



## FAST FACTS:

### Rigified FRP

**PROJECT LOCATION:**

Ellsworth, ME

**PROJECT NAME:**

Greys Brook Bridge

**BRIDGE MATERIAL DESIGN OPTION:**

Rigified FRP

**UNIQUE FEATURE:**

Environmental concerns included preserving the natural streambed and minimizing the length of the structure.

**PROJECT DESCRIPTION:**

Greys Brook Bridge, located on Route 180, is composed of a single 40' span with 14' rise FRP arch, 50' long, on H piles driven to bedrock.

**PURPOSE AND NEED:**

A drainage structure was needed over Greys Brook, for a highway re-location on Route 180. Greys Brook is a meandering stream with banks from six to ten feet in width. Multiple site constraints included the amount of fill required for the project due to steep elevation changes. Poor soil conditions limited the foundation options. Concerns about environmental impacts and wetland mitigation were additional constraints.

**CONTRACT AMOUNT:**

N/A

**ENGINEER’S ESTIMATE:**

\$300,000 for composite arch superstructure only

**BID AMOUNT:**

\$225,000

**FINAL CONTRACT VALUE:**

Under construction, final value unknown

**WHAT WAS UNIQUE ABOUT THIS PROJECT?**

In addition to using the Rigified FRP design option to address environmental sensitivities about disturbing the stream bed and minimizing the length of the structure, a new technique has been employed: the system is constructed with an FRP fascia plate attached to exterior arches, which serves as a stay-in-place form for the variable depth concrete leveling slab on headwalls.

**TRADITIONAL APPROACH:**

Use precast concrete voided slabs.

**NEW APPROACH:**

Use an FRP arch to preserve the natural stream bed as much as possible without requiring in-stream work. Minimize wetland impacts through the shorter length of the FRP arch.

**BRIDGE DETAILS:**

Span: 40’  
Rise: 14’  
Width: 32’  
Skew: 25 degrees  
Arch: 11 composite arches, 12” in diam., spaced @ 5’-6 3/16”  
Headwall: cast-in-place concrete

**BENEFITS REALIZED/EXPECTED:**

Faster construction; non corroding materials; less impact to wetlands due to shorter span; preserved natural stream bed

**DURATION OF ACTIVITY:**

Currently under construction

**OWNER:**

MaineDOT

**TEAM/AFFILIATIONS:**

MaineDOT; Advanced Infrastructure Technologies; Sargent Corporation

**CONTACTS:**

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

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

