

Hong Kong- Zhuhai- Macao Bridge Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts) Notifications of Environmental Quality Limits Exceedances Notification No.: 20180518TURB_v3						
Date of Notification: 18 May 2018			Date of Investigation Report: 15 June 2018			
Works Inspected: Data collected from water sampling works on 13 May 2018 and the results were issued on 18 May 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 (NTU)	LL (NTU)	MEASURED AT MID-EBB TIDE (NTU)	MEASURED AT MID-FLOOD TIDE (NTU)
TURB	IS(Mf)11	Depth Average	27.5 and 120% (i.e. 21.7 for mid-ebb/12.3 for mid-flood) of upstream control station's turbidity at the same tide of the same day	47.0 and 130% (i.e. 23.5 for mid-ebb/13.3 for mid-flood) of upstream control station's turbidity at the same tide of the same day	12.1	29.7
TURB	SR5(N)	Depth Average	27.5 and 120% (i.e. 21.7 for mid-ebb/12.3 for mid-flood) of upstream control station's turbidity at the same tide of the same day	47.0 and 130% (i.e. 23.5 for mid-ebb/13.3 for mid-flood) of upstream control station's turbidity at the same tide of the same day	13.6	36.8
Notes: AL means Action Level. LL means Limit Level. Bold means AL exceedances. <u>Bold with underline</u> 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 13 May 2018, two AL exceedances of TURB at IS(Mf)11 and SR5(N) 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 13 May 2018. No site runoff within the Contract site has been observed. 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.

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. The marine-based works in Box Culvert B had been completed. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. For turbidity exceedance recorded at the WQM station IS(Mf)11 and SR5(N) closer to the marine delivery route, there was no turbidity exceedance recorded at WQM station IS10(N) which also close to the marine delivery route. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused turbidity exceedance recorded at the concerned WQM station during mid-flood tide on 13 May 2018. The photos of site situation at box culvert are shown in Attachment 2.

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 13 May 2018.

While turbidity exceedance was recorded at IS(Mf)11 and SR5(N), 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.

During ET's (Contract No.: HY/2013/04) regular weekly site inspection on 10 May 2018, HY/2013/04 site shoreline interfacing with open waters was inspected between 09:55 and 10:00. There were no observations referring to water quality mitigation measures associated with that shoreline.

During ET's (Contract No.: HY/2013/04) subsequent regular weekly site inspection on 14 May 2018, HY/2013/04 site shoreline interfacing with open waters was inspected between 14:20 and 15:20. Regarding water quality mitigation measures associated with that shoreline, it was observed that silty water was observed outside silt curtain at Box Culvert D. The Contractor was reminded to check the integrity of silt curtain. However, the observed silty water was limited to the immediate vicinity of the silt curtain (see photo in Attachment 1). Also, no exceedance was recorded at the monitoring locations closest to the silt curtain at Box Culvert D, namely IS7 and IS(Mf)9, on 13 May 2018. Furthermore, given the large distance between HY/2013/04 site shoreline and the exceedance locations of IS(Mf)11 and SR5(N), it is unlikely that this observation could be related to the subject exceedances. 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 turbidity exceedances were attributed to active construction activities of this Contract;
 3. 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 turbidity 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 3, 10, 17 and 25 May 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>15 June 2018</u>
Copied to	: Contractor, Engineer Representative and IEC/ENPO		

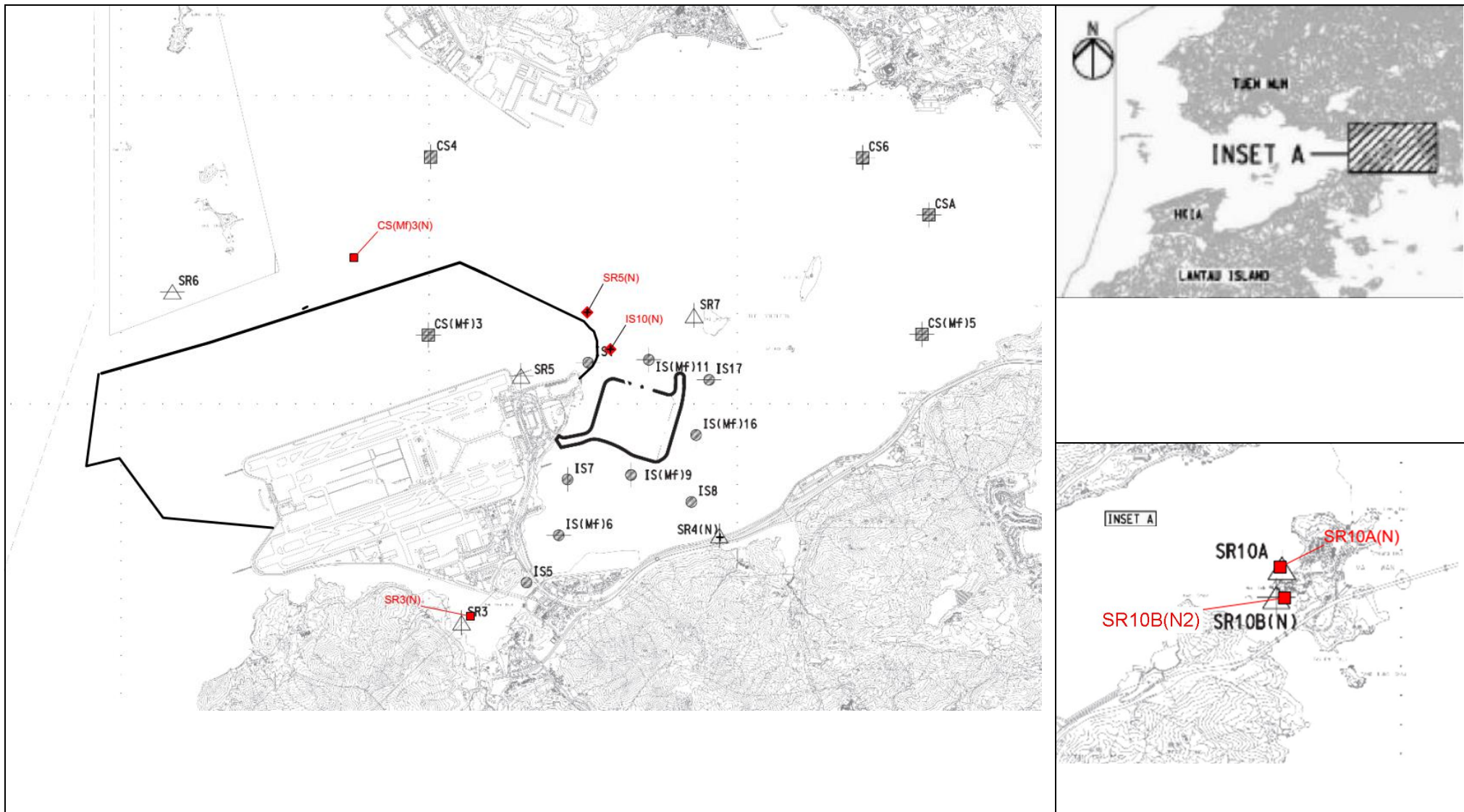


Figure 1: Location Plan

Attachment 1

Silty water was observed outside silt curtain at Box Culvert D. The Contractor was reminded to check the integrity of silt curtain.



Attachment 2

Photo 1



Photo 2



Photo 3 | Construction of seawall



Hong Kong- Zhuhai- Macao Bridge Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts) Notifications of Environmental Quality Limits Exceedances Notification No.: 20180525DO_v3						
Date of Notification: 30 May 2018			Date of Investigation Report: 15 June 2018			
Works Inspected: Data collected from water sampling works on 25 May 2018 and the results were issued on 30 May 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	IS8	Depth Average	Surface and Middle 5.0 Bottom 4.7	Surface and Middle 4.2 (except 5 mg/L for FCZ) Bottom 3.6	4.5	9.1
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						

Possible reason for Action / Limit Level Non-compliance:

On 25 May 2018, one AL exceedance of DO at IS8 was recorded during mid-ebb 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 25 May 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 vacuum truck. No organic matter discharge/ accumulation at active works areas on 25 May 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 25 May 2018 under Contract No. HY/2013/03. The marine-based works in Box Culvert B had been completed. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. In addition, the exceedances recorded at WQM station IS8 are far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused DO exceedance recorded at the concerned WQM station during mid-ebb tide on 25 May 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 25 May 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 25 May 2018.

While DO exceedance was recorded at IS8, 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. Also, no notification of DO exceedance at IS8 during monitoring at the next tide (i.e. mid-flood tide on the same day) was received.

During ET's (Contract No. HY/2013/04) regular weekly site inspection on 23 May 2018, HY/2013/04 site shoreline interfacing with open waters was inspected between 14:15 and 15:00. 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. All wastewater generated from construction site which potentially contain organic matter was collected by vacuum truck. No organic matter discharge/ accumulation at active works areas on 25 May 2018. 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. 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 exceedance is 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 3, 10, 17, 25 and 31 May 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 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>15 June 2018</u>
Copied to	: Contractor, Engineer Representative and IEC/ENPO		

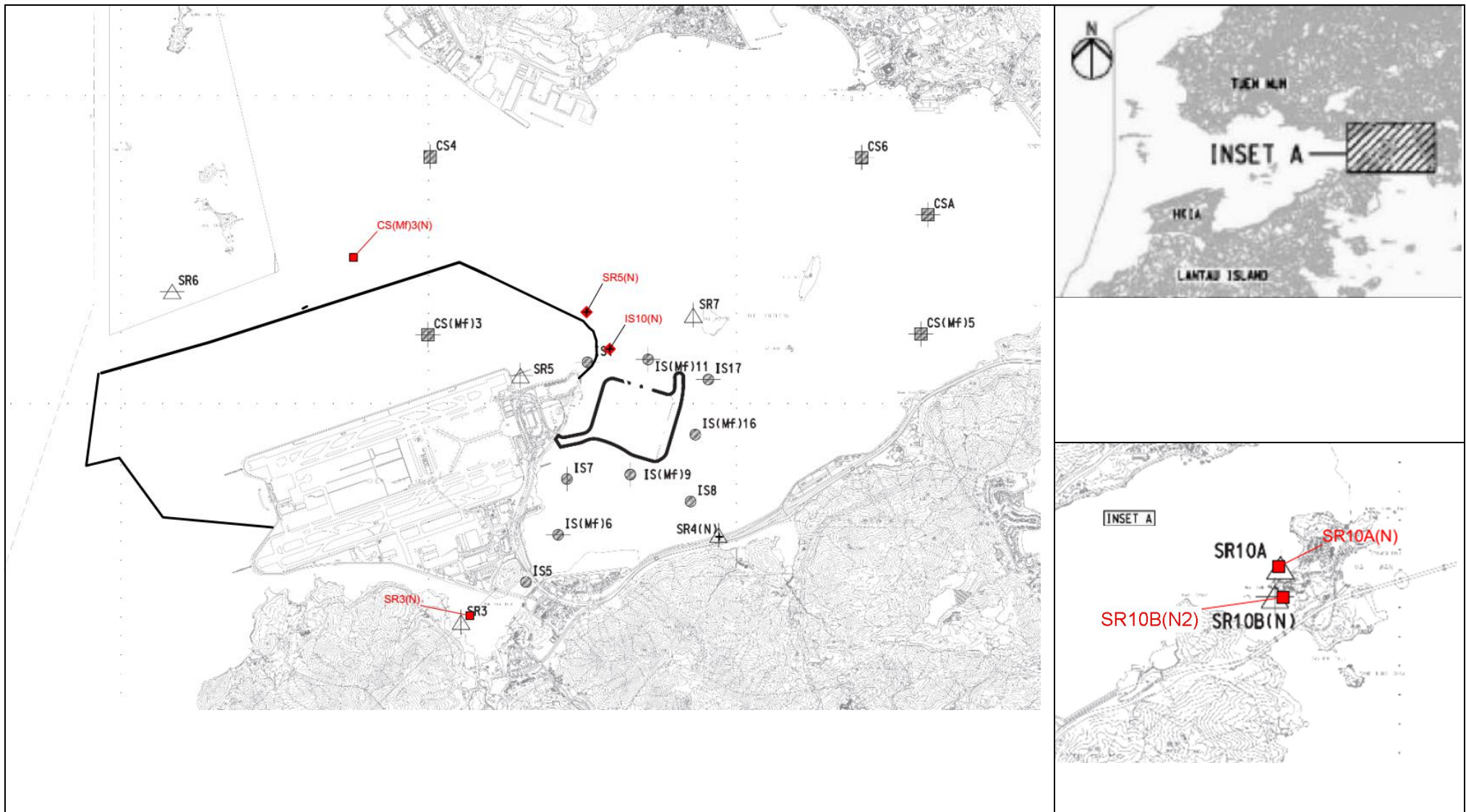


Figure 1: Location Plan

Hong Kong- Zhuhai- Macao Bridge
Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts)
Notifications of Environmental Quality Limits Exceedances Notification No.: 20180528DO_v3

Date of Notification: 1 June 2018 **Date of Investigation Report:** 15 June 2018

Works Inspected: Data collected from water sampling works on 28 May 2018 and the results were issued on 1 June 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	Bottom	Surface and Middle 5.0 Bottom 4.7	Surface and Middle 4.2 (except 5 mg/L for FCZ) Bottom 3.6	4.0	5.5

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 28 May 2018, one AL exceedance of DO at IS5 was recorded during mid-ebb 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 May 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 vacuum truck. No organic matter discharge/ accumulation at active works areas on 25 May 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 25 May 2018 under Contract No. HY/2013/03. The marine-based works in Box Culvert B had been completed. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. In addition, the exceedances recorded at WQM station IS5 are far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused DO exceedance recorded at the concerned WQM station during mid-ebb tide on 28 May 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 May 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 25 May 2018.

While DO exceedance was recorded at IS5, 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. Also, no notification of DO exceedance at IS5 during monitoring at the next tide (i.e. mid-flood tide on the same day) was received.

During ET's (Contract No. HY/2013/04) regular weekly site inspection on 23 May 2018, HY/2013/04 site shoreline interfacing with open waters was inspected between 14:15 and 15:00. 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. 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 exceedance is 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 3, 10, 17, 25 and 31 May 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>15 June 2018</u>
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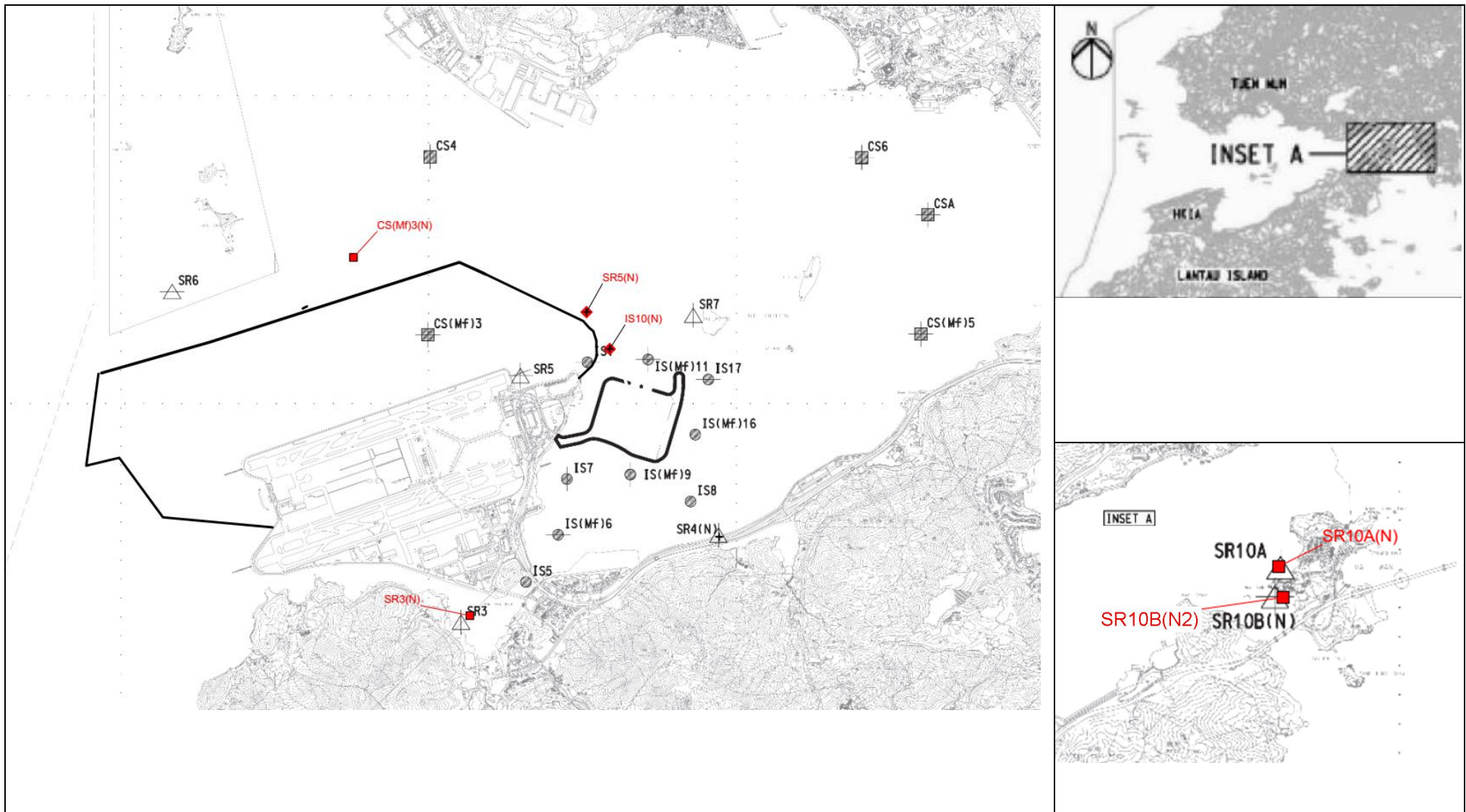


Figure 1: Location Plan