

ABOVE-GROUND FIBER OPTIC CABLE INSTALLATION: A COST-EFFECTIVE ALTERNATIVE TO BORING

A large telecommunications provider in Minot, North Dakota embarked on a project to upgrade its digital infrastructure. As the largest telecommunications cooperative in the state, this organization provides Internet service to rural customers, urban residents, and local businesses.

With a desire to offer the latest technology and fastest Internet connections, the network upgrade will provide fiber optic cable to customers in the region. Upgrades like this can be challenging, lasting several years and involving complex installations that have the potential to disrupt traffic and pedestrian patterns.

Challenge

Fiber optic infrastructure is typically buried. A buried installation requires the telecommunications provider to dig trenches for the electrical conduit to hold and protect their fast, and somewhat delicate, fiber optic cable.

Cable crossing over the Souris River posed a challenge. Boring underneath a river to bury underground electrical conduit is a time-consuming and expensive process. An above-ground installation – running the cable through raceways underneath or along the side of the bridge – could work, but introduced another obstacle, that of finding the right electrical conduit system for the job.

Solution

At the time of the project, PVC was experiencing product delays and rising prices due to a shortage. Galvanized rigid steel and PVC-coated steel have weight considerations that make installation on a bridge challenging.

Lucky for the large telecommunications provider, a savvy project collaborator suggested the use of fiberglass electrical conduit for this job. Fiberglass conduit (RTRC) checked many project demands such as:

- Low coefficient of friction to enable smooth pulls that protect delicate fiber optic cable
- Excellent corrosion resistance that protects from frequent roadway salt distributions in the winter
- A wide temperature range of -60°F to +250°F to provide protection in warm summer months as well as very cold winter months
- Mechanical strength for significant durability in the event of floating debris in a flood scenario
- Lightweight conduit reduces bridge deadload while eliminating conduit system sag commonly associated with PVC in overhead installations
- A smooth, seamless above-ground installation that was less complex than boring under the river

Results

The most important benefit in using a fiberglass conduit system as a solution was that it spared the telecommunications provider the expensive and time-consuming process of boring underneath the Souris River. The mechanical and technical properties of fiberglass conduit as a strong, durable raceway made an easier, more cost-effective, above-ground, outdoor bridge installation a reality. Finally, the strong, durable nature of the fiberglass conduit will protect the new fiber optic cable network for years to come, enabling speedy connections for work, school and entertainment.



QUICK FACTS

PROJECT NAME

North Dakota Bridge/fiber optic

APPLICATION

Transportation / Bridge

CHAMPION FIBERGLASS PRODUCT(S)

[Champion Duct®](#)

- > Above-ground installation saved millions in installed costs
- > Fiberglass conduit raceways provide cold-weather and hot weather protection, as well as corrosion resistance to protect fiber optic cables
- > Installation completed on time