly Average Encounter Rates***

| | **Encounter rate (STG) (no. of on-effort dolphin** | **Encounter rate (ANI) (no. of dolphins from all on-** |
|---|---|---|

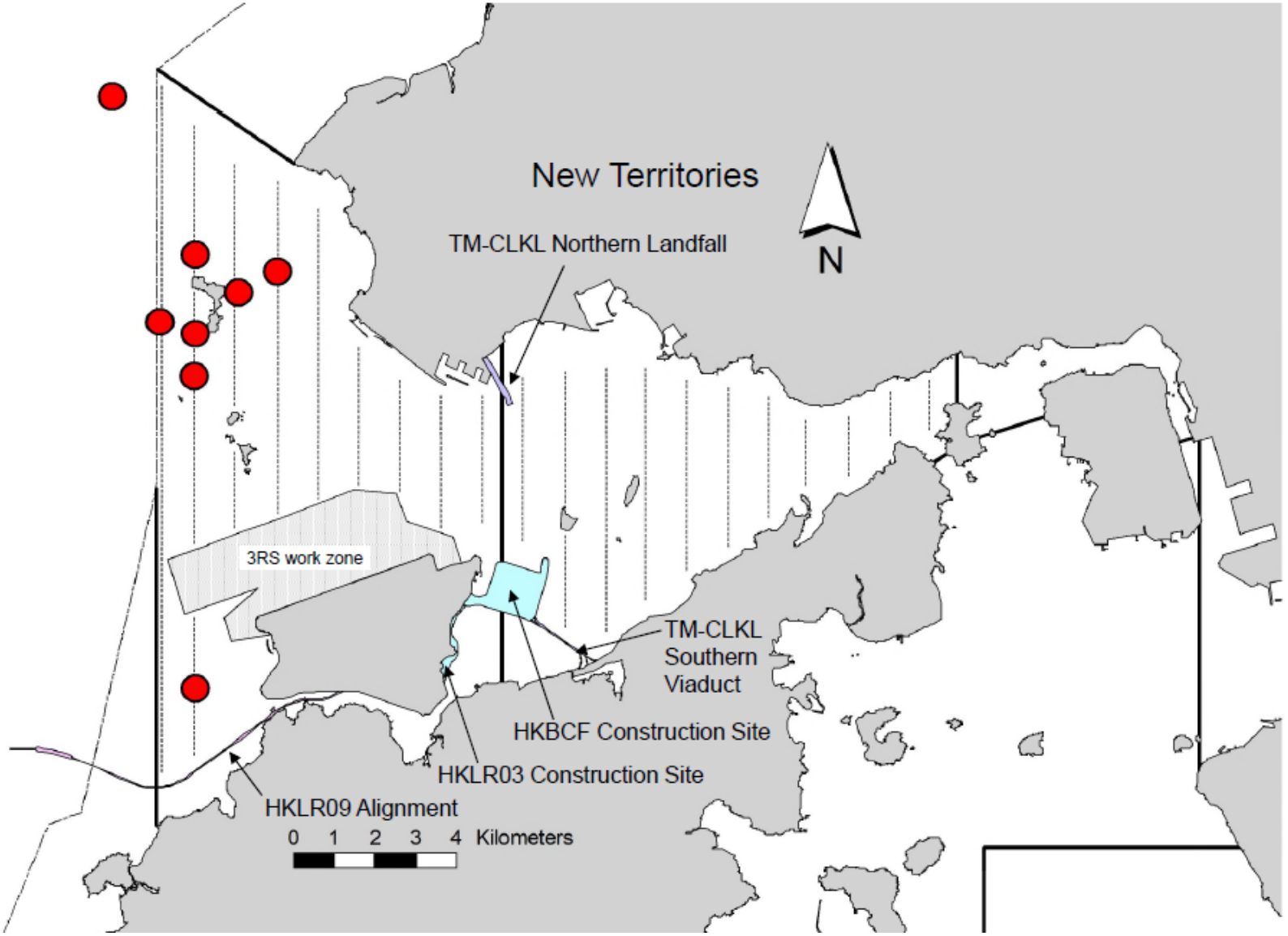


Figure 2.4

HY/2012/08 TM-CLKL Northern Connection Sub-sea Tunnel Section
The distribution of dolphin sightings during the reporting period

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| | sightings per 100 km of survey effort) | | 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** | 5.8 | 4.9 | 15.8 | 15.5 |

Note: Overall dolphin encounter rates (sightings per 100 km of survey effort) from all four surveys are conducted in January 2021 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 January 2021 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 6, 14, 20, and 27 January 2021.

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 |
|---|---|---|
| 6 January 2021 | Northern Landfall (Storage Area)<br>• Chemical containers were observed not placed in drip tray. | Northern Landfall (Storage Area)<br>• The Contractor was reminded to place chemical containers in drip tray. |
| 14 January 2021 | Northern Landfall (Storage Area)<br>• Chemical containers were observed not placed in drip tray.<br>CLP Substation<br>• Chemical containers were observed not placed in drip tray. | Northern Landfall (Storage Area)<br>• The Contractor was reminded to place chemical containers in drip tray.<br>CLP Substation<br>• The Contractor was reminded to place chemical containers in drip tray. |
| 20 January 2021 | Storage area (Northern landfall)<br>• Chemical containers were observed not placed in drip tray.<br>• Dust was observed on public road. | Storage area (Northern landfall)<br>• The Contractor was reminded to place chemical containers in drip tray.<br>• The Contractor was reminded to water the wheels of the vehicles before leaving the construction site. |
| 27 January 2021 | Northern Landfall (Storage Area)<br>• Chemical containers were observed not placed in drip tray.<br>• A faded NRMM label was observed on site. | Northern Landfall (Storage Area)<br>• The Contractor was reminded to place chemical containers in drip tray.<br>• The Contractor was reminded to replace 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) |
| January 2020 | 1,031 | 0 | 71 | 0 | 0 | 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) |

**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

No exceedance was recorded in the air quality monitoring of this reporting month.

Cumulative statistics are provided in *Appendix L*.

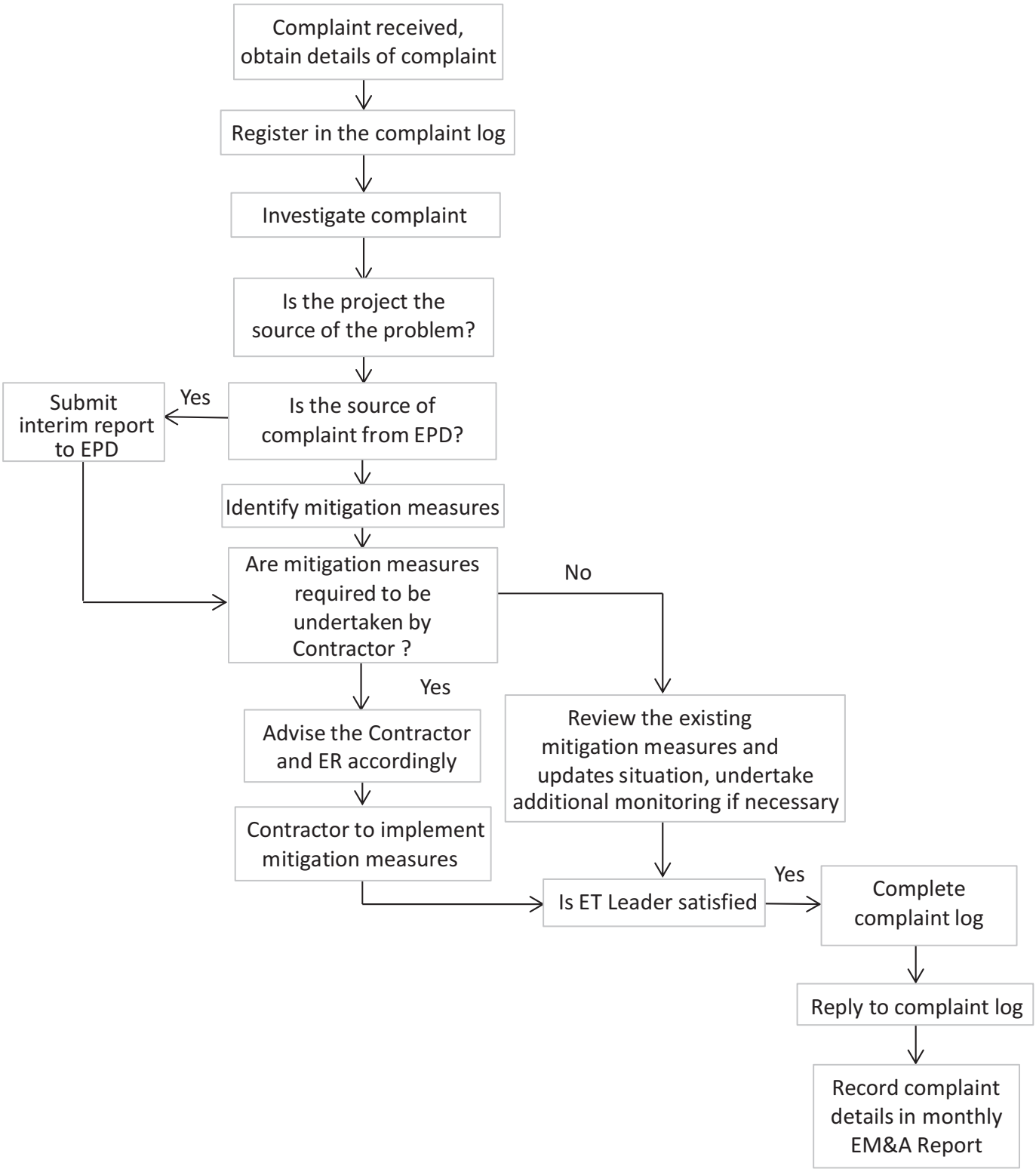
## 2.9 SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

The Environmental Complaint Handling Procedure is provided in *Figure 2.5*.

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 2.5

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DATE: 06/12/2013

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# 3 FUTURE KEY ISSUES

## 3.1 CONSTRUCTION ACTIVITIES FOR THE COMING MONTH

As informed by the Contractor, the major works for the Contract in February 2021 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* |
| • Demolition works and backfilling works - CLP substation<br>• Laying of granular material for paving works – CLP substation; and<br>• U-channel works – CLP substation. |

## 3.2 KEY ISSUES FOR THE COMING MONTH

Potential environmental impacts arising from the above upcoming construction activities in the next reporting month of February 2021 are mainly associated with dust and waste management issues.

## 3.3 MONITORING SCHEDULE FOR THE COMING MONTH

The tentative schedule for environmental monitoring in February 2021 is provided in *Appendix F*.

# 4 CONCLUSIONS AND RECOMMENDATIONS

## 4.1 CONCLUSIONS

This Eighty-seventh Monthly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 to 31 January 2021, 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.

No exceedance was recorded in the air quality monitoring of this reporting month.

Eight groups of 25 Chinese White Dolphins was sighted in the two sets of surveys in January 2021. The dolphin sighting was made in NWL, while none was sighted in NEL. The dolphin sighting was made during on-effort search and was made on secondary lines. The dolphin was not associated with any operating fishing vessel.

Environmental site inspection was carried out four (4) times in January 2021. 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.

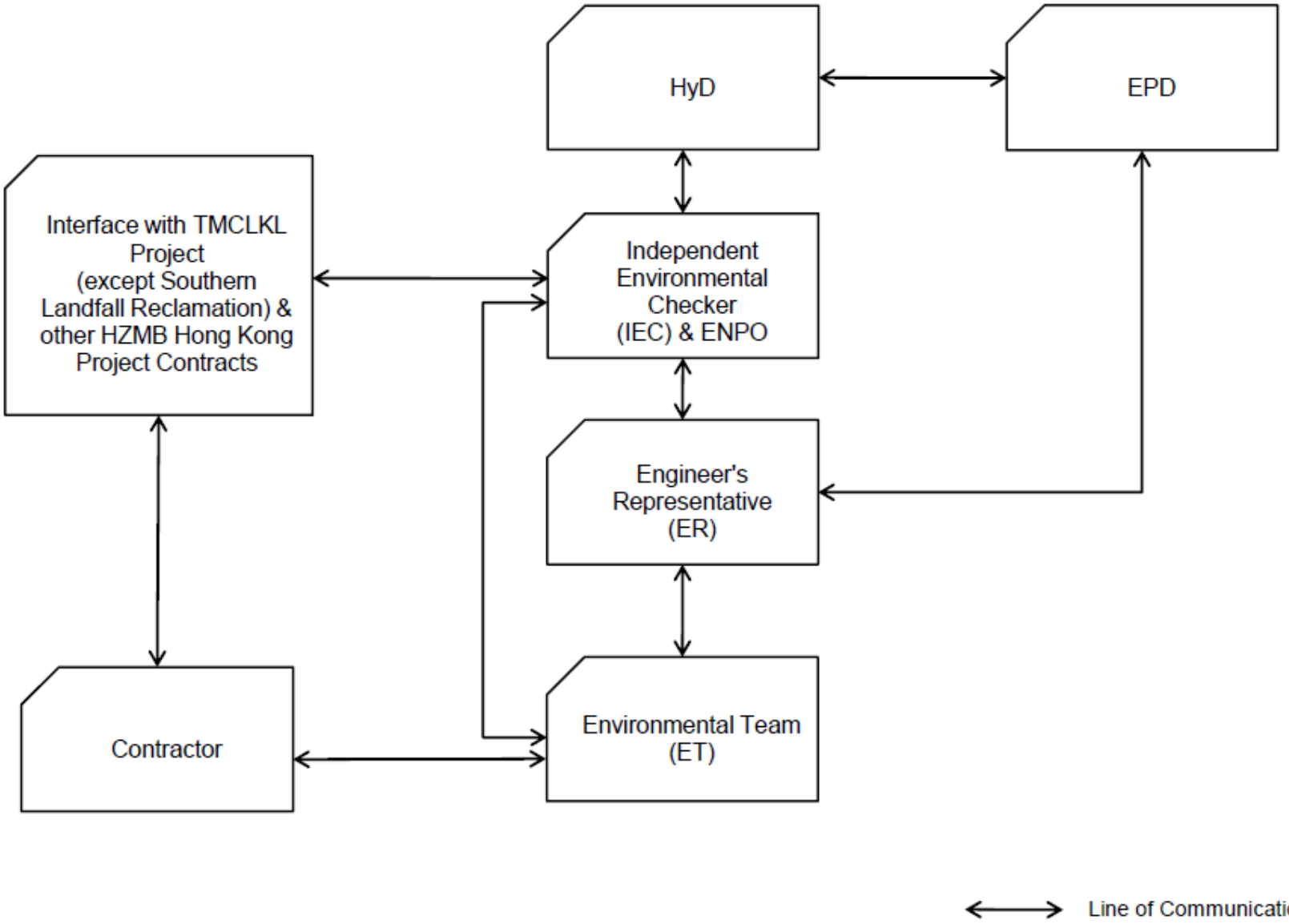
No environmental complaint was received in this reporting period.

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

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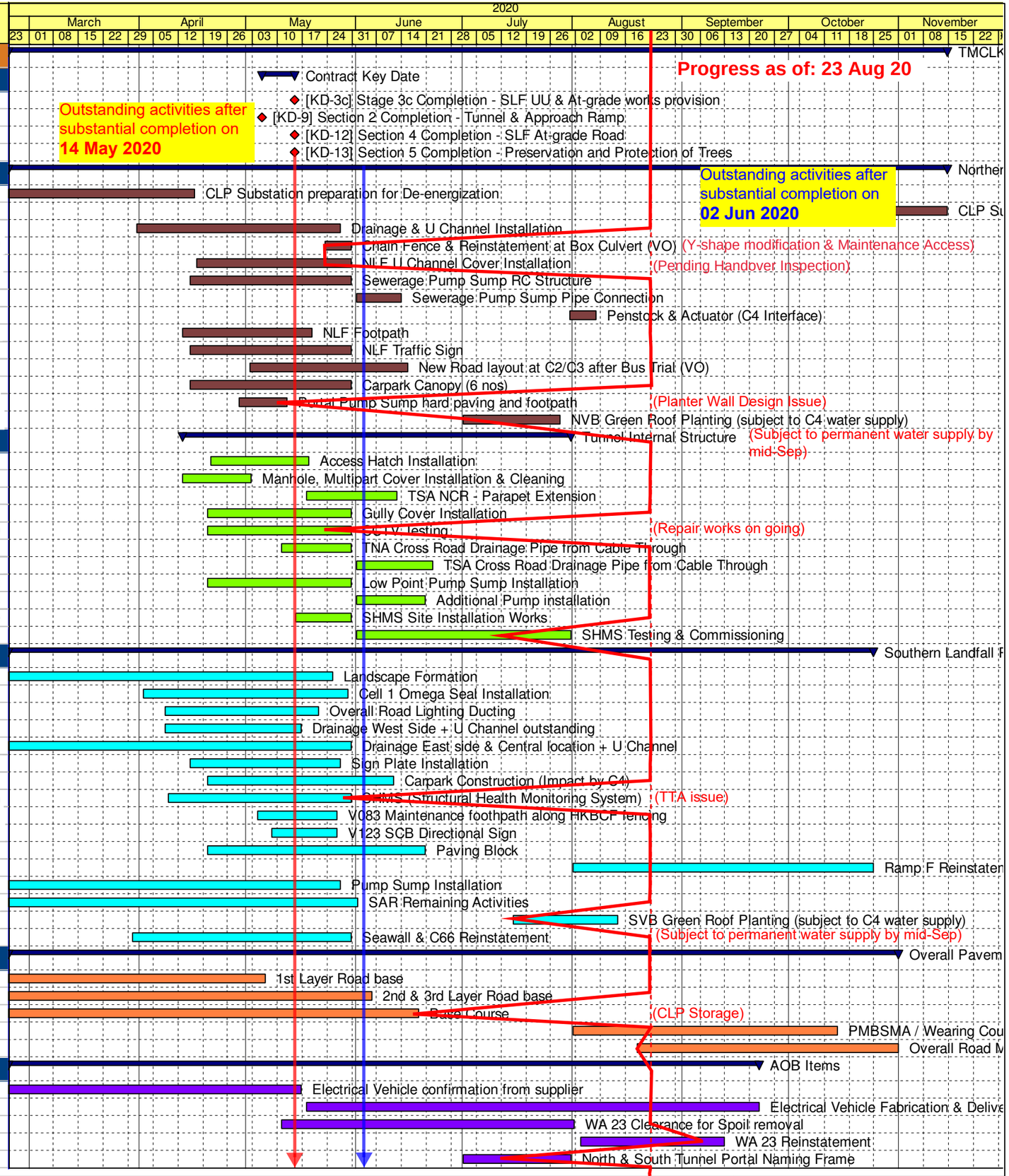
Appendix B

# Construction Programme

| # | Activity Name | Orig Dur | Start | Finish | Target Finish Date |
|---|---|---|---|---|---|
| 1 | **TMCLKL Northen Connection Sub-sea Tunnel Section** | 217 | 24-Feb-20 | 14-Nov-20 | |
| 2 | **Contract Key Date** | 8 | 05-May-20 | 14-May-20 | |
| 3 | [KD-3c] Stage 3c Completion - SLF UU & At-grade works provision | 0 | | 14-May-20 | |
| 4 | [KD-9] Section 2 Completion - Tunnel & Approach Ramp | 0 | | 05-May-20 | |
| 5 | [KD-12] Section 4 Completion - SLF At-grade Road | 0 | | 14-May-20 | |
| 6 | [KD-13] Section 5 Completion - Preservation and Protection of Trees | 0 | | 14-May-20 | |
| 7 | **Northern Landfall Remaining Works** | 228 | 24-Feb-20 | 14-Nov-20 | |
| 8 | CLP Substation preparation for De-energization | 46 | 24-Feb-20 | 16-Apr-20 | |
| 9 | CLP Substation - Dismantling, Removal & Reinstatement | 39 | 01-Oct-20 | 14-Nov-20 | |
| 10 | Drainage & U Channel Installation | 50 | 31-Mar-20 | 27-May-20 | |
| 11 | Chain Fence & Reinstatement at Box Culvert (VO) | 7 | 23-May-20 | 30-May-20 | 30-Sep-20 |
| 12 | NLF U Channel Cover Installation | 38 | 17-Apr-20 | 30-May-20 | 15-Sep-20 |
| 13 | Sewerage Pump Sump RC Structure | 40 | 15-Apr-20 | 30-May-20 | |
| 14 | Sewerage Pump Sump Pipe Connection | 12 | 01-Jun-20 | 13-Jun-20 | |
| 15 | Penstock & Actuator (C4 Interface) | 7 | 31-Jul-20 | 07-Aug-20 | |
| 16 | NLF Footpath | 32 | 13-Apr-20 | 19-May-20 | |
| 17 | NLF Traffic Sign | 40 | 15-Apr-20 | 30-May-20 | 15-Aug-20 |
| 18 | New Road layout at C2/C3 after Bus Trial (VO) | 38 | 02-May-20 | 15-Jun-20 | |
| 19 | Carpark Canopy (6 nos) | 40 | 15-Apr-20 | 30-May-20 | |
| 20 | Portal Pump Sump hard paving and footpath | 12 | 29-Apr-20 | 12-May-20 | 05-Sep-20 |
| 21 | NVB Green Roof Planting (subject to C4 water supply) | 24 | 01-Jul-20 | 28-Jul-20 | 30-Sep-20 |
| 22 | **Tunnel Internal Structure** | 95 | 13-Apr-20 | 31-Jul-20 | |
| 23 | Access Hatch Installation | 24 | 21-Apr-20 | 18-May-20 | |
| 24 | Manhole, Multipart Cover Installation & Cleaning | 18 | 13-Apr-20 | 02-May-20 | |
| 25 | TSA NCR - Parapet Extension | 23 | 18-May-20 | 12-Jun-20 | 7-Aug-20 |
| 26 | Gully Cover Installation | 36 | 20-Apr-20 | 30-May-20 | |
| 27 | CCTV Testing | 36 | 20-Apr-20 | 30-May-20 | 15-Aug-20 |
| 28 | TNA Cross Road Drainage Pipe from Cable Through | 18 | 11-May-20 | 30-May-20 | 8-Jul-20 |
| 29 | TSA Cross Road Drainage Pipe from Cable Through | 19 | 01-Jun-20 | 22-Jun-20 | 4-Jul-20 |
| 30 | Low Point Pump Sump Installation | 36 | 20-Apr-20 | 30-May-20 | 15-Aug-20 |
| 31 | Additional Pump installation | 18 | 01-Jun-20 | 20-Jun-20 | 15-Aug-20 |
| 32 | SHMS Site Installation Works | 14 | 15-May-20 | 30-May-20 | 15-Aug-20 |
| 33 | SHMS Testing & Commissioning | 53 | 01-Jun-20 | 31-Jul-20 | 15-Oct-20 |
| 34 | **Southern Landfall Remaining Works** | 210 | 24-Feb-20 | 24-Oct-20 | |
| 35 | Landscape Formation | 79 | 24-Feb-20 | 25-May-20 | |
| 36 | Cell 1 Omega Seal Installation | 50 | 02-Apr-20 | 29-May-20 | |
| 37 | Overall Road Lighting Ducting | 38 | 08-Apr-20 | 21-May-20 | |
| 38 | Drainage West Side + U Channel outstanding | 34 | 08-Apr-20 | 16-May-20 | |
| 39 | Drainage East side & Central location + U Channel | 84 | 24-Feb-20 | 30-May-20 | |
| 40 | Sign Plate Installation | 37 | 15-Apr-20 | 27-May-20 | |
| 41 | Carpark Construction (Impact by C4) | 46 | 20-Apr-20 | 11-Jun-20 | |
| 42 | SHMS (Structural Health Monitoring System) | 45 | 09-Apr-20 | 30-May-20 | 26-Aug-20 |
| 43 | V083 Maintenance foothpath along HKBCF fencing | 20 | 04-May-20 | 26-May-20 | |
| 44 | V123 SCB Directional Sign | 16 | 08-May-20 | 26-May-20 | |
| 45 | Paving Block | 54 | 20-Apr-20 | 20-Jun-20 | |
| 46 | Ramp F Reinstatement | 73 | 01-Aug-20 | 24-Oct-20 | |
| 47 | Pump Sump Installation | 81 | 24-Feb-20 | 27-May-20 | |
| 48 | SAR Remaining Activities | 85 | 24-Feb-20 | 01-Jun-20 | |
| 49 | SVB Green Roof Planting (subject to C4 water supply) | 26 | 15-Jul-20 | 13-Aug-20 | 15-Sep-20 |
| 50 | Seawall & C66 Reinstatement | 54 | 30-Mar-20 | 30-May-20 | |
| 51 | **Overall Pavement Works** | 216 | 24-Feb-20 | 31-Oct-20 | |
| 52 | 1st Layer Road base | 63 | 24-Feb-20 | 06-May-20 | |
| 53 | 2nd & 3rd Layer Road base | 89 | 24-Feb-20 | 05-Jun-20 | |
| 54 | Base Course | 100 | 24-Feb-20 | 18-Jun-20 | |
| 55 | PMBSMA / Wearing Course | 64 | 01-Aug-20 | 14-Oct-20 | |
| 56 | Overall Road Marking | 64 | 19-Aug-20 | 31-Oct-20 | |
| 57 | **AOB Items** | 182 | 24-Feb-20 | 22-Sep-20 | |
| 58 | Electrical Vehicle confirmation from supplier | 72 | 24-Feb-20 | 16-May-20 | |
| 59 | Electrical Vehicle Fabrication & Delivery | 110 | 18-May-20 | 22-Sep-20 | |
| 60 | WA 23 Clearance for Spoil removal | 72 | 11-May-20 | 01-Aug-20 | |
| 61 | WA 23 Reinstatement | 36 | 03-Aug-20 | 12-Sep-20 | |
| 62 | North & South Tunnel Portal Naming Frame | 27 | 01-Jul-20 | 31-Jul-20 | 5 Sep-20 |




Page 1 of 1

Data Date: 24-Feb-20

Milestone | Pavement | Northern Landfall | AOB | Internal Structure | Summary | Southern Landfall

TMCLK Northern Connection Sub-sea Tunnel Section

Programme of Remaining Works

Forecast as of: 24 February 2020

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

Dragages - Bouygues Joint Venture 寶嘉 - 布依格聯營

BOUYGUES TRAVAUX PUBLICS

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 09-May-20 | For Monitoring | SPa | DLo |

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 | | ✓ |

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 | Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300mm over the edges of the side and tail boards. | All areas / throughout construction period | Contractor | TMEIA Avoid dust generation | | Y | | ✓ |
| 4.8.1 | 3.8 | No earth, mud, debris, dust and the like shall be deposited on public roads. Wheel washing facility shall be usable prior to any earthworks excavation activity on the site. | All site exits / throughout construction period | Contractor | TMEIA Avoid dust | | Y | | ✓ |
| 4.8.1 | 3.8 | Areas of exposed soil shall be minimised to areas in which works have been completed shall be restored as soon as is practicable. | All exposed surfaces / throughout construction period | Contractor | TMEIA Avoid dust generation | | Y | | ✓ |
| 4.8.1 | 3.8 | All stockpiles of aggregate or spoil shall be enclosed or covered and water applied in dry or windy condition. | All areas / throughout construction period | Contractor | TMEIA Avoid dust generation | | Y | | ✓ |
| 4.11 | Section 3 | EM&A in the form of 1 hour and 24 hour dust monitoring and site audit. | All representative existing ASRs / throughout construction period | Contractor | EM&A Manual | | Y | | ✓ |
| **WATER QUALITY** | | | | | | | | | |
| *Marine Works (Sequence A)* | | | | | | | | | |
| 6.1<br><br>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:<br><br>- 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 |

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

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

*Contract No. HY/2012/08*
*Tuen Mun – Chek Lap Kok Link*
*Northern Connection Sub-sea Tunnel Section*
*Environmental Mitigation and Enhancement Measure Implementation Schedule*

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location/ Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Stages | | | Status * |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | D | C | O | |
| 6.1 | - | 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 |
| 6.1<br><br>Figure 6.2b<br>Appendix<br>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:<br><br>- TM-CLKL northern reclamation;<br><br>- Reclamation filling for Portion D of HKBCF; Reclamation filling for FSD berth of HKBCF; and<br>- 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 |

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| 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:<br>- 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 |
| 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 |

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| 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 |
| 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 |

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| | | | | | | D | C | O | |
| 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 | | ✓ |
| 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 | | ✓ |

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| | | | | | | D | C | O | |
| 6.1 | 5.8 | Manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. | All areas/ throughout construction period | Contractor | TM-EIAO | | Y | | ✓ |
| 6.1 | - | Discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system. | All areas/ throughout construction period | Contractor | TM-EIAO | | Y | | ✓ |
| 6.1 | - | All vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit. | All areas/ throughout construction period | Contractor | TM-EIAO | | Y | | ✓ |
| 6.1 | - | Wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain. | All areas/ throughout construction period | Contractor | TM-EIAO | | Y | | ✓ |
| 6.1 | - | Section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel. | All areas/ throughout construction period | Contractor | TM-EIAO | | Y | | ✓ |
| 6.1 | - | Wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects. | All areas/ throughout construction period | Contractor | TM-EIAO | | Y | | ✓ |
| 6.1 | - | Vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site disposal. | All areas/ throughout construction period | Contractor | TM-EIAO | | Y | | N/A |
| 6.1 | - | The Contractor shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately. | All areas/ throughout construction period | Contractor | TM-EIAO | | Y | | ✓ |
| 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 | Roadside/design and operation | Design | TM-EIAO | Y | | Y | ✓ |

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| | | | | | | D | C | O | |
| | | discharging the stormwater into the marine environment. The sumps will be maintained and cleaned at regular intervals. | | Consultant/ Contractor | | | | | |
| 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.<br>One year operation phase water quality monitoring at designated stations. | Designated monitoring stations as defined in EM&A Manual, Section 5/ Before, through-out marine construction period, post construction and monthly operational phase water quality monitoring for a year. | Contractor | EM&A Manual | | Y | Y | Operational phase water quality monitoring commenced in June 2020. |
| **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.<br>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 /<br>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 | | ✓ |

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| 7.13 | 6.5 | Avoid damage and disturbance to the remaining and surrounding natural habitat | All areas / Throughout construction period | Contractor | TMEIA | | Y | | ✓ |
| 7.13 | 6.5 | Placement of equipment in designated areas within the existing disturbed land | All areas / Throughout construction period | Contractor | TMEIA | | Y | | ✓ |
| 7.13 | 6.5 | Disturbed areas to be reinstated immediately after completion of the works. | All areas / Throughout construction period | Contractor | TMEIA | | Y | | ✓ |
| 7.13 | 6.5 | Construction activities should be restricted to the proposed works boundary. | All areas / Throughout construction period | Contractor | TMEIA | | Y | | ✓ |
| **LANDSCAPE AND VISUAL** | | | | | | | | | |
| 10.9 | 7.6 | The colour and shape of the toll control buildings, ventilation building and administration building shall adopt a design which could blend it into the vicinity elements, and the details will be developed in detailed design stage (DM2) | All areas/detailed design | Design Consultant | TMEIA | Y | | | N/A |
| 10.9 | 7.6 | Aesthetic design of the viaduct, retaining wall and other structures will be developed under ACABAS submission (DM5) | All areas/detailed design | Design Consultant | TMEIA | Y | | | N/A |
| 10.9 | 7.6 | Screening of construction works by hoardings around works area in visually unobtrusive colours, to screen works (CM5) | All areas/detailed design/ during construction/post construction | Design Consultant/ Contractor | TMEIA | Y | Y | | ✓ |
| 10.9 | 7.6 | Control night-time lighting and glare by hooding all lights (CM6) | All areas/detailed design/ during construction | Design Consultant/ Contractor | TMEIA | Y | Y | | N/A |
| 10.9 | 7.6 | Ensure no run-off into water body adjacent to the Project Area (CM7) | All areas/detailed design/ during construction | Design Consultant/ Contractor | TMEIA | Y | Y | | ✓ |
| 10.9 | 7.6 | Avoidance of excessive height and bulk of buildings and structures (CM8) | All areas/detailed design/ during construction | Design Consultant/ Contractor | TMEIA | Y | Y | | ✓ |
| 10.9 | 7.6 | Aesthetically pleasing design (visually unobtrusive and non-reflective) as regard to the form, material and finishes shall be incorporated to all buildings, engineering structures and associated infrastructure facilities (OM5) | All areas/detailed design/ during construction / during operation | Design Consultant/ Contractor | TMEIA | Y | Y | Y | N/A |
| 10.9 | 7.6 | Avoidance of excessive height and bulk of buildings and structures (OM6) | All areas/detailed design/ during construction / during operation | Design Consultant/ Contractor | TMEIA | Y | Y | Y | N/A |
| **WASTE** | | | | | | | | | |
| 12.6 | | The Contractor shall identify a coordinator for the management of waste. | Contract mobilisation | Contractor | TMEIA | | Y | | ✓ |
| 12.6 | | The Contractor shall prepare and implement a Waste Management Plan which specifies procedures such as a ticketing system, to facilitate tracking of loads and to ensure that illegal disposal of wastes does not occur, and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed. A recording system for the amount of waste generated, recycled and disposed (locations) should be established. | Contract mobilisation | Contractor | TMEIA, Works Branch Technical Circular No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material | | Y | | ✓ |

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| 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 the use of recycled aggregates where appropriate. | Detailed Design | Design Consultant | TMEIA | Y | | | ✓ |
| 12.6 | 8.1 | The Contractor shall be prohibited from disposing of C&D materials at any sensitive locations. The Contractor should propose the final disposal sites in the EMP and WMP for approval before implementation. | All areas / throughout construction period | Contractor | TMEIA | | Y | | ✓ |
| 12.6 | 8.1 | Stockpiled material shall be covered by tarpaulin and /or watered as appropriate to prevent windblown dust/ surface run off. | All areas / throughout construction period | Contractor | TMEIA | | Y | | ✓ |
| 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 | | ✓ |

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| 12.6 | 8.1 | Dredged marine mud shall be disposed of in a gazetted marine disposal ground under the requirements of the Dumping at Seas Ordinance. | Reclamation areas / throughout dredging works | Contractor | TMEIA | | Y | | ✓ |
| 12.6 | 8.1 | Standard formwork or pre-fabrication should be used as far as practicable so as to minimise the C&D materials arising. The use of more durable formwork/plastic facing for construction works should be considered. The use of wooden hoardings should be avoided and metal hoarding should be used to facilitate recycling. Purchasing of construction materials should avoid over-ordering and wastage. | All areas / throughout construction period | Contractor | TMEIA | | Y | | ✓ |
| 12.6 | 8.1 | The Contractor should recycle as many C&D materials (this is a waste section) as possible on-site. The public fill and C&D waste should be segregated and stored in separate containers or skips to facilitate the reuse or recycling of materials and proper disposal. Where practicable, the concrete and masonry should be crushed and used as fill materials. Steel reinforcement bar should be collected for use by scrap steel mills. Different areas of the sites should be considered for segregation and storage activities. | All areas / throughout construction period | Contractor | TMEIA | | Y | | ✓ |
| 12.6 | 8.1 | All falsework will be steel instead of wood. | All areas / throughout construction period | Contractor | TMEIA | | Y | | ✓ |
| 12.6 | 8.1 | Chemical waste producers should register with the EPD. Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows:<br><br>*f* suitable for the substance to be held,<br>resistant to corrosion, maintained in good conditions and securely closed;<br>*f* Having a capacity of <450L unless the<br>specifications have been approved by the EPD; and<br>w<br>Chinese according to the instructions prescribed in Schedule 2 of the Regulations.<br>*f* Clearly labelled and used solely for the<br>storage of chemical wastes;<br>*f* Enclosed with at least 3 sides;<br>*f* Impermeable floor and bund with<br>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;<br>*f* Adequate ventilation; | All areas / throughout construction period | Contractor | TMEIA | | Y | | <> |

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| | | | | | | D | C | O | |
| | | *f* Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and<br>*f* Incompatible materials are adequately separated. | | | | | | | |
| 12.6 | 8.1 | Waste oils, chemicals or solvents shall not be disposed of to drain, | All areas / throughout construction period | Contractor | TMEIA | | Y | | ✓ |
| 12.6 | 8.1 | Adequate numbers of portable toilets should be provided for on-site workers. Portable toilets should be maintained in reasonable states, which will not deter the workers from utilising them. | All areas / throughout construction period | Contractor | TMEIA | | Y | | ✓ |
| 12.6 | 8.1 | Night soil should be regularly collected by licensed collectors. | All areas / throughout construction period | Contractor | TMEIA | | Y | | N/A |
| 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

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*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 | |

▲ Non-compliance of Mitigation Measures but rectified by Contractor
∆ Deficiency of Mitigation Measures but rectified by Contractor
N/A Not Applicable in Reporting Period

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

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

Appendix D

# Summary of Action and Limit Levels

*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<br>ASR5 = 238<br>AQMS1 = 213<br>ASR6 = 238<br>ASR10 = 214 | 260 |
| 1 Hour TSP Level in μg /m³ | ASR1 = 331<br>ASR5 = 340<br>AQMS1 = 335<br>ASR6 = 338<br>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 | : | K.T.Ho |
| Date | : | 07/12/2020 |

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) | : | 1020 |
| Ta(K) | : | 293 |

| Resistance Plate | | dH [green liquid] (inch water) | Z | X=Qstd (cubic meter/min) | IC (chart) | Y (corrected) |
|---|---|---|---|---|---|---|
| 1 | 18 holes | 11.2 | 3.387 | 1.655 | 64 | 64.77 |
| 2 | 13 holes | 9.2 | 3.069 | 1.502 | 58 | 58.69 |
| 3 | 10 holes | 6.8 | 2.639 | 1.294 | 52 | 52.62 |
| 4 | 7 holes | 4.5 | 2.147 | 1.056 | 45 | 45.54 |
| 5 | 5 holes | 2.5 | 1.600 | 0.792 | 35 | 35.42 |

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):33.108 Intercept(b):9.702 Correlation Coefficient(r): 0.9984

Checked by: Magnum Fan Date: 11/12/2020

High-Volume TSP Sampler
5-Point Calibration Record

| | | |
|---|---|---|
| Location | : | ASR10 |
| Calibrated by | : | K.T.Ho |
| Date | : | 07/12/2020 |

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) | : | 1020 |
| Ta(K) | : | 293 |

| Resistance Plate | | dH [green liquid] (inch water) | Z | X=Qstd (cubic meter/min) | IC (chart) | Y (corrected) |
|---|---|---|---|---|---|---|
| 1 | 18 holes | 12.0 | 3.506 | 1.712 | 60 | 60.7 |
| 2 | 13 holes | 9.4 | 3.103 | 1.518 | 53 | 53.6 |
| 3 | 10 holes | 6.8 | 2.639 | 1.294 | 46 | 46.6 |
| 4 | 7 holes | 4.6 | 2.170 | 1.068 | 38 | 38.5 |
| 5 | 5 holes | 2.4 | 1.568 | 0.777 | 30 | 30.4 |

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):32.593 Intercept(b): 4.434 Correlation Coefficient(r): 0.9989

Checked by: Magnum Fan Date: 11/12/2020

High-Volume TSP Sampler
5-Point Calibration Record

| | | |
|---|---|---|
| Location | : | AQMS1 |
| Calibrated by | : | K.T.Ho |
| Date | : | 07/12/2020 |

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) | : | 1020 |
| Ta(K) | : | 293 |

| Resistance Plate | | dH [green liquid] (inch water) | Z | X=Qstd (cubic meter/min) | IC (chart) | Y (corrected) |
|---|---|---|---|---|---|---|
| 1 | 18 holes | 11.8 | 3.476 | 1.698 | 56 | 56.67 |
| 2 | 13 holes | 9.2 | 3.069 | 1.502 | 51 | 51.61 |
| 3 | 10 holes | 6.8 | 2.639 | 1.294 | 45 | 45.54 |
| 4 | 7 holes | 4.6 | 2.170 | 1.068 | 38 | 38.46 |
| 5 | 5 holes | 2.4 | 1.568 | 0.777 | 30 | 30.36 |

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

Sampler Calibration Relationship (Linear Regression)

Slope(m):28.905 Intercept(b):7.890 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan Date: 11/12/2020

High-Volume TSP Sampler
5-Point Calibration Record

| | | |
|---|---|---|
| Location | : | ASR 1 |
| Calibrated by | : | K.T.Ho |
| Date | : | 07/12/2020 |

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) | : | 1020 |
| Ta(K) | : | 293 |

| Resistance Plate | | dH [green liquid] (inch water) | Z | X=Qstd (cubic meter/min) | IC (chart) | Y (corrected) |
|---|---|---|---|---|---|---|
| 1 | 18 holes | 12.0 | 3.506 | 1.712 | 58 | 58.69 |
| 2 | 13 holes | 9.4 | 3.103 | 1.518 | 52 | 52.62 |
| 3 | 10 holes | 6.7 | 2.619 | 1.284 | 44 | 44.53 |
| 4 | 7 holes | 4.5 | 2.147 | 1.056 | 37 | 37.44 |
| 5 | 5 holes | 2.4 | 1.568 | 0.777 | 30 | 30.36 |

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

Sampler Calibration Relationship (Linear Regression)

Slope(m):30.712 Intercept(b):5.744 Correlation Coefficient(r): 0.9983

Checked by: Magnum Fan Date: 11/12/2020

High-Volume TSP Sampler
5-Point Calibration Record

| | | |
|---|---|---|
| Location | : | ASR 6 |
| Calibrated by | : | K.T.Ho |
| Date | : | 07/12/2020 |

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) | : | 1020 |
| Ta(K) | : | 293 |

| Resistance Plate | | dH [green liquid] (inch water) | Z | X=Qstd (cubic meter/min) | IC (chart) | Y (corrected) |
|---|---|---|---|---|---|---|
| 1 | 18 holes | 11.0 | 3.356 | 1.640 | 58 | 58.69 |
| 2 | 13 holes | 9.0 | 3.036 | 1.485 | 52 | 52.62 |
| 3 | 10 holes | 6.8 | 2.639 | 1.294 | 45 | 45.54 |
| 4 | 7 holes | 4.3 | 2.098 | 1.033 | 37 | 37.44 |
| 5 | 5 holes | 2.5 | 1.600 | 0.792 | 29 | 29.35 |

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

Sampler Calibration Relationship (Linear Regression)

Slope(m):34.743 Intercept(b): 1.963 Correlation Coefficient(r): 0.9991

Checked by: Magnum Fan Date: 11/12/2020

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. : C203177
證書編號

**ITEM TESTED / 送檢項目** ( Job No. / 序引編號 : IC20-1161 ) Date of Receipt / 收件日期 : 1 June 2020

| | | |
|---|---|---|
| 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.<br>Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,<br>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** : 9 June 2020

**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 : 11 June 2020

# Certificate of Calibration
# 校正證書

Certificate No. : C203177
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 | S16494 |

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 |
| 6.1 | 5.9 | +0.2 | 0.3 | 2.0 |
| 8.1 | 8.0 | +0.1 | 0.3 | 2.0 |
| 10.0 | 10.1 | -0.1 | 0.4 | 2.0 |

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

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

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

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



Sun Creation Engineering Limited – Calibration & Testing Laboratory
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 : 8 December 2020

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) |
|---|---|
| 4.7 | 4.2 |
| 2.1 | 2.3 |
| 1.7 | 1.5 |

Wind Direction Test

| Davis (o) | Marine Compass (o) |
|---|---|
| 270 | 270 |
| 1 | 0 |
| 91 | 90 |
| 180 | 180 |

Calibrated by: Yeung Ping Fai (Technical Officer)

Checked by : 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. : BA010041
Date of Issue : 18 January 2021


## 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 | : | Jan 18, 2021 |
| Date of Calibration | : | Jan 18, 2021 |
| Date of Next Calibration[a] | : | Apr 17, 2021 |

## 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 | 4.11 | 0.11 | Satisfactory |
| 7.42 | 7.42 | 0.00 | Satisfactory |
| 10.01 | 10.09 | 0.08 | 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 |
|---|---|---|---|
| 15 | 15.0 | 0.0 | Satisfactory |
| 30 | 29.9 | -0.1 | Satisfactory |
| 40 | 41.0 | 1.0 | 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 the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards..*

LEE Chun-ning, Desmond
Senior Chemist

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
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# REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : BA010041
Date of Issue : 18 January 2021


## PART D – CALIBRATION RESULTS (Cont'd)

### (3) Dissolved Oxygen

| Expected Reading (mg/L) | Displayed Reading (mg/L) | Tolerance (mg/L) | Results |
|---|---|---|---|
| 1.37 | 1.43 | 0.06 | Satisfactory |
| 4.90 | 4.93 | 0.03 | Satisfactory |
| 6.88 | 6.91 | 0.03 | Satisfactory |
| 8.58 | 8.77 | 0.19 | 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 | 148.7 | 1.23 | Satisfactory |
| 0.01 | 1412 | 1325 | -6.16 | Satisfactory |
| 0.1 | 12890 | 12810 | -0.62 | Satisfactory |
| 0.5 | 58670 | 59884 | 2.07 | Satisfactory |
| 1.0 | 111900 | 112830 | 0.83 | Satisfactory |

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

### (5) Salinity

| Expected Reading (g/L) | Displayed Reading (g/L) | Tolerance (%) | Results |
|---|---|---|---|
| 10 | 10.05 | 0.50 | Satisfactory |
| 20 | 20.03 | 0.15 | Satisfactory |
| 30 | 31.13 | 3.77 | Satisfactory |

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

### (6) Turbidity

| Expected Reading (NTU) | Displayed Reading[f] (NTU) | Tolerance[g] (%) | Results |
|---|---|---|---|
| 0 | 0.04 | -- | Satisfactory |
| 10 | 10.12 | 1.2 | Satisfactory |
| 20 | 20.89 | 4.5 | Satisfactory |
| 100 | 103.42 | 3.4 | Satisfactory |
| 800 | 798.71 | -0.2 | 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.*

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

Report No. : BA010040
Date of Issue : 18 January 2021


## 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 | : | 15M100005 |
| Date of Received | : | Jan 18, 2021 |
| Date of Calibration | : | Jan 18, 2021 |
| Date of Next Calibration[a] | : | Apr 17, 2021 |

## 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 | 4.04 | 0.04 | Satisfactory |
| 7.42 | 7.43 | 0.01 | Satisfactory |
| 10.01 | 9.91 | -0.10 | 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 |
|---|---|---|---|
| 15 | 15.0 | 0.0 | Satisfactory |
| 30 | 29.9 | -0.1 | Satisfactory |
| 40 | 41.0 | 1.0 | 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 the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards..*

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# REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : BA010040
Date of Issue : 18 January 2021


## PART D – CALIBRATION RESULTS (Cont'd)

### (3) Dissolved Oxygen

| Expected Reading (mg/L) | Displayed Reading (mg/L) | Tolerance (mg/L) | Results |
|---|---|---|---|
| 1.37 | 1.42 | 0.05 | Satisfactory |
| 4.90 | 4.91 | 0.01 | Satisfactory |
| 6.88 | 6.90 | 0.02 | Satisfactory |
| 8.58 | 8.78 | 0.20 | 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 | 149.5 | 1.77 | Satisfactory |
| 0.01 | 1412 | 1387 | -1.77 | Satisfactory |
| 0.1 | 12890 | 12927 | 0.29 | Satisfactory |
| 0.5 | 58670 | 57334 | -2.28 | Satisfactory |
| 1.0 | 111900 | 112918 | 0.91 | Satisfactory |

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

### (5) Salinity

| Expected Reading (g/L) | Displayed Reading (g/L) | Tolerance (%) | Results |
|---|---|---|---|
| 10 | 10.03 | 0.30 | Satisfactory |
| 20 | 20.11 | 0.55 | Satisfactory |
| 30 | 31.15 | 3.83 | Satisfactory |

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

### (6) Turbidity

| Expected Reading (NTU) | Displayed Reading[f] (NTU) | Tolerance[g] (%) | Results |
|---|---|---|---|
| 0 | 0.05 | -- | Satisfactory |
| 10 | 10.09 | 0.9 | Satisfactory |
| 20 | 21.04 | 5.2 | Satisfactory |
| 100 | 104.68 | 4.7 | Satisfactory |
| 800 | 806.11 | 0.8 | 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 - January 2021**

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

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

**HY/2012/08 - Tuen Mun - Chek Lap Kok Link**
**Northern Connection Sub-sea Tunnel Section**
**Tentative Air Quality Impact Monitoring Schedule - February 2021**

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

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

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

## HY/2012/08 - Tuen Mun - Chek Lap Kok Link - Northern Landfall
## Operational Phase Marine Water Quality Monitoring (WQM) Schedule (January 2021)

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | | | 1-Jan | 2-Jan |
| | | | | | | |
| 3-Jan | 4-Jan | 5-Jan | 6-Jan | 7-Jan | 8-Jan | 9-Jan |
| | | | | | | |
| 10-Jan | 11-Jan | 12-Jan | 13-Jan | 14-Jan | 15-Jan | 16-Jan |
| | | | | | | |
| 17-Jan | 18-Jan | 19-Jan | 20-Jan | 21-Jan | 22-Jan | 23-Jan |
| | | | | | | |
| 24-Jan | 25-Jan | 26-Jan | 27-Jan | 28-Jan | 29-Jan | 30-Jan |
| | ebb tide 9:30 - 12:06<br>flood tide 13:59 - 17:29 | | | | | |
| 31-Jan | | | | | | |
| | | | | | | |

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

## Operational Phase Marine Water Quality Monitoring (WQM) Schedule (February 2021)

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | 1-Feb | 2-Feb | 3-Feb | 4-Feb | 5-Feb | 6-Feb |
| | | | | | | |
| 7-Feb | 8-Feb | 9-Feb | 10-Feb | 11-Feb | 12-Feb | 13-Feb |
| | | | | | | |
| 14-Feb | 15-Feb | 16-Feb | 17-Feb | 18-Feb | 19-Feb | 20-Feb |
| | | | | | | |
| 21-Feb | 22-Feb | 23-Feb | 24-Feb | 25-Feb | 26-Feb | 27-Feb |
| | | | ebb tide 10:46 - 13:00<br>flood tide 14:33 - 18:03 | | | |
| 28-Feb | | | | | | |
| | | | | | | |

**HY/2012/08 - Tuen Mun - Chek Lap Kok Link**
**Northern Connection Sub-sea Tunnel Section**
**Operational Phase Dolphin Monitoring Survey Monitoring Schedule - January 2021**

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

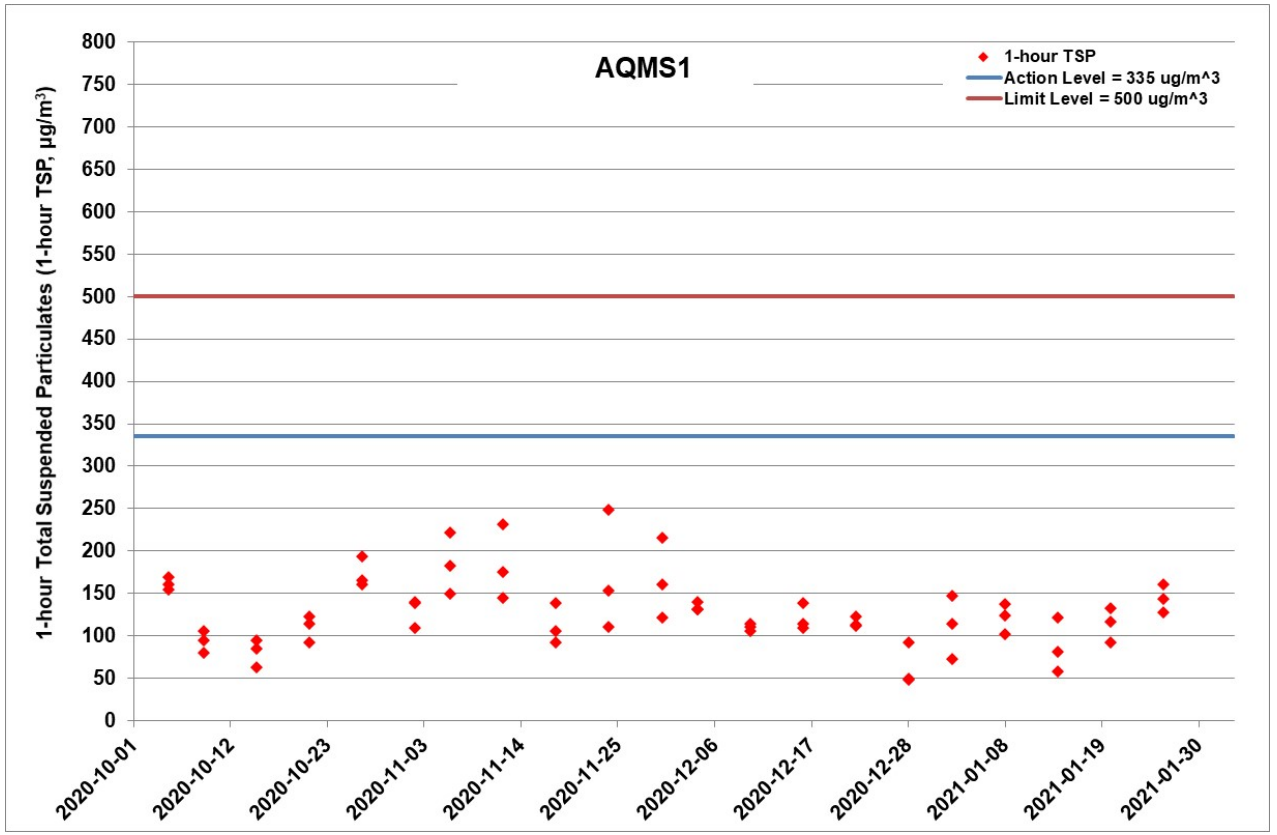
**HY/2012/08 - Tuen Mun - Chek Lap Kok Link**
**Northern Connection Sub-sea Tunnel Section**
**Tentative Operational Phase Dolphin Monitoring Survey Monitoring Schedule - February 2021**

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

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 October 2020 and 31 January 2021 during impact monitoring period. The weather conditions during the monitoring period were sunny and hazy. Major land-based construction activities included Demolition works and backfilling works at CLP substation (1/10/2020 – 31/1/2021)**

*Ref: 0212330_Impact AQM graphs_January 2021.xlsx*

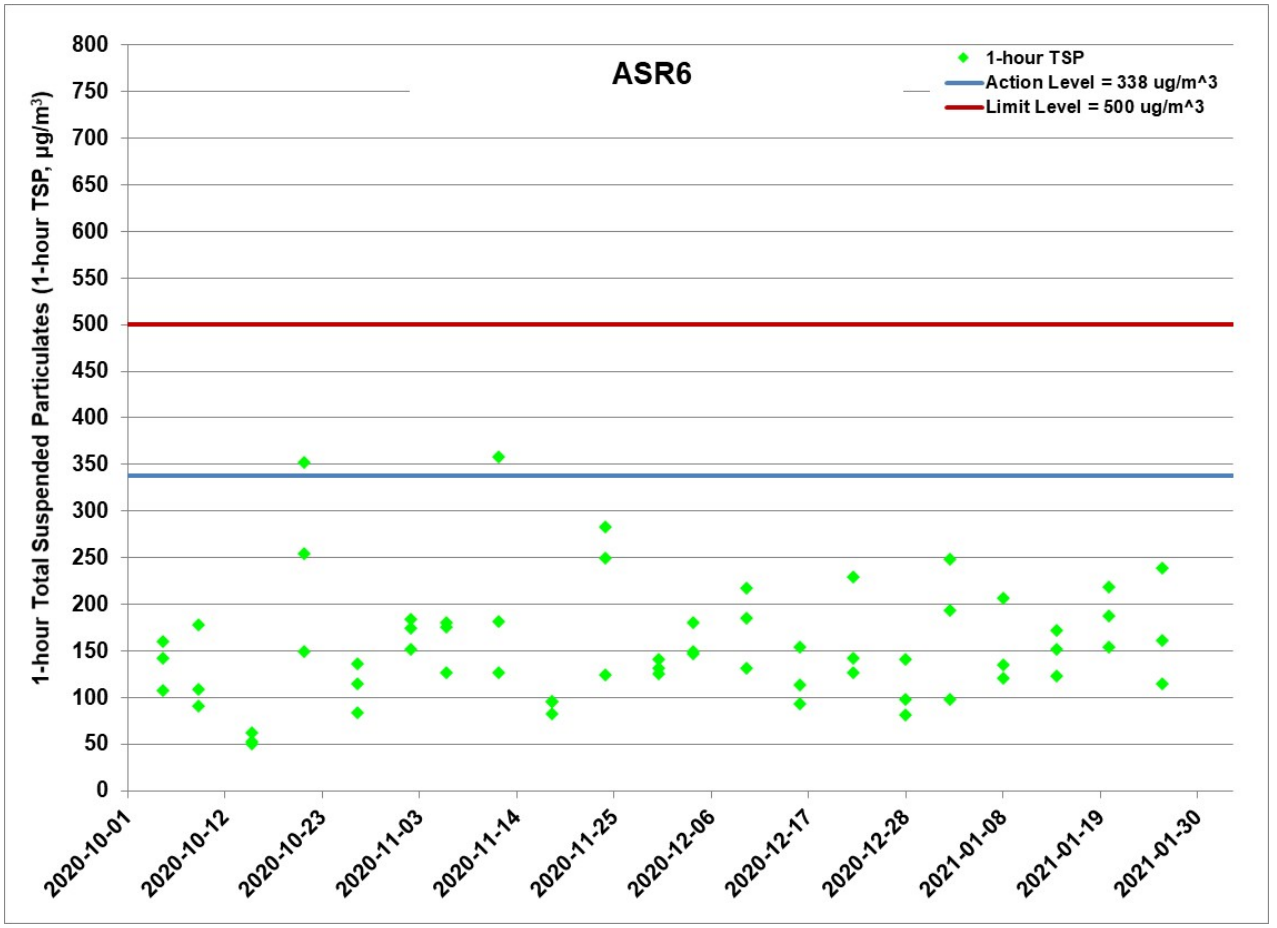



**Figure G.2 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR6 between 1 October 2020 and 31 January 2021 during impact monitoring period. The weather conditions during the monitoring period were sunny and hazy. Major land-based construction activities included Demolition works and backfilling works at CLP substation (1/10/2020 – 31/1/2021)**

*Ref: 0212330_Impact AQM graphs_January 2021.xlsx*

ERM

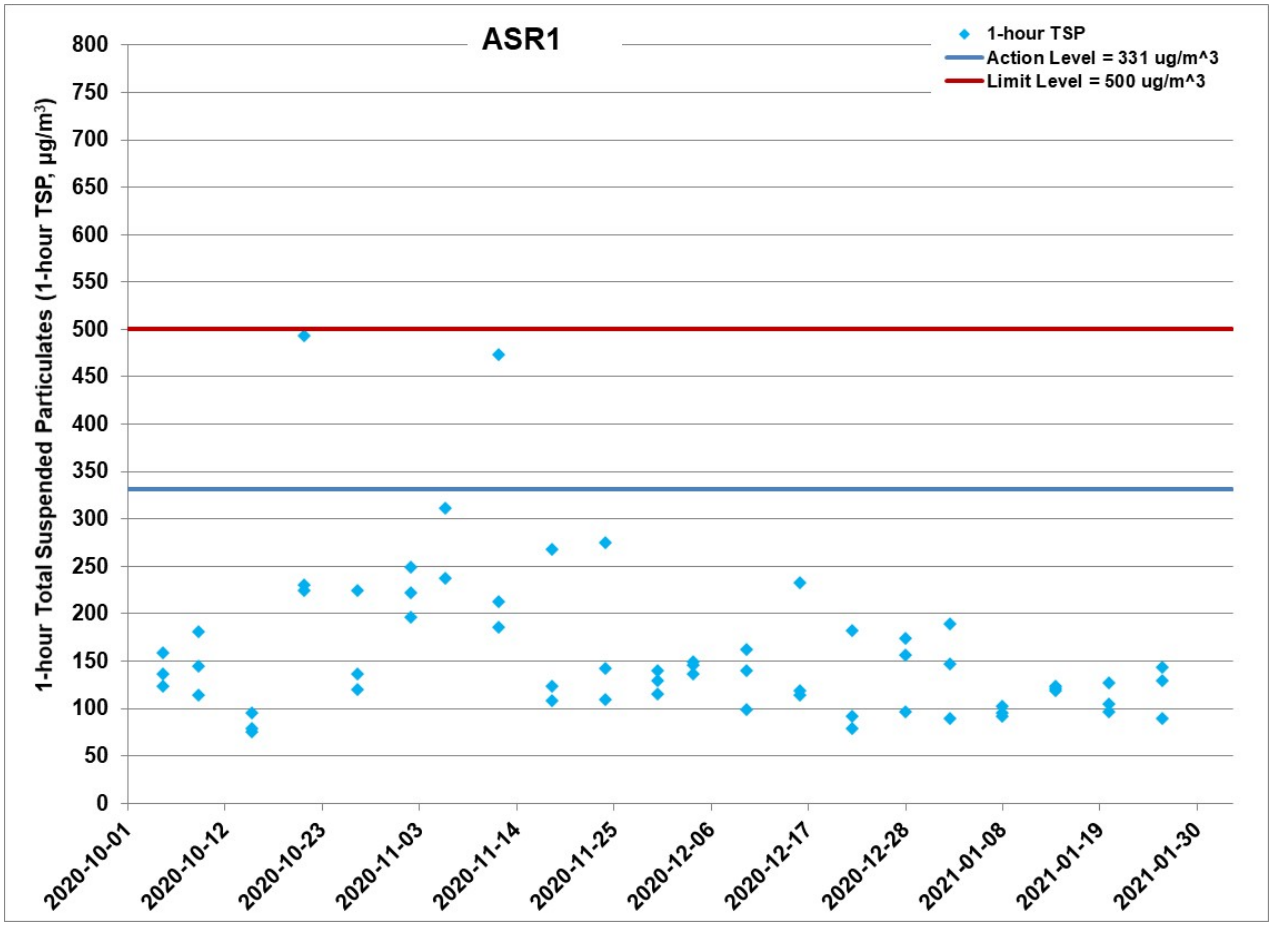



**Figure G.3 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR1 between 1 October 2020 and 31 January 2021 during impact monitoring period. The weather conditions during the monitoring period were sunny and hazy. Major land-based construction activities included Demolition works and backfilling works at CLP substation (1/10/2020 – 31/1/2021)**

*Ref: 0212330_Impact AQM graphs_January 2021.xlsx*

ERM

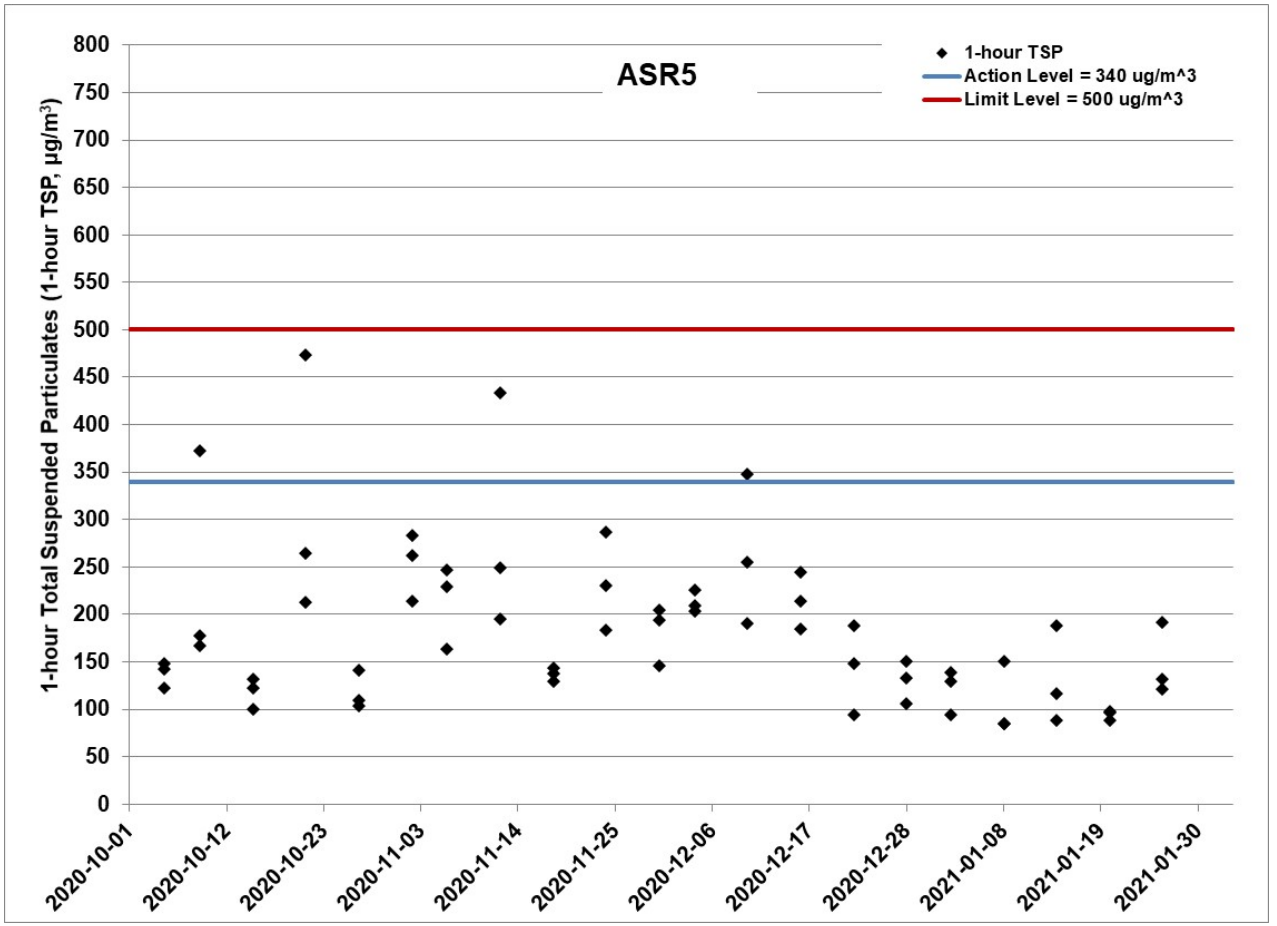



**Figure G.4 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR5 between 1 October 2020 and 31 January 2021 during impact monitoring period. The weather conditions during the monitoring period were sunny and hazy. Major land-based construction activities included Demolition works and backfilling works at CLP substation (1/10/2020 – 31/1/2021)**

*Ref: 0212330_Impact AQM graphs_January 2021.xlsx*

ERM

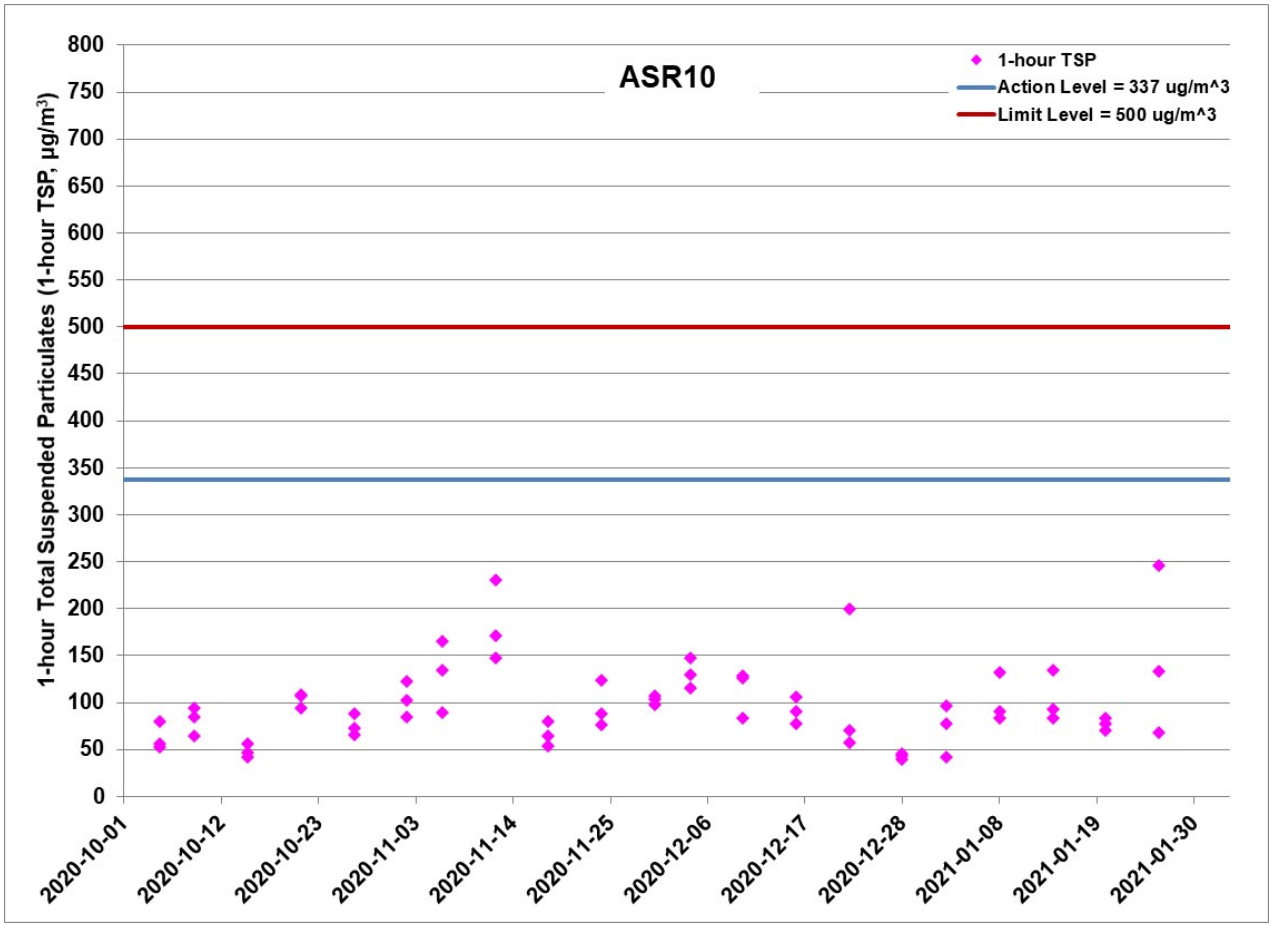



**Figure G.5 Impact Monitoring – 1-hour Total Suspended Particulates (µg/m³) at ASR10 between 1 October 2020 and 31 January 2021 during impact monitoring period. The weather conditions during the monitoring period were sunny and hazy. Major land-based construction activities included Demolition works and backfilling works at CLP substation (1/10/2020 – 31/1/2021)**

*Ref: 0212330_Impact AQM graphs_January 2021.xlsx*

ERM

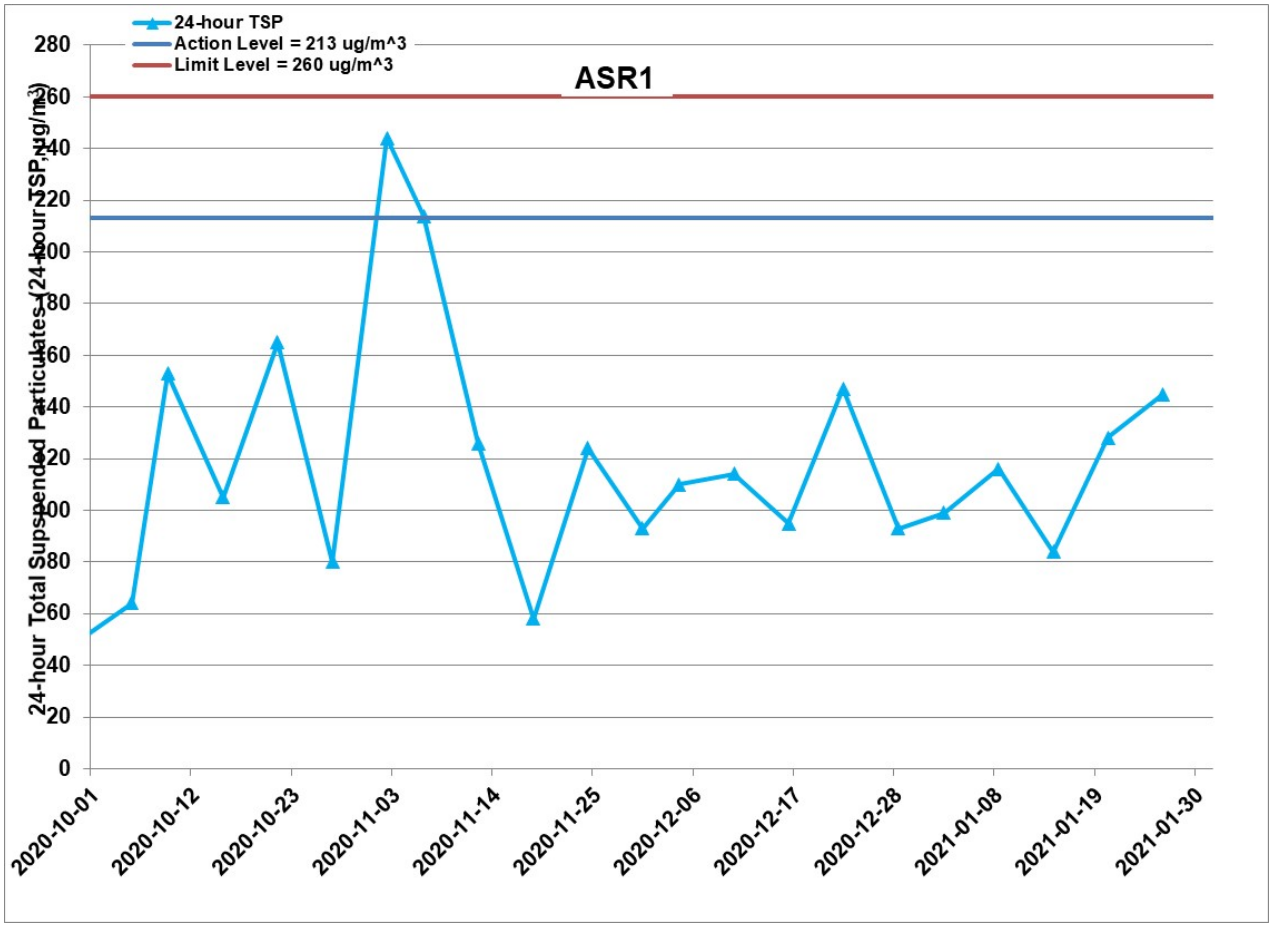



**Figure G.6 Impact Monitoring – 24-hour Total Suspended Particulates (μg/m³) at ASR1 between 1 October 2020 and 31 January 2021 during impact monitoring period. The weather conditions during the monitoring period were sunny and hazy. Major land-based construction activities included Demolition works and backfilling works at CLP substation (1/10/2020 – 31/1/2021)**

*Ref: 0212330_Impact AQM graphs_January 2021.xlsx*

ERM

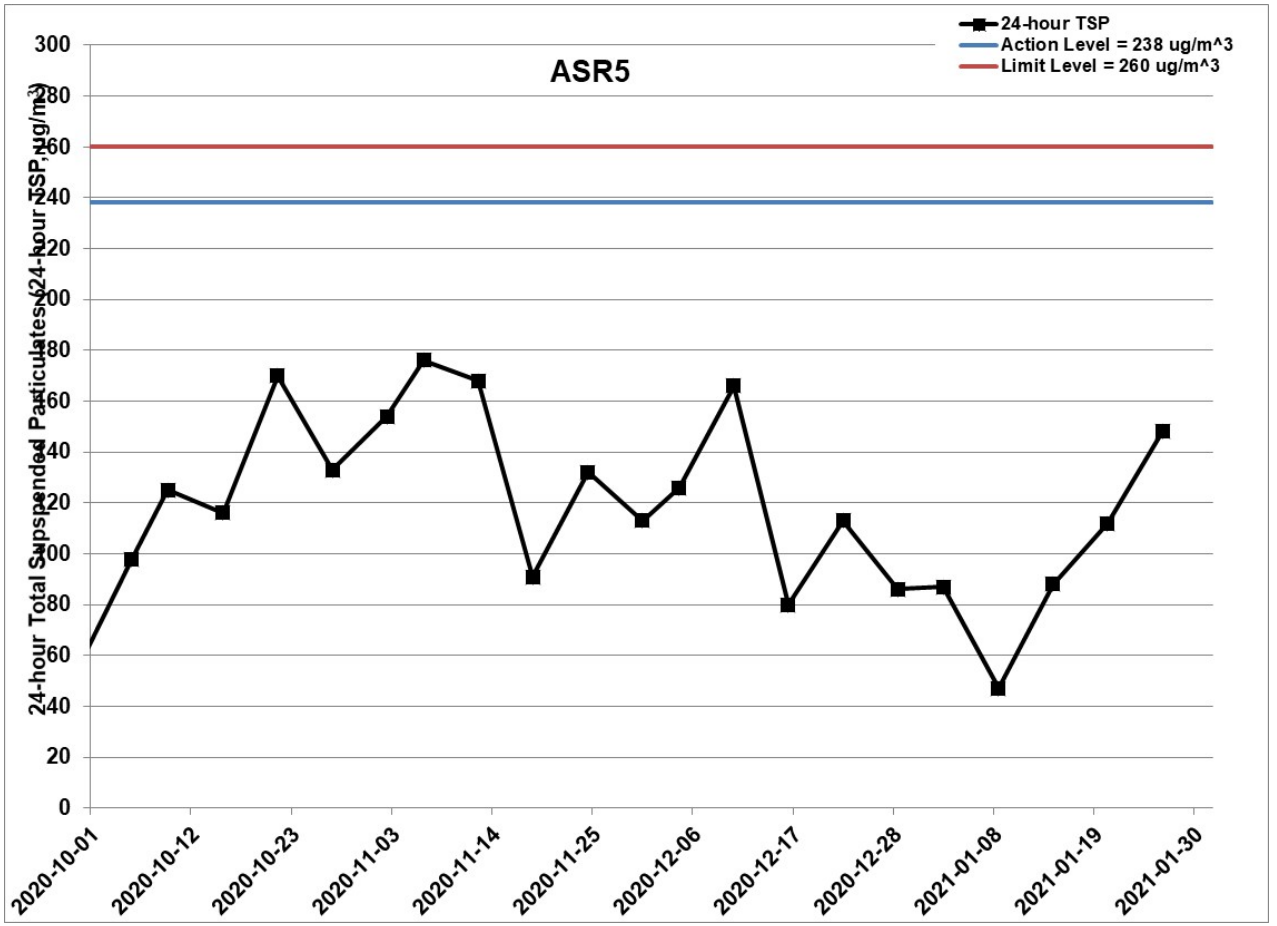



**Figure G.7 Impact Monitoring – 24-hour Total Suspended Particulates (μg/m³) at ASR5 between 1 October 2020 and 31 January 2021 during impact monitoring period. The weather conditions during the monitoring period were sunny and hazy. Major land-based construction activities included Demolition works and backfilling works at CLP substation (1/10/2020 – 31/1/2021)**

*Ref: 0212330_Impact AQM graphs_January 2021.xlsx*

ERM

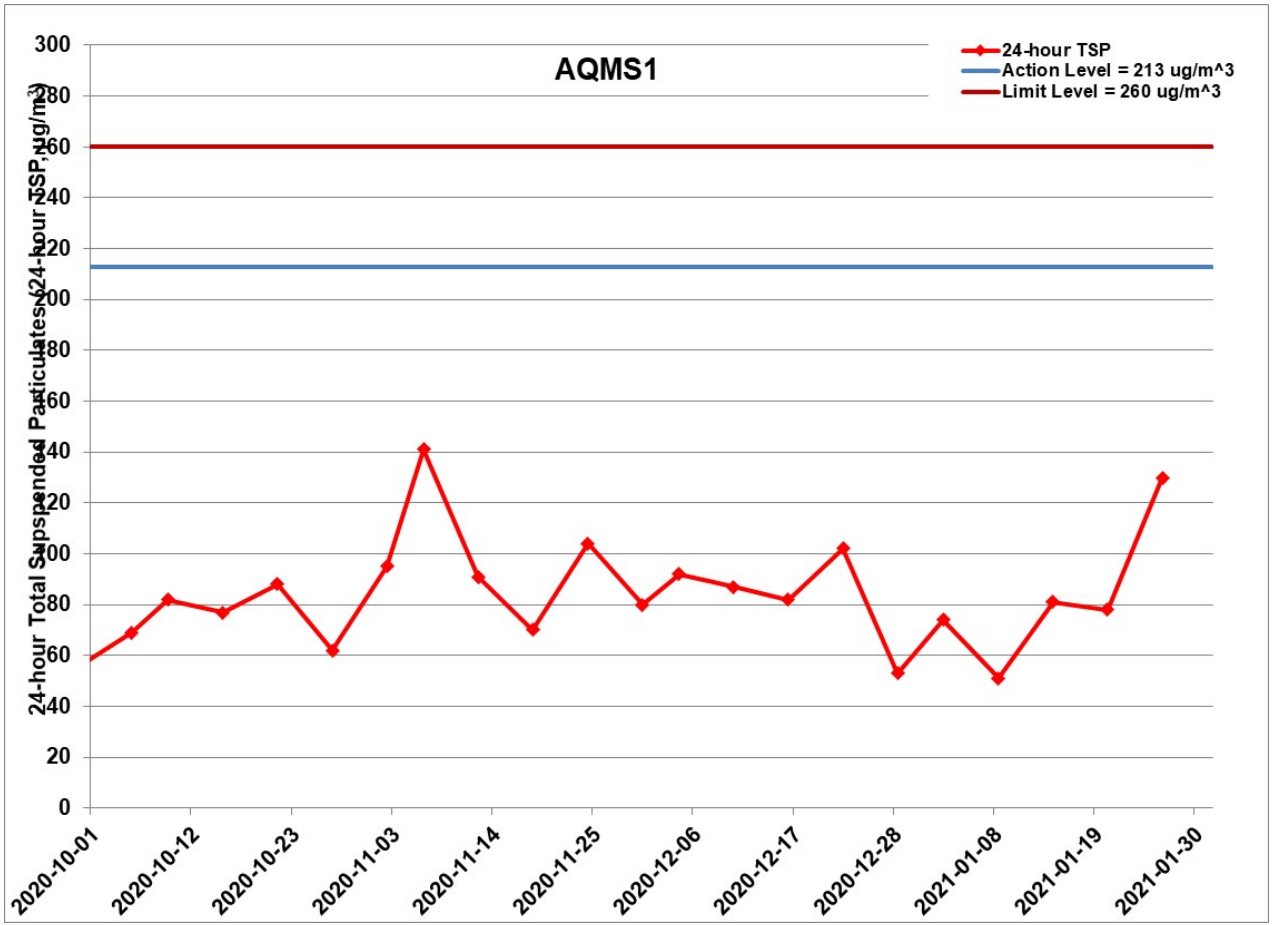



**Figure G.8 Impact Monitoring – 24-hour Total Suspended Particulates (μg/m³) at AQMS1 between 1 October 2020 and 31 January 2021 during impact monitoring period. The weather conditions during the monitoring period were sunny and hazy. Major land-based construction activities included Demolition works and backfilling works at CLP substation (1/10/2020 – 31/1/2021)**

*Ref: 0212330_Impact AQM graphs_January 2021.xlsx*

ERM

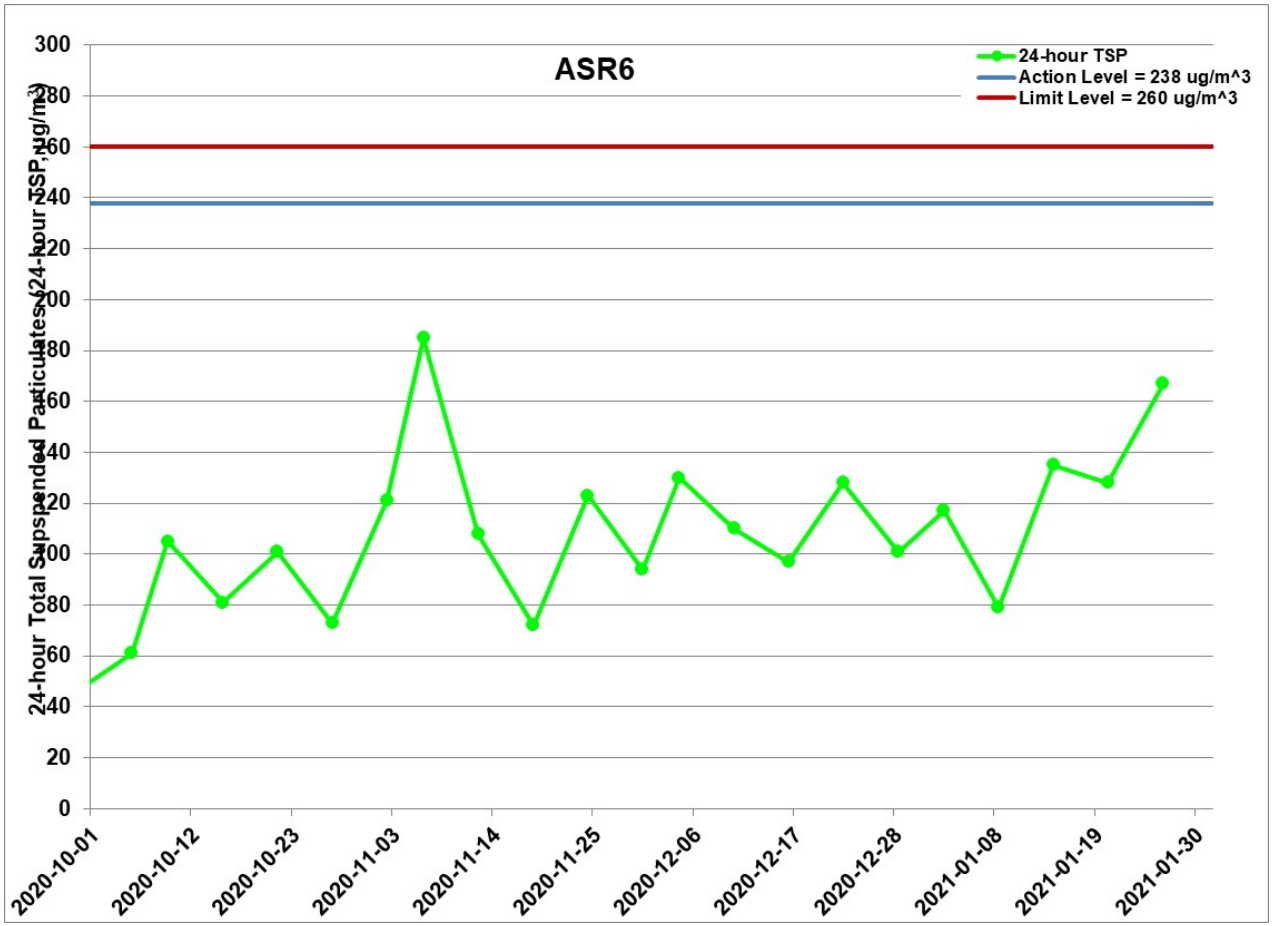



**Figure G.9 Impact Monitoring – 24-hour Total Suspended Particulates (μg/m³) at ASR6 between 1 October 2020 and 31 January 2021 during impact monitoring period. The weather conditions during the monitoring period were sunny and hazy. Major land-based construction activities included Demolition works and backfilling works at CLP substation (1/10/2020 – 31/1/2021)**

*Ref: 0212330_Impact AQM graphs_January 2021.xlsx*

ERM

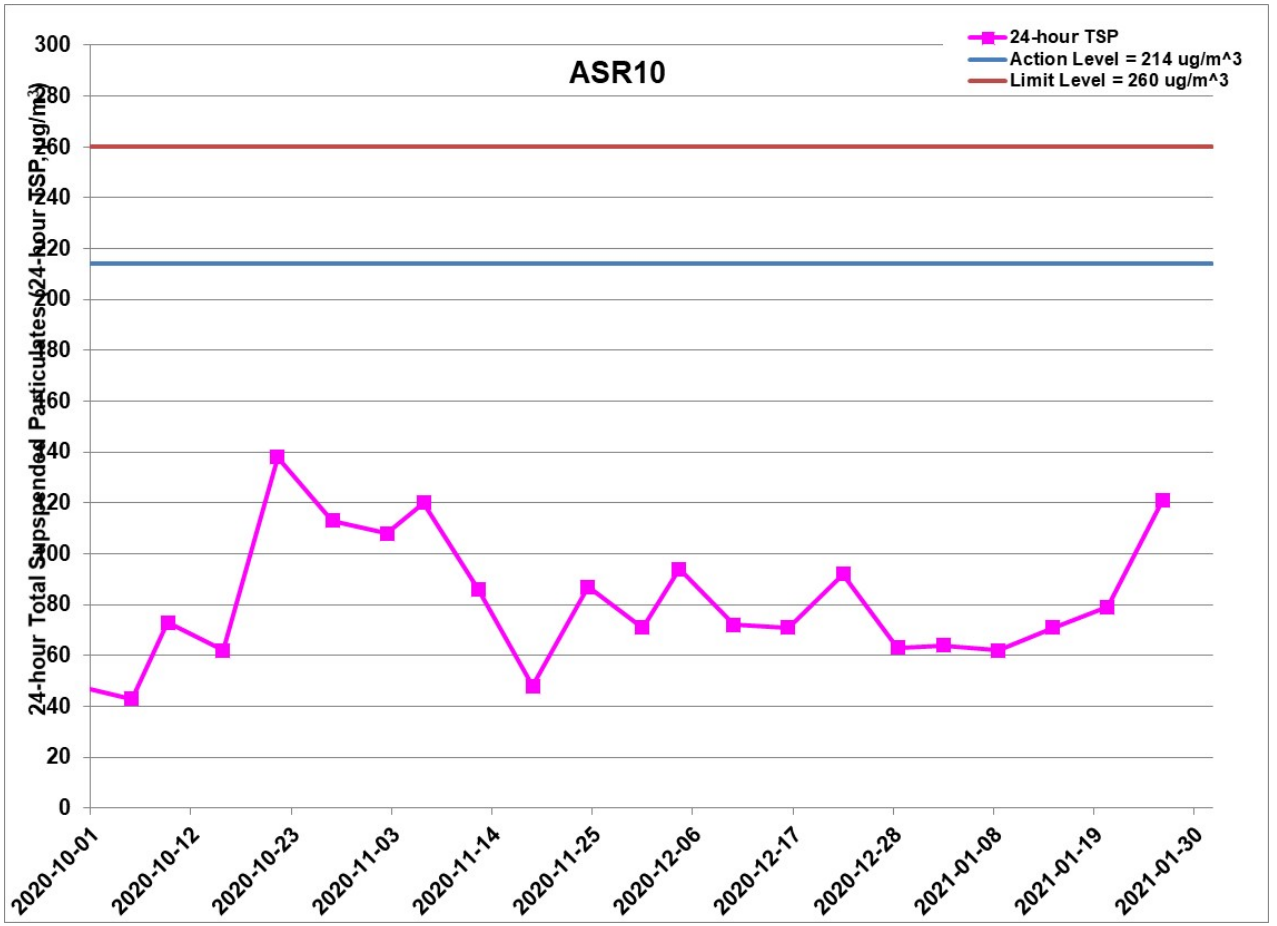



**Figure G.10 Impact Monitoring – 24-hour Total Suspended Particulates (μg/m³) at ASR10 between 1 October 2020 and 31 January 2021 during impact monitoring period. The weather conditions during the monitoring period were sunny and hazy. Major land-based construction activities included Demolition works and backfilling works at CLP substation (1/10/2020 – 31/1/2021)**

*Ref: 0212330_Impact AQM graphs_January 2021.xlsx*

ERM

| Project | Contract | Date | Station | Weather | Start time | Parameters | Results | units |
|---|---|---|---|---|---|---|---|---|
| TMCLKL | HY/2012/08 | 02-01-21 | ASR10 | Sunny | 8:07 | 1-hour TSP | 42 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | ASR10 | Sunny | 9:09 | 1-hour TSP | 97 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | ASR10 | Sunny | 10:11 | 1-hour TSP | 78 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | ASR6 | Sunny | 8:18 | 1-hour TSP | 98 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | ASR6 | Sunny | 9:20 | 1-hour TSP | 194 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | ASR6 | Sunny | 10:22 | 1-hour TSP | 248 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | ASR5 | Sunny | 8:30 | 1-hour TSP | 94 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | ASR5 | Sunny | 9:32 | 1-hour TSP | 139 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | ASR5 | Sunny | 10:34 | 1-hour TSP | 129 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | ASR1 | Sunny | 8:42 | 1-hour TSP | 89 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | ASR1 | Sunny | 9:44 | 1-hour TSP | 189 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | ASR1 | Sunny | 10:46 | 1-hour TSP | 147 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | AQMS1 | Sunny | 8:53 | 1-hour TSP | 72 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | AQMS1 | Sunny | 9:55 | 1-hour TSP | 147 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | AQMS1 | Sunny | 10:57 | 1-hour TSP | 114 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | ASR10 | Cloudy | 14:02 | 1-hour TSP | 83 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | ASR10 | Cloudy | 15:04 | 1-hour TSP | 90 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | ASR10 | Cloudy | 16:06 | 1-hour TSP | 132 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | ASR6 | Cloudy | 14:12 | 1-hour TSP | 121 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | ASR6 | Cloudy | 15:14 | 1-hour TSP | 135 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | ASR6 | Cloudy | 16:16 | 1-hour TSP | 207 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | ASR5 | Cloudy | 14:23 | 1-hour TSP | 85 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | ASR5 | Cloudy | 15:25 | 1-hour TSP | 85 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | ASR5 | Cloudy | 16:27 | 1-hour TSP | 150 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | ASR1 | Cloudy | 14:33 | 1-hour TSP | 92 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | ASR1 | Cloudy | 15:35 | 1-hour TSP | 95 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | ASR1 | Cloudy | 16:37 | 1-hour TSP | 103 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | AQMS1 | Cloudy | 14:45 | 1-hour TSP | 102 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | AQMS1 | Cloudy | 15:47 | 1-hour TSP | 137 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | AQMS1 | Cloudy | 16:49 | 1-hour TSP | 124 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | ASR10 | Hazy | 13:14 | 1-hour TSP | 135 | ug/m3 |

| Project | Contract | Date | Station | Weather | Start time | Parameters | Results | units |
|---|---|---|---|---|---|---|---|---|
| TMCLKL | HY/2012/08 | 14-01-21 | ASR10 | Hazy | 14:16 | 1-hour TSP | 93 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | ASR10 | Hazy | 15:18 | 1-hour TSP | 83 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | ASR6 | Hazy | 13:25 | 1-hour TSP | 172 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | ASR6 | Hazy | 14:27 | 1-hour TSP | 123 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | ASR6 | Hazy | 15:29 | 1-hour TSP | 152 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | ASR5 | Hazy | 13:37 | 1-hour TSP | 117 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | ASR5 | Hazy | 14:39 | 1-hour TSP | 88 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | ASR5 | Hazy | 15:41 | 1-hour TSP | 188 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | ASR1 | Hazy | 13:48 | 1-hour TSP | 121 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | ASR1 | Hazy | 14:50 | 1-hour TSP | 119 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | ASR1 | Hazy | 15:52 | 1-hour TSP | 124 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | AQMS1 | Hazy | 13:59 | 1-hour TSP | 121 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | AQMS1 | Hazy | 15:01 | 1-hour TSP | 81 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | AQMS1 | Hazy | 16:03 | 1-hour TSP | 58 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | ASR10 | Sunny | 8:10 | 1-hour TSP | 78 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | ASR10 | Sunny | 9:12 | 1-hour TSP | 84 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | ASR10 | Sunny | 10:24 | 1-hour TSP | 70 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | ASR6 | Sunny | 8:20 | 1-hour TSP | 188 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | ASR6 | Sunny | 9:22 | 1-hour TSP | 218 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | ASR6 | Sunny | 10:24 | 1-hour TSP | 154 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | ASR5 | Sunny | 8:32 | 1-hour TSP | 97 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | ASR5 | Sunny | 9:34 | 1-hour TSP | 98 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | ASR5 | Sunny | 10:36 | 1-hour TSP | 88 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | ASR1 | Sunny | 8:44 | 1-hour TSP | 127 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | ASR1 | Sunny | 9:46 | 1-hour TSP | 105 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | ASR1 | Sunny | 10:48 | 1-hour TSP | 96 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | AQMS1 | Sunny | 8:55 | 1-hour TSP | 133 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | AQMS1 | Sunny | 9:57 | 1-hour TSP | 117 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | AQMS1 | Sunny | 10:59 | 1-hour TSP | 92 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | ASR10 | Hazy | 8:04 | 1-hour TSP | 246 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | ASR10 | Hazy | 9:06 | 1-hour TSP | 68 | ug/m3 |

| Project | Contract | Date | Station | Weather | Start time | Parameters | Results | units |
|---|---|---|---|---|---|---|---|---|
| TMCLKL | HY/2012/08 | 26-01-21 | ASR10 | Hazy | 10:08 | 1-hour TSP | 133 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | ASR6 | Hazy | 8:14 | 1-hour TSP | 115 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | ASR6 | Hazy | 9:16 | 1-hour TSP | 161 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | ASR6 | Hazy | 10:18 | 1-hour TSP | 239 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | ASR5 | Hazy | 8:25 | 1-hour TSP | 132 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | ASR5 | Hazy | 9:27 | 1-hour TSP | 121 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | ASR5 | Hazy | 10:29 | 1-hour TSP | 192 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | ASR1 | Hazy | 8:35 | 1-hour TSP | 89 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | ASR1 | Hazy | 9:37 | 1-hour TSP | 129 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | ASR1 | Hazy | 10:39 | 1-hour TSP | 143 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | AQMS1 | Hazy | 8:47 | 1-hour TSP | 127 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | AQMS1 | Hazy | 9:49 | 1-hour TSP | 143 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | AQMS1 | Hazy | 10:51 | 1-hour TSP | 160 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | ASR10 | Sunny | 11:13 | 24-hour TSP | 64 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | ASR6 | Sunny | 11:24 | 24-hour TSP | 117 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | ASR5 | Sunny | 11:36 | 24-hour TSP | 87 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | ASR1 | Sunny | 11:48 | 24-hour TSP | 99 | ug/m3 |
| TMCLKL | HY/2012/08 | 02-01-21 | AQMS1 | Sunny | 11:59 | 24-hour TSP | 74 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | ASR10 | Cloudy | 17:08 | 24-hour TSP | 62 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | ASR6 | Cloudy | 17:18 | 24-hour TSP | 79 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | ASR5 | Cloudy | 17:29 | 24-hour TSP | 47 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | ASR1 | Cloudy | 17:39 | 24-hour TSP | 116 | ug/m3 |
| TMCLKL | HY/2012/08 | 08-01-21 | AQMS1 | Cloudy | 17:51 | 24-hour TSP | 51 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | ASR10 | Hazy | 16:20 | 24-hour TSP | 71 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | ASR6 | Hazy | 16:31 | 24-hour TSP | 135 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | ASR5 | Hazy | 16:43 | 24-hour TSP | 88 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | ASR1 | Hazy | 16:54 | 24-hour TSP | 84 | ug/m3 |
| TMCLKL | HY/2012/08 | 14-01-21 | AQMS1 | Hazy | 17:05 | 24-hour TSP | 81 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | ASR10 | Sunny | 11:16 | 24-hour TSP | 79 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | ASR6 | Sunny | 11:26 | 24-hour TSP | 128 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | ASR5 | Sunny | 11:38 | 24-hour TSP | 112 | ug/m3 |

| Project | Contract | Date | Station | Weather | Start time | Parameters | Results | units |
|---|---|---|---|---|---|---|---|---|
| TMCLKL | HY/2012/08 | 20-01-21 | ASR1 | Sunny | 11:50 | 24-hour TSP | 128 | ug/m3 |
| TMCLKL | HY/2012/08 | 20-01-21 | AQMS1 | Sunny | 12:01 | 24-hour TSP | 78 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | ASR10 | Hazy | 11:10 | 24-hour TSP | 121 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | ASR6 | Hazy | 11:20 | 24-hour TSP | 167 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | ASR5 | Hazy | 11:31 | 24-hour TSP | 148 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | ASR1 | Hazy | 11:41 | 24-hour TSP | 145 | ug/m3 |
| TMCLKL | HY/2012/08 | 26-01-21 | AQMS1 | Hazy | 11:53 | 24-hour TSP | 130 | 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)** |
| 21/01/02 | 0:00 | 0.9 | 323 |
| 21/01/02 | 1:00 | 0.9 | 16 |
| 21/01/02 | 2:00 | 0.9 | 24 |
| 21/01/02 | 3:00 | 1.8 | 19 |
| 21/01/02 | 4:00 | 2.7 | 26 |
| 21/01/02 | 5:00 | 2.7 | 20 |
| 21/01/02 | 6:00 | 1.8 | 28 |
| 21/01/02 | 7:00 | 1.3 | 11 |
| 21/01/02 | 8:00 | 1.8 | 21 |
| 21/01/02 | 9:00 | 1.3 | 20 |
| 21/01/02 | 10:00 | 1.3 | 21 |
| 21/01/02 | 11:00 | 1.3 | 176 |
| 21/01/02 | 12:00 | 2.2 | 201 |
| 21/01/02 | 13:00 | 0.9 | 230 |
| 21/01/02 | 14:00 | 1.3 | 258 |
| 21/01/02 | 15:00 | 0.9 | 181 |
| 21/01/02 | 16:00 | 0.9 | 208 |
| 21/01/02 | 17:00 | 0.9 | 203 |
| 21/01/02 | 18:00 | 0.9 | 344 |
| 21/01/02 | 19:00 | 0.9 | 343 |
| 21/01/02 | 20:00 | 1.3 | 13 |
| 21/01/02 | 21:00 | 1.3 | 30 |
| 21/01/02 | 22:00 | 1.3 | 45 |
| 21/01/02 | 23:00 | 1.3 | 18 |
| 21/01/03 | 0:00 | 0.9 | 316 |
| 21/01/03 | 1:00 | 0.9 | 28 |
| 21/01/03 | 2:00 | 0.9 | 23 |
| 21/01/03 | 3:00 | 1.3 | 14 |
| 21/01/03 | 4:00 | 1.8 | 358 |
| 21/01/03 | 5:00 | 3.1 | 15 |
| 21/01/03 | 6:00 | 3.1 | 25 |
| 21/01/03 | 7:00 | 3.6 | 29 |
| 21/01/03 | 8:00 | 2.7 | 27 |
| 21/01/03 | 9:00 | 1.3 | 79 |
| 21/01/03 | 10:00 | 1.3 | 14 |
| 21/01/03 | 11:00 | 1.8 | 214 |
| 21/01/03 | 12:00 | 2.2 | 209 |
| 21/01/03 | 13:00 | 1.8 | 224 |
| 21/01/03 | 14:00 | 2.2 | 261 |
| 21/01/03 | 15:00 | 1.8 | 273 |
| 21/01/03 | 16:00 | 1.3 | 309 |
| 21/01/03 | 17:00 | 0.9 | 282 |
| 21/01/03 | 18:00 | 0.9 | 304 |
| 21/01/03 | 19:00 | 0.9 | 61 |
| 21/01/03 | 20:00 | 1.3 | 45 |
| 21/01/03 | 21:00 | 0.9 | 82 |
| 21/01/03 | 22:00 | 0.9 | 59 |
| 21/01/03 | 23:00 | 0.4 | 122 |
| 21/01/08 | 0:00 | 3.6 | 30 |
| 21/01/08 | 1:00 | 4 | 23 |
| 21/01/08 | 2:00 | 4.5 | 24 |
| 21/01/08 | 3:00 | 2.7 | 342 |
| 21/01/08 | 4:00 | 1.8 | 308 |
| 21/01/08 | 5:00 | 1.3 | 283 |
| 21/01/08 | 6:00 | 1.3 | 258 |
| 21/01/08 | 7:00 | 1.3 | 291 |

| | | | |
|---|---|---|---|
| 21/01/08 | 8:00 | 1.3 | 304 |
| 21/01/08 | 9:00 | 1.3 | 230 |
| 21/01/08 | 10:00 | 1.8 | 19 |
| 21/01/08 | 11:00 | 1.8 | 27 |
| 21/01/08 | 12:00 | 2.2 | 325 |
| 21/01/08 | 13:00 | 1.8 | 311 |
| 21/01/08 | 14:00 | 1.3 | 303 |
| 21/01/08 | 15:00 | 1.3 | 275 |
| 21/01/08 | 16:00 | 1.8 | 334 |
| 21/01/08 | 17:00 | 1.8 | 312 |
| 21/01/08 | 18:00 | 1.3 | 305 |
| 21/01/08 | 19:00 | 2.2 | 339 |
| 21/01/08 | 20:00 | 2.7 | 12 |
| 21/01/08 | 21:00 | 4 | 331 |
| 21/01/08 | 22:00 | 3.1 | 32 |
| 21/01/08 | 23:00 | 2.7 | 14 |
| 21/01/09 | 0:00 | 2.2 | 12 |
| 21/01/09 | 1:00 | 1.8 | 23 |
| 21/01/09 | 2:00 | 2.2 | 32 |
| 21/01/09 | 3:00 | 2.7 | 11 |
| 21/01/09 | 4:00 | 2.7 | 24 |
| 21/01/09 | 5:00 | 2.7 | 26 |
| 21/01/09 | 6:00 | 2.7 | 28 |
| 21/01/09 | 7:00 | 3.1 | 24 |
| 21/01/09 | 8:00 | 3.1 | 11 |
| 21/01/09 | 9:00 | 2.2 | 12 |
| 21/01/09 | 10:00 | 2.2 | 14 |
| 21/01/09 | 11:00 | 1.8 | 32 |
| 21/01/09 | 12:00 | 1.3 | 25 |
| 21/01/09 | 13:00 | 1.3 | 341 |
| 21/01/09 | 14:00 | 1.3 | 33 |
| 21/01/09 | 15:00 | 1.3 | 2 |
| 21/01/09 | 16:00 | 1.3 | 22 |
| 21/01/09 | 17:00 | 1.3 | 23 |
| 21/01/09 | 18:00 | 0.9 | 334 |
| 21/01/09 | 19:00 | 0.9 | 315 |
| 21/01/09 | 20:00 | 0.4 | 279 |
| 21/01/09 | 21:00 | 0.4 | 321 |
| 21/01/09 | 22:00 | 0.4 | 328 |
| 21/01/09 | 23:00 | 0.9 | 327 |
| 21/01/14 | 0:00 | 1.3 | 337 |
| 21/01/14 | 1:00 | 1.3 | 340 |
| 21/01/14 | 2:00 | 0.9 | 304 |
| 21/01/14 | 3:00 | 0.9 | 311 |
| 21/01/14 | 4:00 | 0.9 | 312 |
| 21/01/14 | 5:00 | 0.9 | 322 |
| 21/01/14 | 6:00 | 0.9 | 329 |
| 21/01/14 | 7:00 | 0.4 | 319 |
| 21/01/14 | 8:00 | 0.4 | 153 |
| 21/01/14 | 9:00 | 0.9 | 156 |
| 21/01/14 | 10:00 | 1.3 | 193 |
| 21/01/14 | 11:00 | 0.9 | 130 |
| 21/01/14 | 12:00 | 2.2 | 207 |
| 21/01/14 | 13:00 | 1.8 | 210 |
| 21/01/14 | 14:00 | 1.3 | 217 |
| 21/01/14 | 15:00 | 2.2 | 202 |
| 21/01/14 | 16:00 | 1.3 | 191 |
| 21/01/14 | 17:00 | 0.4 | 137 |

| | | | |
|---|---|---|---|
| 21/01/14 | 18:00 | 0.4 | 54 |
| 21/01/14 | 19:00 | 1.3 | 26 |
| 21/01/14 | 20:00 | 1.3 | 21 |
| 21/01/14 | 21:00 | 0.9 | 55 |
| 21/01/14 | 22:00 | 0.4 | 78 |
| 21/01/14 | 23:00 | 0.4 | 75 |
| 21/01/15 | 0:00 | 0.9 | 339 |
| 21/01/15 | 1:00 | 0.4 | 117 |
| 21/01/15 | 2:00 | 0.4 | 113 |
| 21/01/15 | 3:00 | 0.4 | 116 |
| 21/01/15 | 4:00 | 0.4 | 116 |
| 21/01/15 | 5:00 | 0.4 | 118 |
| 21/01/15 | 6:00 | 0.4 | 109 |
| 21/01/15 | 7:00 | 0.4 | 48 |
| 21/01/15 | 8:00 | 1.3 | 76 |
| 21/01/15 | 9:00 | 0.9 | 67 |
| 21/01/15 | 10:00 | 0.9 | 139 |
| 21/01/15 | 11:00 | 1.3 | 213 |
| 21/01/15 | 12:00 | 1.3 | 219 |
| 21/01/15 | 13:00 | 1.8 | 248 |
| 21/01/15 | 14:00 | 0.9 | 212 |
| 21/01/15 | 15:00 | 0.9 | 136 |
| 21/01/15 | 16:00 | 0.4 | 104 |
| 21/01/15 | 17:00 | 0.4 | 5 |
| 21/01/15 | 18:00 | 0.4 | 342 |
| 21/01/15 | 19:00 | 0.9 | 346 |
| 21/01/15 | 20:00 | 0.9 | 330 |
| 21/01/15 | 21:00 | 0 | 312 |
| 21/01/15 | 22:00 | 0.4 | 347 |
| 21/01/15 | 23:00 | 0.9 | 346 |
| 21/01/20 | 0:00 | 2.7 | 81 |
| 21/01/20 | 1:00 | 3.1 | 97 |
| 21/01/20 | 2:00 | 2.2 | 92 |
| 21/01/20 | 3:00 | 1.3 | 78 |
| 21/01/20 | 4:00 | 0.9 | 29 |
| 21/01/20 | 5:00 | 1.3 | 23 |
| 21/01/20 | 6:00 | 0.9 | 41 |
| 21/01/20 | 7:00 | 0.9 | 14 |
| 21/01/20 | 8:00 | 0.9 | 12 |
| 21/01/20 | 9:00 | 0.9 | 143 |
| 21/01/20 | 10:00 | 0.9 | 158 |
| 21/01/20 | 11:00 | 1.3 | 199 |
| 21/01/20 | 12:00 | 0.9 | 227 |
| 21/01/20 | 13:00 | 0.9 | 119 |
| 21/01/20 | 14:00 | 1.3 | 127 |
| 21/01/20 | 15:00 | 0.9 | 123 |
| 21/01/20 | 16:00 | 0.9 | 142 |
| 21/01/20 | 17:00 | 0.9 | 130 |
| 21/01/20 | 18:00 | 0.4 | 137 |
| 21/01/20 | 19:00 | 0 | 96 |
| 21/01/20 | 20:00 | 0 | 318 |
| 21/01/20 | 21:00 | 0.4 | 59 |
| 21/01/20 | 22:00 | 1.3 | 47 |
| 21/01/20 | 23:00 | 1.3 | 56 |
| 21/01/21 | 0:00 | 1.3 | 96 |
| 21/01/21 | 1:00 | 1.3 | 68 |
| 21/01/21 | 2:00 | 0 | 63 |
| 21/01/21 | 3:00 | 0.4 | 122 |

| | | | |
|---|---|---|---|
| 21/01/21 | 4:00 | 0.9 | 87 |
| 21/01/21 | 5:00 | 0.4 | 122 |
| 21/01/21 | 6:00 | 0 | 241 |
| 21/01/21 | 7:00 | 0.9 | 91 |
| 21/01/21 | 8:00 | 0.9 | 98 |
| 21/01/21 | 9:00 | 0.9 | 135 |
| 21/01/21 | 10:00 | 0.9 | 149 |
| 21/01/21 | 11:00 | 1.3 | 127 |
| 21/01/21 | 12:00 | 1.3 | 139 |
| 21/01/21 | 13:00 | 1.3 | 127 |
| 21/01/21 | 14:00 | 1.3 | 141 |
| 21/01/21 | 15:00 | 0.4 | 270 |
| 21/01/21 | 16:00 | 0.9 | 145 |
| 21/01/21 | 17:00 | 0.4 | 158 |
| 21/01/21 | 18:00 | 1.3 | 326 |
| 21/01/21 | 19:00 | 0.9 | 317 |
| 21/01/21 | 20:00 | 0 | 323 |
| 21/01/21 | 21:00 | 0 | 208 |
| 21/01/21 | 22:00 | 0.9 | 265 |
| 21/01/21 | 23:00 | 1.8 | 294 |
| 21/01/26 | 0:00 | 0.9 | 56 |
| 21/01/26 | 1:00 | 0.9 | 61 |
| 21/01/26 | 2:00 | 0.9 | 96 |
| 21/01/26 | 3:00 | 0.4 | 100 |
| 21/01/26 | 4:00 | 0 | 101 |
| 21/01/26 | 5:00 | 0 | 96 |
| 21/01/26 | 6:00 | 0 | 85 |
| 21/01/26 | 7:00 | 0.4 | 77 |
| 21/01/26 | 8:00 | 0.9 | 51 |
| 21/01/26 | 9:00 | 0.9 | 139 |
| 21/01/26 | 10:00 | 1.3 | 165 |
| 21/01/26 | 11:00 | 1.3 | 211 |
| 21/01/26 | 12:00 | 1.3 | 275 |
| 21/01/26 | 13:00 | 0.9 | 269 |
| 21/01/26 | 14:00 | 0.9 | 255 |
| 21/01/26 | 15:00 | 1.3 | 218 |
| 21/01/26 | 16:00 | 0.9 | 239 |
| 21/01/26 | 17:00 | 0.9 | 193 |
| 21/01/26 | 18:00 | 0.9 | 46 |
| 21/01/26 | 19:00 | 0.9 | 16 |
| 21/01/26 | 20:00 | 0.4 | 24 |
| 21/01/26 | 21:00 | 0 | 154 |
| 21/01/26 | 22:00 | 0 | 145 |
| 21/01/26 | 23:00 | 0 | 153 |
| 21/01/27 | 0:00 | 0 | 146 |
| 21/01/27 | 1:00 | 0 | 80 |
| 21/01/27 | 2:00 | 1.3 | 30 |
| 21/01/27 | 3:00 | 0.9 | 100 |
| 21/01/27 | 4:00 | 0.9 | 60 |
| 21/01/27 | 5:00 | 0.4 | 30 |
| 21/01/27 | 6:00 | 0 | 30 |
| 21/01/27 | 7:00 | 0.4 | 37 |
| 21/01/27 | 8:00 | 0.9 | 84 |
| 21/01/27 | 9:00 | 1.3 | 115 |
| 21/01/27 | 10:00 | 1.8 | 126 |
| 21/01/27 | 11:00 | 2.2 | 133 |
| 21/01/27 | 12:00 | 3.6 | 140 |
| 21/01/27 | 13:00 | 3.6 | 134 |

| | | | |
|---|---|---|---|
| 21/01/27 | 14:00 | 3.6 | 143 |
| 21/01/27 | 15:00 | 2.2 | 109 |
| 21/01/27 | 16:00 | 1.3 | 110 |
| 21/01/27 | 17:00 | 1.3 | 60 |
| 21/01/27 | 18:00 | 1.8 | 63 |
| 21/01/27 | 19:00 | 1.8 | 68 |
| 21/01/27 | 20:00 | 1.3 | 100 |
| 21/01/27 | 21:00 | 0.9 | 51 |
| 21/01/27 | 22:00 | 0.9 | 62 |
| 21/01/27 | 23:00 | 0.9 | 77 |

Appendix I

# Operational Phase Dolphin Monitoring Survey

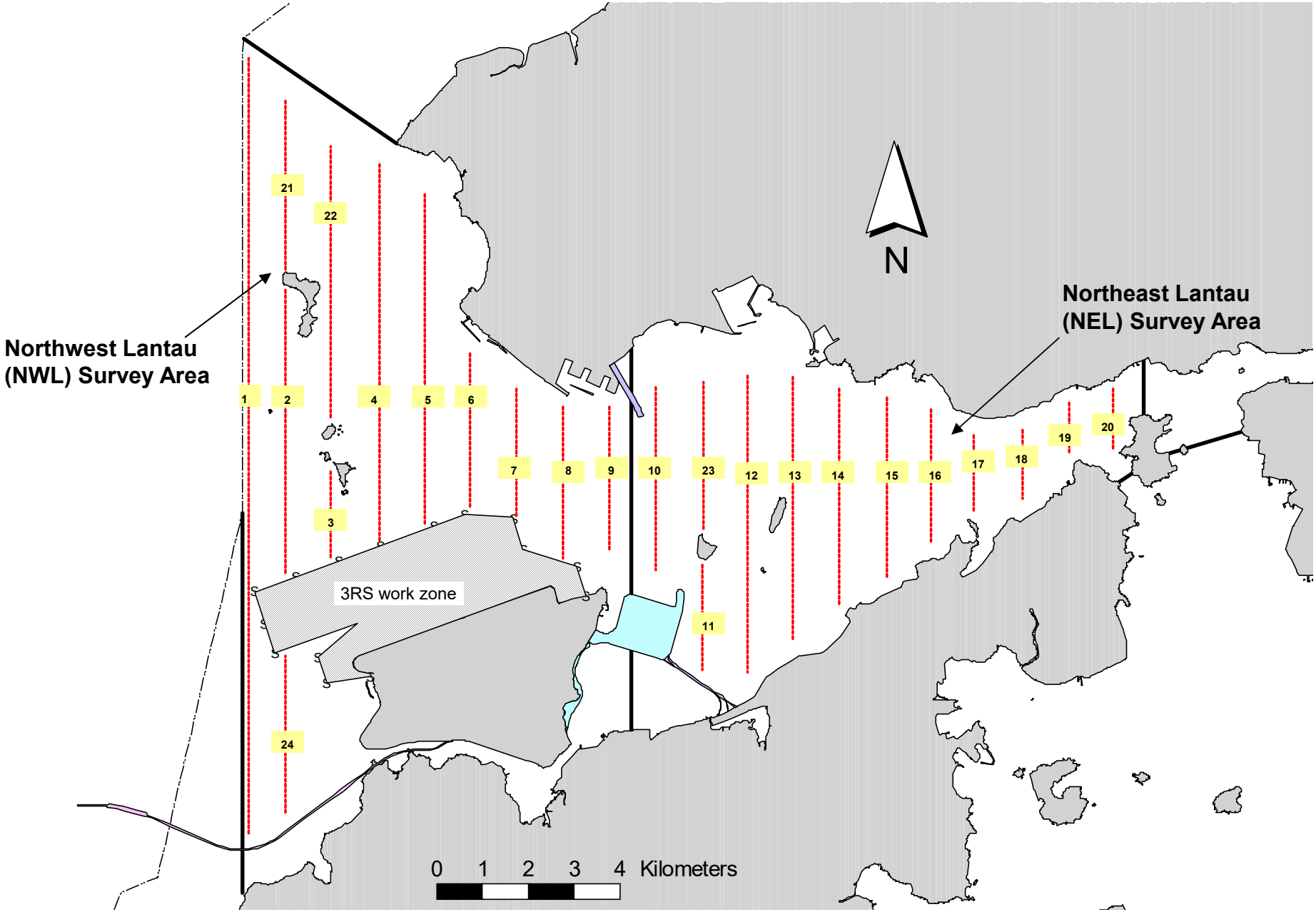



Figure 1. Transect Line Layout in Northwest and Northeast Lantau Survey Areas

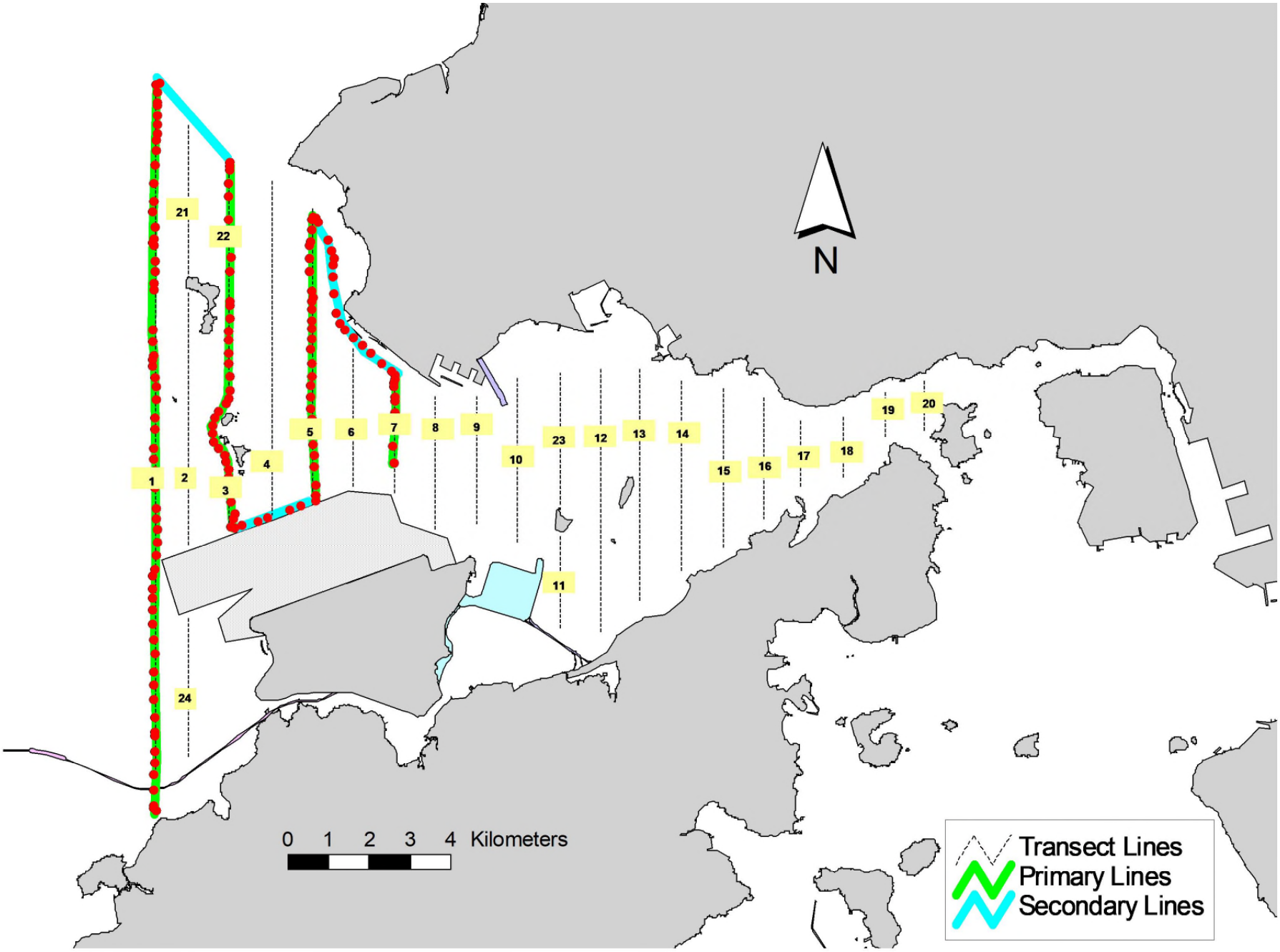



Figure 2. Survey Route on January 25th, 2021

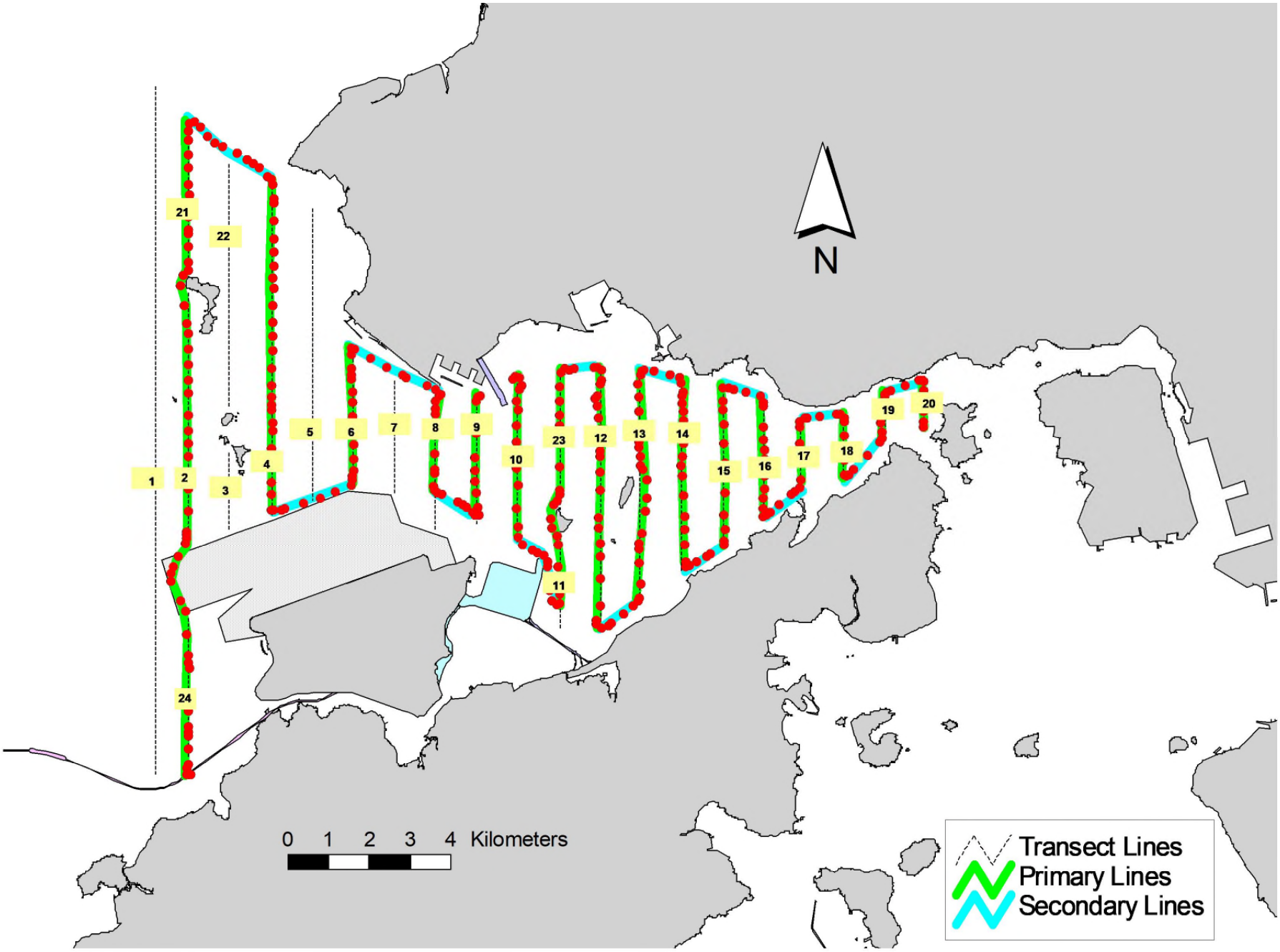



Figure 3. Survey Route on January 26th, 2021

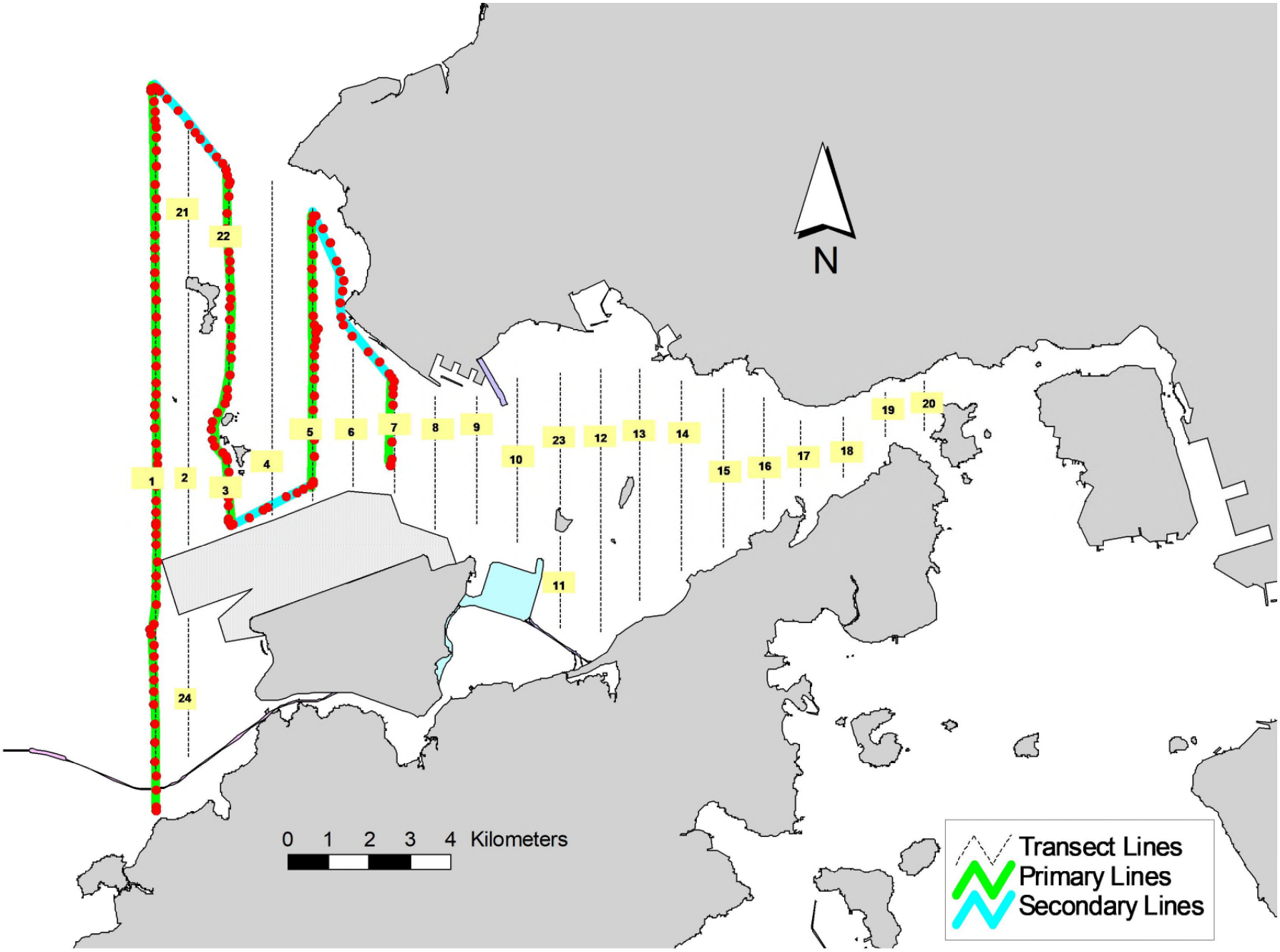



Figure 4. Survey Route on January 27th, 2021

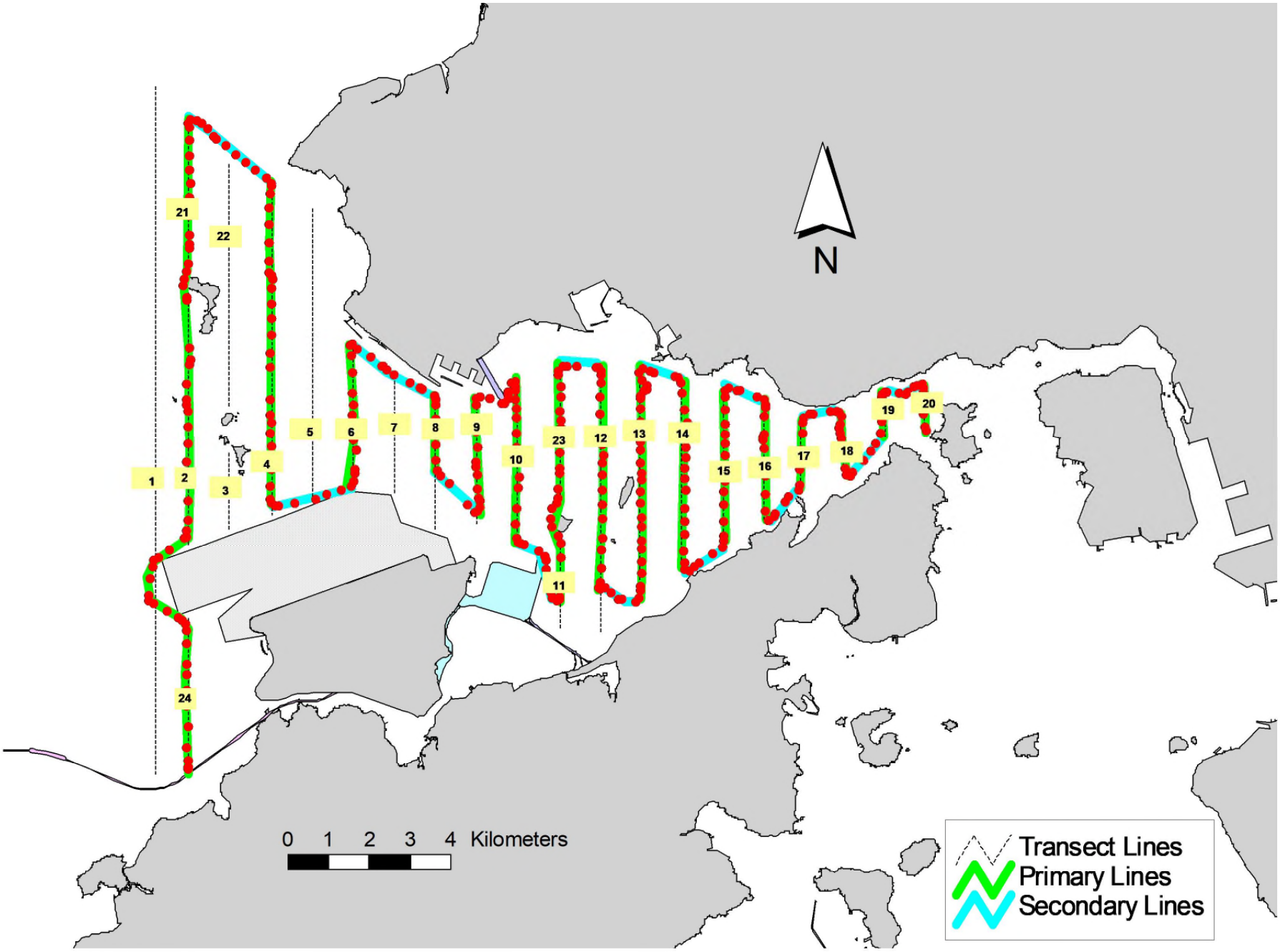



Figure 5. Survey Route on January 28th, 2021

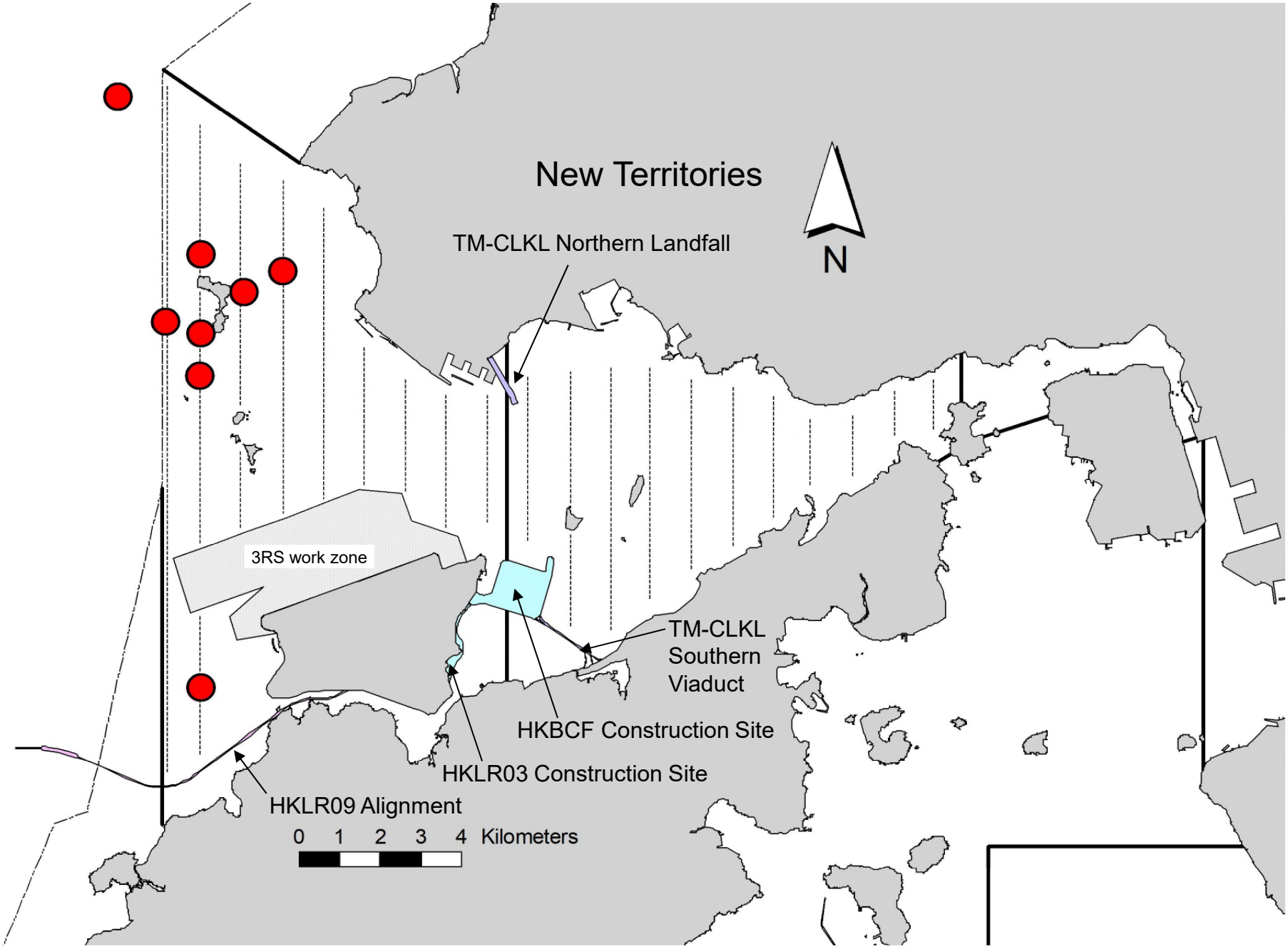



Figure 6. Distribution of Chinese White Dolphin Sightings during January 2021 Monitoring Surveys

## Appendix I. TMCLKL Survey Effort Database (January 2021)

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

| DATE | AREA | BEAU | EFFORT | SEASON | VESSEL | TYPE | P/S |
|---|---|---|---|---|---|---|---|
| 25-Jan-21 | NW LANTAU | 1 | 4.08 | WINTER | STANDARD36826 | TMCLKL | P |
| 25-Jan-21 | NW LANTAU | 2 | 28.26 | WINTER | STANDARD36826 | TMCLKL | P |
| 25-Jan-21 | NW LANTAU | 2 | 8.25 | WINTER | STANDARD36826 | TMCLKL | S |
| 26-Jan-21 | NW LANTAU | 1 | 4.74 | WINTER | STANDARD36826 | TMCLKL | P |
| 26-Jan-21 | NW LANTAU | 2 | 24.42 | WINTER | STANDARD36826 | TMCLKL | P |
| 26-Jan-21 | NW LANTAU | 1 | 1.50 | WINTER | STANDARD36826 | TMCLKL | S |
| 26-Jan-21 | NW LANTAU | 2 | 8.81 | WINTER | STANDARD36826 | TMCLKL | S |
| 26-Jan-21 | NE LANTAU | 1 | 2.60 | WINTER | STANDARD36826 | TMCLKL | P |
| 26-Jan-21 | NE LANTAU | 2 | 33.98 | WINTER | STANDARD36826 | TMCLKL | P |
| 26-Jan-21 | NE LANTAU | 1 | 2.30 | WINTER | STANDARD36826 | TMCLKL | S |
| 26-Jan-21 | NE LANTAU | 2 | 9.92 | WINTER | STANDARD36826 | TMCLKL | S |
| 27-Jan-21 | NW LANTAU | 1 | 6.50 | WINTER | STANDARD36826 | TMCLKL | P |
| 27-Jan-21 | NW LANTAU | 2 | 26.15 | WINTER | STANDARD36826 | TMCLKL | P |
| 27-Jan-21 | NW LANTAU | 1 | 3.90 | WINTER | STANDARD36826 | TMCLKL | S |
| 27-Jan-21 | NW LANTAU | 2 | 6.75 | WINTER | STANDARD36826 | TMCLKL | S |
| 28-Jan-21 | NW LANTAU | 1 | 0.52 | WINTER | STANDARD36826 | TMCLKL | P |
| 28-Jan-21 | NW LANTAU | 2 | 22.11 | WINTER | STANDARD36826 | TMCLKL | P |
| 28-Jan-21 | NW LANTAU | 3 | 3.73 | WINTER | STANDARD36826 | TMCLKL | P |
| 28-Jan-21 | NW LANTAU | 1 | 2.53 | WINTER | STANDARD36826 | TMCLKL | S |
| 28-Jan-21 | NW LANTAU | 2 | 9.50 | WINTER | STANDARD36826 | TMCLKL | S |
| 28-Jan-21 | NE LANTAU | 2 | 21.46 | WINTER | STANDARD36826 | TMCLKL | P |
| 28-Jan-21 | NE LANTAU | 3 | 14.01 | WINTER | STANDARD36826 | TMCLKL | P |
| 28-Jan-21 | NE LANTAU | 2 | 8.40 | WINTER | STANDARD36826 | TMCLKL | S |
| 28-Jan-21 | NE LANTAU | 3 | 4.03 | WINTER | STANDARD36826 | TMCLKL | S |

## Appendix II. TMCLKL Chinese White Dolphin Sighting Database (January 2021)

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

| DATE | STG # | TIME | HRD SZ | AREA | BEAU | PSD | EFFORT | TYPE | NORTHING | EASTING | SEASON | BOAT ASSOC. | P/S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25-Jan-21 | 1 | 1057 | 1 | NW LANTAU | 2 | 237 | ON | TMCLKL | 825934 | 804590 | WINTER | NONE | P |
| 25-Jan-21 | 2 | 1123 | 8 | NW LANTAU | 2 | 852 | ON | TMCLKL | 831175 | 803417 | WINTER | NONE | P |
| 25-Jan-21 | 3 | 1329 | 2 | NW LANTAU | 2 | 165 | ON | TMCLKL | 826628 | 806507 | WINTER | NONE | P |
| 26-Jan-21 | 1 | 1013 | 1 | NW LANTAU | 1 | 55 | ON | TMCLKL | 817461 | 805469 | WINTER | NONE | P |
| 28-Jan-21 | 1 | 1052 | 1 | NW LANTAU | 3 | 67 | ON | TMCLKL | 824681 | 805453 | WINTER | NONE | P |
| 28-Jan-21 | 2 | 1105 | 4 | NW LANTAU | 2 | 85 | ON | TMCLKL | 825689 | 805465 | WINTER | NONE | P |
| 28-Jan-21 | 3 | 1133 | 6 | NW LANTAU | 2 | 62 | ON | TMCLKL | 827494 | 805469 | WINTER | NONE | S |
| 28-Jan-21 | 4 | 1213 | 2 | NW LANTAU | 2 | 74 | ON | TMCLKL | 827103 | 807466 | WINTER | NONE | P |

**Appendix III. Individual dolphins identified during TMCLKL monitoring surveys in (January 2021)**

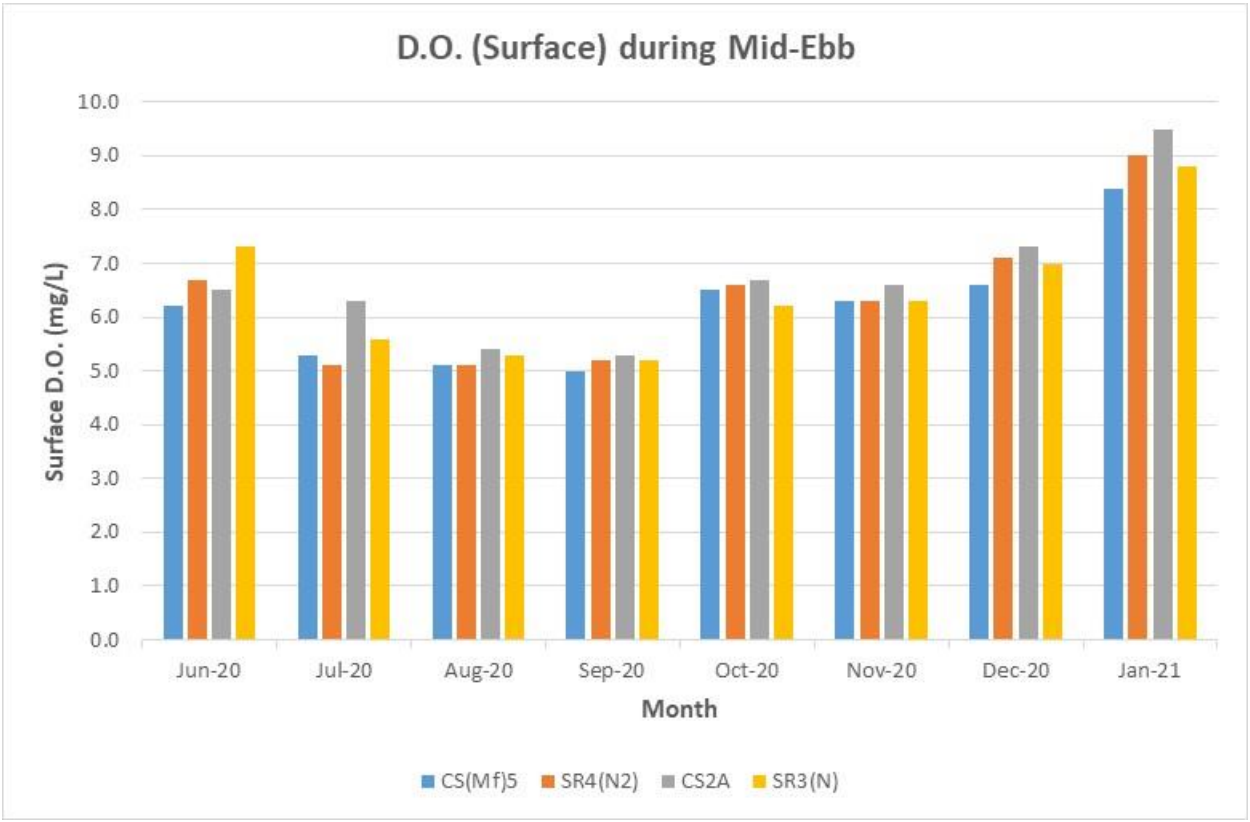
| ID# | DATE | STG# | AREA |
|---|---|---|---|
| CH105 | 28/01/21 | 3 | NW LANTAU |
| NL49 | 25/01/21 | 2 | NW LANTAU |
| | 28/01/21 | 1 | NW LANTAU |
| NL98 | 25/01/21 | 2 | NW LANTAU |
| NL103 | 25/01/21 | 2 | NW LANTAU |
| NL202 | 28/01/21 | 4 | NW LANTAU |
| NL242 | 25/01/21 | 2 | NW LANTAU |
| NL280 | 28/01/21 | 2 | NW LANTAU |
| NL299 | 25/01/21 | 2 | NW LANTAU |
| NL321 | 25/01/21 | 3 | NW LANTAU |
| NL331 | 26/01/21 | 1 | NW LANTAU |
| WL05 | 25/01/21 | 2 | NW LANTAU |
| WL179 | 25/01/21 | 1 | NW LANTAU |
| WL227 | 28/01/21 | 3 | NW LANTAU |


Appendix IV. Photograph of Identified Individual Dolphin in January 2021 (TMCLKL)


Appendix IV. (cont'd)

Appendix J

# Operational Phase Water Quality Monitoring Results



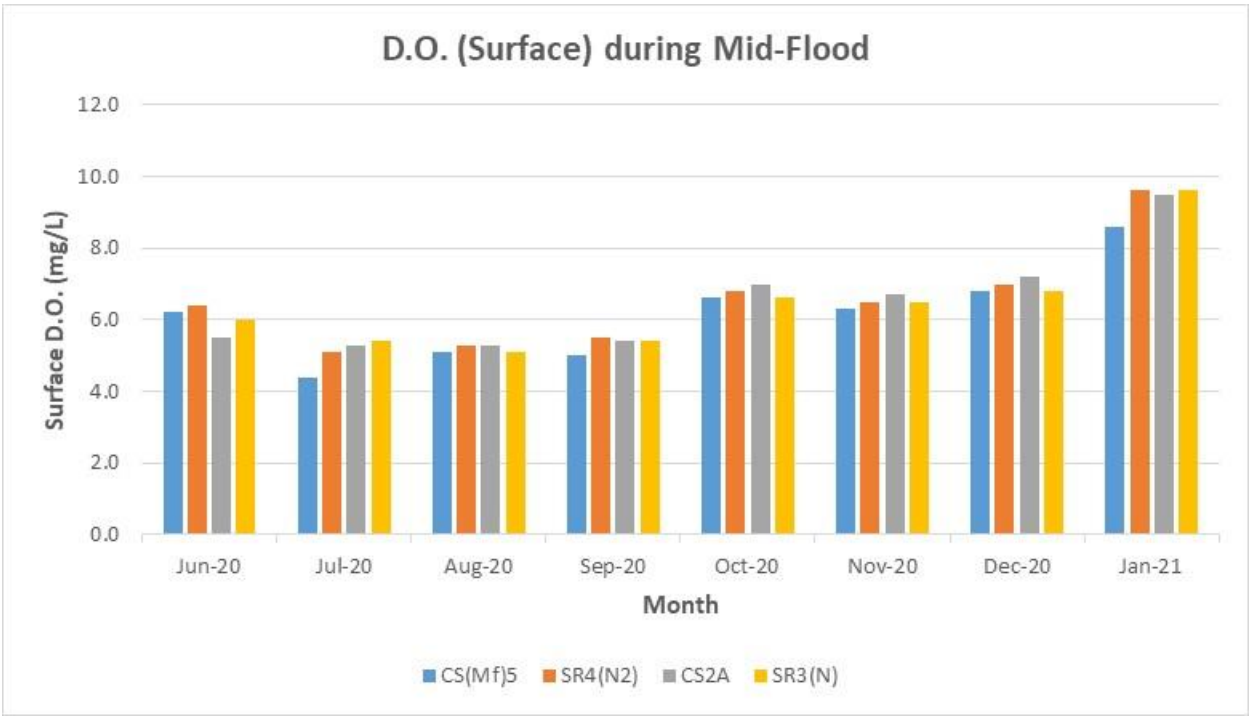
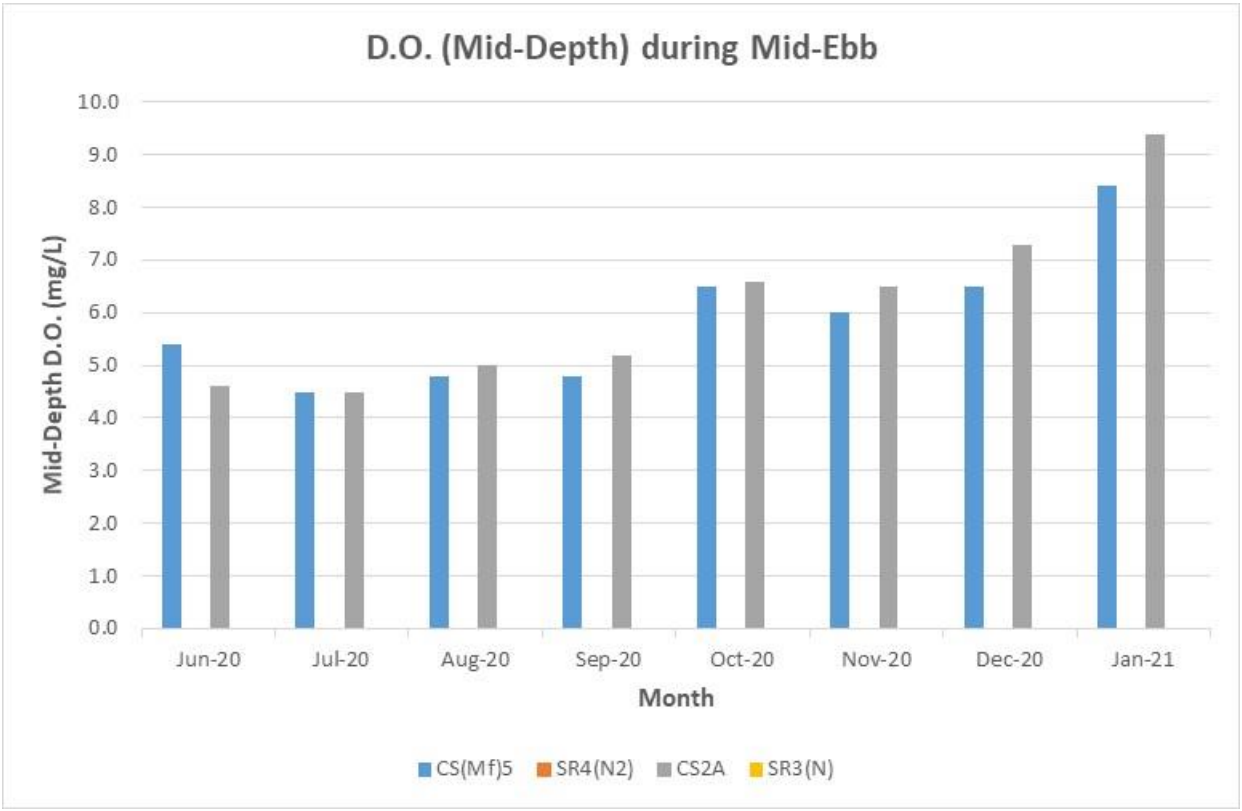




**Figure J1 Operational Phase Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters between 1 June 2020 and 31 January 2021. The weather conditions during the monitoring period varied mostly from sunny to cloudy.**

*Ref: 0212330_Impact-WQM_January 2021 _graphs_Rev a.xls*

ERM



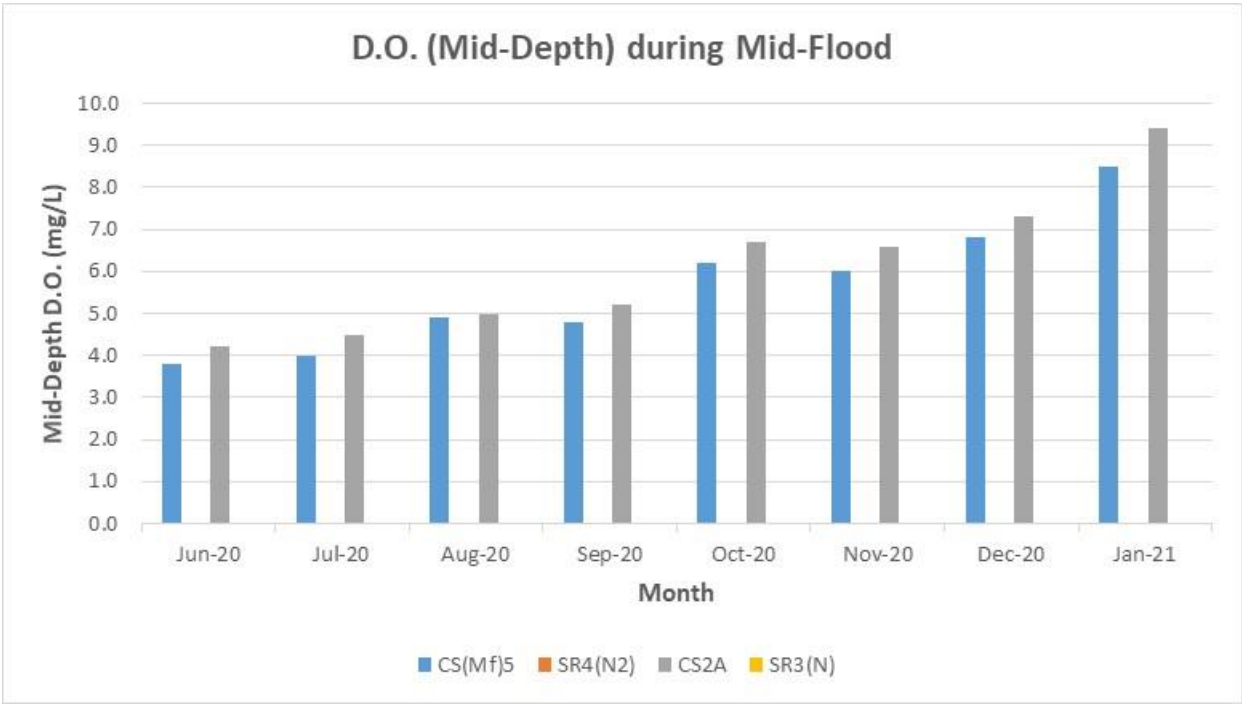
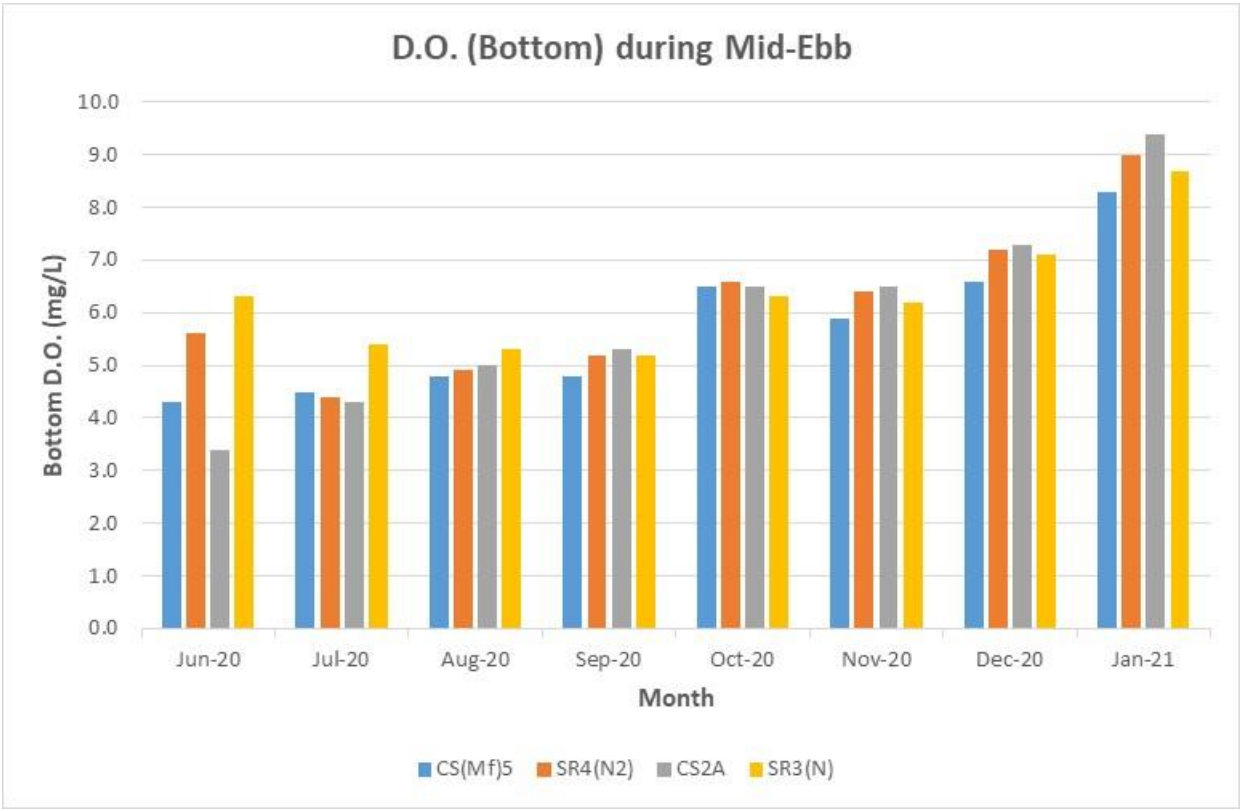




**Figure J2 Operational Phase Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters between 1 June 2020 and 31 January 2021. The weather conditions during the monitoring period varied mostly from sunny to cloudy.**

*Ref: 0212330_Impact-WQM_January 2021 _graphs_Rev a.xls*



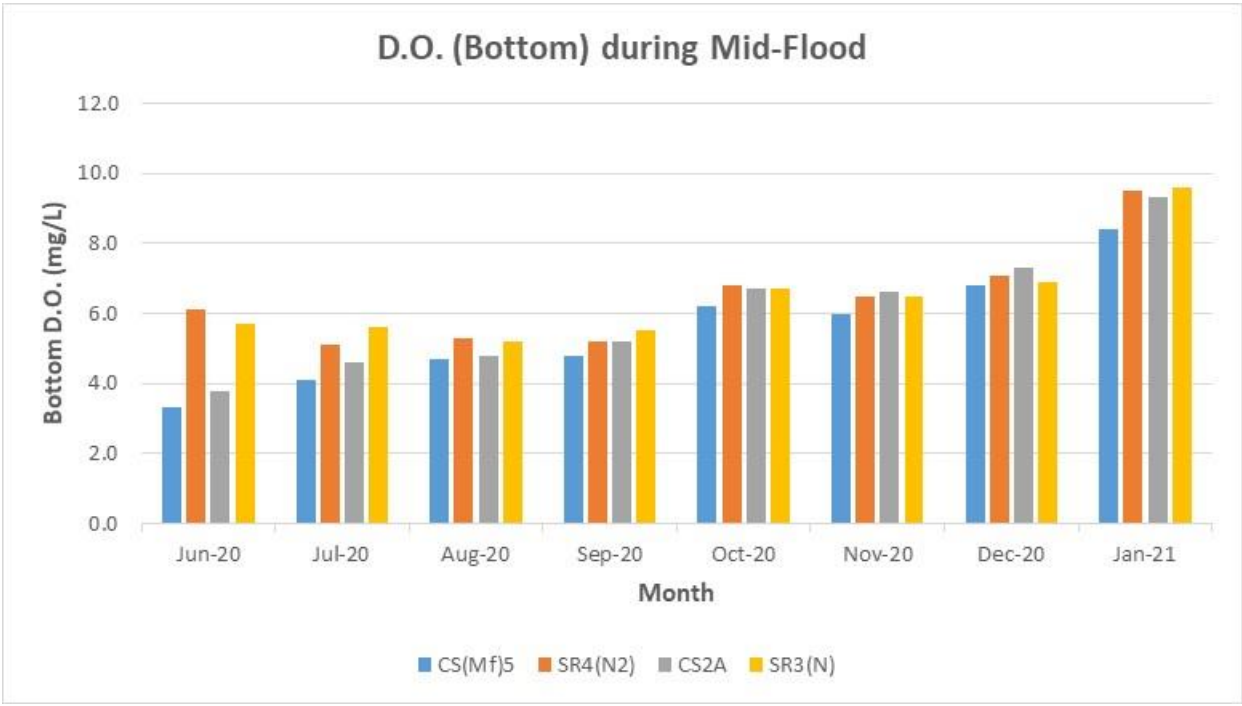
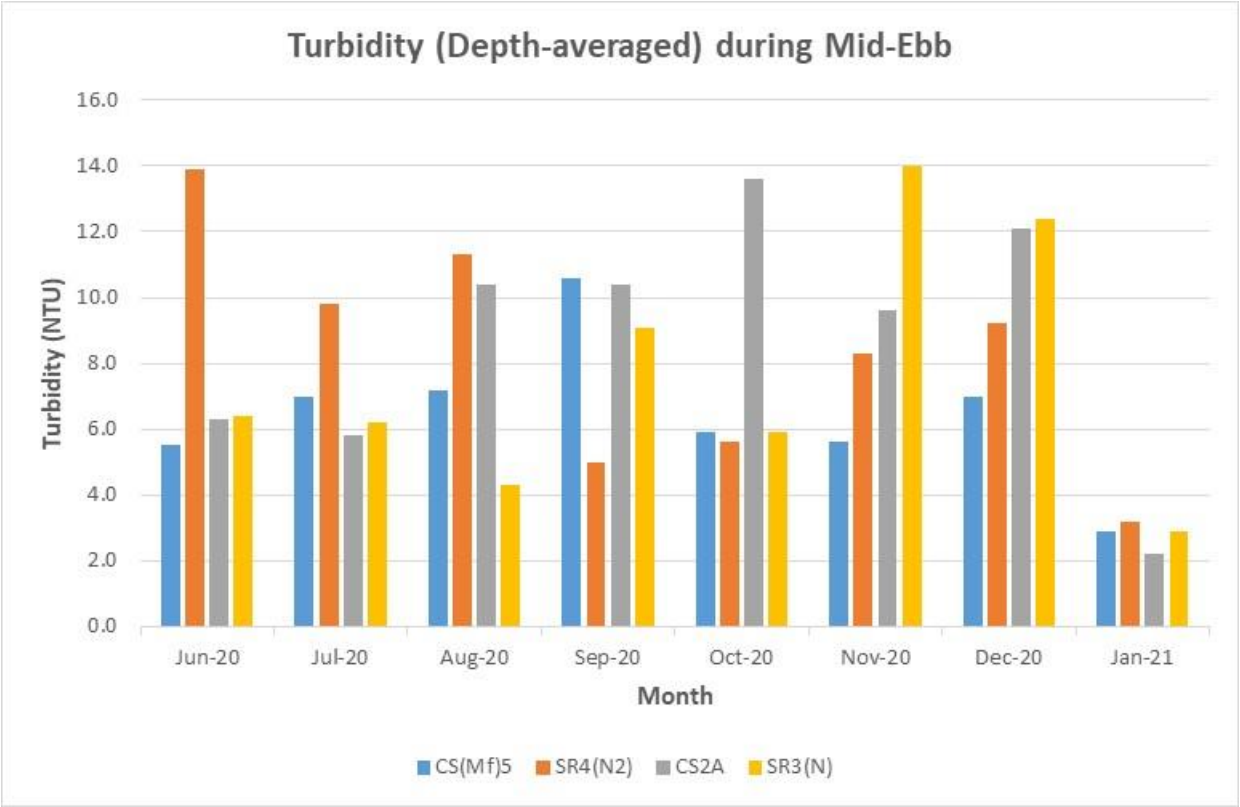




**Figure J3 Operational Phase Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters between 1 June 2020 and 31 January 2021. The weather conditions during the monitoring period varied mostly from sunny to cloudy.**

*Ref: 0212330_Impact-WQM_January 2021 _graphs_Rev a.xls*

ERM



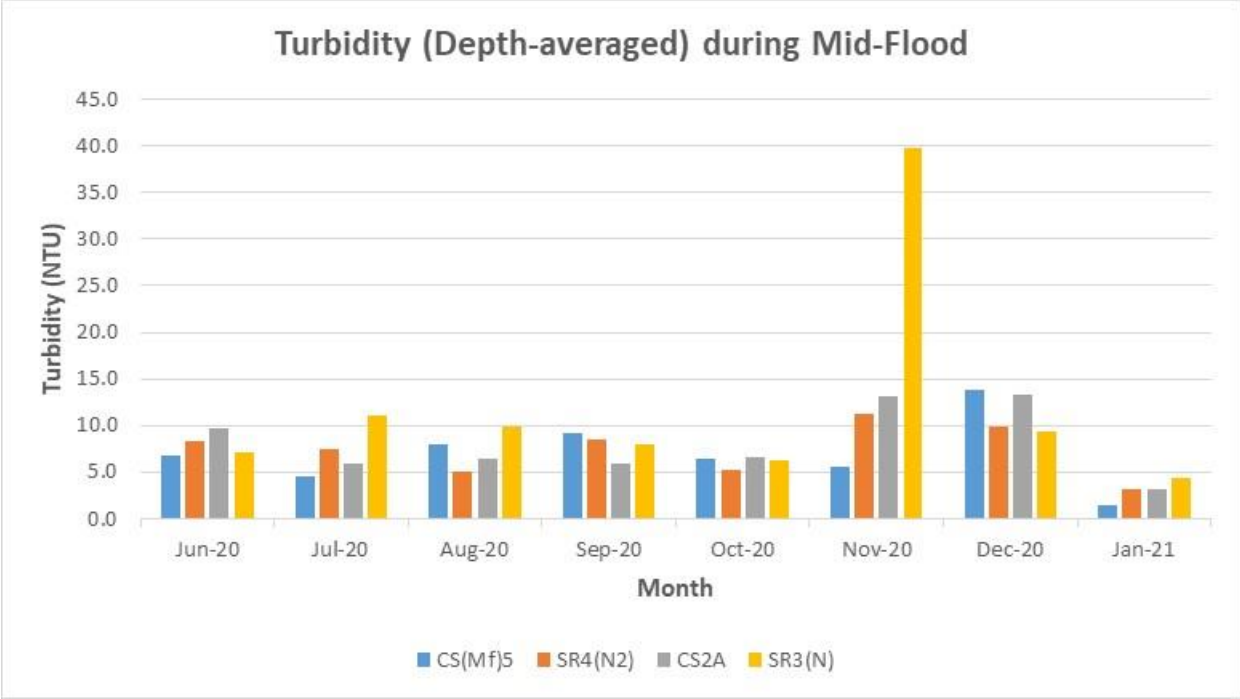
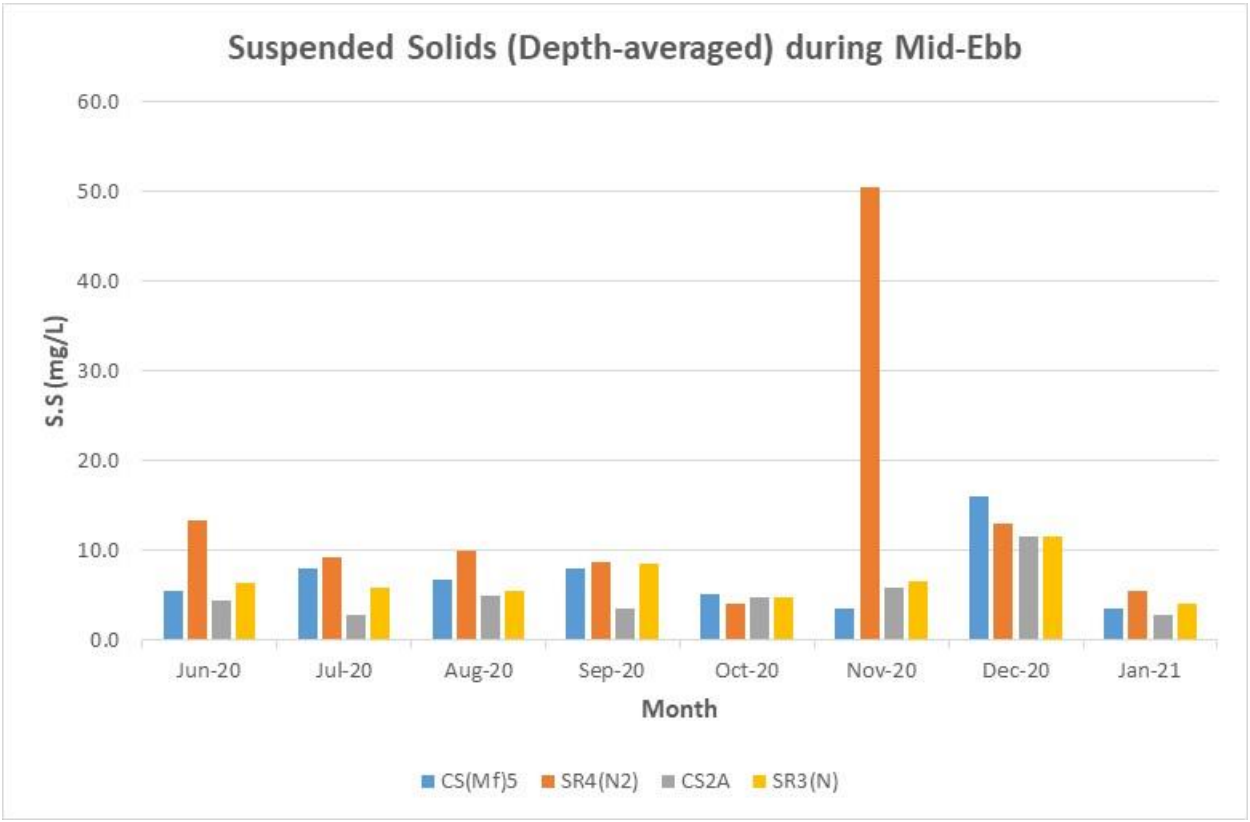




**Figure J4 Operational Phase Monitoring – Mean Depth-averaged Level of Turbidity (NTU) between 1 June 2020 and 31 January 2021. The weather conditions during the monitoring period varied mostly from sunny to cloudy.**

*Ref: 0212330_Impact-WQM_January 2021 _graphs_Rev a.xls*

ERM



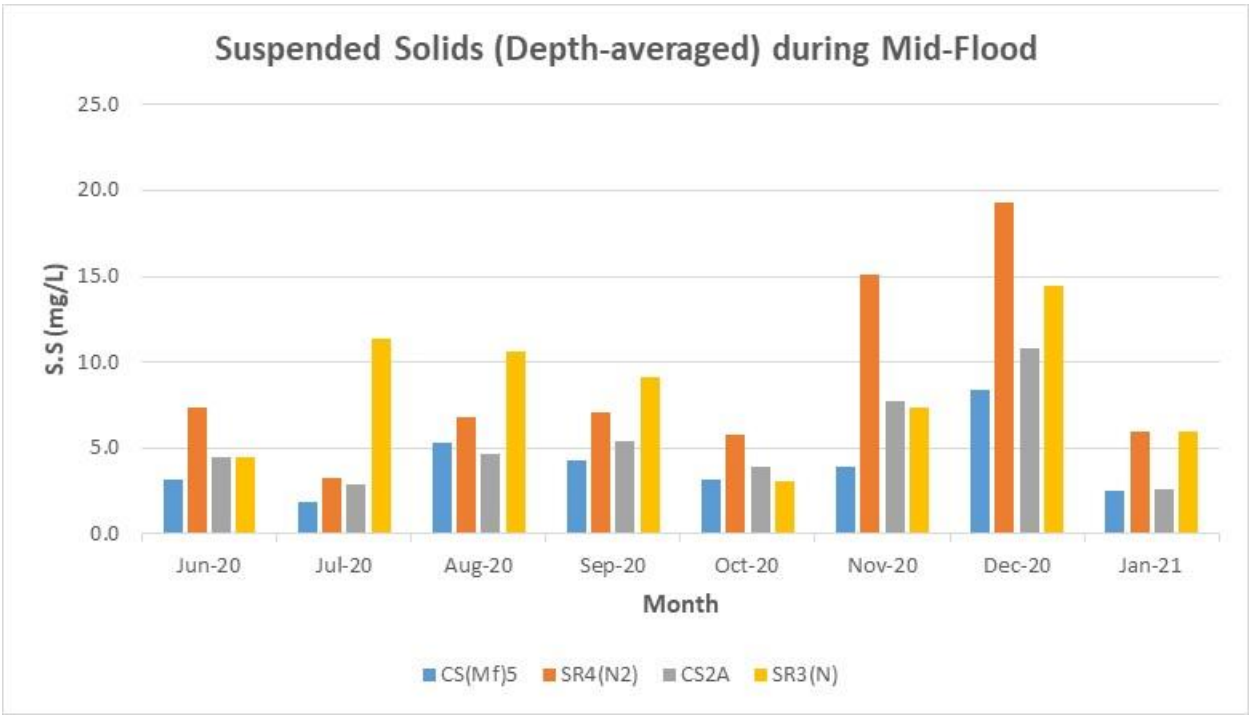




**Figure J5 Operational Phase Monitoring – Mean Depth-averaged Level of Suspended Solids (mg/L) between 1 June 2020 and 31 January 2021. The weather conditions during the monitoring period varied mostly from sunny to cloudy.**

*Ref: 0212330_Impact-WQM_January 2021 _graphs_Rev a.xls*

| 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) |
| 25-01-21 | Mid-Ebb | CS(Mf)5 | Cloudy | Moderate | 9:52 | 13.0 | Surface | 1.0 | 1 | 17.1 | 8.0 | 32.0 | 8.5 | 106.9 | 1.4 | 2.9 | 8.4 | 2.9 | 3.5 |
| | | | | | | | | | 2 | 17.1 | 8.0 | 32.1 | 8.5 | 106.6 | 1.5 | 2.6 | | | |
| | | | | | | | Middle | 6.5 | 1 | 17.0 | 8.0 | 32.3 | 8.3 | 104.1 | 2.6 | 3.4 | | | |
| | | | | | | | | | 2 | 17.0 | 8.0 | 32.3 | 8.4 | 105.8 | 2.2 | 3.4 | | | |
| | | | | | | | Bottom | 12.0 | 1 | 17.0 | 8.0 | 32.3 | 8.2 | 102.6 | 5.1 | 4.5 | 8.3 | | |
| | | | | | | | | | 2 | 17.0 | 8.0 | 32.3 | 8.4 | 105.6 | 4.8 | 4.4 | | | |
| | | SR4(N2) | Cloudy | Calm | 11:22 | 3.3 | Surface | 1.0 | 1 | 18.1 | 8.1 | 31.6 | 9.0 | 114.7 | 3.3 | 4.5 | 9.0 | 3.2 | 5.4 |
| | | | | | | | | | 2 | 18.1 | 8.1 | 31.6 | 9.0 | 115.3 | 2.8 | 4.8 | | | |
| | | | | | | | Bottom | 2.3 | 1 | 18.1 | 8.1 | 31.6 | 8.9 | 113.9 | 3.7 | 6.2 | 9.0 | | |
| | | | | | | | | | 2 | 18.1 | 8.1 | 31.6 | 9.0 | 115.0 | 3.1 | 5.9 | | | |
| | | CS2A | Cloudy | Moderate | 11:58 | 6.2 | Surface | 1.0 | 1 | 17.4 | 8.1 | 32.3 | 9.5 | 119.6 | 2.2 | 2.1 | 9.5 | 2.2 | 2.7 |
| | | | | | | | | | 2 | 17.3 | 8.2 | 32.3 | 9.5 | 120.4 | 2.2 | 2.4 | | | |
| | | | | | | | Middle | 3.1 | 1 | 17.3 | 8.1 | 32.3 | 9.4 | 119.0 | 2.3 | 2.6 | | | |
| | | | | | | | | | 2 | 17.2 | 8.2 | 32.3 | 9.4 | 119.2 | 2.1 | 2.8 | | | |
| | | | | | | | Bottom | 5.2 | 1 | 17.2 | 8.1 | 32.3 | 9.3 | 117.6 | 2.4 | 3.0 | 9.4 | | |
| | | | | | | | | | 2 | 17.2 | 8.2 | 32.3 | 9.5 | 119.5 | 2.2 | 3.4 | | | |
| | | SR3(N) | Cloudy | Calm | 10:45 | 4.0 | Surface | 1.0 | 1 | 17.5 | 8.1 | 31.7 | 8.7 | 110.6 | 2.7 | 4.6 | 8.8 | 2.9 | 4.1 |
| | | | | | | | | | 2 | 17.5 | 8.1 | 31.7 | 8.9 | 112.9 | 3.0 | 4.5 | | | |
| | | | | | | | Bottom | 3.0 | 1 | 17.5 | 8.1 | 31.7 | 8.6 | 109.1 | 2.6 | 3.8 | 8.7 | | |
| | | | | | | | | | 2 | 17.5 | 8.1 | 31.7 | 8.8 | 111.7 | 3.1 | 3.5 | | | |
| 25-01-21 | Mid-Flood | CS(Mf)5 | Cloudy | Moderate | 16:35 | 12.5 | Surface | 1.0 | 1 | 17.4 | 8.1 | 32.1 | 8.5 | 108.1 | 1.3 | 3.0 | 8.5 | 1.4 | 2.5 |
| | | | | | | | | | 2 | 17.8 | 8.1 | 32.0 | 8.7 | 110.4 | 1.3 | 2.6 | | | |
| | | | | | | | Middle | 6.3 | 1 | 17.0 | 8.1 | 32.3 | 8.4 | 105.9 | 1.4 | 2.4 | | | |
| | | | | | | | | | 2 | 17.0 | 8.1 | 32.4 | 8.5 | 106.7 | 1.4 | 2.3 | | | |
| | | | | | | | Bottom | 11.5 | 1 | 17.0 | 8.1 | 32.4 | 8.3 | 104.4 | 1.7 | 2.2 | 8.4 | | |
| | | | | | | | | | 2 | 17.0 | 8.1 | 32.4 | 8.5 | 107.0 | 1.4 | 2.2 | | | |
| | | SR4(N2) | Cloudy | Calm | 14:56 | 3.9 | Surface | 1.0 | 1 | 17.9 | 8.2 | 31.9 | 9.5 | 121.9 | 3.2 | 4.9 | 9.6 | 3.2 | 6.0 |
| | | | | | | | | | 2 | 18.1 | 8.2 | 31.9 | 9.6 | 123.1 | 3.2 | 5.3 | | | |
| | | | | | | | Bottom | 2.9 | 1 | 17.8 | 8.2 | 31.9 | 9.5 | 120.4 | 3.3 | 6.6 | 9.5 | | |
| | | | | | | | | | 2 | 18.0 | 8.2 | 31.8 | 9.5 | 121.6 | 3.0 | 7.0 | | | |
| | | CS2A | Cloudy | Moderate | 14:20 | 6.3 | Surface | 1.0 | 1 | 17.5 | 8.2 | 32.3 | 9.4 | 119.2 | 2.9 | 2.1 | 9.5 | 3.1 | 2.6 |
| | | | | | | | | | 2 | 17.6 | 8.2 | 32.2 | 9.6 | 121.8 | 2.4 | 2.3 | | | |
| | | | | | | | Middle | 3.2 | 1 | 17.2 | 8.2 | 32.3 | 9.3 | 117.5 | 3.4 | 2.6 | | | |
| | | | | | | | | | 2 | 17.2 | 8.2 | 32.3 | 9.5 | 119.9 | 3.0 | 2.8 | | | |
| | | | | | | | Bottom | 5.3 | 1 | 17.2 | 8.1 | 32.3 | 9.2 | 116.4 | 3.8 | 3.1 | 9.3 | | |
| | | | | | | | | | 2 | 17.2 | 8.2 | 32.3 | 9.4 | 118.9 | 3.3 | 2.8 | | | |
| | | SR3(N) | Cloudy | Calm | 15:49 | 4.1 | Surface | 1.0 | 1 | 17.8 | 8.2 | 31.8 | 9.5 | 121.0 | 4.7 | 6.4 | 9.6 | 4.3 | 6.0 |
| | | | | | | | | | 2 | 18.1 | 8.2 | 31.7 | 9.6 | 122.3 | 3.8 | 6.8 | | | |
| | | | | | | | Bottom | 3.1 | 1 | 17.7 | 8.2 | 31.7 | 9.5 | 119.9 | 4.7 | 5.6 | 9.6 | | |
| | | | | | | | | | 2 | 17.7 | 8.2 | 31.6 | 9.6 | 121.6 | 3.9 | 5.2 | | | |

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

| | Action | | | |
|---|---|---|---|---|
| | **ET [(a)]** | **IEC [(a)]** | **SOR [(a)]** | **Contractor(s)** |
| **Limit Level Exceedance** | | | | |
| | 1. Identify the source.<br>2. Repeat measurement to confirm finding. If two consecutive measurements exceed Limit Level, the exceedance is then confirmed.<br>3. Inform the IEC, the SOR, the DEP and the Contractor.<br>4. Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented.<br>5. If the exceedance is confirmed to be Project related after investigation, increase monitoring frequency to daily.<br>6. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented.<br>7. Arrange meeting with the IEC and the SOR to discuss the remedial actions to be taken.<br>8. Assess effectiveness of the Contractor's remedial actions and keep the IEC, the DEP and the SOR informed of the results.<br>9. If exceedance stops, cease additional monitoring. | 1. Check monitoring data submitted by the ET.<br>2. Check Contractor's working method.<br>3. If the exceedance is confirmed to be Project related after investigation, discuss with the ET and the Contractor on possible remedial measures.<br>4. Advise the SOR on the effectiveness of the proposed remedial measures.<br>5. Supervise implementation of remedial measures. | 1. Confirm receipt of notification of failure in writing.<br>2. Notify the Contractor.<br>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.<br>4. Ensure remedial measures are properly implemented.<br>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.<br>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.<br>3. Implement the agreed proposals.<br>4. Amend proposal if appropriate.<br>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 | 0 | 120 |
| | Limit | 0 | 15 |
| 24-hr TSP | Action | 0 | 12 |
| | 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 (January 2021) | 0 | 0 | 0 |
| Total No. received since Contract commencement | 17 | 1 | 0 |

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 January 2021** [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 | 3205.825 | 0.000 | 336.902 | 889.467 | 1979.479 |
| Jan-2020 | 1.031 | 0.000 | 0.000 | 0.000 | 1.031 |
| Feb-2020 | | | | | |
| Mar-2020 | | | | | |
| Apr-2020 | | | | | |
| May-2020 | | | | | |
| Jun-2020 | | | | | |
| Half Year Sub-total | | | | | |
| Jul-2020 | | | | | |
| Aug-2020 | | | | | |
| Sep-2020 | | | | | |
| Oct-2020 | | | | | |
| Nov-2020 | | | | | |
| Dec-2020 | | | | | |
| Project Total Quantities | 3206.856 | 0.000 | 336.902 | 889.467 | 1980.510 |

| 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 | 9919.11 | 9919.11 | 18.28 | 18.28 | 16.84 | 16.84 | 93.807 | 93.807 | 28.243 |
| Jan-2020 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.071 |
| Feb-2020 | | | | | | | | | |
| Mar-2020 | | | | | | | | | |
| Apr-2020 | | | | | | | | | |
| May-2020 | | | | | | | | | |
| Jun-2020 | | | | | | | | | |
| Half Year Sub-total | | | | | | | | | |
| Jul-2020 | | | | | | | | | |
| Aug-2020 | | | | | | | | | |
| Sep-2020 | | | | | | | | | |
| Oct-2020 | | | | | | | | | |
| Nov-2020 | | | | | | | | | |
| Dec-2020 | | | | | | | | | |
| Project Total Quantities | 9919.11 | 9919.11 | 18.28 | 18.28 | 16.84 | 16.84 | 93.807 | 93.807 | 28.314 |

| 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).