

*Appendix L1 Cumulative Statistics on Exceedances*

		Total No. recorded in this quarter	Total No. recorded since project commencement
1-Hr TSP	Action	0	0
	Limit	0	0
24-Hr TSP	Action	0	2
	Limit	0	0
Noise	Action	0	0
	Limit	0	0
Water Quality	Action	31	33
	Limit	14	14
Impact Dolphin Monitoring	Action	0	9
	Limit	1	10

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

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This quarter	0	0	0
Total No. received since project commencement	10	0	0

Email  
message

Environmental  
Resources  
Management

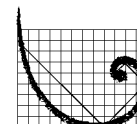
**To** Ramboll Environ – Hong Kong, Limited (ENPO)

16/F Berkshire House,  
25 Westlands Road  
Quarry Bay, Hong Kong  
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**From** ERM- Hong Kong, Limited

**Ref/Project number** Contract No. HY/2012/07  
Tuen Mun – Chek Lap Kok Link – Southern  
Connection Viaduct Section

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



**ERM**

**Date** 8 August 2017

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Dear Sir/ Madam,

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

Limit Level Exceedance

0215660\_01August 2017\_Bottom-depth DO\_E\_Station CS(Mf)5

0215660\_01August 2017\_Bottom-depth DO\_E\_Station CS(Mf)3(N)

0215660\_01August 2017\_Bottom-depth DO\_F\_Station CS(Mf)5

A total of three exceedances were recorded on 1 August 2017.

Regards,

A handwritten signature in black ink, appearing to read 'Jovy Tam', written over a light blue horizontal line.

Mr Jovy Tam  
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/07

TUEN MUN – CHEK LAP KOK LINK –  
SOUTHERN CONNECTION VIADUCT SECTION

*Marine Water Quality Impact Monitoring*

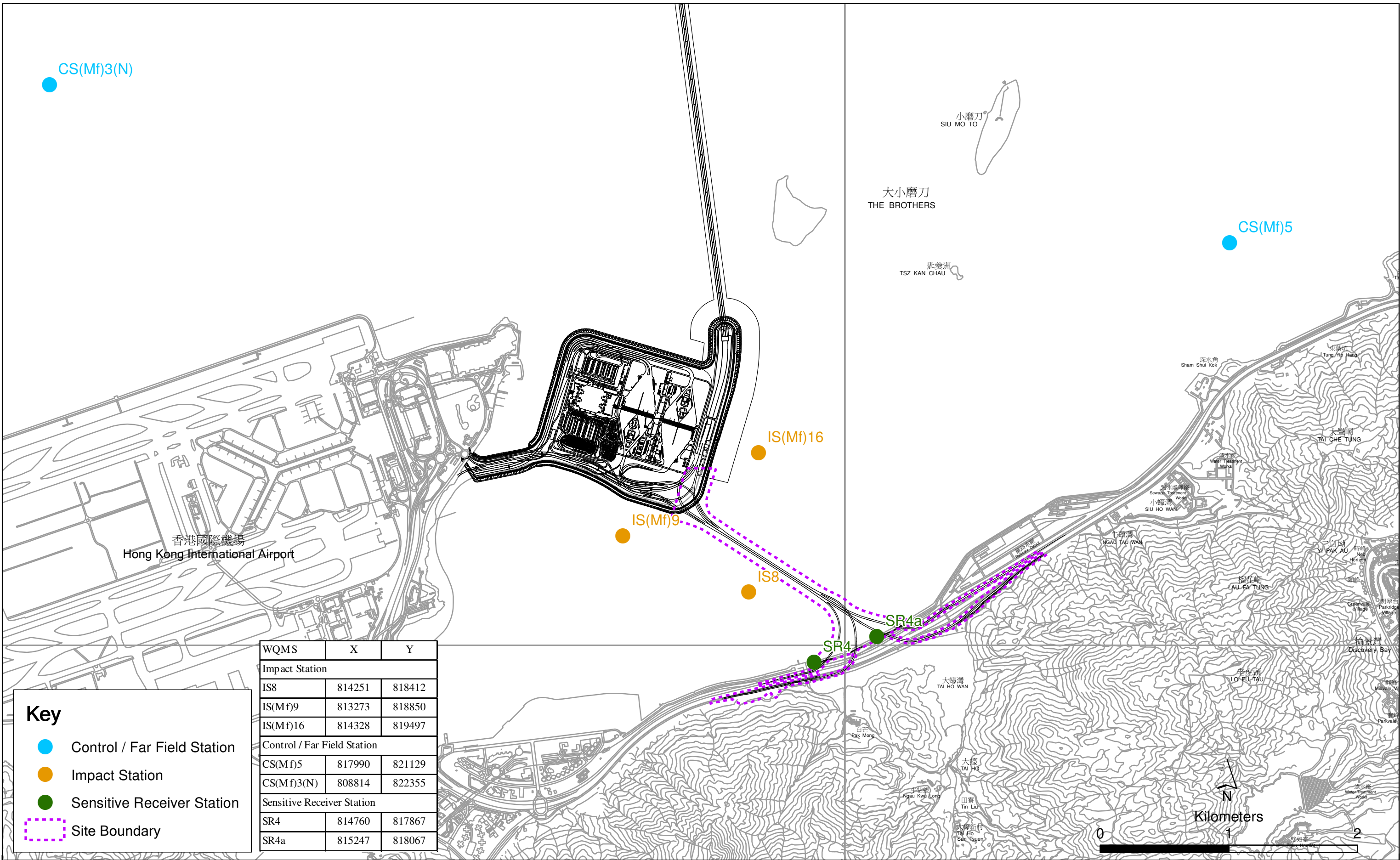
**Notification of Exceedance**

<b>Log No.</b>	<u>Limit Level Exceedance</u> 0215660_01August 2017_Bottom-depth DO_E_Station CS(Mf)5 0215660_01August 2017_Bottom-depth DO_F_Station CS(Mf)5 0215660_01August 2017_Bottom-depth DO_E_Station CS(Mf)3(N) [Total No. of Exceedances = 3]	
<b>Date</b>	1 August 2017 (Measured) 3 August 2017 ( <i>In situ</i> results received by ERM) 10 August 2017 (Laboratory results received by ERM)	
<b>Monitoring Station</b>	CS(Mf)5, SR4a, SR4, IS8, IS(Mf)16, IS(Mf)9, CS(Mf)3(N)	
<b>Parameter(s) with Exceedance(s)</b>	Bottom-depth Dissolved Oxygen (DO)	
<b>Action Levels</b>	Bottom-depth DO	4.7 mg/L
<b>Limit Levels</b>	Bottom-depth DO	3.6 mg/L
<b>Measured Levels</b>	Limit Level Exceedance was observed at CS(Mf)5 during mid-ebb tide (Bottom-depth DO= 3.1 mg/L). Limit Level Exceedance was observed at CS(Mf)3(N) during mid-ebb tide (Bottom-depth DO=4.3 mg/L). Limit Level Exceedance was observed at CS(Mf)5 during mid-flood tide (Bottom-depth DO=2.6 mg/L).	
<b>Works Undertaken (at the time of monitoring event)</b>	Major marine works undertaken under this Contract on 1 August 2017 included: <ul style="list-style-type: none"> <li>• Pipe piling work for the construction of underslung truss scheme</li> </ul>	
<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	The exceedance of bottom-depth DO at CS(Mf)5 during mid-ebb and mid-flood tide and at CS(Mf)3(N) during mid-ebb tide are unlikely to be due to the Project, in view of the following: <ul style="list-style-type: none"> <li>• Apart from the Control stations CS(Mf)5 and CS(Mf)3(N), levels of 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>• CS(Mf)5 and CS(Mf)3(N) are distant (&gt;3km and &gt;5km respectively) from the marine works area under this Contract, thus the observed exceedance should not be affected by the marine works under this Contract and it is considered to be natural fluctuation in water quality.</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 1 August 2017 and locations of water quality monitoring stations are attached.	

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	SS (mg/L)
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	CS(Mf)5	6:54	Surface	1	29.5	7.9	16.8	6	5.7	1.7	2.9
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	CS(Mf)5	6:54	Surface	2	29.3	7.9	16.5	5.9		2.2	2.4
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	CS(Mf)5	6:54	Middle	1	29.1	7.9	21.2	5.4		1.7	2.7
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	CS(Mf)5	6:54	Middle	2	29	7.9	21.5	5.4		2.3	3.3
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	CS(Mf)5	6:54	Bottom	1	27.1	7.8	29.4	3	3.1	2.8	3.6
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	CS(Mf)5	6:54	Bottom	2	27	7.9	29.3	3.1		3.2	3.7
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	CS(Mf)3(N)	7:52	Surface	1	29.6	7.9	14.4	6.1	6.0	3.2	4.7
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	CS(Mf)3(N)	7:52	Surface	2	29.5	7.9	14.1	6		3.5	4.3
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	CS(Mf)3(N)	7:52	Middle	1	29.6	8	14.6	6		3.1	5
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	CS(Mf)3(N)	7:52	Middle	2	29.5	7.9	14.3	6		2.8	4.8
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	CS(Mf)3(N)	7:52	Bottom	1	28.7	7.8	21.8	4.2	4.3	3.4	4.6
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	CS(Mf)3(N)	7:52	Bottom	2	28.7	7.8	21.4	4.3		3.3	4.8
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	IS(Mf)16	8:25	Surface	1	29.7	8	17.1	6.4	6.5	2.3	2.8
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	IS(Mf)16	8:25	Surface	2	29.7	8	16.8	6.5		2.6	4.3
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	IS(Mf)16	8:25	Middle	1	29.7	8	17.7	6.6		3.3	4.1
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	IS(Mf)16	8:25	Middle	2	29.7	8	17.9	6.6		3.6	5.5
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	IS(Mf)16	8:25	Bottom	1	29.7	8	20.3	7.2	7.2	8.2	6.4
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	IS(Mf)16	8:25	Bottom	2	29.7	8.1	20.2	7.2		8.1	7.9
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	SR4a	8:37	Surface	1	29.6	7.9	18	5.9	5.9	4.5	5.3
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	SR4a	8:37	Surface	2	29.5	7.9	18	5.9		4.7	6.7
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	SR4a	8:37	Bottom	1	29.2	7.9	20.6	4.8	4.8	15.2	8
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	SR4a	8:37	Bottom	2	29.3	7.9	20.6	4.8		16	6.9
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	SR4	8:47	Surface	1	29.6	7.9	17.7	6.1	6.1	3	3.6
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	SR4	8:47	Surface	2	29.5	7.9	17.6	6.1		4.2	3.2
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	SR4	8:47	Bottom	1	29.7	8	18.6	6.2	6.2	4.8	4.5
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	SR4	8:47	Bottom	2	29.6	8	18.6	6.2		4.7	4.2
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	IS8	8:55	Surface	1	29.6	8	17.6	6.5	6.5	2.9	5.2
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	IS8	8:55	Surface	2	29.6	8	17.6	6.5		3.1	5.1
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	IS8	8:55	Bottom	1	29.8	8	18.4	7.3	7.3	5.2	4.8
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	IS8	8:55	Bottom	2	29.7	8	18.5	7.3		5.1	4.3
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	IS(Mf)9	9:02	Surface	1	29.6	8	17.5	6.9	6.9	3.3	4.8
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	IS(Mf)9	9:02	Surface	2	29.5	8	17.4	6.9		3.2	5.4
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	IS(Mf)9	9:02	Bottom	1	29.6	8	17.7	6.9	7.0	4.1	5.9
TMCLKL	HY/2012/07	2017-08-01	Mid-Ebb	IS(Mf)9	9:02	Bottom	2	29.6	8	17.8	7		4.5	5.1

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	SS (mg/L)
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	IS(Mf)9	13:32	Surface	1	30.1	8.4	17.2	10.8	10.8	3.3	2.8
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	IS(Mf)9	13:32	Surface	2	30.1	8.4	17.3	10.8		3.2	4.2
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	IS(Mf)9	13:32	Bottom	1	30.1	8.4	17.3	10.9	11.0	3.4	4
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	IS(Mf)9	13:32	Bottom	2	30.1	8.4	17.3	11.1		3.6	2.8
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	IS8	13:40	Surface	1	30.1	8.1	16.1	7.1	7.1	5	5.3
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	IS8	13:40	Surface	2	30.1	8.1	16.1	7		4.6	4.8
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	IS8	13:40	Bottom	1	29.8	8	17.7	7.1	7.1	6.7	5.7
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	IS8	13:40	Bottom	2	29.8	8	17.6	7.1		7	5.6
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	SR4	13:47	Surface	1	30	8.1	16.1	7.2	7.1	3.8	6.4
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	SR4	13:47	Surface	2	29.9	8.1	16.1	7		4.2	6.6
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	SR4	13:47	Bottom	1	30	8	16.9	7.1	7.2	8	6.6
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	SR4	13:47	Bottom	2	30	8	17	7.2		8.8	7.8
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	SR4a	13:55	Surface	1	29.9	8	16.3	6.8	6.8	7.2	4
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	SR4a	13:55	Surface	2	29.9	8	16.2	6.7		7.1	3.7
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	SR4a	13:55	Bottom	1	29.8	8	16.3	6.8	6.8	12.5	6
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	SR4a	13:55	Bottom	2	29.8	8	16.3	6.8		12.1	6.5
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	IS(Mf)16	14:27	Surface	1	30.2	8.2	16.6	8.3	8.3	3.4	8.9
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	IS(Mf)16	14:27	Surface	2	30.2	8.2	16.5	8.3		3.2	7
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	IS(Mf)16	14:27	Bottom	1	29.7	8.1	17.2	7	7.0	5	12.8
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	IS(Mf)16	14:27	Bottom	2	29.7	8.1	17.3	7		6	12.5
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	CS(Mf)3(N)	15:02	Surface	1	30	7.9	14	6.5	6.3	4.8	5.8
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	CS(Mf)3(N)	15:02	Surface	2	30	7.9	14	6.5		4.4	4.1
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	CS(Mf)3(N)	15:02	Middle	1	29.7	7.9	14.5	6.1		4.7	6.1
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	CS(Mf)3(N)	15:02	Middle	2	29.7	7.9	14.5	6.1		4.5	6.2
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	CS(Mf)3(N)	15:02	Bottom	1	29.3	7.8	17.6	5	5.0	4.7	4.7
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	CS(Mf)3(N)	15:02	Bottom	2	29.3	7.8	17.7	5		4.5	5.9
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	CS(Mf)5	15:48	Surface	1	30.3	8.1	15.2	7.9	6.2	2.4	16.7
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	CS(Mf)5	15:48	Surface	2	30.4	8	15.4	8		2.6	17.9
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	CS(Mf)5	15:48	Middle	1	28.6	7.9	21.5	4.5		1.9	5.8
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	CS(Mf)5	15:48	Middle	2	28.6	7.9	21.6	4.5		2.3	5
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	CS(Mf)5	15:48	Bottom	1	26.3	7.8	32.3	2.6	2.6	5.5	6
TMCLKL	HY/2012/07	2017-08-01	Mid-Flood	CS(Mf)5	15:48	Bottom	2	26.3	7.8	32.2	2.6		6.3	6.8

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



WQMS	X	Y
Impact Station		
IS8	814251	818412
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
Control / Far Field Station		
CS(Mf)5	817990	821129
CS(Mf)3(N)	808814	822355
Sensitive Receiver Station		
SR4	814760	817867
SR4a	815247	818067

**Key**

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

Locations of Water Quality Monitoring Stations

Email  
message

Environmental  
Resources  
Management

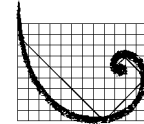
**To** Ramboll Environ – Hong Kong, Limited (ENPO)

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Quarry Bay, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jovy.tam@erm.com

**From** ERM- Hong Kong, Limited

**Ref/Project number** Contract No. HY/2012/07  
Tuen Mun – Chek Lap Kok Link – Southern  
Connection Viaduct Section

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



**ERM**

**Date** 9 August 2017

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Dear Sir/ Madam,

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

Action Level Exceedance

0215660\_03August 2017\_Surface and Middle-depth DO\_E\_Station CS(Mf)3(N)  
0215660\_03August 2017\_Bottom-depth DO\_E\_Station IS(Mf)16  
0215660\_03August 2017\_Bottom-depth DO\_E\_Station SR4a  
0215660\_03August 2017\_Bottom-depth DO\_F\_Station CS(Mf)3(N)  
0215660\_03August 2017\_Surface and Middle -depth DO\_F\_Station CS(Mf)5

Limit Level Exceedance

0215660\_03August 2017\_Surface and Middle-depth DO\_E\_Station CS(Mf)5  
0215660\_03August 2017\_Bottom-depth DO\_E\_Station CS(Mf)3(N)  
0215660\_03August 2017\_Bottom-depth DO\_F\_Station CS(Mf)5

A total of eight exceedances were recorded on 3 August 2017.

Regards,

A handwritten signature in black ink, appearing to read 'Jovy Tam', written over a white background.

Mr Jovy Tam  
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/07

TUEN MUN – CHEK LAP KOK LINK –  
SOUTHERN CONNECTION VIADUCT 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;">0215660_03August 2017_Surface and Middle-depth DO_E_Station CS(Mf)3(N) 0215660_03August 2017_Bottom-depth DO_E_Station IS(Mf)16 0215660_03August 2017_Bottom-depth DO_E_Station SR4a 0215660_03August 2017_Bottom-depth DO_F_Station CS(Mf)3(N) 0215660_03August 2017_Surface and Middle -depth DO_F_Station CS(Mf)5</p> <p style="text-align: center;"><u>Limit Level Exceedance</u></p> <p style="text-align: center;">0215660_03August 2017_Surface and Middle-depth DO_E_Station CS(Mf)5 0215660_03August 2017_Bottom-depth DO_E_Station CS(Mf)3(N) 0215660_03August 2017_Bottom-depth DO_F_Station CS(Mf)5</p> <p style="text-align: center;">[Total No. of Exceedances = 8]</p>	
<b>Date</b>	<p>3 August 2017 (Measured)</p> <p>7 August 2017 (<i>In situ</i> results received by ERM)</p> <p>14 August 2017 (Laboratory results received by ERM)</p>	
<b>Monitoring Station</b>	CS(Mf)5, SR4a, SR4, IS8, IS(Mf)16, IS(Mf)9, CS(Mf)3(N)	
<b>Parameter(s) with Exceedance(s)</b>	Surface and Middle-depth DO, Bottom-depth Dissolved Oxygen (DO)	
<b>Action Levels</b>	Surface and Middle-depth DO	5.0 mg/L
	Bottom-depth DO	4.7 mg/L
<b>Limit Levels</b>	Surface and Middle-depth DO	4.2 mg/L
	Bottom-depth DO	3.6 mg/L
<b>Measured Levels</b>	<p>Action Level Exceedance was observed at CS(Mf)3(N) during mid-ebb tide (Surface and Middle-depth DO = 4.7 mg/L).</p> <p>Action Level Exceedance was observed at IS(Mf)16 during mid-ebb tide (Bottom-depth DO = 4.5 mg/L).</p> <p>Action Level Exceedance was observed at SR4a during mid-ebb tide (Bottom-depth DO = 3.7 mg/L).</p> <p>Action Level Exceedance was observed at CS(Mf)3(N) during mid-flood tide (Bottom-depth DO = 3.7 mg/L).</p> <p>Action Level Exceedance was observed at CS(Mf)5 during mid-flood tide (Surface and Middle-depth DO = 4.9 mg/L).</p> <p>Limit Level Exceedance was observed at CS(Mf)5 during mid-ebb tide (Surface and Middle-depth DO = 3.7 mg/L).</p> <p>Limit Level Exceedance was observed at CS(Mf)3(N) during mid-ebb tide (Bottom-depth DO = 3.1 mg/L).</p> <p>Limit Level Exceedance was observed at CS(Mf)5 during mid-flood tide (Bottom-depth DO = 2.5 mg/L)</p>	
<b>Works Undertaken (at the time of monitoring event)</b>	<p>Major marine works undertaken under this Contract on 3 August 2017 included:</p> <ul style="list-style-type: none"> <li>• Rock armour reinstatement and retrieval of pipe pile of working platform for the construction of underslung truss scheme</li> </ul>	



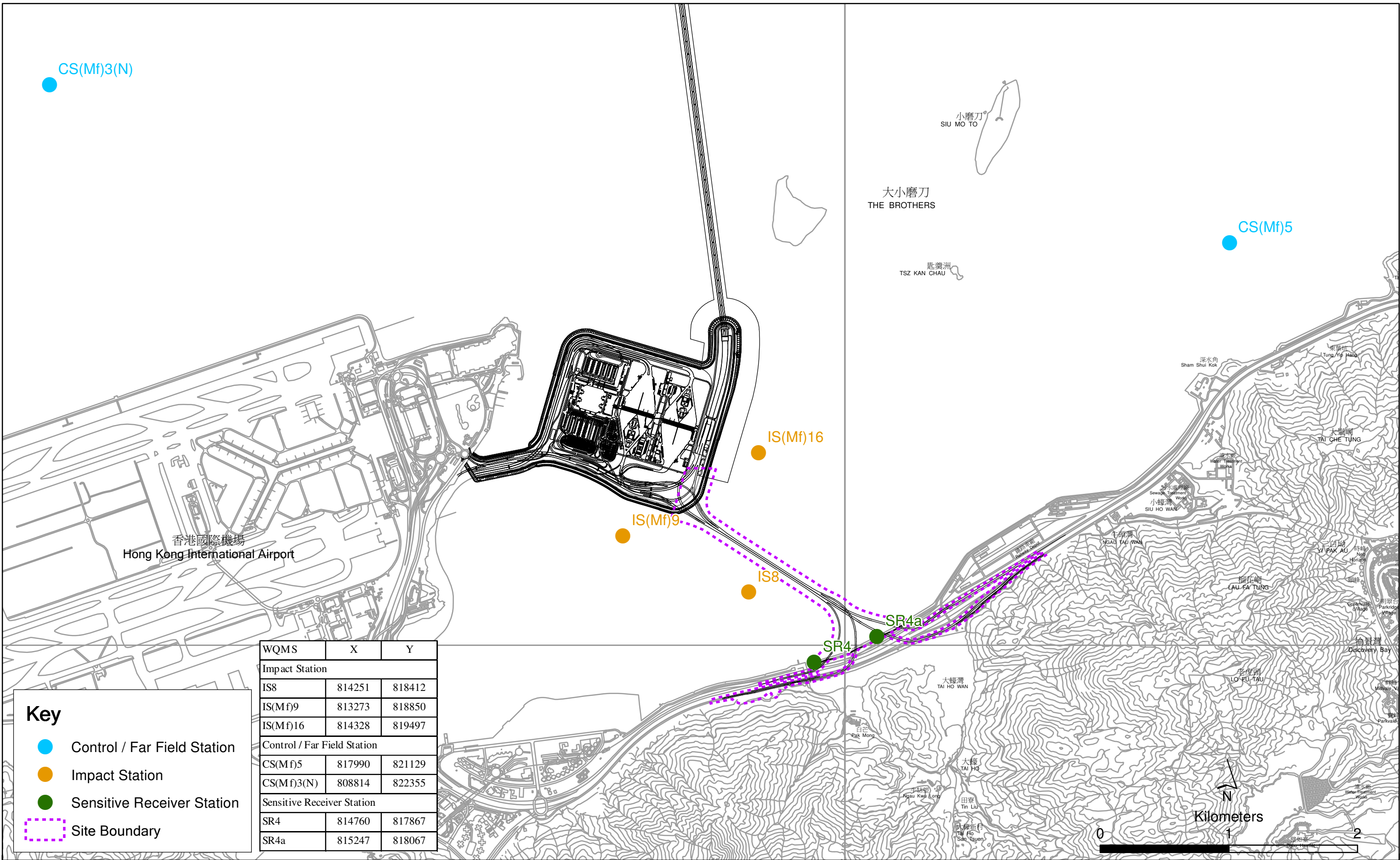
<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedance of surface and middle-depth DO and bottom-depth DO are unlikely to be due to the Project, in view of the following:</p> <ul style="list-style-type: none"> <li>• All monitored parameters, except DO, at all monitoring stations were in compliance with the Action and Limit Levels during both mid-ebb and mid-flood tides on the same day.</li> <li>• CS(Mf)5 and CS(Mf)3(N) are distant (&gt;3km and &gt;5km respectively) from the marine works area under this Contract, thus the observed exceedance should not be affected by the marine works under this Contract and it is considered to be natural fluctuation in water quality.</li> <li>• Apart from IS(Mf)16 and SR4a, levels of DO at all other Impact stations and sensitive receiver monitoring stations were in compliance with the Action and Limit Levels during both mid-flood and mid-ebb tides on the same day.</li> <li>• Surface and Middle DO levels at IS(Mf)16 and SR4a at both mid-flood and mid-ebb tides were in compliance with the Action and Limit Levels, except bottom DO levels during mid-ebb tide. DO pattern at bottom level of both stations followed similar DO pattern as the upstream control station, CS(Mf)3(N), in which limit level exceedance was observed during mid-ebb tide. Consequently the observed DO exceedance is considered within the natural range and is not considered to be caused by the Project.</li> <li>• DO levels were generally lower at water quality monitoring stations due to two possible reasons of natural variation: <ol style="list-style-type: none"> <li>1. Natural ability for water to hold dissolved oxygen is reduced due to higher water body temperature in summer months.</li> <li>2. The higher Salinity recorded at the bottom level of the deeper CS(Mf)5 and CS(Mf)3(N) monitoring stations was 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, which is a presence of natural variation, is likely a contributing factor to the results of lower levels of Dissolved Oxygen at the bottom level as the DO exceedances recorded at the bottom level showed higher levels of Salinity than the middle and surface levels.</li> </ol> </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 3 August 2017 and locations of water quality monitoring stations are attached.</p>

Project	Works	Date (yyyy-mm)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	SS (mg/L)
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	CS(Mf)5	9:07	Surface	1	29	7.9	16.1	2.6	3.7	2.3	5.6
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	CS(Mf)5	9:07	Surface	2	29.1	8	16.1	2.6		2.3	5.5
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	CS(Mf)5	9:07	Middle	1	28.2	7.9	23.8	4.7		1.3	5.3
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	CS(Mf)5	9:07	Middle	2	28.2	7.9	23.8	4.7		1.2	6
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	CS(Mf)5	9:07	Bottom	1	26.1	7.8	31.5	6.5	6.5	5.2	7.9
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	CS(Mf)5	9:07	Bottom	2	26.2	7.8	31.5	6.4		5	7.7
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	CS(Mf)3(N)	9:54	Surface	1	29	7.9	18.5	5.2	4.7	4	5.3
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	CS(Mf)3(N)	9:54	Surface	2	29.1	7.9	18.5	5.2		4.2	5.3
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	CS(Mf)3(N)	9:54	Middle	1	28.7	7.8	21.6	4.2		4.3	4
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	CS(Mf)3(N)	9:54	Middle	2	28.7	7.8	21.6	4.2		4.4	5.1
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	CS(Mf)3(N)	9:54	Bottom	1	27.9	7.8	26.6	3.1	3.1	7.9	8.4
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	CS(Mf)3(N)	9:54	Bottom	2	27.9	7.8	26.6	3.1		8	7.3
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	IS(Mf)16	10:30	Surface	1	29.5	8.1	17	7.3	6.9	4.6	8.6
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	IS(Mf)16	10:30	Surface	2	29.4	8.1	17	7.2		4.6	7.9
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	IS(Mf)16	10:30	Middle	1	29.3	8.1	17.4	6.5		4.9	7.4
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	IS(Mf)16	10:30	Middle	2	29.3	8.1	17.4	6.5		4.8	7.2
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	IS(Mf)16	10:30	Bottom	1	28.8	7.9	21.4	4.5	4.5	7.4	10.2
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	IS(Mf)16	10:30	Bottom	2	28.8	7.9	21.4	4.5		7.3	9.6
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	SR4a	10:42	Surface	1	29.4	7.9	18.3	5.4	5.4	10.1	15.2
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	SR4a	10:42	Surface	2	29.3	7.9	18.3	5.4		10.1	15.8
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	SR4a	10:42	Bottom	1	28.2	7.8	23.9	3.7	3.7	15.5	14.9
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	SR4a	10:42	Bottom	2	28.2	7.8	23.9	3.7		15.2	15
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	SR4	10:50	Surface	1	29.5	7.9	18.2	5.3	5.3	9	12
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	SR4	10:50	Surface	2	29.4	7.9	18.1	5.3		9	12.8
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	SR4	10:50	Bottom	1	29.2	7.9	18.7	5	5.1	11	15.2
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	SR4	10:50	Bottom	2	29.2	7.9	18.7	5.1		11.4	15.1
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	IS8	10:56	Surface	1	29.6	8.2	16.9	7.9	7.9	5	6.4
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	IS8	10:56	Surface	2	29.6	8.2	16.9	7.9		5.1	7.6
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	IS8	10:56	Bottom	1	29.6	8.2	16.9	8	8.0	5.3	9.9
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	IS8	10:56	Bottom	2	29.6	8.2	16.9	8		5.5	10.3
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	IS(Mf)9	11:04	Surface	1	29.6	8.2	16.8	8.1	8.1	4.3	6.6
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	IS(Mf)9	11:04	Surface	2	29.6	8.2	16.8	8.1		4.5	6.7
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	IS(Mf)9	11:04	Bottom	1	29.4	8	18.4	5.1	5.1	11.9	6.6
TMCLKL	HY/2012/07	2017-08-03	Mid-Ebb	IS(Mf)9	11:04	Bottom	2	29.4	8	18.4	5.1		12	7.7

Project	Works	Date (yyyy-mm)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	SS (mg/L)
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	IS(Mf)9	16:00	Surface	1	29.7	8.2	18.1	7.7	7.7	7.6	2.6
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	IS(Mf)9	16:00	Surface	2	29.7	8.2	18.1	7.6		7.4	3
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	IS(Mf)9	16:00	Bottom	1	29.6	8.1	19	6.9	6.9	11	4
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	IS(Mf)9	16:00	Bottom	2	29.5	8.1	19	6.9		10.8	3.4
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	IS8	16:07	Surface	1	29.5	7.9	19.2	5.7	5.7	7.6	5.7
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	IS8	16:07	Surface	2	29.4	7.9	19.2	5.6		7.7	6.3
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	IS8	16:07	Bottom	1	29.1	7.9	20.5	5.2	5.2	15.1	7
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	IS8	16:07	Bottom	2	29.1	7.9	20.5	5.1		15.4	6.2
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	SR4	16:20	Surface	1	29.4	7.9	19.5	5.6	5.6	15	9.6
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	SR4	16:20	Surface	2	29.4	8	19.5	5.5		15.2	9.4
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	SR4	16:20	Bottom	1	29.2	7.9	20.3	5.2	5.2	23.1	20.9
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	SR4	16:20	Bottom	2	29.2	7.9	20.3	5.2		22.7	22.3
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	SR4a	16:31	Surface	1	29.6	8	19.4	5.9	5.9	8.5	5.4
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	SR4a	16:31	Surface	2	29.6	8	19.4	5.9		8.7	5.2
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	SR4a	16:31	Bottom	1	29.1	7.9	20.7	5.1	5.1	16	23.4
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	SR4a	16:31	Bottom	2	29.1	7.9	20.7	5		16.1	22.7
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	IS(Mf)16	16:45	Surface	1	29.5	8	18.3	6.4	6.4	7.2	9.9
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	IS(Mf)16	16:45	Surface	2	29.6	8	18.3	6.4		7.1	10.2
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	IS(Mf)16	16:45	Bottom	1	29	7.9	20.7	4.9	4.9	21.6	24.4
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	IS(Mf)16	16:45	Bottom	2	29	7.9	20.9	4.9		22.5	23.8
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	CS(Mf)3(N)	17:19	Surface	1	29.6	7.9	14.8	6	5.1	6.4	14.7
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	CS(Mf)3(N)	17:19	Surface	2	29.7	7.9	14.7	5.9		6.5	16.1
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	CS(Mf)3(N)	17:19	Middle	1	29	7.8	18.8	4.3		9.8	20.2
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	CS(Mf)3(N)	17:19	Middle	2	29	7.8	18.8	4.2		9.8	20.6
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	CS(Mf)3(N)	17:19	Bottom	1	28.7	7.8	20.8	3.7	3.7	19.4	13.2
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	CS(Mf)3(N)	17:19	Bottom	2	28.7	7.8	20.8	3.7		19	12
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	CS(Mf)5	18:06	Surface	1	29.3	8	19.2	6.6	4.9	4.5	14.5
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	CS(Mf)5	18:06	Surface	2	29.3	8	19.2	6.5		4.7	15
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	CS(Mf)5	18:06	Middle	1	27	7.8	29.3	3.3		3.7	10.7
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	CS(Mf)5	18:06	Middle	2	27	7.9	29.3	3.2		3.6	10.2
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	CS(Mf)5	18:06	Bottom	1	25.9	7.8	32.5	2.5	2.5	7	12.9
TMCLKL	HY/2012/07	2017-08-03	Mid-Flood	CS(Mf)5	18:06	Bottom	2	25.9	7.8	32.5	2.5		7.2	13.1

Note: Indicates Exceedance of Action Level

Indicates Exceedance of Limit Level



WQMS	X	Y
Impact Station		
IS8	814251	818412
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
Control / Far Field Station		
CS(Mf)5	817990	821129
CS(Mf)3(N)	808814	822355
Sensitive Receiver Station		
SR4	814760	817867
SR4a	815247	818067

**Key**

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

Locations of Water Quality Monitoring Stations

Email  
message

Environmental  
Resources  
Management

**To** Ramboll Environ – Hong Kong, Limited (ENPO)

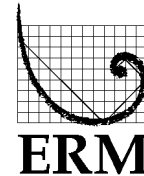
**From** ERM- Hong Kong, Limited

**Ref/Project number** Contract No. HY/2012/07  
Tuen Mun – Chek Lap Kok Link – Southern  
Connection Viaduct Section

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

**Date** 18 August 2017

16/F Berkshire House,  
25 Westlands Road  
Quarry Bay, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jovy.tam@erm.com



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Dear Sir/ Madam,

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

Action Level Exceedance

0215660\_05 August 2017\_Surface and Middle-depth DO\_E\_Station CS(Mf)5  
0215660\_05 August 2017\_Surface and Middle-depth DO\_E\_Station IS(Mf)16  
0215660\_05 August 2017\_Bottom-depth DO\_E\_Station IS(Mf)16  
0215660\_05 August 2017\_Bottom-depth DO\_E\_Station IS(Mf)9

Limit Level Exceedance

0215660\_05 August 2017\_Bottom-depth DO\_E\_Station CS(Mf)5  
0215660\_05 August 2017\_Surface and Middle-depth DO\_E\_Station CS(Mf)3(N)  
0215660\_05 August 2017\_Bottom-depth DO\_E\_Station CS(Mf)3(N)  
0215660\_05 August 2017\_Surface and Middle-depth DO\_F\_Station CS(Mf)5  
0215660\_05 August 2017\_Bottom-depth DO\_F\_Station CS(Mf)5  
0215660\_05 August 2017\_Bottom-depth DO\_F\_Station CS(Mf)3(N)

A total of ten exceedances were recorded on 5 August 2017.

Regards,

Mr Jovy Tam  
Environmental Team Leader

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**CONFIDENTIALITY NOTICE**

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/07

TUEN MUN – CHEK LAP KOK LINK –  
SOUTHERN CONNECTION VIADUCT 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;">0215660_05 August 2017_Surface and Middle-depth DO_E_Station CS(Mf)5 0215660_05 August 2017_Surface and Middle-depth DO_E_Station IS(Mf)16 0215660_05 August 2017_Bottom-depth DO_E_Station IS(Mf)16 0215660_05 August 2017_Bottom-depth DO_E_Station IS(Mf)9</p> <p style="text-align: center;"><u>Limit Level Exceedance</u></p> <p style="text-align: center;">0215660_05 August 2017_Bottom-depth DO_E_Station CS(Mf)5 0215660_05 August 2017_Surface and Middle-depth DO_E_Station CS(Mf)3(N) 0215660_05 August 2017_Bottom-depth DO_E_Station CS(Mf)3(N) 0215660_05 August 2017_Surface and Middle-depth DO_F_Station CS(Mf)5 0215660_05 August 2017_Bottom-depth DO_F_Station CS(Mf)5 0215660_05 August 2017_Bottom-depth DO_F_Station CS(Mf)3(N)</p> <p style="text-align: center;">[Total No. of Exceedances = 10]</p>	
<b>Date</b>	<p>5 August 2017 (Measured)</p> <p>10 August 2017 (<i>In situ</i> results received by ERM)</p> <p>15 August 2017 (Laboratory results received by ERM)</p>	
<b>Monitoring Station</b>	CS(Mf)5, SR4a, SR4, IS8, IS(Mf)16, IS(Mf)9, CS(Mf)3(N)	
<b>Parameter(s) with Exceedance(s)</b>	Surface and Middle-depth DO, Bottom-depth Dissolved Oxygen (DO)	
<b>Action Levels</b>	Surface and Middle-depth DO	5.0 mg/L
	Bottom-depth DO	4.7 mg/L
<b>Limit Levels</b>	Surface and Middle-depth DO	4.2 mg/L
	Bottom-depth DO	3.6 mg/L
<b>Measured Levels</b>	<p><u>Action Level Exceedance</u></p> <ol style="list-style-type: none"> <li>1. Mid-Ebb at CS(Mf)5 (Surface and Middle-depth) (DO = 4.5mg/L);</li> <li>2. Mid-Ebb at IS(Mf)16 (Surface and Middle-depth) (DO = 4.2mg/L);</li> <li>3. Mid-Ebb at IS(Mf)16 (Bottom-depth) (DO = 3.9mg/L);</li> <li>4. Mid-Ebb at IS(Mf)9 (Bottom-depth) (DO = 4.3mg/L);</li> </ol> <p><u>Limit Level Exceedance</u></p> <ol style="list-style-type: none"> <li>5. Mid-Ebb at CS(Mf)5 (Bottom-depth) (DO = 2.5mg/L);</li> <li>6. Mid-Ebb at CS(Mf)3(N) (Surface and Middle-depth) (DO = 3.6mg/L);</li> <li>7. Mid-Ebb at CS(Mf)3(N) (Bottom-depth) (DO = 3.2mg/L);</li> <li>8. Mid-Flood at CS(Mf)5 (Surface and Middle-depth) (DO = 3.9mg/L);</li> <li>9. Mid-Flood at CS(Mf)5 (Bottom-depth) (DO = 2.8mg/L);</li> <li>10. Mid-Flood at CS(Mf)3(N) (Bottom-depth) (DO = 3.5mg/L).</li> </ol>	
<b>Works Undertaken (at the time of monitoring event)</b>	No marine works was undertaken under this Contract on 5 August 2017.	

<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedance of surface and middle-depth DO and bottom-depth DO are unlikely to be due to the Project, in view of the following:</p> <ul style="list-style-type: none"> <li>• No marine works was undertaken under this Contract on 5 August 2017.</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>• CS(Mf)5 and CS(Mf)3(N) are distant (&gt;3km and &gt;5km respectively) from the marine works area under this Contract, thus the observed exceedance should not be affected by the marine works under this Contract and it is considered to be natural fluctuation in water quality.</li> <li>• Apart from IS(Mf)16 and IS(Mf)9, levels of DO at all other Impact stations and sensitive receiver monitoring stations were in compliance with the Action and Limit Levels during both mid-flood and mid-ebb tides on the same day.</li> <li>• DO pattern at three depth levels at IS(Mf)16 and bottom levels at IS(Mf)9 at mid-ebb tides followed similar DO pattern as the upstream control station, CS(Mf)3(N), in which limit level exceedances were observed at three depth levels during mid-ebb tide. Consequently the observed DO exceedance is considered within the natural range and is not considered to be caused by the Project.</li> <li>• DO levels were generally lower at water quality monitoring stations due to two possible reasons of natural variation: <ol style="list-style-type: none"> <li>1. Natural ability for water to hold dissolved oxygen is reduced due to higher water temperature in summer months.</li> <li>2. The higher Salinity recorded at the bottom level of the deeper CS(Mf)5 and CS(Mf)3(N) monitoring stations was 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 as the DO exceedances recorded at the bottom level showed higher levels of Salinity than the middle and surface levels.</li> </ol> </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 5 August 2017 and locations of water quality monitoring stations are attached.</p>

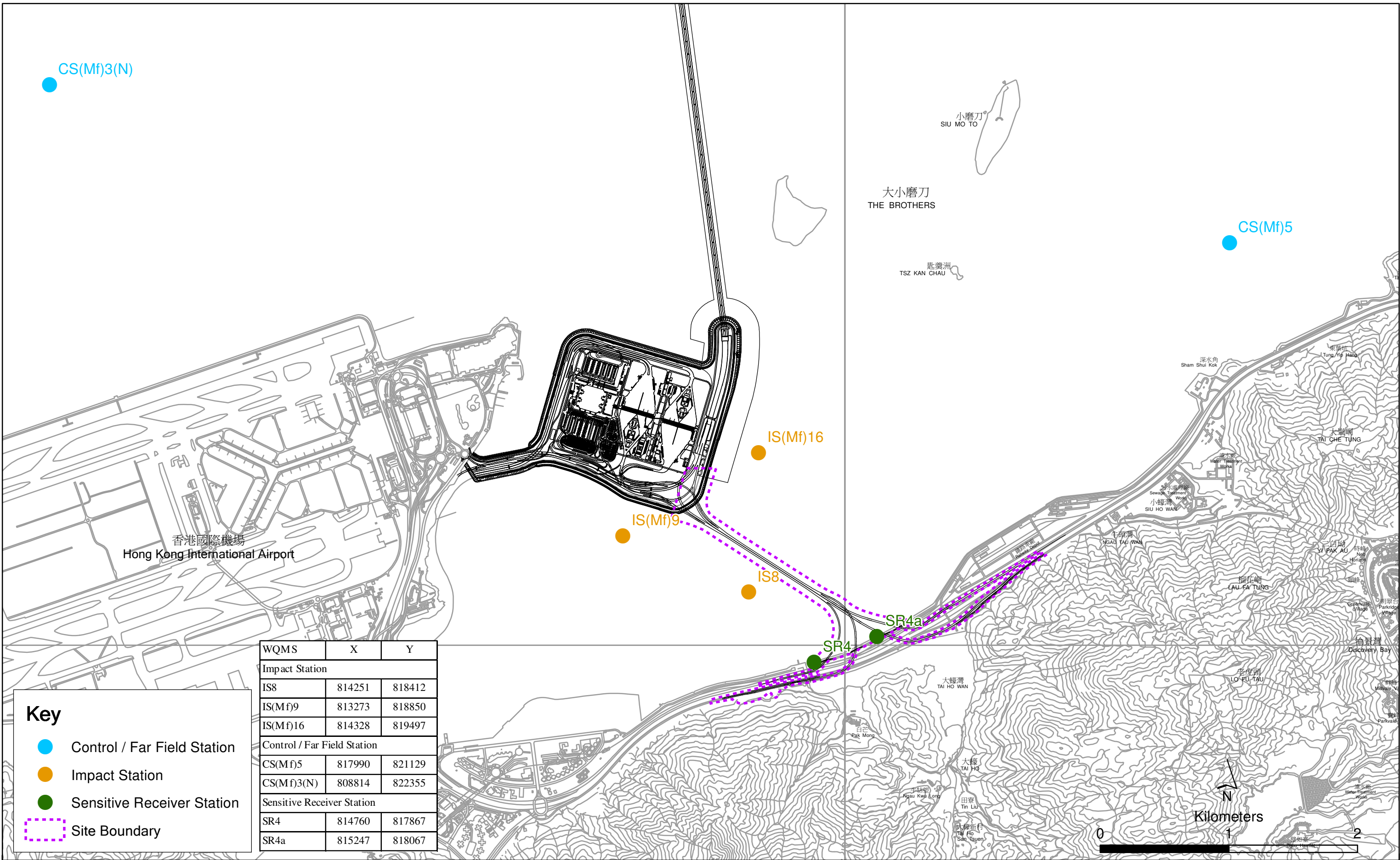
Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	SS (mg/L)
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	CS(Mf)5	10:59	Surface	1	28.8	7.9	19.9	5	4.5	4.0	4.2
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	CS(Mf)5	10:59	Surface	2	29.0	7.9	19.8	5.2		3.6	4.5
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	CS(Mf)5	10:59	Middle	1	27.0	7.9	27.0	3.8		2.1	3.9
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	CS(Mf)5	10:59	Middle	2	27.1	7.8	27.0	3.9		1.9	3.4
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	CS(Mf)5	10:59	Bottom	1	25.8	7.8	31.2	2.5	2.5	11.7	4.1
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	CS(Mf)5	10:59	Bottom	2	25.9	7.8	31.2	2.5		11.0	5.9
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	CS(Mf)3(N)	10:00	Surface	1	28.7	7.8	18.8	4.2	3.6	4.3	2.5
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	CS(Mf)3(N)	10:00	Surface	2	28.8	7.8	18.7	4.3		4.1	3.7
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	CS(Mf)3(N)	10:00	Middle	1	27.9	7.8	24.1	3.0		9.0	6.1
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	CS(Mf)3(N)	10:00	Middle	2	28.0	7.8	24.1	3.0		8.3	6.5
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	CS(Mf)3(N)	10:00	Bottom	1	27.9	7.8	25.2	3.2	3.2	14.2	12.4
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	CS(Mf)3(N)	10:00	Bottom	2	28.0	7.8	25.2	3.1		12.9	11.0
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	IS(Mf)16	11:34	Surface	1	28.9	7.8	21.0	4.3	4.2	6.8	5.3
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	IS(Mf)16	11:34	Surface	2	28.8	7.9	20.9	4.3		7.1	4.3
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	IS(Mf)16	11:34	Middle	1	28.6	7.8	22.0	4.1		6.5	6.7
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	IS(Mf)16	11:34	Middle	2	28.5	7.9	22.0	4.0		7.1	7.3
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	IS(Mf)16	11:34	Bottom	1	28.1	7.9	23.6	3.8	3.9	6.1	8.0
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	IS(Mf)16	11:34	Bottom	2	28.0	7.9	23.6	3.9		6.8	8.3
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	SR4a	11:48	Surface	1	29.1	7.8	20.0	4.6	4.6	18.1	13.4
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	SR4a	11:48	Surface	2	29.0	7.8	20.0	4.5		20.0	13.9
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	SR4a	11:48	Bottom	1	28.7	7.9	21.7	4.1	4.1	28.9	16.4
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	SR4a	11:48	Bottom	2	28.6	7.8	21.7	4.1		27.4	16.1
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	SR4	11:58	Surface	1	28.8	7.8	21.2	4.2	4.2	12.0	17.6
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	SR4	11:58	Surface	2	28.7	7.8	21.2	4.2		12.8	19.1
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	SR4	11:58	Bottom	1	28.3	7.8	23.2	3.8	3.8	14.9	26.6
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	SR4	11:58	Bottom	2	28.2	7.8	23.2	3.7		15.8	27.2
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	IS8	12:23	Surface	1	29.4	7.9	19.7	5.3	5.3	7.8	5.4
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	IS8	12:23	Surface	2	29.3	7.8	19.7	5.2		8.5	4.3
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	IS8	12:23	Bottom	1	28.8	7.9	22.3	3.1	3.2	14.0	12.6
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	IS8	12:23	Bottom	2	28.7	7.8	22.4	3.2		15.2	11.9
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	IS(Mf)9	12:14	Surface	1	29.3	7.9	19.6	5.7	5.7	5.7	4.4
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	IS(Mf)9	12:14	Surface	2	29.2	7.9	19.6	5.6		6.3	5.5
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	IS(Mf)9	12:14	Bottom	1	29.0	7.9	20.7	4.3	4.3	10.8	8.3
TMCLKL	HY/2012/07	2017-08-05	Mid-Ebb	IS(Mf)9	12:14	Bottom	2	28.9	7.9	20.9	4.3		11.9	9.0



Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	SS (mg/L)
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	CS(Mf)5	19:23	Surface	1	28.7	7.9	21.3	4.5	3.9	2.9	3.1
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	CS(Mf)5	19:23	Surface	2	28.6	7.8	21.3	4.4		2.9	3.1
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	CS(Mf)5	19:23	Middle	1	27.2	7.8	26.9	3.3		3.4	3.6
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	CS(Mf)5	19:23	Middle	2	27.1	7.8	26.9	3.3		3.7	2.9
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	CS(Mf)5	19:23	Bottom	1	26.2	7.8	30.2	2.8	2.8	8.5	3.4
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	CS(Mf)5	19:23	Bottom	2	26.1	7.8	30.2	2.8		8.8	3.4
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	CS(Mf)3(N)	18:33	Surface	1	30.7	7.9	12.5	5.7	5.0	5.6	5.1
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	CS(Mf)3(N)	18:33	Surface	2	30.6	7.8	12.6	5.6		6.1	5.6
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	CS(Mf)3(N)	18:33	Middle	1	29.3	7.8	17.2	4.3		8.7	4.7
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	CS(Mf)3(N)	18:33	Middle	2	29.2	7.7	17.2	4.2		9.3	4.9
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	CS(Mf)3(N)	18:33	Bottom	1	28.5	7.8	20.9	3.5	3.5	14.3	8.4
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	CS(Mf)3(N)	18:33	Bottom	2	28.4	7.7	20.9	3.5		14.7	7.2
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	IS(Mf)16	17:58	Surface	1	29.9	7.9	18.5	6.2	6.2	5.0	4.7
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	IS(Mf)16	17:58	Surface	2	29.8	7.9	18.5	6.1		5.2	4.6
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	IS(Mf)16	17:58	Bottom	1	29.2	7.9	20.3	5.1	5.1	7.5	6.8
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	IS(Mf)16	17:58	Bottom	2	29.1	7.9	20.4	5.1		8.0	7.8
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	SR4a	17:43	Surface	1	29.6	7.9	19.4	5.4	5.4	9.6	7.4
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	SR4a	17:43	Surface	2	29.5	7.9	19.4	5.4		10.3	6.3
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	SR4a	17:43	Bottom	1	28.9	7.9	21.5	4.4	4.5	14.7	11.8
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	SR4a	17:43	Bottom	2	28.8	7.8	21.6	4.5		16.4	10.4
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	SR4	17:34	Surface	1	29.6	7.9	19.6	5.3	5.3	13.5	9.4
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	SR4	17:34	Surface	2	29.5	7.9	19.6	5.2		14.5	10.5
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	SR4	17:34	Bottom	1	29.5	7.9	19.8	5.3	5.3	14.8	11.9
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	SR4	17:34	Bottom	2	29.4	7.9	19.8	5.2		15.8	10.0
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	IS8	17:22	Surface	1	29.6	7.9	19.4	5.6	5.6	9.7	8.6
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	IS8	17:22	Surface	2	29.7	7.9	19.4	5.6		8.9	8.3
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	IS8	17:22	Bottom	1	29.5	7.9	20.3	5.4	5.4	12.2	27.1
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	IS8	17:22	Bottom	2	29.6	7.9	20.3	5.4		11.2	28.6
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	IS(Mf)9	17:12	Middle	1	29.9	8.0	20.1	6.4	6.5	7.2	6.9
TMCLKL	HY/2012/07	2017-08-05	Mid-Flood	IS(Mf)9	17:12	Middle	2	30.0	8.0	20.1	6.5		6.5	6.9

Note: Indicates Exceedance of Action Level

Indicates Exceedance of Limit Level



WQMS	X	Y
Impact Station		
IS8	814251	818412
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
Control / Far Field Station		
CS(Mf)5	817990	821129
CS(Mf)3(N)	808814	822355
Sensitive Receiver Station		
SR4	814760	817867
SR4a	815247	818067

**Key**

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

Locations of Water Quality Monitoring Stations

Email  
message

Environmental  
Resources  
Management

**To** Ramboll Environ – Hong Kong, Limited (ENPO)

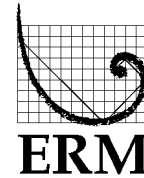
**From** ERM- Hong Kong, Limited

**Ref/Project number** Contract No. HY/2012/07  
Tuen Mun – Chek Lap Kok Link – Southern  
Connection Viaduct Section

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

**Date** 15 August 2017

16/F Berkshire House,  
25 Westlands Road  
Quarry Bay, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jovy.tam@erm.com



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Dear Sir/ Madam,

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

Action Level Exceedance

0215660\_07 August 2017\_Surface and Middle-depth DO\_E\_Station CS(Mf)5  
0215660\_07 August 2017\_Bottom-depth DO\_E\_Station CS(Mf)5  
0215660\_07 August 2017\_Bottom-depth DO\_E\_Station CS(Mf)3(N)  
0215660\_07 August 2017\_Bottom-depth DO\_E\_Station IS(Mf)16  
0215660\_07 August 2017\_Bottom-depth DO\_E\_Station SR4a  
0215660\_07 August 2017\_Surface and Middle-depth DO\_F\_Station CS(Mf)5  
0215660\_07 August 2017\_Bottom-depth DO\_F\_Station CS(Mf)3(N)

Limit Level Exceedance

0215660\_07 August 2017\_Bottom-depth DO\_F\_Station CS(Mf)5

A total of eight exceedances were recorded on 7 August 2017.

Regards,

Mr Jovy Tam  
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/07

TUEN MUN – CHEK LAP KOK LINK –  
SOUTHERN CONNECTION VIADUCT 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;">0215660_07 August 2017_ Surface and Middle-depth DO_E_Station CS(Mf)5          0215660_07 August 2017_ Bottom-depth DO_E_Station CS(Mf)5          0215660_07 August 2017_ Bottom-depth DO_E_Station CS(Mf)3(N)          0215660_07 August 2017_ Bottom-depth DO_E_Station IS(Mf)16          0215660_07 August 2017_ Bottom-depth DO_E_Station SR4a          0215660_07 August 2017_ Surface and Middle-depth DO_F_Station CS(Mf)5          0215660_07 August 2017_ Bottom-depth DO_F_Station CS(Mf)3(N)</p> <p style="text-align: center;"><u>Limit Level Exceedance</u></p> <p style="text-align: center;">0215660_07 August 2017_ Bottom-depth DO_F_Station CS(Mf)5</p> <p style="text-align: center;">[Total No. of Exceedances = 8]</p>	
<b>Date</b>	7 August 2017 (Measured) 10 August 2017 ( <i>In situ</i> results received by ERM) 16 August 2017 (Laboratory results received by ERM)	
<b>Monitoring Station</b>	CS(Mf)5, SR4a, SR4, IS8, IS(Mf)16, IS(Mf)9, CS(Mf)3(N)	
<b>Parameter(s) with Exceedance(s)</b>	Surface and Middle-depth DO, Bottom-depth Dissolved Oxygen (DO)	
<b>Action Levels</b>	Surface and Middle-depth DO	5.0 mg/L
	Bottom-depth DO	4.7 mg/L
<b>Limit Levels</b>	Surface and Middle-depth DO	4.2 mg/L
	Bottom-depth DO	3.6 mg/L
<b>Measured Levels</b>	<p><u>Action Level Exceedance</u></p> <ol style="list-style-type: none"> <li>1. Mid-Ebb at CS(Mf)5 (Surface and Middle-depth) (DO = 4.7mg/L);</li> <li>2. Mid-Ebb at CS(Mf)5 (Bottom-depth) (DO = 3.7mg/L);</li> <li>3. Mid-Ebb at CS(Mf)3(N) (Bottom-depth) (DO = 3.7mg/L);</li> <li>4. Mid-Ebb at IS(Mf)16 (Bottom-depth) (DO = 4.3mg/L);</li> <li>5. Mid-Ebb at SR4a (Bottom-depth) (DO = 4.5mg/L);</li> <li>6. Mid-Flood at CS(Mf)5 (Surface and Middle-depth) (DO = 4.2mg/L);</li> <li>7. Mid-Flood at CS(Mf)3(N) (Bottom-depth) (DO = 4.0mg/L);</li> </ol> <p><u>Limit Level Exceedance</u></p> <ol style="list-style-type: none"> <li>8. Mid-Flood at CS(Mf)5 (Bottom-depth) (DO = 3.4mg/L)</li> </ol>	
<b>Works Undertaken (at the time of monitoring event)</b>	<p>Major marine works undertaken under this Contract on 7 August 2017 included:</p> <ul style="list-style-type: none"> <li>• Rock armour reinstatement for the construction of underslung truss scheme</li> </ul>	

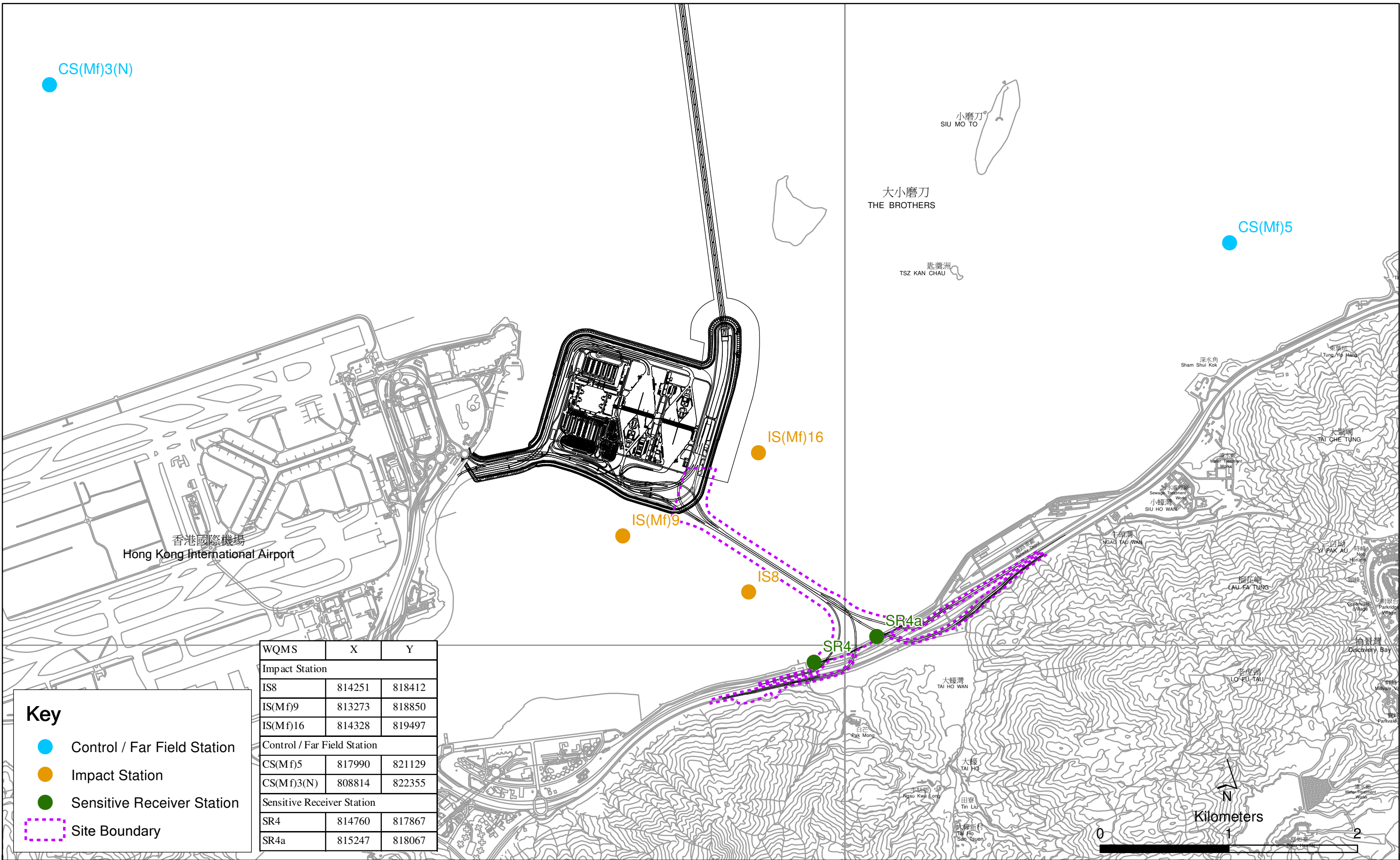
<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedance of surface and middle-depth DO and bottom-depth DO are unlikely to be due to the Project, in view of the following:</p> <ul style="list-style-type: none"> <li>• All monitored parameters, except DO, at all monitoring stations were in compliance with the Action and Limit Levels during both mid-ebb and mid-flood tides on the same day.</li> <li>• CS(Mf)5 and CS(Mf)3(N) are distant (&gt;3km and &gt;5km respectively) from the marine works area under this Contract, thus the observed exceedance should not be affected by the marine works under this Contract and it is considered to be natural fluctuation in water quality.</li> <li>• Apart from IS(Mf)16 and SR4a, levels of DO at all other Impact stations and sensitive receiver monitoring stations were in compliance with the Action and Limit Levels during both mid-flood and mid-ebb tides on the same day.</li> <li>• Surface and Middle DO levels at IS(Mf)16 and SR4a at both mid-flood and mid-ebb tides and bottom DO levels at both stations at mid-flood tide were in compliance with the Action and Limit Levels, except marginal exceedances at bottom DO levels during mid-ebb tide. DO pattern at bottom level of both stations followed similar DO pattern as the upstream control station, CS(Mf)3(N), in which action level exceedance was observed during mid-ebb tide. Consequently the observed DO exceedance is considered within the natural range and is not considered to be caused by the Project.</li> <li>• DO levels were generally lower at water quality monitoring stations due to two possible reasons of natural variation: <ol style="list-style-type: none"> <li>1. Natural ability for water to hold dissolved oxygen is reduced due to higher water body temperature in summer months.</li> <li>2. The higher Salinity recorded at the bottom level of the deeper CS(Mf)5 and CS(Mf)3(N) monitoring stations was 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 as the DO exceedances recorded at the bottom level showed higher levels of Salinity than the middle and surface levels.</li> </ol> </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 7 August 2017 and locations of water quality monitoring stations are attached.</p>

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	SS (mg/L)
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	CS(Mf)5	12:10	Surface	1	29.4	7.8	18.6	5	4.7	6.7	4.5
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	CS(Mf)5	12:10	Surface	2	29.3	7.8	18.6	4.9		6.3	4.5
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	CS(Mf)5	12:10	Middle	1	28.9	7.8	21.5	4.4		5.9	5.8
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	CS(Mf)5	12:10	Middle	2	28.8	7.8	21.6	4.3		5.8	6.9
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	CS(Mf)5	12:10	Bottom	1	27	7.7	27.2	3.7	3.7	12.8	9.9
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	CS(Mf)5	12:10	Bottom	2	26.9	7.8	27	3.7		13.6	10.4
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	CS(Mf)3(N)	13:22	Surface	1	30.7	8.1	15.8	5.8	5.1	5.5	4.8
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	CS(Mf)3(N)	13:22	Surface	2	30.6	8.1	15.8	6		5.2	4.7
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	CS(Mf)3(N)	13:22	Middle	1	29.2	8	19.5	4.4		5.3	5.4
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	CS(Mf)3(N)	13:22	Middle	2	28.5	8	23.4	4.1		5.3	4.6
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	CS(Mf)3(N)	13:22	Bottom	1	28.3	8	23.9	3.7	3.7	6.2	5.1
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	CS(Mf)3(N)	13:22	Bottom	2	28.2	8	24	3.7		5.9	4.8
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	IS(Mf)16	12:55	Surface	1	30	7.9	19.9	6.3	5.7	7.6	6.8
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	IS(Mf)16	12:55	Surface	2	29.9	7.9	19.9	6.3		7.0	6.9
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	IS(Mf)16	12:55	Middle	1	29.4	7.8	21.2	5.1		8.8	6.9
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	IS(Mf)16	12:55	Middle	2	29.3	7.9	21.2	5		8.4	8.2
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	IS(Mf)16	12:55	Bottom	1	28.7	7.8	22.5	4.3	4.3	6.6	10.0
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	IS(Mf)16	12:55	Bottom	2	28.6	7.8	22.5	4.3		5.9	9.2
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	SR4a	13:07	Surface	1	30.3	7.8	19.5	6.4	6.4	8.2	8.0
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	SR4a	13:07	Surface	2	30.2	7.9	19.5	6.3		7.9	9.0
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	SR4a	13:07	Bottom	1	28.8	7.8	22.4	4.4	4.5	13.4	9.7
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	SR4a	13:07	Bottom	2	28.7	7.8	22.4	4.5		14.1	10.6
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	SR4	13:14	Surface	1	30.1	7.9	19.5	5.8	5.8	8.2	9.7
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	SR4	13:14	Surface	2	30	7.9	19.5	5.7		7.5	10.4
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	SR4	13:14	Bottom	1	29.8	7.9	20.1	5.2	5.3	8.3	10.4
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	SR4	13:14	Bottom	2	29.7	7.9	20.1	5.3		8.4	9.8
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	IS8	13:26	Surface	1	30.3	7.9	19.5	6.4	6.3	7.3	5.9
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	IS8	13:26	Surface	2	30.1	7.9	19.6	6.1		7.0	4.9
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	IS8	13:26	Bottom	1	29.8	7.9	20.3	5.4	5.4	14.3	12.3
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	IS8	13:26	Bottom	2	29.6	7.9	20.3	5.4		14.1	11.8
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	IS(Mf)9	13:37	Surface	1	30.7	8	18.8	8	8.0	4.7	3.1
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	IS(Mf)9	13:37	Surface	2	30.6	8.1	18.9	7.9		3.9	3.6
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	IS(Mf)9	13:37	Bottom	1	29.3	7.9	20.7	5.1	5.2	5.9	4.9
TMCLKL	HY/2012/07	2017-08-07	Mid-Ebb	IS(Mf)9	13:37	Bottom	2	29.2	7.9	21	5.2		5.2	5.4

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	SS (mg/L)
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	CS(Mf)5	20:18	Surface	1	28.5	7.8	22.3	4.4	4.2	4.1	4.7
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	CS(Mf)5	20:18	Surface	2	28.6	7.8	22.3	4.5		4.7	3.6
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	CS(Mf)5	20:18	Middle	1	27.8	7.8	24.9	3.9		3.7	4.6
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	CS(Mf)5	20:18	Middle	2	27.9	7.8	24.9	3.9		4.4	4.5
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	CS(Mf)5	20:18	Bottom	1	26.7	7.8	28.1	3.4	3.4	7.9	3.2
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	CS(Mf)5	20:18	Bottom	2	26.8	7.8	28.1	3.4		8.2	4.7
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	CS(Mf)3(N)	19:00	Surface	1	30.6	7.8	13.3	6.2	5.2	9.6	8.4
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	CS(Mf)3(N)	19:00	Surface	2	30.8	7.8	13.1	5.7		10.8	9.3
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	CS(Mf)3(N)	19:00	Middle	1	29	7.6	19	4.1		17.3	9.4
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	CS(Mf)3(N)	19:00	Middle	2	30.1	7.7	16.7	4.6		17.7	10.2
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	CS(Mf)3(N)	19:00	Bottom	1	29	7.6	19	4	4.0	24.2	9.4
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	CS(Mf)3(N)	19:00	Bottom	2	29.3	7.7	18.8	3.9		22.0	9.7
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	IS(Mf)16	19:44	Surface	1	29.9	7.9	19.1	5.9	6.0	6.4	3.5
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	IS(Mf)16	19:44	Surface	2	30	7.9	19	6		6.7	4.5
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	IS(Mf)16	19:44	Bottom	1	29.2	7.8	20.6	4.8	4.9	12.1	13.2
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	IS(Mf)16	19:44	Bottom	2	29.3	7.9	20.5	4.9		12.0	12.9
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	SR4a	19:30	Surface	1	30	7.9	18	6	6.1	8.6	8.2
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	SR4a	19:30	Surface	2	30.2	7.9	17.9	6.1		9.2	8.8
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	SR4a	19:30	Bottom	1	30.1	7.9	18.3	6.1	6.2	12.9	9.4
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	SR4a	19:30	Bottom	2	30.2	7.9	18.3	6.2		13.2	9.6
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	SR4	19:22	Surface	1	30	7.9	18.7	6.2	6.3	10.6	9.7
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	SR4	19:22	Surface	2	30.2	7.9	18.7	6.3		11.5	9.8
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	SR4	19:22	Bottom	1	30.1	7.9	18.7	6.2	6.3	11.4	12.3
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	SR4	19:22	Bottom	2	30.2	7.9	18.7	6.3		11.6	12.3
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	IS8	19:09	Surface	1	30.1	8	18.8	6.5	6.6	11.1	8.5
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	IS8	19:09	Surface	2	30.2	7.9	18.7	6.6		11.1	8.4
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	IS8	19:09	Bottom	1	30.2	8	19.3	6.7	6.8	21.0	10.2
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	IS8	19:09	Bottom	2	30.3	8	19.3	6.9		20.3	9.1
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	IS(Mf)9	18:56	Middle	1	30.3	8	19.3	7	7.1	13.1	11.0
TMCLKL	HY/2012/07	2017-08-07	Mid-Flood	IS(Mf)9	18:56	Middle	2	30.4	8	19.3	7.2		13.1	11.0

Note: Indicates Exceedance of Action Level

Indicates Exceedance of Limit Level



WQMS	X	Y
Impact Station		
IS8	814251	818412
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
Control / Far Field Station		
CS(Mf)5	817990	821129
CS(Mf)3(N)	808814	822355
Sensitive Receiver Station		
SR4	814760	817867
SR4a	815247	818067

**Key**

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

Locations of Water Quality Monitoring Stations



Email  
message

Environmental  
Resources  
Management

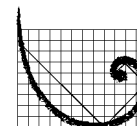
**To** Ramboll Environ – Hong Kong, Limited (ENPO)

16/F Berkshire House,  
25 Westlands Road  
Quarry Bay, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jovy.tam@erm.com

**From** ERM- Hong Kong, Limited

**Ref/Project number** Contract No. HY/2012/07  
Tuen Mun – Chek Lap Kok Link – Southern  
Connection Viaduct Section

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



**ERM**

**Date** 16 August 2017

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Dear Sir/ Madam,

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

Action Level Exceedance

0215660\_09 August 2017\_Bottom-depth DO\_E\_Station CS(Mf)5

0215660\_09 August 2017\_Surface and Middle-depth DO\_F\_Station CS(Mf)5

0215660\_09 August 2017\_Bottom-depth DO\_F\_Station CS(Mf)5

A total of three exceedances were recorded on 9 August 2017.

Regards,

A handwritten signature in black ink, appearing to read 'Jovy Tam', is written over a light blue horizontal line.

Mr Jovy Tam

Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/07

TUEN MUN – CHEK LAP KOK LINK –  
SOUTHERN CONNECTION VIADUCT SECTION

Marine Water Quality Impact Monitoring

Notification of Exceedance

<b>Log No.</b>	<p style="text-align: center;"><u>Action Level Exceedance</u>            0215660_09 August 2017_ Bottom-depth DO_E_Station CS(Mf)5            0215660_09 August 2017_Surface and Middle-depth DO_F_Station CS(Mf)5            0215660_09 August 2017_Bottom-depth DO_F_Station CS(Mf)5</p> <p style="text-align: center;">[Total No. of Exceedances = 3]</p>	
<b>Date</b>	<p style="text-align: center;">9 August 2017 (Measured)            13 August 2017 (<i>In situ</i> results received by ERM)            18 August 2017 (Laboratory results received by ERM)</p>	
<b>Monitoring Station</b>	<p style="text-align: center;">CS(Mf)5, SR4a, SR4, IS8, IS(Mf)16, IS(Mf)9, CS(Mf)3(N)</p>	
<b>Parameter(s) with Exceedance(s)</b>	<p style="text-align: center;">Surface and Middle-depth DO, Bottom-depth Dissolved Oxygen (DO)</p>	
<b>Action Levels</b>	Surface and Middle-depth DO	5.0 mg/L
<b>Limit Levels</b>	Surface and Middle-depth DO	4.2 mg/L
<b>Measured Levels</b>	<p><u>Action Level Exceedance</u></p> <ol style="list-style-type: none"> <li>1. Mid-Ebb at CS(Mf)5 (Bottom-depth) (DO = 4.4mg/L);</li> <li>2. Mid-Flood at CS(Mf)5 (Surface and Middle-depth) (DO = 4.9mg/L);</li> <li>3. Mid-Flood at CS(Mf)5 (Bottom-depth) (DO = 4.3mg/L).</li> </ol>	
<b>Works Undertaken (at the time of monitoring event)</b>	<p>No marine works was undertaken under this Contract on 9 August 2017.</p>	
<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedances of surface and middle-depth DO during mid-flood tide and bottom-depth DO during both mid-flood and mid-ebb tides at CS(Mf)5 are unlikely to be due to the Project, in view of the following:</p> <ul style="list-style-type: none"> <li>• Apart from CS(Mf)5, levels of 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>• CS(Mf)5 is distant (&gt;3km) from the marine works area under this Contract, thus the observed exceedances should not be affected by the marine works under this Contract and it is considered to be natural fluctuation in water quality.</li> <li>• DO levels at CS(Mf)5 were generally lower due to two possible reasons of natural variation:           <ol style="list-style-type: none"> <li>1. Natural ability for water to hold dissolved oxygen is reduced due to higher water body temperature in summer months.</li> <li>2. Higher Salinity recorded at the bottom level and lower Salinity recorded at the surface and middle level of CS(Mf)5 were observed during both mid-flood and mid-ebb tides on 7 August 2017. Record of higher Salinity at the bottom level of CS(Mf)5 was likely caused by stratification of water column where freshwater discharged from the Pearl River tended to form a surface layer of lower salinity water, resulted in lower Salinity recorded at the surface and middle levels compared to the higher Salinity recorded at the bottom level of the monitoring station. Higher Salinity limits the solubility of oxygen in the seawater, which contribute to a lower DO at the bottom level at CS(Mf)5.</li> </ol> </li> </ul>	

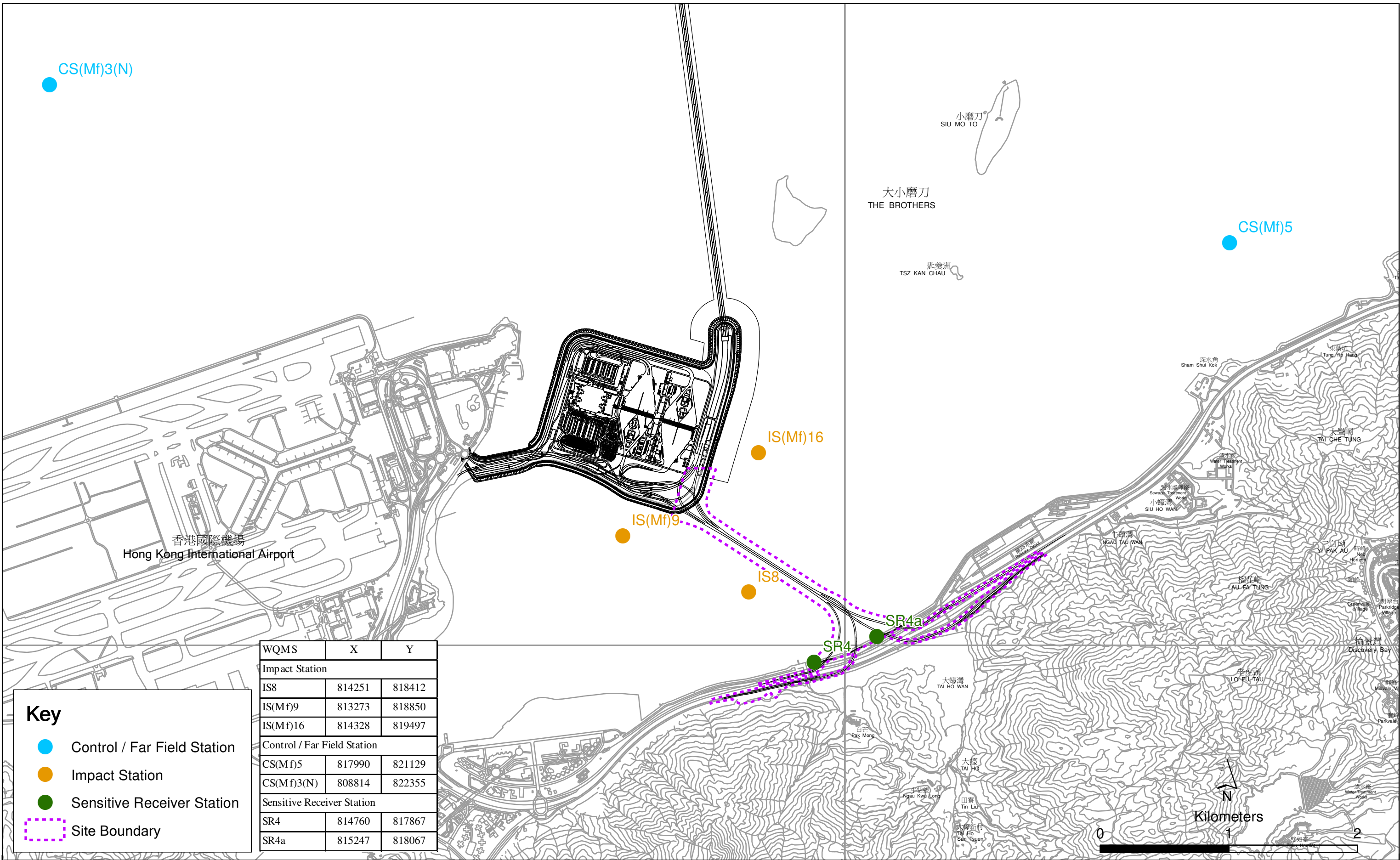
<b>Actions Taken/ To Be Taken</b>	No immediate action is considered necessary. The ET will monitor for future trends in exceedances.
<b>Remarks</b>	The monitoring results on 9 August 2017 and locations of water quality monitoring stations are attached.

Project	Works	Date (yyyy-mm)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	SS (mg/L)
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	CS(Mf)5	14:24	Surface	1	29.5	7.9	18.8	5.3	5.0	6.5	6.9
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	CS(Mf)5	14:24	Surface	2	29.7	7.8	18.8	5.4		6.3	8.2
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	CS(Mf)5	14:24	Middle	1	28.7	7.9	21.3	4.6		8.8	13.9
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	CS(Mf)5	14:24	Middle	2	28.8	7.8	21.3	4.6		9.7	13.8
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	CS(Mf)5	14:24	Bottom	1	28.1	7.9	24.3	4.4	4.4	11.3	13.9
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	CS(Mf)5	14:24	Bottom	2	28.3	7.8	24.3	4.4	4.4	12.2	13.1
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	CS(Mf)3(N)	12:39	Surface	1	29.3	7.7	19.1	5.5	5.2	6.7	5.3
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	CS(Mf)3(N)	12:39	Surface	2	29.6	7.8	18.7	5.4		7.5	4.9
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	CS(Mf)3(N)	12:39	Middle	1	29	7.7	20.6	4.9		18.0	6.3
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	CS(Mf)3(N)	12:39	Middle	2	29.2	7.8	20.2	4.8		18.5	7.3
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	CS(Mf)3(N)	12:39	Bottom	1	29	7.7	20.7	4.9	4.8	21.2	7.4
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	CS(Mf)3(N)	12:39	Bottom	2	29.2	7.8	20.3	4.7	4.8	21.8	8.3
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	IS(Mf)16	13:55	Surface	1	29.2	7.9	20.8	5.3	5.1	10.1	11.3
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	IS(Mf)16	13:55	Surface	2	29.4	7.8	20.8	5.4		9.9	12.5
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	IS(Mf)16	13:55	Middle	1	28.9	7.9	21.4	4.7		8.6	13.1
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	IS(Mf)16	13:55	Middle	2	29	7.8	21.4	4.8		8.2	14.6
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	IS(Mf)16	13:55	Bottom	1	28.5	7.9	22.4	4.7	4.7	5.3	13.6
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	IS(Mf)16	13:55	Bottom	2	28.6	7.8	22.5	4.7	4.7	5.4	13.5
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	SR4a	13:40	Surface	1	29.7	8.1	19.6	5.7	5.8	8.0	12.3
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	SR4a	13:40	Surface	2	29.8	7.9	19.6	5.8	5.8	7.8	11.2
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	SR4a	13:40	Bottom	1	29.1	8.1	21.1	5.1	5.1	16.4	16.9
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	SR4a	13:40	Bottom	2	29.2	7.8	21.1	5.1	5.1	15.9	18.3
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	SR4	13:12	Surface	1	29.7	8	19.1	5.7	5.7	8.3	10.8
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	SR4	13:12	Surface	2	29.8	7.9	19.1	5.7		8.0	10.7
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	SR4	13:12	Bottom	1	29.7	8	20	5.6	5.7	12.5	20.4
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	SR4	13:12	Bottom	2	29.8	7.9	20	5.7		12.0	19.5
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	IS8	12:57	Surface	1	29.8	8	19.5	6.4	6.4	5.4	6.7
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	IS8	12:57	Surface	2	29.9	7.9	19.5	6.4		5.9	5.2
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	IS8	12:57	Bottom	1	29.6	8	20	6	6.0	11.2	10.4
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	IS8	12:57	Bottom	2	29.7	7.9	20	6		11.2	9.5
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	IS(Mf)9	12:50	Surface	1	29.6	8	19.5	6.6	6.7	5.2	6.4
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	IS(Mf)9	12:50	Surface	2	29.8	7.9	19.5	6.7		5.7	5.8
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	IS(Mf)9	12:50	Bottom	1	29.6	8	19.5	6.4	6.5	16.6	7.1
TMCLKL	HY/2012/07	2017-08-09	Mid-Ebb	IS(Mf)9	12:50	Bottom	2	29.7	7.9	19.5	6.5		16.2	7.6

Project	Works	Date (yyyy-mm)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	SS (mg/L)
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	CS(Mf)5	6:34	Surface	1	29.4	7.9	17.6	5	4.9	4.8	5.3
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	CS(Mf)5	6:34	Surface	2	29.5	7.8	17.6	5		4.2	6.2
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	CS(Mf)5	6:34	Middle	1	28.9	7.9	20.7	4.7		4.1	7.4
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	CS(Mf)5	6:34	Middle	2	29	7.8	20.7	4.7		3.6	7.4
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	CS(Mf)5	6:34	Bottom	1	28.3	7.9	24.2	4.3	4.3	4.8	7.5
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	CS(Mf)5	6:34	Bottom	2	28.4	7.8	24.3	4.3		4.3	6.7
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	CS(Mf)3(N)	7:21	Surface	1	29.7	7.8	16.3	5.5	5.3	8.2	6.6
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	CS(Mf)3(N)	7:21	Surface	2	29.5	7.6	16.6	5.6		7.7	5.8
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	CS(Mf)3(N)	7:21	Middle	1	29.6	7.8	18.1	4.9		12.5	7.7
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	CS(Mf)3(N)	7:21	Middle	2	29.4	7.6	18.4	5		11.6	7.6
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	CS(Mf)3(N)	7:21	Bottom	1	29.4	7.6	18.6	5	4.9	22.7	7
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	CS(Mf)3(N)	7:21	Bottom	2	29.6	7.8	18.3	4.8		23.2	7.6
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	IS(Mf)16	7:09	Surface	1	29.2	8	19.7	5.1	5.1	3.8	2.3
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	IS(Mf)16	7:09	Surface	2	29.3	7.8	19.7	5.1		3.1	3.1
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	IS(Mf)16	7:09	Middle	1	29.2	8	19.8	5		4.4	4.3
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	IS(Mf)16	7:09	Middle	2	29.3	7.8	19.7	5		3.3	4.5
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	IS(Mf)16	7:09	Bottom	1	29.1	8	20.3	5	5.0	10.0	5.6
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	IS(Mf)16	7:09	Bottom	2	29.2	7.8	20.3	5		9.2	6.4
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	SR4a	7:21	Surface	1	29.3	8	18.1	5.1	5.2	5.0	8.7
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	SR4a	7:21	Surface	2	29.5	7.8	18.1	5.2		4.4	9.3
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	SR4a	7:21	Bottom	1	29.3	8	18.6	5.1	5.2	8.2	11.2
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	SR4a	7:21	Bottom	2	29.4	7.8	18.7	5.2		7.4	10.6
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	SR4	7:27	Surface	1	29.3	8	18.7	5.2	5.2	6.7	10
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	SR4	7:27	Surface	2	29.4	7.8	18.7	5.2		6.6	10.5
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	SR4	7:27	Bottom	1	29.3	8	18.7	5.3	5.3	8.2	13.1
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	SR4	7:27	Bottom	2	29.4	7.8	18.7	5.3		7.9	12
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	IS8	7:48	Surface	1	29.3	8	19	5.1	5.2	5.7	5.8
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	IS8	7:48	Surface	2	29.4	7.8	19	5.2		5.4	6.4
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	IS8	7:48	Bottom	1	29.3	8	19.2	5.1	5.2	7.2	8
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	IS8	7:48	Bottom	2	29.4	7.8	19.2	5.2		7.6	8.2
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	IS(Mf)9	7:56	Surface	1	29.3	8	19.3	5.2	5.2	5.3	6.6
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	IS(Mf)9	7:56	Surface	2	29.4	7.8	19.3	5.2		5.0	7
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	IS(Mf)9	7:56	Bottom	1	29.3	8	19.5	5.1	5.2	6.5	13
TMCLKL	HY/2012/07	2017-08-09	Mid-Flood	IS(Mf)9	7:56	Bottom	2	29.4	7.8	19.4	5.2		5.3	13

Note: Indicates Exceedance of Action Level

Indicates Exceedance of Limit Level



WQMS	X	Y
Impact Station		
IS8	814251	818412
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
Control / Far Field Station		
CS(Mf)5	817990	821129
CS(Mf)3(N)	808814	822355
Sensitive Receiver Station		
SR4	814760	817867
SR4a	815247	818067

**Key**

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

Locations of Water Quality Monitoring Stations

Email  
message

Environmental  
Resources  
Management

**To** Ramboll Environ – Hong Kong, Limited (ENPO)

16/F Berkshire House,  
25 Westlands Road  
Quarry Bay, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jovy.tam@erm.com

**From** ERM- Hong Kong, Limited

**Ref/Project number** Contract No. HY/2012/07  
Tuen Mun – Chek Lap Kok Link – Southern  
Connection Viaduct Section

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



**ERM**

**Date** 22 August 2017

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Dear Sir/ Madam,

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

**Action Level Exceedance**

0215660\_11 August 2017\_ Surface and Middle-depth DO\_E\_Station CS(Mf)5  
0215660\_11 August 2017\_ Bottom-depth DO\_E\_Station IS(Mf)16  
0215660\_11 August 2017\_ Bottom-depth DO\_E\_Station SR4a  
0215660\_11 August 2017\_ Bottom-depth DO\_F\_Station CS(Mf)5  
0215660\_11 August 2017\_ Surface and Middle-depth DO\_F\_Station IS(Mf)16  
0215660\_11 August 2017\_Depth-averaged SS\_F\_Station IS8

**Limit Level Exceedance**

0215660\_11 August 2017\_ Bottom-depth DO\_E\_Station CS(Mf)5

A total of seven exceedances were recorded on 11 August 2017.

Regards,

A handwritten signature in black ink, appearing to read 'Jovy Tam', is positioned above the typed name.

Mr Jovy Tam  
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/07

TUEN MUN - CHEK LAP KOK LINK -  
SOUTHERN CONNECTION VIADUCT 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;">0215660_11 August 2017_ Surface and Middle-depth DO_E_Station CS(Mf)5 0215660_11 August 2017_ Bottom-depth DO_E_Station IS(Mf)16 0215660_11 August 2017_ Bottom-depth DO_E_Station SR4a 0215660_11 August 2017_ Bottom-depth DO_F_Station CS(Mf)5 0215660_11 August 2017_ Surface and Middle-depth DO_F_Station IS(Mf)16 0215660_11 August 2017_ Depth-averaged SS_F_Station IS8</p> <p style="text-align: center;"><u>Limit Level Exceedance</u></p> <p style="text-align: center;">0215660_11 August 2017_ Bottom-depth DO_E_Station CS(Mf)5</p> <p style="text-align: center;">[Total No. of Exceedances = 7]</p>	
<b>Date</b>	11 August 2017 (Measured) 13 August 2017 ( <i>In situ</i> results received by ERM) 22 August 2017 (Laboratory results received by ERM)	
<b>Monitoring Station</b>	CS(Mf)5, SR4a, SR4, IS8, IS(Mf)16, IS(Mf)9, CS(Mf)3(N)	
<b>Parameter(s) with Exceedance(s)</b>	Surface and Middle-depth Dissolved Oxygen (DO), Bottom-depth DO, Depth-averaged Suspended Solids (SS)	
<b>Action Levels for DO</b>	Surface and Middle-depth DO	5.0 mg/L
	Bottom-depth DO	4.7 mg/L
<b>Limit Levels for DO</b>	Surface and Middle-depth DO	4.2 mg/L
	Bottom-depth DO	3.6 mg/L
<b>Action Levels for SS</b>	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).
<b>Limit Levels for SS</b>	SS	130% of upstream control station at the same tide of the same day and 99%-ile of baseline data. (i.e., 34.4 mg/L)
<b>Measured Levels</b>	<p><u>Action Level Exceedance</u></p> <ol style="list-style-type: none"> <li>1. Mid-Ebb at CS(Mf)5 (Surface and Middle-depth DO = 4.6 mg/L);</li> <li>2. Mid-Ebb at IS(Mf)16 (Bottom-depth DO = 4.6 mg/L);</li> <li>3. Mid-Ebb at SR4a (Bottom-depth DO = 4.1 mg/L);</li> <li>4. Mid-Flood at CS(Mf)5 (Bottom-depth DO = 3.7 mg/L);</li> <li>5. Mid-Flood at IS(Mf)16 (Surface and Middle-depth DO = 4.9 mg/L);</li> <li>6. Mid-Flood at IS8 (depth-averaged SS = 28.4 mg/L);</li> </ol> <p><u>Limit Level Exceedance</u></p> <ol style="list-style-type: none"> <li>7. Mid-Ebb at CS(Mf)5 (Bottom-depth DO = 3.5 mg/L).</li> </ol>	
<b>Works Undertaken (at the time of monitoring event)</b>	No marine works was undertaken under this Contract on 11 August 2017.	

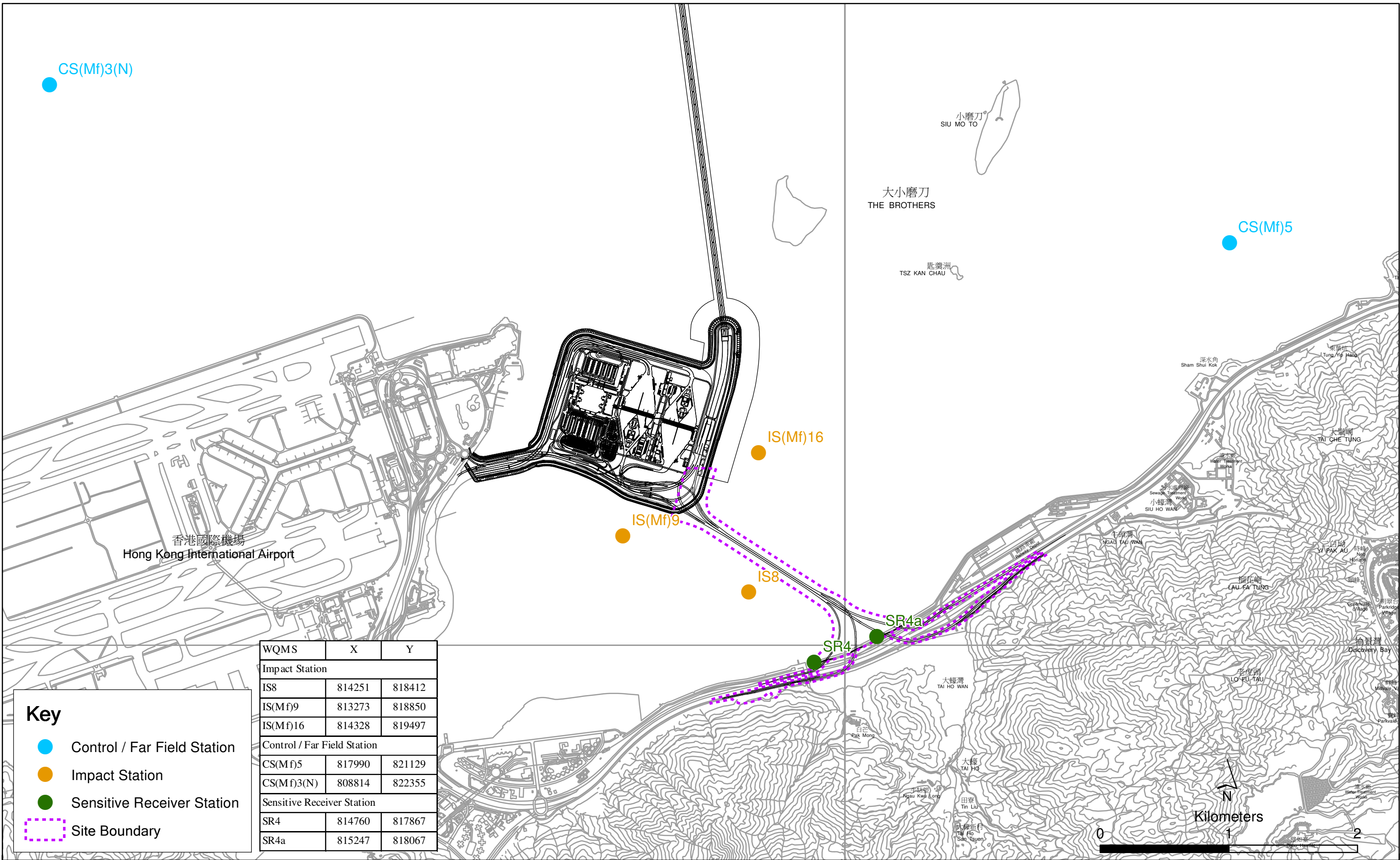


<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedance of surface and middle-depth DO, bottom-depth DO and depth-averaged SS are unlikely to be due to the Project, in view of the following:</p> <ul style="list-style-type: none"> <li>• No marine works was undertaken under this Contract on 11 August 2017.</li> <li>• Depth-averaged Turbidity levels at all stations were in compliance with the Action and Limit Levels during both mid-ebb and mid-flood tides on the same day.</li> <li>• Apart from IS8, depth-averaged SS levels at all other monitoring stations were in compliance with the Action and Limit Levels during both mid-flood and mid-ebb tides on the same day. Depth-averaged SS levels at IS8 at mid-ebb tides were similar to those at other stations apart from the exceedance observed at mid-flood tide.</li> <li>• CS(Mf)5 is distant (&gt;3km) from the marine works area under this Contract, thus the observed exceedance should not be affected by the marine works under this Contract and it is considered to be natural fluctuation in water quality.</li> <li>• Apart from marginal exceedances at IS(Mf)16 and SR4a, levels of DO at all other Impact stations and sensitive receiver monitoring stations were in compliance with the Action and Limit Levels during both mid-flood and mid-ebb tides on the same day.</li> <li>• DO levels were generally lower at water quality monitoring stations due to two possible reasons of natural variation: <ol style="list-style-type: none"> <li>1. Natural ability for water to hold dissolved oxygen is reduced due to higher water temperature in summer months.</li> <li>2. Higher Salinity recorded at the bottom level and lower Salinity recorded at the surface and middle level of CS(Mf)5 were observed during both mid-flood and mid-ebb tides on 11 August 2017. Record of higher Salinity at the bottom level of CS(Mf)5 was likely caused by stratification of water column where freshwater discharged from the Pearl River tended to form a surface layer of lower salinity water, resulted in lower Salinity recorded at the surface and middle levels compared to the higher Salinity recorded at the bottom level of the monitoring station. Higher Salinity limits the solubility of oxygen in the seawater, which contribute to a lower DO at the bottom level at CS(Mf)5.</li> </ol> </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 11 August 2017 and locations of water quality monitoring stations are attached.</p>

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-averaged Turbidity (mg/L)	SS (mg/L)	Depth-averaged SS (mg/L)
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	CS(Mf)5	15:33	Surface	1	29.4	7.8	19.3	5.3	4.6	7.9	13.4	9.6	10.3
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	CS(Mf)5	15:33	Surface	2	29.5	7.8	19.3	5.4		7.9		9.6	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	CS(Mf)5	15:33	Middle	1	27.7	7.9	24.1	3.7		9.6		8.4	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	CS(Mf)5	15:33	Middle	2	27.8	7.8	24.1	3.8		9.7		8.7	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	CS(Mf)5	15:33	Bottom	1	26.7	7.9	27.3	3.5		22.7		13.2	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	CS(Mf)5	15:33	Bottom	2	26.8	7.8	27.3	3.5	3.5	22.7	12.1		
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	CS(Mf)3(N)	13:55	Surface	1	30.1	7.8	17.7	5.6	5.3	4.9	13.3	5.3	5.1
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	CS(Mf)3(N)	13:55	Surface	2	29.9	7.7	18.0	5.8		5.3		4.5	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	CS(Mf)3(N)	13:55	Middle	1	28.8	7.8	21.0	4.7		13.7		3.8	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	CS(Mf)3(N)	13:55	Middle	2	28.6	7.7	21.3	4.9		14.0		4.5	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	CS(Mf)3(N)	13:55	Bottom	1	28.6	7.9	21.9	4.6		20.7		6.5	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	CS(Mf)3(N)	13:55	Bottom	2	28.4	7.7	22.2	4.8	4.7	20.9	6.2		
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	IS(Mf)16	14:58	Surface	1	29.4	7.8	20.5	5.4	5.2	5.9	7.7	6.7	9.6
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	IS(Mf)16	14:58	Surface	2	29.5	7.8	20.5	5.5		6.8		7.6	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	IS(Mf)16	14:58	Middle	1	28.7	7.8	21.7	4.9		7.5		11.1	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	IS(Mf)16	14:58	Middle	2	28.8	7.8	21.7	4.9		8.2		10.7	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	IS(Mf)16	14:58	Bottom	1	28.5	7.8	22.1	4.6		9.0		11.5	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	IS(Mf)16	14:58	Bottom	2	28.6	7.8	22.1	4.6	4.6	8.9	10.0		
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	SR4a	14:40	Surface	1	29.3	7.8	20.0	5.1	5.2	7.7	12.6	8.5	10.6
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	SR4a	14:40	Surface	2	29.4	7.8	20.0	5.2		8.8		9.4	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	SR4a	14:40	Bottom	1	28.0	7.8	23.4	4.1	4.1	16.5		12.5	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	SR4a	14:40	Bottom	2	28.1	7.8	23.4	4.1	4.1	17.3	12.0		
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	SR4	14:31	Surface	1	29.4	7.9	19.7	5.3	5.4	10.8	12.0	11.8	13.0
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	SR4	14:31	Surface	2	29.5	7.8	19.7	5.4		11.8		10.9	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	SR4	14:31	Bottom	1	29.2	7.9	20.4	5.3	5.4	12.2		15.0	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	SR4	14:31	Bottom	2	29.4	7.8	20.3	5.4	5.4	13.0	14.1		
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	IS8	14:19	Surface	1	29.3	7.9	20.1	5.5	5.6	8.2	12.0	7.1	8.7
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	IS8	14:19	Surface	2	29.5	7.8	20.0	5.6		8.4		6.4	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	IS8	14:19	Bottom	1	29.0	7.9	20.5	5.0	5.1	15.8		11.1	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	IS8	14:19	Bottom	2	29.1	7.8	20.5	5.1	5.1	15.7	10.1		
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	IS(Mf)9	14:08	Surface	1	29.8	7.8	19.2	5.7	5.8	6.2	12.3	4.8	11.6
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	IS(Mf)9	14:08	Surface	2	29.9	7.8	19.1	5.8		5.0		5.9	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	IS(Mf)9	14:08	Bottom	1	29.2	7.8	20.4	5.2	5.2	18.7		17.0	
TMCLKL	HY/2012/07	2017-08-11	Mid-Ebb	IS(Mf)9	14:08	Bottom	2	29.3	7.8	20.4	5.2	5.2	19.1	18.8		

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-averaged Turbidity (mg/L)	SS (mg/L)	Depth-averaged SS (mg/L)
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	CS(Mf)5	8:02	Surface	1	29.1	8.3	17.5	5.2	5.0	3.4	3.3	3.8	5.0
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	CS(Mf)5	8:02	Surface	2	29.2	8.3	17.5	5.3		2.9		5.1	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	CS(Mf)5	8:02	Middle	1	28.6	8.2	19.9	4.6		3.6		4.7	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	CS(Mf)5	8:02	Middle	2	28.8	8.3	19.9	4.7		2.5		6.2	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	CS(Mf)5	8:02	Bottom	1	27.2	8.1	25.9	3.7		4.4		4.7	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	CS(Mf)5	8:02	Bottom	2	27.4	8.2	25.6	3.7		3.1		5.3	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	CS(Mf)3(N)	9:11	Surface	1	29.5	7.8	15.4	5.5	5.3	6.7	11.4	6.4	14.0
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	CS(Mf)3(N)	9:11	Surface	2	29.2	7.6	15.9	5.4		6.9		7.7	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	CS(Mf)3(N)	9:11	Middle	1	29.4	7.8	17.2	5.1		9.7		9.8	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	CS(Mf)3(N)	9:11	Middle	2	29.2	7.6	17.5	5.2		9.4		9.7	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	CS(Mf)3(N)	9:11	Bottom	1	29.2	7.8	18.6	5.0		17.1		24.4	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	CS(Mf)3(N)	9:11	Bottom	2	28.9	7.7	18.9	5.2		18.4		26.0	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	IS(Mf)16	8:37	Surface	1	28.9	7.9	19.2	4.9	4.9	6.1	6.0	5.2	6.3
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	IS(Mf)16	8:37	Surface	2	29.0	8.0	19.2	5.0		5.6		4.5	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	IS(Mf)16	8:37	Middle	1	28.8	7.9	20.2	4.7		4.9		6.8	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	IS(Mf)16	8:37	Middle	2	28.9	8.0	20.1	4.8		3.6		5.6	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	IS(Mf)16	8:37	Bottom	1	28.7	7.9	20.2	4.7		8.1		7.6	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	IS(Mf)16	8:37	Bottom	2	28.9	8.0	20.2	4.8		7.8		8.2	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	SR4a	8:50	Surface	1	28.9	8.0	19.1	5.4	5.4	26.5	21.6	18.8	18.1
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	SR4a	8:50	Surface	2	29.0	8.0	19.1	5.4		26.3		18.7	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	SR4a	8:50	Bottom	1	28.8	7.9	19.5	4.7		16.3		17.3	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	SR4a	8:50	Bottom	2	28.9	7.9	19.4	4.8		17.2		17.7	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	SR4	9:04	Surface	1	29.0	7.9	18.5	5.1	5.1	5.5	5.9	6.9	6.9
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	SR4	9:04	Surface	2	29.1	8.0	18.5	5.1		5.2		7.0	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	SR4	9:04	Bottom	1	29.0	8.0	18.6	5.1		6.6		6.2	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	SR4	9:04	Bottom	2	29.1	8.0	18.6	5.2		6.2		7.6	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	IS8	9:18	Surface	1	28.9	7.9	18.8	4.9	5.0	23.1	24.9	22.9	28.4
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	IS8	9:18	Surface	2	29.1	8.0	18.8	5.0		24.0		24.4	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	IS8	9:18	Bottom	1	28.9	7.9	20.1	4.7		26.7		32.5	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	IS8	9:18	Bottom	2	29.0	7.9	20.1	4.8		25.6		33.9	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	IS(Mf)9	9:33	Surface	1	29.1	7.9	19.1	5.3	5.3	3.6	4.7	4.2	6.4
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	IS(Mf)9	9:33	Surface	2	29.2	8.0	19.1	5.3		2.7		4.0	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	IS(Mf)9	9:33	Bottom	1	28.9	7.9	20.5	5.2		6.4		8.1	
TMCLKL	HY/2012/07	2017-08-11	Mid-Flood	IS(Mf)9	9:33	Bottom	2	29.0	8.0	20.4	5.2		5.9		9.4	

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



WQMS	X	Y
Impact Station		
IS8	814251	818412
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
Control / Far Field Station		
CS(Mf)5	817990	821129
CS(Mf)3(N)	808814	822355
Sensitive Receiver Station		
SR4	814760	817867
SR4a	815247	818067

**Key**

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

Locations of Water Quality Monitoring Stations

Email  
message

Environmental  
Resources  
Management

**To** Ramboll Environ – Hong Kong, Limited (ENPO)

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Quarry Bay, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jovy.tam@erm.com

**From** ERM- Hong Kong, Limited

**Ref/Project number** Contract No. HY/2012/07  
Tuen Mun – Chek Lap Kok Link – Southern  
Connection Viaduct Section

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



**ERM**

**Date** 18 August 2017

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Dear Sir/ Madam,

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

Action Level Exceedance

0215660\_14 August 2017\_Surface and Middle-depth DO\_F\_Station CS(Mf)5

0215660\_14 August 2017\_Bottom-depth DO\_F\_Station CS(Mf)5

A total of two exceedances were recorded on 14 August 2017.

Regards,

A handwritten signature in black ink, appearing to read 'Jovy Tam', is written over a white background.

Mr Jovy Tam  
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/07

TUEN MUN – CHEK LAP KOK LINK –  
SOUTHERN CONNECTION VIADUCT SECTION

*Marine Water Quality Impact Monitoring*

**Notification of Exceedance**

<b>Log No.</b>	<p><u>Action Level Exceedance</u>            0215660_14 August 2017_Surface and Middle-depth DO_F_Station CS(Mf)5            0215660_14 August 2017_Bottom-depth DO_F_Station CS(Mf)5</p> <p>[Total No. of Exceedances = 2]</p>	
<b>Date</b>	<p>14 August 2017 (Measured)            16 August 2017 (<i>In situ</i> results received by ERM)            24 August 2017 (Laboratory results received by ERM)</p>	
<b>Monitoring Station</b>	<p>CS(Mf)5, SR4a, SR4, IS8, IS(Mf)16, IS(Mf)9, CS(Mf)3(N)</p>	
<b>Parameter(s) with Exceedance(s)</b>	<p>Surface and Middle-depth Dissolved Oxygen (DO), Bottom-depth Dissolved Oxygen</p>	
<b>Action Levels for DO</b>	Surface and Middle-depth DO	5.0 mg/L
	Bottom-depth DO	4.7 mg/L
<b>Limit Levels for DO</b>	Surface and Middle-depth DO	4.2 mg/L
	Bottom-depth DO	3.6 mg/L
<b>Measured Levels</b>	<p><u>Action Level Exceedance</u>            1. Mid-Flood at CS(Mf)5 (Surface and Middle-depth DO = 4.9 mg/L);            2. Mid-Flood at CS(Mf)5 (Bottom-depth DO = 4.2 mg/L).</p>	
<b>Works Undertaken (at the time of monitoring event)</b>	<p>Major marine works undertaken under this Contract on 14 August 2017 included:</p> <ul style="list-style-type: none"> <li>• Rock armour reinstatement for the construction of underslung truss scheme</li> </ul>	
<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedances of surface and middle-depth DO and bottom-depth DO at CS(Mf)5 are unlikely to be due to the Project, in view of the following:</p> <ul style="list-style-type: none"> <li>• CS(Mf)5 is distant (&gt;3km) from the marine works area under this Contract, thus the observed exceedance should not be affected by the marine works under this Contract and it is considered to be natural fluctuation in water quality.</li> <li>• Apart from the Control station CS(Mf)5, levels of 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> </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 14 August 2017 and locations of water quality monitoring stations are attached.</p>	

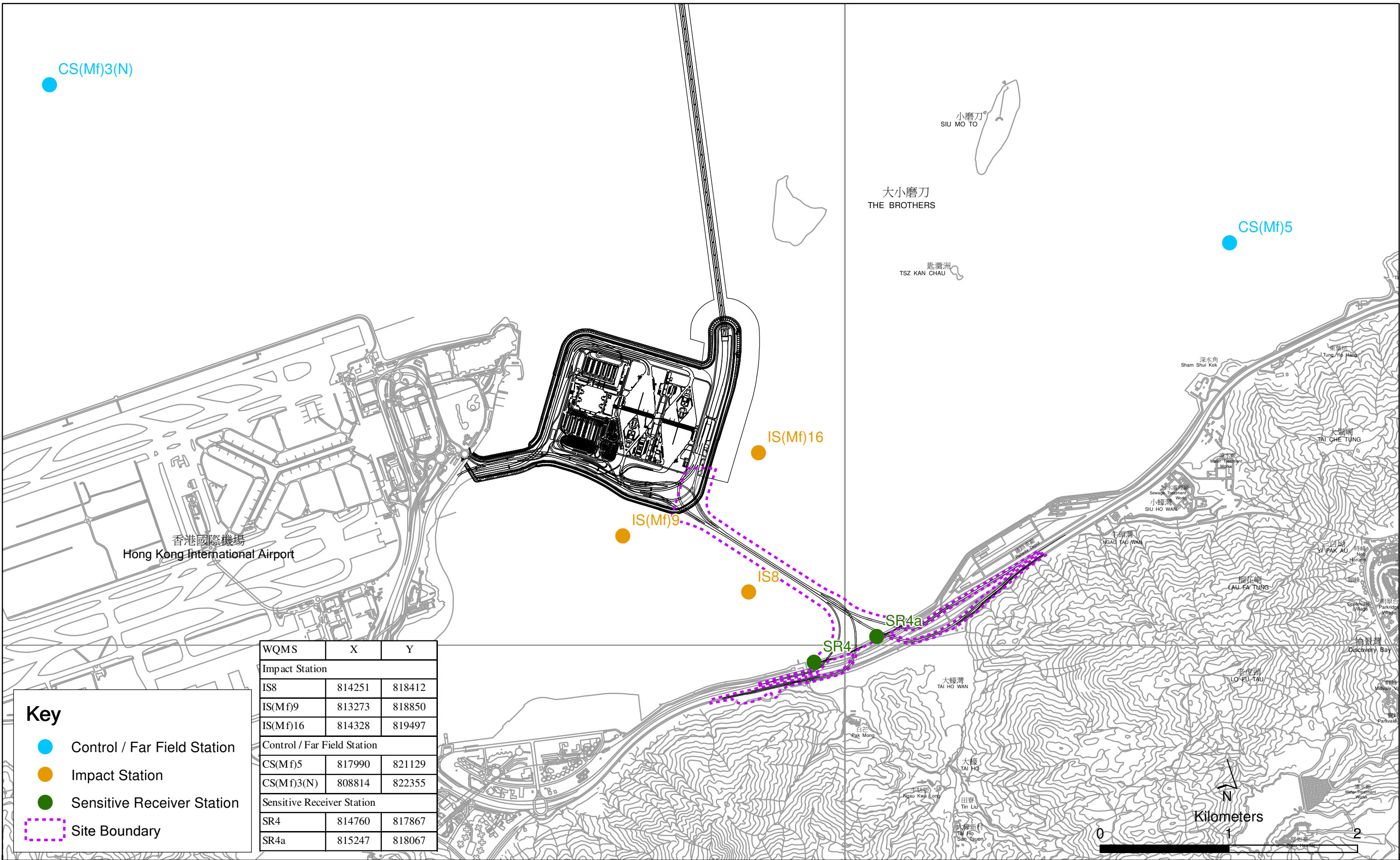
Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	SS (mg/L)
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	CS(Mf)5	17:19	Surface	1	29.6	7.8	18.3	5.8	5.7	4.4	5.8
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	CS(Mf)5	17:19	Surface	2	29.7	8.0	18.3	5.8		4.6	5.8
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	CS(Mf)5	17:19	Middle	1	29.4	8.0	19.7	5.5		4.7	5.9
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	CS(Mf)5	17:19	Middle	2	29.5	8.1	19.7	5.5		4.9	4.1
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	CS(Mf)5	17:19	Bottom	1	27.3	8.0	27.3	4.8	4.8	4.2	4.4
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	CS(Mf)5	17:19	Bottom	2	27.4	8.1	27.4	4.7		4.5	4.7
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	CS(Mf)3(N)	16:09	Surface	1	30.0	7.9	16.4	6.1	6.2	3.0	2.5
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	CS(Mf)3(N)	16:09	Surface	2	29.8	7.7	17.8	6.3		2.4	3.3
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	CS(Mf)3(N)	16:09	Middle	1	30.0	7.9	16.4	6.1		3.0	2.4
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	CS(Mf)3(N)	16:09	Middle	2	29.8	7.7	17.8	6.2		2.4	3.1
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	CS(Mf)3(N)	16:09	Bottom	1	29.2	7.8	18.8	4.8	4.9	7.3	2.2
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	CS(Mf)3(N)	16:09	Bottom	2	29.0	7.6	20.4	5.0		7.0	3.0
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	IS(Mf)16	16:52	Surface	1	29.8	7.8	20.9	6.2	5.8	5.3	6.1
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	IS(Mf)16	16:52	Surface	2	29.9	7.9	20.9	6.2		5.2	5.3
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	IS(Mf)16	16:52	Middle	1	29.1	7.8	21.5	5.4		5.5	4.7
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	IS(Mf)16	16:52	Middle	2	29.2	7.9	21.5	5.4		5.5	5.1
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	IS(Mf)16	16:52	Bottom	1	28.5	7.8	22.8	5.2	5.2	3.0	5.8
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	IS(Mf)16	16:52	Bottom	2	28.6	7.9	22.6	5.1		3.4	5.4
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	SR4a	16:41	Surface	1	29.7	7.8	20.2	6.1	6.1	8.6	8.2
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	SR4a	16:41	Surface	2	29.9	7.9	20.2	6.1		8.2	7.8
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	SR4a	16:41	Bottom	1	29.5	7.8	20.5	5.7	5.7	11.7	9.5
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	SR4a	16:41	Bottom	2	29.7	7.9	20.5	5.6		11.2	8.5
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	SR4	16:35	Surface	1	29.9	7.8	20.1	6.3	6.3	6.3	5.0
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	SR4	16:35	Surface	2	30.0	7.9	20.1	6.3		5.8	5.7
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	SR4	16:35	Bottom	1	29.6	7.8	21.2	5.8	5.8	8.9	5.4
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	SR4	16:35	Bottom	2	29.7	7.9	21.2	5.8		8.5	6.2
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	IS8	16:28	Surface	1	30.1	7.8	20.2	6.4	6.4	9.8	2.7
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	IS8	16:28	Surface	2	30.2	7.9	20.2	6.4		10.0	3.0
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	IS8	16:28	Bottom	1	29.7	7.8	20.8	5.7	5.7	13.0	3.3
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	IS8	16:28	Bottom	2	29.8	7.9	20.8	5.6		12.5	2.6
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	IS(Mf)9	16:19	Surface	1	30.5	8.0	20.5	5.1	5.2	5.1	2.8
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	IS(Mf)9	16:19	Surface	2	30.5	8.0	20.5	5.2		5.1	3.4
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	IS(Mf)9	16:19	Bottom	1	30.3	7.9	20.6	7.0	6.9	5.2	5.1
TMCLKL	HY/2012/07	2017-08-14	Mid-Ebb	IS(Mf)9	16:19	Bottom	2	30.3	7.9	20.6	6.8		5.2	6.4

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	SS (mg/L)
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	CS(Mf)5	10:45	Surface	1	29.1	7.7	19.4	5.2	4.9	3.0	2.6
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	CS(Mf)5	10:45	Surface	2	29.2	7.7	19.4	5.3		2.5	2.9
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	CS(Mf)5	10:45	Middle	1	28.2	7.7	23.9	4.5		3.4	4.8
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	CS(Mf)5	10:45	Middle	2	28.3	7.7	23.9	4.5		3.1	3.2
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	CS(Mf)5	10:45	Bottom	1	27.7	7.7	25.8	4.2	4.2	4.5	5.4
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	CS(Mf)5	10:45	Bottom	2	27.8	7.7	25.9	4.2		4.3	6.0
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	CS(Mf)3(N)	12:28	Surface	1	30.3	7.8	12.9	6.0	5.8	5.7	4.9
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	CS(Mf)3(N)	12:28	Surface	2	30.0	7.7	14.2	6.1		5.1	4.6
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	CS(Mf)3(N)	12:28	Middle	1	29.4	8.0	17.2	5.6		7.6	4.2
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	CS(Mf)3(N)	12:28	Middle	2	29.4	7.9	17.2	5.6		7.5	5.3
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	CS(Mf)3(N)	12:28	Bottom	1	28.8	7.8	21.5	5.1	5.1	8.1	4.6
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	CS(Mf)3(N)	12:28	Bottom	2	28.8	7.7	21.6	5.1		8.5	4.6
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	IS(Mf)16	11:19	Surface	1	29.4	7.7	19.9	5.7	5.7	3.5	4.0
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	IS(Mf)16	11:19	Surface	2	29.6	7.7	19.9	5.7		3.4	4.0
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	IS(Mf)16	11:19	Bottom	1	29.1	7.7	20.9	5.3	5.3	9.8	6.6
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	IS(Mf)16	11:19	Bottom	2	29.3	7.7	20.9	5.3		10.3	6.2
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	SR4a	11:32	Surface	1	29.7	7.7	18.2	5.8	5.8	5.5	5.9
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	SR4a	11:32	Surface	2	29.8	7.7	18.2	5.8		5.4	6.8
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	SR4a	11:32	Bottom	1	29.6	7.7	18.4	5.8	5.8	7.8	7.3
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	SR4a	11:32	Bottom	2	29.7	7.7	18.4	5.8		7.2	6.7
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	SR4	11:39	Surface	1	29.6	7.7	18.8	5.8	5.8	6.1	3.1
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	SR4	11:39	Surface	2	29.7	7.7	18.8	5.8		6.0	3.7
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	SR4	11:39	Bottom	1	29.5	7.7	19.0	5.7	5.7	11.3	11.9
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	SR4	11:39	Bottom	2	29.6	7.7	19.0	5.7		11.8	10.3
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	IS8	11:54	Surface	1	29.7	7.7	19.0	5.8	5.8	5.7	5.9
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	IS8	11:54	Surface	2	29.8	7.7	19.0	5.8		5.6	4.8
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	IS8	11:54	Bottom	1	29.4	7.7	20.1	5.6	5.6	16.1	8.6
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	IS8	11:54	Bottom	2	29.5	7.7	20.1	5.6		16.7	7.5
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	IS(Mf)9	12:05	Surface	1	29.6	7.8	20.3	5.8	5.9	6.0	7.6
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	IS(Mf)9	12:05	Surface	2	29.8	7.8	20.3	5.9		5.6	6.2
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	IS(Mf)9	12:05	Bottom	1	29.3	7.8	21.5	5.6	5.6	9.3	7.6
TMCLKL	HY/2012/07	2017-08-14	Mid-Flood	IS(Mf)9	12:05	Bottom	2	29.4	7.8	21.5	5.5		9.3	6.0

Note: Indicates Exceedance of Action Level

Indicates Exceedance of Limit Level





WQMS	X	Y
Impact Station		
IS8	814251	818412
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
Control / Far Field Station		
CS(Mf)5	817990	821129
CS(Mf)3(N)	808814	822355
Sensitive Receiver Station		
SR4	814760	817867
SR4a	815247	818067

**Key**

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

Locations of Water Quality Monitoring Stations

Email  
message

Environmental  
Resources  
Management

**To** Ramboll Environ – Hong Kong, Limited (ENPO)

16/F Berkshire House,  
25 Westlands Road  
Quarry Bay, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jovy.tam@erm.com

**From** ERM- Hong Kong, Limited

**Ref/Project number** Contract No. HY/2012/07  
Tuen Mun – Chek Lap Kok Link – Southern  
Connection Viaduct Section

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



**ERM**

**Date** 18 August 2017

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Dear Sir/ Madam,

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

Action Level Exceedance

0215660\_16 August 2017\_ Bottom-depth DO\_E\_Station CS(Mf)3(N)

0215660\_16 August 2017\_ Bottom-depth DO\_F\_Station CS(Mf)5

A total of two exceedances were recorded on 16 August 2017.

Regards,

A handwritten signature in black ink, appearing to be 'Jovy Tam', written in a cursive style.

Mr Jovy Tam  
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/07

TUEN MUN – CHEK LAP KOK LINK –  
SOUTHERN CONNECTION VIADUCT SECTION

*Marine Water Quality Impact Monitoring*

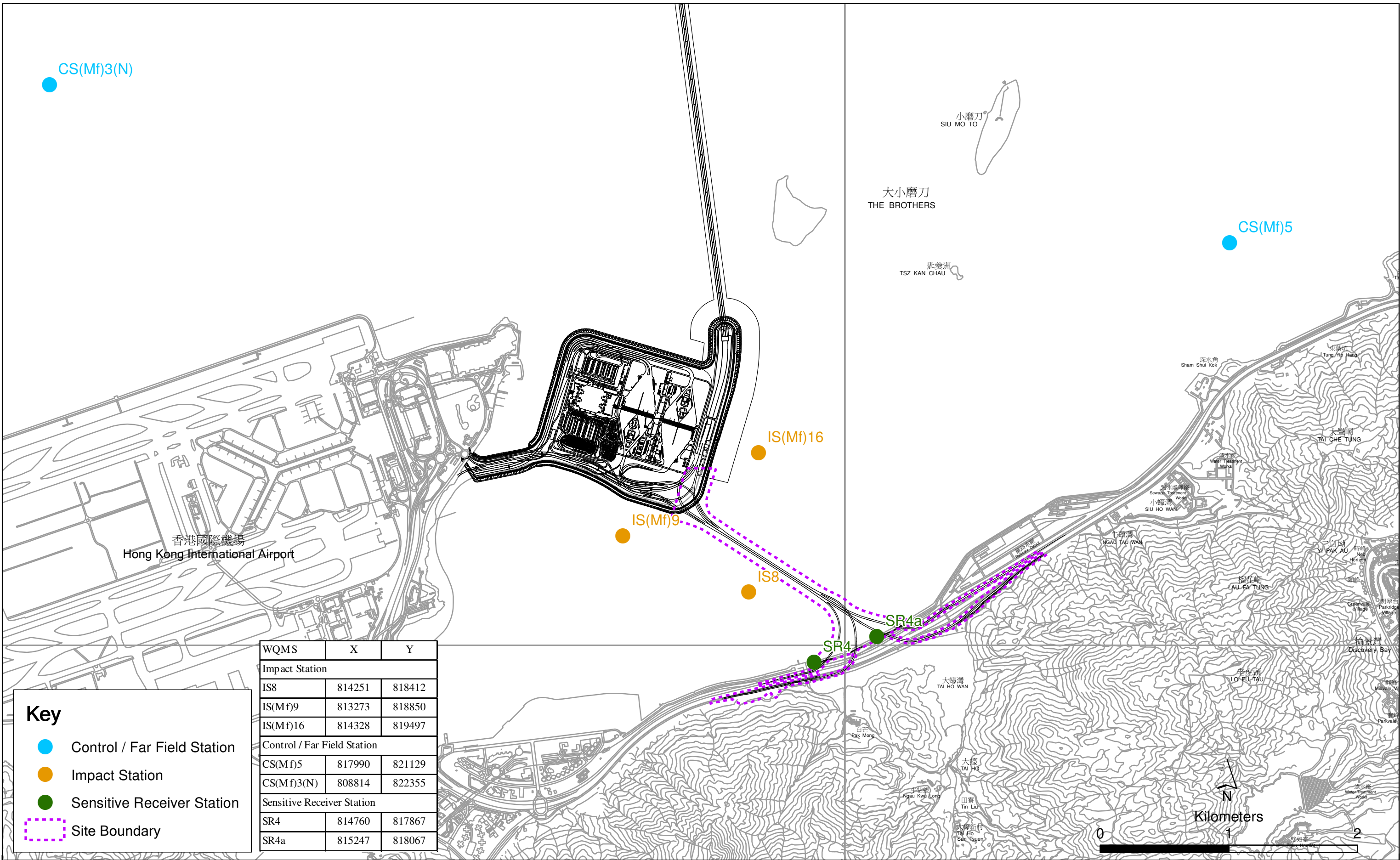
**Notification of Exceedance**

<b>Log No.</b>	<p><u>Action Level Exceedance</u>            0215660_16 August 2017_ Bottom-depth DO_E_Station CS(Mf)3(N)            0215660_16 August 2017_ Bottom-depth DO_F_Station CS(Mf)5</p> <p>[Total No. of Exceedances = 2]</p>	
<b>Date</b>	<p>16 August 2017 (Measured)            18 August 2017 (<i>In situ</i> results received by ERM)            25 August 2017 (Laboratory results received by ERM)</p>	
<b>Monitoring Station</b>	<p>CS(Mf)5, SR4a, SR4, IS8, IS(Mf)16, IS(Mf)9, CS(Mf)3(N)</p>	
<b>Parameter(s) with Exceedance(s)</b>	<p>Bottom-depth Dissolved Oxygen (DO)</p>	
<b>Action Levels for DO</b>	Surface and Middle-depth DO	5.0 mg/L
	Bottom-depth DO	4.7 mg/L
<b>Limit Levels for DO</b>	Surface and Middle-depth DO	4.2 mg/L
	Bottom-depth DO	3.6 mg/L
<b>Measured Levels</b>	<p><u>Action Level Exceedance</u>            1. Mid-Ebb at CS(Mf)3(N) (Bottom-depth DO = 4.6 mg/L);            2. Mid-Flood at CS(Mf)5 (Bottom-depth DO = 4.0 mg/L).</p>	
<b>Works Undertaken (at the time of monitoring event)</b>	<p>Major marine works undertaken under this Contract on 16 August 2017 included:</p> <ul style="list-style-type: none"> <li>• Rock armour reinstatement for the construction of underslung truss scheme</li> </ul>	
<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedances of bottom-depth DO at CS(Mf)3(N) and CS(Mf)5 are unlikely to be due to the Project, in view of the following:</p> <ul style="list-style-type: none"> <li>• CS(Mf)3(N) and CS(Mf)5 are distant (&gt;5km and &gt;3km respectively) from the marine works area under this Contract, thus the observed exceedance should not be affected by the marine works under this Contract and it is considered to be natural fluctuation in water quality.</li> <li>• Apart from the Control stations, CS(Mf)3(N) and CS(Mf)5, levels of 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> </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 18 August 2017 and locations of water quality monitoring stations are attached.</p>	

Project	Works	Date (yyyy-mm-d)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	SS (mg/L)
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	CS(Mf)5	07:10	Surface	1	29.1	7.8	18.4	5.9	5.9	2.0	1.3
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	CS(Mf)5	07:10	Surface	2	29.1	7.8	18.4	5.9		2.2	1.2
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	CS(Mf)5	07:10	Middle	1	29.1	7.8	19.4	5.8		2.0	2.2
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	CS(Mf)5	07:10	Middle	2	29.0	7.8	19.4	5.8		2.2	2.4
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	CS(Mf)5	07:10	Bottom	1	28.0	7.8	23.8	5.5	5.5	1.7	2.3
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	CS(Mf)5	07:10	Bottom	2	28.0	7.8	24.6	5.5		1.7	2.6
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	CS(Mf)3(N)	09:08	Surface	1	29.4	7.8	13.1	6.1	5.4	3.5	2.6
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	CS(Mf)3(N)	09:08	Surface	2	29.6	7.7	13.2	5.9		3.5	3.0
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	CS(Mf)3(N)	09:08	Middle	1	28.8	7.7	19.4	5.0		3.0	2.8
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	CS(Mf)3(N)	09:08	Middle	2	29.0	7.6	19.9	4.7		3.6	2.8
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	CS(Mf)3(N)	09:08	Bottom	1	28.1	7.7	22.3	4.7	4.6	3.2	4.7
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	CS(Mf)3(N)	09:08	Bottom	2	28.3	7.6	22.5	4.4		3.7	4.1
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	IS(Mf)16	07:44	Surface	1	29.9	7.9	19.1	6.5	6.2	4.3	3.4
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	IS(Mf)16	07:44	Surface	2	29.8	7.9	19.1	6.5		4.8	3.4
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	IS(Mf)16	07:44	Middle	1	29.4	7.8	20.6	5.8		4.9	4.3
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	IS(Mf)16	07:44	Middle	2	29.4	7.8	20.6	5.9		4.9	3.3
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	IS(Mf)16	07:44	Bottom	1	28.9	7.8	21.8	5.2	5.3	3.3	4.1
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	IS(Mf)16	07:44	Bottom	2	28.8	7.8	21.8	5.3		3.5	4.1
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	SR4a	07:54	Surface	1	29.5	7.9	19.1	6.0	6.0	3.6	3.0
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	SR4a	07:54	Surface	2	29.4	7.9	19.2	6.0		4.2	3.0
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	SR4a	07:54	Bottom	1	29.1	7.8	20.1	5.6	5.7	3.0	2.1
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	SR4a	07:54	Bottom	2	29.2	7.8	20.8	5.7		3.3	3.1
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	SR4	08:00	Surface	1	29.6	7.9	18.6	6.0	6.0	4.0	3.3
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	SR4	08:00	Surface	2	29.5	7.9	18.6	6.0		4.5	3.6
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	SR4	08:00	Bottom	1	29.5	7.8	20.6	5.6	5.6	8.6	3.0
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	SR4	08:00	Bottom	2	29.3	7.8	20.7	5.6		8.6	3.4
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	IS8	08:12	Surface	1	29.4	7.9	18.9	6.6	6.5	6.2	3.3
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	IS8	08:12	Surface	2	29.6	7.9	18.7	6.3		6.2	3.5
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	IS8	08:12	Bottom	1	29.1	7.8	21.6	5.5	5.5	9.6	3.2
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	IS8	08:12	Bottom	2	29.2	7.8	21.4	5.4		9.6	2.6
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	IS(Mf)9	08:22	Surface	1	29.7	7.8	18.2	6.2	6.2	4.8	3.0
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	IS(Mf)9	08:22	Surface	2	29.5	7.8	18.2	6.1		5.7	3.3
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	IS(Mf)9	08:22	Bottom	1	29.7	7.8	21.0	5.1	5.1	13.3	3.3
TMCLKL	HY/2012/07	2017-08-16	Mid-Ebb	IS(Mf)9	08:22	Bottom	2	29.5	7.8	21.1	5.1		13.5	2.2

Project	Works	Date (yyyy-mm-d)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	SS (mg/L)
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	CS(Mf)5	14:47	Surface	1	29.7	7.9	17.2	6.6	5.6	1.7	1.4
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	CS(Mf)5	14:47	Surface	2	29.9	7.9	17.2	6.7		2.0	1.2
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	CS(Mf)5	14:47	Middle	1	27.6	7.9	25.9	4.6		3.5	1.7
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	CS(Mf)5	14:47	Middle	2	27.6	7.9	25.8	4.4		3.3	1.5
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	CS(Mf)5	14:47	Bottom	1	25.1	7.8	33.9	4.0	4.0	9.1	5.6
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	CS(Mf)5	14:47	Bottom	2	25.1	7.8	34.0	3.9	4.0	9.5	6.2
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	CS(Mf)3(N)	13:16	Surface	1	30.5	7.9	8.4	6.6	6.2	5.1	4.8
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	CS(Mf)3(N)	13:16	Surface	2	30.7	7.7	8.5	6.4		5.8	4.5
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	CS(Mf)3(N)	13:16	Middle	1	30.0	7.8	13.5	6.0		3.8	4.1
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	CS(Mf)3(N)	13:16	Middle	2	30.2	7.7	13.5	5.8		4.4	4.2
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	CS(Mf)3(N)	13:16	Bottom	1	29.0	7.8	17.3	5.3	5.2	2.7	4.3
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	CS(Mf)3(N)	13:16	Bottom	2	29.2	7.6	17.3	5.1	5.2	3.6	4.4
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	IS(Mf)16	14:20	Surface	1	29.6	7.9	18.3	7.1	6.6	3.5	5.3
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	IS(Mf)16	14:20	Surface	2	29.7	7.9	18.3	7.0		2.5	4.0
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	IS(Mf)16	14:20	Middle	1	29.1	7.9	19.4	6.1		7.0	5.7
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	IS(Mf)16	14:20	Middle	2	29.1	7.9	19.4	6.1		6.4	4.4
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	IS(Mf)16	14:20	Bottom	1	28.4	7.8	23.0	5.4	5.4	12.9	5.4
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	IS(Mf)16	14:20	Bottom	2	28.5	7.8	23.0	5.3	5.4	12.5	4.5
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	SR4a	14:00	Surface	1	29.7	7.9	16.0	7.1	7.1	3.1	4.8
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	SR4a	14:00	Surface	2	29.9	7.9	16.0	7.1		2.5	3.6
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	SR4a	14:00	Bottom	1	29.1	7.8	19.7	6.1	6.1	16.5	6.0
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	SR4a	14:00	Bottom	2	29.3	7.8	19.7	6.0		17.4	4.7
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	SR4	13:55	Surface	1	29.7	7.9	15.8	7.2	7.3	2.9	2.9
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	SR4	13:55	Surface	2	29.9	7.9	15.9	7.3		2.2	3.1
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	SR4	13:55	Bottom	1	29.6	7.9	17.5	6.9	6.8	6.6	4.6
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	SR4	13:55	Bottom	2	29.7	7.9	17.6	6.7		6.6	5.3
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	IS8	13:45	Middle	1	29.7	7.9	16.6	7.2	7.2	2.5	1.8
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	IS8	13:45	Middle	2	29.8	7.9	16.6	7.2		1.9	1.8
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	IS(Mf)9	13:36	Middle	1	29.6	8.0	18.0	7.2	7.2	2.9	2.2
TMCLKL	HY/2012/07	2017-08-16	Mid-Flood	IS(Mf)9	13:36	Middle	2	29.8	8.0	18.0	7.2		2.5	3.0

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



WQMS	X	Y
Impact Station		
IS8	814251	818412
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
Control / Far Field Station		
CS(Mf)5	817990	821129
CS(Mf)3(N)	808814	822355
Sensitive Receiver Station		
SR4	814760	817867
SR4a	815247	818067

**Key**

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

Locations of Water Quality Monitoring Stations

Email  
message

Environmental  
Resources  
Management

**To** Ramboll Environ – Hong Kong, Limited (ENPO)

16/F Berkshire House,  
25 Westlands Road  
Quarry Bay, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jovy.tam@erm.com

**From** ERM- Hong Kong, Limited

**Ref/Project number** Contract No. HY/2012/07  
Tuen Mun – Chek Lap Kok Link – Southern  
Connection Viaduct Section

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



**ERM**

**Date** 24 August 2017

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Dear Sir/ Madam,

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

Action Level Exceedance

0215660\_18 August 2017\_Bottom-depth DO\_E\_Station CS(Mf)3(N)

0215660\_18 August 2017\_Bottom-depth DO\_F\_Station CS(Mf)5

A total of two exceedances were recorded on 18 August 2017.

Regards,

A handwritten signature in black ink, appearing to be 'Jovy Tam', written in a cursive style.

Mr Jovy Tam  
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/07

TUEN MUN – CHEK LAP KOK LINK –  
SOUTHERN CONNECTION VIADUCT SECTION

*Marine Water Quality Impact Monitoring*

**Notification of Exceedance**

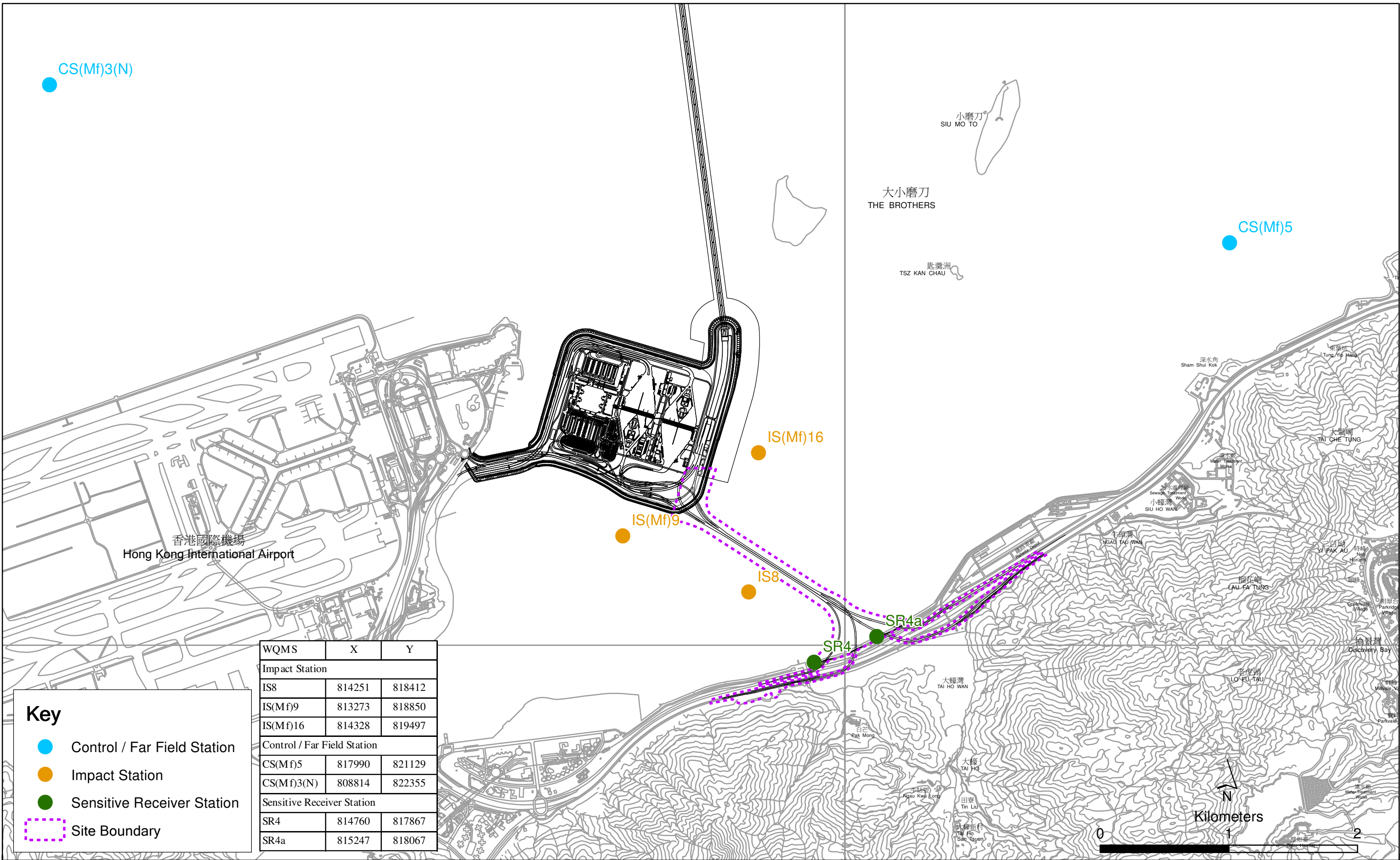
<b>Log No.</b>	<p><u>Action Level Exceedance</u>            0215660_18 August 2017_ Bottom-depth DO_E_Station CS(Mf)3(N)            0215660_18 August 2017_ Bottom-depth DO_F_Station CS(Mf)5</p> <p>[Total No. of Exceedances = 2]</p>	
<b>Date</b>	<p>18 August 2017 (Measured)            20 August 2017 (<i>In situ</i> results received by ERM)            28 August 2017 (Laboratory results received by ERM)</p>	
<b>Monitoring Station</b>	<p>CS(Mf)5, SR4a, SR4, IS8, IS(Mf)16, IS(Mf)9, CS(Mf)3(N)</p>	
<b>Parameter(s) with Exceedance(s)</b>	<p>Bottom-depth Dissolved Oxygen (DO)</p>	
<b>Action Levels for DO</b>	Surface and Middle-depth DO	5.0 mg/L
	Bottom-depth DO	4.7 mg/L
<b>Limit Levels for DO</b>	Surface and Middle-depth DO	4.2 mg/L
	Bottom-depth DO	3.6 mg/L
<b>Measured Levels</b>	<p><u>Action Level Exceedance</u>            1. Mid-Ebb at CS(Mf)3(N) (Bottom-depth DO = 3.9 mg/L);            2. Mid-Flood at CS(Mf)5 (Bottom-depth DO = 4.5 mg/L).</p>	
<b>Works Undertaken (at the time of monitoring event)</b>	<p>Major marine works undertaken under this Contract on 18 August 2017 included:</p> <ul style="list-style-type: none"> <li>• Rock armour reinstatement for the construction of underslung truss scheme</li> </ul>	
<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedances of bottom-depth DO at CS(Mf)3(N) and CS(Mf)5 are unlikely to be due to the Project, in view of the following:</p> <ul style="list-style-type: none"> <li>• CS(Mf)3(N) and CS(Mf)5 are distant (&gt;5km and &gt;3km respectively) from the marine works area under this Contract, thus the observed exceedance should not be affected by the marine works under this Contract and it is considered to be natural fluctuation in water quality.</li> <li>• Apart from the Control stations, CS(Mf)3(N) and CS(Mf)5, levels of 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> </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 18 August 2017 and locations of water quality monitoring stations are attached.</p>	



Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	SS (mg/L)
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	CS(Mf)5	09:20	Surface	1	28.0	8.1	17.2	7.4	6.6	6.9	3.6
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	CS(Mf)5	09:20	Surface	2	29.4	8.0	17.2	7.4		6.7	2.4
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	CS(Mf)5	09:20	Middle	1	28.0	7.9	23.6	5.7		7.8	2.4
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	CS(Mf)5	09:20	Middle	2	28.1	8.0	23.6	5.7		7.4	3.5
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	CS(Mf)5	09:20	Bottom	1	26.0	7.9	31.5	5.1	5.0	8.5	3.8
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	CS(Mf)5	09:20	Bottom	2	25.9	7.9	31.9	4.9		8.0	4.0
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	CS(Mf)3(N)	10:59	Surface	1	29.3	7.7	15.1	6.1	5.2	2.4	4.3
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	CS(Mf)3(N)	10:59	Surface	2	29.5	7.8	15.0	6.0		2.6	3.4
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	CS(Mf)3(N)	10:59	Middle	1	27.4	7.6	24.2	4.4		3.6	5.5
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	CS(Mf)3(N)	10:59	Middle	2	27.6	7.7	24.2	4.2		4.1	6.0
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	CS(Mf)3(N)	10:59	Bottom	1	26.9	7.6	25.8	4.0	3.9	5.2	5.2
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	CS(Mf)3(N)	10:59	Bottom	2	27.2	7.7	25.8	3.8		5.6	5.1
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	IS(Mf)16	09:58	Surface	1	29.5	8.0	19.5	7.4	7.0	4.6	3.6
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	IS(Mf)16	09:58	Surface	2	29.6	8.0	19.5	7.5		4.1	3.2
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	IS(Mf)16	09:58	Middle	1	29.0	7.9	20.7	6.4		5.4	3.8
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	IS(Mf)16	09:58	Middle	2	28.9	8.0	20.8	6.6		5.2	4.8
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	IS(Mf)16	09:58	Bottom	1	28.1	7.9	25.2	5.5	5.5	6.1	5.3
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	IS(Mf)16	09:58	Bottom	2	28.3	7.9	25.0	5.4		6.7	5.1
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	SR4a	10:10	Surface	1	29.2	8.0	19.4	6.9	6.9	4.3	5.1
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	SR4a	10:10	Surface	2	29.3	8.0	19.4	6.9		4.0	4.7
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	SR4a	10:10	Bottom	1	28.8	7.9	22.6	6.0	6.0	4.3	4.8
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	SR4a	10:10	Bottom	2	28.9	8.0	22.6	5.9		4.6	5.2
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	SR4	10:15	Surface	1	29.3	8.0	19.3	6.5	6.5	4.9	4.7
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	SR4	10:15	Surface	2	29.4	8.0	19.3	6.5		5.1	5.4
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	SR4	10:15	Bottom	1	28.6	7.9	22.4	5.5	5.5	8.8	14.2
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	SR4	10:15	Bottom	2	28.8	7.9	22.3	5.4		9.4	13.0
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	IS8	10:32	Surface	1	29.8	8.2	17.9	9.0	9.1	2.9	3.3
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	IS8	10:32	Surface	2	29.9	8.1	17.9	9.1		2.7	2.9
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	IS8	10:32	Bottom	1	28.8	7.9	21.9	5.9	5.9	10.8	4.9
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	IS8	10:32	Bottom	2	29.0	8.0	21.8	5.9		11.5	4.6
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	IS(Mf)9	10:46	Surface	1	29.5	8.0	19.1	7.0	7.1	5.4	5.1
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	IS(Mf)9	10:46	Surface	2	29.6	8.0	19.2	7.1		5.3	3.8
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	IS(Mf)9	10:46	Bottom	1	28.9	7.9	22.1	6.0	6.0	8.4	8.8
TMCLKL	HY/2012/07	2017-08-18	Mid-Ebb	IS(Mf)9	10:46	Bottom	2	29.1	8.0	22.1	6.0		8.3	8.1

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	SS (mg/L)
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	CS(Mf)5	17:29	Surface	1	28.4	8.1	22.9	7.8	6.7	3.7	3.3
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	CS(Mf)5	17:29	Surface	2	28.5	8.2	22.8	7.9		3.3	3.3
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	CS(Mf)5	17:29	Middle	1	26.8	7.9	28.3	5.4		4.4	4.3
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	CS(Mf)5	17:29	Middle	2	26.9	8.1	28.3	5.5		4.6	5.2
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	CS(Mf)5	17:29	Bottom	1	25.2	7.9	33.3	4.6	4.5	9.5	6.4
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	CS(Mf)5	17:29	Bottom	2	25.3	8.2	33.3	4.4		10.7	6.4
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	CS(Mf)3(N)	16:01	Surface	1	30.5	7.7	11.3	6.9	6.6	5.4	5.2
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	CS(Mf)3(N)	16:01	Surface	2	30.7	7.8	11.2	6.7		5.4	5.9
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	CS(Mf)3(N)	16:01	Middle	1	30.1	7.7	12.8	6.4		4.7	6.6
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	CS(Mf)3(N)	16:01	Middle	2	30.3	7.7	12.7	6.2		5.3	6.9
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	CS(Mf)3(N)	16:01	Bottom	1	28.5	7.6	19.4	4.9	4.8	4.7	8.6
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	CS(Mf)3(N)	16:01	Bottom	2	28.7	7.6	19.5	4.7		5.2	8.8
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	IS(Mf)16	17:00	Surface	1	29.6	8.1	18.3	8.8	7.6	6.9	4.6
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	IS(Mf)16	17:00	Surface	2	29.8	8.2	18.1	9.0		7.3	5.7
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	IS(Mf)16	17:00	Middle	1	28.1	7.9	22.5	6.2		7.8	5.0
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	IS(Mf)16	17:00	Middle	2	28.2	8.1	22.5	6.2		7.3	4.8
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	IS(Mf)16	17:00	Bottom	1	27.7	7.9	24.9	5.5	5.5	11.1	9.6
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	IS(Mf)16	17:00	Bottom	2	27.8	8.1	24.9	5.4		11.0	11.1
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	SR4a	16:47	Surface	1	29.6	8.0	17.6	7.9	7.9	13.5	4.4
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	SR4a	16:47	Surface	2	29.7	8.2	17.7	7.8		14.8	4.2
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	SR4a	16:47	Bottom	1	29.4	8.0	18.0	7.4	7.4	11.7	5.1
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	SR4a	16:47	Bottom	2	29.6	8.2	18.0	7.3		12.0	4.8
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	SR4	16:42	Surface	1	30.1	8.1	16.6	8.8	8.8	8.7	7.7
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	SR4	16:42	Surface	2	30.2	8.3	16.6	8.8		9.0	8.7
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	SR4	16:42	Bottom	1	30.1	8.1	16.6	8.7	8.7	10.6	8.0
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	SR4	16:42	Bottom	2	30.2	8.3	16.6	8.7		10.4	9.4
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	IS8	16:32	Surface	1	29.9	8.1	17.1	8.8	8.8	9.0	11.5
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	IS8	16:32	Surface	2	30.0	8.2	17.2	8.7		9.3	11.3
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	IS8	16:32	Bottom	1	29.8	8.1	17.6	8.7	8.7	11.5	12.6
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	IS8	16:32	Bottom	2	30.0	8.2	17.6	8.7		11.4	11.9
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	IS(Mf)9	16:20	Middle	1	30.1	8.3	18.5	11.5	11.4	6.8	6.0
TMCLKL	HY/2012/07	2017-08-18	Mid-Flood	IS(Mf)9	16:20	Middle	2	30.2	8.4	18.6	11.3		6.6	5.9

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



WQMS	X	Y
Impact Station		
IS8	814251	818412
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
Control / Far Field Station		
CS(Mf)5	817990	821129
CS(Mf)3(N)	808814	822355
Sensitive Receiver Station		
SR4	814760	817867
SR4a	815247	818067

**Key**

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

Locations of Water Quality Monitoring Stations

Email  
message

Environmental  
Resources  
Management

**To** Ramboll Environ - Hong Kong, Limited (ENPO)

**From** ERM- Hong Kong, Limited

**Ref/Project number** Contract No. HY/2012/07 Tuen Mun–Chek Lap  
Kok Link–Southern Connection Viaduct Section

**Subject** Notification of Exceedance for Impact Dolphin  
Monitoring

**Date** 30 October 2017

16/F Berkshire House,  
25 Westlands Road  
Quarry Bay, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jovy.tam@erm.com



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Dear Sir or Madam,

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

0215660\_Jun2017/Aug2017\_dolphin\_STG&ANI\_NEL&NWL

A total of one limit level exceedance was recorded in the quarterly impact  
dolphin monitoring data between June and August 2017.

Regards,

A handwritten signature in black ink, appearing to read 'Jovy Tam', is positioned above the typed name.

Mr Jovy Tam  
Environmental Team Leader

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ERM-Hong Klong, Limited

CONTRACT NO. HY/2012/07

TUEN MUN – CHEK LAP KOK LINK –  
SOUTHERN CONNECTION VIADUCT SECTION

Impact Dolphin Monitoring  
Notification of Exceedance

Log No.	0215660_Jun2017/Aug2017_dolphin_STG&ANI_NEL&NWL [Total No. of Exceedance = 1]	
Date	June to August 2017 (monitored) 29 October 2017 (results received by ERM)	
Monitoring Area	Northeast Lantau (NEL) and Northwest Lantau (NWL)	
Parameter(s) with Exceedance(s)	Quarterly encounter rate of dolphin sightings (STG) Quarterly encounter rate of total number of dolphins (ANI)	
Action Levels	North Lantau Social cluster	NEL: STG < 4.2 & ANI < 15.5 or NWL: STG < 6.9 & ANI < 31.3
Limit Levels		NEL: STG < 2.4 & ANI < 8.9 and NWL: STG < 3.9 & ANI < 17.9
Recorded Levels	NEL	STG = 0 & ANI = 0
	NWL	STG = 2.2 & ANI = 6.58
	One Limit Level Exceedance was recorded in the quarterly impact dolphin monitoring at NEL and NWL between June and August 2017. The exceedance was reported in the approved <i>Forty-sixth Monthly EM&amp;A Report</i> dated 11 September 2017.	
Statistical Analyses	<p>Further to the review of the available and relevant dolphin monitoring data in the EM&amp;A under this Contract, statistical analyses were conducted as follows:</p> <ul style="list-style-type: none"> <li>A two-way ANOVA with repeated measures and unequal sample size was conducted using Period (2 levels: baseline vs impact – present impact quarter, June to August 2017) and Location (2 levels: NEL and NWL) as fixed factors to examine whether there were any significant differences in the average encounter rates between the baseline and present impact monitoring quarter. By setting <math>\alpha = 0.05</math> as the significance level in the statistical tests, significant differences in STG (<math>p = 0.0044</math>) and ANI (<math>p = 0.0202</math>) were detected between Periods.</li> <li>A two-way ANOVA with repeated measures and unequal sample size was conducted using Cumulative Period (2 levels: baseline vs impact – cumulative quarters, December 2012 to August 2017) and Location (2 levels: NEL and NWL) as fixed factors to examine whether there were any significant differences in the average encounter rates between the baseline and cumulative impact monitoring quarter. By setting <math>\alpha = 0.00001</math> as the significance level in the statistical tests, significant difference in STG (<math>p = 0.000001</math>) and in ANI (<math>p = 0.000000</math>) between Cumulative Period (baseline and impact phases) and Location (NEL and NWL) were detected. * Note: The commencement date under <i>Contract No. HY/2012/07</i> is 31 October 2013.</li> </ul>	
Works Undertaken (in the monitoring quarter)	<p>In the quarter between June and August 2017, the major marine works under <i>Contract No. HY/2012/07</i> included:</p> <ul style="list-style-type: none"> <li>Uninstallation of marine piling platform;</li> <li>Pier construction;</li> <li>Launching gantry operation;</li> <li>Installation of deck segment and pier head segment; and</li> <li>Construction of underslung truss scheme (no additional seabed will be occupied other than those assumed in the approved EIA Report).</li> </ul>	

<p><b>Possible Reason for Action or Limit Level Exceedance(s)</b></p>	<p>The potential factors that may have contributed to the observed exceedance are reviewed below:</p> <ul style="list-style-type: none"> <li>• Blocking of CWD travelling corridor: The <i>Monitoring of Marine Mammals in Hong Kong Waters (2016 – 17)</i> <sup>(1)</sup> reported that dolphin usage and traveling activities to the northern side of the airport (dolphin traveling corridor) are affected by frequent high-speed ferry traffic from Sky Pier (not related to this Contract), which is likely one of the factors resulting in the decrease in dolphin abundances in North Lantau.</li> <li>• Marine works of the Contract: As per the findings from the EIA report (<i>Section 8.11.9</i>), the major influences on the Chinese White Dolphin (CWD) <i>Sousa chinensis</i> under this Contract are marine traffics and bored piling works. The <i>Monitoring of Marine Mammals in Hong Kong Waters (2016-2017)</i> also reported that CWD decline were likely influenced by reclamation works, bored piling and intensive marine traffic from construction activities. Based on these possible reasons, the corresponding marine works and implementation of mitigation measures are reviewed. This Contract does not have any reclamation works, thus no habitat loss was caused by reclamation. In the reporting period, the Contractor implemented the marine traffic control as per the requirements in the <i>EP-354/2009/D</i> and the updated <i>EM&amp;A Manual</i>. Most of the vessels of this Contract also worked within the site boundary, in which the area is seldom used by CWD. Disturbance from vessels of this Contract is considered minor. All of the marine bored piling works of this Contract was completed in September 2015. Thus, underwater noise emission from this Contract had been substantially reduced in this reporting period when comparing to the previous quarters. During dolphin monitoring in this quarter, no unacceptable impact on CWD due to the activities under this Contract was observed.</li> <li>• Impact on water quality: According to the findings in the water quality monitoring results at the impact monitoring stations between June and August 2017, there were thirty (30) Action Level and fourteen (14) Limit Level of Dissolved Oxygen (DO) exceedances and one (1) Action Level of Suspended Solids (SS) exceedances for water quality impact monitoring in the reporting period. The exceedances were considered not related to this Contract upon further investigation and the investigation report is presented in <i>Appendix L</i>.</li> </ul> <p>In view of the above, marine ecological mitigation measures were considered properly implemented, and thus no unacceptable impact on CWD or its habitat was associated with this Contract in this quarter.</p>
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(1) Hung SKY (2017). Prepared for AFCD. Available at: [https://www.afcd.gov.hk/english/conservation/con\\_mar/con\\_mar\\_chi/con\\_mar\\_chi\\_chi\\_chi/files/Final\\_Report\\_2016\\_17.pdf](https://www.afcd.gov.hk/english/conservation/con_mar/con_mar_chi/con_mar_chi_chi/files/Final_Report_2016_17.pdf)

<p><b>Actions Taken/ To Be Taken</b></p>	<p>With reference to the site inspection records in this quarter, the respective marine ecological mitigation measures have been implemented properly by the Contractor throughout the marine works period, including:</p> <ol style="list-style-type: none"> <li>1. 250m dolphin exclusion zone;</li> <li>2. Acoustic decoupling plan;</li> <li>3. Training to workers;</li> <li>4. Offsite vessel routing control in accordance with Regular Marine Travel Routes Plan, including routing control within existing and proposed marine park boundaries;</li> <li>5. Vessels speed limited at 5 knots and 10 knots within existing and proposed marine park boundaries and site boundary respectively;</li> <li>6. Idling and mooring of working vessels within site boundary;</li> </ol> <p>The existing mitigation measures are recommended to be continuously implemented. Furthermore, it is also recommended to reduce the vessels for marine works as much as possible. The ET will monitor for future trends in exceedance(s).</p> <p>A joint team meeting was held on 9 October 2017 for discussion on CWD trend, with attendance of ENPO, Representatives of Resident Site Staff (RSS), Representatives of Environmental Team (ET) for Contract No. HY/2010/02, HY/2011/03, HY/2012/07 and HY/2012/08. The discussion/recommendation as recorded in the minutes of the meeting, which might be relevant to this Contract are summarized below. It was concluded that the HZMB works is one of the contributing factors affecting the dolphins. It was also concluded the contribution of impacts due to the HZMB works as a whole (or individual marine contracts) cannot be quantified or separate from the other stress factors. ENPO presented the interim CWD survey results in mainland waters obtained from Hong Kong-Zhuhai-Macao Bridge Authority that some CWDs that previously more often sighted in Hong Kong waters have expanded their ranges into mainland waters, and some with reduced usage in Hong Kong waters, while they are partially accounted for the local decline. It was reminded that the ETs shall keep reviewing the implementation status of the dolphin related mitigation measures and remind the contractor to ensure the relevant measures are fully implemented. The ETs were also reminded to update the BMP boundary in the Regular Marine Travel Route Plan. It was recommended that the marine works of HZMB projects should be completed as soon as possible to reduce the overall duration of impacts and allow the dolphins population to recover as early as possible. The participants were also reminded that the protection measures (e.g., speed limit control) for the Brothers Marine Park (BMP) shall be implemented so as to provide a better habitat for dolphin recovery. It is noted that even though marine vessels may moor within the mooring site of BMP, commercial activities including loading / unloading / transshipment are not allowed except a permit is obtained. The HZMB works vessels were recommended to avoid the BMP. It was also recommended that the marine works footprint and vessels for the marine works should be reduced as much as possible, and vessels idling / mooring in other part of the North Lantau shall be avoided whenever possible.</p> <p>Dolphin specialists of the Projects confirmed that the CWD sighting nearby north of Sha Chau and Lung Kwu Chau Marine Park has significantly declined. The reason for the decline was likely related to the re-routing of high-speed ferry from Skypier.</p>
<p><b>Remarks</b></p>	<p>The results of impact water quality and impact dolphin monitoring, the status of implemented marine ecological mitigation measures are documented in the approved <i>Forty-fourth to Forty-sixth Monthly EM&amp;A Reports</i>. Comparison on water quality between impact and baseline periods is elaborated in the <i>15<sup>th</sup> Quarterly EM&amp;A Report</i>.</p>