

floor beams that support the concrete deck. While the design is believed to have the advantage of permitting the floor to expand and contract, it makes widening the roadway virtually impossible.

This rainbow arch, a type of reinforced concrete through arch, is the only one of its type in Florida. Similar bridges, including the Luten-designed Liberty Street Bridge in Jefferson County, Ohio and the Big Soldier Creek Bridge in Shawnee County, Kansas are among the few surviving examples of this type nationwide.<sup>112</sup> As a bridge form, the rainbow arch, also known as the Marsh arch, primarily owed its design and promotion, as well as its construction in various states of the Midwest, to engineer and bridge builder James Marsh of Iowa. Although the Luten Bridge Company seems to have constructed a number of rainbow arch bridges in southeastern states, including Virginia and West Virginia, the use of this design by Luten was surprising given that Luten and Marsh were great rivals in bridge building, as well as personal foes. They battled long and hard in the courts about patent rights on concrete designs and quarreled about proper conduct by professional men.

The Moss Rainbow Arch retains its historic physical integrity, and was determined NRHP-eligible during the 2000 survey. It is considered eligible under Criterion C in the area of Engineering as the only example of a through arch in Florida and for its association with the Luten Bridge Company, and under Criterion C in the area of Architecture for the aesthetics of its design.

**Luten “Half-Arch” Bridge**

Pinellas County  
FDOT #159901, 8PI8749

A unique and historically important bridge stands on a private drive over Ike’s Creek (now Golf Course Creek) in Belleair. Built in 1915 by the Luten Bridge Company, it once controlled the entranceway to the 600-room Belleview Hotel – a vast, luxurious resort developed by railroad magnate Henry B. Plant. The complex later became the Belleview Biltmore Casino, regarded by many as the grandest resort on Florida’s Gulf Coast.



**Photo 5-20. Luten “Half-Arch” Bridge, Pinellas County  
(No. 159901)**

In what was then an experimental project, pioneer designer and builder of reinforced concrete bridges Daniel B. Luten constructed the bridge with a 46-foot main span and two half-spans of 23 feet each. While the half-arches appear to be cantilevered, Luten made them as true arches, meaning they are supported by abutments. He claimed to have achieved stability, greater efficiency in the use of materials, as well, as a more pleasing appearance in crossing the ravine at Belleview. It is not known if he built any others like this in the nation. No others are believed to have been built in Florida.

Keeping with Luten’s desire for an artistic appearance, the structure possessed a classical balustrade and decorative lampposts at each corner of the entrances. Later, perhaps at the time a new bridge was built

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<sup>112</sup> “Historic Bridges of the U.S.” Accessed at: [www.bridgehunter.com](http://www.bridgehunter.com).

immediately adjacent to it, the original railings were removed and replaced with a modern type. Dense undergrowth obscures the structure.

Because of its cultural and technical worth, the structure rates as a principal historic bridge in Florida. It is a demonstration of the unique and experimental half-arch construction undertaken by an important Florida bridge builder. The highly visible role assigned the bridge at the entrance to the Belleview Hotel gives it additional importance. Despite the removal of the original railing and the construction of the new adjacent bridge, the significant substructure remains undisturbed. The Luten Half-Arch Bridge was determined NRHP-eligible during the 2000 survey under Criteria A and C in the areas of Community Planning and Development and Engineering and Architecture, respectively.

### **Frame Bridges**

#### **Atlanta and St. Andrews Bay Railway Frame Bridge**

Jackson County  
FDOT #530003, 8JA1849

This 1940 rigid frame bridge carries the present-day Bay Line Railroad corridor over US-90/SR-10 in Cottondale, Jackson County. It was constructed by the Atlanta and St. Andrews Bay Railway. The bridge features a single 52-foot reinforced concrete slab span cast in place with its two abutments and wingwalls. A slotted railing, typical of the era, flanks the railroad deck. A Masonry Vernacular style control house is located on the northwest side of the bridge.



**Photo 5-21. Atlanta and St. Andrews Bay Railway Frame Bridge, Jackson County (No. 530003)**

Completed in 1908, the Atlanta and St. Andrews Bay Railway ran between Panama City and Dothan, Alabama. It provided connections to the Louisville and Nashville, Central of Georgia, and Atlantic Coast Line railroads. The line was renamed the Bay Line Railroad in 1994.

This bridge is newly recommended as NRHP-eligible. It is significant for its role in railroad transportation history, and thus, meets NRHP Criterion A in the area of Transportation. As one of the oldest remaining early examples of this bridge type, and one of only two rigid frame bridges in Florida, it also is significant under Criterion C in the area of Engineering as a rare example of its type.