

| Hong Kong- Zhuhai- Macao Bridge Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts) Notifications of Environmental Quality Limits Exceedances | | | | | | |
|---|----------|--------------------|--|---|---------------------------------|-----------------------------------|
| | | | | | Notification No.: 20180903DO_v1 | |
| Date of Notification: 06 September 2018 | | | Date of Investigation Report: 4 October 2018 | | | |
| Works Inspected: Data collected from water sampling works on 3 September 2018 and the results were issued on 5 September 2018 | | | | | | |
| Monitoring Location: Water Quality Monitoring Station | | | | | | |
| Parameter: Dissolved Oxygen (DO)/ Suspended Solid (SS) / Turbidity (TURB) | | | | | | |
| Action & Limit Level (AL & LL) / Measured Level: | | | | | | |
| PARAM | STATION | DEPTH | AL (mg/L) | LL (mg/L) | MEASURED AT MID-EBB TIDE (mg/L) | MEASURED AT MID-FLOOD TIDE (mg/L) |
| DO | IS5 | Surface and Middle | Surface and Middle 5.0 mg/L Bottom 4.7 mg/L | Surface and Middle 4.2 mg/L (except 5 mg/L for FCZ) Bottom 3.6 mg/L | 4.4 | 4.9 |
| DO | IS5 | Bottom | | | 4.0 | 4.1 |
| DO | IS8 | Bottom | | | 4.6 | 5.0 |
| DO | IS(Mf)9 | Bottom | | | 4.6 | --(*) |
| DO | IS10(N) | Surface and Middle | | | 4.6 | 4.9 |
| DO | IS10(N) | Bottom | | | 3.7 | 4.2 |
| DO | IS(Mf)11 | Surface and Middle | | | 4.8 | 4.9 |
| DO | IS(Mf)11 | Bottom | | | 4.2 | 4.3 |
| DO | IS(Mf)16 | Surface and Middle | | | 4.5 | 5.2 |
| DO | IS(Mf)16 | Bottom | | | 4.3 | 4.6 |
| DO | IS17 | Surface and Middle | | | 4.7 | 4.7 |

| | | | | | | |
|----|-----------|--------------------|--|--|-------------------|-------------------|
| DO | IS17 | Bottom | | | 4.6 | 4.7 |
| DO | SR4(N) | Surface and Middle | | | 4.5 | 5.0 |
| DO | SR4(N) | Bottom | | | 4.3 | 4.2 |
| DO | SR5(N) | Surface and Middle | | | 4.7 | 5.0 |
| DO | SR5(N) | Bottom | | | 4.6 | 4.7 |
| DO | SR6 | Surface and Middle | | | 5.0 | <u>4.1</u> |
| DO | SR6 | Bottom | | | 5.4 | 4.0 |
| DO | SR7 | Surface and Middle | | | 4.8 | 5.3 |
| DO | SR10A(N) | Surface and Middle | | | 6.3 | <u>4.1</u> |
| DO | SR10A(N) | Bottom | | | 6.3 | 4.0 |
| DO | SR10B(N2) | Surface and Middle | | | <u>4.7</u> | <u>4.1</u> |
| DO | SR10B(N2) | Bottom | | | 4.1 | 4.1 |

Notes:

AL means Action Level.

LL means Limit Level.

Bold means AL exceedances.

Bold with underline means LL exceedances.

Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4

Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Remark (*): The water depth at station IS(Mf)9 during the sampling time is less than 3 meters. Therefore, only the mid-depth station was monitored.

Possible reason for Action / Limit Level Non-compliance:

On 3 September 2018, 18 AL exceedances of DO at stations IS5, IS8, IS(Mf)9, IS10(N), IS(Mf)11, IS(Mf)16, IS17, SR4(N), SR5(N), SR7 and SR10B(N2) were recorded during mid-ebb tide, while 12 AL exceedances of DO at stations IS5, IS10(N), IS(Mf)11, IS(Mf)16, IS17, SR4(N), SR6, SR10(A) and SR10B(N2) were recorded during mid-flood tide. Moreover, one LL exceedance of DO at station SR10B(N2) was recorded during mid-ebb tide and three LL exceedances of DO at stations SR6, SR10A(N) and SR10B(N2) were recorded during mid-flood tide.

Contract No.: HY/2013/01

As confirmed by the Contractor of Contract No.: HY/2013/01, there was no marine transportation and marine-based work on 3 September 2018. No site runoff within the Contract site has been observed. All wastewater generated from construction site which potentially contain organic matter was collected by registered collector. No organic matter discharge/ accumulation at active works areas on 3 September 2018. Therefore, it is concluded that the exceedances were not related to the Contract.

Contract No.: HY/2013/02

As confirmed with RSS, it is concluded that the exceedances were not related to the Contract due to completion of marine works on 10 September 2017. ET (Contract No. HY/2013/02) confirmed that no any organic matter discharge/accumulation at active works areas under Contract HY/2013/02 was observed on the date of exceedance with respect to the exceedance in DO.

Contract No.: HY/2013/03

As confirmed with RSS of Contract No. HY/2013/03, there was no marine transportation on the date of exceedance. As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, no organic matter discharge or accumulation at active works areas on 3 September 2018 under Contract No. HY/2013/03. The marine-based works in Box Culvert B had been completed. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused exceedance recorded at the concerned WQM station on 3 September 2018.

During weekly site audit on 23, 30 August 2018 and 6 September 2018, ET confirmed the Contractor had provided workable and effective water quality mitigation measures.

Contract No.: HY/2013/04

According to the Contractor of HY/2013/04, all marine-based segment deliveries were completed in January 2018 and no marine-based works were conducted under the contract on 3 September 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 3 September 2018.

HY/2013/04 site shoreline interfacing with open waters was inspected during ET's regular weekly site inspections on 29 August 2018 (between 14:45 and 14:55) and 6 September 2018 (between 10:20 and 10:25). There were no observations referring to water quality mitigation measures associated with that shoreline.

It was concluded that the exceedance was not due to HY/2013/04.

Contract No.: HY/2014/05

There was no marine transportation and marine-based work under this contract. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

Actions taken/ to be taken:

Contract No.: HY/2013/01

Actions were taken under action plan:

1. in situ measurement was repeated to confirm findings;
2. After considering the above-mentioned investigation results, it appears that it was unlikely that the dissolved oxygen exceedance was attributed to active construction activities of this Contract;
3. EPD, IEC, Contractor and ER were informed via email;
4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
5. Since it is considered that the dissolved oxygen exceedances are unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.

However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Contract No.: HY/2013/02

Although the exceedance was considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2013/03

During weekly site audit on 23, 30 August 2018 and 6 September 2018, ET (Contract No. HY/2013/03) confirmed the Contractor had provided workable and effective water quality mitigation measures.

Contract No.: HY/2013/04

Although the exceedance was considered not due to HY/2013/04, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2014/05

Although the exceedance was considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Checked by: Keith Chau Title: Environmental Team Leader
(Contract No. HY/2013/01)

Signature:  Date: 4 October 2018

Copied to : EPD, Contractor, Engineer Representative and IEC/ENPO

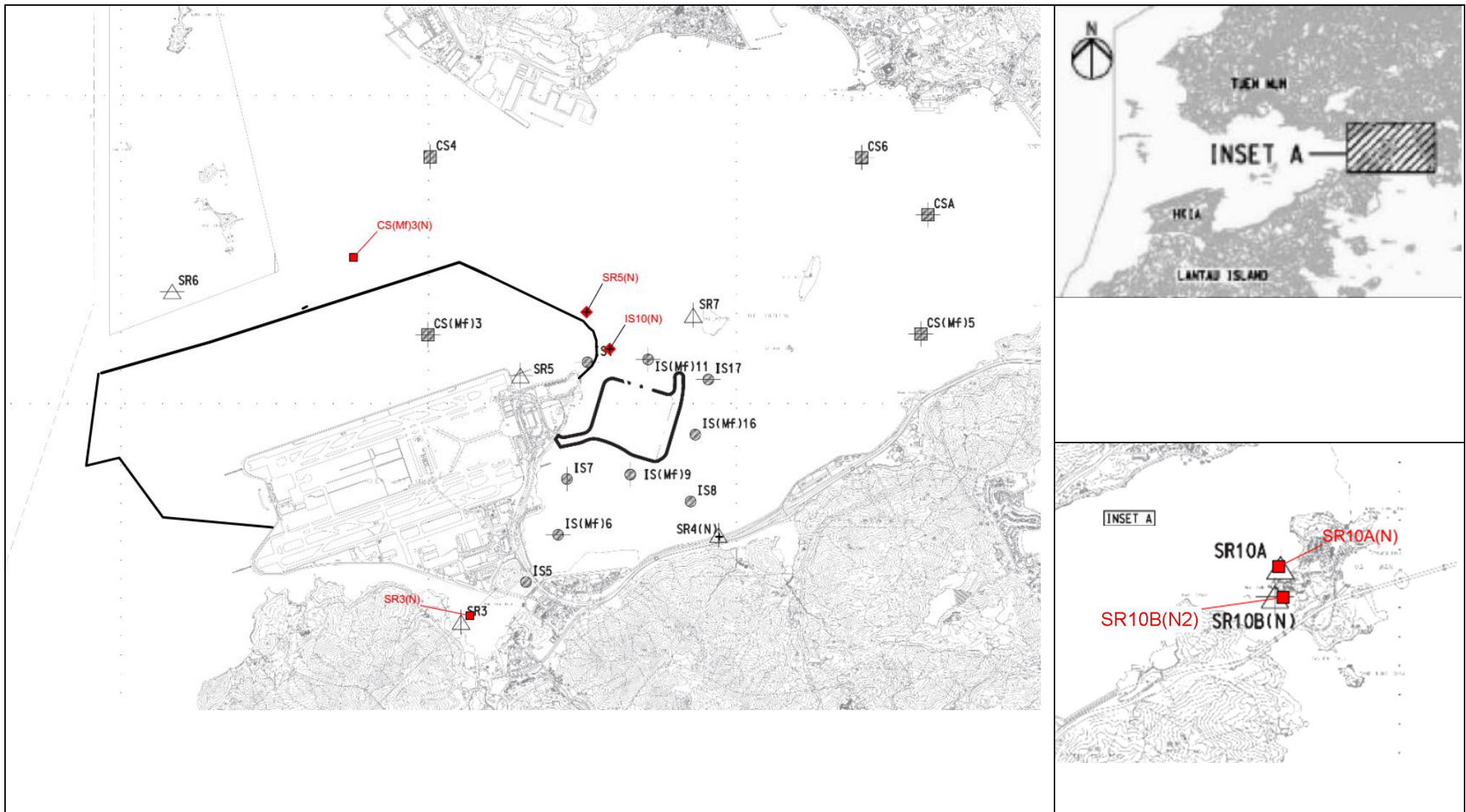


Figure 1: Location Plan

| Hong Kong- Zhuhai- Macao Bridge Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts) Notifications of Environmental Quality Limits Exceedances | | | | | | |
|---|----------|--------------------|--|---|---------------------------------|-----------------------------------|
| | | | | | Notification No.: 20180905DO_v1 | |
| Date of Notification: 11 September 2018 | | | Date of Investigation Report: 5 October 2018 | | | |
| Works Inspected: Data collected from water sampling works on 5 September 2018 and the results were issued on 10 September 2018 | | | | | | |
| Monitoring Location: Water Quality Monitoring Station | | | | | | |
| Parameter: Dissolved Oxygen (DO)/ Suspended Solid (SS) / Turbidity (TURB) | | | | | | |
| Action & Limit Level (AL & LL) / Measured Level: | | | | | | |
| PARAM | STATION | DEPTH | AL (mg/L) | LL (mg/L) | MEASURED AT MID-EBB TIDE (mg/L) | MEASURED AT MID-FLOOD TIDE (mg/L) |
| DO | IS5 | Surface and Middle | Surface and Middle 5.0 mg/L Bottom 4.7 mg/L | Surface and Middle 4.2 mg/L (except 5 mg/L for FCZ) Bottom 3.6 mg/L | 4.6 | 6.4 |
| DO | IS5 | Bottom | | | <u>3.0</u> | 4.0 |
| DO | IS(Mf)9 | Bottom | | | 4.6 | --(*) |
| DO | IS10(N) | Surface and Middle | | | 4.4 | 4.8 |
| DO | IS10(N) | Bottom | | | 3.9 | 3.7 |
| DO | IS(Mf)11 | Surface and Middle | | | 4.5 | 5.7 |
| DO | IS(Mf)11 | Bottom | | | 4.0 | 3.6 |
| DO | IS(Mf)16 | Bottom | | | 3.8 | 5.5 |
| DO | IS17 | Surface and Middle | | | 4.7 | 6.5 |
| DO | IS17 | Bottom | | | <u>3.1</u> | 4.7 |
| DO | SR4(N) | Surface and Middle | | | 4.9 | 7.0 |

| | | | | | | |
|----|-----------|--------------------|--|--|-------------------|-------------------|
| DO | SR4(N) | Bottom | | | <u>3.0</u> | 6.3 |
| DO | SR5(N) | Surface and Middle | | | 4.6 | 5.4 |
| DO | SR5(N) | Bottom | | | 3.7 | 4.0 |
| DO | SR6 | Surface and Middle | | | 5.7 | 4.5 |
| DO | SR10A(N) | Surface and Middle | | | 5.4 | <u>4.3</u> |
| DO | SR10A(N) | Bottom | | | 3.9 | 3.6 |
| DO | SR10B(N2) | Surface and Middle | | | 5.2 | <u>4.6</u> |
| DO | SR10B(N2) | Bottom | | | 4.6 | 4.4 |

Notes:

AL means Action Level.

LL means Limit Level.

Bold means AL exceedances.

Bold with underline means LL exceedances.

Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4

Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Remark (*): The water depth at station IS(Mf)9 during the sampling time is less than 3 meters. Therefore, only the mid-depth station was monitored.

Possible reason for Action / Limit Level Non-compliance:

On 5 September 2018, 13 AL exceedances of DO at stations IS5, IS(Mf)9, IS10(N), IS(Mf)11, IS(Mf)16, IS17, SR4(N), SR5(N), SR10A(N) and SR10B(N2) were recorded during mid-ebb tide, while 8 AL exceedances of DO at stations IS5, IS10(N), IS(Mf)11, SR5(N), SR6, SR10A(N) and SR10B(N2) were recorded during mid-flood tide. Moreover, three LL exceedance of DO at stations IS5, IS17 and SR4(N) were recorded during mid-ebb tide and two LL exceedances of DO at stations SR10A(N) and SR10B(N2) were recorded during mid-flood tide.

Contract No.: HY/2013/01

As confirmed by the Contractor of Contract No.: HY/2013/01, there was no marine transportation and marine-based work on 5 September 2018. No site runoff within the Contract site has been observed. All wastewater generated from construction site which potentially contain organic matter was collected by registered collector. No organic matter discharge/ accumulation at active works areas on 5 September 2018. Therefore, it is concluded that the exceedances were not related to the Contract.

Contract No.: HY/2013/02

As confirmed with RSS, it is concluded that the exceedances were not related to the Contract due to completion of marine works on 10 September 2017. ET (Contract No. HY/2013/02) confirmed that no any organic matter discharge/accumulation at active works areas under Contract HY/2013/02 was observed on the date of exceedance with respect to the exceedance in DO.

Contract No.: HY/2013/03

During weekly site audit on 23, 30 August 2018 and 6 September 2018, ET of Contract No. HY/2013/03 confirmed the Contractor had provided workable and effective water quality mitigation measures. Regarding the exceedance on 5 September 2018, there was no marine transportation on the date of exceedance. As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, no organic matter discharge or accumulation at active works areas on 5 September 2018 under Contract No. HY/2013/03. The marine-based works in Box Culvert B had been completed. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused exceedance recorded at the concerned WQM station on 5 September 2018.

Contract No.: HY/2013/04

According to the Contractor of HY/2013/04, all marine-based segment deliveries were completed in January 2018 and no marine-based works were conducted under the contract on 5 September 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 5 September 2018.

HY/2013/04 site shoreline interfacing with open waters was inspected during ET's regular weekly site inspections on 29 August 2018 (between 14:45 and 14:55) and 6 September 2018 (between 10:20 and 10:25). There were no observations referring to water quality mitigation measures associated with that shoreline.

It was concluded that the exceedances were not due to HY/2013/04.

Contract No.: HY/2014/05

There was no marine transportation and marine-based work under this contract. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

Actions taken/ to be taken:

Contract No.: HY/2013/01

Actions were taken under action plan:

1. in situ measurement was repeated to confirm findings;
 2. After considering the above-mentioned investigation results, it appears that it was unlikely that the dissolved oxygen exceedance was attributed to active construction activities of this Contract;
 3. EPD, IEC, Contractor and ER were informed via email;
 4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
 5. Since it is considered that the dissolved oxygen exceedances are unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.
- However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Contract No.: HY/2013/02

Although the exceedance was considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2013/03


During weekly site audit on 23, 30 August 2018 and 6 September 2018, ET (Contract No. HY/2013/03) confirmed the Contractor had provided workable and effective water quality mitigation measures.

Contract No.: HY/2013/04

Although the exceedance was considered not due to HY/2013/04, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2014/05

Although the exceedance was considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

| | | | |
|-------------|--|--------|--|
| Checked by: | <u>Keith Chau</u> | Title: | <u>Environmental Team Leader (Contract No. HY/2013/01)</u> |
| Signature: | <u></u> | Date: | <u>5 October 2018</u> |
| Copied to | : EPD, Contractor, Engineer Representative and IEC/ENPO | | |

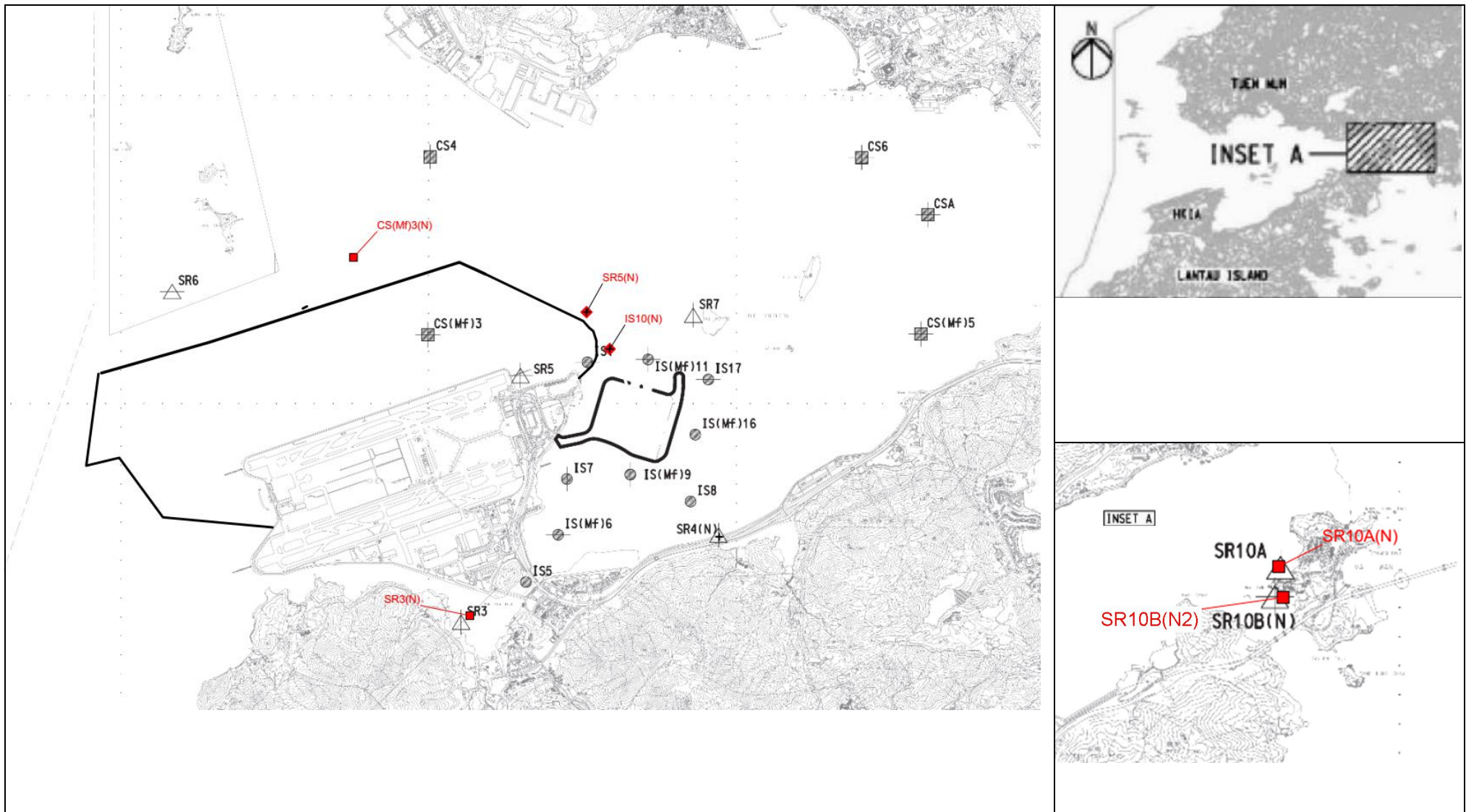


Figure 1: Location Plan

| Hong Kong- Zhuhai- Macao Bridge Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts) Notifications of Environmental Quality Limits Exceedances | | | | | | |
|---|----------|--------------------|--|---|---------------------------------|-----------------------------------|
| | | | | | Notification No.: 20180907DO_v1 | |
| Date of Notification: 11 September 2018 | | | | Date of Investigation Report: 5 October 2018 | | |
| Works Inspected: Data collected from water sampling works on 7 September 2018 and the results were issued on 11 September 2018 | | | | | | |
| Monitoring Location: Water Quality Monitoring Station | | | | | | |
| Parameter: Dissolved Oxygen (DO)/ Suspended Solid (SS) / Turbidity (TURB) | | | | | | |
| Action & Limit Level (AL & LL) / Measured Level: | | | | | | |
| PARAM | STATION | DEPTH | AL (mg/L) | LL (mg/L) | MEASURED AT MID-EBB TIDE (mg/L) | MEASURED AT MID-FLOOD TIDE (mg/L) |
| DO | IS5 | Surface and Middle | Surface and Middle 5.0 mg/L Bottom 4.7 mg/L | Surface and Middle 4.2 mg/L (except 5 mg/L for FCZ) Bottom 3.6 mg/L | 4.5 | 7.9 |
| DO | IS5 | Bottom | | | 3.6 | 5.6 |
| DO | IS8 | Bottom | | | 4.0 | --(*) |
| DO | IS10(N) | Surface and Middle | | | 4.9 | 5.9 |
| DO | IS10(N) | Bottom | | | 4.0 | 4.6 |
| DO | IS(Mf)11 | Surface and Middle | | | 4.8 | 5.6 |
| DO | IS(Mf)11 | Bottom | | | 4.5 | 4.4 |
| DO | IS(Mf)16 | Bottom | | | 4.1 | 5.0 |
| DO | IS17 | Bottom | | | 4.8 | 4.2 |
| DO | SR3(N) | Bottom | | | 4.0 | 6.7 |
| DO | SR4(N) | Surface and Middle | | | 4.4 | 7.1 |

| | | | | | | |
|----|----------|--------------------|--|--|------------|-------------------|
| DO | SR4(N) | Bottom | | | 4.0 | 7.2 |
| DO | SR5(N) | Surface and Middle | | | 4.6 | 6.5 |
| DO | SR5(N) | Bottom | | | 4.2 | 5.3 |
| DO | SR6 | Surface and Middle | | | 4.5 | 4.6 |
| DO | SR6 | Bottom | | | 4.2 | 4.2 |
| DO | SR10A(N) | Surface and Middle | | | 5.7 | <u>4.6</u> |
| DO | SR10A(N) | Bottom | | | 5.5 | 4.4 |

Notes:

AL means Action Level.

LL means Limit Level.

Bold means AL exceedances.

Bold with underline means LL exceedances.

Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4

Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Remark (*): The water depth at station IS8 during the sampling time is less than 3 meters. Therefore, only the mid-depth station was monitored.

Possible reason for Action / Limit Level Non-compliance:

On 7 September 2018, 15 AL exceedances of DO at stations IS5, IS8, IS10(N), IS(Mf)11, IS(Mf)16, SR3(N), SR4(N), SR5(N) and SR6 were recorded during mid-ebb tide, while 6 AL exceedances of DO at stations IS10(N), IS(Mf)11, IS17, SR6 and SR10A(N) were recorded during mid-flood tide. Moreover, one LL exceedance of DO at station SR10A(N) was recorded during mid-flood tide.

Contract No.: HY/2013/01

As confirmed by the Contractor of Contract No.: HY/2013/01, there was no marine transportation and marine-based work on 7 September 2018. No site runoff within the Contract site has been observed. All wastewater generated from construction site which potentially contain organic matter was collected by registered collector. No organic matter discharge/ accumulation at active works areas on 7 September 2018. Therefore, it is concluded that the exceedances were not related to the Contract.

Contract No.: HY/2013/02

As confirmed with RSS, it is concluded that the exceedances were not related to the Contract due to completion of marine works on 10 September 2017. ET (Contract No. HY/2013/02) confirmed that no any organic matter discharge/accumulation at active works areas under Contract HY/2013/02 was observed on the date of exceedance with respect to the exceedance in DO.

Contract No.: HY/2013/03

During weekly site audit on 6 and 14 September 2018, ET of Contract No. HY/2013/03 confirmed the Contractor had provided workable and effective water quality mitigation measures. The ET of Contract No. HY/2013/03 concluded that the captioned exceedance was not related to the construction site activities of the contract. Regarding the exceedance on 7 September 2018, there was no marine transportation on the date of exceedance. As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, no organic matter discharge or accumulation at active works areas on 7 September under Contract No. HY/2013/03. The marine-based works in Box Culvert B had been completed. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused exceedance recorded at the concerned WQM station on 7 September 2018.

Contract No.: HY/2013/04

According to the Contractor of HY/2013/04, all marine-based segment deliveries were completed in January 2018 and no marine-based works were conducted under the contract on 7 September 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 7 September 2018.

It is noted that, on the same day, no exceedance was recorded at IS(Mf)9 which is the nearest monitoring location to HY/2013/04 loading and unloading point and HY/2013/04 shoreline interfacing with open waters.

HY/2013/04 site shoreline interfacing with open waters was inspected during ET's regular weekly site inspection on 6 September 2018 (between 10:20 and 10:25). There were no observations referring to water quality mitigation measures associated with that shoreline.

It was concluded that the exceedances were not due to HY/2013/04.

Contract No.: HY/2014/05

There was no marine transportation and marine-based work under this contract. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

Actions taken/ to be taken:

Contract No.: HY/2013/01

Actions were taken under action plan:

1. in situ measurement was repeated to confirm findings;
 2. After considering the above-mentioned investigation results, it appears that it was unlikely that the dissolved oxygen exceedance was attributed to active construction activities of this Contract;
 3. EPD, IEC, Contractor and ER were informed via email;
 4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
 5. Since it is considered that the dissolved oxygen exceedances are unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.
- However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Contract No.: HY/2013/02

Although the exceedance was considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2013/03

During weekly site audit on 6 and 14 September 2018, ET of Contract No. HY/2013/03 confirmed the Contractor had provided workable and effective water quality mitigation measures.

Contract No.: HY/2013/04

Although the exceedance was considered not due to HY/2013/04, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2014/05

Although the exceedance was considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Checked by: Keith Chau Title: Environmental Team Leader
(Contract No. HY/2013/01)

Signature:  Date: 5 October 2018

Copied to : EPD, Contractor, Engineer Representative and IEC/ENPO

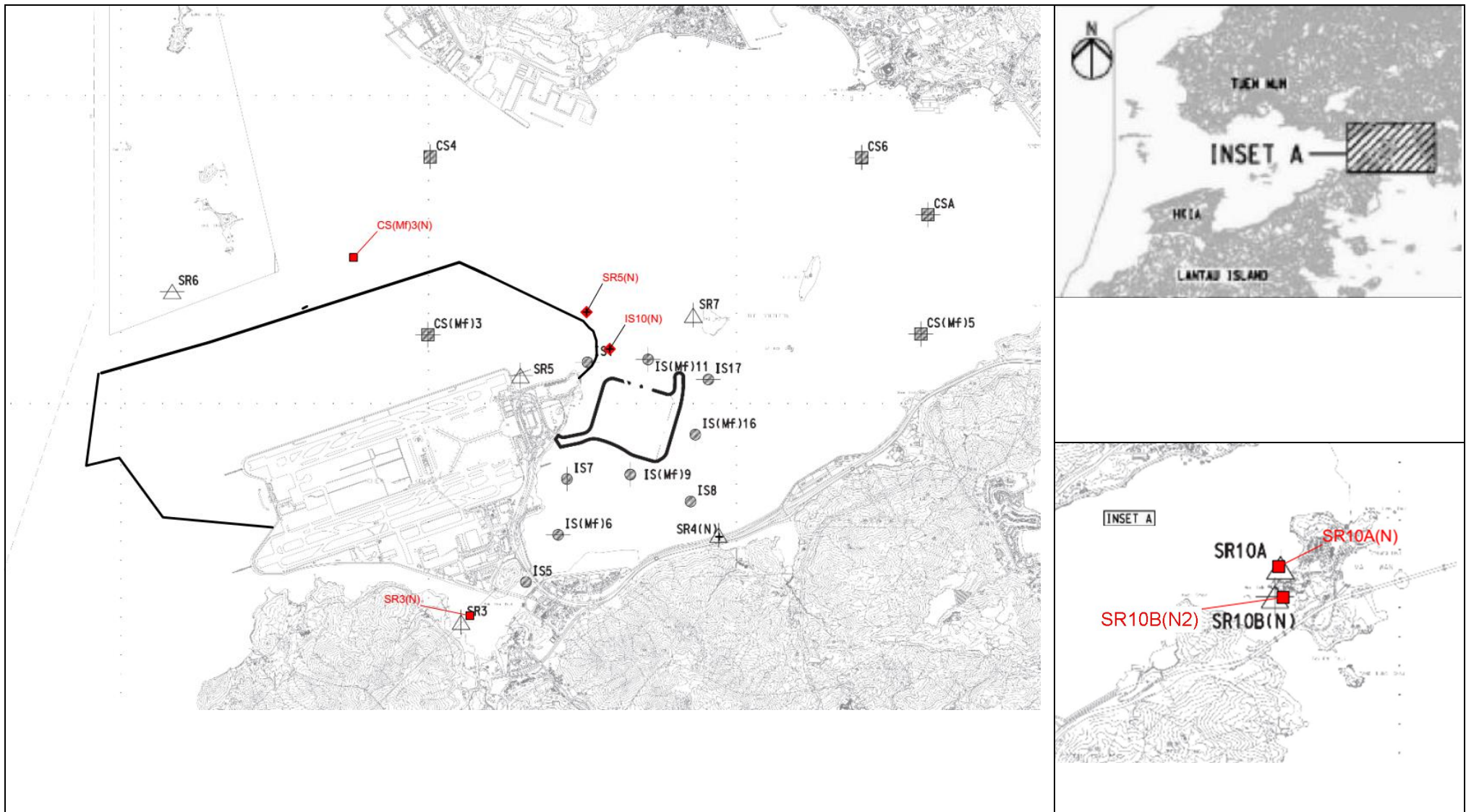


Figure 1: Location Plan

| Hong Kong- Zhuhai- Macao Bridge Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts) Notifications of Environmental Quality Limits Exceedances | | | | | | |
|--|----------|--------------------|--|---|---------------------------------|-----------------------------------|
| | | | | | Notification No.: 20180910DO_v1 | |
| Date of Notification: 20 September 2018 | | | Date of Investigation Report: 8 October 2018 | | | |
| Works Inspected: Data collected from water sampling works on 10 September 2018. Results for in-situ data were issued on 12 September 2018 and the results for SS data were issued on 19 September 2018. | | | | | | |
| Monitoring Location: Water Quality Monitoring Station | | | | | | |
| Parameter: Dissolved Oxygen (DO)/ Suspended Solid (SS) / Turbidity (TURB) | | | | | | |
| Action & Limit Level (AL & LL) / Measured Level: | | | | | | |
| PARAM | STATION | DEPTH | AL (mg/L) | LL (mg/L) | MEASURED AT MID-EBB TIDE (mg/L) | MEASURED AT MID-FLOOD TIDE (mg/L) |
| DO | IS5 | Surface and Middle | Surface and Middle 5.0 mg/L Bottom 4.7 mg/L | Surface and Middle 4.2 mg/L (except 5 mg/L for FCZ) Bottom 3.6 mg/L | <u>4.0</u> | 4.4 |
| DO | IS5 | Bottom | | | 3.8 | 3.9 |
| DO | IS(Mf)6 | Surface and Middle | | | 4.4 | 4.3 |
| DO | IS7 | Surface and Middle | | | 4.6 | 4.3 |
| DO | IS8 | Surface and Middle | | | 4.6 | 4.2 |
| DO | IS8 | Bottom | | | 4.5 | 4.1 |
| DO | IS(Mf)9 | Surface and Middle | | | 4.7 | <u>4.1</u> |
| DO | IS(Mf)9 | Bottom | | | 4.6 | 4.1 |
| DO | IS10(N) | Surface and Middle | | | 4.2 | 4.3 |
| DO | IS10(N) | Bottom | | | 4.0 | 4.0 |
| DO | IS(Mf)11 | Surface and Middle | | | 4.2 | 4.2 |

| | | | | | | |
|----|----------|--------------------|--|--|-------------------|-------------------|
| DO | IS(Mf)11 | Bottom | | | 4.0 | 3.9 |
| DO | IS(Mf)16 | Surface and Middle | | | <u>4.1</u> | 4.2 |
| DO | IS(Mf)16 | Bottom | | | 4.1 | 4.1 |
| DO | IS17 | Surface and Middle | | | <u>4.0</u> | <u>4.1</u> |
| DO | IS17 | Bottom | | | 4.0 | 3.9 |
| DO | SR3(N) | Surface and Middle | | | 4.3 | 4.3 |
| DO | SR3(N) | Bottom | | | 4.3 | 4.3 |
| DO | SR4(N) | Surface and Middle | | | 4.3 | 4.2 |
| DO | SR4(N) | Bottom | | | 4.4 | 4.1 |
| DO | SR5(N) | Surface and Middle | | | 4.2 | 4.2 |
| DO | SR5(N) | Bottom | | | 4.1 | 4.0 |
| DO | SR6 | Surface and Middle | | | <u>3.7</u> | <u>3.9</u> |
| DO | SR6 | Bottom | | | 3.6 | 4.0 |
| DO | SR7 | Surface and Middle | | | 4.4 | 4.2 |
| DO | SR7 | Bottom | | | 4.0 | 4.2 |

| | | | | | | |
|---|-----------|--------------------|--|--|-------------------|-------------------|
| DO | SR10A(N) | Surface and Middle | | | <u>4.2</u> | <u>4.0</u> |
| DO | SR10A(N) | Bottom | | | 4.2 | 3.7 |
| DO | SR10B(N2) | Surface and Middle | | | <u>4.0</u> | <u>3.5</u> |
| DO | SR10B(N2) | Bottom | | | 4.1 | <u>3.5</u> |
| SS | SR6 | Depth Average | 23.5 and 120% (i.e. 11.2 for mid-ebb/10.5 for mid-flood) of upstream control station's SS at the same tide of the same day | 34.4 and 130% (i.e. 12.1 for mid-ebb/11.4 for mid-flood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes | 11.3 | 28.6 |
| <p>Notes: AL means Action Level. LL means Limit Level. Bold means AL exceedances. Bold with underline means LL exceedances. Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4 Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA</p> | | | | | | |

Possible reason for Action / Limit Level Non-compliance:

On 10 September 2018, 24 AL exceedances of DO at stations IS5, IS(Mf)6, IS7, IS8, IS(Mf)9, IS10(N), IS(Mf)11, IS(Mf)16, IS17, SR3(N), SR4(N), SR5(N), SR6, SR7, SR10A(N) and SR10B(N2) were recorded during mid-ebb tide, while 24 AL exceedances of DO at stations IS5, IS(Mf)6, IS7, IS8, IS(Mf)9, IS10(N), IS(Mf)11, IS(Mf)16, IS17, SR3(N), SR4(N), SR5(N), SR6, SR7 and SR10A(N) were recorded during mid-flood tide. Moreover, six LL exceedances of DO at stations IS5, IS(Mf)16, IS17, SR6, SR10A(N) and SR10B(N2) were recorded during mid-ebb tide and six LL exceedance of DO at stations IS(Mf)9, IS17, SR6, SR10A(N) and SR10B(N2) were recorded during mid-flood tide. And one AL exceedance of SS at station SR6 was recorded during mid-flood tide.

Contract No.: HY/2013/01

As confirmed by the Contractor of Contract No.: HY/2013/01, there was no marine transportation and marine-based work on 10 September 2018. No site runoff within the Contract site has been observed. All wastewater generated from construction site which potentially contain organic matter was collected by registered collector. No organic matter discharge/ accumulation at active works areas on 10 September 2018. Therefore, it is concluded that the exceedances were not related to the Contract.

Contract No.: HY/2013/02

As confirmed with RSS, it is concluded that the exceedances were not related to the Contract due to completion of marine works on 10 September 2017. ET (Contract No. HY/2013/02) confirmed that no any organic matter discharge/accumulation at active works areas under Contract HY/2013/02 was observed on the date of exceedance with respect to the exceedance in DO.

Contract No.: HY/2013/03

During weekly site audit on 6, 14 and 20 September 2018, ET of Contract No. HY/2013/03 confirmed the Contractor had provided workable and effective water quality mitigation measures. The ET of Contract No. HY/2013/03 concluded that the captioned exceedance was not related to the construction site activities of the contract. Regarding the exceedance on 10 September 2018, there was no marine transportation on the date of exceedance. As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, all surplus filling materials transported from Contract No. HY/2013/03 to other projects by marine vessels have been completed with the last batch delivered on 24 March 2018, no organic matter discharge or accumulation at active works areas on 10 September 2018 under Contract No. HY/2013/03. The marine-based works in Box Culvert B had been completed. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused exceedance recorded at the concerned WQM station on 10 September 2018.

Contract No.: HY/2013/04

According to the Contractor of HY/2013/04, all marine-based segment deliveries were completed in January 2018 and no marine-based works were conducted under the contract on 10 September 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 10 September 2018.

HY/2013/04 site shoreline interfacing with open waters was inspected during ET's regular weekly site inspection on 6 September 2018 (between 10:20 and 10:25). There were no observations referring to water quality mitigation measures associated with that shoreline.

Subsequent to the subject exceedances, HY/2013/04 site shoreline interfacing with open waters was inspected during ET's regular weekly site inspection on 12 September 2018 (between 14:30 and 14:45). There were no observations referring to water quality mitigation measures associated with that shoreline.

It was concluded that the exceedances were not due to HY/2013/04.

Contract No.: HY/2014/05

There was no marine transportation and marine-based work under this contract. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

Actions taken/ to be taken:

Contract No.: HY/2013/01

Actions were taken under action plan:

1. in situ measurement was repeated to confirm findings;
 2. After considering the above-mentioned investigation results, it appears that it was unlikely that the dissolved oxygen and suspended solid exceedances were attributed to active construction activities of this Contract;
 3. EPD, IEC, Contractor and ER were informed via email;
 4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
 5. Since it is considered that the dissolved oxygen and suspended solid exceedances are unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.
- However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Contract No.: HY/2013/02

Although the exceedance was considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2013/03

During weekly site audit on 6, 14 and 20 September 2018, ET of Contract No. HY/2013/03 confirmed the Contractor had provided workable and effective water quality mitigation measures.

Contract No.: HY/2013/04

Although the exceedance was considered not due to HY/2013/04, the Contractor is reminded to implemental necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2014/05

Although the exceedance was considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Checked by: Keith Chau Title: Environmental Team Leader
(Contract No. HY/2013/01)

Signature:  Date: 8 October 2018

Copied to : EPD, Contractor, Engineer Representative and IEC/ENPO

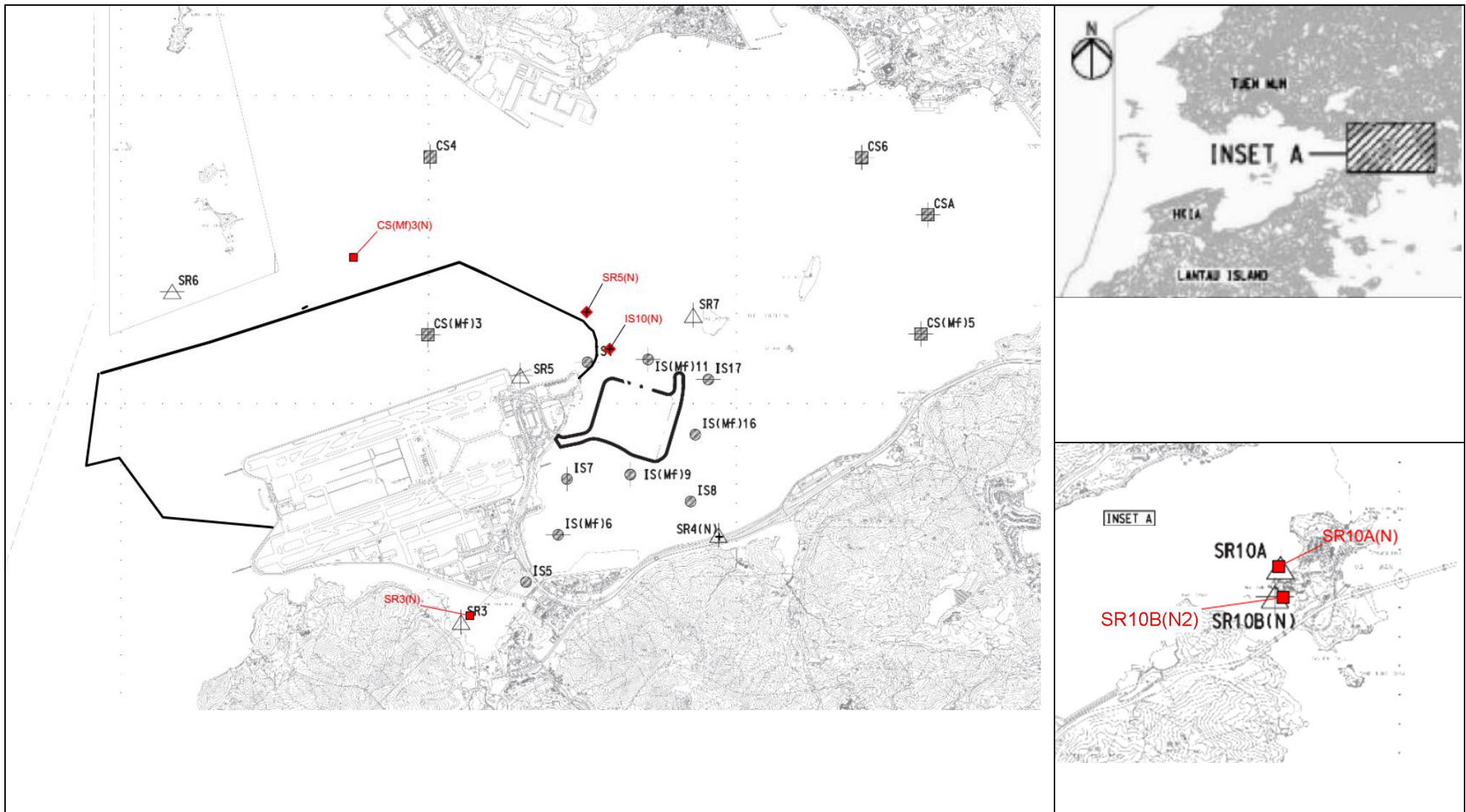


Figure 1: Location Plan

| Hong Kong- Zhuhai- Macao Bridge Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts) Notifications of Environmental Quality Limits Exceedances Notification No.: 20180912DO_SS | | | | | | |
|--|----------|--------------------|--|---|---------------------------------|-----------------------------------|
| Date of Notification: 21 September 2018 | | | | Date of Investigation Report: 28 September 2018 | | |
| Works Inspected: Data collected from water sampling works on 12 September 2018. Results for in-situ data were issued on 14 September 2018 and the results for SS data were issued on 21 September 2018. | | | | | | |
| Monitoring Location: Water Quality Monitoring Station | | | | | | |
| Parameter: Dissolved Oxygen (DO)/ Suspended Solid (SS) / Turbidity (TURB) | | | | | | |
| Action & Limit Level (AL & LL) / Measured Level: | | | | | | |
| PARAM | STATION | DEPTH | AL (mg/L) | LL (mg/L) | MEASURED AT MID-EBB TIDE (mg/L) | MEASURED AT MID-FLOOD TIDE (mg/L) |
| DO | IS5 | Surface and Middle | Surface and Middle 5.0 mg/L Bottom 4.7 mg/L | Surface and Middle 4.2 mg/L (except 5 mg/L for FCZ) Bottom 3.6 mg/L | --(*) | 4.5 |
| DO | IS(Mf)6 | Surface and Middle | | | --(*) | 4.7 |
| DO | IS7 | Surface and Middle | | | --(*) | 4.7 |
| DO | IS8 | Surface and Middle | | | --(*) | 4.3 |
| DO | IS8 | Bottom | | | --(*) | 4.5 |
| DO | IS(Mf)9 | Surface and Middle | | | --(*) | 4.4 |
| DO | IS(Mf)9 | Bottom | | | --(*) | 4.5 |
| DO | IS10(N) | Surface and Middle | | | --(*) | 4.4 |
| DO | IS10(N) | Bottom | | | --(*) | 4.3 |
| DO | IS(Mf)11 | Surface and Middle | | | --(*) | 4.5 |
| DO | IS(Mf)11 | Bottom | | | --(*) | 4.5 |

| | | | | | | |
|----|----------|--------------------|--|--|-------|-------------------|
| DO | IS(Mf)16 | Surface and Middle | | | --(*) | 4.3 |
| DO | IS(Mf)16 | Bottom | | | --(*) | 4.4 |
| DO | IS17 | Surface and Middle | | | --(*) | 4.2 |
| DO | IS17 | Bottom | | | --(*) | 4.2 |
| DO | SR3(N) | Surface and Middle | | | --(*) | 4.4 |
| DO | SR3(N) | Bottom | | | --(*) | 4.5 |
| DO | SR4(N) | Surface and Middle | | | --(*) | 4.4 |
| DO | SR4(N) | Bottom | | | --(*) | 4.6 |
| DO | SR5(N) | Surface and Middle | | | --(*) | 4.4 |
| DO | SR5(N) | Bottom | | | --(*) | 4.5 |
| DO | SR6 | Surface and Middle | | | --(*) | 4.5 |
| DO | SR6 | Bottom | | | --(*) | 4.6 |
| DO | SR7 | Surface and Middle | | | --(*) | 4.4 |
| DO | SR7 | Bottom | | | --(*) | 4.4 |
| DO | SR10A(N) | Surface and Middle | | | --(*) | <u>4.2</u> |

| | | | | | | |
|----|-----------|--------------------|---|---|-------|-------------------|
| DO | SR10A(N) | Bottom | | | --(*) | 4.3 |
| DO | SR10B(N2) | Surface and Middle | | | --(*) | <u>3.9</u> |
| DO | SR10B(N2) | Bottom | | | --(*) | 3.9 |
| SS | SR6 | Depth Average | 23.5 and 120% (i.e. 12.7 for mid-flood) of upstream control station's SS at the same tide of the same day | 34.4 and 130% (i.e. 13.8 for mid-flood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes | --(*) | 24.8 |

Notes:

AL means Action Level.

LL means Limit Level.

Bold means AL exceedances.

Bold with underline means LL exceedances.

Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4

Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Remark (*): Water sampling had been cancelled (mid-ebb tide) due to the Strong Wind Signal No.3.

Possible reason for Action / Limit Level Non-compliance:

On 12 September 2018, 27 AL exceedances of DO at stations IS5, IS(Mf)6, IS7, IS8, IS(Mf)9, IS10(N), IS(Mf)11, IS(Mf)16, IS17, SR3(N), SR4(N), SR5(N), SR6, SR7, SR10A(N) and SR10B(N2) were recorded during mid-flood tide. Moreover, two LL exceedances of DO at stations SR10A(N) and SR10B(N2) were recorded during mid-flood tide. And one AL exceedance of SS at station SR6 was recorded during mid-flood tide.

Contract No.: HY/2013/01

As confirmed by the Contractor of Contract No.: HY/2013/01, there was no marine transportation and marine-based work on 12 September 2018. No site runoff within the Contract site has been observed. All wastewater generated from construction site which potentially contain organic matter was collected by registered collector. No organic matter discharge/ accumulation at active works areas on 12 September 2018. Therefore, it is concluded that the exceedances were not related to the Contract.

Contract No.: HY/2013/02

As confirmed with RSS, it is concluded that the exceedances were not related to the Contract due to completion of marine works on 10 September 2017. ET (Contract No. HY/2013/02) confirmed that no any organic matter discharge/accumulation at active works areas under Contract HY/2013/02 was observed on the date of exceedance with respect to the exceedance in DO.

Contract No.: HY/2013/03

During weekly site audit on 6 and 14 September 2018, ET of Contract No. HY/2013/03 confirmed the Contractor had provided workable and effective water quality mitigation measures. The ET of Contract No. HY/2013/03 concluded that the captioned exceedance was not related to the construction site activities of the contract. Regarding the exceedance on 12 September 2018, there was no marine transportation on the date of exceedance. As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, all surplus filling materials transported from Contract No. HY/2013/03 to other projects by marine vessels have been completed with the last batch delivered on 24 March 2018, no organic matter discharge or accumulation at active works areas on 12 September 2018 under Contract No. HY/2013/03. The marine-based works in Box Culvert B had been completed. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused exceedance recorded at the concerned WQM station on 12 September 2018.

Contract No.: HY/2013/04

According to the Contractor of HY/2013/04, all marine-based segment deliveries were completed in January 2018 and no marine-based works were conducted under the contract on 12 September 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 12 September 2018.

HY/2013/04 site shoreline interfacing with open waters was inspected during ET's regular weekly site inspection on 12 September 2018 (between 14:30 and 14:45). There were no observations referring to water quality mitigation measures associated with that shoreline.

It was concluded that the exceedances were not due to HY/2013/04.

Contract No.: HY/2014/05

There was no marine transportation and marine-based work under this contract. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

Actions taken/ to be taken:

Contract No.: HY/2013/01

Actions were taken under action plan:

1. in situ measurement was repeated to confirm findings;
 2. After considering the above-mentioned investigation results, it appears that it was unlikely that the dissolved oxygen and suspended solid exceedances were attributed to active construction activities of this Contract;
 3. EPD, IEC, Contractor and ER were informed via email;
 4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
 5. Since it is considered that the dissolved oxygen and suspended solid exceedances are unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.
- However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Contract No.: HY/2013/02

Although the exceedance was considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2013/03

During weekly site audit on 6 and 14 September 2018, ET confirmed the Contractor had provided workable and effective water quality mitigation measures.

Contract No.: HY/2013/04

Although the exceedance was considered not due to HY/2013/04, the Contractor is reminded to implemental necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2014/05

Although the exceedance was considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Checked by: Keith Chau Title: Environmental Team Leader
(Contract No. HY/2013/01)

Signature:  Date: 28 September 2018

Copied to : EPD, Contractor, Engineer Representative and IEC/ENPO

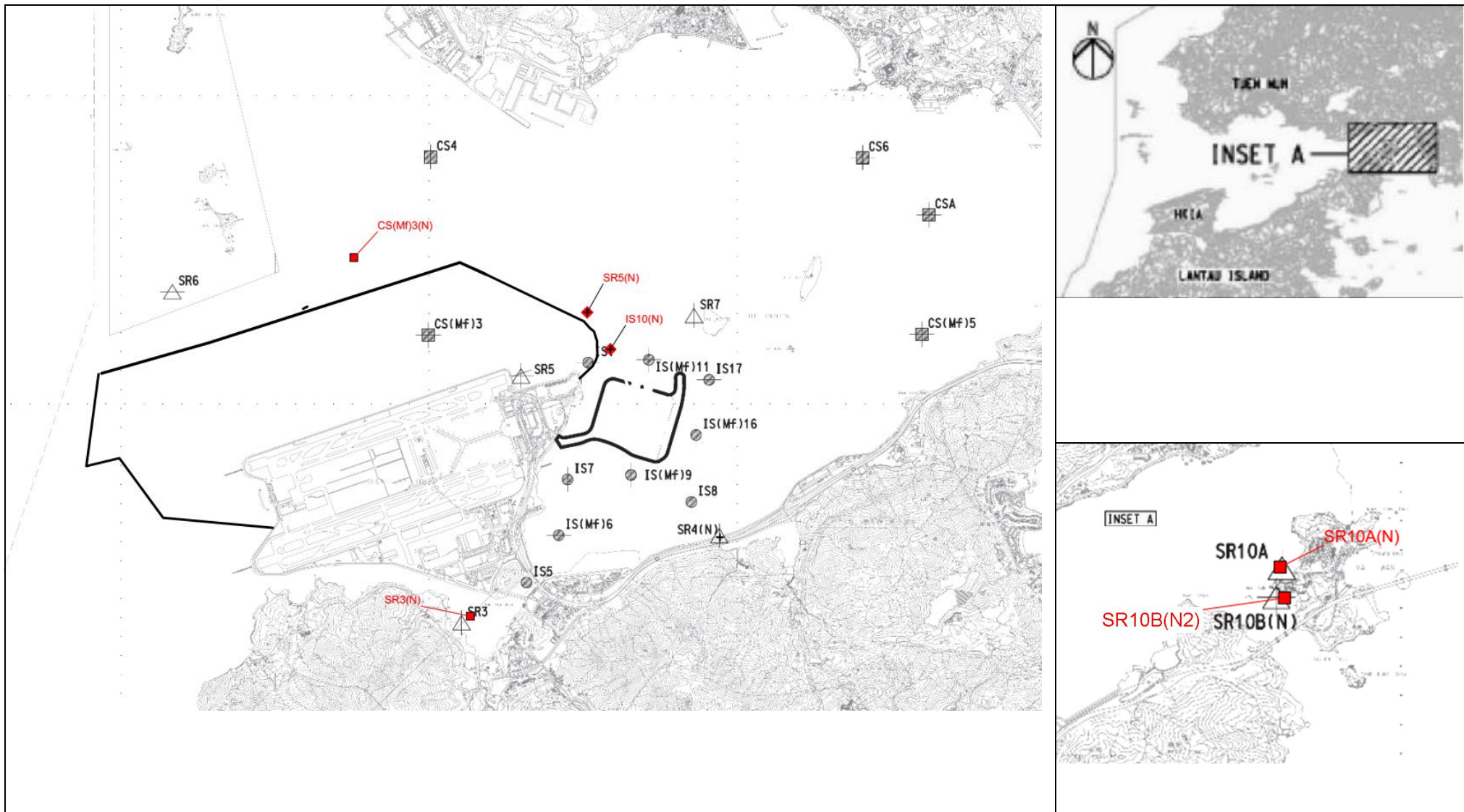


Figure 1: Location Plan

Hong Kong- Zhuhai- Macao Bridge
Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts)
Notifications of Environmental Quality Limits Exceedances Notification No.: 20180914DO_v1

Date of Notification: 18 September 2018 **Date of Investigation Report:** 8 October 2018

Works Inspected: Data collected from water sampling works on 14 September 2018 and the results were issued on 18 September 2018

Monitoring Location: Water Quality Monitoring Station

Parameter: Dissolved Oxygen (DO)/ ~~Suspended Solid (SS)~~ / ~~Turbidity (TURB)~~

Action & Limit Level (AL & LL) / Measured Level:

| PARAM | STATION | DEPTH | AL (mg/L) | LL (mg/L) | MEASURED AT MID-EBB TIDE (mg/L) | MEASURED AT MID-FLOOD TIDE (mg/L) |
|-------|-----------|--------------------|--|---|---------------------------------|-----------------------------------|
| DO | IS(Mf)16 | Surface and Middle | Surface and Middle 5.0 mg/L Bottom 4.7 mg/L | Surface and Middle 4.2 mg/L (except 5 mg/L for FCZ) Bottom 3.6 mg/L | 4.9 | 5.0 |
| DO | IS17 | Surface and Middle | | | 4.8 | 4.8 |
| DO | IS17 | Bottom | | | 4.6 | 4.7 |
| DO | SR4(N) | Surface and Middle | | | 5.3 | 4.9 |
| DO | SR10A(N) | Surface and Middle | | | <u>4.9</u> | <u>4.7</u> |
| DO | SR10B(N2) | Surface and Middle | | | <u>4.9</u> | <u>4.4</u> |
| DO | SR10B(N2) | Bottom | | | 4.9 | 4.5 |

Notes:
AL means Action Level.
LL means Limit Level.
Bold means AL exceedances.
Bold with underline means LL exceedances.
Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4
Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

Possible reason for Action / Limit Level Non-compliance:

On 14 September 2018, 3 AL exceedances of DO at stations IS(Mf)16 and IS17 were recorded during mid-ebb tide while 3 AL exceedances of DO at stations IS17, SR4(N) and SR10B(N2) were recorded during mid-flood tide. Moreover, two LL exceedances of DO at stations SR10A(N) and SR10B(N2) were recorded during mid-ebb tide and two LL exceedances of DO at stations SR10A(N) and SR10B(N2) were recorded during mid-flood tide.

Contract No.: HY/2013/01

As confirmed by the Contractor of Contract No.: HY/2013/01, there was no marine transportation and marine-based work on 14 September 2018. No site runoff within the Contract site has been observed. All wastewater generated from construction site which potentially contain organic matter was collected by registered collector. No organic matter discharge/ accumulation at active works areas on 14 September 2018. Therefore, it is concluded that the exceedances were not related to the Contract.

Contract No.: HY/2013/02

As confirmed with RSS, it is concluded that the exceedances were not related to the Contract due to completion of marine works on 10 September 2017. ET (Contract No. HY/2013/02) confirmed that no any organic matter discharge/accumulation at active works areas under Contract HY/2013/02 was observed on the date of exceedance with respect to the exceedance in DO.

Contract No.: HY/2013/03

During weekly site audit on 6, 14 and 20 September 2018, ET of Contract No. HY/2013/03 confirmed the Contractor had provided workable and effective water quality mitigation measures. The ET of Contract No. HY/2013/03 concluded that the captioned exceedance was not related to the construction site activities of the contract. Regarding the exceedance on 14 September 2018, there was no marine transportation on the date of exceedance. As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, no organic matter discharge or accumulation at active works areas on 14 September 2018 under Contract No. HY/2013/03. The marine-based works in Box Culvert B had been completed. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused exceedance recorded at the concerned WQM station on 14 September 2018.

Contract No.: HY/2013/04

According to the Contractor of HY/2013/04, all marine-based segment deliveries were completed in January 2018 and no marine-based works were conducted under the contract on 14 September 2018. Also, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 14 September 2018. Furthermore, the Contractor has confirmed that the silt curtains were properly installed around Box Culverts C and D on the day of monitoring, i.e. 14 September 2018.

HY/2013/04 site shoreline interfacing with open waters was inspected during ET's regular weekly site inspection on 12 September 2018 (between 14:30 and 14:45). There were no observations referring to water quality mitigation measures associated with that shoreline.

Subsequent to the subject exceedances, HY/2013/04 site shoreline interfacing with open waters was inspected by ET as part of checking of water quality mitigation measures during the regular weekly site inspection on 17 September 2018 (between 14:40 and 14:50). It was observed that the silt curtains at Box Culverts C and D were disconnected from the coastal shoreline. The Contractor was reminded to reinstate the silt curtains. There were no other observations in relation to the same shoreline.

It was concluded that the exceedances were not due to HY/2013/04.

Contract No.: HY/2014/05

There was no marine transportation and marine-based work under this contract. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

Actions taken/ to be taken:

Contract No.: HY/2013/01

Actions were taken under action plan:

1. in situ measurement was repeated to confirm findings;
 2. After considering the above-mentioned investigation results, it appears that it was unlikely that the dissolved oxygen exceedances were attributed to active construction activities of this Contract;
 3. EPD, IEC, Contractor and ER were informed via email;
 4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
 5. Since it is considered that the dissolved oxygen exceedances are unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.
- However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Contract No.: HY/2013/02

Although the exceedance was considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2013/03

During weekly site audit on 6, 14 and 20 September 2018, ET confirmed the Contractor had provided workable and effective water quality mitigation measures.

Contract No.: HY/2013/04

Although the exceedance was considered not due to HY/2013/04, the Contractor is reminded to implemental necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2014/05

Although the exceedance was considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Checked by: Keith Chau Title: Environmental Team Leader
(Contract No. HY/2013/01)

Signature:  Date: 8 October 2018

Copied to : EPD, Contractor, Engineer Representative and IEC/ENPO

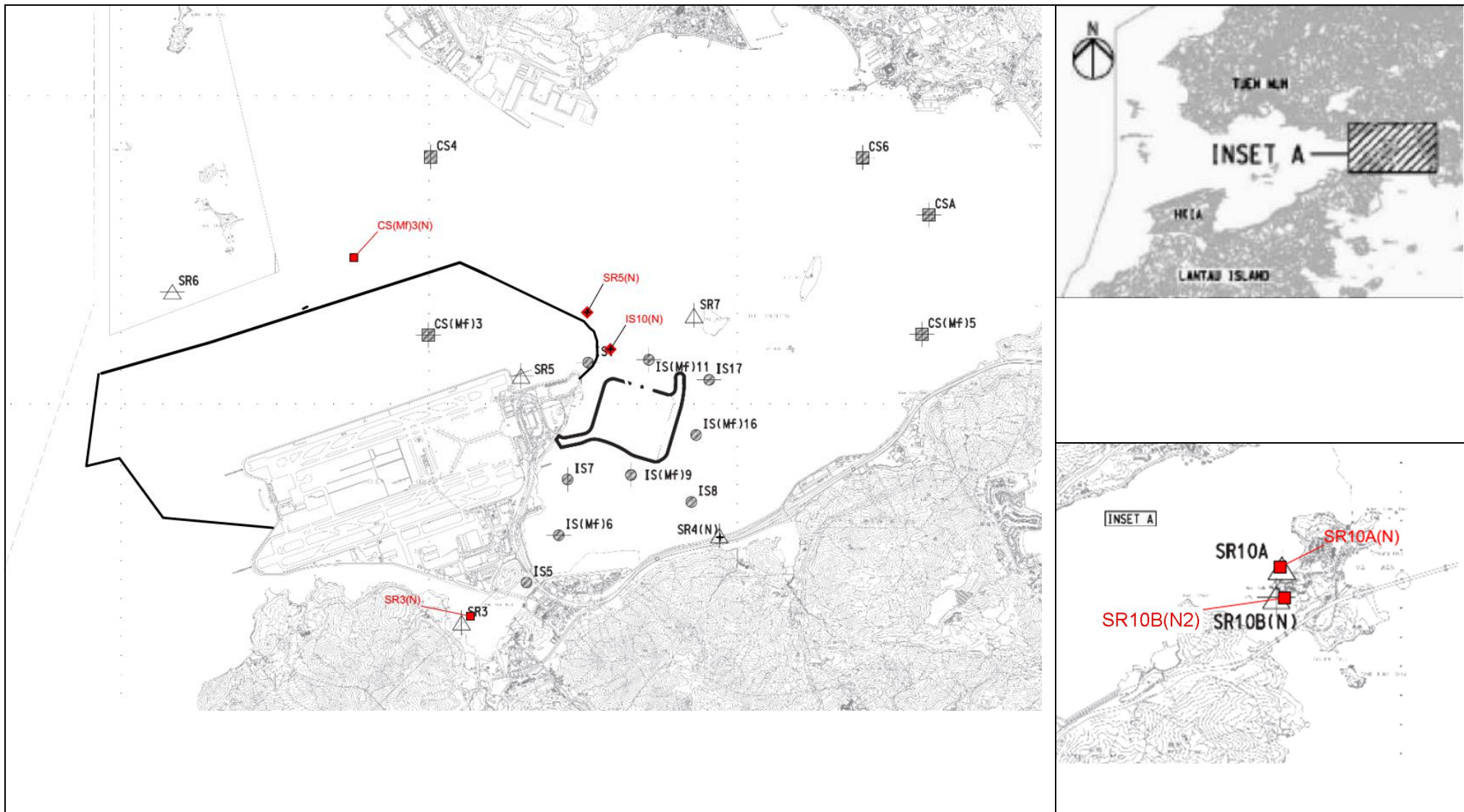


Figure 1: Location Plan

| Hong Kong- Zhuhai- Macao Bridge Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts) Notifications of Environmental Quality Limits Exceedances Notification No.: 20180928DO_v1 | | | | | | |
|--|-----------|--------------------|--|---|---------------------------------|-----------------------------------|
| Date of Notification: 3 October 2018 | | | Date of Investigation Report: 12 October 2018 | | | |
| Works Inspected: Data collected from water sampling works on 28 September 2018 and the results were issued on 02 October 2018 | | | | | | |
| Monitoring Location: Water Quality Monitoring Station | | | | | | |
| Parameter: Dissolved Oxygen (DO)/ Suspended Solid (SS) / Turbidity (TURB) | | | | | | |
| Action & Limit Level (AL & LL) / Measured Level: | | | | | | |
| PARAM | STATION | DEPTH | AL (mg/L) | LL (mg/L) | MEASURED AT MID-EBB TIDE (mg/L) | MEASURED AT MID-FLOOD TIDE (mg/L) |
| DO | SR10B(N2) | Surface and Middle | Surface and Middle 5.0 mg/L Bottom 4.7 mg/L | Surface and Middle 4.2 mg/L (except 5 mg/L for FCZ) Bottom 3.6 mg/L | 5.3 | <u>4.6</u> |
| Notes: AL means Action Level. LL means Limit Level. Bold means AL exceedances. Bold with underline means LL exceedances. Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4 Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA | | | | | | |

Possible reason for Action / Limit Level Non-compliance:

On 28 September 2018, 1 LL exceedance of DO at station SR10B(N2) was recorded during mid-flood tide.

Contract No.: HY/2013/01

As confirmed by the Contractor of Contract No.: HY/2013/01, there was no marine transportation and marine-based work on 28 September 2018. No site runoff within the Contract site has been observed. All wastewater generated from construction site which potentially contain organic matter was collected by registered collector. No organic matter discharge/ accumulation at active works areas on 28 September 2018. Therefore, it is concluded that the exceedances were not related to the Contract.

Contract No.: HY/2013/02

As confirmed with RSS, it is concluded that the exceedances were not related to the Contract due to completion of marine works on 10 September 2017. ET (Contract No. HY/2013/02) confirmed that no any organic matter discharge/accumulation at active works areas under Contract HY/2013/02 was observed on the date of exceedance with respect to the exceedance in DO.

Contract No.: HY/2013/03

During weekly site audit on 14, 20, 27 September 2018 and 4 October 2018, ET of Contract No. HY/2013/03 confirmed the Contractor had provided workable and effective water quality mitigation measures. The ET of Contract No. HY/2013/03 concluded that the captioned exceedance was not related to the construction site activities of the contract. Regarding the exceedance on 28 September 2018, there was no marine transportation on the date of exceedance. As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, no organic matter discharge or accumulation at active works areas on 28 September 2018 under Contract No. HY/2013/03. The marine-based works in Box Culvert B had been completed. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused exceedance recorded at the concerned WQM station on 28 September 2018.

Contract No.: HY/2013/04

According to the Contractor of HY/2013/04, all marine-based segment deliveries were completed in January 2018 and no marine-based works were conducted under the contract on 28 September 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 28 September 2018. HY/2013/04 site shoreline interfacing with open waters was inspected during ET's regular weekly site inspection on 12 September 2018 (between 14:30 and 14:45). There were no observations referring to water quality mitigation measures associated with that shoreline.

HY/2013/04 site shoreline interfacing with open waters was inspected during ET's regular weekly site inspection on 26 September 2018 (between 14:30 and 14:55). There were no observations referring to water quality mitigation measures associated with that shoreline. The large distance between HY/2013/04 site and SR10B(N2) is also noted.

Subsequent to the subject exceedance, HY/2013/04 site shoreline interfacing with open waters was inspected by ET as part of checking of water quality mitigation measures during the regular weekly site inspection on 3 October 2018 (between 15:10 and 16:20). It was observed that the silt curtains at Box Culverts C and D were disconnected from the coastal shoreline. The Contractor was reminded to reinstate the silt curtains. There were no other observations in relation to the same shoreline.

It was concluded that the exceedances were not due to HY/2013/04.

Contract No.: HY/2014/05

There was no marine transportation and marine-based work under this contract. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

Actions taken/ to be taken:

Contract No.: HY/2013/01

Actions were taken under action plan:

1. in situ measurement was repeated to confirm findings;
2. After considering the above-mentioned investigation results, it appears that it was unlikely that the dissolved oxygen exceedances were attributed to active construction activities of this Contract;
3. EPD, IEC, Contractor and ER were informed via email;
4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
5. Since it is considered that the dissolved oxygen exceedances are unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.

However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Contract No.: HY/2013/02

Although the exceedance was considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2013/03

During weekly site audit on 14, 20, 27 September 2018 and 4 October 2018, ET of Contract No. HY/2013/03 confirmed the Contractor had provided workable and effective water quality mitigation measures.

Contract No.: HY/2013/04

Although the exceedance was considered not due to HY/2013/04, the Contractor is reminded to implemental necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2014/05

Although the exceedance was considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Checked by: Keith Chau Title: Environmental Team Leader
(Contract No. HY/2013/01)

Signature:  Date: 12 October 2018

Copied to : EPD, Contractor, Engineer Representative and IEC/ENPO

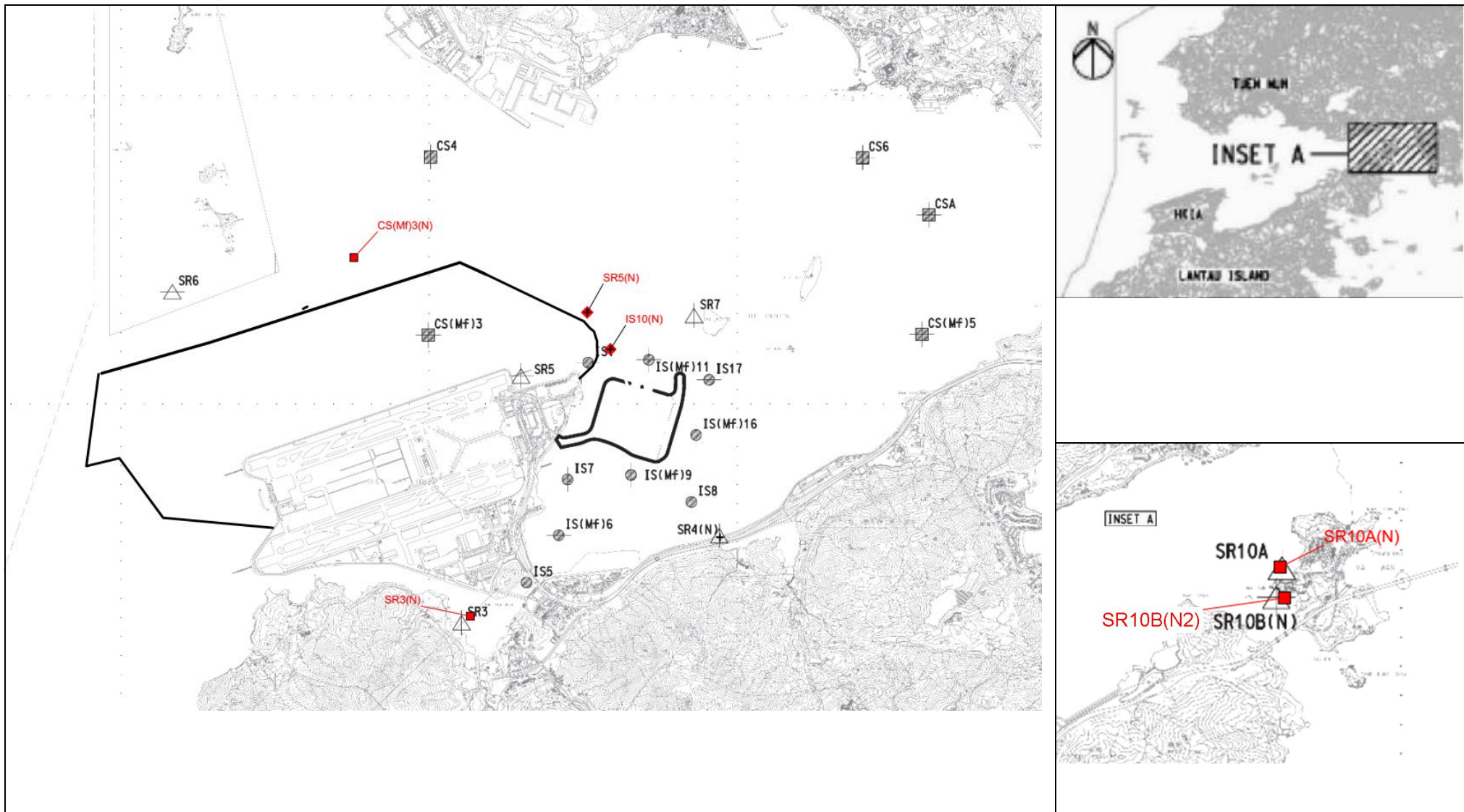


Figure 1: Location Plan