INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

October 30, 2012

Billy Moore
Texas Border Coalition
327 Congress Ave., Suite 450
Austin, Texas 78701

Dear Mr. Moore:

I am in receipt of your Memorandum, dated September 21, 2012, addressed to the Washington, D.C. liaison for the U.S. Section of the International Boundary and Water Commission (USIBWC), Mr. Russell Frisbie. In that communication, you raised a number of concerns and/or questions regarding the impact of three (3) prospective border fence projects proposed by the U.S. Department of Homeland Security (DHS) in the Lower Rio Grande Valley of Texas. Specifically, the issues you raised concern the letter of no objection that USIBWC issued last February to DHS for the erection of approximately 6.93 miles of security fence planned within the limits of the Rio Grande floodplain in Roma, Texas (Segment O-1, 1.81 miles), Rio Grande City, Texas (Segment O-2, 3.43 miles), and Los Ebanos, Texas (Segment O-3, 1.69 miles). I am pleased to respond below to the seven (7) direct questions posed at the end of your Memorandum (I have repeated those questions in italics for ease of reference).

1. *Is there scientific evidence to justify the assumption that a bollard fence erected parallel to the river clogged with flow debris will at most block 10 percent of flow; where it is perpendicular, debris will block 25 percent of the flow?*

   Response:
   We believe that the debris blockages considered in the models are reasonable for the proposed fence segments. It is likely that while at some areas of the structures there may be relatively larger accumulations of debris, at others only a short distance away there would be no debris build-up at all. The percentage blockages adopted for the analysis were for the entire length of the proposed fence segments and are, therefore, averages that we view as reasonable. There are of course some portions of fence Segments O-2 and O-3 that appear aligned perpendicular to the predominant flow of the river, and these are described below.

   In the proposed fence Segment O-2, there is a portion of the fence running approximately north to south that appears to be aligned across the floodplain and may block more debris. However, hydraulic modeling results indicate that water depths of between seven (7) feet and thirteen (13) feet west of this fence portion with flow velocities below one (1) feet per second (fps) would occur under the design flood. Also, the upstream area to the west of this segment has agricultural fields for a long distance.

Based on these considerations of large flow depths, slowly moving water, as well as vegetated upstream areas, the 25% debris blockage is reasonable.

For the proposed fence Segment O-3, the town of Los Ebanos is located within the Rio Grande floodplain. There is a portion of the O-3 fence segment that is aligned north to south and is east of the town of Los Ebanos and may block more debris. Hydraulic modeling results indicate water depths west of Los Ebanos of up to twelve (12) feet. These decrease to between zero (0) foot and two (feet) within the town due to higher ground elevations. Flow velocities in the town vary between zero (0) and one (1) fps. Therefore, the town itself acts as a physical barrier to the flow from west to east. As a result, debris inflow from west to east is blocked by the topographic high of the town in the existing and proposed conditions. The debris that flows east from the town to the north to south segment of the fence is largely generated within the town itself. This debris should be a smaller amount due to the smaller area of the town and the transport efficiency to the east is greatly reduced by the low flow depths and velocities. Also, some of this debris is blocked by the buildings within the town itself. Based on these considerations, the 25% debris blockage is reasonable.

I would note that USIBWC has also stipulated that DHS keep the proposed fence segments, and the approaches to them, free of debris.

2. *Is there a detailed description of the design changes CBP made between the previous structures and the one approved by the USIBWC, as referred to Commissioner Drusina?*

Response:
First and foremost, the USIBWC did <u>not</u> issue an approval letter, but rather a letter of no objection to the proposed DHS fence project. The change to which I believe you refer was in the adoption of a more detailed two-dimensional FLO-2D modeling approach to the analysis of the impact of the proposed fence segments, and which forms the basis of our technical view of their potential impact. This approach is more appropriate for evaluating the hydraulic impacts of the proposed fence segments than the earlier methodologies employed.

3. *Have there been any surface surveys that would describe access and impacts to their property?*

Response:
No, the USIBWC did not perform such surveys, nor is it required to do so. The hydraulic impacts in the urban or developed grid cells analyzed focused on the extent to which

increased water surface elevations would result from the proposed fence segments, which in all cases was demonstrated to be less than three (3) inches.

4. *Will access to the riverbank be available to the operator of the Rio Grande City international bridge to carry out ongoing erosion control efforts?*
   Response:
   Yes, such access will be coordinated by USIBWC and various stakeholders with DHS, at the design stage.

5. *Will structures crossing the washes that flow into the Rio Grande become blocked with debris, preventing normal drainage and causing flooding?*

   Response:
   This will be addressed by DHS at the design stage. At each wash crossing, the hydraulic impacts will be evaluated by the DHS consultant as part of the drainage analysis using the 100-year discharges from the upstream contributing watershed. Where hydraulic impacts exceed the threshold criteria of water surface elevation increase due to the proposed fence, the DHS contractor will install gates to mitigate these impacts. These gates will be operated and maintained by DHS.

6. *Has the IBWC conducted any analysis forecasting changes in the Rio Grande's center point as a result of changing water flows caused by bollards and debris in a flood similar to Hurricane Alex 2010?*

   Response:
   No. The DHS analysis shows that the incremental impacts of water surface elevation increases and deflections over the existing condition due to the proposed fence segments are within the threshold limits. The design storm used for this analysis was based on Hurricane Beulah.

7. *Has the IBWC conducted any analysis forecasting the loss of crops, livestock or people as a result of floods similar to the 2010 event?*

   Response:
   The USIBWC did not perform such an analysis, nor is it required to do so. There is no question that large floods can cause severe inundation and damage all along a river and its floodplains. What the DHS analysis shows is that the incremental impacts of water surface elevation increases and deflections due to the proposed fence segments are not significant and within threshold limits.

The USIBWC prepares flood inundation maps and coordinates with other agencies in emergency procedures to protect the public in a flooding situation.

I hope that the above explanations have responded to your concerns. If you have any further questions, please contact me at (915) 832-4749 or via email John.Merino@ibwc.gov.

Sincerely,

(b) (6) [redacted]

John L. Merino, P.E.
Principal Engineer

(b) (2) [redacted]