

**HYDRO-SCIENCES  
RIVER/OCEAN MODELING & FORENSICS  
WETLAND PERMITS  
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27 August, 2001

Mr. John Lopez  
President  
North Shore Beach Association  
387 Carr Drive  
Slidell, La., 70458

**RE:**No. CGD 8-14-01

Mr. Josh B. Jones, Application for Bridge Permit  
Faciane's Canal near Slidell, St. Tammany Parish, La.

Dear Mr. Lopez:

This is a letter report on my findings during and subsequent to a site visit I made on Thursday, 22 August, reference as above. In review of the Public Notice on the subject, the Coast Guard narrative suggests that only 0.05 acre of wetlands would be affected by this project. This is grossly misstated based on my observation. On page 3 of 3 of Mr. Jones' drawing, he clearly states that 0.75 acre of wetlands will be affected by the bridge approaches. To commit such an oversight suggests that the Coast Guard has not inspected the site.

Another point must be addressed at the outset. The Coast Guard does not address navigability with respect to the location of the proposed bridge opening and the thalweg of the Faciane Canal. Both pages 2 of 3 and 3 of 3 of the application show the bridge opening to be offset 45 feet from the thalweg of the canal where the navigability is known to all those who use the canal on a regular basis. In addition, page 3 of 3 shows the average depth as 10 feet at mean water level. This is not the case in my opinion based upon soundings I observed on 22 August. A 1979 hydrographic survey of the entire island area conducted by LandMark Surveyors suggests that the average depth is only 4.5 feet with a controlling depth at the center of the canal at 9.5 feet. The problem with navigability I see here is that the center of the proposed bridge is offset from the thalweg some 45 feet where the average depth is less than 4.5 feet at mean tide level. None of Mr. Jones' drawings show how he proposes to increase the depth through the bridge opening from 4.5 feet to 10 feet, nor do any drawings suggest how to transition navigation from the natural thalweg of the canal to the bridge opening. In this regard, Mr. Jones' application for a permit is grossly incomplete in my opinion. I have been involved in the permit review process for some 35 years, and have prepared and submitted permits to the Corps of Engineers for my clients since my retirement from the Corps of Engineers in 1993, and have a good understanding of what constitutes a good permit application.

I have several additional concerns in regard to navigability that I want to mention here. One is that the bridge opening is too narrow from a safety perspective for the class of sailboat likely to attempt to use this canal under normal as well as adverse weather. The second is that due to sediment transport into the mouth of Faciane Canal, any attempt to reroute navigation will become an expensive liability to Mr. Jones and the Waterfront Developers LLC.

The Corps of Engineers, in the interest of developing safe and dependable marine transportation on our Nation's navigable waterways, many of which were man-made, has conducted research to develop minimum safe widths for navigation structures, such as bridges, that boats must transit under on-board power; i.e., without towboat assistance. These minimum widths are approximate, but are in the range of 135% of the beam of the design vessel plus 70% either side for bank clearance or passing vessel interaction. Therefore, this bridge should be (135% + 140%) times the most likely beam width of a design boat. A 35-foot sailboat with a 12-foot beam would require a minimum width of 33 feet to navigate Mr. Jones' bridge, without any consideration to crab-angle due to cross-wind, a following current, or a transition from the natural thalweg to the bridge and back to the thalweg. As I pointed out above, Mr. Jones makes no allowances for a transition channel on his drawings to account for this problem.

In my site visit, I noted that the Faciane Canal debouches at the shoreline of Lake Pontchartrain where two phenomena occur on a regular basis due to meteorologic and hydrographic conditions at this location. Northwesterly winds produce waves that are able to propagate into the mouth of Faciane Canal and cause two physiological problems that nature and man have learned to cope with. I noted that the northwest end of the island is heavily armored with high concrete blocks that slope up the island shore. These blocks have been placed there to ward off erosion caused by the wave climate. It is obvious that these concrete blocks are quite heavy and were placed there sometime ago because they have worked themselves into the sand.

I also noted that the sand comes into the mouth of Faciane Canal on a regular basis and splits into two components of shoal material. One component moves into the private canal to the northwest side of the private island and the other moves into the public Faciane Canal due to the reflected wave energy produced by the large concrete block erosion protection. The shoal material that moves into the private canal limits navigable depths to 2 to 3 feet near the point and reduces the width as well. This, in turn, forces most of the freshwater runoff to follow the Faciane Canal. Likewise, the shoal material that is deflected into the Faciane Canal tends to narrow the navigable width there by building on the island side of the channel. With this setting at the site, I have two concerns that must be accounted for in some manner. The first concern is this: How will depths and navigability; i.e., the transition from the thalweg into the bridge opening be maintained with this shoaling material a constant presence? The second concern is related to the shoaling problem. In my experience as a hydraulic engineer with the U.S. Army Corps of Engineers, I found that any time water velocities exceed 3 feet per second through a restricted navigation gate, boat safety in a following current becomes jeopardized and the Government becomes fully liable if the Government has built it on an existing navigable waterway. There are more than 2000 acres of uplands and marsh that produce freshwater runoff to the Faciane Canal. Due to the shoaling tendency in the private canal around the island, freshwater runoff, coupled with an ebbing lunar

tide, can produce water currents to a magnitude of 4.5 to 5 feet per second and consequently place boats navigating through Mr. Jones' bridge in jeopardy on a frequent basis in my opinion.

In summary, the Coast Guard has not adequately considered boating safety in the evaluation of Mr. Jones' application for an offset 20-foot bridge opening on a public waterway. It is clear that the concerns I have presented here would require major redesign of the bridge and approaches to enhance the public's safety and limit the Coast Guard's liability.

Sincerely,

Cecil W. Soileau, P.E., P.L.S.

References:

- 1) U.S. Army Corps of Engineers Committee on Tidal Hydraulics Research, Report No. 3, "Evaluation of Present State of Knowledge of Factors Affecting Tidal Hydraulics and Related Phenomena," May 1965.
- 2) U.S. Army Corps of Engineers Committee on Tidal Hydraulics Technical Bulletin No. 17, Estuarine Navigation Projects, Jan. 1971, and various updated reports.