

**Memorandum to USEPA**  
**Commonwealth of Massachusetts**  
**February 26, 2013**  
**Request for Increase of Channel Width**  
**New Bedford Marine Commerce Terminal (NBMCT)**

**Introduction**

The Commonwealth stipulated within its January 18, 2012 submission to EPA that a 175 foot wide channel would be sufficient to accommodate the design vessel anticipated by the Commonwealth at that time. However, the Commonwealth within its June 18, 2012 submission to EPA indicated that it may be possible that the width of the channel may need to be further expanded if a future vessel's dimensions varied significantly from that of the design vessel. As a result, the Commonwealth requested to add an additional 50 feet of width to the channel associated with the New Bedford Marine Commerce Terminal (NBMCT). The Commonwealth had proposed that the USEPA allow a 50-foot increase in width of the deep-draft portion of the channel for the New Bedford Marine Commerce Terminal (NBMCT) within its June 18, 2012 submission to EPA.

EPA indicated within its Final Determination (issued November 18, 2012) that it did not authorize the proposed expansion of the channel, but that it would consider new or additional information subsequent to its issuance of the Final Determination.

Additional research conducted by the Commonwealth indicates that the dimensions of future vessels may indeed vary from what the Commonwealth had initially anticipated (as further outlined below), which will require the additional 50 foot width in the channel for the NBMCT.

This memorandum outlines the rationale and analysis supporting expansion of the width of the channel and then outlines the Commonwealth's commitment to funding the expansion, should EPA approve the work. The Commonwealth requests for EPA approval of this modification prior to the commencement of project construction.

**Data Supporting Expansion of the Width of the Channel for the Facility**

The channel for the facility must be sufficiently wide to accommodate offshore renewable energy international vessels, in order to keep the utilization of the facility at its maximum.

The Commonwealth previously estimated the appropriate width of the channel to be 175 feet; however, that estimate was based upon the beam and draft of the design vessel, which was assumed to represent a wide class of international vessels that would be bringing components

to the new facility. The beam of the proposed design vessel (BBC Mississippi) is 23 meters (75.46 feet). The width of the channel was determined to be sufficient to accommodate the design vessel only because the design vessel at maximum draft (-23.6 MLLW) was significantly shallower in depth than the proposed full design depth of the channel (-30 MLLW), and could therefore take advantage of the effective width of the channel at that depth (which would include the extra width created by the 1 Vertical: 3 Horizontal side-slopes of the channel at shallower depths). A deeper draft vessel, however, could not take advantage of these side-

Vessel	Length**	Beam**	Max Draft (meters)**	Max Draft (feet)**
BBC Mississippi	143 meters	23 meters	7.2 meters	23.6 feet
BBC Quebec	138 meters	21 meters	8.5 meters	27.9 feet
BBC Oder	143 meters	22 meters	9.5 meters	31.2 feet
BBC Maine	138 meters	21 meters	7.8 meters	25.6 feet
Kaptan Ergun	148 meters	22 meters	8.0 meters	26.2 feet
Big Lift Tra-Type	100 meters	20.4 meters	8.2 meters	26.9 feet
Big Lift Happy R-Type	138 meters	22.9 meters	9.5 meters	31.2 feet
Nagoya Bay	149 meters	23 meters	7.6 meters	24.9 feet

slope areas and would need to remain within the official boundaries of the channel.

The Commonwealth has conducted research into newer international vessels that are likely to be utilized to implement current and future offshore renewable energy projects at the Terminal. These vessels are capable of transporting renewable energy components and share a similar length and beam with the design vessel, but the vessels have a deeper draft than the design vessel. The following is a list of these vessels:

\*\* As noted on [www.marinetraffic.com](http://www.marinetraffic.com), or otherwise included within **Attachment A**.

Please note that some of the vessels listed above are operated by the same shipping company as the design vessel (all BBC vessels), which further indicates their likelihood to be utilized to transport offshore renewable components to the Terminal. Other vessels, such as the Big Lift category of vessels, have been utilized for offshore wind component transfer for other international installations and therefore may also be utilized in the future.

As can be seen from the chart above, the vessels range in beam from 20.4 meters (66.9 feet) to 23 meters (75.46 feet), which are both very similar to the beam of the design vessel; however, the drafts range from 7.6 meters (24.9 feet) to 9.5 meters (31.2 feet), which are all deeper than the draft of the design vessel of 7.2 meters (23.6 feet). It is the depth of these vessels that is driving the Commonwealth's request for the increased channel width.

The Commonwealth’s request to increase the channel width to 225 feet (from the existing approved 175 feet) is based on the following information:

- The USACE Coastal Engineering Manual (EM-1110-2-110 (Part V)), dated August 1, 2008, Table V-5-10, recommends a design width of an interior channel (trench-type), with low currents, expressed as a multiplier of the design ship beam at 2.75 (as noted in the table below – noted as “trench” type channel).

EM 1110-2-1100 (Part V)  
1 Aug 08 (Change 2)

Table V-5-10 One-Way Ship Traffic Channel Width Design Criteria <sup>1</sup>			
Channel Cross Section	Maximum Current		
	0.0 to 0.3 m/sec (0.0 to 0.5 knots)	0.3 to 0.8 m/sec (0.5 to 1.5 knots)	0.8 to 1.5 m/sec (1.5 to 3.0 knots)
Constant Cross Section, Best Aids to Navigation			
Shallow	3.0	4.0	5.0
Canal	2.5	3.0	3.5
Trench	2.75	3.25	4.0
Variable Cross Section, Average Aids to Navigation			
Shallow	3.5	4.5	5.5
Canal	3.0	3.5	4.0
Trench	3.5	4.0	5.0

<sup>1</sup> Criteria expressed as multipliers of the design ship beam; i.e.,  $W = (\text{factor from table}) \times B$

- Based on this criteria, the beam to channel width ratio for the vessels listed above would range from 2.3 (175/75.46) to 2.6 (175/66.9), all of which would be below the USACE criteria.

The Commonwealth must consider the full range of vessels that are anticipated to transit the channel. The anticipated use of these deeper-draft vessels requires the widening of the channel to be able to safely transit the vessels, in accordance with USACE guidelines. An extra 50 feet in width (to 225 feet) would extend the vessel beam to channel width ratio to above 2.75 for even the deepest draft of these vessels.

Although the terminal will be constructed within New Bedford Harbor, which is significantly protected from major sea currents, the full range of weather and sea conditions will also affect the ability of vessels to maneuver within the Harbor. In particular, windy conditions will require additional channel width in order to safely control vessels. Weather conditions can vary dramatically and can have a significant effect on how a vessel handles.

While we fully appreciate the benefits of minimizing the environmental impact of the construction of the proposed channel, we ask for the EPA to also consider operational issues such as the safety, security, and the potential environmental impacts if, in a worst case scenario, an accident were to occur. We believe the consideration of navigational safety receive equal, if not higher, consideration by the EPA when evaluating the Commonwealth's request for a wider channel. In light of the foregoing, the Commonwealth believes that it is crucial to the success of the project to increase the width of the channel by 50 feet. Therefore, the Commonwealth requests that EPA increase the width of the proposed channel, as it believes that the added width is very important for vessel transit and navigational safety.

### **Commonwealth Commitment to Fund the Increased Channel Width**

The Commonwealth is committed to funding and constructing the proposed expansion. The expansion of the channel is not specifically listed as an Optional Bid Item or a Base Bid Item within the plans and specifications promulgated by the Commonwealth dated December 5, 2012. However, upon EPA approval, the Commonwealth is prepared to issue a no-cost change order to the Awarded Contractor for the New Bedford Marine Commerce Terminal for the channel expansion. The expansion of the channel will not result in a significant change to the Commonwealth's unit costs due to the authority granted the Commonwealth via Article 2.07 of the General Conditions, which stipulates that no adjustment in the Contract Unit Prices will be made unless the quantities vary from those estimated in the Bid Form by greater or less than 25 percent. The expansion will result in changes to the estimated quantities of Base Bid Item Nos. 5 and 12 and Optional Bid Item No. 1; however, these changes will not be greater than 25% of the estimated value listed within the Bid Form.

The Commonwealth has already committed to increased mitigation to compensate for the impacts associated with a wider channel. Additionally, the expansion of the channel will result in the removal of additional sediment impacted by PCBs that would not otherwise be addressed by EPA.

The Commonwealth has carefully considered the benefit in providing the funding for the proposed expansion of the width of the channel and has determined that it is an important and sound investment. Expansion of the channel width for the new terminal will help to allow the New Bedford Marine Commerce Terminal to be as advanced and flexible as possible for the offshore wind industry.