

**7.0 Revised Project Description**  
**Panel Information Requests**

**IR-21**

*On page 145 the following information request is addressed: "The proponent should identify whether these areas [sediment stockpiles] are expected to contain water. If so, mitigative measures should be identified to ensure they do not fail or overflow during periods of unusually heavy precipitation." The Proponent is requested to clarify the issue of drainage from sediment disposal areas and to explain all of the planned measures that have been developed to ensure the integrity of the dykes and berms.*

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**RESPONSE**

Please refer to the response to IR1 and the details of the design procedures to be undertaken in Section 7.0 Revised Project Description and in Section 12 – Reference Document - Conestoga Rovers & Associates – Surface Water Information Summary, February 2007

**IR-22**

*While the Panel accepts the Proponent's suggestion that the engineering design of the marine terminal will come later, it does require additional clarification on the specifications that will be set for the structure. Identify the extremes of wind, waves, tides, and storm surges that the terminal will be required to accommodate.*

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**RESPONSE**

While as noted in earlier submissions detailed engineering design of the marine terminal has not been carried out, the Panel is correct in assuming that Bilcon has reviewed data identifying various extremes in the Bay of Fundy that the terminal will be required to accommodate. It should be noted, however, that extremes identified are for locations at some distance from Whites Cove. Further studies will be required to extrapolate this data to set the parameters for extremes at the Whites Point location. Examples of wind, waves, tides, and storm surges identified as set out below.

***Wind and Waves***

Data regarding wind and wave frequency in the Bay of Fundy was abstracted from the AES40 database from Environment Canada/Atlantic Region (*pers. comm.* Rick Fleetwood, Regional Climatologist). The data is from AE Gpt 5314, Lat. 44.375n, Long. 66.6667w, Depth 1000m. The period of coverage is 1954 to 2003. The wind speed (m/s) and significant wave height (m) is presented in Table WWO – 1 and WWF – 1.

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**Table WWO – 1, Wind Speed (m/s) & Significant Wave Height (m) - Observations 1954-2003**

	Wind (m/s)	0.000	5.000	10.000	15.000	20.000	25.000	30.000	Total
Sig. Wave Ht. (m)									
0.000 – 0.9999		6157	24946	269	2	0	0	0	31374
1.000 – 1.9999		919	16274	10494	134	0	0	0	27821
2.000 – 2.9999		35	1220	5747	1610	15	0	0	8627
3.000 – 3.9999		0	121	1033	1508	103	0	0	2765
4.000 – 4.9999		0	11	158	456	159	3	0	787
5.000 – 5.9999		0	0	19	67	71	3	1	161
6.000 – 6.9999		0	0	5	12	12	4	0	33
7.000 – 7.9999		0	0	0	3	9	1	0	13
8.000 – 8.9999		0	0	0	1	4	1	0	6
9.000 – 9.9999		0	0	0	0	1	0	0	1
Total		7111	42572	17725	3793	374	12	1	71588

Source: Environment Canada/Atlantic Region

**Table WWF – 1, Wind Speed (m/s) & Significant Wave Height (m) - Frequency 1954-2003**

	Wind m/s	0.000	5.000	10.000	15.000	20.000	25.000	30.000	Total
Sig. Wave Ht. (m)									
0.000 – 0.9999		.0860	.3485	.0038	.0000	.0000	.0000	.0000	.4383
1.000 – 1.9999		.0128	.2273	.1466	.0019	.0000	.0000	.0000	.3886
2.000 – 2.9999		.0005	.0170	.0803	.0225	.0002	.0000	.0000	.1205
3.000 – 3.9999		.0000	.0017	.0144	.0211	.0014	.0000	.0000	.0386
4.000 – 4.9999		.0000	.0002	.0022	.0064	.0022	.0000	.0000	.0110
5.000 – 5.9999		.0000	.0000	.0003	.0009	.0010	.0000	.0000	.0022
6.000 – 6.9999		.0000	.0000	.0001	.0002	.0002	.0001	.0000	.0005
7.000 – 7.9999		.0000	.0000	.0000	.0000	.0001	.0000	.0000	.0002
8.000 – 8.9999		.0000	.0000	.0000	.0000	.0001	.0000	.0000	.0001
9.000 – 9.9999		.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
Total		.0993	.5947	.2476	.0530	.0052	.0002	.0000	1.000

Source: Environment Canada/Atlantic Region

**Tides**

Tides at Saint John are typically in the range of 6.7 metres to 8.5 metres above chart datum. However, the mathematical upper bound is 10.04 metres above chart datum.

**Storm Surges**

The average storm surge measured from all recording stations in the Bay of Fundy is 0.6 metres for a 1 in 20 year event and 1.2 metres for a 1 in 100 year event. A storm surge of over 2 metres was recorded in the 1869 Saxby Gale at the extreme head of the Bay of Fundy.

Clearly Bilcon will be engaging the necessary experts at the detailed design stage to refine the available data with respect to historic extremes and with respect to anticipated changes in these extremes due to predicted climate change.