



ANNEX J

SOFT SHORE ECOLOGY



ANNEX J1

MONITORING SCHEDULE

Tung Chung New Town Extension (East)
Post-Construction Soft Shore Ecological Monitoring Schedule (March 2025)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Mar
2-Mar	3-Mar	4-Mar	5-Mar	6-Mar	7-Mar	8-Mar
	Soft Shore Monitoring at Tung Chung Bay					
9-Mar	10-Mar	11-Mar	12-Mar	13-Mar	14-Mar	15-Mar
16-Mar	17-Mar	18-Mar	19-Mar	20-Mar	21-Mar	22-Mar
	Soft Shore Monitoring at Tung Chung Bay	Soft Shore Monitoring at Tung Chung Bay				
23-Mar	24-Mar	25-Mar	26-Mar	27-Mar	28-Mar	29-Mar
					Soft Shore Monitoring at Tai Ho Bay	
30-Mar	31-Mar					



ANNEX J2

MONITORING RESULTS

Table J2.1 Results for Horseshoe Crabs during Qualitative Walk-through Surveys in March 2025

Sighting #	Species	Prosomal Width (cm)	Total Length (cm)
Monitoring Date: 3 March 2025			
Monitoring Station: TCB1			
1	<i>Tachypleus tridentatus</i>	3.7	7.0
2	<i>Tachypleus tridentatus</i>	2.9	4.8
3	<i>Tachypleus tridentatus</i>	2.4	4.1
4	<i>Tachypleus tridentatus</i>	3.0	5.8
5	<i>Tachypleus tridentatus</i>	2.9	5.1
Mean (Range)		3.0 (2.4 – 3.7)	5.4 (4.1 – 7.0)
Monitoring Date: 28 March 2025			
Monitoring Station: THW			
1	<i>Tachypleus tridentatus</i>	2.5	4.6
2	<i>Tachypleus tridentatus</i>	2.0	4.0
3	<i>Tachypleus tridentatus</i>	3.1	6.3
4	<i>Tachypleus tridentatus</i>	2.0	3.9
5	<i>Tachypleus tridentatus</i>	2.5	4.7
6	<i>Tachypleus tridentatus</i>	1.6	3.4
7	<i>Tachypleus tridentatus</i>	2.7	5.1
8	<i>Tachypleus tridentatus</i>	1.1	2.2
9	Unidentified ^(a)	0.6	1.0
10	<i>Tachypleus tridentatus</i>	1.0	2.0
11	Unidentified ^(a)	0.6	0.9
12	Unidentified ^(a)	0.5	0.5
13	Unidentified ^(a)	0.5	0.6
Mean (Range)		1.6 (0.5 – 3.1)	3.0 (0.5 – 6.3)

Note:

- a) Four (4) horseshoe crab individuals at THW were recorded with prosomal width of 0.5-0.6 cm and total length of 0.5-1.0cm. These individuals were considered to be too small for species identification by the naked eye and were recorded as unidentified species.

Table J2.2 *Results for Other Intertidal Soft Shore Communities during Qualitative Walk-through Surveys in March 2025*

Monitoring Station	Shore Height *	No. of Species
TCB1	H	23
	M	22
	L	21
	Overall	37
TCB2	H	23
	M	17
	L	14
	Overall	29
TCB3	H	21
	M	19
	L	23
	Overall	34
THW	H	22
	M	20
	L	14
	Overall	32

* H: +2mCD; M: +1.5mCD; L: +1mCD

Table J2.3 Results for Other Intertidal Soft Shore Communities during Quantitative Transect Surveys in March 2025

Monitoring Station	Shore Height *	Top Three Dominant Species	Density (ind. / m ²)
TCB1	H	1 <i>Cerithidea diadjariensis</i>	303.2
		2 <i>Cerithidea cingulata</i>	123.2
		3 <i>Batillaria multiformis</i>	120.0
	M	1 <i>Batillaria multiformis</i>	248.8
		2 <i>Batillaria zonalis</i>	68.8
		3 <i>Cerithidea diadjariensis</i>	66.4
	L	1 <i>Batillaria zonalis</i>	16.8
		2 <i>Anomalocardia squamosa</i>	6.4
		3 <i>Batillaria multiformis</i> and <i>Lunella coronata</i>	2.4
TCB2	H	1 <i>Cerithidea diadjariensis</i>	40.8
		2 <i>Cerithidea cingulata</i>	5.6
		3 <i>Monodonta labio</i>	2.4
	M	1 <i>Cerithidea diadjariensis</i>	47.2
		2 <i>Cerithidea cingulata</i>	12.8
		3 <i>Batillaria multiformis</i>	1.6
	L	1 <i>Cerithidea diadjariensis</i>	163.2
		2 <i>Cerithidea cingulata</i>	32.8
		3 <i>Batillaria zonalis</i>	9.6
TCB3	H	1 <i>Batillaria multiformis</i>	780.0
		2 <i>Batillaria zonalis</i>	742.4
		3 <i>Nassarius festivus</i>	250.4
	M	1 <i>Batillaria multiformis</i>	553.6
		2 <i>Batillaria zonalis</i>	334.4
		3 <i>Cerithidea diadjariensis</i>	115.2
	L	1 <i>Cerithidea diadjariensis</i>	224.8
		2 <i>Batillaria multiformis</i>	76.0
		3 <i>Batillaria zonalis</i>	66.4
THW	H	1 <i>Cerithidea diadjariensis</i>	137.6
		2 <i>Geloina erosa</i>	34.4
		3 <i>Terebralia sulcata</i>	19.2
	M	1 <i>Cerithidea diadjariensis</i>	260.0
		2 <i>Nassarius festivus</i>	172.8
		3 <i>Batillaria zonalis</i>	34.4
	L	1 <i>Cerithidea cingulata</i>	367.2
		2 <i>Nassarius festivus</i>	260.0
		3 <i>Batillaria zonalis</i>	216.0

* H: +2mCD; M: +1.5mCD; L: +1mCD

Group	Species	TCB1			TCB2			TCB3			THW		
		H (Qual)	M (Qual)	L (Qual)	H (Qual)	M (Qual)	L (Qual)	H (Qual)	M (Qual)	L (Qual)	H (Qual)	M (Qual)	L (Qual)
Algae	<i>Ulva sp.</i>	++			+			++	+				
Algae	<i>Gelidium sp.</i>	+	+	+		+	+		+	+			
Barnacle	<i>Balanus amphitrite</i>	+	+	+			+	+	+	+		++	+
Bivalve	<i>Anomalocardia squamosa</i>		++							+			
Bivalve	<i>Barbatia virescens</i>			+						+			
Bivalve	<i>Coecella chinensis</i>		+							+			+
Bivalve	<i>Cyclina sinensis</i>	+						++		+			
Bivalve	<i>Geloina erosa</i>	+			+			+			+++	++	
Bivalve	<i>Laternula anatina</i>											+	+
Bivalve	<i>Saccostrea cucullata</i>	+	+	+++	+	+++	++	+	++	+++	+	++	+++
Bivalve	<i>Septifer virgatus</i>	+	+	++	+	+	+	+	+	+		+	
Bivalve	<i>Ruditapes philippinarum</i>			+									
Crab	<i>Macrophthalmus sp.</i>	+	+			+	+						
Crab	<i>Metapograpus frontalis</i>		+		+								
Crab	<i>Metapograpus quadridemtatus</i>	+	++	+	+	+					+		
Crab	<i>Parasesarma pictum</i>										+	+	
Crab	<i>Perisesarma bidens</i>										+		
Crab	<i>Philyra pisum</i>		+										
Crab	<i>Uca arcuata</i>										+	+	
Crab	<i>Uca lactea</i>										+	+++	
Fish	<i>Periophthalmus modestus</i>			+	+						+		
Gastropod	<i>Batillaria multiformis</i>	+++	+++	+	+	+	+	+++	+++	+++	+	+	+
Gastropod	<i>Batillaria zonalis</i>	++	++	++	+	+	+	+++	+++	+++	+	++	+++
Gastropod	<i>Cellana grata</i>				+				+				
Gastropod	<i>Cellana toreuma</i>				+				+				
Gastropod	<i>Cerithidea cingulata</i>	+++	++	+	+	+	++	++	++	++	++	++	+++
Gastropod	<i>Cerithidea diadjariensis</i>	+++	++	+	++	++	++	+++	+++	+++	+++	+++	+++
Gastropod	<i>Cerithidea rhizophorarum</i>	+									++	+	
Gastropod	<i>Clithon spp.</i>	+	+		+	+	+	+	+	+	+	+	+
Gastropod	<i>Echinolittorina vidua</i>								+				
Gastropod	<i>Littoraria ardouiniana</i>	+			+			+			+		
Gastropod	<i>Littoraria articulata</i>	++	+	+	++	++		+	+			+	
Gastropod	<i>Littoraria melanostoma</i>	+			+			+			+		
Gastropod	<i>Lunella coronata</i>	+	+	+		+	+		+	+			
Gastropod	<i>Monodonta labio</i>	+++	+++	++	+++	++		+	++	++			
Gastropod	<i>Nassarius festivus</i>	+		+				+++	++		+	+++	+++
Gastropod	<i>Nerita albicilla</i>		+		+	++	+	+	+	+		+	+
Gastropod	<i>Nerita chamaeleon</i>						+	+		+		+	
Gastropod	<i>Nerita polita</i>	+	+		++	+	+	+	+	+			+
Gastropod	<i>Patelloida pygmaea</i>		+		+					+			
Gastropod	<i>Terebralia palustris</i>										+	+	
Gastropod	<i>Terebralia sulcata</i>				+			+			+++	+	
Gastropod	<i>Thais clavigera</i>	+	+							+			+
Hermit Crab	<i>Clibanarius sp.</i>			++	+	+		+			+		
Hermit Crab	<i>Diogenes sp.</i>			++		+				+			+
Horseshoe Crab	<i>Tachypleus tridentatus</i>	+	+								+	+	
Horseshoe Crab	Unidentified sp.										+		
Seagrass	<i>Halophila ovalis</i>							+					
Seaslug	<i>Onchidium sp.</i>										+		
Worm	<i>Oligochaete sp.</i>			+									
Worm	<i>Sipunculus sp.</i>			+							+		
Worm	Ribbon Worm sp.		+							+	+		

Remark: '+' denotes the species was relatively uncommon at the area;
 '++' denotes the species was relatively common at the area;
 '+++' denotes the species was relatively abundant at the area.

Group	Species	TCB1																	
		H1	H2	H3	H4	H5	Density (ind. / m ² or % cover)	M1	M2	M3	M4	M5	Density (ind. / m ² or % cover)	L1	L2	L3	L4	L5	Density (ind. / m ² or % cover)
Algae	<i>Ulva sp.</i>	5%	10%	5%		25%	9%						0%						0%
Algae	<i>Gelidium sp.</i>					<5%	<5%			<5%	<5%	<5%	<5%		<5%	5%			1%
Bivalve	<i>Anomalocardia squamosa</i>						0						0		2	2	1	3	6.4
Bivalve	<i>Barbatia virescens</i>						0						0						0
Bivalve	<i>Coecella chinensis</i>						0					1	0.8						0
Bivalve	<i>Cyclina sinensis</i>	3					2.4						0						0
Bivalve	<i>Geloina erosa</i>	1					0.8						0						0
Bivalve	<i>Laternula anatina</i>						0						0						0
Bivalve	<i>Saccostrea cucullata</i>		<5%		5%	<5%	1%			5%	<5%	5%	2%	<5%	10%	20%		<5%	6%
Bivalve	<i>Septifer virgatus</i>						0%					<5%	<5%						0%
Bivalve	<i>Ruditapes philippinarum</i>						0						0				1		0.8
Crab	<i>Macrophthalmus sp.</i>					1	0.8	1					0.8						0
Crab	<i>Metapograpus quadridemtatus</i>						0		1				0.8						0
Crab	<i>Parasesarma pictum</i>						0						0						0
Crab	<i>Philyra pisum</i>						0					1	0.8						0
Gastropod	<i>Batillaria multiformis</i>	39	22		41	48	120.0	4	2	108	12	185	248.8	3					2.4
Gastropod	<i>Batillaria zonalis</i>	16	3		8	5	25.6	27	3	15	20	21	68.8	18	3				16.8
Gastropod	<i>Cerithidea cingulata</i>	126		4	15	9	123.2	2	10		22	14	38.4						0
Gastropod	<i>Cerithidea diadjariensis</i>	154	49	11	133	32	303.2	8	20	4	34	17	66.4						0
Gastropod	<i>Clithon spp.</i>			2			1.6			2			1.6						0
Gastropod	<i>Littoraria articulata</i>						0						0						0
Gastropod	<i>Lunella coronata</i>						0			1		1	1.6	1	2				2.4
Gastropod	<i>Monodonta labio</i>				3	2	4.0			26		16	33.6			2			1.6
Gastropod	<i>Nassarius festivus</i>		2	3			4.0				2		1.6			2			1.6
Gastropod	<i>Nerita albicilla</i>						0						0						0
Gastropod	<i>Nerita chamaeleon</i>						0						0						0
Gastropod	<i>Nerita polita</i>						0						0						0
Gastropod	<i>Patelloida pygmaea</i>						0						0						0
Gastropod	<i>Terebralia sulcata</i>						0						0						0
Gastropod	<i>Thais clavigera</i>			2			1.6				1		0.8						0
Hermit Crab	<i>Clibanarius sp.</i>						0						0					1	0.8
Hermit Crab	<i>Diogenes sp.</i>						0						0			1			0.8
Seaslug	<i>Onchidium sp.</i>						0						0						0
Worm	<i>Oligochaete sp.</i>						0						0	1	1				1.6
Worm	<i>Sipunculus sp.</i>						0						0		2				1.6
Worm	Ribbon Worm sp.						0			2			1.6						0

Group	Species	TCB2																	
		H1	H2	H3	H4	H5	Density (ind. / m ² or % cover)	M1	M2	M3	M4	M5	Density (ind. / m ² or % cover)	L1	L2	L3	L4	L5	Density (ind. / m ² or % cover)
Algae	<i>Ulva sp.</i>						0%						0%						0%
Algae	<i>Gelidium sp.</i>						0%						0%						0%
Bivalve	<i>Anomalocardia squamosa</i>						0						0						0
Bivalve	<i>Barbatia virescens</i>						0						0						0
Bivalve	<i>Coecella chinensis</i>						0						0						0
Bivalve	<i>Cyclina sinensis</i>						0						0						0
Bivalve	<i>Geloina erosa</i>				1		0.8						0						0
Bivalve	<i>Laternula anatina</i>						0						0						0
Bivalve	<i>Saccostrea cucullata</i>						0%		5%				1%	5%	15%			<5%	4%
Bivalve	<i>Septifer virgatus</i>						0%						0%						0%
Bivalve	<i>Ruditapes philippinarum</i>						0						0						0
Crab	<i>Macrophthalmus sp.</i>						0					1	0.8	1	1				1.6
Crab	<i>Metapograpus quadridemtatus</i>						0						0						0
Crab	<i>Parasesarma pictum</i>						0						0						0
Crab	<i>Philyra pisum</i>						0						0						0
Gastropod	<i>Batillaria multiformis</i>						0	2					1.6						0
Gastropod	<i>Batillaria zonalis</i>	2					1.6						0	2	8		2		9.6
Gastropod	<i>Cerithidea cingulata</i>	3	2	2			5.6	10			6		12.8	6	32	3			32.8
Gastropod	<i>Cerithidea diadjariensis</i>	14	3	27	1	6	40.8	52	6		1		47.2	78	89	34	3		163.2
Gastropod	<i>Clithon spp.</i>						0						0	2					1.6
Gastropod	<i>Littoraria articulata</i>						0						0						0
Gastropod	<i>Lunella coronata</i>						0						0						0
Gastropod	<i>Monodonta labio</i>					3	2.4						0						0
Gastropod	<i>Nassarius festivus</i>						0						0						0
Gastropod	<i>Nerita albicilla</i>						0		1				0.8	1					0.8
Gastropod	<i>Nerita chamaeleon</i>						0						0	1					0.8
Gastropod	<i>Nerita polita</i>						0		1				0.8	1					0.8
Gastropod	<i>Patelloida pygmaea</i>						0						0						0
Gastropod	<i>Terebralia sulcata</i>						0						0						0
Gastropod	<i>Thais clavigera</i>						0						0						0
Hermit Crab	<i>Clibanarius sp.</i>						0		1				0.8						0
Hermit Crab	<i>Diogenes sp.</i>						0						0						0
Seaslug	<i>Onchidium sp.</i>						0						0						0
Worm	<i>Oligochaete sp.</i>						0						0						0
Worm	<i>Sipunculus sp.</i>						0						0						0
Worm	Ribbon Worm sp.						0						0						0

Group	Species	TCB3																	
		H1	H2	H3	H4	H5	Density (ind. / m ² or % cover)	M1	M2	M3	M4	M5	Density (ind. / m ² or % cover)	L1	L2	L3	L4	L5	Density (ind. / m ² or % cover)
Algae	<i>Ulva sp.</i>	5%		10%	10%	<5%	5%						0%						0%
Algae	<i>Gelidium sp.</i>						0%	<5%				<5%	<5%	5%	10%	<5%		5%	4%
Bivalve	<i>Anomalocardia squamosa</i>						0						0					1	0.8
Bivalve	<i>Barbatia virescens</i>						0						0					4	3.2
Bivalve	<i>Coecella chinensis</i>						0						0	2					1.6
Bivalve	<i>Cyclina sinensis</i>	1		1	3		4.0						0			1			0.8
Bivalve	<i>Geloina erosa</i>	1			1		1.6						0						0
Bivalve	<i>Laternula anatina</i>						0						0						0
Bivalve	<i>Saccostrea cucullata</i>			<5%			<5%	10%	5%	5%	10%	<5%	6%	20%	20%	5%	5%	20%	14%
Bivalve	<i>Septifer virgatus</i>						0%					<5%	<5%	<5%					<5%
Bivalve	<i>Ruditapes philippinarum</i>						0						0						0
Crab	<i>Macrophthalmus sp.</i>						0						0						0
Crab	<i>Metapograpus quadridemtatus</i>						0						0						0
Crab	<i>Parasesarma pictum</i>						0						0						0
Crab	<i>Philyra pisum</i>						0						0						0
Gastropod	<i>Batillaria multiformis</i>	359	290	91	18	217	780.0	82	64	302	172	72	553.6	52	13	4		26	76.0
Gastropod	<i>Batillaria zonalis</i>	218	186	154	50	320	742.4	68	68	110	79	93	334.4	27	12	14	12	18	66.4
Gastropod	<i>Cerithidea cingulata</i>	52		15		12	63.2	31	8	7	8	2	44.8	38	4	11	2	13	54.4
Gastropod	<i>Cerithidea diadjariensis</i>	70	60	54	5	71	208	24	20	16	78	6	115.2	81	36	86	28	50	224.8
Gastropod	<i>Clithon spp.</i>				1		0.8	4					3.2						0
Gastropod	<i>Littoraria articulata</i>						0	6	1			2	7.2						0
Gastropod	<i>Lunella coronata</i>						0				1		0.8	1	1				1.6
Gastropod	<i>Monodonta labio</i>						0	8	2	10	2		17.6	19	2				16.8
Gastropod	<i>Nassarius festivus</i>	86	174	36	11	6	250.4	25	2	36	10	4	61.6						0
Gastropod	<i>Nerita albicilla</i>						0					1	0.8	2					1.6
Gastropod	<i>Nerita chamaeleon</i>						0						0	1					0.8
Gastropod	<i>Nerita polita</i>						0						0					1	0.8
Gastropod	<i>Patelloida pygmaea</i>						0						0			1			0.8
Gastropod	<i>Terebralia sulcata</i>						0						0						0
Gastropod	<i>Thais clavigera</i>						0						0	1					0.8
Hermit Crab	<i>Clibanarius sp.</i>			1			0.8						0						0
Hermit Crab	<i>Diogenes sp.</i>						0						0	1					0.8
Seaslug	<i>Onchidium sp.</i>						0						0						0
Worm	<i>Oligochaete sp.</i>						0						0						0
Worm	<i>Sipunculus sp.</i>						0						0	3	3		1		5.6
Worm	Ribbon Worm sp.						0						0	1					0.8

Group	Species	THW																	
		H1	H2	H3	H4	H5	Density (ind. / m ² or % cover)	M1	M2	M3	M4	M5	Density (ind. / m ² or % cover)	L1	L2	L3	L4	L5	Density (ind. / m ² or % cover)
Algae	<i>Ulva sp.</i>						0%						0%						0%
Algae	<i>Gelidium sp.</i>						0%						0%						0%
Bivalve	<i>Anomalocardia squamosa</i>						0						0						0
Bivalve	<i>Barbatia virescens</i>						0						0						0
Bivalve	<i>Coecella chinensis</i>						0						0	1					0.8
Bivalve	<i>Cyclina sinensis</i>						0						0						0
Bivalve	<i>Geloina erosa</i>	9	10	10	4	10	34.4	9	5	5		5	19.2						0
Bivalve	<i>Laternula anatina</i>						0		1				0.2	2					0.4
Bivalve	<i>Saccostrea cucullata</i>						0%		5%	5%	15%	10%	7%			5%	10%		3%
Bivalve	<i>Septifer virgatus</i>						0%						0%						0%
Bivalve	<i>Ruditapes philippinarum</i>						0						0						0
Crab	<i>Macrophthalmus sp.</i>						0						0						0
Crab	<i>Metapograpus quadridemtatus</i>						0						0						0
Crab	<i>Parasesarma pictum</i>		1				0.8					1	0.8						0
Crab	<i>Philyra pisum</i>						0						0						0
Gastropod	<i>Batillaria multiformis</i>						0						0						0
Gastropod	<i>Batillaria zonalis</i>						0		4	11	10	18	34.4	41	42	38	46	103	216.0
Gastropod	<i>Cerithidea cingulata</i>		5	4			7.2		5		4	9	14.4	2	278	49	15	115	367.2
Gastropod	<i>Cerithidea diadjariensis</i>	44	64	51	9	4	137.6	53	23	24	101	124	260.0	8	60	72	51	48	191.2
Gastropod	<i>Clithon spp.</i>						0						0				2		1.6
Gastropod	<i>Littoraria articulata</i>						0						0						0
Gastropod	<i>Lunella coronata</i>						0						0						0
Gastropod	<i>Monodonta labio</i>						0						0						0
Gastropod	<i>Nassarius festivus</i>			1			0.8		2	28	112	74	172.8	30	66	8	114	107	260.0
Gastropod	<i>Nerita albicilla</i>						0						0						0
Gastropod	<i>Nerita chamaeleon</i>						0						0						0
Gastropod	<i>Nerita polita</i>						0						0						0
Gastropod	<i>Patelloida pygmaea</i>						0						0						0
Gastropod	<i>Terebralia sulcata</i>	5	4	3	3	9	19.2						0						0
Gastropod	<i>Thais clavigera</i>						0						0				2		1.6
Hermit Crab	<i>Clibanarius sp.</i>					1	0.8						0						0
Hermit Crab	<i>Diogenes sp.</i>						0						0					1	0.8
Seaslug	<i>Onchidium sp.</i>				1		0.8						0						0
Worm	<i>Oligochaete sp.</i>						0						0						0
Worm	<i>Sipunculus sp.</i>						0						0						0
Worm	Ribbon Worm sp.					1	0.8						0						0



ANNEX J3 EVENT AND ACTION PLAN

Annex J3 **Event and Action Plan for Soft Shore Ecological Monitoring**

Event	Action			
	ET	IEC	ER	Contractor
Density or the distribution pattern of horseshoe crab, seagrass and intertidal soft shore communities recorded in the impact or post-construction monitoring are significantly lower than or different from those recorded in the baseline monitoring.	1. Review historical data to ensure differences are as a result of natural variation or previously observed seasonal differences; 2. Identify source(s) of impact; 3. Inform the IEC, ER and Contractor; 4. Check monitoring data; 5. Discuss additional monitoring and any other measures, with the IEC, ER and Contractor.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review proposals for additional monitoring and any other measures submitted by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Discuss with the IEC additional monitoring requirements and any other measures proposed by the ET; 2. Make agreement on the measures to be implemented.	1. Inform the ER and in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the ER; 3. Implement the agreed measures; 4. Resubmit proposals of remedial actions if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.