

ANNEX - 3

PIANC GUIDELINES - Vertical Requirements

DEPTH 13 m
 SPEED 10 knots
 Draught 12 m
 Bottom Type Soft/Sand

OUTER CHANNEL (AHSAN CHANNEL)

Hs (m)	Squat (m)	Swell (m)	Heel (List 1%)	Channel Bottom (m)	Depth (m)	UKC (m)	Water Level (m)
0.4	1.4	0.4	0.44	0.5	14.7	2.7	1.7
0.8	1.4	0.7	0.44	0.5	15.0	3.0	2.0
1.2	1.4	1.2	0.44	0.5	15.6	3.6	2.6
1.6	1.4	1.7	0.44	0.5	16.1	4.1	3.1
2.0	1.4	2.2	0.44	0.5	16.5	4.5	3.5
2.4	1.4	2.6	0.44	0.5	17.0	5.0	4.0
2.8	1.4	3.1	0.44	0.5	17.5	5.5	4.5
3.0	1.4	3.4	0.44	0.5	17.7	5.7	4.7

INNER CHANNEL	
Vw (kt)	10
Squat Factor	1.1
Squat + Depth (m)	13.4
Heel (m)	0.4
Channel Bottom (m)	0.4
Depth	14.3
Water Level	1.3

DEPTH 13 m
 SPEED 10 knots
 Draught 11.5 m
 Bottom Type Soft/Sand

OUTER CHANNEL (AHSAN CHANNEL)

Hs (m)	Squat (m)	Swell (m)	Heel (List 1%)	Channel Bottom (m)	Depth (m)	UKC (m)	Water Level (m)
0.4	1.4	0.3	0.44	0.5	14.2	2.7	1.2
0.8	1.4	0.6	0.44	0.5	14.4	2.9	1.4
1.2	1.4	1.2	0.44	0.5	15.0	3.5	2.0
1.6	1.4	1.6	0.44	0.5	15.4	3.9	2.4
2.0	1.4	2.1	0.44	0.5	15.9	4.4	2.9
2.4	1.4	2.5	0.44	0.5	16.3	4.8	3.3
2.8	1.4	3.0	0.44	0.5	16.8	5.3	3.8
3.0	1.4	3.2	0.44	0.5	17.0	5.5	4.0

INNER CHANNEL	
Vw (kt)	10
Squat Factor	1.1
Squat + Depth (m)	12.7
Heel (m)	0.4
Channel Bottom (m)	0.4
Depth	13.5
Water Level	0.5

DEPTH 13 m
 SPEED 10 knots
 Draught 10.8 m
 Bottom Type Soft/Sand

OUTER CHANNEL (AHSAN CHANNEL)

Hs (m)	Squat (m)	Swell (m)	Heel (List 1%)	Channel Bottom (m)	Depth (m)	UKC (m)	Water Level (m)
0.4	1.3	0.3	0.44	0.5	13.4	2.6	0.4
0.8	1.3	0.6	0.44	0.5	13.6	2.8	0.6
1.2	1.3	1.1	0.44	0.5	14.1	3.3	1.1
1.6	1.3	1.5	0.44	0.5	14.5	3.7	1.5
2.0	1.3	1.9	0.44	0.5	15.0	4.2	2.0
2.4	1.3	2.4	0.44	0.5	15.4	4.6	2.4
2.8	1.3	2.8	0.44	0.5	15.8	5.0	2.8
3.0	1.3	3.0	0.44	0.5	16.1	5.3	3.1

INNER CHANNEL	
Vw (kt)	10
Squat Factor	1.1
Squat + Depth (m)	12.1
Heel (m)	0.4
Channel Bottom (m)	0.4
Depth	12.9
Water Level	-0.1

Wave Exceedance				
Hs (m)	Monsoon (15May - 15Sep)			
	March -15 May	15 Sep-Nov	Dec-Feb	
0.4	95.00%	77.90%	49.70%	
0.8	50.80%	26.70%	9.10%	
1.2	13.70%	4.60%	1.70%	
1.6	2.20%	0.40%	0.40%	
2	0.10%	0.00%	0.00%	
2.4	0.00%	0.00%	0.00%	
2.8	0.00%	0.00%	0.00%	