The selection of the Maumee River Crossing’s cable-stayed design was one of the key decisions in which local citizens participated. The 20 cable stays running from the bridge deck through the center pylon are what give the bridge its defining, sail-like appearance. They also are the support structure for the concrete bridge deck over the river.

The stay cable system for the Maumee River Crossing is literally revolutionizing cable-stayed bridges. Each cable is comprised of a bundle of smaller epoxy-coated steel strands ranging from 82 to 156 strands – the largest ever constructed. As each cable passes through the “stay cradle” in the pylon, its individual strands will be isolated in their own protective sleeves. This innovation will prevent corrosion and prolong the life of the bridge.

Also for the first time in the United States, each stay cable will be housed inside a stainless steel sheathing for supreme durability and enhanced finished appearance.

**Stay Cable Fast Facts**

- **Number of Cables:** 20
- **Engineering Firsts:**
  - First use of stainless steel stay cable cradle system, eliminating stay anchors in the pylon
  - 156-strand cable is the largest ever for a cable-stayed bridge
  - First use of stainless steel sheathing for stays in the United States
- **Manufacturers:**
  - Cable strands are manufactured in Jacksonville, Florida
  - Stay cradles and bridge deck anchorages were manufactured in Cleveland, Ohio
  - Sheathing was manufactured in Clifton, New Jersey, and polished in Springfield, Missouri
- **Testing:**
  - A record-setting test was completed for a cradle, strands and anchors for a 156-strand stay cable. The complete system was load tested for 2,000,000 cycles. The test took about one month to complete (running 24 hours a day, 7 days a week) with no damage to any of the components
  - Three cable specimens (82, 119 and 156 strands) were tested for axial fatigue over 2,000,000 cycles

**SAY CHEESE**

The fittings that separate the strands of a stay cable (in the stays) are known as cheese plates.
Each stay cable is comprised of a bundle of smaller epoxy-coated steel strands. The center pylon of the new Maumee River Crossing will be one of the first bridges of its kind to feature an innovative "stay cradle". The stay cradle is designed to separate each of the strands in a protective tube as it passes through the pylon (top photo at right). Preventing the strands from rubbing together in the cradle eliminates wear and corrosion and prolongs the life of the bridge.

Within each cradle are seven specially designed fittings called "cheese plates" to align the tubes for grouting in place. In the bottom photo, a cheese plate is being positioned at the end of a cradle assembly during one of its endurance tests.

HOW BIG ARE THE STAY CABLES?

This background diagram shows the actual size of a portion of a 20"-diameter cheese plate that’s used to separate the individual strands of a cable as it passes through the pylon.

Stay Cables

[REVOLUTIONARY THINKING]

For additional background materials on the Maumee River Crossing, call the project Hot line at 419-244-7696 or visit our Web site at www.lookuptoledo.org for the latest project updates.

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