

Appendix L

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

**Table L1** *Cumulative Statistics on Exceedances*

<b>Parameters</b>	<b>Level of Exceedance</b>	<b>Total No. recorded in this reporting month</b>	<b>Total No. recorded since Contract commencement</b>
1-hr TSP	Action	0	93
	Limit	0	7
24-hr TSP	Action	0	10
	Limit	0	4
Water Quality	Action	55	128
	Limit	4	19
Impact Dolphin Monitoring	Action	0	11
	Limit	1	16

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

<b>Reporting Period</b>	<b>Cumulative Statistics</b>		
	<b>Complaints</b>	<b>Notifications of Summons</b>	<b>Successful Prosecutions</b>
This Reporting Month (August 2019)	0	0	0
Total No. received since Contract commencement	17	1	0

Email  
message

Environmental  
Resources  
Management

**To** Ramboll Hong Kong Limited (ENPO)

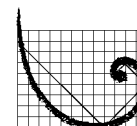
**From** ERM- Hong Kong, Limited

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

**Subject** Notification of Exceedance for Water Quality  
Impact Monitoring

**Date** 14 August 2019

2507,  
25/F One Harbourfront,  
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Hung Hom, Hong Kong  
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**ERM**

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Dear Sir or Madam,

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

Action Level Exceedance

0212330\_7 August 2019\_ Surface & Middle DO\_E\_Station IS(Mf)9

0212330\_7 August 2019\_ Surface & Middle DO\_E\_Station IS17

0212330\_7 August 2019\_ Bottom DO\_E\_Station IS17

0212330\_7 August 2019\_ Bottom DO\_F\_Station SR4a

0212330\_7 August 2019\_ Surface & Middle DO\_F\_Station IS(Mf)11

A total of five Action Level exceedances were recorded on 7 August 2019.

Regards,



Dr Jasmine Ng  
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08

TUEN MUN - CHEK LAP KOK LINK -  
NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

**Marine Water Quality Impact Monitoring  
Notification of Exceedance**

<b>Log No.</b>	<b>Action Level Exceedance</b> 0212330_7 August 2019_ Surface & Middle DO_E_Station IS(Mf)9 0212330_7 August 2019_ Surface & Middle DO_E_Station IS17 0212330_7 August 2019_ Bottom DO_E_Station IS17 0212330_7 August 2019_ Bottom DO_F_Station SR4a 0212330_7 August 2019_ Surface & Middle DO_F_Station IS(Mf)11 [Total No. of Exceedances = 5]		
<b>Date</b>	7 August 2019 (Measured) 8 August 2019 ( <i>In situ</i> results received by ERM) 16 August 2019 (Laboratory results received by ERM)		
<b>Monitoring Station</b>	CS(Mf)5, SR4a, SR4(N2), IS8(N), IS(Mf)16, IS(Mf)9, CS(Mf)3(N), SR7, IS17, IS(Mf)11		
<b>Parameter(s) with Exceedance(s)</b>	Dissolved Oxygen (mg/L)		
<b>Action Levels</b>	DO	Surface and Middle 5.0 mg/L	Bottom 4.7 mg/L
<b>Limit Levels</b>	DO	Surface and Middle 4.2 mg/L	Bottom 3.6 mg/L
<b>Measured Levels</b>	Action Level Exceedance for DO (4.6 mg/L) is observed at IS(Mf)9 at Surface & Middle Level during mid-ebb tide. Action Level Exceedance for DO (4.7 mg/L) is observed at IS17 at Surface & Middle Level during mid-ebb tide. Action Level Exceedance for DO (4.5 mg/L) is observed at IS17 at Bottom Level during mid-ebb tide. Action Level Exceedance for DO (4.5 mg/L) is observed at SR4a at Bottom Level during mid-flood tide. Action Level Exceedance for DO (4.8 mg/L) is observed at IS(Mf)11 at Surface & Middle Level during mid-flood tide.		
<b>Works Undertaken (at the time of monitoring event)</b>	According to the information provided by the Contractor, no marine works was carried out on 7 August 2019.		

<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedances are unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> <li>• No marine works was carried out on 7 August 2019.</li> <li>• All monitored parameters, except DO, at all monitoring stations were in compliance with the Action and Limit Levels during both mid-ebb and mid-flood tides on the same day.</li> <li>• IS(Mf)9, SR4a and IS(Mf)11 are far away (&gt;2 km) from the Seawall Modification Works Area (<i>Figure 1</i>), thus the observed exceedance should not be affected by the marine works under this Contract. Moreover, IS(Mf)16 is closer to the works area and no exceedance was recorded. Therefore, the exceedances are unlikely to be related to this Contract.</li> <li>• Surface &amp; Middle-depth DO levels at IS(Mf)11 was similar to the corresponding control stations, CS(Mf)5, during mid-flood tide, in which the recorded Surface &amp; Middle-depth DO levels at the corresponding control station were below Action Level.</li> <li>• Bottom DO levels at SR4a was similar to the corresponding control stations, CS(Mf)5, during mid-flood tide, in which the recorded Bottom DO levels at the corresponding control station were below Action Level.</li> <li>• As reported by the marine mammal observer, no discharge of organic matters into waters from landside works area was recorded. Moreover, no exceedance was recorded at IS(Mf)16 which is the closest station to the Seawall Modification Works Area during both mid-ebb and mid-flood tide. Therefore, exceedances recorded at IS(Mf)9 and IS17 during mid-ebb tide and SR4a and IS(Mf)11 during mid-flood tide are unlikely to be caused by the marine works of this Contract.</li> </ul>
<b>Actions Taken/ To Be Taken</b>	No immediate action is considered necessary. The ET will monitor for future trends in exceedances.
<b>Remarks</b>	The monitoring results on 7 August 2019 and locations of water quality monitoring stations are attached.

Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS		
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)5	18:10	Surface	1	1	28.7	7.8	21.8	5.7	5.3	3.8	3.4	6.1	5.7		
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)5	18:10	Surface	1	2	28.7	7.9	21.4	5.7		3.8		5.5			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)5	18:10	Middle	2	1	27.9	7.8	24.2	4.9		3.5		5.2			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)5	18:10	Middle	2	2	27.9	7.9	23.7	4.9		3.5		5.9			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)5	18:10	Bottom	3	1	27.7	7.8	25.7	4.8	4.9	2.8	5.6				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)5	18:10	Bottom	3	2	27.7	7.9	25.1	4.9	4.9	2.7	6.0				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)3(N)	17:25	Surface	1	1	28.9	7.7	18.3	5.5	5.2	3.9	7.1	7.8	7.7		
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)3(N)	17:25	Surface	1	2	28.9	7.8	18.0	5.5		3.8		8.1			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)3(N)	17:25	Middle	2	1	28.0	7.8	21.7	4.8		6.2		8.7			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)3(N)	17:25	Middle	2	2	28.0	7.8	21.4	4.9		6.2		8.9			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)3(N)	17:25	Bottom	3	1	28.0	7.8	23.3	5.1	5.2	11.3	6.5				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)3(N)	17:25	Bottom	3	2	28.0	7.9	22.9	5.2	5.2	11.3	6.2				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)16	16:47	Surface	1	1	28.4	7.8	21.6	5.5	5.5	5.5	6.5	9.8	9.7		
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)16	16:47	Surface	1	2	28.4	7.9	21.6	5.5		5.5		10.6			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)16	16:47	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)16	16:47	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)16	16:47	Bottom	3	1	28.1	7.8	22.3	5.1	5.1	7.4	9.7				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)16	16:47	Bottom	3	2	28.1	7.8	21.9	5.1	5.1	7.5	8.7				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR4a	16:39	Surface	1	1	28.5	7.8	20.8	5.8	5.9	4.5	4.7	11.3	10.7		
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR4a	16:39	Surface	1	2	28.5	7.9	20.4	5.9		4.6		10.6			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR4a	16:39	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR4a	16:39	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR4a	16:39	Bottom	3	1	28.1	7.8	21.6	4.9	5.1	4.8	10.2				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR4a	16:39	Bottom	3	2	28.2	7.8	21.2	5.2	5.1	4.9	10.5				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR4(N2)	16:35	Surface	1	1	28.5	7.8	20.9	5.6	5.7	6.5	8.1	9.8	9.1		
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR4(N2)	16:35	Surface	1	2	28.5	7.8	20.6	5.7		6.4		10.7			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR4(N2)	16:35	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR4(N2)	16:35	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR4(N2)	16:35	Bottom	3	1	28.3	7.8	21.5	5.0	5.0	9.8	8.5				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR4(N2)	16:35	Bottom	3	2	28.3	7.8	21.1	5.0	5.0	9.7	7.5				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS8(N)	16:30	Surface	1	1	28.4	7.8	21.4	5.5	5.5	6.5	7.2	7.1	7.2		
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS8(N)	16:30	Surface	1	2	28.4	7.9	21.0	5.5		6.5		6.1			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS8(N)	16:30	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS8(N)	16:30	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS8(N)	16:30	Bottom	3	1	28.1	7.8	22.2	5.0	5.0	7.9	7.4				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS8(N)	16:30	Bottom	3	2	28.1	7.9	21.8	5.0	5.0	7.9	8.1				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)9	16:22	Surface	1	1	27.6	7.8	25.1	4.5	4.5	3.3	4.3	7.6	6.9		
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)9	16:22	Surface	1	2	27.6	7.8	25.1	4.5		3.3		6.7			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)9	16:22	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)9	16:22	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)9	16:22	Bottom	3	1	28.0	7.8	21.0	7.0	7.0	5.3	6.7				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)9	16:22	Bottom	3	2	28.0	7.8	21.0	7.0	7.0	5.3	6.6				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)11	17:48	Surface	1	1	29.1	7.8	18.3	6.0	5.5	4.1	4.9	5.5	9.4		
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)11	17:48	Surface	1	2	29.1	7.8	18.0	5.8		4.1		5.9			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)11	17:48	Middle	2	1	28.4	7.7	20.6	5.0		5.1		14.4			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)11	17:48	Middle	2	2	28.4	7.8	20.3	5.1		5.1		12.6			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)11	17:48	Bottom	3	1	27.9	7.8	23.4	4.7	4.8	5.5	8.3				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)11	17:48	Bottom	3	2	27.9	7.8	23.0	4.8	4.8	5.5	9.6				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR7	17:54	Surface	1	1	28.7	7.8	20.5	5.7	5.7	4.1	4.4	5.5	6.7		
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR7	17:54	Surface	1	2	28.7	7.9	20.1	5.7		4.2		4.8			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR7	17:54	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR7	17:54	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR7	17:54	Bottom	3	1	28.5	7.8	21.0	5.4	5.5	4.6	8.4				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	SR7	17:54	Bottom	3	2	28.5	7.9	20.8	5.6	5.5	4.6	8.2				
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS17	16:52	Surface	1	1	28.0	7.8	22.8	4.8	4.7	4.8	8.2	9.3	8.5		
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS17	16:52	Surface	1	2	28.0	7.8	22.4	4.9		4.9		8.3			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS17	16:52	Middle	2	1	27.6	7.8	25.1	4.5		8.4		9.6			
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS17	16:52	Middle	2	2	27.6	7.8	24.6	4.5		8.4		9.2			

Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS17	16:52	Bottom	3	1	27.6	7.8	25.2	4.5	4.5	11.4		6.9	
TMCLKL	HY/2012/08	2019/08/07	Mid-Ebb	IS17	16:52	Bottom	3	2	27.6	7.8	24.7	4.5		11.4		7.9	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	CS(Mf)5	10:29	Surface	1	1	28.0	7.8	21.3	4.6		4.0	6.2	6.5	6.8
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	CS(Mf)5	10:29	Surface	1	2	27.6	7.8	21.3	4.6	4.6	4.0		5.8	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	CS(Mf)5	10:29	Middle	2	1	27.6	7.8	24.6	4.6		4.0		6.7	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	CS(Mf)5	10:29	Middle	2	2	27.6	7.8	24.2	4.6		4.0		6.8	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	CS(Mf)5	10:29	Bottom	3	1	27.5	7.8	26.5	4.5	4.5	10.6		7.0	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	CS(Mf)5	10:29	Bottom	3	2	27.4	7.8	26.0	4.5		10.6		7.9	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	CS(Mf)3(N)	11:19	Surface	1	1	28.2	7.7	19.8	5.0		5.1	5.8	9.1	9.7
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	CS(Mf)3(N)	11:19	Surface	1	2	28.4	7.8	19.2	5.3	5.1	5.2		8.1	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	CS(Mf)3(N)	11:19	Middle	2	1	28.2	7.7	19.9	5.0		6.0		10.5	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	CS(Mf)3(N)	11:19	Middle	2	2	28.2	7.8	19.5	5.0		6.1		9.9	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	CS(Mf)3(N)	11:19	Bottom	3	1	28.3	7.7	20.1	5.2	5.2	6.2		10.7	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	CS(Mf)3(N)	11:19	Bottom	3	2	28.2	7.8	19.6	5.1		6.2		9.8	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)16	12:23	Surface	1	1	28.5	7.8	20.7	5.6		5.9	8.1	8.7	7.9
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)16	12:23	Surface	1	2	28.5	7.9	20.3	5.6	5.6	5.9		7.7	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)16	12:23	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)16	12:23	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)16	12:23	Bottom	3	1	28.0	7.8	21.6	5.0	5.0	10.4		7.1	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)16	12:23	Bottom	3	2	28.0	7.8	21.2	5.0		10.3		8.0	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR4a	12:32	Surface	1	1	28.6	7.7	20.4	5.5		3.6	5.2	9.2	9.2
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR4a	12:32	Surface	1	2	28.6	7.8	20.1	5.6	5.6	3.6		8.2	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR4a	12:32	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR4a	12:32	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR4a	12:32	Bottom	3	1	28.0	7.7	21.7	4.5	4.5	6.7		9.6	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR4a	12:32	Bottom	3	2	28.0	7.8	21.3	4.5		6.7		9.9	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR4(N2)	12:36	Surface	1	1	28.5	7.7	20.4	5.5		3.6	3.9	10.2	9.3
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR4(N2)	12:36	Surface	1	2	28.4	7.8	20.0	5.6	5.6	3.6		9.2	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR4(N2)	12:36	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR4(N2)	12:36	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR4(N2)	12:36	Bottom	3	1	28.2	7.7	20.7	5.3	5.4	4.1		8.4	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR4(N2)	12:36	Bottom	3	2	28.3	7.8	20.3	5.4		4.1		9.3	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS8(N)	12:41	Surface	1	1	28.3	7.7	20.8	5.2		5.6	7.6	9.7	9.1
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS8(N)	12:41	Surface	1	2	28.3	7.8	20.4	5.2	5.2	5.6		9.3	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS8(N)	12:41	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS8(N)	12:41	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS8(N)	12:41	Bottom	3	1	28.3	7.7	21.0	5.1	5.2	9.5		8.4	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS8(N)	12:41	Bottom	3	2	28.2	7.8	20.5	5.2		9.5		8.8	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)9	12:49	Surface	1	1	28.4	7.7	20.7	5.7		7.0	8.1	8.6	8.5
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)9	12:49	Surface	1	2	28.4	7.8	20.3	5.7	5.7	7.0		8.3	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)9	12:49	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)9	12:49	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)9	12:49	Bottom	3	1	28.3	7.7	20.8	5.3	5.4	9.3		8.6	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)9	12:49	Bottom	3	2	28.3	7.8	20.5	5.4		9.2		8.6	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)11	10:55	Surface	1	1	28.0	7.8	21.9	4.8	4.8	8.0	9.1	8.6	13.7
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)11	10:55	Surface	1	2	27.9	7.8	21.7	4.8	4.8	8.0		8.6	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)11	10:55	Middle	2	1	27.9	7.8	22.0	4.8		7.3		9.4	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)11	10:55	Middle	2	2	27.9	7.8	21.7	4.8		7.3		10.3	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)11	10:55	Bottom	3	1	27.7	7.8	23.9	4.7	4.7	11.9		24.3	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS(Mf)11	10:55	Bottom	3	2	27.7	7.8	23.5	4.7		11.9		21.0	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR7	10:48	Surface	1	1	28.2	7.8	21.2	5.0		4.5	7.3	4.0	6.5
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR7	10:48	Surface	1	2	28.1	7.8	20.9	5.0	5.0	4.5		5.0	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR7	10:48	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR7	10:48	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR7	10:48	Bottom	3	1	27.9	7.8	22.7	4.8	4.8	10.1		8.1	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	SR7	10:48	Bottom	3	2	27.9	7.8	22.3	4.8		10.1		9.0	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS17	12:01	Surface	1	1	28.3	7.8	21.3	5.3		2.5	3.2	7.9	8.1
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS17	12:01	Surface	1	2	28.3	7.8	21.0	5.3	5.1	2.6		8.8	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS17	12:01	Middle	2	1	28.0	7.8	22.3	4.9		3.5		8.5	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS17	12:01	Middle	2	2	28.0	7.8	22.0	4.9		3.5		7.6	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS17	12:01	Bottom	3	1	27.9	7.8	22.8	4.9	4.9	3.7		8.3	
TMCLKL	HY/2012/08	2019/08/07	Mid-flood	IS17	12:01	Bottom	3	2	27.9	7.8	22.4	4.9		3.6		7.3	

Note: Indicates Exceedance of Action Level  
Indicates Exceedance of Limit Level



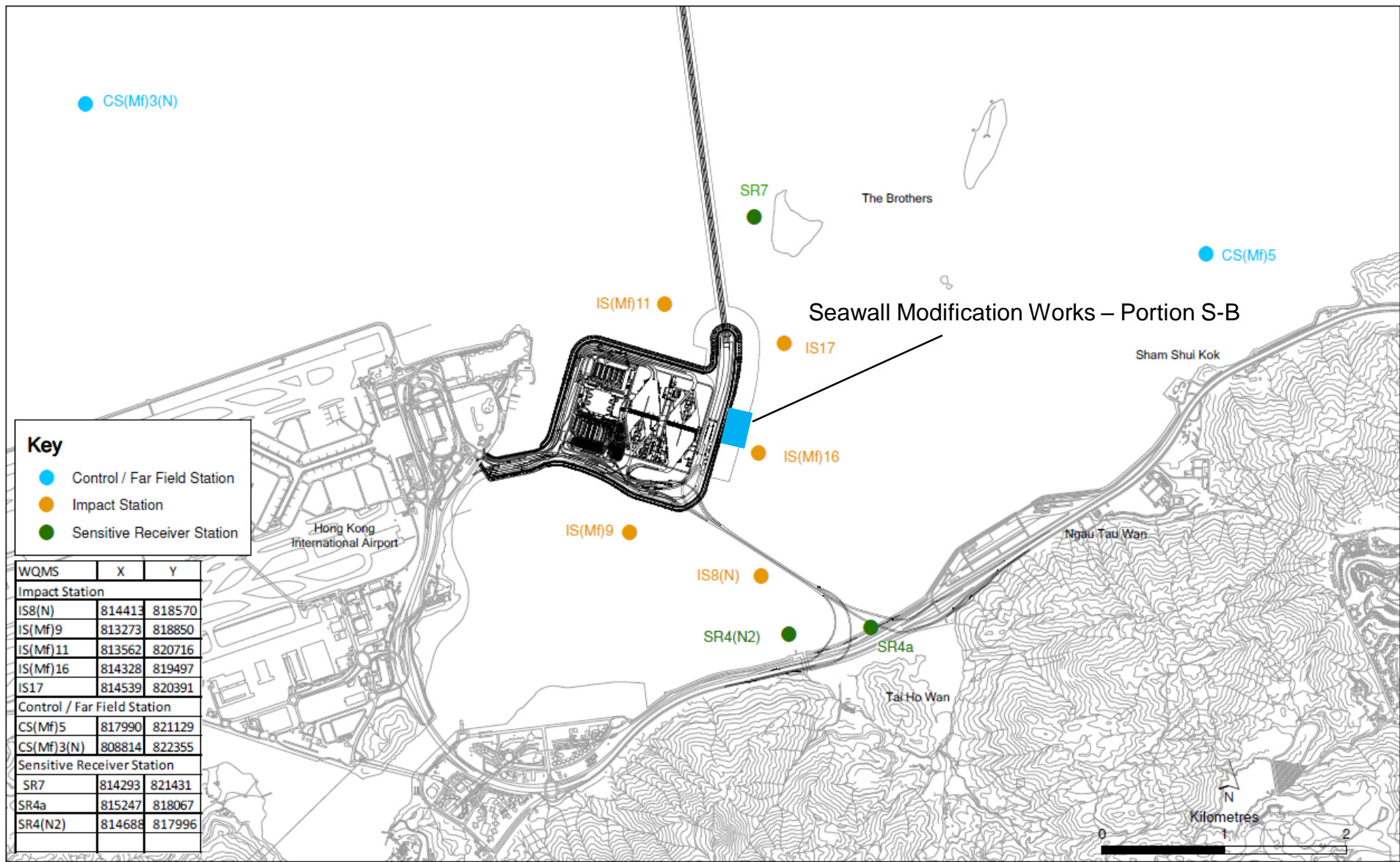


Figure 1



Email  
message

Environmental  
Resources  
Management

**To** Ramboll Hong Kong Limited (ENPO)

**From** ERM- Hong Kong, Limited

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

**Subject** Notification of Exceedance for Water Quality  
Impact Monitoring

**Date** 16 August 2019

2507,  
25/F One Harbourfront,  
18 Tak Fung Street,  
Hung Hom, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jasmine.ng@erm.com



**ERM**

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Dear Sir or Madam,

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

Action Level Exceedance

0212330\_12 August 2019\_ Bottom DO\_E\_Station IS(Mf)11

0212330\_12 August 2019\_ Bottom DO\_F\_Station IS(Mf)11

A total of two Action Level exceedances were recorded on 12 August 2019.

Regards,



Dr Jasmine Ng  
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08

TUEN MUN – CHEK LAP KOK LINK –  
NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Marine Water Quality Impact Monitoring  
Notification of Exceedance

Log No.	<b>Action Level Exceedance</b> 0212330_12 August 2019_ Bottom DO_E_Station IS(Mf)11 0212330_12 August 2019_ Bottom DO_F_Station IS(Mf)11 [Total No. of Exceedances = 2]		
Date	12 August 2019 (Measured) 15 August 2019 ( <i>In situ</i> results received by ERM) 21 August 2019 (Laboratory results received by ERM)		
Monitoring Station	CS(Mf)5, SR4a, SR4(N2), IS8(N), IS(Mf)16, IS(Mf)9, CS(Mf)3(N), SR7, IS17, IS(Mf)11		
Parameter(s) with Exceedance(s)	Dissolved Oxygen (mg/L)		
Action Levels	DO	Surface and Middle 5.0 mg/L	Bottom 4.7 mg/L
Limit Levels	DO	Surface and Middle 4.2 mg/L	Bottom 3.6 mg/L
Measured Levels	Action Level Exceedance for DO (3.9 mg/L) is observed at IS(Mf)11 at Bottom Level during mid-ebb tide. Action Level Exceedance for DO (4.3 mg/L) is observed at IS(Mf)11 at Bottom Level during mid-flood tide.		
Works Undertaken (at the time of monitoring event)	According to the information provided by the Contractor, Seawall Modification Works was carried out on 12 August 2019.		
Possible Reason for Action or Limit Level Exceedance(s)	<p>The exceedances are unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> <li>• All monitored parameters, except DO, at all monitoring stations were in compliance with the Action and Limit Levels during both mid-ebb and mid-flood tides on the same day.</li> <li>• No discharge of organic matters into waters from landside works area was recorded.</li> <li>• IS(Mf)11 is far away (&gt;2 km) from the Seawall Modification Works Area (<i>Figure 1</i>), thus the observed exceedance should not be affected by the marine works under this Contract. Moreover, IS(Mf)16 is closer to the works area and no exceedance was recorded. Therefore, the exceedance is unlikely to be related to this Contract.</li> <li>• Bottom-depth DO levels at IS(Mf)11 was similar to the corresponding control stations, CS(Mf)5, during both mid-ebb and mid-flood tide, in which the recorded Bottom-depth DO levels at the corresponding control station were below Action Level.</li> </ul>		
Actions Taken/ To Be Taken	No immediate action is considered necessary. The ET will monitor for future trends in exceedances.		
Remarks	The monitoring results on 12 August 2019 and locations of water quality monitoring stations are attached.		

Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS		
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	CS(Mf)5	11:20	Surface	1	1	29.9	8.0	16.6	6.7	5.9	5.2	7.3	5.5	5.9		
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	CS(Mf)5	11:20	Surface	1	2	29.9	7.9	16.9	6.6		5.3		5.5			
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	CS(Mf)5	11:20	Middle	2	1	28.6	7.9	20.7	5.2		6.1		6.0			
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	CS(Mf)5	11:20	Middle	2	2	28.6	7.8	21.1	5.2		6.2		5.0			
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	CS(Mf)5	11:20	Bottom	3	1	27.9	7.9	27.4	4.3	4.2	10.5	7.3	6.5	5.9		
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	CS(Mf)5	11:20	Bottom	3	2	27.9	7.8	28.4	4.1	10.5	7.1					
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	CS(Mf)3(N)	10:36	Surface	1	1	29.8	8.0	15.2	6.3	5.7	5.8		5.9		5.1	4.7
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	CS(Mf)3(N)	10:36	Surface	1	2	29.8	7.9	15.4	6.3		5.5				5.2	
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	CS(Mf)3(N)	10:36	Middle	2	1	29.1	7.9	19.6	5.1		5.7	4.6				
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	CS(Mf)3(N)	10:36	Middle	2	2	29.1	7.8	20.0	5.0		5.7	3.7				
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	CS(Mf)3(N)	10:36	Bottom	3	1	28.7	7.9	23.3	4.5	4.5	6.5	5.9	4.5	4.7		
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	CS(Mf)3(N)	10:36	Bottom	3	2	28.7	7.8	23.7	4.4	4.4	6.3		5.1			
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)16	9:57	Surface	1	1	30.0	8.1	17.5	7.0	7.0	6.7		5.2		10.4	9.3
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)16	9:57	Surface	1	2	30.0	8.0	17.8	7.0		6.9				11.2	
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)16	9:57	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)16	9:57	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)16	9:57	Bottom	3	1	29.7	8.0	19.1	6.4	6.4	3.7	5.2	7.8	9.3		
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)16	9:57	Bottom	3	2	29.7	7.9	19.5	6.4	6.4	3.5		7.7			
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR4a	9:47	Surface	1	1	30.1	8.1	16.1	7.4	7.4	3.2		4.8		5.1	5.4
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR4a	9:47	Surface	1	2	30.1	8.0	16.4	7.3		3.4				5.3	
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR4a	9:47	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR4a	9:47	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR4a	9:47	Bottom	3	1	30.0	8.1	16.9	6.8	6.8	6.3	5.2	6.2	9.3		
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR4a	9:47	Bottom	3	2	30.0	8.0	17.2	6.7	6.3	5.1					
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR4(N2)	9:42	Surface	1	1	30.2	8.1	16.5	7.0	7.0	11.0		11.5		6.6	6.1
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR4(N2)	9:42	Surface	1	2	30.2	8.0	16.8	7.0		10.2				6.3	
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR4(N2)	9:42	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR4(N2)	9:42	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR4(N2)	9:42	Bottom	3	1	30.2	8.1	16.6	6.8	6.8	12.1	5.5	6.4	7.4		
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR4(N2)	9:42	Bottom	3	2	30.2	8.0	16.9	6.8	6.8	12.7		4.9			
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS8(N)	9:37	Surface	1	1	30.2	8.1	16.6	7.6	7.6	5.7		6.3		9.4	5.1
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS8(N)	9:37	Surface	1	2	30.2	8.1	16.9	7.6		5.7				8.4	
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS8(N)	9:37	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS8(N)	9:37	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS8(N)	9:37	Bottom	3	1	30.2	8.1	16.6	7.6	7.6	5.3	5.6	6.0	5.0		
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS8(N)	9:37	Bottom	3	2	30.2	8.1	16.9	7.6	7.6	5.2		5.8			
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)9	9:28	Surface	1	1	30.2	8.1	16.8	7.5	7.5	4.2		6.3		5.5	5.1
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)9	9:28	Surface	1	2	30.2	8.1	17.1	7.4		4.4				6.2	
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)9	9:28	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)9	9:28	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)9	9:28	Bottom	3	1	30.2	8.1	16.7	7.5	7.5	6.9	6.3	3.8	5.1		
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)9	9:28	Bottom	3	2	30.2	8.1	17.1	7.5	7.5	6.9		4.5			
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)11	10:57	Surface	1	1	30.1	8.0	15.0	6.9	6.5	4.7		6.3		4.2	5.1
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)11	10:57	Surface	1	2	30.1	7.9	15.3	6.8		4.7				4.8	
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)11	10:57	Middle	2	1	29.9	8.0	15.7	6.1		5.8	5.9				
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)11	10:57	Middle	2	2	29.9	7.9	16.0	6.1		5.9	4.7				
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)11	10:57	Bottom	3	1	28.0	7.9	27.0	3.9	3.9	8.4	4.7	5.1	4.4		
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS(Mf)11	10:57	Bottom	3	2	28.0	7.8	27.6	3.8	3.9	8.4		5.7			
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR7	11:03	Surface	1	1	30.1	8.0	15.1	7.0	7.0	4.4		4.7		3.5	4.4
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR7	11:03	Surface	1	2	30.1	7.9	15.3	7.0		4.5				4.7	
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR7	11:03	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR7	11:03	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR7	11:03	Bottom	3	1	30.0	8.0	15.2	6.9	6.9	4.8	6.7	4.5	5.9		
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	SR7	11:03	Bottom	3	2	30.0	7.9	15.5	6.9	6.9	4.9		5.0			
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS17	10:03	Surface	1	1	29.9	8.0	16.6	6.7	6.7	4.2		3.8		6.2	5.9
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS17	10:03	Surface	1	2	29.9	7.9	16.9	6.7		4.9				6.1	
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS17	10:03	Middle	2	1	29.6	8.0	16.9	6.6		3.3	5.5				
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS17	10:03	Middle	2	2	29.6	7.9	17.2	6.6		3.9	5.8				

Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS17	10:03	Bottom	3	1	29.5	8.0	19.7	6.1	6.1	3.1		5.3	
TMCLKL	HY/2012/08	2019/08/12	Mid-Ebb	IS17	10:03	Bottom	3	2	29.5	7.9	19.9	6.1		3.5		6.7	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	CS(Mf)5	3:10	Surface	1	1	30.0	8.0	15.8	7.2		3.0		3.9	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	CS(Mf)5	3:10	Surface	1	2	30.0	8.0	16.1	7.1		2.7		4.7	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	CS(Mf)5	3:10	Middle	2	1	29.2	8.0	20.1	5.9	6.5	3.1	4.8	4.8	4.7
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	CS(Mf)5	3:10	Middle	2	2	29.2	7.9	20.4	5.9		3.1		5.1	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	CS(Mf)5	3:10	Bottom	3	1	28.0	7.8	27.7	4.5	4.5	8.7		5.4	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	CS(Mf)5	3:10	Bottom	3	2	28.0	7.8	28.3	4.5		8.4		4.5	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	CS(Mf)3(N)	4:03	Surface	1	1	29.9	8.0	14.7	6.7		5.7		6.1	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	CS(Mf)3(N)	4:03	Surface	1	2	29.9	7.9	14.9	6.6	6.7	5.6		4.3	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	CS(Mf)3(N)	4:03	Middle	2	1	29.9	8.1	15.2	6.7		7.1		5.5	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	CS(Mf)3(N)	4:03	Middle	2	2	29.9	7.9	15.4	6.7		7.9		4.7	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	CS(Mf)3(N)	4:03	Bottom	3	1	29.9	8.0	16.1	6.5	6.5	11.4		3.9	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	CS(Mf)3(N)	4:03	Bottom	3	2	29.9	7.9	16.3	6.5		11.6		3.3	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)16	4:43	Surface	1	1	29.9	8.1	16.7	6.9		3.7		7.6	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)16	4:43	Surface	1	2	29.9	7.9	17.0	6.9		4.4		7.0	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)16	4:43	Middle	2	1					6.9		3.9		7.7
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)16	4:43	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)16	4:43	Bottom	3	1	29.8	8.0	17.6	6.5	6.5	3.4		7.7	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)16	4:43	Bottom	3	2	29.8	7.9	17.9	6.5		4.2		8.4	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR4a	4:52	Surface	1	1	30.3	8.1	16.5	7.4		4.4		6.2	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR4a	4:52	Surface	1	2	30.3	8.0	16.8	7.5		5.1		7.1	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR4a	4:52	Middle	2	1					7.5		5.2		6.9
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR4a	4:52	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR4a	4:52	Bottom	3	1	30.3	8.1	16.8	7.4		5.3		7.6	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR4a	4:52	Bottom	3	2	30.3	7.9	17.1	7.4		5.8		6.8	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR4(N2)	4:57	Surface	1	1	30.1	8.1	16.3	7.2		4.0		7.7	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR4(N2)	4:57	Surface	1	2	30.1	8.0	16.6	7.2		4.0		7.1	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR4(N2)	4:57	Middle	2	1					7.2		4.1		7.5
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR4(N2)	4:57	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR4(N2)	4:57	Bottom	3	1	30.1	8.1	16.4	7.2		4.1		7.3	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR4(N2)	4:57	Bottom	3	2	30.1	8.0	16.7	7.2		4.1		7.8	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS8(N)	5:02	Surface	1	1	29.9	8.1	16.0	7.0		3.3		3.9	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS8(N)	5:02	Surface	1	2	29.9	7.9	16.3	6.9		4.1		4.2	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS8(N)	5:02	Middle	2	1					7.0		7.5		5.7
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS8(N)	5:02	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS8(N)	5:02	Bottom	3	1	29.9	8.1	16.0	7.0		11.4		7.4	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS8(N)	5:02	Bottom	3	2	29.9	7.9	16.3	6.9		11.1		7.2	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)9	5:09	Surface	1	1	29.9	8.1	16.3	7.0		5.5		6.1	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)9	5:09	Surface	1	2	29.9	7.9	16.6	6.9		5.3		6.7	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)9	5:09	Middle	2	1					7.0		5.7		6.0
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)9	5:09	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)9	5:09	Bottom	3	1	29.9	8.1	16.4	7.0		6.0		5.4	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)9	5:09	Bottom	3	2	29.9	7.9	16.7	6.9		5.8		5.9	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)11	3:36	Surface	1	1	29.8	8.0	15.0	6.6		4.1		4.6	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)11	3:36	Surface	1	2	29.8	7.9	15.2	6.5		4.9		5.4	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)11	3:36	Middle	2	1	30.0	8.1	15.9	6.9		3.8		5.1	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)11	3:36	Middle	2	2	30.0	8.0	16.2	6.8		3.6		4.5	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)11	3:36	Bottom	3	1	28.0	7.9	22.7	4.3	4.3	7.4		4.9	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS(Mf)11	3:36	Bottom	3	2	28.0	7.8	22.7	4.2		7.8		6.1	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR7	3:30	Surface	1	1	29.9	8.0	14.6	6.6		3.9		6.0	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR7	3:30	Surface	1	2	29.9	7.9	14.9	6.6		3.8		5.4	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR7	3:30	Middle	2	1					6.6		5.8		5.5
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR7	3:30	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR7	3:30	Bottom	3	1	29.9	8.0	15.7	6.4		7.9		5.0	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	SR7	3:30	Bottom	3	2	29.9	7.9	15.9	6.4		7.5		5.7	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS17	4:36	Surface	1	1	30.0	8.1	16.3	7.1		3.5		7.5	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS17	4:36	Surface	1	2	30.0	8.0	16.6	7.2		4.1		7.1	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS17	4:36	Middle	2	1	30.0	8.1	16.3	7.1		3.2		7.9	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS17	4:36	Middle	2	2	30.0	8.0	16.6	7.1		3.9		8.1	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS17	4:36	Bottom	3	1	30.0	8.1	16.7	7.1		3.0		7.6	
TMCLKL	HY/2012/08	2019/08/12	Mid-flood	IS17	4:36	Bottom	3	2	30.0	7.9	17.0	7.0		3.1		6.2	

Note: Indicates Exceedance of Action Level  
Indicates Exceedance of Limit Level



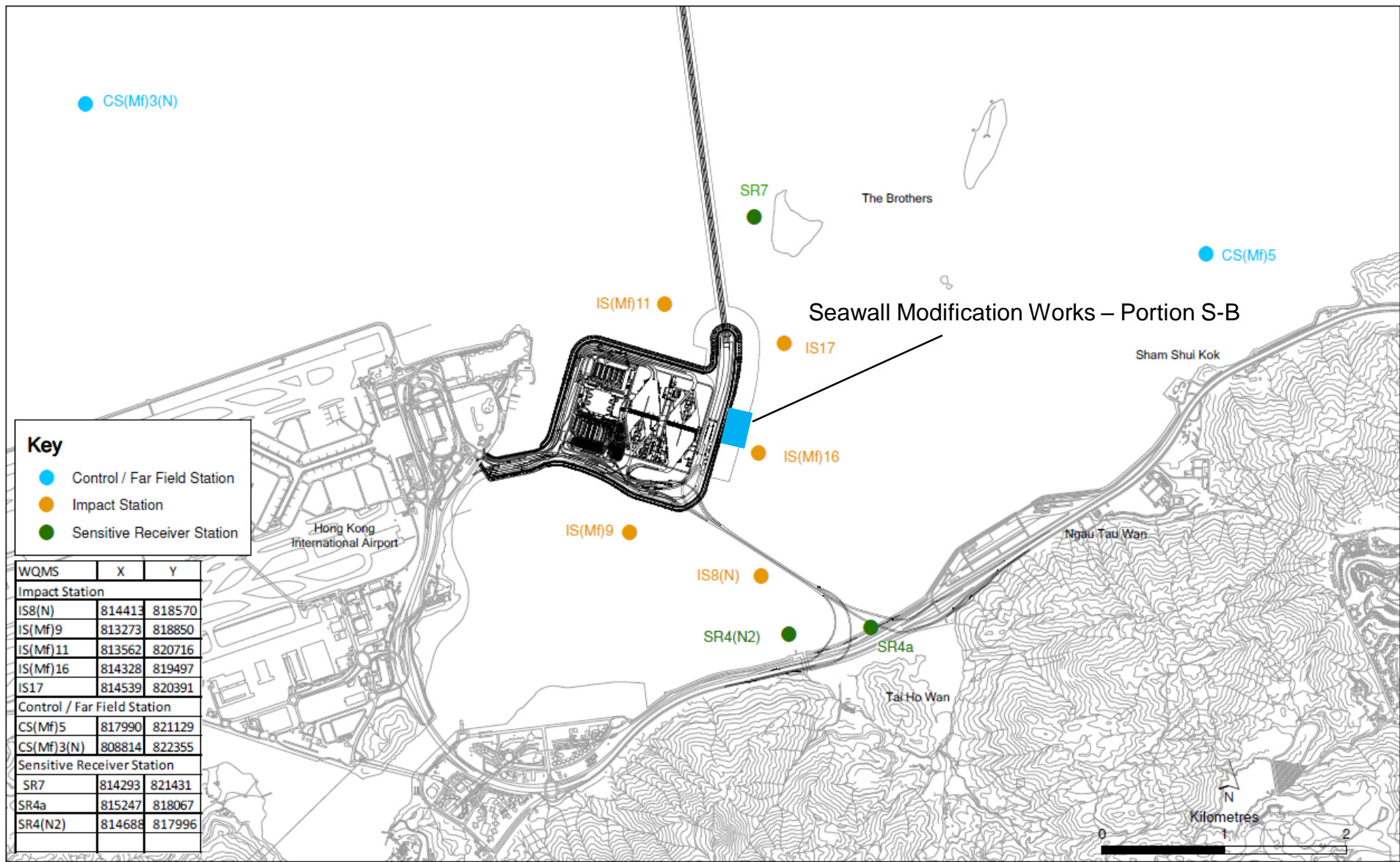


Figure 1

Email  
message

Environmental  
Resources  
Management

**To** Ramboll Hong Kong Limited (ENPO)

**From** ERM- Hong Kong, Limited

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

**Subject** Notification of Exceedance for Water Quality  
Impact Monitoring

**Date** 20 August 2019

2507,  
25/F One Harbourfront,  
18 Tak Fung Street,  
Hung Hom, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jasmine.ng@erm.com



**ERM**

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Dear Sir or Madam,

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

Action Level Exceedance

0212330\_14 August 2019\_ Bottom DO\_E\_Station IS(Mf)16

0212330\_14 August 2019\_ Bottom DO\_E\_Station IS17

0212330\_14 August 2019\_ Bottom DO\_F\_Station IS(Mf)11

A total of three Action Level exceedances were recorded on 14 August 2019.

Regards,



Dr Jasmine Ng  
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08

TUEN MUN – CHEK LAP KOK LINK –

NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Marine Water Quality Impact Monitoring  
Notification of Exceedance

Log No.	<b>Action Level Exceedance</b> 0212330_14 August 2019_ Bottom DO_E_Station IS(Mf)16 0212330_14 August 2019_ Bottom DO_E_Station IS17 0212330_14 August 2019_ Bottom DO_F_Station IS(Mf)11 [Total No. of Exceedances = 3]		
Date	14 August 2019 (Measured) 16 August 2019 ( <i>In situ</i> results received by ERM) 23 August 2019 (Laboratory results received by ERM)		
Monitoring Station	CS(Mf)5, SR4a, SR4(N2), IS8(N), IS(Mf)16, IS(Mf)9, CS(Mf)3(N), SR7, IS17, IS(Mf)11		
Parameter(s) with Exceedance(s)	Dissolved Oxygen (mg/L)		
Action Levels	DO	Surface and Middle 5.0 mg/L	Bottom 4.7 mg/L
Limit Levels	DO	Surface and Middle 4.2 mg/L	Bottom 3.6 mg/L
Measured Levels	Action Level Exceedance for DO (4.6 mg/L) is observed at IS(Mf)16 at Bottom Level during mid-ebb tide. Action Level Exceedance for DO (4.4 mg/L) is observed at IS17 at Bottom Level during mid-ebb tide. Action Level Exceedance for DO (4.6 mg/L) is observed at IS(Mf)11 at Bottom Level during mid-flood tide.		
Works Undertaken (at the time of monitoring event)	According to the information provided by the Contractor, Seawall Modification Works was carried out on 14 August 2019.		
Possible Reason for Action or Limit Level Exceedance(s)	<p>The exceedances are unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> <li>• All monitored parameters, except DO, at all monitoring stations were in compliance with the Action and Limit Levels during both mid-ebb and mid-flood tides on the same day.</li> <li>• No discharge of organic matters into waters from landside works area was recorded.</li> <li>• IS(Mf)11 is far away (&gt;2 km) from the Seawall Modification Works Area (<i>Figure 1</i>), thus the observed exceedance should not be affected by the marine works under this Contract. Therefore, the exceedance is unlikely to be related to this Contract.</li> <li>• The DO pattern at IS(Mf)16 and IS17 during mid-ebb tide and IS(Mf)11 during mid-flood tide were similar to the their corresponding control station where the bottom-depth DO levels were generally lower. Lower bottom-depth DO levels may be possibly caused by the stratification of seawater during summer when the freshwater discharged from the Pearl River tended to form a surface layer of lower salinity water, which is probably responsible for the lower Salinity recorded at the surface and middle levels compared to the higher Salinity recorded at the bottom level of the monitoring stations. The stratification of seawater in the water column is likely a contributing factor to the results of lower levels of DO at the bottom level.</li> </ul>		
Actions Taken/ To Be Taken	No immediate action is considered necessary. The ET will monitor for future trends in exceedances.		
Remarks	The monitoring results on 14 August 2019 and locations of water quality monitoring stations are attached.		

Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS		
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)5	12:46	Surface	1	1	30.1	8.0	18.4	6.1	5.6	3.0	5.1	4.2	6.1		
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)5	12:46	Surface	1	2	30.0	8.0	18.4	6.1		3.0		4.1			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)5	12:46	Middle	2	1	29.3	7.9	21.1	5.0		4.5		4.5			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)5	12:46	Middle	2	2	29.3	7.9	21.2	5.0		4.6		5.7			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)5	12:46	Bottom	3	1	28.0	7.9	26.6	3.8	3.8	7.7	3.8	8.8			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)5	12:46	Bottom	3	2	28.0	7.9	26.6	3.8	7.6	9.2					
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)3(N)	12:03	Surface	1	1	30.6	7.9	16.4	6.1	5.8	2.9	3.8	7.0	8.3		
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)3(N)	12:03	Surface	1	2	30.6	7.9	16.5	6.1		2.9		6.8			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)3(N)	12:03	Middle	2	1	29.7	7.9	18.9	5.4		3.9		6.9			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)3(N)	12:03	Middle	2	2	29.7	7.9	18.9	5.4		3.8		8.4			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)3(N)	12:03	Bottom	3	1	29.6	7.9	19.7	5.3	5.3	4.5	5.3	10.5			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)3(N)	12:03	Bottom	3	2	29.7	7.9	19.6	5.3	4.5	10.1					
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)16	11:16	Surface	1	1	30.1	8.0	18.5	6.2	6.2	4.8	7.4	5.1	6.6		
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)16	11:16	Surface	1	2	30.2	8.0	18.5	6.2		4.8		5.4			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)16	11:16	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)16	11:16	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)16	11:16	Bottom	3	1	28.6	7.9	24.5	4.6	4.6	9.9	5.6	7.8			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)16	11:16	Bottom	3	2	28.6	7.9	24.4	4.6	9.9	8.2					
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR4a	11:05	Surface	1	1	30.4	8.0	17.4	6.4	6.4	3.2	4.1	6.6	7.6		
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR4a	11:05	Surface	1	2	30.4	8.0	17.3	6.4		3.2		7.3			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR4a	11:05	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR4a	11:05	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR4a	11:05	Bottom	3	1	30.0	7.9	18.6	5.6	5.6	4.9	5.8	8.3			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR4a	11:05	Bottom	3	2	30.0	7.9	18.6	5.6		4.9		8.2			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR4(N2)	11:00	Surface	1	1	30.5	8.0	17.4	6.3	6.3	3.3	5.8	5.1	6.4		
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR4(N2)	11:00	Surface	1	2	30.5	8.0	17.4	6.3		3.3		6.3			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR4(N2)	11:00	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR4(N2)	11:00	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR4(N2)	11:00	Bottom	3	1	30.0	7.9	18.8	5.6	5.6	8.2	11.0	7.2	6.0		
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR4(N2)	11:00	Bottom	3	2	30.0	7.9	18.8	5.6		8.2		6.9			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS8(N)	10:55	Surface	1	1	30.4	8.0	18.2	6.1	6.1	9.9	3.5	4.3	8.0		
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS8(N)	10:55	Surface	1	2	30.4	8.0	18.2	6.1		9.9		4.1			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS8(N)	10:55	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS8(N)	10:55	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS8(N)	10:55	Bottom	3	1	29.9	8.0	19.0	5.6	5.6	12.2	6.0	7.2	6.0		
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS8(N)	10:55	Bottom	3	2	29.9	8.0	19.0	5.6		12.1		8.4			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)9	10:48	Surface	1	1	30.6	8.1	17.7	6.6	6.6	3.3	3.5	7.5	8.0		
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)9	10:48	Surface	1	2	30.6	8.1	17.7	6.6		3.3		7.5			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)9	10:48	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)9	10:48	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)9	10:48	Bottom	3	1	30.4	8.1	17.8	6.5	6.5	3.6	3.4	7.9	7.6		
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)9	10:48	Bottom	3	2	30.4	8.1	17.8	6.4		3.6		9.0			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)11	11:31	Surface	1	1	30.2	8.0	16.9	6.3	6.0	2.7	3.4	4.6	7.6		
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)11	11:31	Surface	1	2	30.2	8.0	17.0	6.3		2.6		5.1			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)11	11:31	Middle	2	1	29.7	7.9	18.4	5.6		3.3		7.2			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)11	11:31	Middle	2	2	29.7	7.9	18.4	5.6		3.2		8.3			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)11	11:31	Bottom	3	1	29.6	7.9	19.0	5.5	5.5	4.2	2.9	10.2	5.7		
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)11	11:31	Bottom	3	2	29.6	7.9	19.0	5.5		4.2		10.4			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR7	12:26	Surface	1	1	30.2	7.9	16.8	6.3	6.3	2.2	2.9	5.4	5.7		
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR7	12:26	Surface	1	2	30.2	8.0	16.8	6.3		2.2		5.6			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR7	12:26	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR7	12:26	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR7	12:26	Bottom	3	1	29.8	7.9	18.7	5.7	5.7	3.6	5.2	5.8	5.9		
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	SR7	12:26	Bottom	3	2	29.8	7.9	18.6	5.7		3.5		6.1			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS17	11:22	Surface	1	1	30.3	8.0	18.5	6.3	6.1	4.9	5.2	5.0	5.9		
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS17	11:22	Surface	1	2	30.3	8.0	18.5	6.3		4.9		4.3			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS17	11:22	Middle	2	1	29.9	8.0	19.1	5.9		3.8		4.7			
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS17	11:22	Middle	2	2	29.9	8.0	19.0	5.9		3.8		5.6			

Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS17	11:22	Bottom	3	1	28.5	7.9	25.0	4.4	4.4	6.8		7.7	
TMCLKL	HY/2012/08	2019/08/14	Mid-Ebb	IS17	11:22	Bottom	3	2	28.5	7.9	25.0	4.4		6.8		7.9	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	CS(Mf)5	4:38	Surface	1	1	30.1	7.9	16.8	6.2		3.2	2.4	6.3	7.9
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	CS(Mf)5	4:38	Surface	1	2	30.1	7.9	16.8	6.2	6.1	3.2		7.3	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	CS(Mf)5	4:38	Middle	2	1	29.9	7.9	19.2	6.0		2.0		8.1	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	CS(Mf)5	4:38	Middle	2	2	29.9	7.9	19.2	6.0		2.0		7.5	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	CS(Mf)5	4:38	Bottom	3	1	28.5	7.9	25.3	4.7	4.7	2.0		9.7	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	CS(Mf)5	4:38	Bottom	3	2	28.5	7.9	25.3	4.7		2.0		8.3	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	CS(Mf)3(N)	5:56	Surface	1	1	29.9	7.9	16.6	6.0		4.2	5.9	4.3	6.2
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	CS(Mf)3(N)	5:56	Surface	1	2	29.9	7.9	16.6	6.0	6.0	4.2		5.1	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	CS(Mf)3(N)	5:56	Middle	2	1	29.9	7.9	17.1	5.9		4.0		6.6	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	CS(Mf)3(N)	5:56	Middle	2	2	29.9	7.9	17.1	5.9		4.0		6.1	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	CS(Mf)3(N)	5:56	Bottom	3	1	29.7	7.9	18.9	5.5	5.5	9.4		7.5	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	CS(Mf)3(N)	5:56	Bottom	3	2	29.7	7.9	18.9	5.4		9.3		7.6	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)16	6:18	Surface	1	1	30.0	8.0	18.0	6.2		3.5	3.5	6.9	7.9
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)16	6:18	Surface	1	2	30.0	8.0	18.1	6.2	6.2	3.5		7.5	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)16	6:18	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)16	6:18	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)16	6:18	Bottom	3	1	30.0	8.0	18.0	6.2	6.2	3.6		8.0	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)16	6:18	Bottom	3	2	30.0	8.0	18.0	6.2		3.5		9.0	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR4a	6:27	Surface	1	1	30.2	8.0	17.5	5.9		4.1	5.6	5.5	6.4
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR4a	6:27	Surface	1	2	30.2	8.0	17.5	6.0	6.0	4.1		6.0	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR4a	6:27	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR4a	6:27	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR4a	6:27	Bottom	3	1	29.9	7.9	18.7	5.3	5.3	7.1		6.2	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR4a	6:27	Bottom	3	2	29.9	7.9	18.7	5.3		7.1		7.7	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR4(N2)	6:32	Surface	1	1	30.1	8.0	17.2	6.1		3.5	4.4	6.4	5.8
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR4(N2)	6:32	Surface	1	2	30.1	8.0	17.2	6.1	6.1	3.4		5.6	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR4(N2)	6:32	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR4(N2)	6:32	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR4(N2)	6:32	Bottom	3	1	30.0	8.0	18.0	5.9	5.9	5.4		6.0	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR4(N2)	6:32	Bottom	3	2	30.0	8.0	18.0	5.9		5.3		5.2	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS8(N)	6:38	Surface	1	1	30.0	8.0	17.3	6.1		4.1	4.7	10.0	13.6
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS8(N)	6:38	Surface	1	2	30.0	8.0	17.3	6.1	6.1	4.2		10.2	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS8(N)	6:38	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS8(N)	6:38	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS8(N)	6:38	Bottom	3	1	30.0	8.0	17.5	6.0	6.0	5.3		17.1	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS8(N)	6:38	Bottom	3	2	30.0	8.0	17.5	6.0		5.3		16.9	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)9	6:45	Surface	1	1	29.9	8.0	17.3	6.1		4.8	5.9	6.3	8.9
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)9	6:45	Surface	1	2	29.9	8.0	17.3	6.1	6.1	4.9		6.1	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)9	6:45	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)9	6:45	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)9	6:45	Bottom	3	1	29.9	8.0	17.8	6.1	6.1	6.9		11.9	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)9	6:45	Bottom	3	2	29.9	8.0	17.8	6.1		7.0		11.1	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)11	6:00	Surface	1	1	30.1	8.0	17.2	6.2		3.6	8.0	4.4	6.4
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)11	6:00	Surface	1	2	30.1	8.0	17.2	6.2	5.8	3.6		4.2	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)11	6:00	Middle	2	1	29.5	8.0	20.6	5.3		4.8		7.3	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)11	6:00	Middle	2	2	29.5	8.0	20.7	5.3		4.8		6.5	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)11	6:00	Bottom	3	1	28.7	7.9	24.5	4.6	4.6	15.7		8.4	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS(Mf)11	6:00	Bottom	3	2	28.7	7.9	24.5	4.6		15.7		7.3	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR7	4:58	Surface	1	1	30.0	7.9	17.1	5.9		3.6	3.6	5.8	6.4
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR7	4:58	Surface	1	2	30.0	7.9	17.1	5.9	5.9	3.6		5.4	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR7	4:58	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR7	4:58	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR7	4:58	Bottom	3	1	29.9	7.9	17.4	6.0	6.0	3.6		6.9	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	SR7	4:58	Bottom	3	2	29.9	7.9	17.4	6.0		3.6		7.4	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS17	6:11	Surface	1	1	30.0	8.0	18.0	6.2		3.4	3.3	7.1	7.3
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS17	6:11	Surface	1	2	30.0	8.0	18.0	6.2	6.2	3.4		6.4	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS17	6:11	Middle	2	1	30.0	8.0	18.1	6.1		3.4		6.2	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS17	6:11	Middle	2	2	30.0	8.0	18.2	6.1		3.4		6.7	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS17	6:11	Bottom	3	1	29.8	8.0	18.9	5.9	5.9	3.1		8.1	
TMCLKL	HY/2012/08	2019/08/14	Mid-flood	IS17	6:11	Bottom	3	2	29.8	8.0	18.9	5.9		3.1		9.2	

Note: Indicates Exceedance of Action Level  
Indicates Exceedance of Limit Level



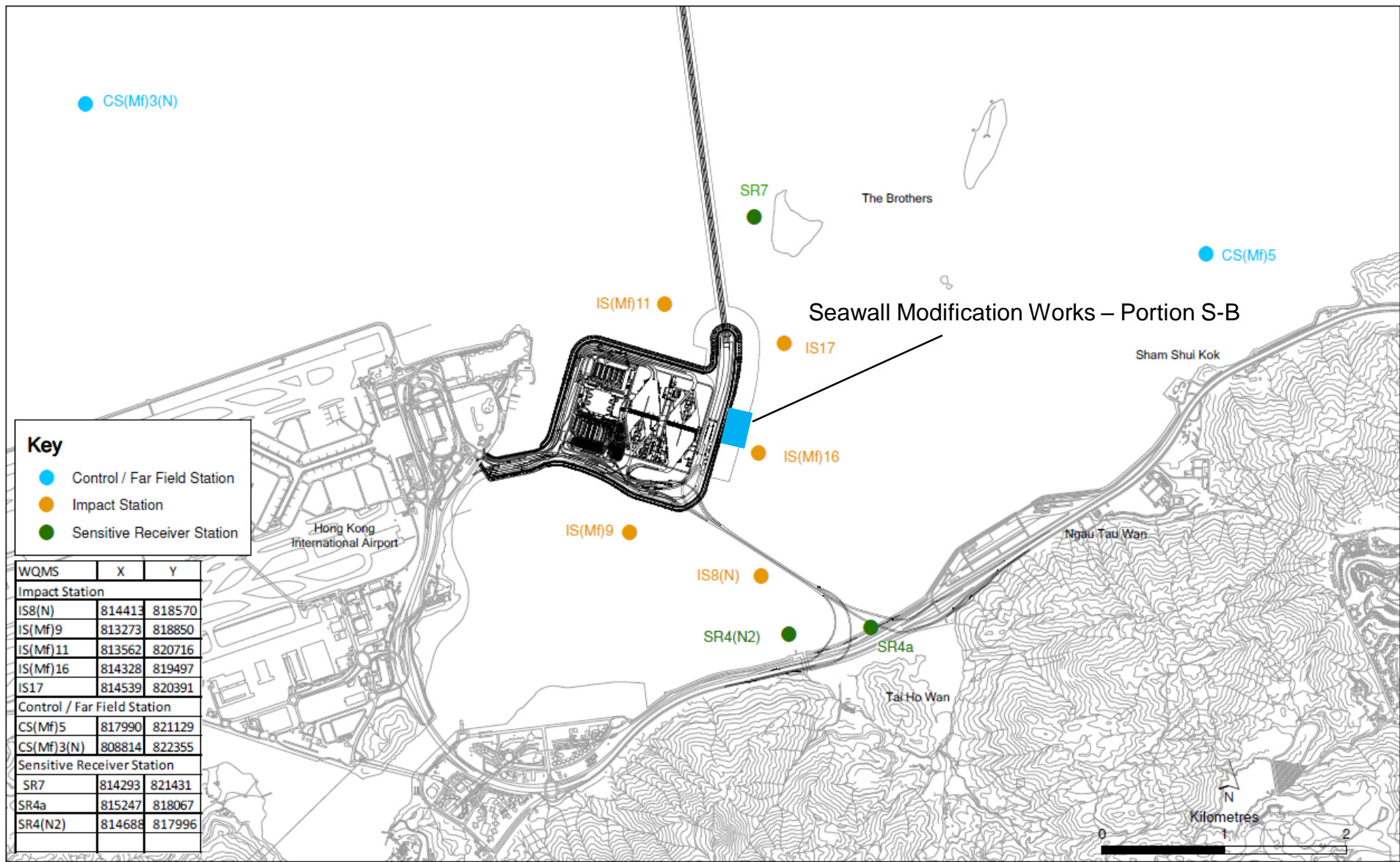


Figure 1

Email  
message

Environmental  
Resources  
Management

**To** Ramboll Hong Kong Limited (ENPO)

**From** ERM- Hong Kong, Limited

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

**Subject** Notification of Exceedance for Water Quality  
Impact Monitoring

**Date** 30 August 2019

2507,  
25/F One Harbourfront,  
18 Tak Fung Street,  
Hung Hom, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jasmine.ng@erm.com



**ERM**

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Dear Sir or Madam,

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

Action Level Exceedance

0212330\_19 August 2019\_ Surface & Middle DO\_E\_Station IS(Mf)16

0212330\_19 August 2019\_ Bottom DO\_E\_Station IS(Mf)16

0212330\_19 August 2019\_ Surface & Middle DO\_E\_Station SR4a

0212330\_19 August 2019\_ Bottom DO\_E\_Station SR4a

0212330\_19 August 2019\_ Surface & Middle DO\_E\_Station SR4(N2)

0212330\_19 August 2019\_ Bottom DO\_E\_Station SR4(N2)

0212330\_19 August 2019\_ Bottom DO\_E\_Station IS8(N)

0212330\_19 August 2019\_ Bottom DO\_E\_Station IS(Mf)11

0212330\_19 August 2019\_ Bottom DO\_E\_Station IS17

0212330\_19 August 2019\_ Surface & Middle DO\_F\_Station IS(Mf)11

0212330\_19 August 2019\_ Bottom DO\_F\_Station IS(Mf)11

A total of eleven Action Level exceedances were recorded on 19 August 2019.

Regards,



Dr Jasmine Ng  
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08

TUEN MUN – CHEK LAP KOK LINK –  
NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Marine Water Quality Impact Monitoring  
Notification of Exceedance

Log No.	<p align="center"><b>Action Level Exceedance</b></p> <p align="center">0212330_19 August 2019_ Surface &amp; Middle DO_E_Station IS(Mf)16          0212330_19 August 2019_ Bottom DO_E_Station IS(Mf)16          0212330_19 August 2019_ Surface &amp; Middle DO_E_Station SR4a          0212330_19 August 2019_ Bottom DO_E_Station SR4a          0212330_19 August 2019_ Surface &amp; Middle DO_E_Station SR4(N2)          0212330_19 August 2019_ Bottom DO_E_Station SR4(N2)          0212330_19 August 2019_ Bottom DO_E_Station IS8(N)          0212330_19 August 2019_ Bottom DO_E_Station IS(Mf)11          0212330_19 August 2019_ Bottom DO_E_Station IS17          0212330_19 August 2019_ Surface &amp; Middle DO_F_Station IS(Mf)11          0212330_19 August 2019_ Bottom DO_F_Station IS(Mf)11          [Total No. of Exceedances = 11]</p>		
Date	<p align="center">19 August 2019 (Measured)          21 August 2019 (<i>In situ</i> results received by ERM)          28 August 2019 (Laboratory results received by ERM)</p>		
Monitoring Station	<p align="center">CS(Mf)5, SR4a, SR4(N2), IS8(N), IS(Mf)16, IS(Mf)9, CS(Mf)3(N), SR7, IS17, IS(Mf)11</p>		
Parameter(s) with Exceedance(s)	<p align="center">Dissolved Oxygen (mg/L)</p>		
Action Levels	DO	Surface and Middle 5.0 mg/L	Bottom 4.7 mg/L
Limit Levels	DO	Surface and Middle 4.2 mg/L	Bottom 3.6 mg/L
Measured Levels	<p>Action Level Exceedance for DO (4.8 mg/L) is observed at IS(Mf)16 at Surface &amp; Middle Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.3 mg/L) is observed at IS(Mf)16 at Bottom Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.7 mg/L) is observed at SR4a at Surface &amp; Middle Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.5 mg/L) is observed at SR4a at Bottom Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.8 mg/L) is observed at SR4(N2) at Surface &amp; Middle Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.6 mg/L) is observed at SR4(N2) at Bottom Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.6 mg/L) is observed at IS8(N) at Bottom Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.2 mg/L) is observed at IS(Mf)11 at Bottom Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.2 mg/L) is observed at IS17 at Bottom Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.7 mg/L) is observed at IS(Mf)11 at Surface &amp; Middle Level during mid-flood tide.</p> <p>Action Level Exceedance for DO (4.3 mg/L) is observed at IS(Mf)11 at Bottom Level during mid-flood tide..</p>		
Works Undertaken (at the time of monitoring event)	<p>According to the information provided by the Contractor, Seawall Modification Works was carried out on 19 August 2019.</p>		



<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedances are unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> <li>• All monitored parameters, except DO, at all monitoring stations were in compliance with the Action and Limit Levels during both mid-ebb and mid-flood tides on the same day.</li> <li>• No discharge of organic matters into waters from landside works area was recorded.</li> <li>• IS(Mf)11, SR4a, SR4(N2) and IS8(N) are far away (&gt;1.5 km) from the Seawall Modification Works Area (Figure 1), thus the observed exceedance should not be affected by the marine works under this Contract. Therefore, the exceedance is unlikely to be related to this Contract.</li> <li>• The DO pattern at IS(Mf)16, SR4a, SR4(N2), IS8(N), IS(Mf)11 and IS17 during mid-ebb tide and IS(Mf)11 during mid-flood tide were similar to the their corresponding control station where the bottom-depth DO levels were generally lower. Lower bottom-depth DO levels may be possibly caused by the stratification of seawater during summer when the freshwater discharged from the Pearl River tended to form a surface layer of lower salinity water, which is probably responsible for the lower Salinity recorded at the surface and middle levels compared to the higher Salinity recorded at the bottom level of the monitoring stations. The stratification of seawater in the water column is likely a contributing factor to the results of lower levels of DO at the bottom level.</li> <li>• Bottom-depth DO levels at IS(Mf)11 was similar to the corresponding control stations, CS(Mf)5, during mid-flood tide, in which the recorded Bottom-depth DO levels at the corresponding control station were below Action Level.</li> <li>• Surface &amp; Middle-depth DO levels at IS(Mf)11 were similar to the corresponding control stations, CS(Mf)5, during mid-flood tide, in which the recorded Surface &amp; Middle-depth DO levels at the corresponding control station were below Action Level.</li> <li>• As reported by the marine mammal observer, no discharge of organic matters into waters from landside works area was recorded. Therefore, the exceedance recorded at IS(Mf)16 during mid-ebb tide is likely to be due to natural fluctuation of water quality and is unlikely to be related to this Contract. Exceedances recorded at SR4a, SR4(N2), IS8(N), IS(Mf)11 and IS17 during mid-ebb tide and IS(Mf)11 during mid-flood tide are unlikely to be related to this Contract as these stations are further than IS(Mf)16.</li> </ul>
<b>Actions Taken / To Be Taken</b>	<p>No immediate action is considered necessary. The ET will monitor for future trends in exceedances.</p>
<b>Remarks</b>	<p>The monitoring results on 19 August 2019 and locations of water quality monitoring stations are attached.</p>

Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)5	15:37	Surface	1	1	28.2	8.0	22.2	5.0	4.6	3.8	8.9	3.8	4.0		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)5	15:37	Surface	1	2	28.9	7.9	21.8	5.0		4.1		3.6			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)5	15:37	Middle	2	1	26.6	8.0	26.8	4.1		8.2		3.6			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)5	15:37	Middle	2	2	27.3	7.9	26.4	4.1		8.0		3.7			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)5	15:37	Bottom	3	1	25.8	8.1	30.1	3.8	3.8	14.4	8.9	4.7	4.0		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)5	15:37	Bottom	3	2	26.5	7.9	29.7	3.7	3.8	14.6		4.7			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)3(N)	14:43	Surface	1	1	28.9	8.0	19.6	5.6	5.3	3.0	4.9	1.9	2.1		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)3(N)	14:43	Surface	1	2	29.7	7.9	19.2	5.5		3.1		1.9			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)3(N)	14:43	Middle	2	1	28.0	8.0	22.9	5.1		4.8		2.1			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)3(N)	14:43	Middle	2	2	28.8	7.9	22.4	5.1		4.9		2.1			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)3(N)	14:43	Bottom	3	1	27.5	8.0	24.5	4.9	4.8	6.5	4.9	2.4	2.1		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)3(N)	14:43	Bottom	3	2	28.3	7.9	24.0	4.7	4.8	6.9		2.4			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)16	13:56	Surface	1	1	27.8	8.1	23.3	4.8	4.8	7.8	6.4	9.2	8.7		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)16	13:56	Surface	1	2	28.6	7.9	22.9	4.8		7.2		8.8			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)16	13:56	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)16	13:56	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)16	13:56	Bottom	3	1	26.2	8.0	28.5	4.4	4.3	5.2	10.1	8.5	6.1		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)16	13:56	Bottom	3	2	27.0	7.9	28.1	4.2	4.3	5.4		8.2			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR4a	13:47	Surface	1	1	27.8	8.0	22.9	4.6	4.7	8.6	10.1	8.9	6.1		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR4a	13:47	Surface	1	2	28.5	7.9	22.6	4.7		8.2		8.3			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR4a	13:47	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR4a	13:47	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR4a	13:47	Bottom	3	1	27.6	8.0	23.7	4.5	4.5	11.9	10.8	3.4	9.0		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR4a	13:47	Bottom	3	2	28.4	7.9	23.3	4.5	4.5	11.8		3.7			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR4(N2)	13:42	Surface	1	1	28.0	8.0	22.3	4.7	4.8	10.0	10.8	8.4	9.0		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR4(N2)	13:42	Surface	1	2	28.7	7.9	22.0	4.8		10.0		8.1			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR4(N2)	13:42	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR4(N2)	13:42	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR4(N2)	13:42	Bottom	3	1	27.8	8.0	22.8	4.6	4.6	11.7	10.7	9.7	12.1		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR4(N2)	13:42	Bottom	3	2	28.6	7.9	22.5	4.6	4.6	11.6		9.6			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS8(N)	13:36	Surface	1	1	27.9	8.1	22.9	5.1	5.1	10.6	10.7	14.4	12.1		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS8(N)	13:36	Surface	1	2	28.6	7.9	22.7	5.1		10.4		13.4			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS8(N)	13:36	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS8(N)	13:36	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS8(N)	13:36	Bottom	3	1	27.6	8.1	23.8	4.6	4.6	10.9	4.6	10.6	6.1		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS8(N)	13:36	Bottom	3	2	28.3	7.9	23.5	4.5	4.6	10.9		9.9			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)9	13:30	Surface	1	1	28.7	8.0	21.4	5.6	5.6	3.9	4.6	8.1	6.1		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)9	13:30	Surface	1	2	29.5	8.0	21.1	5.6		4.1		7.8			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)9	13:30	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)9	13:30	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)9	13:30	Bottom	3	1	28.4	8.0	21.6	5.5	5.5	5.2	4.1	4.5	1.8		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)9	13:30	Bottom	3	2	29.1	8.0	21.3	5.5	5.5	5.1		4.0			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)11	15:07	Surface	1	1	29.3	8.1	19.7	5.7	5.4	2.3	4.1	2.4	1.8		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)11	15:07	Surface	1	2	30.1	7.9	19.4	5.6		2.4		2.7			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)11	15:07	Middle	2	1	28.6	8.1	20.5	5.2		3.3		1.6			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)11	15:07	Middle	2	2	29.4	7.9	20.1	5.2		3.4		1.5			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)11	15:07	Bottom	3	1	26.3	8.1	28.6	4.2	4.2	6.4	4.1	1.5	5.0		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)11	15:07	Bottom	3	2	27.1	7.9	28.0	4.1	4.2	6.9		1.3			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR7	15:16	Surface	1	1	28.5	8.1	20.9	5.4	5.4	2.9	3.5	1.9	2.2		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR7	15:16	Surface	1	2	29.3	7.9	20.5	5.4		3.0		1.6			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR7	15:16	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR7	15:16	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR7	15:16	Bottom	3	1	28.2	8.1	21.5	5.4	5.4	4.0	4.1	2.4	5.0		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	SR7	15:16	Bottom	3	2	29.0	7.9	21.2	5.3	5.4	4.0		2.9			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS17	14:03	Surface	1	1	28.8	8.0	20.2	5.3	5.1	3.8	6.3	2.7	5.0		
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS17	14:03	Surface	1	2	29.6	7.9	20.0	5.3		3.9		3.1			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS17	14:03	Middle	2	1	27.8	8.0	22.4	5.0		6.2		4.7			
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS17	14:03	Middle	2	2	28.4	7.9	22.3	4.9		6.5		4.2			

Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS17	14:03	Bottom	3	1	27.0	8.1	26.8	4.2	4.2	8.9		7.6	
TMCLKL	HY/2012/08	2019/08/19	Mid-Ebb	IS17	14:03	Bottom	3	2	27.9	7.9	26.6	4.1		8.3		7.8	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	CS(Mf)5	7:56	Surface	1	1	28.8	7.8	20.1	5.0		3.3	6.6	3.1	3.6
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	CS(Mf)5	7:56	Surface	1	2	28.0	8.0	20.4	5.0	4.6	3.3		2.7	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	CS(Mf)5	7:56	Middle	2	1	27.6	7.8	25.7	4.2		4.9		3.6	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	CS(Mf)5	7:56	Middle	2	2	26.8	8.0	26.2	4.2		4.9		3.7	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	CS(Mf)5	7:56	Bottom	3	1	26.7	7.8	29.5	3.7	3.8	11.5		4.1	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	CS(Mf)5	7:56	Bottom	3	2	25.9	8.0	29.9	3.8		11.5		4.1	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	CS(Mf)3(N)	8:44	Surface	1	1	28.4	8.0	17.0	5.5		3.7	4.3	5.5	4.7
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	CS(Mf)3(N)	8:44	Surface	1	2	29.2	7.9	16.7	5.5	5.4	3.7		5.2	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	CS(Mf)3(N)	8:44	Middle	2	1	28.2	8.0	19.2	5.4		4.6		4.2	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	CS(Mf)3(N)	8:44	Middle	2	2	29.0	7.8	18.9	5.3		4.7		4.7	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	CS(Mf)3(N)	8:44	Bottom	3	1	28.2	8.0	19.4	5.4	5.4	4.6		4.4	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	CS(Mf)3(N)	8:44	Bottom	3	2	29.0	7.9	19.1	5.3		4.7		4.4	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)16	9:28	Surface	1	1	28.0	8.1	21.6	5.2		4.5	6.0	2.6	3.6
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)16	9:28	Surface	1	2	28.7	7.9	21.3	5.2	5.2	4.9		2.7	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)16	9:28	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)16	9:28	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)16	9:28	Bottom	3	1	27.8	8.1	22.2	5.3	5.2	7.4		4.4	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)16	9:28	Bottom	3	2	28.6	8.0	21.8	5.1		7.3		4.8	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR4a	9:37	Surface	1	1	28.0	8.1	21.2	5.2		4.7	6.6	5.2	5.4
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR4a	9:37	Surface	1	2	28.7	7.9	20.9	5.2	5.2	4.8		4.8	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR4a	9:37	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR4a	9:37	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR4a	9:37	Bottom	3	1	27.9	8.1	21.9	4.9	4.9	8.2		5.8	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR4a	9:37	Bottom	3	2	28.6	8.0	21.6	4.9		8.8		5.8	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR4(N2)	9:42	Surface	1	1	28.0	8.1	21.1	5.4		4.4	4.9	8.6	6.6
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR4(N2)	9:42	Surface	1	2	28.8	7.9	20.7	5.3	5.4	4.4		8.7	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR4(N2)	9:42	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR4(N2)	9:42	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR4(N2)	9:42	Bottom	3	1	28.0	8.1	21.2	5.5	5.5	5.9		4.3	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR4(N2)	9:42	Bottom	3	2	28.7	7.9	20.8	5.5		5.0		4.8	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS8(N)	9:49	Surface	1	1	28.0	8.1	21.1	5.2		5.3	7.0	5.0	6.1
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS8(N)	9:49	Surface	1	2	28.8	7.9	20.7	5.1	5.2	5.9		4.7	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS8(N)	9:49	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS8(N)	9:49	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS8(N)	9:49	Bottom	3	1	27.8	8.1	22.0	5.1	5.1	8.5		7.4	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS8(N)	9:49	Bottom	3	2	28.6	7.9	21.6	5.0		8.2		7.2	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)9	9:56	Surface	1	1	28.1	8.1	21.3	5.4		4.4	6.3	5.5	5.5
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)9	9:56	Surface	1	2	28.9	7.9	20.9	5.4	5.4	4.7		5.3	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)9	9:56	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)9	9:56	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)9	9:56	Bottom	3	1	28.0	8.1	21.6	5.5	5.5	8.0		5.7	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)9	9:56	Bottom	3	2	28.7	7.9	21.3	5.5		8.1		5.4	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)11	8:20	Surface	1	1	28.7	7.9	20.5	5.1		4.5	10.4	4.9	4.7
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)11	8:20	Surface	1	2	28.7	7.9	20.5	5.1	4.7	4.5		4.9	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)11	8:20	Middle	2	1	28.0	7.9	24.6	4.3		13.5		4.9	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)11	8:20	Middle	2	2	28.0	7.9	24.6	4.3		13.5		4.9	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)11	8:20	Bottom	3	1	27.9	7.9	24.9	4.3		13.2		4.3	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS(Mf)11	8:20	Bottom	3	2	27.9	7.9	24.9	4.3	4.3	13.2		4.2	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR7	8:13	Surface	1	1	28.6	7.9	19.8	5.2		5.3	6.9	4.8	5.1
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR7	8:13	Surface	1	2	27.8	8.0	20.2	5.1	5.2	5.0		4.1	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR7	8:13	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR7	8:13	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR7	8:13	Bottom	3	1	28.2	7.9	23.0	4.6		8.5		5.7	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	SR7	8:13	Bottom	3	2	27.4	8.0	23.5	4.7	4.7	8.9		5.7	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS17	9:21	Surface	1	1	28.0	8.1	21.7	5.2		3.6	3.6	3.2	4.3
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS17	9:21	Surface	1	2	28.7	7.9	21.3	5.1	5.0	3.6		3.5	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS17	9:21	Middle	2	1	27.7	8.1	22.7	4.9		3.5		4.2	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS17	9:21	Middle	2	2	28.4	7.9	22.6	4.8		3.7		4.6	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS17	9:21	Bottom	3	1	27.4	8.1	23.8	4.9	4.9	3.5		5.1	
TMCLKL	HY/2012/08	2019/08/19	Mid-flood	IS17	9:21	Bottom	3	2	28.2	7.9	23.4	4.8	4.9	3.5		5.3	

Note: Indicates Exceedance of Action Level  
Indicates Exceedance of Limit Level



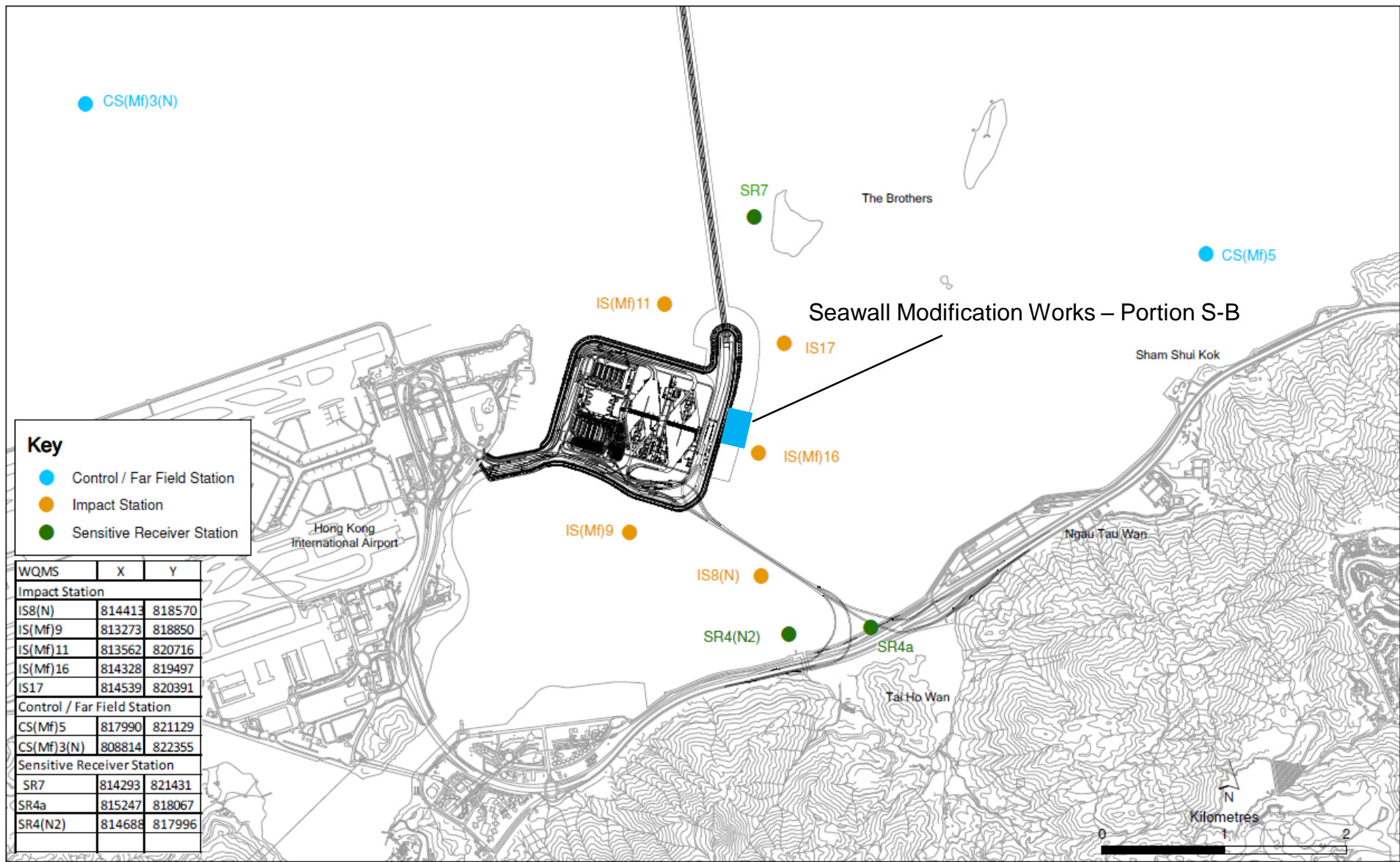


Figure 1

Email  
message

Environmental  
Resources  
Management

**To** Ramboll Hong Kong Limited (ENPO)

**From** ERM- Hong Kong, Limited

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

**Subject** Notification of Exceedance for Water Quality  
Impact Monitoring

**Date** 30 August 2019

2507,  
25/F One Harbourfront,  
18 Tak Fung Street,  
Hung Hom, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jasmine.ng@erm.com



**ERM**

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Dear Sir or Madam,

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

Action Level Exceedance

0212330\_21 August 2019\_ Surface & Middle DO\_E\_Station IS17

0212330\_21 August 2019\_ Bottom DO\_E\_Station IS17

0212330\_21 August 2019\_ Surface & Middle DO\_F\_Station IS(Mf)11

0212330\_21 August 2019\_ Bottom DO\_F\_Station SR7

0212330\_21 August 2019\_ Surface & Middle DO\_F\_Station IS17

A total of five Action Level exceedances were recorded on 21 August 2019.

Regards,



Dr Jasmine Ng  
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08

TUEN MUN – CHEK LAP KOK LINK –  
NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Marine Water Quality Impact Monitoring  
Notification of Exceedance

Log No.	<p align="center"><b>Action Level Exceedance</b></p> <p align="center">0212330_21 August 2019_ Surface &amp; Middle DO_E_Station IS17 0212330_21 August 2019_ Bottom DO_E_Station IS17 0212330_21 August 2019_ Surface &amp; Middle DO_F_Station IS(Mf)11 0212330_21 August 2019_ Bottom DO_F_Station SR7 0212330_21 August 2019_ Surface &amp; Middle DO_F_Station IS17 [Total No. of Exceedances = 5]</p>		
Date	<p align="center">21 August 2019 (Measured) 23 August 2019 (<i>In situ</i> results received by ERM) 30 August 2019 (Laboratory results received by ERM)</p>		
Monitoring Station	<p align="center">CS(Mf)5, SR4a, SR4(N2), IS8(N), IS(Mf)16, IS(Mf)9, CS(Mf)3(N), SR7, IS17, IS(Mf)11</p>		
Parameter(s) with Exceedance(s)	<p align="center">Dissolved Oxygen (mg/L)</p>		
Action Levels	<p align="center">DO</p>	<p align="center">Surface and Middle 5.0 mg/L</p>	<p align="center">Bottom 4.7 mg/L</p>
Limit Levels	<p align="center">DO</p>	<p align="center">Surface and Middle 4.2 mg/L</p>	<p align="center">Bottom 3.6 mg/L</p>
Measured Levels	<p>Action Level Exceedance for DO (4.9 mg/L) is observed at IS17 at Surface &amp; Middle Level during mid-ebb tide. Action Level Exceedance for DO (4.5 mg/L) is observed at IS17 at Bottom Level during mid-ebb tide. Action Level Exceedance for DO (4.6 mg/L) is observed at IS(Mf)11 at Surface &amp; Middle Level during mid-flood tide. Action Level Exceedance for DO (4.3 mg/L) is observed at SR7 at Bottom Level during mid-flood tide. Action Level Exceedance for DO (4.8 mg/L) is observed at IS17 at Surface &amp; Middle Level during mid-flood tide.</p>		
Works Undertaken (at the time of monitoring event)	<p>According to the information provided by the Contractor, Seawall Modification Works was carried out on 21 August 2019.</p>		



<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedances are unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> <li>• All monitored parameters, except DO, at all monitoring stations were in compliance with the Action and Limit Levels during both mid-ebb and mid-flood tides on the same day.</li> <li>• IS(Mf)11, IS17 and SR7 are far away (&gt;1.5 km) from the Seawall Modification Works Area (<i>Figure 1</i>), thus the observed exceedance should not be affected by the marine works under this Contract. Moreover, IS(Mf)16 is closer to the works area and no exceedance was recorded. Therefore, the exceedance is unlikely to be related to this Contract.</li> <li>• Bottom-depth DO levels at SR7 was similar to the corresponding control stations, CS(Mf)5, during mid-flood tide, in which the recorded Bottom-depth DO levels at the corresponding control station were below Action Level.</li> <li>• Surface &amp; Middle-depth DO levels at IS17 and IS(Mf)11 were similar to the corresponding control stations, CS(Mf)5, during mid-flood tide, in which the recorded Surface &amp; Middle-depth DO levels at the corresponding control station were below Action Level.</li> <li>• As reported by the marine mammal observer, no discharge of organic matters into waters from landside works area was recorded. Moreover, no exceedance was recorded at IS(Mf)16 which is the closest station to the Seawall Modification Works Area during mid-ebb tide. Therefore, exceedances recorded at IS17 during mid-ebb tide are unlikely to be caused by the marine works of this Contract.</li> </ul>
<b>Actions Taken / To Be Taken</b>	<p>No immediate action is considered necessary. The ET will monitor for future trends in exceedances.</p>
<b>Remarks</b>	<p>The monitoring results on 21 August 2019 and locations of water quality monitoring stations are attached.</p>

Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS		
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	CS(Mf)5	16:28	Surface	1	1	29.4	8.0	21.7	5.5	5.4	1.6	2.0	8.8	6.4		
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	CS(Mf)5	16:28	Surface	1	2	29.4	8.0	21.7	5.5		1.3		8.1			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	CS(Mf)5	16:28	Middle	2	1	28.7	8.0	23.1	5.2		1.4		6.2			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	CS(Mf)5	16:28	Middle	2	2	28.7	8.0	23.1	5.2		1.6		6.7			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	CS(Mf)5	16:28	Bottom	3	1	28.6	8.0	23.5	5.3	5.3	2.9		4.6			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	CS(Mf)5	16:28	Bottom	3	2	28.6	8.0	23.5	5.3		2.9		4.2			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	CS(Mf)3(N)	15:44	Surface	1	1	29.6	8.0	21.0	5.6	5.4	3.5	3.8	9.9	11.0		
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	CS(Mf)3(N)	15:44	Surface	1	2	29.6	8.0	21.0	5.6		3.5		9.4			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	CS(Mf)3(N)	15:44	Middle	2	1	28.7	8.0	23.0	5.2		3.2		9.6			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	CS(Mf)3(N)	15:44	Middle	2	2	28.7	8.0	23.1	5.2		3.2		10.4			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	CS(Mf)3(N)	15:44	Bottom	3	1	28.6	8.0	23.6	5.3	5.3	4.8		13.7			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	CS(Mf)3(N)	15:44	Bottom	3	2	28.6	8.0	23.5	5.3		4.8		12.9			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)16	14:58	Surface	1	1	28.5	8.0	24.2	5.3	5.3	1.5	2.2	12.0	13.4		
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)16	14:58	Surface	1	2	28.5	8.0	24.2	5.3		1.5		11.8			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)16	14:58	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)16	14:58	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)16	14:58	Bottom	3	1	28.1	8.0	24.7	5.6	5.6	3.0		14.9			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)16	14:58	Bottom	3	2	28.1	8.0	24.7	5.6		2.9		14.7			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR4a	14:49	Surface	1	1	29.1	8.0	23.1	5.8	5.8	1.5	2.8	17.1	13.4		
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR4a	14:49	Surface	1	2	29.1	8.0	23.1	5.8		1.5		17.8			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR4a	14:49	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR4a	14:49	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR4a	14:49	Bottom	3	1	28.2	7.9	24.4	4.7	4.7	4.1		9.6			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR4a	14:49	Bottom	3	2	28.2	7.9	24.4	4.7		4.2		9.1			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR4(N2)	14:45	Surface	1	1	29.4	7.9	22.7	5.7	5.7	2.9	3.6	6.1	7.7		
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR4(N2)	14:45	Surface	1	2	29.4	7.9	22.7	5.7		2.9		5.5			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR4(N2)	14:45	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR4(N2)	14:45	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR4(N2)	14:45	Bottom	3	1	28.2	7.9	24.3	4.7	4.7	4.2		9.4			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR4(N2)	14:45	Bottom	3	2	28.2	7.9	24.3	4.7		4.2		9.8			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS8(N)	14:39	Surface	1	1	29.1	7.9	23.2	5.5	5.6	4.3	5.0	11.7	10.3		
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS8(N)	14:39	Surface	1	2	29.1	7.9	23.2	5.6		4.2		11.3			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS8(N)	14:39	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS8(N)	14:39	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS8(N)	14:39	Bottom	3	1	28.9	7.9	23.5	5.4	5.4	5.8		8.9			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS8(N)	14:39	Bottom	3	2	28.9	7.9	23.5	5.4		5.8		9.1			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)9	14:33	Surface	1	1	29.3	8.1	23.0	6.0	6.0	2.3	2.1	9.6	9.2		
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)9	14:33	Surface	1	2	29.3	8.1	23.0	6.0		2.4		8.9			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)9	14:33	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)9	14:33	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)9	14:33	Bottom	3	1	28.9	8.2	23.3	5.8	5.8	1.8		9.8			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)9	14:33	Bottom	3	2	28.9	8.1	23.3	5.7		1.9		8.5			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)11	15:12	Surface	1	1	29.9	8.0	20.7	5.6	5.3	1.2	2.4	4.4	6.5		
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)11	15:12	Surface	1	2	29.9	8.0	20.7	5.6		1.2		4.7			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)11	15:12	Middle	2	1	28.7	7.9	23.3	5.0		2.8		5.5			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)11	15:12	Middle	2	2	28.7	7.9	23.3	5.0		2.8		5.6			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)11	15:12	Bottom	3	1	27.7	7.9	25.6	4.7	4.7	3.2		9.2			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS(Mf)11	15:12	Bottom	3	2	27.7	7.9	25.6	4.7		3.2		9.8			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR7	16:08	Surface	1	1	29.2	8.1	22.0	5.4	5.4	1.3	2.1	4.8	5.4		
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR7	16:08	Surface	1	2	29.2	8.1	22.0	5.4		1.3		4.9			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR7	16:08	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR7	16:08	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR7	16:08	Bottom	3	1	28.4	8.1	23.8	5.4	5.4	2.8		5.6			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	SR7	16:08	Bottom	3	2	28.4	8.1	23.8	5.3		2.8		6.2			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS17	15:04	Surface	1	1	28.9	8.0	23.8	5.2	4.9	2.9	4.5	10.5	11.5		
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS17	15:04	Surface	1	2	28.9	8.0	23.7	5.2		2.8		9.7			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS17	15:04	Middle	2	1	28.0	8.0	25.4	4.5		4.7		11.8			
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS17	15:04	Middle	2	2	28.0	8.0	25.4	4.5		4.7		11.0			

Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS17	15:04	Bottom	3	1	27.1	7.9	27.1	4.5	4.5	5.9		13.3	
TMCLKL	HY/2012/08	2019/08/21	Mid-Ebb	IS17	15:04	Bottom	3	2	27.1	7.9	27.2	4.5		6.0		12.7	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	CS(Mf)5	9:19	Surface	1	1	28.4	8.0	23.2	4.9		1.1	1.5	3.6	5.8
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	CS(Mf)5	9:19	Surface	1	2	28.4	8.0	23.2	4.9	4.8	1.1		3.4	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	CS(Mf)5	9:19	Middle	2	1	27.9	8.0	24.6	4.6		1.3		5.9	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	CS(Mf)5	9:19	Middle	2	2	27.9	8.0	24.6	4.6		1.3		6.2	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	CS(Mf)5	9:19	Bottom	3	1	27.4	8.0	25.9	4.6	4.6	2.1		8.3	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	CS(Mf)5	9:19	Bottom	3	2	27.4	8.0	25.9	4.6		2.1		7.6	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	CS(Mf)3(N)	10:07	Surface	1	1	29.2	8.0	20.5	5.1		1.6	3.4	2.6	3.4
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	CS(Mf)3(N)	10:07	Surface	1	2	29.2	8.0	20.5	5.1	5.0	1.5		2.2	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	CS(Mf)3(N)	10:07	Middle	2	1	28.5	8.0	22.6	4.9		4.3		3.7	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	CS(Mf)3(N)	10:07	Middle	2	2	28.5	8.0	22.6	4.9		4.3		3.7	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	CS(Mf)3(N)	10:07	Bottom	3	1	28.5	8.0	22.7	5.0	5.0	4.4		4.1	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	CS(Mf)3(N)	10:07	Bottom	3	2	28.5	8.0	22.7	5.0		4.4		3.9	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)16	10:54	Surface	1	1	28.5	8.0	23.2	5.1		2.1	3.2	13.1	10.3
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)16	10:54	Surface	1	2	28.5	8.0	23.2	5.1	5.1	2.1		12.6	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)16	10:54	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)16	10:54	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)16	10:54	Bottom	3	1	28.0	8.0	24.0	4.8	4.8	4.3		7.6	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)16	10:54	Bottom	3	2	28.0	8.0	24.1	4.8		4.3		7.7	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR4a	11:04	Surface	1	1	29.0	8.0	22.6	5.2		1.2	2.0	4.7	4.7
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR4a	11:04	Surface	1	2	29.0	8.0	22.6	5.2	5.2	1.2		4.7	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR4a	11:04	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR4a	11:04	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR4a	11:04	Bottom	3	1	28.4	8.0	23.4	4.7	4.7	2.7		4.8	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR4a	11:04	Bottom	3	2	28.4	8.0	23.4	4.7		2.7		4.6	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR4(N2)	11:08	Surface	1	1	29.4	8.0	22.6	5.4		2.6	3.1	4.0	5.7
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR4(N2)	11:08	Surface	1	2	29.4	8.0	22.6	5.4	5.4	2.5		4.5	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR4(N2)	11:08	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR4(N2)	11:08	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR4(N2)	11:08	Bottom	3	1	28.4	8.0	23.5	4.8	4.8	3.6		6.7	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR4(N2)	11:08	Bottom	3	2	28.4	8.0	23.5	4.8		3.5		7.5	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS8(N)	11:13	Surface	1	1	29.1	8.0	22.8	5.1		2.8	3.5	5.4	4.5
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS8(N)	11:13	Surface	1	2	29.1	8.0	22.8	5.1	5.1	2.8		5.1	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS8(N)	11:13	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS8(N)	11:13	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS8(N)	11:13	Bottom	3	1	28.2	8.0	23.7	5.2	5.2	4.2		4.1	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS8(N)	11:13	Bottom	3	2	28.2	8.0	23.7	5.2		4.2		3.5	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)9	11:20	Surface	1	1	28.4	8.1	23.1	5.3		1.7	1.9	5.7	6.6
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)9	11:20	Surface	1	2	28.4	8.1	23.1	5.3	5.3	1.7		5.8	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)9	11:20	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)9	11:20	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)9	11:20	Bottom	3	1	28.4	8.1	23.2	5.4	5.4	2.1		7.1	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)9	11:20	Bottom	3	2	28.4	8.1	23.3	5.4		2.1		7.8	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)11	10:40	Surface	1	1	28.3	8.1	23.6	4.8		2.0	3.5	4.6	6.3
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)11	10:40	Surface	1	2	28.3	8.1	23.6	4.8	4.6	2.0		4.1	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)11	10:40	Middle	2	1	27.7	8.2	25.0	4.4		4.1		5.7	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)11	10:40	Middle	2	2	27.7	8.2	25.0	4.4		4.1		5.4	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)11	10:40	Bottom	3	1	27.6	8.3	25.3	5.0	5.0	4.5		9.2	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS(Mf)11	10:40	Bottom	3	2	27.7	8.2	25.1	5.0		4.4		8.5	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR7	9:39	Surface	1	1	28.7	8.0	21.9	5.3		2.3	3.3	6.2	8.0
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR7	9:39	Surface	1	2	28.7	8.0	21.9	5.3	5.3	2.3		6.3	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR7	9:39	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR7	9:39	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR7	9:39	Bottom	3	1	27.5	8.1	25.9	4.3	4.3	4.2		10.1	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	SR7	9:39	Bottom	3	2	27.5	8.1	25.9	4.3		4.2		9.3	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS17	10:47	Surface	1	1	28.0	8.1	24.3	4.8		3.6	3.3	7.6	10.7
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS17	10:47	Surface	1	2	28.0	8.1	24.3	4.8	4.8	3.6		7.9	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS17	10:47	Middle	2	1	28.0	8.1	24.3	4.8	4.8	3.2		10.9	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS17	10:47	Middle	2	2	28.0	8.1	24.3	4.8		3.2		10.6	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS17	10:47	Bottom	3	1	28.0	8.1	24.4	5.0		3.0		14.0	
TMCLKL	HY/2012/08	2019/08/21	Mid-flood	IS17	10:47	Bottom	3	2	28.0	8.1	24.4	5.0	5.0	3.1		13.0	

Note: Indicates Exceedance of Action Level  
Indicates Exceedance of Limit Level



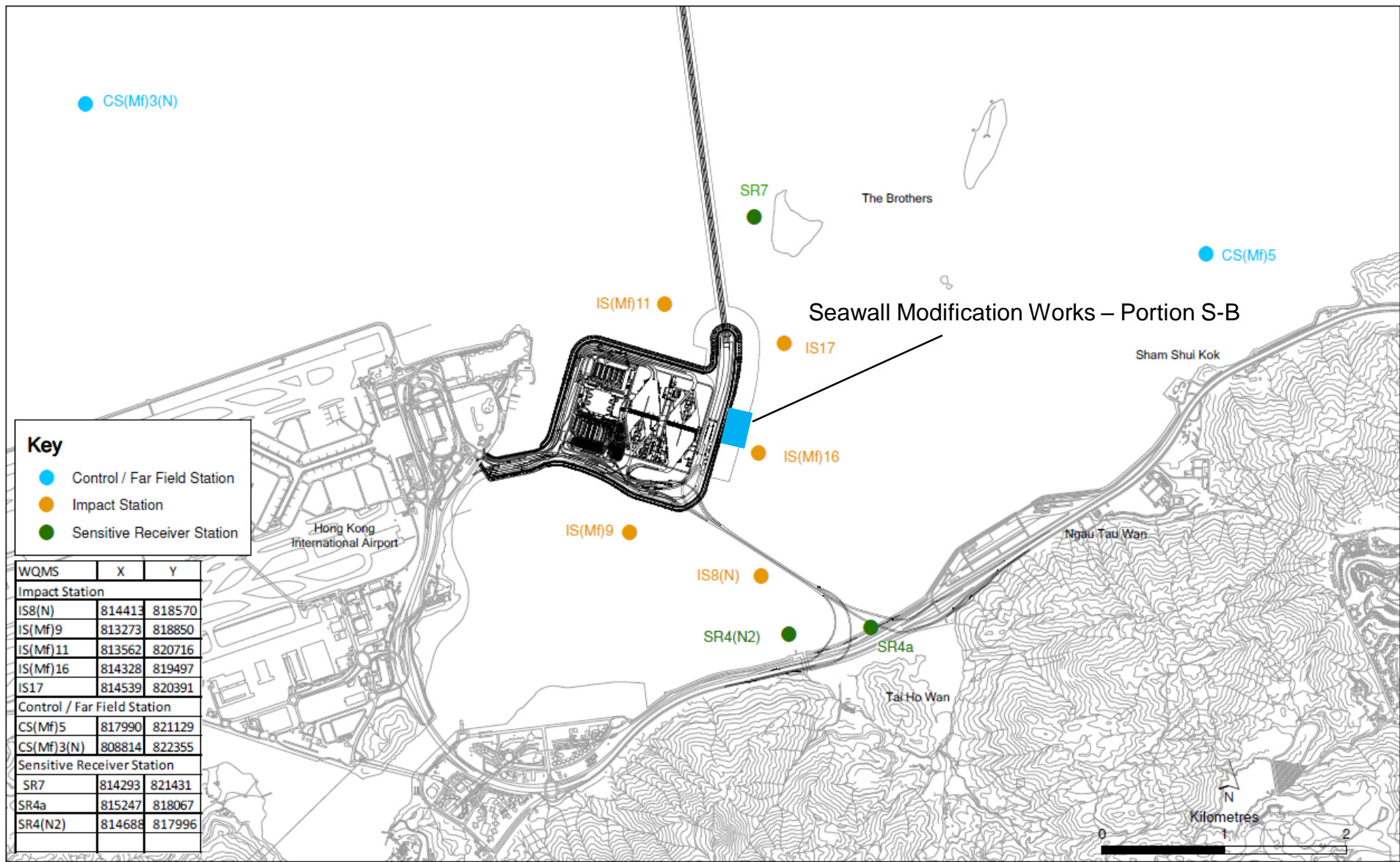


Figure 1

Email  
message

Environmental  
Resources  
Management

**To** Ramboll Hong Kong Limited (ENPO)

**From** ERM- Hong Kong, Limited

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

**Subject** Notification of Exceedance for Water Quality  
Impact Monitoring

**Date** 30 August 2019

2507,  
25/F One Harbourfront,  
18 Tak Fung Street,  
Hung Hom, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jasmine.ng@erm.com



**ERM**

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Dear Sir or Madam,

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

Action Level Exceedance  
0212330\_23 August 2019\_ Bottom DO\_E\_Station IS17

A total of one Action Level exceedance was recorded on 23 August 2019.

Regards,

A handwritten signature in blue ink that reads "Jasmine".

Dr Jasmine Ng  
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08

TUEN MUN - CHEK LAP KOK LINK -  
NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Marine Water Quality Impact Monitoring  
Notification of Exceedance

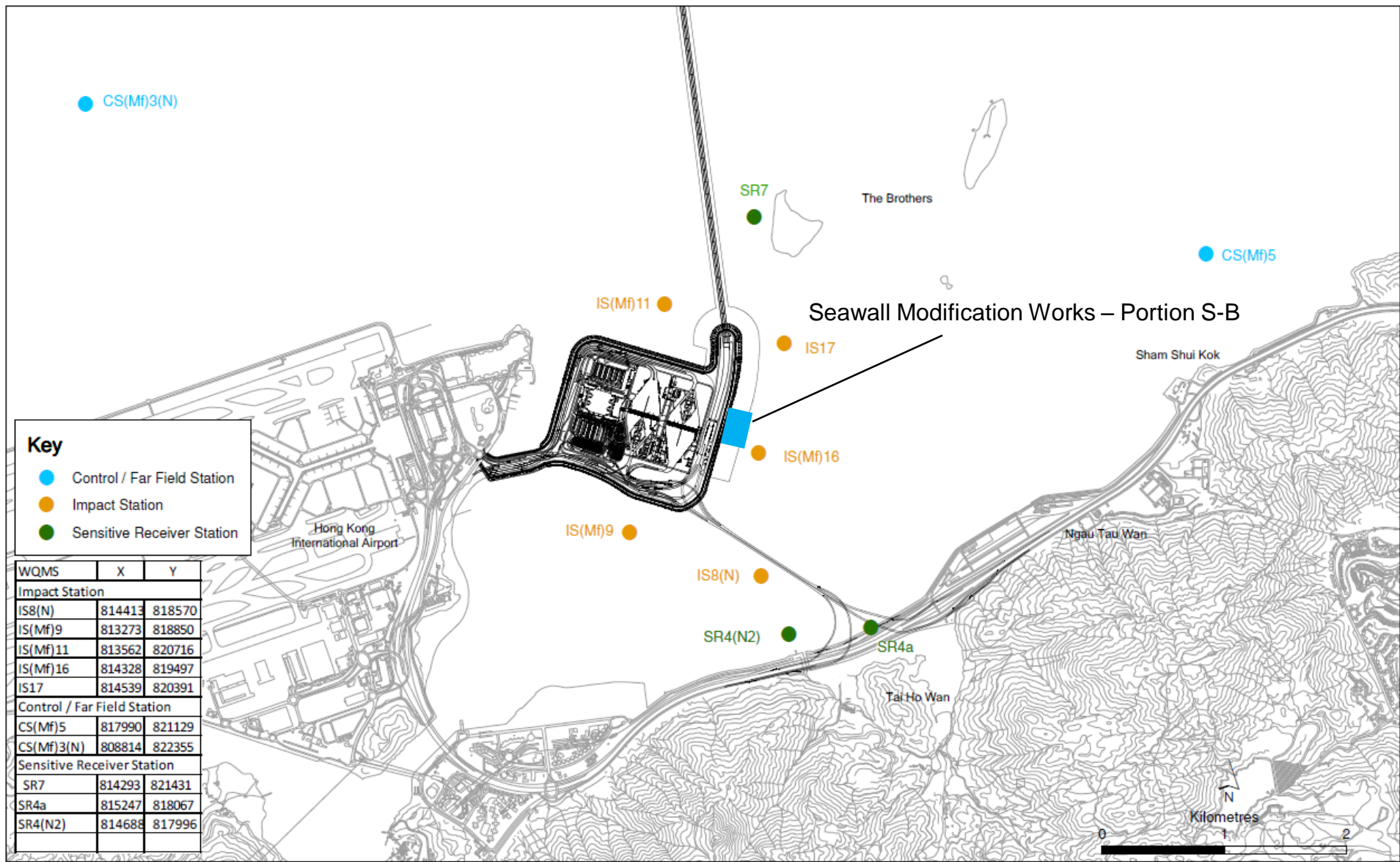
Log No.	<b>Action Level Exceedance</b> 0212330_23 August 2019_Bottom DO_E_Station IS17 [Total No. of Exceedances = 1]		
Date	23 August 2019 (Measured) 26 August 2019 ( <i>In situ</i> results received by ERM) 3 September 2019 (Laboratory results received by ERM)		
Monitoring Station	CS(Mf)5, SR4a, SR4(N2), IS8(N), IS(Mf)16, IS(Mf)9, CS(Mf)3(N), SR7, IS17, IS(Mf)11		
Parameter(s) with Exceedance(s)	Dissolved Oxygen (mg/L)		
Action Levels	DO	Surface and Middle 5.0 mg/L	Bottom 4.7 mg/L
Limit Levels	DO	Surface and Middle 4.2 mg/L	Bottom 3.6 mg/L
Measured Levels	Action Level Exceedance for DO (4.2 mg/L) is observed at IS17 at Bottom Level during mid-ebb tide.		
Works Undertaken (at the time of monitoring event)	According to the information provided by the Contractor, Seawall Modification Works was carried out on 23 August 2019.		
Possible Reason for Action or Limit Level Exceedance(s)	<p>The exceedances are unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> <li>• All monitored parameters, except DO, at all monitoring stations were in compliance with the Action and Limit Levels during both mid-ebb and mid-flood tides on the same day.</li> <li>• No discharge of organic matters into waters from landside works area was recorded.</li> <li>• Bottom-depth DO levels at IS17 was similar to the corresponding control stations, CS(Mf)3(N), during mid-ebb tide, in which the recorded Bottom-depth DO levels at the corresponding control station were below Action Level.</li> </ul>		
Actions Taken/ To Be Taken	No immediate action is considered necessary. The ET will monitor for future trends in exceedances.		
Remarks	The monitoring results on 23 August 2019 and locations of water quality monitoring stations are attached.		



Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS	
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	CS(Mf)5	17:57	Surface	1	1	29.0	8.4	20.1	7.1	6.6	1.5	1.5	5.6	4.5	
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	CS(Mf)5	17:57	Surface	1	2	29.0	8.4	20.1	7.1		1.5		5.5		
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	CS(Mf)5	17:57	Middle	2	1	27.8	8.4	23.5	6.1		1.3		4.5		
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	CS(Mf)5	17:57	Middle	2	2	27.9	8.4	23.4	6.1		1.3		4.2		
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	CS(Mf)5	17:57	Bottom	3	1	27.1	8.4	26.5	5.7	5.7	1.7	3.4			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	CS(Mf)5	17:57	Bottom	3	2	27.1	8.4	26.5	5.7	5.7	1.6	3.9			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	CS(Mf)3(N)	17:12	Surface	1	1	29.4	8.4	16.4	6.3	5.2	3.2	4.3	6.5	7.9	
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	CS(Mf)3(N)	17:12	Surface	1	2	29.4	8.4	16.3	6.3		3.2		6.1		
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	CS(Mf)3(N)	17:12	Middle	2	1	27.4	8.4	25.6	4.1		4.2		7.8		
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	CS(Mf)3(N)	17:12	Middle	2	2	27.4	8.4	25.4	4.1	4.1	4.1	7.6			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	CS(Mf)3(N)	17:12	Bottom	3	1	27.2	8.4	26.5	4.1	4.1	5.5	9.3			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	CS(Mf)3(N)	17:12	Bottom	3	2	27.2	8.4	26.5	4.1	4.1	5.5	9.8			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)16	16:28	Surface	1	1	28.4	8.5	23.5	5.9	5.9	8.7	8.9	10.4	13.0	
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)16	16:28	Surface	1	2	28.4	8.5	23.4	5.9		8.7		10.0		
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)16	16:28	Middle	2	1										
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)16	16:28	Middle	2	2										
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)16	16:28	Bottom	3	1	28.1	8.5	24.0	5.4	5.4	9.1	15.2			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)16	16:28	Bottom	3	2	28.0	8.5	24.1	5.3	5.4	9.1	16.4			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR4a	16:18	Surface	1	1	29.3	8.5	20.3	7.3	7.3	2.1	3.3	6.3	8.7	
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR4a	16:18	Surface	1	2	29.3	8.5	20.3	7.3		2.2		6.2		
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR4a	16:18	Middle	2	1										
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR4a	16:18	Middle	2	2										
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR4a	16:18	Bottom	3	1	28.3	8.4	23.1	5.5	5.5	4.4	11.1			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR4a	16:18	Bottom	3	2	28.3	8.4	23.2	5.5	5.5	4.4	11.3			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR4(N2)	16:15	Surface	1	1	29.0	8.5	21.6	6.3	6.3	5.2	7.3	7.9	12.7	
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR4(N2)	16:15	Surface	1	2	29.0	8.5	21.7	6.3		5.2		8.5		
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR4(N2)	16:15	Middle	2	1										
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR4(N2)	16:15	Middle	2	2										
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR4(N2)	16:15	Bottom	3	1	28.2	8.4	23.5	5.2	5.2	9.3	17.0			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR4(N2)	16:15	Bottom	3	2	28.2	8.4	23.5	5.2	5.2	9.3	17.2			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS8(N)	16:09	Surface	1	1	29.1	8.6	21.8	6.9	6.9	5.8	7.3	8.7	10.7	
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS8(N)	16:09	Surface	1	2	29.1	8.6	21.8	6.9		5.8		8.4		
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS8(N)	16:09	Middle	2	1										
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS8(N)	16:09	Middle	2	2										
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS8(N)	16:09	Bottom	3	1	28.3	8.5	23.4	5.8	5.8	8.8	12.3			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS8(N)	16:09	Bottom	3	2	28.3	8.5	23.4	5.8	5.8	8.7	13.2			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)9	16:01	Surface	1	1	29.0	8.7	22.2	7.3	7.3	3.2	4.5	9.2	10.2	
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)9	16:01	Surface	1	2	29.0	8.7	22.2	7.3		3.1		9.9		
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)9	16:01	Middle	2	1										
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)9	16:01	Middle	2	2										
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)9	16:01	Bottom	3	1	28.8	8.6	22.6	7.0	7.0	5.9	10.5			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)9	16:01	Bottom	3	2	28.8	8.6	22.6	7.0	7.0	5.9	11.0			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)11	16:42	Surface	1	1	29.2	8.5	17.9	7.4	7.0	2.3	2.9	5.4	6.8	
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)11	16:42	Surface	1	2	29.2	8.5	17.9	7.4		2.4		5.2		
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)11	16:42	Middle	2	1	28.6	8.5	20.4	6.6		1.3		7.1		
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)11	16:42	Middle	2	2	28.6	8.5	20.4	6.6	6.6	1.3	6.9			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)11	16:42	Bottom	3	1	26.5	8.4	28.6	4.7	4.7	5.0	8.2			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS(Mf)11	16:42	Bottom	3	2	26.5	8.4	28.6	4.6	4.7	5.0	7.9			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR7	17:38	Surface	1	1	29.4	8.5	16.1	7.3	7.3	2.9	4.3	5.7	6.1	
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR7	17:38	Surface	1	2	29.4	8.5	16.1	7.3		2.9		5.6		
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR7	17:38	Middle	2	1										
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR7	17:38	Middle	2	2										
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR7	17:38	Bottom	3	1	28.9	8.4	19.0	7.1	7.1	5.7	6.5			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	SR7	17:38	Bottom	3	2	28.9	8.4	19.1	7.1	7.1	5.7	6.7			
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS17	16:34	Surface	1	1	28.3	8.5	21.7	6.0	5.7	2.1	4.0	4.5	6.0	
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS17	16:34	Surface	1	2	28.4	8.5	21.7	6.0		2.1		4.8		
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS17	16:34	Middle	2	1	28.0	8.5	23.3	5.4		3.3		5.5		
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS17	16:34	Middle	2	2	27.9	8.5	23.4	5.4		3.3		5.1		

Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS17	16:34	Bottom	3	1	26.3	8.4	28.9	4.2	4.2	6.5		7.8	
TMCLKL	HY/2012/08	2019/08/23	Mid-Ebb	IS17	16:34	Bottom	3	2	26.3	8.5	28.9	4.2		6.4		8.5	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	CS(Mf)5	11:03	Surface	1	1	28.6	8.1	15.4	6.1		2.9	3.6	5.3	7.0
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	CS(Mf)5	11:03	Surface	1	2	28.6	8.1	15.4	6.1		2.9		5.8	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	CS(Mf)5	11:03	Middle	2	1	28.3	8.1	20.3	5.3	5.7	3.3		6.5	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	CS(Mf)5	11:03	Middle	2	2	28.4	8.1	20.3	5.4		3.3		6.1	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	CS(Mf)5	11:03	Bottom	3	1	28.0	8.1	23.0	5.2		4.7		8.9	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	CS(Mf)5	11:03	Bottom	3	2	28.0	8.1	23.0	5.2	5.2	4.7		9.1	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	CS(Mf)3(N)	11:52	Surface	1	1	29.1	8.2	13.0	6.4		2.3	4.1	5.7	6.8
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	CS(Mf)3(N)	11:52	Surface	1	2	29.1	8.2	13.0	6.5	6.1	2.3		5.5	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	CS(Mf)3(N)	11:52	Middle	2	1	28.6	8.1	17.0	5.8		4.0		6.5	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	CS(Mf)3(N)	11:52	Middle	2	2	28.7	8.2	17.0	5.8		3.9		6.2	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	CS(Mf)3(N)	11:52	Bottom	3	1	27.9	8.1	23.8	5.0		6.1		8.7	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	CS(Mf)3(N)	11:52	Bottom	3	2	27.9	8.1	23.8	5.0	5.0	6.2		8.1	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)16	12:35	Surface	1	1	28.4	8.3	21.7	5.7		3.6	4.5	14.2	20.0
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)16	12:35	Surface	1	2	28.4	8.3	21.7	5.7		3.6		13.9	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)16	12:35	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)16	12:35	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)16	12:35	Bottom	3	1	28.1	8.3	23.4	5.4	5.4	5.4		25.0	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)16	12:35	Bottom	3	2	28.1	8.3	23.4	5.3		5.3		26.8	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR4a	12:44	Surface	1	1	28.7	8.3	20.2	6.2		2.2	3.1	7.7	7.9
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR4a	12:44	Surface	1	2	28.7	8.3	20.2	6.2		2.1		7.9	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR4a	12:44	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR4a	12:44	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR4a	12:44	Bottom	3	1	28.4	8.3	21.8	5.8	5.8	4.1		8.1	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR4a	12:44	Bottom	3	2	28.3	8.3	21.8	5.8		4.0		8.0	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR4(N2)	12:49	Surface	1	1	28.8	8.3	20.2	6.3		2.8	3.3	5.4	7.0
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR4(N2)	12:49	Surface	1	2	28.8	8.3	20.2	6.3		2.8		5.7	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR4(N2)	12:49	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR4(N2)	12:49	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR4(N2)	12:49	Bottom	3	1	28.4	8.3	21.3	5.8	5.8	3.7		8.2	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR4(N2)	12:49	Bottom	3	2	28.4	8.3	21.3	5.8		3.7		8.7	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS8(N)	12:54	Surface	1	1	28.8	8.3	20.0	6.4		2.2	3.9	3.7	6.8
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS8(N)	12:54	Surface	1	2	28.8	8.3	20.0	6.4		2.2		4.3	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS8(N)	12:54	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS8(N)	12:54	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS8(N)	12:54	Bottom	3	1	28.6	8.4	22.7	6.3	6.3	5.7		9.9	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS8(N)	12:54	Bottom	3	2	28.6	8.4	22.7	6.3		5.6		9.3	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)9	13:01	Surface	1	1	28.6	8.3	21.5	5.8		4.4	5.4	9.1	10.8
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)9	13:01	Surface	1	2	28.7	8.3	21.5	5.8	5.8	4.4		8.8	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)9	13:01	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)9	13:01	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)9	13:01	Bottom	3	1	28.4	8.3	23.3	5.2	5.2	6.3		12.8	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)9	13:01	Bottom	3	2	28.4	8.3	23.4	5.1		6.3		12.3	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)11	12:20	Surface	1	1	28.8	8.3	16.9	6.5		2.9	3.8	5.3	7.1
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)11	12:20	Surface	1	2	28.8	8.3	16.9	6.5		2.9		5.5	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)11	12:20	Middle	2	1	28.3	8.3	20.4	5.8		3.5		6.3	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)11	12:20	Middle	2	2	28.4	8.3	20.3	5.8		3.4		6.3	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)11	12:20	Bottom	3	1	28.0	8.3	22.4	5.4	5.4	5.0		9.8	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS(Mf)11	12:20	Bottom	3	2	28.0	8.3	22.3	5.4		5.0		9.2	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR7	11:24	Surface	1	1	28.5	8.1	18.4	5.8		2.8	3.0	7.7	9.4
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR7	11:24	Surface	1	2	28.5	8.1	18.4	5.8		2.8		7.0	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR7	11:24	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR7	11:24	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR7	11:24	Bottom	3	1	28.4	8.1	21.0	5.5	5.5	3.2		11.8	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	SR7	11:24	Bottom	3	2	28.3	8.1	21.2	5.4		3.2		10.9	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS17	12:27	Surface	1	1	28.1	8.3	23.4	5.4		2.8	2.8	15.6	12.1
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS17	12:27	Surface	1	2	28.1	8.3	23.4	5.4	5.3	2.8		14.8	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS17	12:27	Middle	2	1	27.7	8.3	24.4	5.2		3.1		11.2	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS17	12:27	Middle	2	2	27.7	8.3	24.4	5.2		3.1		11.4	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS17	12:27	Bottom	3	1	27.6	8.3	25.2	5.2		2.5		9.6	
TMCLKL	HY/2012/08	2019/08/23	Mid-flood	IS17	12:27	Bottom	3	2	27.6	8.3	25.0	5.2	5.2	2.5		9.7	

Note: Indicates Exceedance of Action Level  
Indicates Exceedance of Limit Level



**Key**

- Control / Far Field Station
- Impact Station
- Sensitive Receiver Station

WQMS	X	Y
<b>Impact Station</b>		
IS8(N)	814413	818570
IS(Mf)9	813273	818850
IS(Mf)11	813562	820716
IS(Mf)16	814328	819497
IS17	814539	820391
<b>Control / Far Field Station</b>		
CS(Mf)5	817990	821129
CS(Mf)3(N)	808814	822355
<b>Sensitive Receiver Station</b>		
SR7	814293	821431
SR4a	815247	818067
SR4(N2)	814688	817996

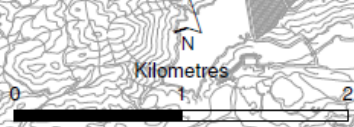


Figure 1

Email  
message

**Environmental  
Resources  
Management**

**To** Ramboll Hong Kong Limited (ENPO)

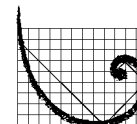
**From** ERM- Hong Kong, Limited

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

**Subject** Notification of Exceedance for Water Quality  
Impact Monitoring

**Date** 30 August 2019

2507,  
25/F One Harbourfront,  
18 Tak Fung Street,  
Hung Hom, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jasmine.ng@erm.com



**ERM**

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Dear Sir or Madam,

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

Limit Level Exceedance

0212330\_26 August 2019\_ Bottom DO\_E\_Station IS(Mf)11

0212330\_26 August 2019\_ Bottom DO\_F\_Station IS(Mf)11

A total of two Limit Level exceedances were recorded on 26 August 2019.

Regards,



Dr Jasmine Ng  
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08

TUEN MUN – CHEK LAP KOK LINK –  
NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Marine Water Quality Impact Monitoring  
Notification of Exceedance

Log No.	<u>Limit Level Exceedance</u> 0212330_26 August 2019_ Bottom DO_E_Station IS(Mf)11 0212330_26 August 2019_ Bottom DO_F_Station IS(Mf)11 [Total No. of Exceedances = 2]		
Date	26 August 2019 (Measured) 28 August 2019 ( <i>In situ</i> results received by ERM) 4 September 2019 (Laboratory results received by ERM)		
Monitoring Station	CS(Mf)5, SR4a, SR4(N2), IS8(N), IS(Mf)16, IS(Mf)9, CS(Mf)3(N), SR7, IS17, IS(Mf)11		
Parameter(s) with Exceedance(s)	Dissolved Oxygen (mg/L)		
Action Levels	DO	Surface and Middle 5.0 mg/L	Bottom 4.7 mg/L
Limit Levels	DO	Surface and Middle 4.2 mg/L	Bottom 3.6 mg/L
Measured Levels	Limit Level Exceedance for DO (3.2 mg/L) is observed at IS(Mf)11 at Bottom Level during mid-ebb tide. Limit Level Exceedance for DO (2.9 mg/L) is observed at IS(Mf)11 at Bottom Level during mid-flood tide.		
Works Undertaken (at the time of monitoring event)	According to the information provided by the Contractor, Seawall Modification Works was carried out on 26 August 2019.		
Possible Reason for Action or Limit Level Exceedance(s)	<p>The exceedances are unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> <li>All monitored parameters, except DO, at all monitoring stations were in compliance with the Action and Limit Levels during both mid-ebb and mid-flood tides on the same day.</li> <li>IS(Mf)11 is far away (&gt;2 km) from the Seawall Modification Works Area (<i>Figure 1</i>), thus the observed exceedance should not be affected by the marine works under this Contract. Therefore, the exceedance is unlikely to be related to this Contract.</li> <li>Bottom-depth DO levels at IS(Mf)11 were similar to the corresponding control stations, CS(Mf)5, during mid-flood tide, in which the recorded Bottom-depth DO levels at the corresponding control station were below Limit Level.</li> <li>The DO pattern at IS(Mf)11 was similar to the control station where the bottom-depth DO levels were generally lower. Lower bottom-depth DO levels may be possibly caused by the stratification of seawater during summer when the freshwater discharged from the Pearl River tended to form a surface layer of lower salinity water, which is probably responsible for the lower Salinity recorded at the surface and middle levels compared to the higher Salinity recorded at the bottom level of the monitoring stations. The stratification of seawater in the water column is likely a contributing factor to the results of lower levels of DO at the bottom level.</li> <li>As reported by the marine mammal observer, no discharge of organic matters into waters from landside works area was recorded. Moreover, no exceedance was recorded at IS(Mf)16 which is the closest station to the Seawall Modification Works Area during both mid-ebb and mid-flood tide. Therefore, exceedances recorded at IS(Mf)11 during both mid-ebb and mid-flood tide are unlikely to be caused by the marine works of this Contract.</li> </ul>		

<b>Actions Taken/ To Be Taken</b>	No immediate action is considered necessary. The ET will monitor for future trends in exceedances.
<b>Remarks</b>	The monitoring results on 26 August 2019 and locations of water quality monitoring stations are attached.

Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS		
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	CS(Mf)5	8:10	Surface	1	1	28.3	7.9	19.8	6.0	6.0	1.6	2.2	3.6	3.2		
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	CS(Mf)5	8:10	Surface	1	2	28.3	7.9	20.2	6.0		1.7		3.7			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	CS(Mf)5	8:10	Middle	2	1	28.3	7.9	20.3	5.9		1.6		4.0			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	CS(Mf)5	8:10	Middle	2	2	28.3	7.9	20.7	5.9		1.6		3.9			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	CS(Mf)5	8:10	Bottom	3	1	27.0	7.8	27.6	4.2	4.3	3.2		2.2			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	CS(Mf)5	8:10	Bottom	3	2	27.0	7.8	28.3	4.3		3.3		1.8			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	CS(Mf)3(N)	9:13	Surface	1	1	28.5	7.9	14.2	6.3	6.1	2.6	2.7	4.8	4.4		
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	CS(Mf)3(N)	9:13	Surface	1	2	28.5	7.8	14.5	6.4		2.5		4.5			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	CS(Mf)3(N)	9:13	Middle	2	1	28.4	7.9	16.6	5.8		2.5		3.9			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	CS(Mf)3(N)	9:13	Middle	2	2	28.5	7.8	16.8	5.8		2.5		4.7			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	CS(Mf)3(N)	9:13	Bottom	3	1	27.8	7.9	22.8	5.1	5.2	2.9		4.7			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	CS(Mf)3(N)	9:13	Bottom	3	2	27.8	7.8	23.6	5.2		3.0		3.7			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)16	9:47	Surface	1	1	28.3	8.0	19.9	6.2	6.2	7.7	8.7	9.0	8.3		
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)16	9:47	Surface	1	2	28.3	7.9	20.3	6.2		7.5		8.2			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)16	9:47	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)16	9:47	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)16	9:47	Bottom	3	1	28.3	8.0	22.3	5.6	5.6	9.5		8.4			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)16	9:47	Bottom	3	2	28.3	7.9	23.0	5.6		10.0		7.4			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR4a	9:58	Surface	1	1	28.2	8.0	18.2	5.9	6.0	5.1	5.6	13.6	11.6		
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR4a	9:58	Surface	1	2	28.2	7.9	18.6	6.0		5.2		12.4			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR4a	9:58	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR4a	9:58	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR4a	9:58	Bottom	3	1	28.3	7.9	22.5	5.1	5.1	5.9		10.6			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR4a	9:58	Bottom	3	2	28.3	7.8	23.0	5.1		6.0		9.6			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR4(N2)	10:04	Surface	1	1	28.4	7.9	16.3	5.2	5.2	11.1	9.9	7.0	8.5		
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR4(N2)	10:04	Surface	1	2	28.4	7.8	16.6	5.2		11.1		8.0			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR4(N2)	10:04	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR4(N2)	10:04	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR4(N2)	10:04	Bottom	3	1	28.7	7.9	21.2	5.1	5.1	8.5		9.1			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR4(N2)	10:04	Bottom	3	2	28.8	7.8	21.5	5.1		8.7		10.0			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS8(N)	10:09	Surface	1	1	28.1	8.0	18.3	6.4	6.4	5.6	7.8	7.6	7.6		
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS8(N)	10:09	Surface	1	2	28.1	7.9	18.7	6.4		5.5		7.2			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS8(N)	10:09	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS8(N)	10:09	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS8(N)	10:09	Bottom	3	1	28.4	8.0	20.8	6.1	6.1	10.1		8.2			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS8(N)	10:09	Bottom	3	2	28.4	7.9	21.2	6.0		10.1		7.2			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)9	10:17	Surface	1	1					5.9		4.1		8.3		
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)9	10:17	Surface	1	2											
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)9	10:17	Middle	2	1	28.5	7.9	19.7	5.9		4.1		8.8			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)9	10:17	Middle	2	2	28.5	7.8	19.9	5.9		4.0		7.8			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)9	10:17	Bottom	3	1					#DIV/0!						
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)9	10:17	Bottom	3	2											
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)11	8:42	Surface	1	1	28.3	7.9	17.1	6.2	5.8	1.9	2.6	3.8	3.9		
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)11	8:42	Surface	1	2	28.3	7.9	17.4	6.2		1.9		4.8			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)11	8:42	Middle	2	1	28.3	7.9	22.7	5.3		2.3		4.4			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)11	8:42	Middle	2	2	28.3	7.8	23.7	5.3		2.1		4.3			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)11	8:42	Bottom	3	1	25.9	7.8	30.1	3.2	3.2	3.9		3.6			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS(Mf)11	8:42	Bottom	3	2	25.9	7.8	30.7	3.2		3.6		2.6			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR7	8:34	Surface	1	1	28.4	7.9	17.1	6.1	6.1	2.2	2.7	2.9	3.6		
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR7	8:34	Surface	1	2	28.4	7.8	17.4	6.1		2.0		3.8			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR7	8:34	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR7	8:34	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR7	8:34	Bottom	3	1	28.4	7.9	18.2	6.1	6.1	3.3		4.3			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	SR7	8:34	Bottom	3	2	28.4	7.8	19.1	6.1		3.1		3.3			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS17	9:41	Surface	1	1	28.3	8.0	18.5	6.1	6.0	2.9	3.3	5.2	4.4		
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS17	9:41	Surface	1	2	28.3	7.9	18.9	6.1		3.0		4.3			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS17	9:41	Middle	2	1	28.3	7.9	19.6	5.9		3.2		5.0			
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS17	9:41	Middle	2	2	28.3	7.9	20.0	6.0		3.3		5.7			

Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS17	9:41	Bottom	3	1	28.2	7.9	24.7	5.1	5.0	3.8		3.7	
TMCLKL	HY/2012/08	2019/08/26	Mid-Ebb	IS17	9:41	Bottom	3	2	28.2	7.9	24.2	4.9		3.7		2.7	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	CS(Mf)5	17:22	Surface	1	1	28.5	8.0	16.4	6.7		2.0		6.2	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	CS(Mf)5	17:22	Surface	1	2	28.5	7.8	16.7	6.7	5.3	2.1		5.3	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	CS(Mf)5	17:22	Middle	2	1	26.2	7.8	28.9	3.9		3.3	4.8	3.9	4.8
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	CS(Mf)5	17:22	Middle	2	2	26.1	7.7	29.6	3.8		3.0		4.6	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	CS(Mf)5	17:22	Bottom	3	1	25.0	7.8	31.4	3.4	3.4	9.3		3.8	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	CS(Mf)5	17:22	Bottom	3	2	25.0	7.7	32.0	3.4		9.2		4.8	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	CS(Mf)3(N)	16:29	Surface	1	1	28.7	7.8	14.9	6.2		3.2		6.2	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	CS(Mf)3(N)	16:29	Surface	1	2	28.7	7.8	15.2	6.2		3.1		6.4	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	CS(Mf)3(N)	16:29	Middle	2	1	28.6	7.8	16.1	6.0	6.1	5.2	6.8	6.0	5.6
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	CS(Mf)3(N)	16:29	Middle	2	2	28.6	7.8	16.4	6.0		5.2		5.8	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	CS(Mf)3(N)	16:29	Bottom	3	1	28.2	7.7	18.8	5.1	5.2	12.1		5.2	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	CS(Mf)3(N)	16:29	Bottom	3	2	28.2	7.7	19.1	5.2		12.0		4.2	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)16	15:53	Surface	1	1	28.5	7.9	17.2	6.7		3.4		8.9	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)16	15:53	Surface	1	2	28.5	7.9	17.5	6.7		3.2		8.7	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)16	15:53	Middle	2	1							6.4		8.3
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)16	15:53	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)16	15:53	Bottom	3	1	28.4	7.8	18.5	6.7	6.7	9.4		8.1	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)16	15:53	Bottom	3	2	28.4	7.8	18.8	6.7		9.7		7.4	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR4a	15:42	Surface	1	1	28.2	8.0	15.9	6.5		5.7		10.4	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR4a	15:42	Surface	1	2	28.2	7.9	16.6	6.5	6.5	5.6		11.5	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR4a	15:42	Middle	2	1							6.6		10.9
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR4a	15:42	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR4a	15:42	Bottom	3	1	28.4	7.9	19.3	6.0	6.1	7.4		11.0	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR4a	15:42	Bottom	3	2	28.5	7.9	19.5	6.1		7.6		10.7	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR4(N2)	15:37	Surface	1	1	28.3	8.0	16.8	6.5		4.7		11.0	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR4(N2)	15:37	Surface	1	2	28.3	7.9	17.2	6.5	6.5	4.6		10.0	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR4(N2)	15:37	Middle	2	1							5.1		11.2
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR4(N2)	15:37	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR4(N2)	15:37	Bottom	3	1	28.4	7.9	18.5	6.6	6.6	5.6		12.3	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR4(N2)	15:37	Bottom	3	2	28.0	7.9	19.1	6.6		5.3		11.4	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS8(N)	15:31	Surface	1	1	28.5	8.0	16.8	6.8		8.6		9.2	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS8(N)	15:31	Surface	1	2	28.5	7.9	17.1	6.8	6.8	8.8		10.1	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS8(N)	15:31	Middle	2	1							6.4		10.2
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS8(N)	15:31	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS8(N)	15:31	Bottom	3	1	28.5	8.0	16.9	6.8	6.8	4.1		10.3	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS8(N)	15:31	Bottom	3	2	28.5	7.9	17.3	6.8		4.1		11.3	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)9	15:21	Surface	1	1									
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)9	15:21	Surface	1	2					6.9				
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)9	15:21	Middle	2	1	28.5	7.8	18.1	6.9		5.0		9.8	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)9	15:21	Middle	2	2	28.5	7.9	18.4	6.8		5.2		8.8	9.3
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)9	15:21	Bottom	3	1					#DIV/0!				
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)9	15:21	Bottom	3	2									
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)11	16:54	Surface	1	1	28.5	7.9	17.4	6.2		3.2		3.2	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)11	16:54	Surface	1	2	28.5	7.8	17.8	6.3	5.7	3.1		4.2	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)11	16:54	Middle	2	1	28.1	7.9	22.0	5.2		3.9		3.9	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)11	16:54	Middle	2	2	28.1	7.8	22.4	5.1		3.6		4.9	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)11	16:54	Middle	2	2	28.1	7.8	22.4	5.1		3.6		4.9	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)11	16:54	Bottom	3	1	26.2	7.8	29.1	2.9	2.9	11.1		3.8	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS(Mf)11	16:54	Bottom	3	2	26.2	7.7	29.8	2.8	2.9	11.0		3.8	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR7	17:00	Surface	1	1	28.4	7.9	16.9	6.2		5.8		3.5	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR7	17:00	Surface	1	2	28.4	7.8	17.2	6.2	6.2	5.8		4.3	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR7	17:00	Middle	2	1							6.9		4.6
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR7	17:00	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR7	17:00	Bottom	3	1	28.3	7.9	19.4	5.9	5.8	8.0		5.8	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	SR7	17:00	Bottom	3	2	28.3	7.8	20.0	5.7		7.8		4.8	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS17	15:59	Surface	1	1	28.4	7.9	17.9	6.3		3.2		4.1	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS17	15:59	Surface	1	2	28.4	7.8	18.2	6.3	6.1	2.9		3.3	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS17	15:59	Middle	2	1	28.2	7.9	19.9	5.8		3.7		3.8	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS17	15:59	Middle	2	2	28.2	7.8	20.3	5.8		3.7		3.3	4.4
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS17	15:59	Middle	2	2	28.2	7.8	20.3	5.8		3.7		3.3	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS17	15:59	Bottom	3	1	28.1	7.9	20.3	5.9	5.9	3.6		6.4	
TMCLKL	HY/2012/08	2019/08/26	Mid-flood	IS17	15:59	Bottom	3	2	28.2	7.8	20.8	5.9		3.6		5.6	

Note: Indicates Exceedance of Action Level  
Indicates Exceedance of Limit Level



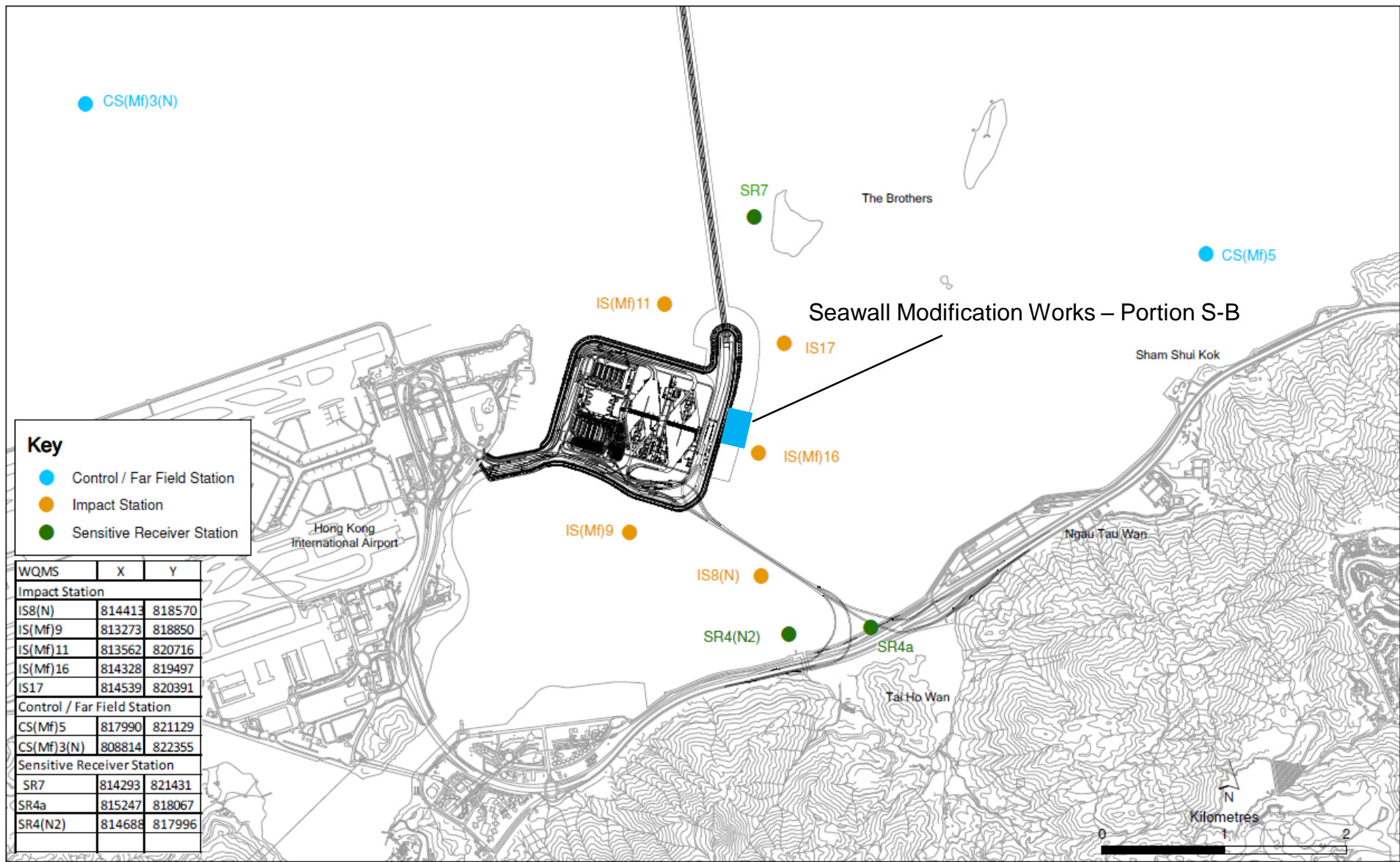


Figure 1

Email  
message

Environmental  
Resources  
Management

**To** Ramboll Hong Kong Limited (ENPO)

**From** ERM- Hong Kong, Limited

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

**Subject** Notification of Exceedance for Water Quality  
Impact Monitoring

**Date** 3 September 2019

2507,  
25/F One Harbourfront,  
18 Tak Fung Street,  
Hung Hom, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jasmine.ng@erm.com



**ERM**

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Dear Sir or Madam,

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

Action Level Exceedance

0212330\_28 August 2019\_ Surface & Middle DO\_E\_Station IS(Mf)16  
0212330\_28 August 2019\_ Surface & Middle DO\_E\_Station SR4a  
0212330\_28 August 2019\_ Bottom DO\_E\_Station SR4a  
0212330\_28 August 2019\_ Surface & Middle DO\_E\_Station SR4(N2)  
0212330\_28 August 2019\_ Surface & Middle DO\_E\_Station IS8(N)  
0212330\_28 August 2019\_ Bottom DO\_E\_Station IS8(N)  
0212330\_28 August 2019\_ Surface & Middle DO\_E\_Station IS(Mf)11  
0212330\_28 August 2019\_ Surface & Middle DO\_E\_Station IS17  
0212330\_28 August 2019\_ Bottom DO\_E\_Station IS17  
0212330\_28 August 2019\_ Bottom DO\_F\_Station SR4a  
0212330\_28 August 2019\_ Surface & Middle DO\_F\_Station IS(Mf)11  
0212330\_28 August 2019\_ Bottom DO\_F\_Station IS(Mf)11  
0212330\_28 August 2019\_ Bottom DO\_F\_Station SR7  
0212330\_28 August 2019\_ Surface & Middle DO\_F\_Station IS17  
0212330\_28 August 2019\_ Bottom DO\_F\_Station IS17  
0212330\_28 August 2019\_ Depth-averaged SS\_F\_Station SR7

Limit Level Exceedance

0212330\_28 August 2019\_ Bottom DO\_E\_Station SR4(N2)  
0212330\_28 August 2019\_ Bottom DO\_E\_Station IS(Mf)11

A total of sixteen Action Level and two Limit Level exceedances were recorded on 28 August 2019.

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Email  
message

Regards,

A handwritten signature in blue ink that reads "Jasmine". The signature is written in a cursive, flowing style.

Dr Jasmine Ng  
Environmental Team Leader



ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08

TUEN MUN – CHEK LAP KOK LINK –  
NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Marine Water Quality Impact Monitoring  
Notification of Exceedance

Log No.	<p style="text-align: center;"><u>Action Level Exceedance</u></p> <p>0212330_28 August 2019_ Surface &amp; Middle DO_E_Station IS(Mf)16          0212330_28 August 2019_ Surface &amp; Middle DO_E_Station SR4a          0212330_28 August 2019_ Bottom DO_E_Station SR4a          0212330_28 August 2019_ Surface &amp; Middle DO_E_Station SR4(N2)          0212330_28 August 2019_ Surface &amp; Middle DO_E_Station IS8(N)          0212330_28 August 2019_ Bottom DO_E_Station IS8(N)          0212330_28 August 2019_ Surface &amp; Middle DO_E_Station IS(Mf)11          0212330_28 August 2019_ Surface &amp; Middle DO_E_Station IS17          0212330_28 August 2019_ Bottom DO_E_Station IS17          0212330_28 August 2019_ Bottom DO_F_Station SR4a          0212330_28 August 2019_ Surface &amp; Middle DO_F_Station IS(Mf)11          0212330_28 August 2019_ Bottom DO_F_Station IS(Mf)11          0212330_28 August 2019_ Bottom DO_F_Station SR7          0212330_28 August 2019_ Surface &amp; Middle DO_F_Station IS17          0212330_28 August 2019_ Bottom DO_F_Station IS17          0212330_28 August 2019_ Depth-averaged SS_F_Station SR7</p> <p style="text-align: center;"><u>Limit Level Exceedance</u></p> <p>0212330_28 August 2019_ Bottom DO_E_Station SR4(N2)          0212330_28 August 2019_ Bottom DO_E_Station IS(Mf)11</p> <p style="text-align: center;">[Total No. of Exceedances = 18]</p>		
Date	<p style="text-align: center;">28 August 2019 (Measured)          30 August 2019 (<i>In situ</i> results received by ERM)          6 September 2019 (Laboratory results received by ERM)</p>		
Monitoring Station	<p style="text-align: center;">CS(Mf)5, SR4a, SR4(N2), IS8(N), IS(Mf)16, IS(Mf)9, CS(Mf)3(N), SR7, IS17, IS(Mf)11</p>		
Parameter(s) with Exceedance(s)	<p style="text-align: center;">Dissolved Oxygen (mg/L), Suspended Solids(mg/L)</p>		
Action Levels	DO	Surface and Middle 5.0 mg/L	Bottom 4.7 mg/L
	SS	120% of upstream control station at the same tide of the same day and 95%-ile of baseline data, i.e., 23.5 mg/L	
Limit Levels	DO	Surface and Middle 4.2 mg/L	Bottom 3.6 mg/L
	SS	130% of upstream control station at the same tide of the same day and 10mg/L for WSD Seawater Intakes at Tuen Mun and 99%-ile of baseline data, i.e., 34.4 mg/L	



<b>Measured Levels</b>	<p>Action Level Exceedance for DO (4.9 mg/L) is observed at IS(Mf)16 at Surface &amp; Middle Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.8 mg/L) is observed at SR4a at Surface &amp; Middle Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.0 mg/L) is observed at SR4a at Bottom Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.3 mg/L) is observed at SR4(N2) at Surface &amp; Middle Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.7 mg/L) is observed at IS8(N) at Surface &amp; Middle Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.4 mg/L) is observed at IS8(N) at Bottom Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.8 mg/L) is observed at IS(Mf)11 at Surface &amp; Middle Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.9 mg/L) is observed at IS17 at Surface &amp; Middle Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.6 mg/L) is observed at IS17 at Bottom Level during mid-ebb tide.</p> <p>Action Level Exceedance for DO (4.2 mg/L) is observed at SR4a at Bottom Level during mid-flood tide.</p> <p>Action Level Exceedance for DO (4.8 mg/L) is observed at IS(Mf)11at Surface &amp; Middle Level during mid-flood tide.</p> <p>Action Level Exceedance for DO (3.8 mg/L) is observed at IS(Mf)11 at Bottom Level during mid-flood tide.</p> <p>Action Level Exceedance for DO (4.3 mg/L) is observed at SR7 at Bottom Level during mid-flood tide.</p> <p>Action Level Exceedance for DO (4.8 mg/L) is observed at IS17 at Surface &amp; Middle Level during mid-flood tide.</p> <p>Action Level Exceedance for DO (4.3 mg/L) is observed at IS17 at Bottom Level during mid-flood tide.</p> <p>Action Level Exceedance for Depth-averaged SS (26.8 mg/L) is observed at SR7 during mid-flood tide.</p> <p>Limit Level Exceedance for DO (3.5 mg/L) is observed at SR4(N2) at Bottom Level during mid-ebb tide.</p> <p>Limit Level Exceedance for DO (3.5 mg/L) is observed at IS(Mf)11 at Bottom Level during mid-ebb tide.</p>
<b>Works Undertaken (at the time of monitoring event)</b>	<p>According to the information provided by the Contractor, Seawall Modification Works was carried out on 28 August 2019.</p>

<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedances are unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> <li>• SR4a, SR4(N2), IS8(N), IS(Mf)11 and SR7 is far away (&gt;2 km) from the Seawall Modification Works Area (<i>Figure 1</i>), thus the observed exceedance should not be affected by the marine works under this Contract. Therefore, the exceedance is unlikely to be related to this Contract.</li> <li>• Bottom-depth DO levels at SR4a, IS8(N) and IS17 was similar to the corresponding control stations, CS(Mf)3(N), during mid-ebb tide, in which the recorded Bottom-depth DO levels at the corresponding control station were below Action Level.</li> <li>• Surface &amp; Middle-depth DO levels at IS(Mf)16, SR4a, SR4(N2), IS8(N), IS(Mf)11 and IS17 was similar to the corresponding control stations, CS(Mf)3(N), during mid-ebb tide, in which the recorded Surface &amp; Middle-depth DO levels at the corresponding control station were below Action Level.</li> <li>• The DO pattern at SR4(N2) and IS(Mf)11 during mid-ebb tide were similar to the their corresponding control station where the bottom-depth DO levels were generally lower. Lower bottom-depth DO levels may be possibly caused by the stratification of seawater during summer when the freshwater discharged from the Pearl River tended to form a surface layer of lower salinity water, which is probably responsible for the lower Salinity recorded at the surface and middle levels compared to the higher Salinity recorded at the bottom level of the monitoring stations. The stratification of seawater in the water column is likely a contributing factor to the results of lower levels of DO at the bottom level.</li> <li>• Bottom-depth DO levels at SR4a, IS(Mf)11, SR7 and IS17 was similar to the corresponding control stations, CS(Mf)5, during mid-flood tide, in which the recorded Bottom-depth DO levels at the corresponding control station were below Action Level.</li> <li>• Surface &amp; Middle-depth DO levels at IS(Mf)11 and IS17 was similar to the corresponding control stations, CS(Mf)5, during mid-flood tide, in which the recorded Surface &amp; Middle-depth DO levels at the corresponding control station were below Action Level.</li> <li>• For the exceedance of SS level at SR7 during mid-flood tide, SR7 is far away (&gt;2km) from the Seawall Modification Works Area (<i>Figure 1</i>), thus the observed exceedance should not be affected by the marine works under this Contract. Moreover, no exceedance of SS was recoded at IS(Mf)16 and IS17 during mid-flood tide, which are closer to the Seawall Modification Works Area than SR7. Therefore, the exceedance is unlikely to be related to this Contract.</li> <li>• As reported by the marine mammal observer, no discharge of organic matters into waters from landside works area was recorded. Therefore, the exceedance recorded at IS(Mf)16 is likely to be due to natural fluctuation of water quality and is unlikely to be related to this Contract. Exceedances recorded at IS(Mf)16, SR4a, SR4(N2), IS8(N), IS(Mf)11 and IS17 during mid-ebb tide and SR4a, IS(Mf)11, SR7 and IS17 during mid-flood tide are unlikely to be related to this Contract as these stations are further than IS(Mf)16.</li> </ul>
<b>Actions Taken / To Be Taken</b>	<p>No immediate action is considered necessary. The ET will monitor for future trends in exceedances.</p>
<b>Remarks</b>	<p>The monitoring results on 28 August 2019 and locations of water quality monitoring stations are attached.</p>

Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)5	9:55	Surface	1	1	27.7	7.8	23.3	5.1	4.5	2.1	2.3	16.9	12.0	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)5	9:55	Surface	1	2	27.7	7.9	22.9	5.1		1.9		16.0		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)5	9:55	Middle	2	1	25.9	7.8	28.8	3.9		1.5		12.9		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)5	9:55	Middle	2	2	25.9	7.8	28.2	3.9	3.2	1.6	2.3	12.0	12.0	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)5	9:55	Bottom	3	1	24.8	7.7	31.6	3.2		3.5		6.2		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)5	9:55	Bottom	3	2	24.8	7.7	30.9	3.2	4.5	3.4	5.2	7.9	11.2	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)3(N)	11:16	Surface	1	1	28.7	7.8	20.4	4.9		1.2		12.6		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)3(N)	11:16	Surface	1	2	28.7	7.8	20.0	4.9		1.2		11.6		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)3(N)	11:16	Middle	2	1	27.9	7.7	23.6	4.0	3.7	4.8	5.2	12.1	11.2	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)3(N)	11:16	Middle	2	2	27.9	7.7	23.1	4.0		4.9		11.1		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)3(N)	11:16	Bottom	3	1	27.2	7.7	26.0	3.7	4.9	9.3	8.2	10.2	14.3	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)3(N)	11:16	Bottom	3	2	27.2	7.6	25.5	3.7		9.8		9.5		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)16	11:51	Surface	1	1	28.3	7.8	22.7	4.9		7.8		19.2		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)16	11:51	Surface	1	2	28.3	7.8	22.1	4.9	4.9	7.9	8.2	18.0	14.3	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)16	11:51	Middle	2	1										
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)16	11:51	Middle	2	2										
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)16	11:51	Bottom	3	1	27.5	7.8	24.3	4.9	4.9	8.3	7.4	10.4	8.4	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)16	11:51	Bottom	3	2	27.8	7.8	24.3	4.8		8.9		9.4		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR4a	12:01	Surface	1	1	28.1	7.7	21.5	4.8	4.8	6.5	7.4	8.1	8.4	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR4a	12:01	Surface	1	2	28.1	7.8	21.1	4.8		6.1		7.1		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR4a	12:01	Middle	2	1										
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR4a	12:01	Middle	2	2					4.0		10.0		7.2	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR4a	12:01	Bottom	3	1	27.4	7.7	24.7	4.0		8.9		9.5		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR4a	12:01	Bottom	3	2	27.4	7.7	24.2	4.0	4.3	8.2	9.1	8.7	8.1	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR4(N2)	12:09	Surface	1	1	28.2	7.7	21.9	4.3		9.4		7.0		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR4(N2)	12:09	Surface	1	2	28.2	7.8	21.5	4.3		9.6		7.7		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR4(N2)	12:09	Middle	2	1					3.5		9.1		8.1	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR4(N2)	12:09	Middle	2	2						9.6		7.7		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR4(N2)	12:09	Bottom	3	1	27.6	7.7	24.0	3.5	5.6	10.5	3.6	6.5	9.2	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR4(N2)	12:09	Bottom	3	2	27.6	7.7	23.7	3.5		10.6		7.5		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS8(N)	12:14	Surface	1	1	28.0	7.8	22.9	4.6		7.6		7.2		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS8(N)	12:14	Surface	1	2	28.0	7.7	22.4	4.7	4.7	7.3	9.1	8.3	8.1	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS8(N)	12:14	Middle	2	1										
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS8(N)	12:14	Middle	2	2										
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS8(N)	12:14	Bottom	3	1	27.5	7.7	24.4	4.2	4.4	10.7	3.2	8.2	7.0	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS8(N)	12:14	Bottom	3	2	27.7	7.7	23.4	4.5		10.8		8.5		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)9	12:22	Surface	1	1					5.6		3.6		9.2	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)9	12:22	Surface	1	2										
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)9	12:22	Middle	2	1	29.0	7.8	21.5	5.6		3.8		8.7		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)9	12:22	Middle	2	2	29.0	7.8	21.1	5.6	#DIV/0!	3.3	3.2	9.7	7.0	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)9	12:22	Bottom	3	1										
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)11	10:45	Surface	1	1	28.6	7.8	19.6	5.0	4.8	1.7	3.2	9.8	7.0	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)11	10:45	Surface	1	2	28.6	7.8	19.3	5.0		1.7		8.9		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)11	10:45	Middle	2	1	28.2	7.8	20.9	4.5		3.8		7.2		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)11	10:45	Middle	2	2	28.2	7.8	20.6	4.5	3.5	3.1	3.2	6.3	7.0	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)11	10:45	Bottom	3	1	26.0	7.8	28.7	3.5		4.4		5.6		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)11	10:45	Bottom	3	2	26.0	7.7	28.2	3.5	5.0	4.4	3.2	4.2	6.7	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR7	10:37	Surface	1	1	28.4	7.7	20.9	5.0		2.8		8.1		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR7	10:37	Surface	1	2	28.4	7.6	20.4	5.0		2.5		8.1		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR7	10:37	Middle	2	1					5.1		3.2		6.7	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR7	10:37	Middle	2	2										
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR7	10:37	Bottom	3	1	28.3	7.7	21.3	5.1	4.9	3.7	6.9	5.8	6.7	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	SR7	10:37	Bottom	3	2	28.3	7.5	20.9	5.0		3.6		4.8		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS17	11:42	Surface	1	1	28.3	7.8	21.1	5.0		4.8		8.3		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS17	11:42	Surface	1	2	28.3	7.8	20.7	5.0	4.9	4.8	6.9	7.6	6.7	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS17	11:42	Middle	2	1	27.9	7.8	22.4	4.7		7.2		6.5		
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS17	11:42	Middle	2	2	27.9	7.8	22.1	4.7		7.2		5.6		

Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS17	11:42	Bottom	3	1	27.7	7.8	23.8	4.6	4.6	8.6		5.6	
TMCLKL	HY/2012/08	2019/08/28	Mid-Ebb	IS17	11:42	Bottom	3	2	27.7	7.7	23.5	4.6		8.8		6.6	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	CS(Mf)5	18:53	Surface	1	1	27.8	7.8	24.0	4.9		2.5	8.1	5.8	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	CS(Mf)5	18:53	Surface	1	2	27.8	7.9	23.5	4.9	4.2	2.4		5.4	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	CS(Mf)5	18:53	Middle	2	1	25.4	7.8	30.1	3.5		10.9		5.3	5.7
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	CS(Mf)5	18:53	Middle	2	2	25.4	7.8	29.5	3.5		10.7		5.6	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	CS(Mf)5	18:53	Bottom	3	1	25.4	7.8	30.1	3.6	3.6	10.6		5.6	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	CS(Mf)5	18:53	Bottom	3	2	25.4	7.8	29.5	3.6		11.3		6.6	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	CS(Mf)3(N)	17:56	Surface	1	1	29.8	7.8	15.1	5.5		5.9		7.7	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	CS(Mf)3(N)	17:56	Surface	1	2	29.8	7.8	14.9	5.4	5.3	5.1		7.8	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	CS(Mf)3(N)	17:56	Middle	2	1	29.8	7.8	15.2	5.1		6.0	5.9	8.1	7.2
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	CS(Mf)3(N)	17:56	Middle	2	2	29.8	7.7	14.9	5.2		5.9		7.7	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	CS(Mf)3(N)	17:56	Bottom	3	1	28.2	7.7	19.9	4.5	4.5	6.2		5.4	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	CS(Mf)3(N)	17:56	Bottom	3	2	28.4	7.7	20.3	4.4		6.3		6.4	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)16	17:22	Surface	1	1	28.7	7.9	22.0	5.8		9.1		8.4	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)16	17:22	Surface	1	2	28.7	7.9	21.6	5.8	5.8	9.0	10.4	8.8	8.1
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)16	17:22	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)16	17:22	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)16	17:22	Bottom	3	1	28.7	7.9	22.1	5.8	5.8	11.6		7.0	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)16	17:22	Bottom	3	2	28.6	7.8	21.7	5.8		11.9		8.0	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR4a	17:12	Surface	1	1	28.5	7.9	22.2	5.6		5.9		7.1	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR4a	17:12	Surface	1	2	28.5	7.9	21.7	5.6	5.6	5.7		7.7	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR4a	17:12	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR4a	17:12	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR4a	17:12	Bottom	3	1	28.1	7.8	23.0	4.2	4.2	7.9		8.9	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR4a	17:12	Bottom	3	2	28.1	7.8	22.5	4.2		7.4		7.9	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR4(N2)	17:04	Surface	1	1	29.4	7.9	21.2	6.1		7.9		9.1	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR4(N2)	17:04	Surface	1	2	29.4	7.9	20.8	6.1	6.1	7.9		8.9	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR4(N2)	17:04	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR4(N2)	17:04	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR4(N2)	17:04	Bottom	3	1	28.8	7.9	22.0	5.2	5.2	13.4		8.8	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR4(N2)	17:04	Bottom	3	2	28.8	7.8	21.7	5.2		13.0		7.8	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS8(N)	16:58	Surface	1	1	28.9	7.9	21.5	5.8		8.5		7.4	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS8(N)	16:58	Surface	1	2	28.9	7.9	21.1	5.8	5.8	8.5		6.4	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS8(N)	16:58	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS8(N)	16:58	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS8(N)	16:58	Bottom	3	1	28.9	7.9	21.5	5.8	5.8	11.0		8.7	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS8(N)	16:58	Bottom	3	2	28.9	7.8	21.1	5.8		10.2		7.9	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)9	16:49	Surface	1	1									
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)9	16:49	Surface	1	2									
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)9	16:49	Middle	2	1	28.8	8.0	21.9	6.1	6.2	8.4		8.7	8.2
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)9	16:49	Middle	2	2	28.8	7.9	21.5	6.2		8.9		7.7	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)9	16:49	Bottom	3	1					#DIV/0!				
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)9	16:49	Bottom	3	2									
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)11	18:21	Surface	1	1	29.1	7.8	18.7	5.5		4.7		7.5	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)11	18:21	Surface	1	2	29.1	7.8	18.3	5.4	4.8	4.6		6.5	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)11	18:21	Middle	2	1	27.4	7.8	24.3	4.1		11.1		5.4	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)11	18:21	Middle	2	2	27.4	7.8	23.9	4.3		11.0		6.2	13.7
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)11	18:21	Bottom	3	1	27.0	7.8	25.8	3.7	3.8	25.0		30.2	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS(Mf)11	18:21	Bottom	3	2	27.0	7.8	25.3	3.8		24.9		26.4	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR7	18:30	Surface	1	1	28.2	7.8	21.4	5.1		6.8		6.8	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR7	18:30	Surface	1	2	28.2	7.8	20.9	5.1	5.1	6.7		7.7	26.8
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR7	18:30	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR7	18:30	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR7	18:30	Bottom	3	1	27.7	7.8	24.2	4.3		12.5		44.1	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	SR7	18:30	Bottom	3	2	27.6	7.8	23.8	4.3	4.3	12.1		48.5	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS17	17:29	Surface	1	1	28.5	7.9	21.9	5.1		3.7		6.9	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS17	17:29	Surface	1	2	28.5	7.8	21.5	5.1		3.8		6.0	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS17	17:29	Middle	2	1	27.6	7.8	24.3	4.5	4.8	4.8		6.6	7.2
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS17	17:29	Middle	2	2	27.5	7.8	23.9	4.5		4.8		6.2	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS17	17:29	Bottom	3	1	27.5	7.8	24.6	4.3		6.0		9.2	
TMCLKL	HY/2012/08	2019/08/28	Mid-flood	IS17	17:29	Bottom	3	2	27.4	7.7	24.3	4.3	4.3	5.0		8.3	

Note: Indicates Exceedance of Action Level  
Indicates Exceedance of Limit Level



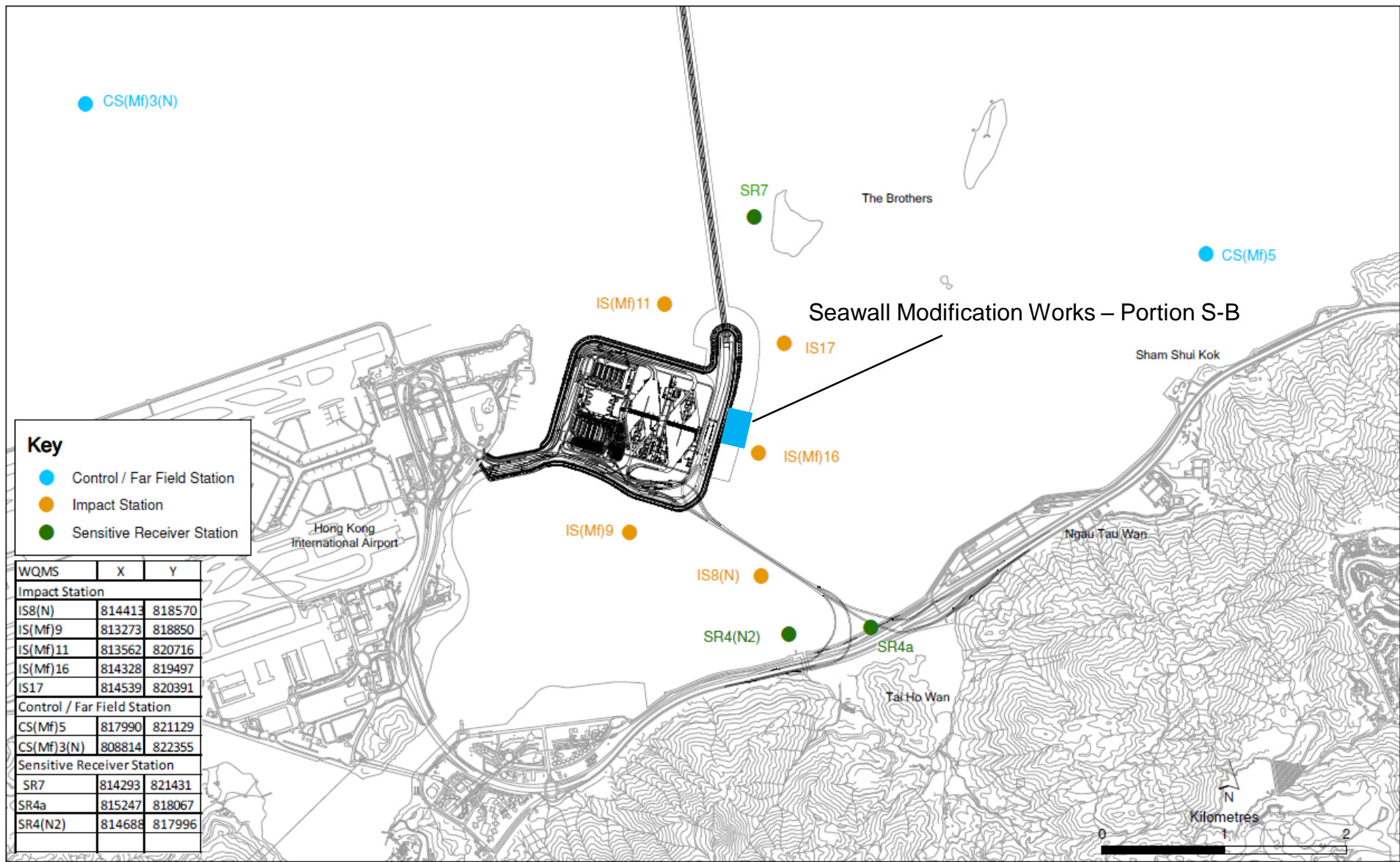


Figure 1

Email  
message

Environmental  
Resources  
Management

**To** Ramboll Hong Kong Limited (ENPO)

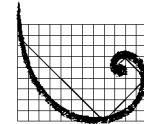
**From** ERM- Hong Kong, Limited

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

**Subject** Notification of Exceedance for Water Quality  
Impact Monitoring

**Date** 9 September 2019

2507,  
25/F One Harbourfront,  
18 Tak Fung Street,  
Hung Hom, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jasmine.ng@erm.com



**ERM**

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Dear Sir or Madam,

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

Action Level Exceedance

0212330\_30 August 2019\_ Surface & Middle DO\_E\_Station SR4a  
0212330\_30 August 2019\_ Bottom DO\_E\_Station SR4a  
0212330\_30 August 2019\_ Surface & Middle DO\_E\_Station SR4(N2)  
0212330\_30 August 2019\_ Surface & Middle DO\_E\_Station IS8(N)  
0212330\_30 August 2019\_ Surface & Middle DO\_E\_Station IS(Mf)11  
0212330\_30 August 2019\_ Bottom DO\_E\_Station IS(Mf)11  
0212330\_30 August 2019\_ Surface & Middle DO\_E\_Station SR7  
0212330\_30 August 2019\_ Bottom DO\_E\_Station SR7  
0212330\_30 August 2019\_ Surface & Middle DO\_E\_Station IS17  
0212330\_30 August 2019\_ Bottom DO\_F\_Station SR4a  
0212330\_30 August 2019\_ Surface & Middle DO\_F\_Station SR4(N2)  
0212330\_30 August 2019\_ Surface & Middle DO\_F\_Station SR7

A total of twelve Action Level exceedances were recorded on 30 August 2019.

Regards,

A handwritten signature in blue ink that reads "Jasmine".

Dr Jasmine Ng  
Environmental Team Leader

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**CONFIDENTIALITY NOTICE**

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08

TUEN MUN – CHEK LAP KOK LINK –

NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Marine Water Quality Impact Monitoring  
Notification of Exceedance

<b>Log No.</b>	<p style="text-align: center;"><u>Action Level Exceedance</u></p> <p style="text-align: center;">0212330_30 August 2019_ Surface &amp; Middle DO_E_Station SR4a          0212330_30 August 2019_ Bottom DO_E_Station SR4a          0212330_30 August 2019_ Surface &amp; Middle DO_E_Station SR4(N2)          0212330_30 August 2019_ Surface &amp; Middle DO_E_Station IS8(N)          0212330_30 August 2019_ Surface &amp; Middle DO_E_Station IS(Mf)11          0212330_30 August 2019_ Bottom DO_E_Station IS(Mf)11          0212330_30 August 2019_ Surface &amp; Middle DO_E_Station SR7          0212330_30 August 2019_ Bottom DO_E_Station SR7          0212330_30 August 2019_ Surface &amp; Middle DO_E_Station IS17          0212330_30 August 2019_ Bottom DO_F_Station SR4a          0212330_30 August 2019_ Surface &amp; Middle DO_F_Station SR4(N2)          0212330_30 August 2019_ Surface &amp; Middle DO_F_Station SR7</p> <p style="text-align: center;">[Total No. of Exceedances = 12]</p>		
<b>Date</b>	<p style="text-align: center;">30 August 2019 (Measured)          3 September 2019 (<i>In situ</i> results received by ERM)          9 September 2019 (Laboratory results received by ERM)</p>		
<b>Monitoring Station</b>	<p style="text-align: center;">CS(Mf)5, SR4a, SR4(N2), IS8(N), IS(Mf)16, IS(Mf)9, CS(Mf)3(N), SR7, IS17, IS(Mf)11</p>		
<b>Parameter(s) with Exceedance(s)</b>	<p style="text-align: center;">Dissolved Oxygen (mg/L)</p>		
<b>Action Levels</b>	<p style="text-align: center;">DO</p>	<p style="text-align: center;">Surface and Middle 5.0 mg/L</p>	<p style="text-align: center;">Bottom 4.7 mg/L</p>
<b>Limit Levels</b>	<p style="text-align: center;">DO</p>	<p style="text-align: center;">Surface and Middle 4.2 mg/L</p>	<p style="text-align: center;">Bottom 3.6 mg/L</p>
<b>Measured Levels</b>	<p>Action Level Exceedance for DO (4.5 mg/L) is observed at SR4a at Surface &amp; Middle Level during mid-ebb tide.          Action Level Exceedance for DO (4.5 mg/L) is observed at SR4a at Bottom Level during mid-ebb tide.          Action Level Exceedance for DO (4.8 mg/L) is observed at SR4(N2) at Surface &amp; Middle Level during mid-ebb tide.          Action Level Exceedance for DO (4.9 mg/L) is observed at IS8(N) at Surface &amp; Middle Level during mid-ebb tide.          Action Level Exceedance for DO (4.8 mg/L) is observed at IS(Mf)11 at Surface &amp; Middle Level during mid-ebb tide.          Action Level Exceedance for DO (4.3 mg/L) is observed at IS(Mf)11 at Bottom Level during mid-ebb tide.          Action Level Exceedance for DO (4.6 mg/L) is observed at SR7 at Surface &amp; Middle Level during mid-ebb tide.          Action Level Exceedance for DO (4.6 mg/L) is observed at SR7 at Bottom Level during mid-ebb tide.          Action Level Exceedance for DO (4.9 mg/L) is observed at IS17 at Surface &amp; Middle Level during mid-ebb tide.          Action Level Exceedance for DO (4.1 mg/L) is observed at SR4a at Bottom Level during mid-flood tide.          Action Level Exceedance for DO (4.9 mg/L) is observed at SR4(N2) at Surface &amp; Middle Level during mid-flood tide.          Action Level Exceedance for DO (4.8 mg/L) is observed at SR7 at Surface &amp; Middle Level during mid-flood tide.</p>		
<b>Works Undertaken (at the time of monitoring event)</b>	<p>According to the information provided by the Contractor, Seawall Modification Works was carried out on 30 August 2019.</p>		

<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedances are unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> <li>• All monitored parameters, except DO, at all monitoring stations were in compliance with the Action and Limit Levels during both mid-ebb and mid-flood tides on the same day.</li> <li>• SR4a, SR4(N2), IS8(N), IS(Mf)11 and SR7 are far away (&gt;2 km) from the Seawall Modification Works Area (<i>Figure 1</i>), thus the observed exceedance should not be affected by the marine works under this Contract. Therefore, the exceedance is unlikely to be related to this Contract.</li> <li>• Surface &amp; Middle-depth DO levels at SR4a, SR4(N2), IS8(N), IS(Mf)11, SR7 and IS17 were similar to the corresponding control stations, CS(Mf)3(N), during mid-ebb tide, in which the recorded Surface &amp; Middle-depth DO levels at the corresponding control station were below Action Level.</li> <li>• The DO pattern at SR4a, IS(Mf)11 and SR7 during mid-ebb tide were similar to the their corresponding control station where the bottom-depth DO levels were generally lower. Lower bottom-depth DO levels may be possibly caused by the stratification of seawater during summer when the freshwater discharged from the Pearl River tended to form a surface layer of lower salinity water, which is probably responsible for the lower Salinity recorded at the surface and middle levels compared to the higher Salinity recorded at the bottom level of the monitoring stations. The stratification of seawater in the water column is likely a contributing factor to the results of lower levels of DO at the bottom level.</li> <li>• Bottom-depth DO levels at SR4a was similar to the corresponding control stations, CS(Mf)5, during mid-flood tide, in which the recorded Bottom-depth DO levels at the corresponding control station were below Action Level.</li> <li>• Surface &amp; Middle-depth DO levels at SR4(N2) and SR7 were similar to the corresponding control stations, CS(Mf)5, during mid-flood tide, in which the recorded Surface &amp; Middle-depth DO levels at the corresponding control station were below Action Level.</li> <li>• As reported by the marine mammal observer, no discharge of organic matters into waters from landside works area was recorded. Moreover, no exceedance was recorded at IS(Mf)16 which is the closest station to the Seawall Modification Works Area during both mid-ebb and mid-flood tide. Therefore, exceedances recorded at SR4a, SR4(N2), IS8(N), IS(Mf)11, SR7 and IS17 during mid-ebb tide and SR4a, SR4(N2) and SR7 during mid-flood tide are unlikely to be caused by the marine works of this Contract.</li> </ul>
<b>Actions Taken / To Be Taken</b>	<p>No immediate action is considered necessary. The ET will monitor for future trends in exceedances.</p>
<b>Remarks</b>	<p>The monitoring results on 30 August 2019 and locations of water quality monitoring stations are attached.</p>



Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS		
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)5	11:23	Surface	1	1	27.4	7.8	24.4	5.1	5.0	4.7	6.3	7.4	8.6		
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)5	11:23	Surface	1	2	27.4	7.8	24.3	5.2		4.7		8.3			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)5	11:23	Middle	2	1	27.1	7.8	25.4	4.8		6.0		8.8			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)5	11:23	Middle	2	2	27.1	7.8	25.4	4.8		6.1		8.3			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)5	11:23	Bottom	3	1	26.5	7.8	27.7	4.4	4.4	8.3		8.8			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)5	11:23	Bottom	3	2	26.5	7.8	27.7	4.3		8.2		9.8			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)3(N)	12:35	Surface	1	1	27.8	7.8	23.5	4.8	4.8	7.1	8.7	8.4	8.1		
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)3(N)	12:35	Surface	1	2	27.8	7.8	23.5	4.8		7.1		8.6			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)3(N)	12:35	Middle	2	1	27.7	7.8	24.2	4.8		9.2		9.2			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)3(N)	12:35	Middle	2	2	27.7	7.8	24.2	4.8		9.3		9.5			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)3(N)	12:35	Bottom	3	1	27.6	7.8	24.7	5.0	5.0	10.0		6.8			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)3(N)	12:35	Bottom	3	2	27.6	7.8	24.7	5.0		9.3		5.8			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)16	13:07	Surface	1	1	27.2	7.8	24.9	5.1	5.1	9.7	10.3	11.8	12.2		
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)16	13:07	Surface	1	2	27.4	7.8	24.7	5.1		9.4		12.1			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)16	13:07	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)16	13:07	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)16	13:07	Bottom	3	1	26.8	7.8	27.2	4.8	4.8	11.0		12.9			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)16	13:07	Bottom	3	2	26.8	7.8	27.2	4.7		10.9		12.0			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR4a	13:16	Surface	1	1	27.4	7.8	24.7	4.5	4.5	10.2	10.3	12.7	14.5		
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR4a	13:16	Surface	1	2	27.4	7.8	24.5	4.5		9.9		14.6			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR4a	13:16	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR4a	13:16	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR4a	13:16	Bottom	3	1	26.8	7.8	26.8	4.5	4.5	10.7		14.3			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR4a	13:16	Bottom	3	2	26.8	7.8	26.8	4.4		10.4		16.4			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR4(N2)	13:21	Surface	1	1	27.6	7.8	23.5	4.8	4.8	12.2	14.1	9.0	11.4		
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR4(N2)	13:21	Surface	1	2	27.6	7.8	23.5	4.8		11.9		10.2			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR4(N2)	13:21	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR4(N2)	13:21	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR4(N2)	13:21	Bottom	3	1	27.1	7.8	24.9	4.9	4.9	16.2		13.3			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR4(N2)	13:21	Bottom	3	2	27.2	7.8	24.9	4.9		16.2		13.1			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS8(N)	13:27	Surface	1	1	27.6	7.8	24.0	4.9	4.9	9.2	11.3	11.8	11.8		
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS8(N)	13:27	Surface	1	2	27.6	7.8	24.1	4.9		8.3		11.2			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS8(N)	13:27	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS8(N)	13:27	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS8(N)	13:27	Bottom	3	1	27.1	7.8	24.4	4.7	4.8	13.8		12.4			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS8(N)	13:27	Bottom	3	2	27.2	7.8	24.6	4.8		13.8		11.8			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)9	13:35	Surface	1	1	27.8	7.8	24.3	5.1	5.1	9.7	9.5	7.9	8.5		
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)9	13:35	Surface	1	2	27.8	7.8	24.3	5.1		9.9		8.9			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)9	13:35	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)9	13:35	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)9	13:35	Bottom	3	1	27.8	7.8	24.2	5.2	5.2	9.2		8.4			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)9	13:35	Bottom	3	2	27.8	7.8	24.2	5.1		9.1		8.9			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)11	12:02	Surface	1	1	27.8	7.8	23.7	5.0	4.8	6.9	13.0	13.9	11.2		
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)11	12:02	Surface	1	2	27.8	7.8	23.7	5.0		7.0		12.1			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)11	12:02	Middle	2	1	27.2	7.8	24.7	4.6		15.7		11.3			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)11	12:02	Middle	2	2	27.4	7.8	24.6	4.6		15.5		10.3			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)11	12:02	Bottom	3	1	26.5	7.8	27.8	4.3	4.3	16.4		10.6			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)11	12:02	Bottom	3	2	26.5	7.8	27.8	4.3		16.3		9.2			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR7	11:54	Surface	1	1	27.4	7.8	25.0	4.6	4.6	10.5	12.8	6.2	6.4		
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR7	11:54	Surface	1	2	27.4	7.8	24.8	4.6		10.2		6.4			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR7	11:54	Middle	2	1											
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR7	11:54	Middle	2	2											
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR7	11:54	Bottom	3	1	27.3	7.8	25.4	4.6	4.6	15.9		6.1			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	SR7	11:54	Bottom	3	2	27.3	7.8	25.4	4.6		14.7		6.7			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS17	13:00	Surface	1	1	27.6	7.8	24.1	4.9	4.9	8.3	8.5	8.8	8.7		
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS17	13:00	Surface	1	2	27.6	7.8	24.1	4.9		8.1		9.6			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS17	13:00	Middle	2	1	27.5	7.8	24.6	4.9		8.6		8.8			
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS17	13:00	Middle	2	2	27.5	7.8	24.6	4.9		8.5		7.9			

Project	Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS17	13:00	Bottom	3	1	27.1	7.8	25.9	4.9	4.9	8.7		8.0	
TMCLKL	HY/2012/08	2019/08/30	Mid-Ebb	IS17	13:00	Bottom	3	2	27.1	7.8	25.8	4.8		8.6		8.8	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	CS(Mf)5	19:52	Surface	1	1	27.4	7.8	25.0	4.8		5.4	6.9	7.9	8.8
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	CS(Mf)5	19:52	Surface	1	2	27.4	7.8	25.1	4.8		5.4		7.1	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	CS(Mf)5	19:52	Middle	2	1	26.8	7.8	26.7	4.6		7.0		7.8	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	CS(Mf)5	19:52	Middle	2	2	27.0	7.8	26.1	4.6		7.0		7.9	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	CS(Mf)5	19:52	Bottom	3	1	26.6	7.8	27.3	4.6		8.6		11.7	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	CS(Mf)5	19:52	Bottom	3	2	26.6	7.8	27.3	4.6		8.1		10.4	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	CS(Mf)3(N)	19:01	Surface	1	1	28.7	7.7	18.4	4.8		11.1		8.9	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	CS(Mf)3(N)	19:01	Surface	1	2	28.7	7.7	18.4	4.8		11.9		8.0	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	CS(Mf)3(N)	19:01	Middle	2	1	28.6	7.7	18.7	4.9		13.9	13.6	9.2	8.6
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	CS(Mf)3(N)	19:01	Middle	2	2	28.7	7.7	18.7	4.8		13.7		8.5	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	CS(Mf)3(N)	19:01	Bottom	3	1	28.6	7.7	18.9	4.9		15.7		8.9	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	CS(Mf)3(N)	19:01	Bottom	3	2	28.6	7.7	18.9	4.9		15.3		7.9	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)16	18:27	Surface	1	1	27.7	7.9	24.2	5.3		17.1		8.9	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)16	18:27	Surface	1	2	27.7	7.9	24.2	5.3		17.8	18.6	8.4	9.6
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)16	18:27	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)16	18:27	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)16	18:27	Bottom	3	1	27.7	7.9	24.5	5.3		19.9		10.4	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)16	18:27	Bottom	3	2	27.7	7.9	24.5	5.3		19.4		10.6	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR4a	18:20	Surface	1	1	27.6	7.9	24.0	5.0		10.4		14.5	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR4a	18:20	Surface	1	2	27.7	7.9	23.9	5.0		10.2		12.9	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR4a	18:20	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR4a	18:20	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR4a	18:20	Bottom	3	1	27.3	7.9	26.5	4.1	4.1	14.1		14.0	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR4a	18:20	Bottom	3	2	27.3	7.9	26.5	4.0		14.8		13.2	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR4(N2)	18:17	Surface	1	1	27.5	7.9	24.6	4.9		9.6		10.9	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR4(N2)	18:17	Surface	1	2	27.5	7.9	24.4	4.9		9.9		12.3	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR4(N2)	18:17	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR4(N2)	18:17	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR4(N2)	18:17	Bottom	3	1	27.4	7.9	24.8	5.0		9.9		13.9	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR4(N2)	18:17	Bottom	3	2	27.4	7.9	24.8	4.9		10.0		15.7	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS8(N)	18:13	Surface	1	1	27.7	7.9	24.3	5.3		10.3		10.4	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS8(N)	18:13	Surface	1	2	27.7	7.9	24.2	5.3		10.3		9.5	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS8(N)	18:13	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS8(N)	18:13	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS8(N)	18:13	Bottom	3	1	27.7	7.9	24.4	5.4		10.9		13.0	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS8(N)	18:13	Bottom	3	2	27.7	7.9	24.4	5.4		10.9		11.7	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)9	18:05	Surface	1	1	27.7	8.0	24.5	5.8		16.8		8.9	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)9	18:05	Surface	1	2	27.7	8.0	24.5	5.8		16.6		7.9	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)9	18:05	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)9	18:05	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)9	18:05	Bottom	3	1	27.7	8.0	24.5	5.9		19.3		8.1	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)9	18:05	Bottom	3	2	27.7	8.0	24.5	5.8		19.3		7.7	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)11	18:40	Surface	1	1	27.9	7.9	23.3	5.3		6.9		9.0	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)11	18:40	Surface	1	2	28.0	7.9	22.8	5.3		6.8		8.1	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)11	18:40	Middle	2	1	27.6	7.9	24.4	5.3		9.4		8.4	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)11	18:40	Middle	2	2	27.6	7.9	24.4	5.3		9.8		7.9	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)11	18:40	Bottom	3	1	27.6	7.9	24.5	5.4		10.6		10.7	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS(Mf)11	18:40	Bottom	3	2	27.6	7.9	24.5	5.4		10.4		10.9	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR7	19:32	Surface	1	1	27.6	7.8	24.3	4.8		10.4		5.0	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR7	19:32	Surface	1	2	27.6	7.8	24.3	4.8		10.2		6.8	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR7	19:32	Middle	2	1									
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR7	19:32	Middle	2	2									
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR7	19:32	Bottom	3	1	27.6	7.8	24.3	5.0		15.5		4.4	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	SR7	19:32	Bottom	3	2	27.6	7.8	24.3	5.0		16.0		5.4	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS17	18:35	Surface	1	1	27.9	7.8	23.2	5.0		6.0		12.0	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS17	18:35	Surface	1	2	27.9	7.8	23.0	5.0		5.7		10.4	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS17	18:35	Middle	2	1	27.7	7.9	24.0	5.0		7.3		11.8	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS17	18:35	Middle	2	2	27.7	7.9	23.9	5.0		7.8		12.1	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS17	18:35	Bottom	3	1	27.4	7.9	24.8	5.0		16.7		11.8	
TMCLKL	HY/2012/08	2019/08/30	Mid-flood	IS17	18:35	Bottom	3	2	27.5	7.9	24.7	5.0		16.3		10.9	

Note: Indicates Exceedance of Action Level  
Indicates Exceedance of Limit Level



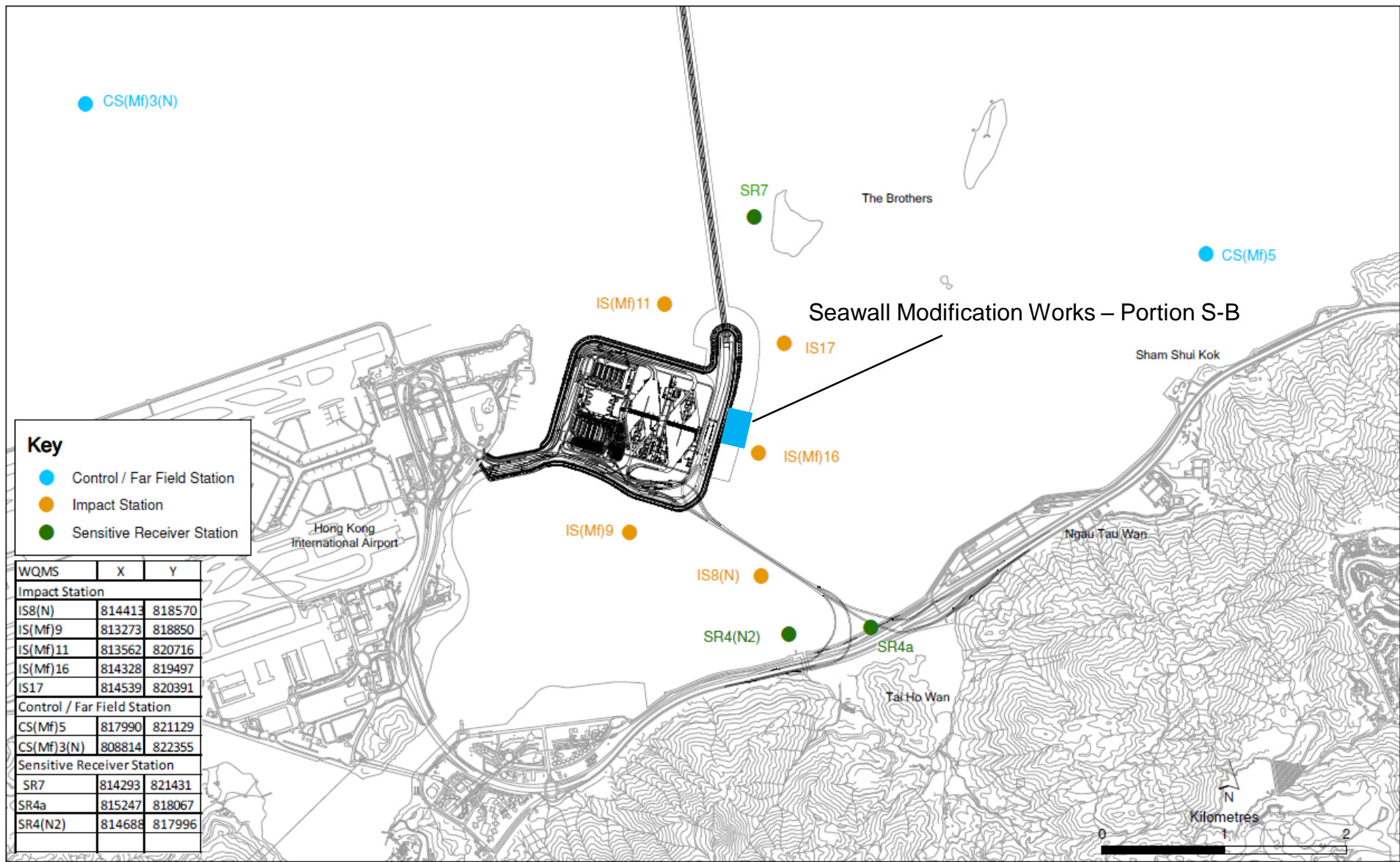


Figure 1