Annex C

Water Quality Monitoring Results

Table C1 ***Action and Limit Levels of Water Quality for Dredging, Backfilling and Capping Activities for ESC CMP V***

Parameter	Action Level	Limit Level
Dissolved Oxygen (DO) (1)		
Surface and Middle Depth Averaged (2)	5%-ile of baseline data for surface and middle layer = 3.76 mg L^{-1} and Significantly less than the reference stations mean DO (at the same tide of the same day)	1%-ile of baseline data for surface and middle layer = 3.11 mg L^{-1} (3) and Significantly less than the reference stations mean DO (at the same tide of the same day)
Bottom	5%-ile of baseline data for bottom layers = 2.96 mg L^{-1} and Significantly less than the reference stations mean DO (at the same tide of the same day)	The average of the impact station readings are <2 mg/L and Significantly less than the reference stations mean DO (at the same tide of the same day)
Depth-averaged Suspended Solids (SS) (4) (5)	95%-ile of baseline data for depth average = 37.88 mg L^{-1} and 120% of control station's SS at the same tide of the same day	99%-ile of baseline data for depth average = 61.92mg L^{-1} and 130% of control station's SS at the same tide of the same day
Depth-averaged Turbidity (Tby) (4) (5)	95%-ile of baseline data = 28.14 NTU and 120% of control station's turbidity at the same tide of the same day	99%-ile of baseline data = 38.32 NTU and 130% of control station's turbidity at the same tide of the same day

Notes:

(1) For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.

(2) The Action and Limit Levels for DO for Surface & Middle layers were calculated from the combined pool of baseline surface layer data and baseline middle layer data.

(3) Given the Action Level for DO for Surface & Middle layers has already been lower than 4 mg L^{-1}, it is proposed to set the Limit Level at 3.11 mg L^{-1} which is the first percentile of the baseline data.

(4) "Depth-averaged" is calculated by taking the arithmetic means of reading of all three depths.

(5) For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

Table C2 *Monitoring Results for Water Quality Monitoring during Capping of ESC on 18 August 2015*

Sampling Period	Stations	Temp (°C)	Salinity (ppt)	Turbidity (NTU)	Dissolved Oxygen (%)	Dissolved Oxygen (mg L^{-1})	pH (mg L^{-1})	SS (mg L^{-1})
August 2015	RFF (Reference)	27.71	21.58	10.63	72.25	5.04	7.69	11.63
	IPF (Impact)	27.41	22.76	7.13	69.62	4.85	7.69	11.01
	INF (Intermediate)	27.64	21.83	7.55	70.32	4.90	7.67	8.27
	Ma Wan	26.76	25.09	4.98	66.52	4.62	7.74	5
	WQO	N/A	19.42-23.74*	N/A	N/A	>4	6.5-8.5	11.6

Notes:

Not exceeding 2˚C of change of the results from the Reference Station.

#Not exceeding 10% of natural ambient level which is the result obtained from the Reference Station.

Cell shaded yellow / red indicate value exceeding the Action/Limit levels.

Cell shaded grey indicate value exceeding the WQO.

Table C3 Action and Limit Levels of Water Quality for Dredging, Backfilling and Capping Activities for SB CMPs

Parameter	Action Level	Limit Level
Dissolved Oxygen (DO) (1)	Surface and Mid-depth (2) The average of the impact, WSR 45C and WSR 46 station readings are < 5%-ile of baseline data for surface and middle layer = **4.32 mg L^{-1}** and Significantly less than the reference stations mean DO (at the same tide of the same day)	Surface and Mid-depth (2) The average of the impact, WSR 45C and WSR 46 station readings are **< 4 mg L^{-1}** and Significantly less than the reference stations mean DO (at the same tide of the same day)
	Bottom The average of the impact, WSR 45C and WSR 46 station readings are < 5%-ile of baseline data for bottom layers = **3.12 mg L^{-1}** and Significantly less than the reference stations mean DO (at the same tide of the same day)	Bottom The average of the impact station, WSR 45C and WSR 46 readings are **< 2 mg L^{-1}** and Significantly less than the reference stations mean DO (at the same tide of the same day)
Depth-averaged Suspended Solids (SS) (3) (4)	The average of the impact, WSR 45C and WSR 46 station readings are > 95%-ile of baseline data for depth average = **21.60 mg L^{-1}** and 120% of control station's SS at the same tide of the same day	The average of the impact, WSR 45C and WSR 46 station readings are > 99%-ile of baseline data for depth average = **40.10 mg L^{-1}** and 130% of control station's SS at the same tide of the same day
Depth-averaged Turbidity (Tby) (3) (4)	The average of the impact, WSR 45C and WSR 46 station readings are > 95%-ile of baseline data = **25.04 NTU** and 120% of control station's Tby at the same tide of the same day	The average of the impact, WSR 45C and WSR 46 station readings are > 99%-ile of baseline data = **32.68 NTU** and 130% of control station's Tby at the same tide of the same day

Notes:

(1) For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.

(2) The Action and Limit Levels for DO for Surface & Middle layers were calculated from the combined pool of baseline surface layer data and baseline middle layer data.

(3) "Depth-averaged" is calculated by taking the arithmetic means of reading of all three depths.

(4) For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

Table C4 Monitoring Results for Water Quality Monitoring during Capping of SB CMP 1 on 24 August 2015

Sampling Period	Stations	Temp (°C)	Salinity (ppt)	Turbidity (NTU)	Dissolved Oxygen (%)	Dissolved Oxygen (mg L^{-1})	pH (mg L^{-1})	SS (mg L^{-1})	NH3 (mg L^{-1})	TIN (mg L^{-1})	BOD_5 (mg L^{-1})
August 2015	RFF (Reference)	26.87	27.52	15.18	107.28	7.32	8.00	14.78	0.11	0.56	2.86
	IPF (Impact)	25.69	29.69	9.66	65.74	4.53	7.83	13.09	0.10	0.50	1.61
	INF (Intermediate)	24.78	31.21	5.61	63.28	4.39	7.84	7.71	0.08	0.43	1.60
	Ma Wan	24.28	32.39	4.08	62.96	4.38	7.84	7.40	0.09	0.34	1.40
	Sham Shui Kok	24.38	32.00	10.66	53.95	3.76	7.77	13.02	0.14	0.41	0.93
	Tai Mo To	25.61	29.75	7.48	80.15	5.53	7.92	9.77	0.12	0.53	2.23
	Tai Ho Bay 1	27.83	25.97	20.56	105.45	7.16	7.98	20.77	0.13	0.65	2.10
	Tai Ho Bay 2	29.18	24.50	6.20	182.80	12.24	8.16	7.55	0.04	0.43	1.98
	WQO	N/A	24.77-30.27*	N/A	N/A	>4	6.5-8.5	11.6	N/A	0.50	N/A

Notes:
Not exceeding 2°C of change of the results from the Reference Station.
#Not exceeding 10% of natural ambient level which is the result obtained from the Reference Station.
Cell shaded yellow / red indicate value exceeding the Action/Limit levels.
Cell shaded grey indicate value exceeding the WQO.

Table C5 In-situ Monitoring Results for Routine Water Quality Monitoring of CMP 2 in August 2015

Sampling Period	Stations	Temp (°C)	Salinity (ppt)	Turbidity (NTU)	Dissolved Oxygen (%)	Dissolved Oxygen (mg L^{-1})	pH (mg L^{-1})
August 2015	RFF (Reference)	25.84	28.48	8.61	73.24	5.07	7.86
	IPF (Impact)	28.45	22.34	6.94	126.16	8.65	8.15
	INF (Intermediate)	28.04	23.63	7.26	98.18	6.73	8.00
	Ma Wan	27.36	24.33	5.48	105.49	7.29	7.95
	Sham Shui Kok	27.56	23.76	14.27	103.84	7.17	8.01
	Tai Mo To	27.12	24.99	9.15	83.89	5.80	7.87
	Tai Ho Bay 1	28.17	22.39	4.61	115.32	7.95	7.98
	Tai Ho Bay 2	28.48	21.71	6.47	122.82	8.45	8.06
	WQO	N/A	25.63 – 31.33#	N/A	N/A	>4	6.5-8.5

Notes:
Not exceeding 2°C of change of the results from the Reference Station.
#Not exceeding 10% of natural ambient level which is the result obtained from the Reference Station.
Cell shaded yellow / red indicate value exceeding the Action/Limit levels.
Cell shaded grey indicate value exceeding the WQO.

Table C6 Laboratory Results for Routine Water Quality Monitoring of CMP 2 in August 2015

Sampling Period	Stations	As (μg/L)	Cd (μg/L)	Cr (μg/L)	Cu (μg/L)	Pb (μg/L)	Hg (μg/L)	Ni (μg/L)	Ag (μg/L)	Zn (μg/L)	NH_3 (mg/L)	TIN (mg/L)	BOD_5 (mg/L)	SS (mg/L)
August 2015	RFF	2.47	<LOR	<LOR	8.23	1.70	<LOR	<LOR	<LOR	32.24	0.11	0.50	2.42	13.20
	IPF	2.18	<LOR	<LOR	1.71	0.53	<LOR	1.05	<LOR	17.20	0.06	0.66	2.36	3.75
	INF	2.59	<LOR	<LOR	1.84	0.73	<LOR	1.09	<LOR	19.15	0.08	0.64	2.25	5.40
	Ma Wan	2.28	<LOR	<LOR	7.50	0.75	<LOR	2.03	<LOR	47.64	0.09	0.65	2.35	5.00
	Shum Shui Kok	2.02	<LOR	<LOR	1.14	0.80	<LOR	<LOR	<LOR	5.57	0.06	0.77	3.79	6.61
	Tai Mo To	1.95	<LOR	<LOR	9.26	1.31	<LOR	<LOR	<LOR	16.34	0.10	0.69	2.78	4.58
	Tai Ho Bay 1	2.35	<LOR	<LOR	1.48	0.50	<LOR	<LOR	<LOR	88.01	0.08	0.73	4.36	4.36
	Tai Ho Bay 2	2.20	<LOR	<LOR	0.73	0.50	<LOR	<LOR	<LOR	9.47	0.07	0.65	2.61	2.61

WQO of TIN: 0.5 mg/L
Wet Season WQO of SS : 11.6 mg/L

Note: Cell shaded yellow / red indicate value exceeding the Action/Limit levels.
Cell shaded grey indicate value exceeding the WQO.

Table C7 Water Column Profiling Results for SB CMP 2 in August 2015

Stations	Temp (°C)	Salinity (ppt)	Turbidity (NTU)	Dissolved Oxygen (%)	Dissolved Oxygen (mg L^{-1})	pH (mg L^{-1})	Suspended Solids (mg L^{-1})
WCP 1 (Downstream)	29.13	19.89	9.47	160.49	11.03	8.34	10.08
WCP 2 (Upstream)	28.93	18.80	4.52	145.36	10.09	8.29	10.70
WQO (wet season)	N/A	17.41-20.68#	N/A	N/A	>4	6.5-8.5	11.6

Note: # Not exceeding 2°C of change of the results from the Reference Station.
#Not exceeding 10% of natural ambient level which is the result obtained from the Reference Station.
Cell shaded grey indicate value exceeding the WQO.