

## New Aerial Photos



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# THE pelican REPORT



## Spring 2009: News & Updates on the John James Audubon Bridge

### Audubon Bridge Moves Forward



Work on the John James Audubon Bridge project continues on schedule to be complete in late 2010.

This part of the job is hard to see for the public, but it is a massive undertaking and a critical component of the Bridge. From these bases, the Bridge will have a secure and sturdy anchor for the towers.

The towers are scheduled to begin rising from the Mississippi by this summer, giving the public their first opportunity to see the outline of a bridge.

The entire project, which includes 12 miles of approach roadways and a 2.44-mile main span, has seen substantial progress in the past few months.

Aside from the main span, many of the other smaller bridges associated with the project are nearing completion. Of the seven bridges, one is complete and most have bridge decks. In addition, paving is scheduled this month to begin from US 61 and move westward to the beginning of the main span.

One of the most significant and distinctive elements of the John James Audubon Bridge is the cofferboxes which are used to build the foundations for the towers. A cofferbox is an enclosure below the water surface constructed to allow workers to place reinforcing bars and concrete. Cofferdboxes have been built and lowered on both the St. Francisville and New Roads sides of the river. Concrete placements are scheduled for May.

This is an exciting time for the project, because so many of the segments and individual elements are now coming together.

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## Meet the Bridge Builders



**Name:** Dave Vannah

**Originally from:** North Nobleboro, Maine

**Title:** Superintendant for the West Tower

**Responsibilities:** I coordinate and supervise crew operations. I ensure that my crew works safely and efficiently. I also help develop the work plans for the execution of the work.

**An important part of my job:** Getting everyone to work together as a team. We are all public servants. The general public doesn't realize what we have accomplished until we are finished and gone.

**Favorite sports teams:** New England Patriots, Boston Celtics, and Boston Red Sox

**How long in Louisiana:** 1.5 years

**Favorite hobby:** I enjoy riding four-wheelers through the swamps of Louisiana.

**Favorite Louisiana food:** I like boiled crawfish or anything my neighbor cooks.

## Bridge Model Goes Through Series of Wind Engineering Studies



The John James Audubon Bridge went through a variety of wind engineering studies to assess how the Bridge would respond to wind. The tests were conducted by Rowan Williams Davies & Irwin, Inc.

The studies began with an analysis of the local wind climate to determine the wind conditions at the project site. The wind climate study used wind records collected from Baton Rouge Metropolitan Airport and the Big Cajun II Power Plant as well as a computer simulation of hurricanes. The result was a detailed wind climate model that was used to predict wind

speeds affecting various aspects of the bridge design, from evaluating the comfort of bridge users under common wind conditions, to the integrity of the structure during hurricanes.

Wind tunnel tests were then performed on a section of the model bridge deck to assess the deck's stability. As a result of this study, components called edge fairings were added to the bridge design to help additionally stabilize the section over a wide range of wind speeds.

The sectional model tests also helped evaluate the Bridge's responses at various stages of construction, as well as after completion. These analyses were used to develop wind loading patterns for the design of the various structural elements on the Bridge.

For the final step, an aeroelastic model test of the completed bridge was conducted to supplement predictions. An aeroelastic model provides a physical simulation of the geometry, mass and flexibility of the various elements of the full-scale bridge (e.g., deck, towers, cables, bents) and is the most comprehensive tool for quantifying a bridge's response to wind. Aeroelastic model tests were also carried out at various construction stages. Typically, cable-stayed bridges are considered most vulnerable when under construction. Temporary bents anchored to the banks of each side of the river also help secure the Bridge during construction.

The final study focused on an assessment of the wind-induced vibrations of the stay cables. Many bridges have experienced undesirable vibrations of bridge cables after completion which required modifications that were both costly and inconvenient. This assessment helped to identify the likelihood of these problems so that they could be considered into the design.

