FAST FACTS:

Rigified FRP

**PROJECT LOCATION:** Bradley, ME

**PROJECT NAME:** Jenkins Bridge

**BRIDGE MATERIAL DESIGN OPTION:** Rigified FRP

**UNIQUE FEATURE:** Approximately 30 strain gages were installed on three arches. The bridge also employed a composite headwall design with steel columns and waler.

**PROJECT DESCRIPTION:** The Jenkins Bridge spans the Great Works Stream in Bradley and is located on Cram Street, a local road. Project design included an innovative composite headwall design that allowed the voided composite headwall to be installed rapidly and provided a corrosion-resistant means of soil retention.
**Purpose and Need:**
Existing twin steel structural pipe arches for this bridge were constructed in 1970 by the town of Bradley. Extensive deterioration and damage to the pipes led to a recommendation to replace the structure.

**Contract Amount:**
N/A

**Engineer’s Estimate:**
$1,150,000

**Bid Amount:**
$814,919

**Final Contract Value:**
$941,500 including direct purchase of FRP arches by MaineDOT

**Traditional Approach:**
Replace the existing structure with two concrete box culverts.

**New Approach:**
Use Rigified FRP arches on concrete footings on steel H-piles. Employ a composite headwall system with T-walls on all four corners.

**Bridge Details:**
- Span: 38'-6"
- Rise: 6'
- Width: 34'
- Skew: 19 degrees
- Arch: 12 carbon filter tubes, 12" in diam., spaced @ 2'-11"
- Headwall: composite panels with through ties

**Benefits Realized/Expected:**
The first year in service an ice floe completely dammed up this bridge opening. However, the bridge withstood the extreme hydraulic forces with no negative results. Though this had been a concern with FRP technology, the bridge withstood the forces with no observed damage and handled the ice and water flow in a manner similar to conventional bridge structures.

**Duration of Activity:**
2010

**Owner:**
MaineDOT

**Team/Affiliations:**
MaineDOT; University of Maine AEWC Advanced Structures and Composites Center; Advanced Infrastructure Technologies; Kleinfelder ● SEA; Wyman & Simpson, Inc.

**Contacts:**
- Dale Peabody
  Research Engineer
  MaineDOT
  207-624-3305
dale.peabody@maine.gov

- Nate Benoit
  Project Manager
  Urban & Federal Bridge Program
  MaineDOT
  207-215-1590
nathaniel.benoit@maine.gov

- Brit Svoboda
  President/CEO, Advanced Infrastructure Technologies
  20 Godfrey Drive
  Orono, ME 04473
  207-866-6526
  www.aitbridges.com

- Jonathan Kenerson
  Structural Bridge Engineer
  Advanced Infrastructure Technologies
  207-866-6526
  jon@aitbridges.com