APPENDIX IV

UNDER-KEEL CLEARANCE

To promote safety and efficiency of navigation and environmental protection, the Marine Communications and Traffic Services Officer (MCTSO) has the power to issue, in some cases, directions to a vessel under section 126 of the 2001 Canada Shipping Act. In exercising its powers, the MCTSO will consider the under-keel clearance for the vessels transiting the areas shown below. The MCTSO will determine the required under-keel clearance of the vessel according to the parameters given in the tables below:

	Vessel's speed not exceeding (Knots)							
Vessel beam not exceeding (metres)	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
	St Lawrence River, below Québec (Traverse du Nord) Required under-keel clearance (metres; this includes the estimated squat and the manoeuvrability/safety margin)							
31 m	0·86	0·95	1·06	1·17	1·38	1·60	1·84	2·09
34 m	0·87	0·97	1·08	1·20	1·41	1·64	1·89	2·15
37 m	0·89	0·98	1·10	1·22	1·44	1·68	1·93	2·20
40 m	0·90	1·00	1·11	1·25	1·47	1·72	1·97	2·25
43 m	0·91	1·01	1·13	1·27	1·50	1·75	2·01	2·29
46 m	0·92	1·03	1·15	1·29	1·53	1·78	2·05	2·34
49 m	0·93	1·04	1·17	1·32	1·56	1·81	2·09	2·38
52 m	0·94	1·05	1·18	1·34	1·58	1·85	2·13	2·42
	Estimated squat (metres)							
31 m	0·25	0·34	0·45	0·56	0·70	0·84	1·00	1·18
34 m	0·27	0·36	0·47	0·59	0·73	0·88	1·05	1·23
37 m	0·28	0·37	0·49	0·62	0·76	0·92	1·09	1·28
40 m	0·29	0·39	0·51	0·64	0·79	0·95	1·14	1·33
43 m	0·30	0·40	0·52	0·66	0·82	0·99	1·18	1·38
46 m	0·31	0·42	0·54	0·68	0·84	1·02	1·21	1·42
49 m	0·32	0·43	0·56	0·71	0·87	1·05	1·25	1·47
52 m	0·33	0·44	0·57	0·73	0·90	1·08	1·29	1·51
	Manoeuvrability/safety margin (metres)							
	0·61	0·61	0·61	0·61	0·69	0·76	0·84	0·91
	St Lawrence River, Québec City to Montréal Required under-keel clearance (metres; this includes the estimated squat and the manoeuvrability/safety margin)							
24 m	0·84	0·96	1·07	1·19	1·40	1·63	1·87	2·12
26 m	0·88	0·98	1·09	1·22	1·43	1·66	1·91	2·17
28 m	0·89	0·99	1·11	1·24	1·46	1·70	1·95	2·21
31 m	0·91	1·01	1·13	1·27	1·50	1·74	2·00	2·28
34 m	0·92	1·03	1·16	1·30	1·54	1·79	2·06	2·34
37 m	0·94	1·05	1·18	1·33	1·57	1·83	2·11	2·40
40 m	0·95	1·07	1·20	1·36	1·61	1·87	2·15	2·45
44 m	1·08	1·20	1·35	1·50	1·76	2·01	2·30	2·59
	Estimated squat (metres)							
24 m	0·26	0·35	0·46	0·59	0·71	0·87	1·03	1·21
26 m	0·27	0·37	0·48	0·61	0·74	0·89	1·07	1·26
28 m	0·28	0·38	0·50	0·63	0·77	0·93	1·11	1·30
31 m	0·30	0·40	0·52	0·66	0·81	0·98	1·16	1·36
34 m	0·31	0·42	0·55	0·69	0·85	1·03	1·22	1·42
37 m	0·33	0·44	0·57	0·72	0·89	1·07	1·27	1·48
40 m	0·34	0·46	0·59	0·75	0·92	1·11	1·31	1·54
44 m	0·47	0·59	0·74	0·89	1·07	1·25	1·46	1·68
	Manoeuvrability/safety margin (metres)							
	0·61*	0·61	0·61	0·61	0·69	0·76	0·84	0·91

** An exception to the margin of safety / manoeuvrability is allowed for a ship with a width not exceeding 24 m at a speed of 6 to 7 knots. Only in this case, a margin of 0·58 m is accepted instead of 0·61 m*

The above parameters are presented on the basis that the vessel's Master or Officer-in-charge has given consideration to other specific elements which may have an impact on under-keel clearance, some of which are: the accurate determination of water level (including tides) during vessel's transit; the vessel's speed; the wind and waves effects and the vessel's response to it; the estimation of the vessel's draught (changes in ballast); and any additional squat effects due to passing within close proximity to the bank of the channel or when overtaking another vessel. The vessel's Master or Officer-in-charge has the ultimate responsibility for the vessel's safety at all times.