

P&L Railroad Bridge Relocation

Tennessee River, Kentucky

Owner: USACE, Nashville District

Description: The P&L Railroad bridge relocation allows for construction of a new longer lock at Kentucky Lock and Dam at the site of the existing bridge. The new lock and bridge will make river navigation in the future easier for barges.

INCA Engineers, Inc., A Tetra Tech Company (INCA) provided design and construction services for the bridge relocation. INCA's work consisted of providing foundation design for a 3,500-foot long, 15-span bridge structure spanning the Tennessee River. INCA's services on this project included:

- ▶ Feature design memorandum
- ▶ Construction plans and specifications
- ▶ Construction phase relocation services
- ▶ Project management
- ▶ Railroad engineering

This work included the design of 11 piers, each of which included 4 drilled shafts, a 34-foot diameter shaft cap, a 10-foot diameter column, and a column cap. Drilled shaft lengths ranged from 75 to 105 feet, and are embedded in bedrock with rock socket depths varying from 25 to 42 feet. Pier heights (above the shafts) range from 72 to 82 feet.

The design was coordinated with a host of stakeholders, including the district, Tennessee Valley Authority, Kentucky Transportation Cabinet, the P&L Railway, and various consultants.

Special Features:

- ▶ Soil-structure interaction
- ▶ In-the-wet construction
- ▶ Large diameter drilled shafts
- ▶ Drilled shaft to 105-feet long
- ▶ Rock embedments to 42-feet
- ▶ Drilled shaft design

