

Illinois Bridge Replacement Project

Protects High Quality Stream



caption

Daylight showed through the flanges of a 58-year-old bridge located in northeast Illinois over the Kishwaukee River, proof of much needed replacement. An intricate operation was conducted to replace the bridge while preserving the high quality stream and the endangered Iowa Darter fish.

The deterioration of the bridge led to a one-way traffic restriction and a tempo-

rary traffic signal to avoid a major load restriction, pinching an important east-west route through the county. For McHenry County Engineer, Joseph Korpalski, replacement of the bridge couldn't wait.

Background

McHenry County is 25 miles square and has 17 townships. 2010 Census data

shows that while the population growth has slowed, McHenry still experienced an 18.7 percent growth in population in the last decade, and is now home to more than 308,000 people. With continued increase in residents, there is need for road expansion and improvement projects.

The county has an abundance of rivers and streams. There are 140 bridges in the county, all over waterways. Most of



caption

these bridges are 40 to 60 years old, nearing the end of their lives. None of the existing bridges can be rehabbed because they are all precast box beam bridges. They are geometrically obsolete, too narrow for vehicular traffic and the old dimensions constrain waterways and don't conform to more recent waterway regulations.

"We're planning on replacing four to six bridges this year," says Mark Dammyer, construction manager for McHenry County DOT. "We are looking to replace about 16 bridges in the next five to 10 years. We have a lot of bridges in the design phase and we are working on the funding process."

Kishwaukee River Bridge Replacement

The McHenry County, Illinois, Division of Transportation hired Illinois Constructors Corporation in February 2010, after financing the design work in full to save time applying for federal funds. Ultimately, the project was funded largely by federal funds.

The existing bridge was a two-span continuous steel beam and reinforced concrete deck bridge, 26 feet wide with an 80-foot span. It was replaced with a 40-foot wide, two-span prestressed concrete bridge with 36-inch I-beams and a poured-in-place, eight-inch reinforced concrete deck with standard parapet walls on integral abutments for a 122-foot,

10-inch span.

A 200-ton hydraulic crane was used to erect 14 precast bridge beams weighing between 22,000 and 26,000 pounds each.

The Kishwaukee River Bridge replacement was an exercise in erosion and sediment control. Contractors had to preserve the excellent quality of the stream, protecting it from contaminants and avoiding disruption of the channel so as to maintain the water quality and environment before, during and after the spawning season of the Iowa Darter. The Army Corps of Engineers prohibited work within the waterway during spawning season, between April 27 and July 25 of that year, so the project was scheduled to be under-

taken during winter months. The construction began in February, when the waterway experienced low flow conditions, with an anticipated targeted completion date of early June.

“Half our business is projects adjacent to lakes and streams,” said Jim Carson of Illinois Constructors Corporation, the project manager. “This job was well planned. McHenry County allowed us to start in the colder months, to avoid spawning season, and it also let us avoid rain and snow melt that would’ve made the job more difficult.”

The project was wildly successful, as the in-stream work was completed and the beams were set on March 26, well before the cut-off date.



caption

The presence of the Iowa Darter wasn’t the only natural occurrence to factor into this project. The McHenry DOT and Illinois Constructors had to take into consideration the strawberry harvest sea-

son on an adjacent piece of property - as a very short picking season starts in mid-June. A pre-construction meeting was held with the property owners upon which they agreed to have the bridge open to traffic around the time of the harvest. The intent was to have no disruption to the operation and the farmers could get their product to market.

The road was closed in February, demolition quickly undertaken and

Illinois Constructors then proceeded with substructure construction and waterway excavation. All the work in the waterway was done using turbidity curtains to sepa-

Original BSRF



Fiberglass Scrim
Posts placed at 4' Centers
Roll Size - 36" x 48'
Meets 75% Efficiency Requirement of Federal Hwy. Administration

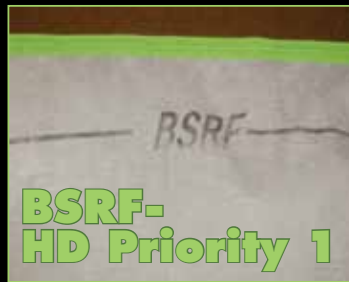
Silt Fence



Priority 2

No Scrim
BLACK BANDING for linear support
Posts placed at 6' Centers
Roll Size - 36" x 100'

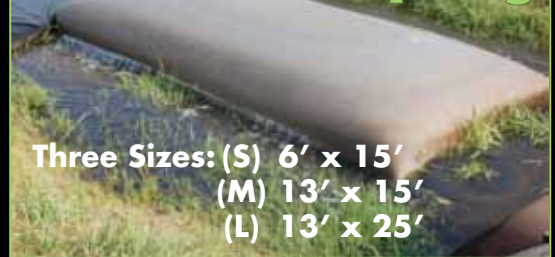
www.siltsaver.com



BSRF- HD Priority 1

The BSRF taken a step further!
GREEN BANDING
Provides greater linear support
Fiberglass Scrim
Posts placed at 4' Centers
Roll Size - 36" x 48'

Dewatering Pump Bag



Three Sizes: (S) 6' x 15'
(M) 13' x 15'
(L) 13' x 25'

High Volume ~ High Flow

- Medium & Large Bags Designed for 4" - 6" pump hoses
- Custom designed neck with D-Ring tie strap to provide secure hose attachment
- Superior Performance
- Quicker Pump-Outs



1094 Culpepper Dr.
Conyers, Georgia 30094
Office: 770-388-7818
Toll-Free: 1-888-382-7458
Fax: 770-388-7640

www.siltsaver.com

rate the work areas from the stream flow. The turbidity curtains rise with the water level to keep work areas isolated. There was a major storm event and a Spring snow thaw, which meant a halt in construction. Equipment had to be hauled out of the flood plain for a few days while they waited for the water to subside. Water from work areas was continually pumped into silt bags located in grassy areas away from the stream and then the silt was disposed of.

The embankments were all lined with an erosion control fence. Twice a day, the turbidity curtains and erosion control protection panels were checked to make sure everything was in working order and that no debris or silt was escaping into the stream.

To further prevent erosion and degradation of the waterway, the deck was removed from the old bridge but the abutments were cut off to grade and left there.

Before the project was started, all the parties gathered to consider any new technologies that might be employed. In this case, one such innovation used on this project was the building of full length parapet walls with no drains or runoff directly into the stream. To protect the stream from roadway pollutants, the

bridge deck drains into inlets at the four corners, then is piped about 100 feet away from the stream, discharged into a grass ditch for natural filtering before the runoff enters the stream.

“This is the first time I’ve seen that

technology used,” said Pablo Faillaci, resident engineer for McHenry County DOT.

According to Carson, they also installed a temporary cofferdam in the river to protect the waterway from the center pier construction. The purpose of the cofferdam is to lower water levels within work limits. Water levels are lowered with pumps, discharging water into the silt bags.

A couple of approaches were used to stabilize the slopes along the roadside after construction. Permanent topsoil was put down and seeded with 1/10 acre IDOT Class 4A seed, 1/10 Acre IDOT Class 4B seed and covered with an excelsior straw blanket, quickly producing sprouts of long grass. Riprap was used along the riverbed to control water surges.

This project was built to specifications and within budget, the cost just over \$1 million, and with critical time constraints. The roadway and bridge were opened to traffic on June 10, 2010, two days ahead of the scheduled completion date.

The Illinois Road and Transportation Builders Association selected Illinois Constructors Corporation and this project from hundreds of nominees for one of

Before the project was started, all the parties gathered to consider any new technologies that might be employed. In this case, one such innovation used on this project was the building of full length parapet walls with no drains or runoff directly into the stream.

Land Management Solutions

CONSULTING

Star Seed has certified wildlife biologists qualified to provide you with the best land management plans, including upland game, deer, turkey and waterfowl, whole farm management plans, conservation stewardship plans and pond and wetland management plans.

ESTABLISHMENT

Star Seed offers the following services: native prairie planting, chemical application, and aquatic vegetation analysis and management.

CONSERVATION

Our hand-on-control of seed production, conditioning and marketing delivers a quality seed that earns the Star Brand. Our regional production of grass seed assures a consistent inventory of warm and cool season grasses that feature a wide area of adaptation.



Osborne, Kansas
800-782-7311
 Visit us on the web at www.gostarseed.com
 or e-mail us at info@gostarseed.com

SILTDAM TURBIDITY BARRIERS



FLOATING SILT CONTAINMENT BOOMS

- Manufactured to your specifications
- Meets or exceeds most state requirements
- 6, 8, or 12" diameter flotation
- 22 oz high visibility PVC flotation cover
- Permeable or Impermeable varieties
- Skirt depths from 3 ft to 60 ft

1-800-699-2374

BROCKTON EQUIPMENT / SPILLDAM, INC.



“Environmental Protection Systems”
 P.O. Box 960 Brockton, MA 02303
 Fax 508-583-5231
www.spilldam.com info@spilldam.com



McHenry County DOT were able to do a top notch job.”

This project involved the McHenry County DOT, the Army Corps of Engineers, and has been inspected by the McHenry County Soil and Water Conservation District and the McHenry County Department of Planning and Development. **L&W**

by Beth Tatro



Project Location:
Latitude: 42.3130
Longitude: -88.5530

Beth Tatro is director of external programs for the Illinois Road and Transportation Builders Association. The IRTBA was formed in 1938 to promote the transportation needs of the state and is now the largest statewide organization of companies designing, building and maintaining the state highways, transit systems, railways and aviation systems.

caption

their annual Contractor of the Year awards. Every year IRTBA selects projects that represent the best in the transportation design and construction industry. These awards highlight innovation, sustainability, economy and the environment. “This is the kind of project that the

Illinois Road and Transportation Builders Association holds up as a model,” said Michael J. Sturino, president and CEO of IRTBA. “Despite the challenges and the extreme conditions, projects rarely begin in February, in the water, the Illinois Constructors Corporation and the



**Enhanced Erosion Control -
Tackmat_x and Tackmat_s**



The Tackmat Series combines Rolled Erosion Control Products with soil stabilizing additives to increase performance and economy.

**Keeping soil stable, keeping seeds in place and keeping clean water clean. Tackmat.
Learn more at www.westernexcelsior.com**

